

# Omicron BA.1

|                                                        |  | Section 1 |                                                                           |     |     |     |     |     |     |     |  |
|--------------------------------------------------------|--|-----------|---------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|--|
|                                                        |  | (1)       | 1                                                                         | 10  | 20  | 30  | 40  | 50  | 60  | 72  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (1)       | ATTAAAGGTTTATACCTTCCCAGGTAACAAACCAACCAACTTTTCGATCTCTTGTAGATCTGTTCTCTAAACG |     |     |     |     |     |     |     |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (1)       | -----AGATCTGTTCTCTAAACG                                                   |     |     |     |     |     |     |     |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  |  | (1)       | -----TACCTTCCCAGGTAACAAACCAACCAACTTTTCGATCTCTTGTAGATCTGTTCTCTAAACG        |     |     |     |     |     |     |     |  |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   |  | (1)       | -----TTGTAGATCTGTTCTCTAAACG                                               |     |     |     |     |     |     |     |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... |  | (1)       | -----CAACTTTTCGATCTCTTGTAGATCTGTTCTCTAAACG                                |     |     |     |     |     |     |     |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (1)       | -----                                                                     |     |     |     |     |     |     |     |  |
|                                                        |  | Section 2 |                                                                           |     |     |     |     |     |     |     |  |
|                                                        |  | (73)      | 73                                                                        | 80  | 90  | 100 | 110 | 120 | 130 | 144 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (73)      | AACTTTAAATCTGTGTGGCTGTCACTCGGCTGCATGCTTAGTGCACGAGTATAATTAATAACTAAT        |     |     |     |     |     |     |     |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (19)      | AACTTTAAATCTGTGTGGCTGTCACTCGGCTGCATGCTTAGTGCACGAGTATAATTAATAACTAAT        |     |     |     |     |     |     |     |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  |  | (61)      | AACTTTAAATCTGTGTGGCTGTCACTCGGCTGCATGCTTAGTGCACGAGTATAATTAATAACTAAT        |     |     |     |     |     |     |     |  |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   |  | (23)      | AACTTTAAATCTGTGTGGCTGTCACTCGGCTGCATGCTTAGTGCACGAGTATAATTAATAACTAAT        |     |     |     |     |     |     |     |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... |  | (37)      | AACTTTAAATCTGTGTGGCTGTCACTCGGCTGCATGCTTAGTGCACGAGTATAATTAATAACTAAT        |     |     |     |     |     |     |     |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (1)       | AACTTTAAATCTGTGTGGCTGTCACTCGGCTGCATGCTTAGTGCACGAGTATAATTAATAACTAAT        |     |     |     |     |     |     |     |  |
|                                                        |  | Section 3 |                                                                           |     |     |     |     |     |     |     |  |
|                                                        |  | (145)     | 145                                                                       | 150 | 160 | 170 | 180 | 190 | 200 | 216 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (145)     | TACTGTCGTTGACAGGACACGAGTAACCTCGTCTATCTTCTGCAGGCTGCTTACGGTTTCGTCCGTGTTGCAG |     |     |     |     |     |     |     |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (91)      | TACTGTCGTTGACAGGACACGAGTAACCTCGTCTATCTTCTGCAGGCTGCTTACGGTTTCGTCCGTGTTGCAG |     |     |     |     |     |     |     |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  |  | (133)     | TACTGTCGTTGACAGGACACGAGTAACCTCGTCTATCTTCTGCAGGCTGCTTACGGTTTCGTCCGTGTTGCAG |     |     |     |     |     |     |     |  |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   |  | (95)      | TACTGTCGTTGACAGGACACGAGTAACCTCGTCTATCTTCTGCAGGCTGCTTACGGTTTCGTCCGTGTTGCAG |     |     |     |     |     |     |     |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... |  | (109)     | TACTGTCGTTGACAGGACACGAGTAACCTCGTCTATCTTCTGCAGGCTGCTTACGGTTTCGTCCGTGTTGCAG |     |     |     |     |     |     |     |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (73)      | TACTGTCGTTGACAGGACACGAGTAACCTCGTCTATCTTCTGCAGGCTGCTTACGGTTTCGTCCGTGTTGCAG |     |     |     |     |     |     |     |  |
|                                                        |  | Section 4 |                                                                           |     |     |     |     |     |     |     |  |
|                                                        |  | (217)     | 217                                                                       | 230 | 240 | 250 | 260 | 270 | 288 |     |  |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (217)     | CCGATCATCAGCACATCTAGGTTTGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTCCCTGGTTT   |     |     |     |     |     |     |     |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (163)     | CCGATCATCAGCACATCTAGGTTTGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTCCCTGGTTT   |     |     |     |     |     |     |     |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  |  | (205)     | CCGATCATCAGCACATCTAGGTTTGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTCCCTGGTTT   |     |     |     |     |     |     |     |  |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   |  | (167)     | CCGATCATCAGCACATCTAGGTTTGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTCCCTGGTTT   |     |     |     |     |     |     |     |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... |  | (181)     | CCGATCATCAGCACATCTAGGTTTGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTCCCTGGTTT   |     |     |     |     |     |     |     |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (145)     | CCGATCATCAGCACATCTAGGTTTGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTCCCTGGTTT   |     |     |     |     |     |     |     |  |

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|                                                        |       | Section 5                                                                   |     |     |     |     |     |     |     |  |  |
|                                                        | (289) | 289                                                                         | 300 | 310 | 320 | 330 | 340 | 350 | 360 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (289) | CAACGAGAAAAACACACGTCCAACCTCAGTTTGCTGTTTTACAGGTTTCGCGACGTGCTCGTACGTGGCTTTTGG |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (235) | CAACGAGAAAAACACACGTCCAACCTCAGTTTGCTGTTTTACAGGTTTCGCGACGTGCTCGTACGTGGCTTTTGG |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (277) | CAACGAGAAAAACACACGTCCAACCTCAGTTTGCTGTTTTACAGGTTTCGCGACGTGCTCGTACGTGGCTTTTGG |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (239) | CAACGAGAAAAACACACGTCCAACCTCAGTTTGCTGTTTTACAGGTTTCGCGACGTGCTCGTACGTGGCTTTTGG |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... | (253) | CAACGAGAAAAACACACGTCCAACCTCAGTTTGCTGTTTTACAGGTTTCGCGACGTGCTCGTACGTGGCTTTTGG |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (217) | CAACGAGAAAAACACACGTCCAACCTCAGTTTGCTGTTTTACAGGTTTCGCGACGTGCTCGTACGTGGCTTTTGG |     |     |     |     |     |     |     |  |  |
|                                                        |       | Section 6                                                                   |     |     |     |     |     |     |     |  |  |
|                                                        | (361) | 361                                                                         | 370 | 380 | 390 | 400 | 410 | 420 | 432 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (361) | AGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGGCTTAGTAGAAGT    |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (307) | AGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGGCTTAGTAGAAGT    |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (349) | AGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGGCTTAGTAGAAGT    |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (311) | AGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGGCTTAGTAGAAGT    |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (325) | AGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGGCTTAGTAGAAGT    |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (289) | AGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGGCTTAGTAGAAGT    |     |     |     |     |     |     |     |  |  |
|                                                        |       | Section 7                                                                   |     |     |     |     |     |     |     |  |  |
|                                                        | (433) | 433                                                                         | 440 | 450 | 460 | 470 | 480 | 490 | 504 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (433) | TGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTTCATCAAACGTTTCGGATGCTCGAAGTGCACC  |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (379) | TGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTTCATCAAACGTTTCGGATGCTCGAAGTGCACC  |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (421) | TGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTTCATCAAACGTTTCGGATGCTCGAAGTGCACC  |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PI_YM-332B917/2022_FPI_ISI_9062229 ... | (383) | TGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTTCATCAAACGTTTCGGATGCTCGAAGTGCACC  |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (397) | TGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTTCATCAAACGTTTCGGATGCTCGAAGTGCACC  |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (361) | TGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTTCATCAAACGTTTCGGATGCTCGAAGTGCACC  |     |     |     |     |     |     |     |  |  |
|                                                        |       | Section 8                                                                   |     |     |     |     |     |     |     |  |  |
|                                                        | (505) | 505                                                                         | 510 | 520 | 530 | 540 | 550 | 560 | 576 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (505) | TCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTTCAGTACGGTCGTAGTGGTGAGACACT   |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (451) | TCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTTCAGTACGGTCGTAGTGGTGAGACACT   |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (493) | TCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTTCAGTACGGTCGTAGTGGTGAGACACT   |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (455) | TCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTTCAGTACGGTCGTAGTGGTGAGACACT   |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (469) | TCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTTCAGTACGGTCGTAGTGGTGAGACACT   |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (433) | TCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTTCAGTACGGTCGTAGTGGTGAGACACT   |     |     |     |     |     |     |     |  |  |

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|                                                        |       | Section 9                                                                 |     |     |     |     |     |     |     |  |  |
|                                                        | (577) | 577                                                                       | 590 | 600 | 610 | 620 | 630 | 648 |     |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (577) | TGGTGTCTCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCTTCTTCGTAAGAACGGTAA |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (523) | TGGTGTCTCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCTTCTTCGTAAGAACGGTAA |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (565) | TGGTGTCTCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCTTCTTCGTAAGAACGGTAA |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (527) | TGGTGTCTCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCTTCTTCGTAAGAACGGTAA |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... | (541) | TGGTGTCTCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCTTCTTCGTAAGAACGGTAA |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (505) | TGGTGTCTCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCTTCTTCGTAAGAACGGTAA |     |     |     |     |     |     |     |  |  |
|                                                        |       | Section 10                                                                |     |     |     |     |     |     |     |  |  |
|                                                        | (649) | 649                                                                       | 660 | 670 | 680 | 690 | 700 | 710 | 720 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (649) | TAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTAGGCGACGAGCTTGGCACTGA  |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (595) | TAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTAGGCGACGAGCTTGGCACTGA  |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (637) | TAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTAGGCGACGAGCTTGGCACTGA  |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (599) | TAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTAGGCGACGAGCTTGGCACTGA  |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (613) | TAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTAGGCGACGAGCTTGGCACTGA  |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (577) | TAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTAGGCGACGAGCTTGGCACTGA  |     |     |     |     |     |     |     |  |  |
|                                                        |       | Section 11                                                                |     |     |     |     |     |     |     |  |  |
|                                                        | (721) | 721                                                                       | 730 | 740 | 750 | 760 | 770 | 780 | 792 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (721) | TCCTTATGAAGATTTTCAAGAAAAC TGGAACACTAAACATAGCAGTGGTGTTACCCGTGAACTCATGCGTGA |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (667) | TCCTTATGAAGATTTTCAAGAAAAC TGGAACACTAAACATAGCAGTGGTGTTACCCGTGAACTCATGCGTGA |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (709) | TCCTTATGAAGATTTTCAAGAAAAC TGGAACACTAAACATAGCAGTGGTGTTACCCGTGAACTCATGCGTGA |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PI_YM-332B917/2022_FPI_ISI_9062229 ... | (671) | TCCTTATGAAGATTTTCAAGAAAAC TGGAACACTAAACATAGCAGTGGTGTTACCCGTGAACTCATGCGTGA |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (685) | TCCTTATGAAGATTTTCAAGAAAAC TGGAACACTAAACATAGCAGTGGTGTTACCCGTGAACTCATGCGTGA |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (649) | TCCTTATGAAGATTTTCAAGAAAAC TGGAACACTAAACATAGCAGTGGTGTTACCCGTGAACTCATGCGTGA |     |     |     |     |     |     |     |  |  |
|                                                        |       | Section 12                                                                |     |     |     |     |     |     |     |  |  |
|                                                        | (793) | 793                                                                       | 800 | 810 | 820 | 830 | 840 | 850 | 864 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (793) | GCTTAACGGAGGGGCATACACTCGCTATGTCGATAACAACCTTCTGTGGCCCTGATGGCTACCCTCTTGAGTG |     |     |     |     |     |     |     |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (739) | GCTTAACGGAGGGGCATACACTCGCTATGTCGATAACAACCTTCTGTGGCCCTGATGGCTACCCTCTTGAGTG |     |     |     |     |     |     |     |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (781) | GCTTAACGGAGGGGCATACACTCGCTATGTCGATAACAACCTTCTGTGGCCCTGATGGCTACCCTCTTGAGTG |     |     |     |     |     |     |     |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (743) | GCTTAACGGAGGGGCATACACTCGCTATGTCGATAACAACCTTCTGTGGCCCTGATGGCTACCCTCTTGAGTG |     |     |     |     |     |     |     |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (757) | GCTTAACGGAGGGGCATACACTCGCTATGTCGATAACAACCTTCTGTGGCCCTGATGGCTACCCTCTTGAGTG |     |     |     |     |     |     |     |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (721) | GCTTAACGGAGGGGCATACACTCGCTATGTCGATAACAACCTTCTGTGGCCCTGATGGCTACCCTCTTGAGTG |     |     |     |     |     |     |     |  |  |

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|                                                        |        | Section 13                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (865)  | 865                                                                        | 870  | 880  | 890  | 900  | 910  | 920  | 936  |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (865)  | CATTAAAGACCTTCTAGCACGTGCTGGTAAAGCTTCATGCACCTTTGTCCGAACAACCTGGACTTTATTGACAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (811)  | CATTAAAGACCTTCTAGCACGTGCTGGTAAAGCTTCATGCACCTTTGTCCGAACAACCTGGACTTTATTGACAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (853)  | CATTAAAGACCTTCTAGCACGTGCTGGTAAAGCTTCATGCACCTTTGTCCGAACAACCTGGACTTTATTGACAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (815)  | CATTAAAGACCTTCTAGCACGTGCTGGTAAAGCTTCATGCACCTTTGTCCGAACAACCTGGACTTTATTGACAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... | (829)  | CATTAAAGACCTTCTAGCACGTGCTGGTAAAGCTTCATGCACCTTTGTCCGAACAACCTGGACTTTATTGACAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (793)  | CATTAAAGACCTTCTAGCACGTGCTGGTAAAGCTTCATGCACCTTTGTCCGAACAACCTGGACTTTATTGACAC |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 14                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (937)  | 937                                                                        | 950  | 960  | 970  | 980  | 990  | 1008 |      |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (937)  | TAAGAGGGGTGTATACTGCTGCGTGAACATGAGCATGAAATTGCTTGGTACACGGAACGTTCTGAAAAGAG    |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (883)  | TAAGAGGGGTGTATACTGCTGCGTGAACATGAGCATGAAATTGCTTGGTACACGGAACGTTCTGAAAAGAG    |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (925)  | TAAGAGGGGTGTATACTGCTGCGTGAACATGAGCATGAAATTGCTTGGTACACGGAACGTTCTGAAAAGAG    |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (887)  | TAAGAGGGGTGTATACTGCTGCTGCGTGAACATGAGCATGAAATTGCTTGGTACACGGAACGTTCTGAAAAGAG |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (901)  | TAAGAGGGGTGTATACTGCTGCGTGAACATGAGCATGAAATTGCTTGGTACACGGAACGTTCTGAAAAGAG    |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (865)  | TAAGAGGGGTGTATACTGCTGCGTGAACATGAGCATGAAATTGCTTGGTACACGGAACGTTCTGAAAAGAG    |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 15                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (1009) | 1009                                                                       | 1020 | 1030 | 1040 | 1050 | 1060 | 1070 | 1080 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1009) | CTATGAATTGCAGACACCTTTTGAAATTAAATTGGCAAAGAAATTTGACACCTTCAATGGGGAATGTCCAAA   |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (955)  | CTATGAATTGCAGACACCTTTTGAAATTAAATTGGCAAAGAAATTTGACACCTTCAATGGGGAATGTCCAAA   |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (997)  | CTATGAATTGCAGACACCTTTTGAAATTAAATTGGCAAAGAAATTTGACACCTTCAATGGGGAATGTCCAAA   |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_FPI_ISI_9062229 ...  | (959)  | CTATGAATTGCAGACACCTTTTGAAATTAAATTGGCAAAGAAATTTGACACCTTCAATGGGGAATGTCCAAA   |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (973)  | CTATGAATTGCAGACACCTTTTGAAATTAAATTGGCAAAGAAATTTGACACCTTCAATGGGGAATGTCCAAA   |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (937)  | CTATGAATTGCAGACACCTTTTGAAATTAAATTGGCAAAGAAATTTGACACCTTCAATGGGGAATGTCCAAA   |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 16                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (1081) | 1081                                                                       | 1090 | 1100 | 1110 | 1120 | 1130 | 1140 | 1152 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1081) | TTTTGTATTTCCCTTAAATTCATAATCAAGACTATTCAACCAAGGGTTGAAAAGAAAAAGCTTGATGGCTT    |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1027) | TTTTGTATTTCCCTTAAATTCATAATCAAGACTATTCAACCAAGGGTTGAAAAGAAAAAGCTTGATGGCTT    |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1069) | TTTTGTATTTCCCTTAAATTCATAATCAAGACTATTCAACCAAGGGTTGAAAAGAAAAAGCTTGATGGCTT    |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1031) | TTTTGTATTTCCCTTAAATTCATAATCAAGACTATTCAACCAAGGGTTGAAAAGAAAAAGCTTGATGGCTT    |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1045) | TTTTGTATTTCCCTTAAATTCATAATCAAGACTATTCAACCAAGGGTTGAAAAGAAAAAGCTTGATGGCTT    |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1009) | TTTTGTATTTCCCTTAAATTCATAATCAAGACTATTCAACCAAGGGTTGAAAAGAAAAAGCTTGATGGCTT    |      |      |      |      |      |      |      |  |  |

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|                                                        |        |                                                                           |      |      |      |      |      |      |      |  |
|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|--|
|                                                        |        | Section 17                                                                |      |      |      |      |      |      |      |  |
|                                                        | (1153) | 1153                                                                      | 1160 | 1170 | 1180 | 1190 | 1200 | 1210 | 1224 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1153) | TATGGGTAGAATTTCGATCTGTCTATCCAGTTGCGTCACCAAATGAATGCAACCAAATGTGCCTTTCAACTCT |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1099) | TATGGGTAGAATTTCGATCTGTCTATCCAGTTGCGTCACCAAATGAATGCAACCAAATGTGCCTTTCAACTCT |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1141) | TATGGGTAGAATTTCGATCTGTCTATCCAGTTGCGTCACCAAATGAATGCAACCAAATGTGCCTTTCAACTCT |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1103) | TATGGGTAGAATTTCGATCTGTCTATCCAGTTGCGTCACCAAATGAATGCAACCAAATGTGCCTTTCAACTCT |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... | (1117) | TATGGGTAGAATTTCGATCTGTCTATCCAGTTGCGTCACCAAATGAATGCAACCAAATGTGCCTTTCAACTCT |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1081) | TATGGGTAGAATTTCGATCTGTCTATCCAGTTGCGTCACCAAATGAATGCAACCAAATGTGCCTTTCAACTCT |      |      |      |      |      |      |      |  |
|                                                        |        | Section 18                                                                |      |      |      |      |      |      |      |  |
|                                                        | (1225) | 1225                                                                      | 1230 | 1240 | 1250 | 1260 | 1270 | 1280 | 1296 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1225) | CATGAAGTGTGATCATTGTGGTGAAACTTCATGGCAGACGGGCGATTTTGTAAAGCCACTTGCGAATTTTG   |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1171) | CATGAAGTGTGATCATTGTGGTGAAACTTCATGGCAGACGGGCGATTTTGTAAAGCCACTTGCGAATTTTG   |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1213) | CATGAAGTGTGATCATTGTGGTGAAACTTCATGGCAGACGGGCGATTTTGTAAAGCCACTTGCGAATTTTG   |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1175) | CATGAAGTGTGATCATTGTGGTGAAACTTCATGGCAGACGGGCGATTTTGTAAAGCCACTTGCGAATTTTG   |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1189) | CATGAAGTGTGATCATTGTGGTGAAACTTCATGGCAGACGGGCGATTTTGTAAAGCCACTTGCGAATTTTG   |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1153) | CATGAAGTGTGATCATTGTGGTGAAACTTCATGGCAGACGGGCGATTTTGTAAAGCCACTTGCGAATTTTG   |      |      |      |      |      |      |      |  |
|                                                        |        | Section 19                                                                |      |      |      |      |      |      |      |  |
|                                                        | (1297) | 1297                                                                      | 1310 | 1320 | 1330 | 1340 | 1350 | 1368 |      |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1297) | TGGCACTGAGAATTTGACTAAAGAAGGTGCCACTACTTGTGGTTACTTACCCCAAAATGCTGTTGTTAAAAAT |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (1243) | TGGCACTGAGAATTTGACTAAAGAAGGTGCCACTACTTGTGGTTACTTACCCCAAAATGCTGTTGTTAAAAAT |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (1285) | TGGCACTGAGAATTTGACTAAAGAAGGTGCCACTACTTGTGGTTACTTACCCCAAAATGCTGTTGTTAAAAAT |      |      |      |      |      |      |      |  |
| hCoV-19/England/PI_YM-332B917/2022_FPI_ISI_9062229 ... | (1247) | TGGCACTGAGAATTTGACTAAAGAAGGTGCCACTACTTGTGGTTACTTACCCCAAAATGCTGTTGTTAAAAAT |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1261) | TGGCACTGAGAATTTGACTAAAGAAGGTGCCACTACTTGTGGTTACTTACCCCAAAATGCTGTTGTTAAAAAT |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1225) | TGGCACTGAGAATTTGACTAAAGAAGGTGCCACTACTTGTGGTTACTTACCCCAAAATGCTGTTGTTAAAAAT |      |      |      |      |      |      |      |  |
|                                                        |        | Section 20                                                                |      |      |      |      |      |      |      |  |
|                                                        | (1369) | 1369                                                                      | 1380 | 1390 | 1400 | 1410 | 1420 | 1430 | 1440 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1369) | TTATTGTCCAGCATGTCACAATTCAGAAGTAGGACCTGAGCATAGTCTTGCCGAATACCATAATGAATCTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1315) | TTATTGTCCAGCATGTCACAATTCAGAAGTAGGACCTGAGCATAGTCTTGCCGAATACCATAATGAATCTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1357) | TTATTGTCCAGCATGTCACAATTCAGAAGTAGGACCTGAGCATAGTCTTGCCGAATACCATAATGAATCTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1319) | TTATTGTCCAGCATGTCACAATTCAGAAGTAGGACCTGAGCATAGTCTTGCCGAATACCATAATGAATCTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1333) | TTATTGTCCAGCATGTCACAATTCAGAAGTAGGACCTGAGCATAGTCTTGCCGAATACCATAATGAATCTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1297) | TTATTGTCCAGCATGTCACAATTCAGAAGTAGGACCTGAGCATAGTCTTGCCGAATACCATAATGAATCTGG  |      |      |      |      |      |      |      |  |

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|                                                        |        | Section 21 |                                                                           |      |      |      |      |      |      |      |  |
|--------------------------------------------------------|--------|------------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|--|
|                                                        |        | (1441)     | 1441                                                                      | 1450 | 1460 | 1470 | 1480 | 1490 | 1500 | 1512 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1441) |            | CTTGAAAACCATTCCTTCGTAAGGGTGGTCGCACTATTGCCTTTGGAGGCTGTGTGTTCTCTTATGTTGGTTG |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1387) |            | CTTGAAAACCATTCCTTCGTAAGGGTGGTCGCACTATTGCCTTTGGAGGCTGTGTGTTCTCTTATGTTGGTTG |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1429) |            | CTTGAAAACCATTCCTTCGTAAGGGTGGTCGCACTATTGCCTTTGGAGGCTGTGTGTTCTCTTATGTTGGTTG |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1391) |            | CTTGAAAACCATTCCTTCGTAAGGGTGGTCGCACTATTGCCTTTGGAGGCTGTGTGTTCTCTTATGTTGGTTG |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1405) |            | CTTGAAAACCATTCCTTCGTAAGGGTGGTCGCACTATTGCCTTTGGAGGCTGTGTGTTCTCTTATGTTGGTTG |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1369) |            | CTTGAAAACCATTCCTTCGTAAGGGTGGTCGCACTATTGCCTTTGGAGGCTGTGTGTTCTCTTATGTTGGTTG |      |      |      |      |      |      |      |  |
|                                                        |        | Section 22 |                                                                           |      |      |      |      |      |      |      |  |
|                                                        |        | (1513)     | 1513                                                                      | 1520 | 1530 | 1540 | 1550 | 1560 | 1570 | 1584 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1513) |            | CCATAACAAGTGTGCCTATTGGGTTCCACGTGCTAGCGCTAACATAGGTTGTAACCATACAGGTGTTGTTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1459) |            | CCATAACAAGTGTGCCTATTGGGTTCCACGTGCTAGCGCTAACATAGGTTGTAACCATACAGGTGTTGTTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1501) |            | CCATAACAAGTGTGCCTATTGGGTTCCACGTGCTAGCGCTAACATAGGTTGTAACCATACAGGTGTTGTTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1463) |            | CCATAACAAGTGTGCCTATTGGGTTCCACGTGCTAGCGCTAACATAGGTTGTAACCATACAGGTGTTGTTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1477) |            | CCATAACAAGTGTGCCTATTGGGTTCCACGTGCTAGCGCTAACATAGGTTGTAACCATACAGGTGTTGTTGG  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1441) |            | CCATAACAAGTGTGCCTATTGGGTTCCACGTGCTAGCGCTAACATAGGTTGTAACCATACAGGTGTTGTTGG  |      |      |      |      |      |      |      |  |
|                                                        |        | Section 23 |                                                                           |      |      |      |      |      |      |      |  |
|                                                        |        | (1585)     | 1585                                                                      | 1590 | 1600 | 1610 | 1620 | 1630 | 1640 | 1656 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1585) |            | AGAAGGTTCCGAAGGTCTTAATGACAACCTTCTTGAAATACTCCAAAAAGAGAAAGTCAACATCAATATTGT  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1531) |            | AGAAGGTTCCGAAGGTCTTAATGACAACCTTCTTGAAATACTCCAAAAAGAGAAAGTCAACATCAATATTGT  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1573) |            | AGAAGGTTCCGAAGGTCTTAATGACAACCTTCTTGAAATACTCCAAAAAGAGAAAGTCAACATCAATATTGT  |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1535) |            | AGAAGGTTCCGAAGGTCTTAATGACAACCTTCTTGAAATACTCCAAAAAGAGAAAGTCAACATCAATATTGT  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1549) |            | AGAAGGTTCCGAAGGTCTTAATGACAACCTTCTTGAAATACTCCAAAAAGAGAAAGTCAACATCAATATTGT  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1513) |            | AGAAGGTTCCGAAGGTCTTAATGACAACCTTCTTGAAATACTCCAAAAAGAGAAAGTCAACATCAATATTGT  |      |      |      |      |      |      |      |  |
|                                                        |        | Section 24 |                                                                           |      |      |      |      |      |      |      |  |
|                                                        |        | (1657)     | 1657                                                                      | 1670 | 1680 | 1690 | 1700 | 1710 | 1728 |      |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1657) |            | TGGTGACTTTAACTTAATGAAGAGATCGCCATTATTTTGGCATCTTTTCTGCTTCCACAAGTGCTTTTGT    |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1603) |            | TGGTGACTTTAACTTAATGAAGAGATCGCCATTATTTTGGCATCTTTTCTGCTTCCACAAGTGCTTTTGT    |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1645) |            | TGGTGACTTTAACTTAATGAAGAGATCGCCATTATTTTGGCATCTTTTCTGCTTCCACAAGTGCTTTTGT    |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (1607) |            | TGGTGACTTTAACTTAATGAAGAGATCGCCATTATTTTGGCATCTTTTCTGCTTCCACAAGTGCTTTTGT    |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1621) |            | TGGTGACTTTAACTTAATGAAGAGATCGCCATTATTTTGGCATCTTTTCTGCTTCCACAAGTGCTTTTGT    |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1585) |            | TGGTGACTTTAACTTAATGAAGAGATCGCCATTATTTTGGCATCTTTTCTGCTTCCACAAGTGCTTTTGT    |      |      |      |      |      |      |      |  |

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|                                                        |        |                                                                          |      |      |      |      |      |      |      | Section 25 |
|--------------------------------------------------------|--------|--------------------------------------------------------------------------|------|------|------|------|------|------|------|------------|
|                                                        | (1729) | 1729                                                                     | 1740 | 1750 | 1760 | 1770 | 1780 | 1790 | 1800 |            |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1729) | GGAAACTGTGAAAGGTTTGGATTATAAAGCATTCAAACAAATTGTTGAATCCTGTGGTAATTTTAAAGTTAC |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1675) | GGAAACTGTGAAAGGTTTGGATTATAAAGCATTCAAACAAATTGTTGAATCCTGTGGTAATTTTAAAGTTAC |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1717) | GGAAACTGTGAAAGGTTTGGATTATAAAGCATTCAAACAAATTGTTGAATCCTGTGGTAATTTTAAAGTTAC |      |      |      |      |      |      |      |            |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (1679) | GGAAACTGTGAAAGGTTTGGATTATAAAGCATTCAAACAAATTGTTGAATCCTGTGGTAATTTTAAAGTTAC |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HF-RKI-I-438397/2022_EPI_ISL_905522... | (1693) | GGAAACTGTGAAAGGTTTGGATTATAAAGCATTCAAACAAATTGTTGAATCCTGTGGTAATTTTAAAGTTAC |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1657) | GGAAACTGTGAAAGGTTTGGATTATAAAGCATTCAAACAAATTGTTGAATCCTGTGGTAATTTTAAAGTTAC |      |      |      |      |      |      |      |            |
|                                                        |        |                                                                          |      |      |      |      |      |      |      | Section 26 |
|                                                        | (1801) | 1801                                                                     | 1810 | 1820 | 1830 | 1840 | 1850 | 1860 | 1872 |            |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1801) | AAAAGGAAAAGCTAAAAAAGGTGCCTGGAATATTGGTGAACAGAAATCAATACTGAGTCCTCTTTATGCATT |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1747) | AAAAGGAAAAGCTAAAAAAGGTGCCTGGAATATTGGTGAACAGAAATCAATACTGAGTCCTCTTTATGCATT |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1789) | AAAAGGAAAAGCTAAAAAAGGTGCCTGGAATATTGGTGAACAGAAATCAATACTGAGTCCTCTTTATGCATT |      |      |      |      |      |      |      |            |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (1751) | AAAAGGAAAAGCTAAAAAAGGTGCCTGGAATATTGGTGAACAGAAATCAATACTGAGTCCTCTTTATGCATT |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1765) | AAAAGGAAAAGCTAAAAAAGGTGCCTGGAATATTGGTGAACAGAAATCAATACTGAGTCCTCTTTATGCATT |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1729) | AAAAGGAAAAGCTAAAAAAGGTGCCTGGAATATTGGTGAACAGAAATCAATACTGAGTCCTCTTTATGCATT |      |      |      |      |      |      |      |            |
|                                                        |        |                                                                          |      |      |      |      |      |      |      | Section 27 |
|                                                        | (1873) | 1873                                                                     | 1880 | 1890 | 1900 | 1910 | 1920 | 1930 | 1944 |            |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1873) | TGCATCAGAGGCTGCTCGTGTGTACGATCAATTTTCTCCCGCACTCTTGAAACTGCTCAAAATTCTGTGCG  |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1819) | TGCATCAGAGGCTGCTCGTGTGTACGATCAATTTTCTCCCGCACTCTTGAAACTGCTCAAAATTCTGTGCG  |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1861) | TGCATCAGAGGCTGCTCGTGTGTACGATCAATTTTCTCCCGCACTCTTGAAACTGCTCAAAATTCTGTGCG  |      |      |      |      |      |      |      |            |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (1823) | TGCATCAGAGGCTGCTCGTGTGTACGATCAATTTTCTCCCGCACTCTTGAAACTGCTCAAAATTCTGTGCG  |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1837) | TGCATCAGAGGCTGCTCGTGTGTACGATCAATTTTCTCCCGCACTCTTGAAACTGCTCAAAATTCTGTGCG  |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1801) | TGCATCAGAGGCTGCTCGTGTGTACGATCAATTTTCTCCCGCACTCTTGAAACTGCTCAAAATTCTGTGCG  |      |      |      |      |      |      |      |            |
|                                                        |        |                                                                          |      |      |      |      |      |      |      | Section 28 |
|                                                        | (1945) | 1945                                                                     | 1950 | 1960 | 1970 | 1980 | 1990 | 2000 | 2016 |            |
| SARS-CoV-2 Reference Genome NC_045512.2                | (1945) | TGTTTTACAGAAGGCCGCTATAACAATACTAGATGGAATTTACAGTATTTCACTGAGACTCATTGATGCTAT |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (1891) | TGTTTTACAGAAGGCCGCTATAACAATACTAGATGGAATTTACAGTATTTCACTGAGACTCATTGATGCTAT |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1933) | TGTTTTACAGAAGGCCGCTATAACAATACTAGATGGAATTTACAGTATTTCACTGAGACTCATTGATGCTAT |      |      |      |      |      |      |      |            |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (1895) | TGTTTTACAGAAGGCCGCTATAACAATACTAGATGGAATTTACAGTATTTCACTGAGACTCATTGATGCTAT |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1909) | TGTTTTACAGAAGGCCGCTATAACAATACTAGATGGAATTTACAGTATTTCACTGAGACTCATTGATGCTAT |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1873) | TGTTTTACAGAAGGCCGCTATAACAATACTAGATGGAATTTACAGTATTTCACTGAGACTCATTGATGCTAT |      |      |      |      |      |      |      |            |

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|                                                        |        |                                                                           |      |      |      |      |      | Section 29 |
|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------------|
|                                                        |        |                                                                           |      |      |      |      |      | 2088       |
| SARS-CoV-2 Reference Genome NC_045512.2                | (2017) | 2017                                                                      | 2030 | 2040 | 2050 | 2060 | 2070 |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (2017) | GATGTTACATCTGATTTGGCTACTAACAATCTAGTTGTAATGGCCTACATTACAGGTGGTGTGTTTCAGTT   |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (1963) | GATGTTACATCTGATTTGGCTACTAACAATCTAGTTGTAATGGCCTACATTACAGGTGGTGTGTTTCAGTT   |      |      |      |      |      |            |
| hCoV-19/Endland/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (2005) | GATGTTACATCTGATTTGGCTACTAACAATCTAGTTGTAATGGCCTACATTACAGGTGGTGTGTTTCAGTT   |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (1967) | GATGTTACATCTGATTTGGCTACTAACAATCTAGTTGTAATGGCCTACATTACAGGTGGTGTGTTTCAGTT   |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (1981) | GATGTTACATCTGATTTGGCTACTAACAATCTAGTTGTAATGGCCTACATTACAGGTGGTGTGTTTCAGTT   |      |      |      |      |      |            |
|                                                        | (1945) | GATGTTACATCTGATTTGGCTACTAACAATCTAGTTGTAATGGCCTACATTACAGGTGGTGTGTTTCAGTT   |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      | Section 30 |
|                                                        |        |                                                                           |      |      |      |      |      | 2160       |
| SARS-CoV-2 Reference Genome NC_045512.2                | (2089) | 2089                                                                      | 2100 | 2110 | 2120 | 2130 | 2140 |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (2089) | GACTTCGCAGTGGCTAACTAACATCTTTGGCACTGTTTATGAAAAACTCAAACCCGTCCTTGATTGGCTTGA  |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (2035) | GACTTCGCAGTGGCTAACTAACATCTTTGGCACTGTTTATGAAAAACTCAAACCCGTCCTTGATTGGCTTGA  |      |      |      |      |      |            |
| hCoV-19/Endland/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (2077) | GACTTCGCAGTGGCTAACTAACATCTTTGGCACTGTTTATGAAAAACTCAAACCCGTCCTTGATTGGCTTGA  |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (2039) | GACTTCGCAGTGGCTAACTAACATCTTTGGCACTGTTTATGAAAAACTCAAACCCGTCCTTGATTGGCTTGA  |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2053) | GACTTCGCAGTGGCTAACTAACATCTTTGGCACTGTTTATGAAAAACTCAAACCCGTCCTTGATTGGCTTGA  |      |      |      |      |      |            |
|                                                        | (2017) | GACTTCGCAGTGGCTAACTAACATCTTTGGCACTGTTTATGAAAAACTCAAACCCGTCCTTGATTGGCTTGA  |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      | Section 31 |
|                                                        |        |                                                                           |      |      |      |      |      | 2232       |
| SARS-CoV-2 Reference Genome NC_045512.2                | (2161) | 2161                                                                      | 2170 | 2180 | 2190 | 2200 | 2210 |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (2161) | AGAGAAGTTTAAAGGAAGGTGTAGAGTTTCTTAGAGACGGTTGGGAAATTGTTAAATTTATCTCAACCTGTGC |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (2107) | AGAGAAGTTTAAAGGAAGGTGTAGAGTTTCTTAGAGACGGTTGGGAAATTGTTAAATTTATCTCAACCTGTGC |      |      |      |      |      |            |
| hCoV-19/Endland/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (2149) | AGAGAAGTTTAAAGGAAGGTGTAGAGTTTCTTAGAGACGGTTGGGAAATTGTTAAATTTATCTCAACCTGTGC |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (2111) | AGAGAAGTTTAAAGGAAGGTGTAGAGTTTCTTAGAGACGGTTGGGAAATTGTTAAATTTATCTCAACCTGTGC |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2125) | AGAGAAGTTTAAAGGAAGGTGTAGAGTTTCTTAGAGACGGTTGGGAAATTGTTAAATTTATCTCAACCTGTGC |      |      |      |      |      |            |
|                                                        | (2089) | AGAGAAGTTTAAAGGAAGGTGTAGAGTTTCTTAGAGACGGTTGGGAAATTGTTAAATTTATCTCAACCTGTGC |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      | Section 32 |
|                                                        |        |                                                                           |      |      |      |      |      | 2304       |
| SARS-CoV-2 Reference Genome NC_045512.2                | (2233) | 2233                                                                      | 2240 | 2250 | 2260 | 2270 | 2280 |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (2233) | TTGTGAAATTGTCGGTGGACAAATTGTCACCTGTGCAAAGGAAATTAAGGAGAGTGTTTCAGACATTCTTTAA |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (2179) | TTGTGAAATTGTCGGTGGACAAATTGTCACCTGTGCAAAGGAAATTAAGGAGAGTGTTTCAGACATTCTTTAA |      |      |      |      |      |            |
| hCoV-19/Endland/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (2221) | TTGTGAAATTGTCGGTGGACAAATTGTCACCTGTGCAAAGGAAATTAAGGAGAGTGTTTCAGACATTCTTTAA |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (2183) | TTGTGAAATTGTCGGTGGACAAATTGTCACCTGTGCAAAGGAAATTAAGGAGAGTGTTTCAGACATTCTTTAA |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2197) | TTGTGAAATTGTCGGTGGACAAATTGTCACCTGTGCAAAGGAAATTAAGGAGAGTGTTTCAGACATTCTTTAA |      |      |      |      |      |            |
|                                                        | (2161) | TTGTGAAATTGTCGGTGGACAAATTGTCACCTGTGCAAAGGAAATTAAGGAGAGTGTTTCAGACATTCTTTAA |      |      |      |      |      |            |

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|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|
|                                                        |        | Section 33                                                                |      |      |      |      |      |      |      |
|                                                        | (2305) | 2305                                                                      | 2310 | 2320 | 2330 | 2340 | 2350 | 2360 | 2376 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (2305) | GCTTGTAATAAATTTTTGGCTTTGTGTGCTGACTCTATCATTATTGGTGGAGCTAAACTTAAAGCCTTGAA   |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (2251) | GCTTGTAATAAATTTTTGGCTTTGTGTGCTGACTCTATCATTATTGGTGGAGCTAAACTTAAAGCCTTGAA   |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (2293) | GCTTGTAATAAATTTTTGGCTTTGTGTGCTGACTCTATCATTATTGGTGGAGCTAAACTTAAAGCCTTGAA   |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (2255) | GCTTGTAATAAATTTTTGGCTTTGTGTGCTGACTCTATCATTATTGGTGGAGCTAAACTTAAAGCCTTGAA   |      |      |      |      |      |      |      |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (2269) | GCTTGTAATAAATTTTTGGCTTTGTGTGCTGACTCTATCATTATTGGTGGAGCTAAACTTAAAGCCTTGAA   |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2233) | GCTTGTAATAAATTTTTGGCTTTGTGTGCTGACTCTATCATTATTGGTGGAGCTAAACTTAAAGCCTTGAA   |      |      |      |      |      |      |      |
|                                                        |        | Section 34                                                                |      |      |      |      |      |      |      |
|                                                        | (2377) | 2377                                                                      | 2390 | 2400 | 2410 | 2420 | 2430 | 2448 |      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (2377) | TTTAGGTGAAACATTTGTCTACGCACTCAAAGGGATTGTACAGAAAGTGTGTTAAATCCAGAGAAGAACTGG  |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (2323) | TTTAGGTGAAACATTTGTCTACGCACTCAAAGGGATTGTACAGAAAGTGTGTTAAATCCAGAGAAGAACTGG  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (2365) | TTTAGGTGAAACATTTGTCTACGCACTCAAAGGGATTGTACAGAAAGTGTGTTAAATCCAGAGAAGAACTGG  |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (2327) | TTTAGGTGAAACATTTGTCTACGCACTCAAAGGGATTGTACAGAAAGTGTGTTAAATCCAGAGAAGAACTGG  |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (2341) | TTTAGGTGAAACATTTGTCTACGCACTCAAAGGGATTGTACAGAAAGTGTGTTAAATCCAGAGAAGAACTGG  |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2305) | TTTAGGTGAAACATTTGTCTACGCACTCAAAGGGATTGTACAGAAAGTGTGTTAAATCCAGAGAAGAACTGG  |      |      |      |      |      |      |      |
|                                                        |        | Section 35                                                                |      |      |      |      |      |      |      |
|                                                        | (2449) | 2449                                                                      | 2460 | 2470 | 2480 | 2490 | 2500 | 2510 | 2520 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (2449) | CCTACTCATGCCTCTAAAAGCCCCAAAAGAAATTATCTTCTTAGAGGGAGAAACACTTCCCACAGAAGTGTT  |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (2395) | CCTACTCATGCCTCTAAAAGCCCCAAAAGAAATTATCTTCTTAGAGGGAGAAACACTTCCCACAGAAGTGTT  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (2437) | CCTACTCATGCCTCTAAAAGCCCCAAAAGAAATTATCTTCTTAGAGGGAGAAACACTTCCCACAGAAGTGTT  |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (2399) | CCTACTCATGCCTCTAAAAGCCCCAAAAGAAATTATCTTCTTAGAGGGAGAAACACTTCCCACAGAAGTGTT  |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (2413) | CCTACTCATGCCTCTAAAAGCCCCAAAAGAAATTATCTTCTTAGAGGGAGAAACACTTCCCACAGAAGTGTT  |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2377) | CCTACTCATGCCTCTAAAAGCCCCAAAAGAAATTATCTTCTTAGAGGGAGAAACACTTCCCACAGAAGTGTT  |      |      |      |      |      |      |      |
|                                                        |        | Section 36                                                                |      |      |      |      |      |      |      |
|                                                        | (2521) | 2521                                                                      | 2530 | 2540 | 2550 | 2560 | 2570 | 2580 | 2592 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (2521) | AACAGAGGAAGTTGTCTTGAAAACCTGGTGATTTACAACCATTAGAACAACCTACTAGTGAAGCTGTTGAAGC |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (2467) | AACAGAGGAAGTTGTCTTGAAAACCTGGTGATTTACAACCATTAGAACAACCTACTAGTGAAGCTGTTGAAGC |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (2509) | AACAGAGGAAGTTGTCTTGAAAACCTGGTGATTTACAACCATTAGAACAACCTACTAGTGAAGCTGTTGAAGC |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (2471) | AACAGAGGAAGTTGTCTTGAAAACCTGGTGATTTACAACCATTAGAACAACCTACTAGTGAAGCTGTTGAAGC |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (2485) | AACAGAGGAAGTTGTCTTGAAAACCTGGTGATTTACAACCATTAGAACAACCTACTAGTGAAGCTGTTGAAGC |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (2449) | AACAGAGGAAGTTGTCTTGAAAACCTGGTGATTTACAACCATTAGAACAACCTACTAGTGAAGCTGTTGAAGC |      |      |      |      |      |      |      |

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|--------------------------------------------------------|--|------------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|--|
|                                                        |  | Section 37 |                                                                           |      |      |      |      |      |      |      |  |
|                                                        |  | (2593)     | 2593                                                                      | 2600 | 2610 | 2620 | 2630 | 2640 | 2650 | 2664 |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (2593)     | TCCATTGGTTGGTACACCAGTTTGTATTAACGGGCTTATGTTGCTCGAAATCAAAGACACAGAAAAGTACTG  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (2539)     | TCCATTGGTTGGTACACCAGTTTGTATTAACGGGCTTATGTTGCTCGAAATCAAAGACACAGAAAAGTACTG  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (2581)     | TCCATTGGTTGGTACACCAGTTTGTATTAACGGGCTTATGTTGCTCGAAATCAAAGACACAGAAAAGTACTG  |      |      |      |      |      |      |      |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (2543)     | TCCATTGGTTGGTACACCAGTTTGTATTAACGGGCTTATGTTGCTCGAAATCAAAGACACAGAAAAGTACTG  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... |  | (2557)     | TCCATTGGTTGGTACACCAGTTTGTATTAACGGGCTTATGTTGCTCGAAATCAAAGACACAGAAAAGTACTG  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (2521)     | TCCATTGGTTGGTACACCAGTTTGTATTAACGGGCTTATGTTGCTCGAAATCAAAGACACAGAAAAGTACTG  |      |      |      |      |      |      |      |  |
|                                                        |  | Section 38 |                                                                           |      |      |      |      |      |      |      |  |
|                                                        |  | (2665)     | 2665                                                                      | 2670 | 2680 | 2690 | 2700 | 2710 | 2720 | 2736 |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (2665)     | TGCCCTTGACCTAATATGATGGTAACAAACAATACCTTCACACTCAAAGGCGGTGCACCAACAAAGGTTAC   |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (2611)     | TGCCCTTGACCTAATATGATGGTAACAAACAATACCTTCACACTCAAAGGCGGTGCACCAACAAAGGTTAC   |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (2653)     | TGCCCTTGACCTAATATGATGGTAACAAACAATACCTTCACACTCAAAGGCGGTGCACCAACAAAGGTTAC   |      |      |      |      |      |      |      |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (2615)     | TGCCCTTGACCTAATATGATGGTAACAAACAATACCTTCACACTCAAAGGCGGTGCACCAACAAAGGTTAC   |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (2629)     | TGCCCTTGACCTAATATGATGGTAACAAACAATACCTTCACACTCAAAGGCGGTGCACCAACAAAGGTTAC   |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (2593)     | TGCCCTTGACCTAATATGATGGTAACAAACAATACCTTCACACTCAAAGGCGGTGCACCAACAAAGGTTAC   |      |      |      |      |      |      |      |  |
|                                                        |  | Section 39 |                                                                           |      |      |      |      |      |      |      |  |
|                                                        |  | (2737)     | 2737                                                                      | 2750 | 2760 | 2770 | 2780 | 2790 | 2808 |      |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (2737)     | TTTTGGTGATGACACTGTGATAGAAGTGCAAGGTTACAAGAGTGTGAATATCACTTTTGAACCTTGATGAAAG |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (2683)     | TTTTGGTGATGACACTGTGATAGAAGTGCAAGGTTACAAGAGTGTGAATATCACTTTTGAACCTTGATGAAAG |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (2725)     | TTTTGGTGATGACACTGTGATAGAAGTGCAAGGTTACAAGAGTGTGAATATCACTTTTGAACCTTGATGAAAG |      |      |      |      |      |      |      |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (2687)     | TTTTGGTGATGACACTGTGATAGAAGTGCAAGGTTACAAGAGTGTGAATATCACTTTTGAACCTTGATGAAAG |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (2701)     | TTTTGGTGATGACACTGTGATAGAAGTGCAAGGTTACAAGAGTGTGAATATCACTTTTGAACCTTGATGAAAG |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (2665)     | TTTTGGTGATGACACTGTGATAGAAGTGCAAGGTTACAAGAGTGTGAATATCACTTTTGAACCTTGATGAAAG |      |      |      |      |      |      |      |  |
|                                                        |  | Section 40 |                                                                           |      |      |      |      |      |      |      |  |
|                                                        |  | (2809)     | 2809                                                                      | 2820 | 2830 | 2840 | 2850 | 2860 | 2870 | 2880 |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (2809)     | GATTGATAAAGTACTTAATGAGAGGTGCTCTGCCTATACAGTTGAACTCGGTACAGAAGTAAATGAGTTCGC  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (2755)     | GATTGATAAAGTACTTAATGAGAGGTGCTCTGCCTATACAGTTGAACTCGGTACAGAAGTAAATGAGTTCGC  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (2797)     | GATTGATAAAGTACTTAATGAGAGGTGCTCTGCCTATACAGTTGAACTCGGTACAGAAGTAAATGAGTTCGC  |      |      |      |      |      |      |      |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (2759)     | GATTGATAAAGTACTTAATGAGAGGTGCTCTGCCTATACAGTTGAACTCGGTACAGAAGTAAATGAGTTCGC  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (2773)     | GATTGATAAAGTACTTAATGAGAGGTGCTCTGCCTATACAGTTGAACTCGGTACAGAAGTAAATGAGTTCGC  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   |  | (2737)     | GATTGATAAAGTACTTAATGAGAGGTGCTCTGCCTATACAGTTGAACTCGGTACAGAAGTAAATGAGTTCGC  |      |      |      |      |      |      |      |  |

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|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|--|
|                                                        |        | Section 41                                                                |      |      |      |      |      |      |      |  |
|                                                        | (2881) | 2881                                                                      | 2890 | 2900 | 2910 | 2920 | 2930 | 2940 | 2952 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (2881) | CTGTGTTGTGGCAGATGCTGTCATAAAAACTTTGCAACCAGTATCTGAATTACTTACACCACTGGGCATTGA  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (2827) | CTGTGTTGTGGCAGATGCTGTCATAAAAACTTTGCAACCAGTATCTGAATTACTTACACCACTGGGCATTGA  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (2869) | CTGTGTTGTGGCAGATGCTGTCATAAAAACTTTGCAACCAGTATCTGAATTACTTACACCACTGGGCATTGA  |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (2831) | CTGTGTTGTGGCAGATGCTGTCATAAAAACTTTGCAACCAGTATCTGAATTACTTACACCACTGGGCATTGA  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... | (2845) | CTGTGTTGTGGCAGATGCTGTCATAAAAACTTTGCAACCAGTATCTGAATTACTTACACCACTGGGCATTGA  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2809) | CTGTGTTGTGGCAGATGCTGTCATAAAAACTTTGCAACCAGTATCTGAATTACTTACACCACTGGGCATTGA  |      |      |      |      |      |      |      |  |
|                                                        |        | Section 42                                                                |      |      |      |      |      |      |      |  |
|                                                        | (2953) | 2953                                                                      | 2960 | 2970 | 2980 | 2990 | 3000 | 3010 | 3024 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (2953) | TTTAGATGAGTGGAGTATGGCTACATACTACTTATTTGATGAGTCTGGTGAGTTTAAATTGGCTTCACATAT  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (2899) | TTTAGATGAGTGGAGTATGGCTACATACTACTTATTTGATGAGTCTGGTGAGTTTAAATTGGCTTCACATAT  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (2941) | TTTAGATGAGTGGAGTATGGCTACATACTACTTATTTGATGAGTCTGGTGAGTTTAAATTGGCTTCACATAT  |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (2903) | TTTAGATGAGTGGAGTATGGCTACATACTACTTATTTGATGAGTCTGGTGAGTTTAAATTGGCTTCACATAT  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (2917) | TTTAGATGAGTGGAGTATGGCTACATACTACTTATTTGATGAGTCTGGTGAGTTTAAATTGGCTTCACATAT  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2881) | TTTAGATGAGTGGAGTATGGCTACATACTACTTATTTGATGAGTCTGGTGAGTTTAAATTGGCTTCACATAT  |      |      |      |      |      |      |      |  |
|                                                        |        | Section 43                                                                |      |      |      |      |      |      |      |  |
|                                                        | (3025) | 3025                                                                      | 3030 | 3040 | 3050 | 3060 | 3070 | 3080 | 3096 |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (3025) | GTATTGTTCTTTCTACCCCTCCAGATGAGGATGAAGAAGAAGGTGATTGTGAAGAAGAAGAGTTTGAGCCATC |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (2971) | GTATTGTTCTTTCTACCCCTCCAGATGAGGATGAAGAAGAAGGTGATTGTGAAGAAGAAGAGTTTGAGCCATC |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (3013) | GTATTGTTCTTTCTACCCCTCCAGATGAGGATGAAGAAGAAGGTGATTGTGAAGAAGAAGAGTTTGAGCCATC |      |      |      |      |      |      |      |  |
| hCoV-19/England/PI_YM-332B917/2022_FPI_ISI_9062229 ... | (2975) | GTATTGTTCTTTCTACCCCTCCAGATGAGGATGAAGAAGAAGGTGATTGTGAAGAAGAAGAGTTTGAGCCATC |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (2989) | GTATTGTTCTTTCTACCCCTCCAGATGAGGATGAAGAAGAAGGTGATTGTGAAGAAGAAGAGTTTGAGCCATC |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (2953) | GTATTGTTCTTTCTACCCCTCCAGATGAGGATGAAGAAGAAGGTGATTGTGAAGAAGAAGAGTTTGAGCCATC |      |      |      |      |      |      |      |  |
|                                                        |        | Section 44                                                                |      |      |      |      |      |      |      |  |
|                                                        | (3097) | 3097                                                                      | 3110 | 3120 | 3130 | 3140 | 3150 | 3168 |      |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (3097) | AACTCAATATGAGTATGGTACTGAAGATGATTACCAAGGTAAACCTTTGGAATTTGGTGCCACTTCTGCTGC  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (3043) | AACTCAATATGAGTATGGTACTGAAGATGATTACCAAGGTAAACCTTTGGAATTTGGTGCCACTTCTGCTGC  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (3085) | AACTCAATATGAGTATGGTACTGAAGATGATTACCAAGGTAAACCTTTGGAATTTGGTGCCACTTCTGCTGC  |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (3047) | AACTCAATATGAGTATGGTACTGAAGATGATTACCAAGGTAAACCTTTGGAATTTGGTGCCACTTCTGCTGC  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (3061) | AACTCAATATGAGTATGGTACTGAAGATGATTACCAAGGTAAACCTTTGGAATTTGGTGCCACTTCTGCTGC  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3025) | AACTCAATATGAGTATGGTACTGAAGATGATTACCAAGGTAAACCTTTGGAATTTGGTGCCACTTCTGCTGC  |      |      |      |      |      |      |      |  |

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|--------------------------------------------------------|--------|--------------------------------------------------------------------------|------|------|------|------|------|------|------|--|--|
|                                                        |        | Section 45                                                               |      |      |      |      |      |      |      |  |  |
|                                                        | (3169) | 3169                                                                     | 3180 | 3190 | 3200 | 3210 | 3220 | 3230 | 3240 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3169) | TCTTCAACCTGAAGAAGAGCAAGAAGAAGATTGGTTAGATGATGATAGTCAACAAACTGTTGGTCAACAAGA |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3115) | TCTTCAACCTGAAGAAGAGCAAGAAGAAGATTGGTTAGATGATGATAGTCAACAAACTGTTGGTCAACAAGA |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3157) | TCTTCAACCTGAAGAAGAGCAAGAAGAAGATTGGTTAGATGATGATAGTCAACAAACTGTTGGTCAACAAGA |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (3119) | TCTTCAACCTGAAGAAGAGCAAGAAGAAGATTGGTTAGATGATGATAGTCAACAAACTGTTGGTCAACAAGA |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (3133) | TCTTCAACCTGAAGAAGAGCAAGAAGAAGATTGGTTAGATGATGATAGTCAACAAACTGTTGGTCAACAAGA |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3097) | TCTTCAACCTGAAGAAGAGCAAGAAGAAGATTGGTTAGATGATGATAGTCAACAAACTGTTGGTCAACAAGA |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 46                                                               |      |      |      |      |      |      |      |  |  |
|                                                        | (3241) | 3241                                                                     | 3250 | 3260 | 3270 | 3280 | 3290 | 3300 | 3312 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3241) | CGGCAGTGAGGACAATCAGACAACCTACTATTCAAACAATTGTTGAGGTTCAACCTCAATTAGAGATGGAAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3187) | CGGCAGTGAGGACAATCAGACAACCTACTATTCAAACAATTGTTGAGGTTCAACCTCAATTAGAGATGGAAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3229) | CGGCAGTGAGGACAATCAGACAACCTACTATTCAAACAATTGTTGAGGTTCAACCTCAATTAGAGATGGAAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (3191) | CGGCAGTGAGGACAATCAGACAACCTACTATTCAAACAATTGTTGAGGTTCAACCTCAATTAGAGATGGAAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3205) | CGGCAGTGAGGACAATCAGACAACCTACTATTCAAACAATTGTTGAGGTTCAACCTCAATTAGAGATGGAAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3169) | CGGCAGTGAGGACAATCAGACAACCTACTATTCAAACAATTGTTGAGGTTCAACCTCAATTAGAGATGGAAC |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 47                                                               |      |      |      |      |      |      |      |  |  |
|                                                        | (3313) | 3313                                                                     | 3320 | 3330 | 3340 | 3350 | 3360 | 3370 | 3384 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3313) | TACACCAGTTGTTTCAGACTATTGAAGTGAATAGTTTTAGTGGTTATTTAAACTTACTGACAATGTATACAT |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3259) | TACACCAGTTGTTTCAGACTATTGAAGTGAATAGTTTTAGTGGTTATTTAAACTTACTGACAATGTATACAT |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3301) | TACACCAGTTGTTTCAGACTATTGAAGTGAATAGTTTTAGTGGTTATTTAAACTTACTGACAATGTATACAT |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (3263) | TACACCAGTTGTTTCAGACTATTGAAGTGAATAGTTTTAGTGGTTATTTAAACTTACTGACAATGTATACAT |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3277) | TACACCAGTTGTTTCAGACTATTGAAGTGAATAGTTTTAGTGGTTATTTAAACTTACTGACAATGTATACAT |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3241) | TACACCAGTTGTTTCAGACTATTGAAGTGAATAGTTTTAGTGGTTATTTAAACTTACTGACAATGTATACAT |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 48                                                               |      |      |      |      |      |      |      |  |  |
|                                                        | (3385) | 3385                                                                     | 3390 | 3400 | 3410 | 3420 | 3430 | 3440 | 3456 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3385) | TAAAAATGCAGACATTGTGGAAGAAGCTAAAAAGGTAAAAACCAACAGTGGTTGTTAATGCAGCCAATGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3331) | TAAAAATGCAGACATTGTGGAAGAAGCTAAAAAGGTAAAAACCAACAGTGGTTGTTAATGCAGCCAATGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3373) | TAAAAATGCAGACATTGTGGAAGAAGCTAAAAAGGTAAAAACCAACAGTGGTTGTTAATGCAGCCAATGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (3335) | TAAAAATGCAGACATTGTGGAAGAAGCTAAAAAGGTAAAAACCAACAGTGGTTGTTAATGCAGCCAATGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3349) | TAAAAATGCAGACATTGTGGAAGAAGCTAAAAAGGTAAAAACCAACAGTGGTTGTTAATGCAGCCAATGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (3313) | TAAAAATGCAGACATTGTGGAAGAAGCTAAAAAGGTAAAAACCAACAGTGGTTGTTAATGCAGCCAATGTTT |      |      |      |      |      |      |      |  |  |

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|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------|-----------|
|                                                        |        | Section 49                                                                |      |      |      |      |      |      |           |
|                                                        |        | (3457)                                                                    | 3457 | 3470 | 3480 | 3490 | 3500 | 3510 | 3528      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3457) | CCTTAAACATGGAGGAGGTGTTGCAGGAGCCTTAAATAAGGCTACTAACAATGCCATGCAAGTTGAATCTGA  |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3403) | CCTTAAACATGGAGGAGGTGTTGCAGGAGCCTTAAATAAGGCTACTAACAATGCCATGCAAGTTGAATCTGA  |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3445) | CCTTAAACATGGAGGAGGTGTTGCAGGAGCCTTAAATAAGGCTACTAACAATGCCATGCAAGTTGAATCTGA  |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3407) | CCTTAAACATGGAGGAGGTGTTGCAGGAGCCTTAAATAAGGCTACTAACAATGCCATGCAAGTTGAATCTGA  |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3421) | CCTTAAACATGGAGGAGGTGTTGCAGGAGCCTTAAATAAGGCTACTAACAATGCCATGCAAGTTGAATCTGA  |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3385) | CCTTAAACATGGAGGAGGTGTTGCAGGAGCCTTAAATAAGGCTACTAACAATGCCATGCAAGTTGAATCTGA  |      |      |      |      |      |      |           |
|                                                        |        | Section 50                                                                |      |      |      |      |      |      |           |
|                                                        |        | (3529)                                                                    | 3529 | 3540 | 3550 | 3560 | 3570 | 3580 | 3590 3600 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3529) | TGATTACATAGCTACTAATGGACCACTTAAAGTGGGTGGTAGTTGTGTTTTAAGCGGACACAATCTTGCTAA  |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3475) | TGATTACATAGCTACTAATGGACCACTTAAAGTGGGTGGTAGTTGTGTTTTAAGCGGACACAATCTTGCTAA  |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3517) | TGATTACATAGCTACTAATGGACCACTTAAAGTGGGTGGTAGTTGTGTTTTAAGCGGACACAATCTTGCTAA  |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3479) | TGATTACATAGCTACTAATGGACCACTTAAAGTGGGTGGTAGTTGTGTTTTAAGCGGACACAATCTTGCTAA  |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3493) | TGATTACATAGCTACTAATGGACCACTTAAAGTGGGTGGTAGTTGTGTTTTAAGCGGACACAATCTTGCTAA  |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3457) | TGATTACATAGCTACTAATGGACCACTTAAAGTGGGTGGTAGTTGTGTTTTAAGCGGACACAATCTTGCTAA  |      |      |      |      |      |      |           |
|                                                        |        | Section 51                                                                |      |      |      |      |      |      |           |
|                                                        |        | (3601)                                                                    | 3601 | 3610 | 3620 | 3630 | 3640 | 3650 | 3660 3672 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3601) | ACACTGTCTTCATGTTGTGCGGCCCAAATGTTAACAAAGGTGAAGACATTCAACTTCTTAAGAGTGCTTATGA |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3547) | ACACTGTCTTCATGTTGTGCGGCCCAAATGTTAACAAAGGTGAAGACATTCAACTTCTTAAGAGTGCTTATGA |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3589) | ACACTGTCTTCATGTTGTGCGGCCCAAATGTTAACAAAGGTGAAGACATTCAACTTCTTAAGAGTGCTTATGA |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3551) | ACACTGTCTTCATGTTGTGCGGCCCAAATGTTAACAAAGGTGAAGACATTCAACTTCTTAAGAGTGCTTATGA |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3565) | ACACTGTCTTCATGTTGTGCGGCCCAAATGTTAACAAAGGTGAAGACATTCAACTTCTTAAGAGTGCTTATGA |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3529) | ACACTGTCTTCATGTTGTGCGGCCCAAATGTTAACAAAGGTGAAGACATTCAACTTCTTAAGAGTGCTTATGA |      |      |      |      |      |      |           |
|                                                        |        | Section 52                                                                |      |      |      |      |      |      |           |
|                                                        |        | (3673)                                                                    | 3673 | 3680 | 3690 | 3700 | 3710 | 3720 | 3730 3744 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3673) | AAATTTTAATCAGCACGAAGTTCTACTTGCACCATTATTATCAGCTGGTATTTTTGGTGCTGACCCTATACA  |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3619) | AAATTTTAATCAGCACGAAGTTCTACTTGCACCATTATTATCAGCTGGTATTTTTGGTGCTGACCCTATACA  |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3661) | AAATTTTAATCAGCACGAAGTTCTACTTGCACCATTATTATCAGCTGGTATTTTTGGTGCTGACCCTATACA  |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3623) | AAATTTTAATCAGCACGAAGTTCTACTTGCACCATTATTATCAGCTGGTATTTTTGGTGCTGACCCTATACA  |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3637) | AAATTTTAATCAGCACGAAGTTCTACTTGCACCATTATTATCAGCTGGTATTTTTGGTGCTGACCCTATACA  |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3601) | AAATTTTAATCAGCACGAAGTTCTACTTGCACCATTATTATCAGCTGGTATTTTTGGTGCTGACCCTATACA  |      |      |      |      |      |      |           |

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|--------------------------------------------------------|--------|-----------------------------------------------------------------------------|------|------|------|------|------|------|------|
|                                                        |        | Section 53                                                                  |      |      |      |      |      |      |      |
|                                                        | (3745) | 3745                                                                        | 3750 | 3760 | 3770 | 3780 | 3790 | 3800 | 3816 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3745) | TTCTTTAAGAGTTTGTGTAGATACTGTTTCGCACAAATGTCTACTTAGCTGTCTTTGATAAAAAATCTCTATGA  |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3691) | TTCTTTAAGAGTTTGTGTAGATACTGTTTCGCACAAATGTCTACTTAGCTGTCTTTGATAAAAAATCTCTATGA  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3733) | TTCTTTAAGAGTTTGTGTAGATACTGTTTCGCACAAATGTCTACTTAGCTGTCTTTGATAAAAAATCTCTATGA  |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3695) | TTCTTTAAGAGTTTGTGTAGATACTGTTTCGCACAAATGTCTACTTAGCTGTCTTTGATAAAAAATCTCTATGA  |      |      |      |      |      |      |      |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (3709) | TTCTTTAAGAGTTTGTGTAGATACTGTTTCGCACAAATGTCTACTTAGCTGTCTTTGATAAAAAATCTCTATGA  |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3673) | TTCTTTAAGAGTTTGTGTAGATACTGTTTCGCACAAATGTCTACTTAGCTGTCTTTGATAAAAAATCTCTATGA  |      |      |      |      |      |      |      |
|                                                        |        | Section 54                                                                  |      |      |      |      |      |      |      |
|                                                        | (3817) | 3817                                                                        | 3830 | 3840 | 3850 | 3860 | 3870 | 3888 |      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3817) | CAAACCTTGTTCCTCAAGCTTTTGGAAATGAAGAGTGAAAAGCAAGTTGAACAAAAGATCGCTGAGATTCTCTAA |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3763) | CAAACCTTGTTCCTCAAGCTTTTGGAAATGAAGAGTGAAAAGCAAGTTGAACAAAAGATCGCTGAGATTCTCTAA |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3805) | CAAACCTTGTTCCTCAAGCTTTTGGAAATGAAGAGTGAAAAGCAAGTTGAACAAAAGATCGCTGAGATTCTCTAA |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3767) | CAAACCTTGTTCCTCAAGCTTTTGGAAATGAAGAGTGAAAAGCAAGTTGAACAAAAGATCGCTGAGATTCTCTAA |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3781) | CAAACCTTGTTCCTCAAGCTTTTGGAAATGAAGAGTGAAAAGCAAGTTGAACAAAAGATCGCTGAGATTCTCTAA |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3745) | CAAACCTTGTTCCTCAAGCTTTTGGAAATGAAGAGTGAAAAGCAAGTTGAACAAAAGATCGCTGAGATTCTCTAA |      |      |      |      |      |      |      |
|                                                        |        | Section 55                                                                  |      |      |      |      |      |      |      |
|                                                        | (3889) | 3889                                                                        | 3900 | 3910 | 3920 | 3930 | 3940 | 3950 | 3960 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3889) | AGAGGAAGTTAAGCCATTTATAACTGAAAGTAAACCTTCAGTTGAACAGAGAAAACAAGATGATAAGAAAAAT   |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3835) | AGAGGAAGTTAAGCCATTTATAACTGAAAGTAAACCTTCAGTTGAACAGAGAAAACAAGATGATAAGAAAAAT   |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3877) | AGAGGAAGTTAAGCCATTTATAACTGAAAGTAAACCTTCAGTTGAACAGAGAAAACAAGATGATAAGAAAAAT   |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3839) | AGAGGAAGTTAAGCCATTTATAACTGAAAGTAAACCTTCAGTTGAACAGAGAAAACAAGATGATAAGAAAAAT   |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3853) | AGAGGAAGTTAAGCCATTTATAACTGAAAGTAAACCTTCAGTTGAACAGAGAAAACAAGATGATAAGAAAAAT   |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (3817) | AGAGGAAGTTAAGCCATTTATAACTGAAAGTAAACCTTCAGTTGAACAGAGAAAACAAGATGATAAGAAAAAT   |      |      |      |      |      |      |      |
|                                                        |        | Section 56                                                                  |      |      |      |      |      |      |      |
|                                                        | (3961) | 3961                                                                        | 3970 | 3980 | 3990 | 4000 | 4010 | 4020 | 4032 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (3961) | CAAAGCTTGTGTTGAAGAAGTTACAACAACCTCTGGAAGAACTAAGTTCCTCACAGAAAACCTGTTACTTTA    |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (3907) | CAAAGCTTGTGTTGAAGAAGTTACAACAACCTCTGGAAGAACTAAGTTCCTCACAGAAAACCTGTTACTTTA    |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (3949) | CAAAGCTTGTGTTGAAGAAGTTACAACAACCTCTGGAAGAACTAAGTTCCTCACAGAAAACCTGTTACTTTA    |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (3911) | CAAAGCTTGTGTTGAAGAAGTTACAACAACCTCTGGAAGAACTAAGTTCCTCACAGAAAACCTGTTACTTTA    |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (3925) | CAAAGCTTGTGTTGAAGAAGTTACAACAACCTCTGGAAGAACTAAGTTCCTCACAGAAAACCTGTTACTTTA    |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (3889) | CAAAGCTTGTGTTGAAGAAGTTACAACAACCTCTGGAAGAACTAAGTTCCTCACAGAAAACCTGTTACTTTA    |      |      |      |      |      |      |      |

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|                                                        |  |            |                                                                           |      |      |      |      |      |      |      |  |  |
|--------------------------------------------------------|--|------------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|--|--|
|                                                        |  | Section 57 |                                                                           |      |      |      |      |      |      |      |  |  |
|                                                        |  | (4033)     | 4033                                                                      | 4040 | 4050 | 4060 | 4070 | 4080 | 4090 | 4104 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (4033)     | TATTGACATTAATGGCAATCTTCATCCAGATTCTGCCACTCTTGTTAGTGACATTGACATCACTTTCTTAAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (3979)     | TATTGACATTAATGGCAATCTTCATCCAGATTCTGCCACTCTTGTTAGTGACATTGACATCACTTTCTTAAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (4021)     | TATTGACATTAATGGCAATCTTCATCCAGATTCTGCCACTCTTGTTAGTGACATTGACATCACTTTCTTAAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (3983)     | TATTGACATTAATGGCAATCTTCATCCAGATTCTGCCACTCTTGTTAGTGACATTGACATCACTTTCTTAAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... |  | (3997)     | TATTGACATTAATGGCAATCTTCATCCAGATTCTGCCACTCTTGTTAGTGACATTGACATCACTTTCTTAAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (3961)     | TATTGACATTAATGGCAATCTTCATCCAGATTCTGCCACTCTTGTTAGTGACATTGACATCACTTTCTTAAA  |      |      |      |      |      |      |      |  |  |
|                                                        |  | Section 58 |                                                                           |      |      |      |      |      |      |      |  |  |
|                                                        |  | (4105)     | 4105                                                                      | 4110 | 4120 | 4130 | 4140 | 4150 | 4160 | 4176 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (4105)     | GAAAGATGCTCCATATATAGTGGGTGATGTTGTTCAAGAGGGTGTTTTAACTGCTGTGGTTATACCTACTAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (4051)     | GAAAGATGCTCCATATATAGTGGGTGATGTTGTTCAAGAGGGTGTTTTAACTGCTGTGGTTATACCTACTAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (4093)     | GAAAGATGCTCCATATATAGTGGGTGATGTTGTTCAAGAGGGTGTTTTAACTGCTGTGGTTATACCTACTAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (4055)     | GAAAGATGCTCCATATATAGTGGGTGATGTTGTTCAAGAGGGTGTTTTAACTGCTGTGGTTATACCTACTAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (4069)     | GAAAGATGCTCCATATATAGTGGGTGATGTTGTTCAAGAGGGTGTTTTAACTGCTGTGGTTATACCTACTAA  |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (4033)     | GAAAGATGCTCCATATATAGTGGGTGATGTTGTTCAAGAGGGTGTTTTAACTGCTGTGGTTATACCTACTAA  |      |      |      |      |      |      |      |  |  |
|                                                        |  | Section 59 |                                                                           |      |      |      |      |      |      |      |  |  |
|                                                        |  | (4177)     | 4177                                                                      | 4190 | 4200 | 4210 | 4220 | 4230 | 4248 |      |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (4177)     | AAAGGCTGGTGGCACTACTGAAATGCTAGCGAAAGCTTTGAGAAAAGTGCCAAACAGACAATTATATAACCAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (4173)     | AAAGGCTGGTGGCACTACTGAAATGCTAGCGAAAGCTTTGAGAAAAGTGCCAAACAGACAATTATATAACCAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (4165)     | AAAGGCTGGTGGCACTACTGAAATGCTAGCGAAAGCTTTGAGAAAAGTGCCAAACAGACAATTATATAACCAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (4177)     | AAAGGCTGGTGGCACTACTGAAATGCTAGCGAAAGCTTTGAGAAAAGTGCCAAACAGACAATTATATAACCAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (4141)     | AAAGGCTGGTGGCACTACTGAAATGCTAGCGAAAGCTTTGAGAAAAGTGCCAAACAGACAATTATATAACCAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (4105)     | AAAGGCTGGTGGCACTACTGAAATGCTAGCGAAAGCTTTGAGAAAAGTGCCAAACAGACAATTATATAACCAC |      |      |      |      |      |      |      |  |  |
|                                                        |  | Section 60 |                                                                           |      |      |      |      |      |      |      |  |  |
|                                                        |  | (4249)     | 4249                                                                      | 4260 | 4270 | 4280 | 4290 | 4300 | 4310 | 4320 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (4249)     | TTACCCGGGTCAAGGGTTTAAATGGTTACACTGTAGAGGAGGCAAAGACAGTGCTTAAAAAGTGTAAGGTGC  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (4195)     | TTACCCGGGTCAAGGGTTTAAATGGTTACACTGTAGAGGAGGCAAAGACAGTGCTTAAAAAGTGTAAGGTGC  |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (4237)     | TTACCCGGGTCAAGGGTTTAAATGGTTACACTGTAGAGGAGGCAAAGACAGTGCTTAAAAAGTGTAAGGTGC  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (4199)     | TTACCCGGGTCAAGGGTTTAAATGGTTACACTGTAGAGGAGGCAAAGACAGTGCTTAAAAAGTGTAAGGTGC  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (4213)     | TTACCCGGGTCAAGGGTTTAAATGGTTACACTGTAGAGGAGGCAAAGACAGTGCTTAAAAAGTGTAAGGTGC  |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   |  | (4177)     | TTACCCGGGTCAAGGGTTTAAATGGTTACACTGTAGAGGAGGCAAAGACAGTGCTTAAAAAGTGTAAGGTGC  |      |      |      |      |      |      |      |  |  |

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|                                                        |        | Section 61 |                                                                           |      |      |      |      |      |           |
|--------------------------------------------------------|--------|------------|---------------------------------------------------------------------------|------|------|------|------|------|-----------|
|                                                        |        | (4321)     | 4321                                                                      | 4330 | 4340 | 4350 | 4360 | 4370 | 4380 4392 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (4321) |            | CTTTTACATTCTACCATCTATTATCTCTAATGAGAAGCAAGAAATTCCTTGGAACTGTTTCTTGGAATTTGCG |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (4267) |            | CTTTTACATTCTACCATCTATTATCTCTAATGAGAAGCAAGAAATTCCTTGGAACTGTTTCTTGGAATTTGCG |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (4309) |            | CTTTTACATTCTACCATCTATTATCTCTAATGAGAAGCAAGAAATTCCTTGGAACTGTTTCTTGGAATTTGCG |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (4271) |            | CTTTTACATTCTACCATCTATTATCTCTAATGAGAAGCAAGAAATTCCTTGGAACTGTTTCTTGGAATTTGCG |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (4285) |            | CTTTTACATTCTACCATCTATTATCTCTAATGAGAAGCAAGAAATTCCTTGGAACTGTTTCTTGGAATTTGCG |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4249) |            | CTTTTACATTCTACCATCTATTATCTCTAATGAGAAGCAAGAAATTCCTTGGAACTGTTTCTTGGAATTTGCG |      |      |      |      |      |           |
|                                                        |        | Section 62 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (4393)     | 4393                                                                      | 4400 | 4410 | 4420 | 4430 | 4440 | 4450 4464 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (4393) |            | AGAAATGCTTGCACATGCAGAAGAAACACGCAAAATTAATGCCTGTCTGTGTGGAACTAAAGCCATAGTTTC  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (4339) |            | AGAAATGCTTGCACATGCAGAAGAAACACGCAAAATTAATGCCTGTCTGTGTGGAACTAAAGCCATAGTTTC  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (4381) |            | AGAAATGCTTGCACATGCAGAAGAAACACGCAAAATTAATGCCTGTCTGTGTGGAACTAAAGCCATAGTTTC  |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (4343) |            | AGAAATGCTTGCACATGCAGAAGAAACACGCAAAATTAATGCCTGTCTGTGTGGAACTAAAGCCATAGTTTC  |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (4357) |            | AGAAATGCTTGCACATGCAGAAGAAACACGCAAAATTAATGCCTGTCTGTGTGGAACTAAAGCCATAGTTTC  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4321) |            | AGAAATGCTTGCACATGCAGAAGAAACACGCAAAATTAATGCCTGTCTGTGTGGAACTAAAGCCATAGTTTC  |      |      |      |      |      |           |
|                                                        |        | Section 63 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (4465)     | 4465                                                                      | 4470 | 4480 | 4490 | 4500 | 4510 | 4520 4536 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (4465) |            | AACATACAGCGTAAATATAAGGGTATTAAAAATACAAGAGGGGTGTGGTTGATTATGGTGCTAGATTTTACTT |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (4411) |            | AACATACAGCGTAAATATAAGGGTATTAAAAATACAAGAGGGGTGTGGTTGATTATGGTGCTAGATTTTACTT |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (4453) |            | AACATACAGCGTAAATATAAGGGTATTAAAAATACAAGAGGGGTGTGGTTGATTATGGTGCTAGATTTTACTT |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (4415) |            | AACATACAGCGTAAATATAAGGGTATTAAAAATACAAGAGGGGTGTGGTTGATTATGGTGCTAGATTTTACTT |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (4429) |            | AACATACAGCGTAAATATAAGGGTATTAAAAATACAAGAGGGGTGTGGTTGATTATGGTGCTAGATTTTACTT |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4393) |            | AACATACAGCGTAAATATAAGGGTATTAAAAATACAAGAGGGGTGTGGTTGATTATGGTGCTAGATTTTACTT |      |      |      |      |      |           |
|                                                        |        | Section 64 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (4537)     | 4537                                                                      | 4550 | 4560 | 4570 | 4580 | 4590 | 4608      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (4537) |            | TTACACCAGTAAACCAACTGTAGCGTCACCTTATCAACACACTTAACGATCTAAATGAAACTCTTGTTACAAT |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (4483) |            | TTACACCAGTAAACCAACTGTAGCGTCACCTTATCAACACACTTAACGATCTAAATGAAACTCTTGTTACAAT |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (4525) |            | TTACACCAGTAAACCAACTGTAGCGTCACCTTATCAACACACTTAACGATCTAAATGAAACTCTTGTTACAAT |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (4487) |            | TTACACCAGTAAACCAACTGTAGCGTCACCTTATCAACACACTTAACGATCTAAATGAAACTCTTGTTACAAT |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (4501) |            | TTACACCAGTAAACCAACTGTAGCGTCACCTTATCAACACACTTAACGATCTAAATGAAACTCTTGTTACAAT |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4465) |            | TTACACCAGTAAACCAACTGTAGCGTCACCTTATCAACACACTTAACGATCTAAATGAAACTCTTGTTACAAT |      |      |      |      |      |           |

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|                                                        |        |                                                                           |      |      |      |      |      | Section 65 |
|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------------|
|                                                        |        |                                                                           |      |      |      |      |      |            |
|                                                        | (4609) | 4609                                                                      | 4620 | 4630 | 4640 | 4650 | 4660 | 4670 4680  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (4609) | GCCACTTGGCTATGTAACACATGGCTTAAATTTGGAAGAAGCTGCTCGGTATATGAGATCTCTCAAAGTGCC  |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (4555) | GCCACTTGGCTATGTAACACATGGCTTAAATTTGGAAGAAGCTGCTCGGTATATGAGATCTCTCAAAGTGCC  |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (4597) | GCCACTTGGCTATGTAACACATGGCTTAAATTTGGAAGAAGCTGCTCGGTATATGAGATCTCTCAAAGTGCC  |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (4559) | GCCACTTGGCTATGTAACACATGGCTTAAATTTGGAAGAAGCTGCTCGGTATATGAGATCTCTCAAAGTGCC  |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (4573) | GCCACTTGGCTATGTAACACATGGCTTAAATTTGGAAGAAGCTGCTCGGTATATGAGATCTCTCAAAGTGCC  |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4537) | GCCACTTGGCTATGTAACACATGGCTTAAATTTGGAAGAAGCTGCTCGGTATATGAGATCTCTCAAAGTGCC  |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      | Section 66 |
|                                                        |        |                                                                           |      |      |      |      |      |            |
|                                                        | (4681) | 4681                                                                      | 4690 | 4700 | 4710 | 4720 | 4730 | 4740 4752  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (4681) | AGCTACAGTTTCTGTTTCTTCACCTGATGCTGTTACAGCGTATAATGGTTATCTTACTTCTTCTTCTAAAAC  |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (4627) | AGCTACAGTTTCTGTTTCTTCACCTGATGCTGTTACAGCGTATAATGGTTATCTTACTTCTTCTTCTAAAAC  |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (4669) | AGCTACAGTTTCTGTTTCTTCACCTGATGCTGTTACAGCGTATAATGGTTATCTTACTTCTTCTTCTAAAAC  |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (4631) | AGCTACAGTTTCTGTTTCTTCACCTGATGCTGTTACAGCGTATAATGGTTATCTTACTTCTTCTTCTAAAAC  |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (4645) | AGCTACAGTTTCTGTTTCTTCACCTGATGCTGTTACAGCGTATAATGGTTATCTTACTTCTTCTTCTAAAAC  |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4609) | AGCTACAGTTTCTGTTTCTTCACCTGATGCTGTTACAGCGTATAATGGTTATCTTACTTCTTCTTCTAAAAC  |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      | Section 67 |
|                                                        |        |                                                                           |      |      |      |      |      |            |
|                                                        | (4753) | 4753                                                                      | 4760 | 4770 | 4780 | 4790 | 4800 | 4810 4824  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (4753) | ACCTGAAGAACATTTTATTGAAACCATCTCACTTGCTGGTTCCCTATAAAGATTGGTCCTATTCTGGACAATC |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (4699) | ACCTGAAGAACATTTTATTGAAACCATCTCACTTGCTGGTTCCCTATAAAGATTGGTCCTATTCTGGACAATC |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (4741) | ACCTGAAGAACATTTTATTGAAACCATCTCACTTGCTGGTTCCCTATAAAGATTGGTCCTATTCTGGACAATC |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (4703) | ACCTGAAGAACATTTTATTGAAACCATCTCACTTGCTGGTTCCCTATAAAGATTGGTCCTATTCTGGACAATC |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (4717) | ACCTGAAGAACATTTTATTGAAACCATCTCACTTGCTGGTTCCCTATAAAGATTGGTCCTATTCTGGACAATC |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4681) | ACCTGAAGAACATTTTATTGAAACCATCTCACTTGCTGGTTCCCTATAAAGATTGGTCCTATTCTGGACAATC |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      | Section 68 |
|                                                        |        |                                                                           |      |      |      |      |      |            |
|                                                        | (4825) | 4825                                                                      | 4830 | 4840 | 4850 | 4860 | 4870 | 4880 4896  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (4825) | TACACAACCTAGGTATAGAATTTCTTAAGAGAGGTGATAAAAAGTGATATTACACTAGTAATCCTACCACATT |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (4771) | TACACAACCTAGGTATAGAATTTCTTAAGAGAGGTGATAAAAAGTGATATTACACTAGTAATCCTACCACATT |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (4813) | TACACAACCTAGGTATAGAATTTCTTAAGAGAGGTGATAAAAAGTGATATTACACTAGTAATCCTACCACATT |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (4775) | TACACAACCTAGGTATAGAATTTCTTAAGAGAGGTGATAAAAAGTGATATTACACTAGTAATCCTACCACATT |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (4789) | TACACAACCTAGGTATAGAATTTCTTAAGAGAGGTGATAAAAAGTGATATTACACTAGTAATCCTACCACATT |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4753) | TACACAACCTAGGTATAGAATTTCTTAAGAGAGGTGATAAAAAGTGATATTACACTAGTAATCCTACCACATT |      |      |      |      |      |            |

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|                                                        |        | Section 69 |                                                                            |      |      |      |      |      |           |
|--------------------------------------------------------|--------|------------|----------------------------------------------------------------------------|------|------|------|------|------|-----------|
|                                                        |        | (4897)     | 4897                                                                       | 4910 | 4920 | 4930 | 4940 | 4950 | 4968      |
| SARS-CoV-2 Reference Genome NC_045512.2                | (4897) |            | CCACCTAGATGGTGAAGTTATCACCTTTGACAATCTTAAGACACTTCTTTCTTTGAGAGAAGTGAGGACTAT   |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (4843) |            | CCACCTAGATGGTGAAGTTATCACCTTTGACAATCTTAAGACACTTCTTTCTTTGAGAGAAGTGAGGACTAT   |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (4885) |            | CCACCTAGATGGTGAAGTTATCACCTTTGACAATCTTAAGACACTTCTTTCTTTGAGAGAAGTGAGGACTAT   |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (4847) |            | CCACCTAGATGGTGAAGTTATCACCTTTGACAATCTTAAGACACTTCTTTCTTTGAGAGAAGTGAGGACTAT   |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (4861) |            | CCACCTAGATGGTGAAGTTATCACCTTTGACAATCTTAAGACACTTCTTTCTTTGAGAGAAGTGAGGACTAT   |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4825) |            | CCACCTAGATGGTGAAGTTATCACCTTTGACAATCTTAAGACACTTCTTTCTTTGAGAGAAGTGAGGACTAT   |      |      |      |      |      |           |
|                                                        |        | Section 70 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (4969)     | 4969                                                                       | 4980 | 4990 | 5000 | 5010 | 5020 | 5030 5040 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (4969) |            | TAAGGTGTTTACAACAGTAGACAACATTAACCTCCACACGCAAGTTGTGGACATGTCAATGACATATGGACA   |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (4915) |            | TAAGGTGTTTACAACAGTAGACAACATTAACCTCCACACGCAAGTTGTGGACATGTCAATGACATATGGACA   |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (4957) |            | TAAGGTGTTTACAACAGTAGACAACATTAACCTCCACACGCAAGTTGTGGACATGTCAATGACATATGGACA   |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (4919) |            | TAAGGTGTTTACAACAGTAGACAACATTAACCTCCACACGCAAGTTGTGGACATGTCAATGACATATGGACA   |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (4933) |            | TAAGGTGTTTACAACAGTAGACAACATTAACCTCCACACGCAAGTTGTGGACATGTCAATGACATATGGACA   |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4897) |            | TAAGGTGTTTACAACAGTAGACAACATTAACCTCCACACGCAAGTTGTGGACATGTCAATGACATATGGACA   |      |      |      |      |      |           |
|                                                        |        | Section 71 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (5041)     | 5041                                                                       | 5050 | 5060 | 5070 | 5080 | 5090 | 5100 5112 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5041) |            | ACAGTTTGGTCCAACCTTATTTGGATGGAGCTGATGTTACTAAAAATAAAACCTCATAATTCACATGAAGGTAA |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (4987) |            | ACAGTTTGGTCCAACCTTATTTGGATGGAGCTGATGTTACTAAAAATAAAACCTCATAATTCACATGAAGGTAA |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5079) |            | ACAGTTTGGTCCAACCTTATTTGGATGGAGCTGATGTTACTAAAAATAAAACCTCATAATTCACATGAAGGTAA |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (4991) |            | ACAGTTTGGTCCAACCTTATTTGGATGGAGCTGATGTTACTAAAAATAAAACCTCATAATTCACATGAAGGTAA |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5005) |            | ACAGTTTGGTCCAACCTTATTTGGATGGAGCTGATGTTACTAAAAATAAAACCTCATAATTCACATGAAGGTAA |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (4969) |            | ACAGTTTGGTCCAACCTTATTTGGATGGAGCTGATGTTACTAAAAATAAAACCTCATAATTCACATGAAGGTAA |      |      |      |      |      |           |
|                                                        |        | Section 72 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (5113)     | 5113                                                                       | 5120 | 5130 | 5140 | 5150 | 5160 | 5170 5184 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5113) |            | AACATTTTATGTTTTACCTAATGATGACACTCTACGTGTTGAGGCTTTTGAGTACTACCACACAACCTGATCC  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5059) |            | AACATTTTATGTTTTACCTAATGATGACACTCTACGTGTTGAGGCTTTTGAGTACTACCACACAACCTGATCC  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5101) |            | AACATTTTATGTTTTACCTAATGATGACACTCTACGTGTTGAGGCTTTTGAGTACTACCACACAACCTGATCC  |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5063) |            | AACATTTTATGTTTTACCTAATGATGACACTCTACGTGTTGAGGCTTTTGAGTACTACCACACAACCTGATCC  |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5077) |            | AACATTTTATGTTTTACCTAATGATGACACTCTACGTGTTGAGGCTTTTGAGTACTACCACACAACCTGATCC  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5041) |            | AACATTTTATGTTTTACCTAATGATGACACTCTACGTGTTGAGGCTTTTGAGTACTACCACACAACCTGATCC  |      |      |      |      |      |           |

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|--------------------------------------------------------|--------|----------------------------------------------------------------------------|------|------|------|------|------|------|------|--|--|
|                                                        |        | Section 73                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (5185) | 5185                                                                       | 5190 | 5200 | 5210 | 5220 | 5230 | 5240 | 5256 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5185) | TAGTTTTCTGGGTAGGTACATGTCAGCATTAATAATCACACTAAAAAGTGGAAATACCCACAAGTTAATGGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5131) | TAGTTTTCTGGGTAGGTACATGTCAGCATTAATAATCACACTAAAAAGTGGAAATACCCACAAGTTAATGGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5173) | TAGTTTTCTGGGTAGGTACATGTCAGCATTAATAATCACACTAAAAAGTGGAAATACCCACAAGTTAATGGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5135) | TAGTTTTCTGGGTAGGTACATGTCAGCATTAATAATCACACTAAAAAGTGGAAATACCCACAAGTTAATGGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... | (5149) | TAGTTTTCTGGGTAGGTACATGTCAGCATTAATAATCACACTAAAAAGTGGAAATACCCACAAGTTAATGGTTT |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5113) | TAGTTTTCTGGGTAGGTACATGTCAGCATTAATAATCACACTAAAAAGTGGAAATACCCACAAGTTAATGGTTT |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 74                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (5257) | 5257                                                                       | 5270 | 5280 | 5290 | 5300 | 5310 | 5328 |      |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5257) | AACTTCTATTAAATGGGCAGATAACAACCTGTTATCTTGCCACTGCATTGTTAACACTCCAACAAATAGAGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5203) | AACTTCTATTAAATGGGCAGATAACAACCTGTTATCTTGCCACTGCATTGTTAACACTCCAACAAATAGAGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5245) | AACTTCTATTAAATGGGCAGATAACAACCTGTTATCTTGCCACTGCATTGTTAACACTCCAACAAATAGAGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5207) | AACTTCTATTAAATGGGCAGATAACAACCTGTTATCTTGCCACTGCATTGTTAACACTCCAACAAATAGAGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5221) | AACTTCTATTAAATGGGCAGATAACAACCTGTTATCTTGCCACTGCATTGTTAACACTCCAACAAATAGAGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5185) | AACTTCTATTAAATGGGCAGATAACAACCTGTTATCTTGCCACTGCATTGTTAACACTCCAACAAATAGAGTT  |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 75                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (5329) | 5329                                                                       | 5340 | 5350 | 5360 | 5370 | 5380 | 5390 | 5400 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5329) | GAAGTTTAATCCACCTGCTCTACAAGATGCTTATTACAGAGCAAGGGCTGGTGAAGCTGCTAACTTTTGTGC   |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (5275) | GAAGTTTAATCCACCTGCTCTACAAGATGCTTATTACAGAGCAAGGGCTGGTGAAGCGGCTAACTTTTGTGC   |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (5317) | GAAGTTTAATCCACCTGCTCTACAAGATGCTTATTACAGAGCAAGGGCTGGTGAAGCGGCTAACTTTTGTGC   |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_FPI_ISI_9062229 ...  | (5279) | GAAGTTTAATCCACCTGCTCTACAAGATGCTTATTACAGAGCAAGGGCTGGTGAAGCGGCTAACTTTTGTGC   |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5293) | GAAGTTTAATCCACCTGCTCTACAAGATGCTTATTACAGAGCAAGGGCTGGTGAAGCGGCTAACTTTTGTGC   |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5257) | GAAGTTTAATCCACCTGCTCTACAAGATGCTTATTACAGAGCAAGGGCTGGTGAAGCGGCTAACTTTTGTGC   |      |      |      |      |      |      |      |  |  |
|                                                        |        | Section 76                                                                 |      |      |      |      |      |      |      |  |  |
|                                                        | (5401) | 5401                                                                       | 5410 | 5420 | 5430 | 5440 | 5450 | 5460 | 5472 |  |  |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5401) | ACTTATCTTAGCCTACTGTAATAAGACAGTAGGTGAGTTAGGTGATGTTAGAGAAACAATGAGTTACTTTGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5347) | ACTTATCTTAGCCTACTGTAATAAGACAGTAGGTGAGTTAGGTGATGTTAGAGAAACAATGAGTTACTTTGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5389) | ACTTATCTTAGCCTACTGTAATAAGACAGTAGGTGAGTTAGGTGATGTTAGAGAAACAATGAGTTACTTTGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5351) | ACTTATCTTAGCCTACTGTAATAAGACAGTAGGTGAGTTAGGTGATGTTAGAGAAACAATGAGTTACTTTGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5365) | ACTTATCTTAGCCTACTGTAATAAGACAGTAGGTGAGTTAGGTGATGTTAGAGAAACAATGAGTTACTTTGTT  |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5329) | ACTTATCTTAGCCTACTGTAATAAGACAGTAGGTGAGTTAGGTGATGTTAGAGAAACAATGAGTTACTTTGTT  |      |      |      |      |      |      |      |  |  |

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|--------------------------------------------------------|--------|-----------------------------------------------------------------------------|------|------|------|------|------|------|------|--|
|                                                        |        | Section 77                                                                  |      |      |      |      |      |      |      |  |
|                                                        | (5473) | 5473                                                                        | 5480 | 5490 | 5500 | 5510 | 5520 | 5530 | 5544 |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (5473) | TCAACATGCCAATTTAGATTCTTGCAAAAAGAGTCTTGAACGTGGTGTGTAAAACTTGTGGACAACAGCAGAC   |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (5419) | TCAACATGCCAATTTAGATTCTTGCAAAAAGAGTCTTGAACGTGGTGTGTGTAAAACTTGTGGACAACAGCAGAC |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (5461) | TCAACATGCCAATTTAGATTCTTGCAAAAAGAGTCTTGAACGTGGTGTGTGTAAAACTTGTGGACAACAGCAGAC |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (5423) | TCAACATGCCAATTTAGATTCTTGCAAAAAGAGTCTTGAACGTGGTGTGTGTAAAACTTGTGGACAACAGCAGAC |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (5437) | TCAACATGCCAATTTAGATTCTTGCAAAAAGAGTCTTGAACGTGGTGTGTGTAAAACTTGTGGACAACAGCAGAC |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5401) | TCAACATGCCAATTTAGATTCTTGCAAAAAGAGTCTTGAACGTGGTGTGTGTAAAACTTGTGGACAACAGCAGAC |      |      |      |      |      |      |      |  |
|                                                        |        | Section 78                                                                  |      |      |      |      |      |      |      |  |
|                                                        | (5545) | 5545                                                                        | 5550 | 5560 | 5570 | 5580 | 5590 | 5600 | 5616 |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (5545) | AACCCTTAAGGGTGTAGAAGCTGTTATGTACATGGGCACACTTTCTTATGAACAATTTAAGAAAGGTGTTCA    |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (5491) | AACCCTTAAGGGTGTAGAAGCTGTTATGTACATGGGCACACTTTCTTATGAACAATTTAAGAAAGGTGTTCA    |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (5533) | AACCCTTAAGGGTGTAGAAGCTGTTATGTACATGGGCACACTTTCTTATGAACAATTTAAGAAAGGTGTTCA    |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (5495) | AACCCTTAAGGGTGTAGAAGCTGTTATGTACATGGGCACACTTTCTTATGAACAATTTAAGAAAGGTGTTCA    |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (5509) | AACCCTTAAGGGTGTAGAAGCTGTTATGTACATGGGCACACTTTCTTATGAACAATTTAAGAAAGGTGTTCA    |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5473) | AACCCTTAAGGGTGTAGAAGCTGTTATGTACATGGGCACACTTTCTTATGAACAATTTAAGAAAGGTGTTCA    |      |      |      |      |      |      |      |  |
|                                                        |        | Section 79                                                                  |      |      |      |      |      |      |      |  |
|                                                        | (5617) | 5617                                                                        | 5630 | 5640 | 5650 | 5660 | 5670 | 5688 |      |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (5617) | GATACCTTGTTACGTGTGGTAAACAAGCTACAAAATATCTAGTACAACAGGAGTCACCTTTTGTATGATGTC    |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (5563) | GATACCTTGTTACGTGTGGTAAACAAGCTACAAAATATCTAGTACAACAGGAGTCACCTTTTGTATGATGTC    |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (5605) | GATACCTTGTTACGTGTGGTAAACAAGCTACAAAATATCTAGTACAACAGGAGTCACCTTTTGTATGATGTC    |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (5567) | GATACCTTGTTACGTGTGGTAAACAAGCTACAAAATATCTAGTACAACAGGAGTCACCTTTTGTATGATGTC    |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (5581) | GATACCTTGTTACGTGTGGTAAACAAGCTACAAAATATCTAGTACAACAGGAGTCACCTTTTGTATGATGTC    |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5545) | GATACCTTGTTACGTGTGGTAAACAAGCTACAAAATATCTAGTACAACAGGAGTCACCTTTTGTATGATGTC    |      |      |      |      |      |      |      |  |
|                                                        |        | Section 80                                                                  |      |      |      |      |      |      |      |  |
|                                                        | (5689) | 5689                                                                        | 5700 | 5710 | 5720 | 5730 | 5740 | 5750 | 5760 |  |
| SARS-CoV-2 Reference Genome NC 045512.2                | (5689) | AGCACCACCTGCTCAGTATGAACCTTAAGCATGGTACATTTA                                  |      |      |      |      |      |      |      |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (5635) | AGCACCACCTGCTCAGTATGAACCTTAAGCATGGTACATTTA                                  |      |      |      |      |      |      |      |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (5677) | AGCACCACCTGCTCAGTATGAACCTTAAGCATGGTACATTTA                                  |      |      |      |      |      |      |      |  |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (5639) | AGCACCACCTGCTCAGTATGAACCTTAAGCATGGTACATTTA                                  |      |      |      |      |      |      |      |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (5653) | AGCACCACCTGCTCAGTATGAACCTTAAGCATGGTACATTTA                                  |      |      |      |      |      |      |      |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (5617) | AGCACCACCTGCTCAGTATGAACCTTAAGCATGGTACATTTA                                  |      |      |      |      |      |      |      |  |

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|                                                        |        | Section 81 |                                            |                                |                        |                   |      |      |           |
|--------------------------------------------------------|--------|------------|--------------------------------------------|--------------------------------|------------------------|-------------------|------|------|-----------|
|                                                        |        | (5761)     | 5761                                       | 5770                           | 5780                   | 5790              | 5800 | 5810 | 5820 5832 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5761) |            | GTGTGGTCACTATAAAACATATAA                   | CTTCTAAAGAA                    | ACTTTGTATTGCATAGACGGT  | GCTTTACTTACAAAGTC |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5707) |            | GTGTGGTCACTATAAAACATATAA                   | CTTCTAAAGAA                    | ACTTTGTATTGCATAGACGGT  | GCTTTACTTACAAAGTC |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5749) |            | GTGTGGTCACTATAAAACATATAA                   | CTTCTAAAGAA                    | ACTTTGTATTGCATAGACGGT  | GCTTTACTTACAAAGTC |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5711) |            | GTGTGGTCACTATAAAACATATAA                   | CTTCTAAAGAA                    | ACTTTGTATTGCATAGACGGT  | GCTTTACTTACAAAGTC |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5725) |            | GTGTGGTCACTATAAAACATATAA                   | CTTCTAAAGAA                    | ACTTTGTATTGCATAGACGGT  | GCTTTACTTACAAAGTC |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5689) |            | GTGTGGTCACTATAAAACATATAA                   | CTTCTAAAGAA                    | ACTTTGTATTGCATAGACGGT  | GCTTTACTTACAAAGTC |      |      |           |
|                                                        |        | Section 82 |                                            |                                |                        |                   |      |      |           |
|                                                        |        | (5833)     | 5833                                       | 5840                           | 5850                   | 5860              | 5870 | 5880 | 5890 5904 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5833) |            | CTCAGAATACAAAGGTCCTATTAC                   | GGATGTTTTCTACAAAGAA            | AAACAGTTACACAACA       | ACCATAAAACCAGT    |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5779) |            | CTCAGAATACAAAGGTCCTATTAC                   | GGATGTTTTCTACAAAGAA            | AAACAGTTACACAACA       | ACCATAAAACCAGT    |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5821) |            | CTCAGAATACAAAGGTCCTATTAC                   | GGATGTTTTCTACAAAGAA            | AAACAGTTACACAACA       | ACCATAAAACCAGT    |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5783) |            | CTCAGAATACAAAGGTCCTATTAC                   | GGATGTTTTCTACAAAGAA            | AAACAGTTACACAACA       | ACCATAAAACCAGT    |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5797) |            | CTCAGAATACAAAGGTCCTATTAC                   | GGATGTTTTCTACAAAGAA            | AAACAGTTACACAACA       | ACCATAAAACCAGT    |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5761) |            | CTCAGAATACAAAGGTCCTATTAC                   | GGATGTTTTCTACAAAGAA            | AAACAGTTACACAACA       | ACCATAAAACCAGT    |      |      |           |
|                                                        |        | Section 83 |                                            |                                |                        |                   |      |      |           |
|                                                        |        | (5905)     | 5905                                       | 5910                           | 5920                   | 5930              | 5940 | 5950 | 5960 5976 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5905) |            | TACTTATAAAATTGGATGGTGT                     | TGTTGTACAGAAATTGACCCTA         | AGTTGGACAATTATTATAAGAA | AGACAA            |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5851) |            | TACTTATAAAATTGGATGGTGT                     | TGTTGTACAGAAATTGACCCTA         | AGTTGGACAATTATTATAAGAA | AGACAA            |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5893) |            | TACTTATAAAATTGGATGGTGT                     | TGTTGTACAGAAATTGACCCTA         | AGTTGGACAATTATTATAAGAA | AGACAA            |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5855) |            | TACTTATAAAATTGGATGGTGT                     | TGTTGTACAGAAATTGACCCTA         | AGTTGGACAATTATTATAAGAA | AGACAA            |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5869) |            | TACTTATAAAATTGGATGGTGT                     | TGTTGTACAGAAATTGACCCTA         | AGTTGGACAATTATTATAAGAA | AGACAA            |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5833) |            | TACTTATAAAATTGGATGGTGT                     | TGTTGTACAGAAATTGACCCTA         | AGTTGGACAATTATTATAAGAA | AGACAA            |      |      |           |
|                                                        |        | Section 84 |                                            |                                |                        |                   |      |      |           |
|                                                        |        | (5977)     | 5977                                       | 5990                           | 6000                   | 6010              | 6020 | 6030 | 6048      |
| SARS-CoV-2 Reference Genome NC_045512.2                | (5977) |            | TTCTTATTTTACAGAGCAACCAATTGATCTTGTACCAAACCA | ACCATATCCAAACGCAAGCTTCGATAATTT |                        |                   |      |      |           |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (5923) |            | TTCTTATTTTACAGAGCAACCAATTGATCTTGTACCAAACCA | ACCATATCCAAACGCAAGCTTCGATAATTT |                        |                   |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (5965) |            | TTCTTATTTTACAGAGCAACCAATTGATCTTGTACCAAACCA | ACCATATCCAAACGCAAGCTTCGATAATTT |                        |                   |      |      |           |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (5927) |            | TTCTTATTTTACAGAGCAACCAATTGATCTTGTACCAAACCA | ACCATATCCAAACGCAAGCTTCGATAATTT |                        |                   |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (5941) |            | TTCTTATTTTACAGAGCAACCAATTGATCTTGTACCAAACCA | ACCATATCCAAACGCAAGCTTCGATAATTT |                        |                   |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5905) |            | TTCTTATTTTACAGAGCAACCAATTGATCTTGTACCAAACCA | ACCATATCCAAACGCAAGCTTCGATAATTT |                        |                   |      |      |           |

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|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|------------|
|                                                        |        |                                                                           |      |      |      |      |      |      |      | Section 85 |
|                                                        | (6049) | 6049                                                                      | 6060 | 6070 | 6080 | 6090 | 6100 | 6110 | 6120 |            |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6049) | TAAGTTTGTATGTGATAATATCAAATTTGCTGATGATTTAAACCAGTTAACTGGTTATAAGAAACCTGCTTC  |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (5995) | TAAGTTTGTATGTGATAATATCAAATTTGCTGATGATTTAAACCAGTTAACTGGTTATAAGAAACCTGCTTC  |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6037) | TAAGTTTGTATGTGATAATATCAAATTTGCTGATGATTTAAACCAGTTAACTGGTTATAAGAAACCTGCTTC  |      |      |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (5999) | TAAGTTTGTATGTGATAATATCAAATTTGCTGATGATTTAAACCAGTTAACTGGTTATAAGAAACCTGCTTC  |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (6013) | TAAGTTTGTATGTGATAATATCAAATTTGCTGATGATTTAAACCAGTTAACTGGTTATAAGAAACCTGCTTC  |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (5977) | TAAGTTTGTATGTGATAATATCAAATTTGCTGATGATTTAAACCAGTTAACTGGTTATAAGAAACCTGCTTC  |      |      |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      |      |      | Section 86 |
|                                                        | (6121) | 6121                                                                      | 6130 | 6140 | 6150 | 6160 | 6170 | 6180 | 6192 |            |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6121) | AAGAGAGCTTAAAGTTACATTTTTCCCTGACTTAAATGGTGATGTGGTGGCTATTGATTATAAAACACTACAC |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (6067) | AAGAGAGCTTAAAGTTACATTTTTCCCTGACTTAAATGGTGATGTGGTGGCTATTGATTATAAAACACTACAC |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6109) | AAGAGAGCTTAAAGTTACATTTTTCCCTGACTTAAATGGTGATGTGGTGGCTATTGATTATAAAACACTACAC |      |      |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (6071) | AAGAGAGCTTAAAGTTACATTTTTCCCTGACTTAAATGGTGATGTGGTGGCTATTGATTATAAAACACTACAC |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (6085) | AAGAGAGCTTAAAGTTACATTTTTCCCTGACTTAAATGGTGATGTGGTGGCTATTGATTATAAAACACTACAC |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6049) | AAGAGAGCTTAAAGTTACATTTTTCCCTGACTTAAATGGTGATGTGGTGGCTATTGATTATAAAACACTACAC |      |      |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      |      |      | Section 87 |
|                                                        | (6193) | 6193                                                                      | 6200 | 6210 | 6220 | 6230 | 6240 | 6250 | 6264 |            |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6193) | ACCCTCTTTTAAGAAAGGAGCTAAATTGTTACATAAAACCTATTGTTTGGCATGTTAACAATGCAACTAATAA |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (6139) | ACCCTCTTTTAAGAAAGGAGCTAAATTGTTACATAAAACCTATTGTTTGGCATGTTAACAATGCAACTAATAA |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6181) | ACCCTCTTTTAAGAAAGGAGCTAAATTGTTACATAAAACCTATTGTTTGGCATGTTAACAATGCAACTAATAA |      |      |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (6143) | ACCCTCTTTTAAGAAAGGAGCTAAATTGTTACATAAAACCTATTGTTTGGCATGTTAACAATGCAACTAATAA |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (6157) | ACCCTCTTTTAAGAAAGGAGCTAAATTGTTACATAAAACCTATTGTTTGGCATGTTAACAATGCAACTAATAA |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6121) | ACCCTCTTTTAAGAAAGGAGCTAAATTGTTACATAAAACCTATTGTTTGGCATGTTAACAATGCAACTAATAA |      |      |      |      |      |      |      |            |
|                                                        |        |                                                                           |      |      |      |      |      |      |      | Section 88 |
|                                                        | (6265) | 6265                                                                      | 6270 | 6280 | 6290 | 6300 | 6310 | 6320 | 6336 |            |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6265) | AGCCACGTATAAACCCTGCTGTTACGTTGTCTTTGGAGCACAAAACAGTTGAAACATCAAATTC          |      |      |      |      |      |      |      |            |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (6211) | AGCCACGTATAAACCCTGCTGTTACGTTGTCTTTGGAGCACAAAACAGTTGAAACATCAAATTC          |      |      |      |      |      |      |      |            |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6253) | AGCCACGTATAAACCCTGCTGTTACGTTGTCTTTGGAGCACAAAACAGTTGAAACATCAAATTC          |      |      |      |      |      |      |      |            |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (6215) | AGCCACGTATAAACCCTGCTGTTACGTTGTCTTTGGAGCACAAAACAGTTGAAACATCAAATTC          |      |      |      |      |      |      |      |            |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (6229) | AGCCACGTATAAACCCTGCTGTTACGTTGTCTTTGGAGCACAAAACAGTTGAAACATCAAATTC          |      |      |      |      |      |      |      |            |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (6193) | AGCCACGTATAAACCCTGCTGTTACGTTGTCTTTGGAGCACAAAACAGTTGAAACATCAAATTC          |      |      |      |      |      |      |      |            |

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|                                                        |        | Section 89 |                                                                            |      |                                        |      |      |      |           |
|--------------------------------------------------------|--------|------------|----------------------------------------------------------------------------|------|----------------------------------------|------|------|------|-----------|
|                                                        |        | (6337)     | 6337                                                                       | 6350 | 6360                                   | 6370 | 6380 | 6390 | 6408      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6337) |            | GTTTGATGTACTGAAGTCAGAGGACGCGCAGGGAATGGATAATCTTGCCCTGCGAAGATCTAAAACCAAGTCTC |      |                                        |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (6283) |            | GTTTGATGTACTGAAGTCAGAGGACGCGCAGGGAATGGATAATCTTGCCCTGCGAAGATCTAAAACCAAGTCTC |      |                                        |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6325) |            | GTTTGATGTACTGAAGTCAGAGGACGCGCAGGGAATGGATAATCTTGCCCTGCGAAGATCTAAAACCAAGTCTC |      |                                        |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (6287) |            | GTTTGATGTACTGAAGTCAGAGGACGCGCAGGGAATGGATAATCTTGCCCTGCGAAGATCTAAAACCAAGTCTC |      |                                        |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (6301) |            | GTTTGATGTACTGAAGTCAGAGGACGCGCAGGGAATGGATAATCTTGCCCTGCGAAGATCTAAAACCAAGTCTC |      |                                        |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6265) |            | GTTTGATGTACTGAAGTCAGAGGACGCGCAGGGAATGGATAATCTTGCCCTGCGAAGATCTAAAACCAAGTCTC |      |                                        |      |      |      |           |
|                                                        |        | Section 90 |                                                                            |      |                                        |      |      |      |           |
|                                                        |        | (6409)     | 6409                                                                       | 6420 | 6430                                   | 6440 | 6450 | 6460 | 6470 6480 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6409) |            | TGAAGAAGTAGTGGAAAAATCCTACCATACAGAAAGACGTTCTTGAGTGTAATGTGAAAACTACCGAAGTTGT  |      |                                        |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (6355) |            | TGAAGAAGTAGTGGAAAAATCCTACCATACAGAAAGACGTTCTTGAGTGTAATGTGAAAACTACCGAAGTTGT  |      |                                        |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6397) |            | TGAAGAAGTAGTGGAAAAATCCTACCATACAGAAAGACGTTCTTGAGTGTAATGTGAAAACTACCGAAGTTGT  |      |                                        |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (6359) |            | TGAAGAAGTAGTGGAAAAATCCTACCATACAGAAAGACGTTCTTGAGTGTAATGTGAAAACTACCGAAGTTGT  |      |                                        |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (6373) |            | TGAAGAAGTAGTGGAAAAATCCTACCATACAGAAAGACGTTCTTGAGTGTAATGTGAAAACTACCGAAGTTGT  |      |                                        |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6337) |            | TGAAGAAGTAGTGGAAAAATCCTACCATACAGAAAGACGTTCTTGAGTGTAATGTGAAAACTACCGAAGTTGT  |      |                                        |      |      |      |           |
|                                                        |        | Section 91 |                                                                            |      |                                        |      |      |      |           |
|                                                        |        | (6481)     | 6481                                                                       | 6490 | 6500                                   | 6510 | 6520 | 6530 | 6540 6552 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6481) |            | AGGAGACATTATACTTAAACCAGCAAATAATA                                           | GTT  | TAAAAAATTACAGAAGAGGTTGGCCACACAGATCTAAT |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (6427) |            | AGGAGACATTATACTTAAACCAGCAAATAATA                                           | NNN  | TAAAAAATTACAGAAGAGGTTGGCCACACAGATCTAAT |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6469) |            | AGGAGACATTATACTTAAACCAGCAAATAATA                                           | GTT  | TAAAAAATTACAGAAGAGGTTGGCCACACAGATCTAAT |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (6431) |            | AGGAGACATTATACTTAAACCAGCAAATAATA                                           | ---  | TAAAAAATTACAGAAGAGGTTGGCCACACAGATCTAAT |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (6445) |            | AGGAGACATTATACTTAAACCAGCAAATAATA                                           | ---  | TAAAAAATTACAGAAGAGGTTGGCCACACAGATCTAAT |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6409) |            | AGGAGACATTATACTTAAACCAGCAAATAATA                                           | ---  | TAAAAAATTACAGAAGAGGTTGGCCACACAGATCTAAT |      |      |      |           |
|                                                        |        | Section 92 |                                                                            |      |                                        |      |      |      |           |
|                                                        |        | (6553)     | 6553                                                                       | 6560 | 6570                                   | 6580 | 6590 | 6600 | 6610 6624 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (6553) |            | GGCTGCTTATGTAGACAATTCTAGTCTTACTATTAAGAAACCTAATGAATTATCTAGAGTATTAGGTTTGAA   |      |                                        |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (6499) |            | GGCTGCTTATGTAGACAATTCTAGTCTTACTATTAAGAAACCTAATGAATTATCTAGAGTATTAGGTTTGAA   |      |                                        |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (6541) |            | GGCTGCTTATGTAGACAATTCTAGTCTTACTATTAAGAAACCTAATGAATTATCTAGAGTATTAGGTTTGAA   |      |                                        |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (6500) |            | GGCTGCTTATGTAGACAATTCTAGTCTTACTATTAAGAAACCTAATGAATTATCTAGAGTATTAGGTTTGAA   |      |                                        |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (6514) |            | GGCTGCTTATGTAGACAATTCTAGTCTTACTATTAAGAAACCTAATGAATTATCTAGAGTATTAGGTTTGAA   |      |                                        |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6478) |            | GGCTGCTTATGTAGACAATTCTAGTCTTACTATTAAGAAACCTAATGAATTATCTAGAGTATTAGGTTTGAA   |      |                                        |      |      |      |           |

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|--------------------------------------------------------|--------|-----------------------------------------------------------------------------|------|------|------|------|------|------|------|
| Section 93                                             |        |                                                                             |      |      |      |      |      |      |      |
|                                                        | (6625) | 6625                                                                        | 6630 | 6640 | 6650 | 6660 | 6670 | 6680 | 6696 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (6625) | AACCCCTTGCTACTCATGGTTTAGCTGCTGTTAATAGTGTCCCTTGGGATACTATAGCTAATTATGCTAAGCC   |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (6571) | AACCCCTTGCTACTCATGGTTTAGCTGCTGTTAATAGTGTCCCTTGGGATACTATAGCTAATTATGCTAAGCC   |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (6613) | AACCCCTTGCTACTCATGGTTTAGCTGCTGTTAATAGTGTCCCTTGGGATACTATAGCTAATTATGCTAAGCC   |      |      |      |      |      |      |      |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (6572) | AACCCCTTGCTACTCATGGTTTAGCTGCTGTTAATAGTGTCCCTTGGGATACTATAGCTAATTATGCTAAGCC   |      |      |      |      |      |      |      |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... | (6586) | AACCCCTTGCTACTCATGGTTTAGCTGCTGTTAATAGTGTCCCTTGGGATACTATAGCTAATTATGCTAAGCC   |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6550) | AACCCCTTGCTACTCATGGTTTAGCTGCTGTTAATAGTGTCCCTTGGGATACTATAGCTAATTATGCTAAGCC   |      |      |      |      |      |      |      |
| Section 94                                             |        |                                                                             |      |      |      |      |      |      |      |
|                                                        | (6697) | 6697                                                                        | 6710 | 6720 | 6730 | 6740 | 6750 | 6768 |      |
| SARS-CoV-2 Reference Genome NC_045512.2                | (6697) | TTTTCTTAACAAAGTTGTTAGTACAACACTACTAACTATAGTTACACGGTGTTTAAACCGTGTTTGTACTAATTA |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (6643) | TTTTCTTAACAAAGTTGTTAGTACAACACTACTAATATAGTTACACGGTGTTTAAACCGTGTTTGTACTAATTA  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (6685) | TTTTCTTAACAAAGTTGTTAGTACAACACTACTAACTATAGTTACACGGTGTTTAAACCGTGTTTGTACTAATTA |      |      |      |      |      |      |      |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (6644) | TTTTCTTAACAAAGTTGTTAGTACAACACTACTAACTATAGTTACACGGTGTTTAAACCGTGTTTGTACTAATTA |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (6658) | TTTTCTTAACAAAGTTGTTAGTACAACACTACTAACTATAGTTACACGGTGTTTAAACCGTGTTTGTACTAATTA |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6622) | TTTTCTTAACAAAGTTGTTAGTACAACACTACTAACTATAGTTACACGGTGTTTAAACCGTGTTTGTACTAATTA |      |      |      |      |      |      |      |
| Section 95                                             |        |                                                                             |      |      |      |      |      |      |      |
|                                                        | (6769) | 6769                                                                        | 6780 | 6790 | 6800 | 6810 | 6820 | 6830 | 6840 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (6769) | TATGCCTTATTTCTTTACTTTATTGCTACAATTGTGTACTTTTACTAGAAGTACAAATTCTAGAATTAAAGC    |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (6715) | TATGCCTTATTTCTTTACTTTATTGCTACAATTGTGTACTTTTACTAGAAGTACAAATTCTAGAATTAAAGC    |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (6757) | TATGCCTTATTTCTTTACTTTATTGCTACAATTGTGTACTTTTACTAGAAGTACAAATTCTAGAATTAAAGC    |      |      |      |      |      |      |      |
| hCoV-19/England/PI_YM-332B917/2022_FPI_ISI_9062229 ... | (6716) | TATGCCTTATTTCTTTACTTTATTGCTACAATTGTGTACTTTTACTAGAAGTACAAATTCTAGAATTAAAGC    |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (6730) | TATGCCTTATTTCTTTACTTTATTGCTACAATTGTGTACTTTTACTAGAAGTACAAATTCTAGAATTAAAGC    |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6694) | TATGCCTTATTTCTTTACTTTATTGCTACAATTGTGTACTTTTACTAGAAGTACAAATTCTAGAATTAAAGC    |      |      |      |      |      |      |      |
| Section 96                                             |        |                                                                             |      |      |      |      |      |      |      |
|                                                        | (6841) | 6841                                                                        | 6850 | 6860 | 6870 | 6880 | 6890 | 6900 | 6912 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (6841) | ATCTATGCCGACTACTATAGCAAAGAATACTGTTAAGAGTGTCGGTAAATTTTGTCTAGAGGCTTCATTTAA    |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (6787) | ATCTATGCCGACTACTATAGCAAAGAATACTGTTAAGAGTGTCGGTAAATTTTGTCTAGAGGCTTCATTTAA    |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (6829) | ATCTATGCCGACTACTATAGCAAAGAATACTGTTAAGAGTGTCGGTAAATTTTGTCTAGAGGCTTCATTTAA    |      |      |      |      |      |      |      |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  | (6788) | ATCTATGCCGACTACTATAGCAAAGAATACTGTTAAGAGTGTCGGTAAATTTTGTCTAGAGGCTTCATTTAA    |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (6802) | ATCTATGCCGACTACTATAGCAAAGAATACTGTTAAGAGTGTCGGTAAATTTTGTCTAGAGGCTTCATTTAA    |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (6766) | ATCTATGCCGACTACTATAGCAAAGAATACTGTTAAGAGTGTCGGTAAATTTTGTCTAGAGGCTTCATTTAA    |      |      |      |      |      |      |      |

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|                                                        |  |             |                                                                          |      |      |      |      |      |      |      |  |  |
|--------------------------------------------------------|--|-------------|--------------------------------------------------------------------------|------|------|------|------|------|------|------|--|--|
|                                                        |  | Section 97  |                                                                          |      |      |      |      |      |      |      |  |  |
|                                                        |  | (6913)      | 6913                                                                     | 6920 | 6930 | 6940 | 6950 | 6960 | 6970 | 6984 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (6913)      | TTATTTGAAGTCACCTAATTTTTCTAAACTGATAAATATTATAATTTGGTTTTTACTATTAAGTGTTCCT   |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (6859)      | TTATTTGAAGTCACCTAATTTTTCTAAACTGATAAATATTATAATTTGGTTTTTACTATTAAGTGTTCCT   |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (6901)      | TTATTTGAAGTCACCTAATTTTTCTAAACTGATAAATATTATAATTTGGTTTTTACTATTAAGTGTTCCT   |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (6860)      | TTATTTGAAGTCACCTAATTTTTCTAAACTGATAAATATTATAATTTGGTTTTTACTATTAAGTGTTCCT   |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (6874)      | TTATTTGAAGTCACCTAATTTTTCTAAACTGATAAATATTATAATTTGGTTTTTACTATTAAGTGTTCCT   |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (6838)      | TTATTTGAAGTCACCTAATTTTTCTAAACTGATAAATATTATAATTTGGTTTTTACTATTAAGTGTTCCT   |      |      |      |      |      |      |      |  |  |
|                                                        |  | Section 98  |                                                                          |      |      |      |      |      |      |      |  |  |
|                                                        |  | (6985)      | 6985                                                                     | 6990 | 7000 | 7010 | 7020 | 7030 | 7040 | 7056 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (6985)      | AGGTTCTTTAATCTACTCAACCGCTGCTTTAGGTGTTTTAATGTCTAATTTAGGCATGCCTTCTTACTGTAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (6931)      | AGGTTCTTTAATCTACTCAACCGCTGCTTTAGGTGTTTTAATGTCTAATTTAGGCATGCCTTCTTACTGTAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (6973)      | AGGTTCTTTAATCTACTCAACCGCTGCTTTAGGTGTTTTAATGTCTAATTTAGGCATGCCTTCTTACTGTAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (6932)      | AGGTTCTTTAATCTACTCAACCGCTGCTTTAGGTGTTTTAATGTCTAATTTAGGCATGCCTTCTTACTGTAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (6946)      | AGGTTCTTTAATCTACTCAACCGCTGCTTTAGGTGTTTTAATGTCTAATTTAGGCATGCCTTCTTACTGTAC |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (6910)      | AGGTTCTTTAATCTACTCAACCGCTGCTTTAGGTGTTTTAATGTCTAATTTAGGCATGCCTTCTTACTGTAC |      |      |      |      |      |      |      |  |  |
|                                                        |  | Section 99  |                                                                          |      |      |      |      |      |      |      |  |  |
|                                                        |  | (7057)      | 7057                                                                     | 7070 | 7080 | 7090 | 7100 | 7110 | 7128 |      |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (7057)      | TGGTTACAGAGAAGGCTATTTGAACTCTACTAATGTCACTATTGCAACCTACTGTACTGGTTCTATACCTTG |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (7003)      | TGGTTACAGAGAAGGCTATTTGAACTCTACTAATGTCACTATTGCAACCTACTGTACTGGTTCTATACCTTG |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (7045)      | TGGTTACAGAGAAGGCTATTTGAACTCTACTAATGTCACTATTGCAACCTACTGTACTGGTTCTATACCTTG |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (7004)      | TGGTTACAGAGAAGGCTATTTGAACTCTACTAATGTCACTATTGCAACCTACTGTACTGGTTCTATACCTTG |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (7018)      | TGGTTACAGAGAAGGCTATTTGAACTCTACTAATGTCACTATTGCAACCTACTGTACTGGTTCTATACCTTG |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (6982)      | TGGTTACAGAGAAGGCTATTTGAACTCTACTAATGTCACTATTGCAACCTACTGTACTGGTTCTATACCTTG |      |      |      |      |      |      |      |  |  |
|                                                        |  | Section 100 |                                                                          |      |      |      |      |      |      |      |  |  |
|                                                        |  | (7129)      | 7129                                                                     | 7140 | 7150 | 7160 | 7170 | 7180 | 7190 | 7200 |  |  |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (7129)      | TAGTGTTTGTCTTAGTGTTTGTAGATTCTTTAGACACCTATCCTTCTTTAGAACTATACAAATTACCATTTC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (7075)      | TAGTGTTTGTCTTAGTGTTTGTAGATTCTTTAGACACCTATCCTTCTTTAGAACTATACAAATTACCATTTC |      |      |      |      |      |      |      |  |  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (7117)      | TAGTGTTTGTCTTAGTGTTTGTAGATTCTTTAGACACCTATCCTTCTTTAGAACTATACAAATTACCATTTC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (7076)      | TAGTGTTTGTCTTAGTGTTTGTAGATTCTTTAGACACCTATCCTTCTTTAGAACTATACAAATTACCATTTC |      |      |      |      |      |      |      |  |  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (7090)      | TAGTGTTTGTCTTAGTGTTTGTAGATTCTTTAGACACCTATCCTTCTTTAGAACTATACAAATTACCATTTC |      |      |      |      |      |      |      |  |  |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   |  | (7054)      | TAGTGTTTGTCTTAGTGTTTGTAGATTCTTTAGACACCTATCCTTCTTTAGAACTATACAAATTACCATTTC |      |      |      |      |      |      |      |  |  |

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|                                                        |        | Section 101 |                                                                           |      |      |      |      |      |           |
|--------------------------------------------------------|--------|-------------|---------------------------------------------------------------------------|------|------|------|------|------|-----------|
|                                                        |        | (7201)      | 7201                                                                      | 7210 | 7220 | 7230 | 7240 | 7250 | 7260 7272 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7201) |             | ATCTTTTAAATGGGATTTAACTGCTTTTGGCTTAGTTGCAGAGTGGTTTTTGGCATATATTCTTTTCACTAG  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7147) |             | ATCTTTTAAATGGGATTTAACTGCTTTTGGCTTAGTTGCAGAGTGGTTTTTGGCATATATTCTTTTCACTAG  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7189) |             | ATCTTTTAAATGGGATTTAACTGCTTTTGGCTTAGTTGCAGAGTGGTTTTTGGCATATATTCTTTTCACTAG  |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (7148) |             | ATCTTTTAAATGGGATTTAACTGCTTTTGGCTTAGTTGCAGAGTGGTTTTTGGCATATATTCTTTTCACTAG  |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7162) |             | ATCTTTTAAATGGGATTTAACTGCTTTTGGCTTAGTTGCAGAGTGGTTTTTGGCATATATTCTTTTCACTAG  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7126) |             | ATCTTTTAAATGGGATTTAACTGCTTTTGGCTTAGTTGCAGAGTGGTTTTTGGCATATATTCTTTTCACTAG  |      |      |      |      |      |           |
|                                                        |        | Section 102 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (7273)      | 7273                                                                      | 7280 | 7290 | 7300 | 7310 | 7320 | 7330 7344 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7273) |             | GTTTTTCTATGTACTTGGATTGGCTGCAATCATGCAATTGTTTTTCAGCTATTTTGCAGTACATTTTATTAG  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7219) |             | GTTTTTCTATGTACTTGGATTGGCTGCAATCATGCAATTGTTTTTCAGCTATTTTGCAGTACATTTTATTAG  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7261) |             | GTTTTTCTATGTACTTGGATTGGCTGCAATCATGCAATTGTTTTTCAGCTATTTTGCAGTACATTTTATTAG  |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (7220) |             | GTTTTTCTATGTACTTGGATTGGCTGCAATCATGCAATTGTTTTTCAGCTATTTTGCAGTACATTTTATTAG  |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7234) |             | GTTTTTCTATGTACTTGGATTGGCTGCAATCATGCAATTGTTTTTCAGCTATTTTGCAGTACATTTTATTAG  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7198) |             | GTTTTTCTATGTACTTGGATTGGCTGCAATCATGCAATTGTTTTTCAGCTATTTTGCAGTACATTTTATTAG  |      |      |      |      |      |           |
|                                                        |        | Section 103 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (7345)      | 7345                                                                      | 7350 | 7360 | 7370 | 7380 | 7390 | 7400 7416 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7345) |             | TAATTCTTGGCTTATGTGGTTAATAATTAATCTTGTACAAATGGCCCCGATTTTCAGCTATGGTTAGAATGTA |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7291) |             | TAATTCTTGGCTTATGTGGTTAATAATTAATCTTGTACAAATGGCCCCGATTTTCAGCTATGGTTAGAATGTA |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7333) |             | TAATTCTTGGCTTATGTGGTTAATAATTAATCTTGTACAAATGGCCCCGATTTTCAGCTATGGTTAGAATGTA |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (7292) |             | TAATTCTTGGCTTATGTGGTTAATAATTAATCTTGTACAAATGGCCCCGATTTTCAGCTATGGTTAGAATGTA |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7306) |             | TAATTCTTGGCTTATGTGGTTAATAATTAATCTTGTACAAATGGCCCCGATTTTCAGCTATGGTTAGAATGTA |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7270) |             | TAATTCTTGGCTTATGTGGTTAATAATTAATCTTGTACAAATGGCCCCGATTTTCAGCTATGGTTAGAATGTA |      |      |      |      |      |           |
|                                                        |        | Section 104 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (7417)      | 7417                                                                      | 7430 | 7440 | 7450 | 7460 | 7470 | 7488      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7417) |             | CATCTTCTTTGCATCATTTTATTATGTATGGAAAAGTTATGTGCATGTTGTAGACGGTTGTAATTCATCAAC  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7363) |             | CATCTTCTTTGCATCATTTTATTATGTATGGAAAAGTTATGTGCATGTTGTAGACGGTTGTAATTCATCAAC  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7405) |             | CATCTTCTTTGCATCATTTTATTATGTATGGAAAAGTTATGTGCATGTTGTAGACGGTTGTAATTCATCAAC  |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (7364) |             | CATCTTCTTTGCATCATTTTATTATGTATGGAAAAGTTATGTGCATGTTGTAGACGGTTGTAATTCATCAAC  |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7378) |             | CATCTTCTTTGCATCATTTTATTATGTATGGAAAAGTTATGTGCATGTTGTAGACGGTTGTAATTCATCAAC  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7342) |             | CATCTTCTTTGCATCATTTTATTATGTATGGAAAAGTTATGTGCATGTTGTAGACGGTTGTAATTCATCAAC  |      |      |      |      |      |           |

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|                                                        |        | Section 105 |                                                                           |      |      |      |      |      |           |
|--------------------------------------------------------|--------|-------------|---------------------------------------------------------------------------|------|------|------|------|------|-----------|
|                                                        |        | (7489)      | 7489                                                                      | 7500 | 7510 | 7520 | 7530 | 7540 | 7550 7560 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7489) |             | TTGTATGATGTGTTACAAACGTAATAGAGCAACAAGAGTCGAATGTACAACATTGTTAATGGTGTAGAAAG   |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7435) |             | TTGTATGATGTGTTACAAACGTAATAGAGCAACAAGAGTCGAATGTACAACATTGTTAATGGTGTAGAAAG   |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7477) |             | TTGTATGATGTGTTACAAACGTAATAGAGCAACAAGAGTCGAATGTACAACATTGTTAATGGTGTAGAAAG   |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (7436) |             | TTGTATGATGTGTTACAAACGTAATAGAGCAACAAGAGTCGAATGTACAACATTGTTAATGGTGTAGAAAG   |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7450) |             | TTGTATGATGTGTTACAAACGTAATAGAGCAACAAGAGTCGAATGTACAACATTGTTAATGGTGTAGAAAG   |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7414) |             | TTGTATGATGTGTTACAAACGTAATAGAGCAACAAGAGTCGAATGTACAACATTGTTAATGGTGTAGAAAG   |      |      |      |      |      |           |
|                                                        |        | Section 106 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (7561)      | 7561                                                                      | 7570 | 7580 | 7590 | 7600 | 7610 | 7620 7632 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7561) |             | GTCCTTTTATGTCTATGCTAATGGAGGTAAAGGCTTTTGCAAACCTACACAATTGGAATTGTGTTAATTGTGA |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7507) |             | GTCCTTTTATGTCTATGCTAATGGAGGTAAAGGCTTTTGCAAACCTACACAATTGGAATTGTGTTAATTGTGA |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7549) |             | GTCCTTTTATGTCTATGCTAATGGAGGTAAAGGCTTTTGCAAACCTACACAATTGGAATTGTGTTAATTGTGA |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (7508) |             | GTCCTTTTATGTCTATGCTAATGGAGGTAAAGGCTTTTGCAAACCTACACAATTGGAATTGTGTTAATTGTGA |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7522) |             | GTCCTTTTATGTCTATGCTAATGGAGGTAAAGGCTTTTGCAAACCTACACAATTGGAATTGTGTTAATTGTGA |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7486) |             | GTCCTTTTATGTCTATGCTAATGGAGGTAAAGGCTTTTGCAAACCTACACAATTGGAATTGTGTTAATTGTGA |      |      |      |      |      |           |
|                                                        |        | Section 107 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (7633)      | 7633                                                                      | 7640 | 7650 | 7660 | 7670 | 7680 | 7690 7704 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7633) |             | TACATTCTGTGCTGGTAGTACATTTATTAGTGATGAAGTTGCGAGAGACTTGTCACCTACAGTTTAAAAGACC |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7579) |             | TACATTCTGTGCTGGTAGTACATTTATTAGTGATGAAGTTGCGAGAGACTTGTCACCTACAGTTTAAAAGACC |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7621) |             | TACATTCTGTGCTGGTAGTACATTTATTAGTGATGAAGTTGCGAGAGACTTGTCACCTACAGTTTAAAAGACC |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (7580) |             | TACATTCTGTGCTGGTAGTACATTTATTAGTGATGAAGTTGCGAGAGACTTGTCACCTACAGTTTAAAAGACC |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7594) |             | TACATTCTGTGCTGGTAGTACATTTATTAGTGATGAAGTTGCGAGAGACTTGTCACCTACAGTTTAAAAGACC |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7558) |             | TACATTCTGTGCTGGTAGTACATTTATTAGTGATGAAGTTGCGAGAGACTTGTCACCTACAGTTTAAAAGACC |      |      |      |      |      |           |
|                                                        |        | Section 108 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (7705)      | 7705                                                                      | 7710 | 7720 | 7730 | 7740 | 7750 | 7760 7776 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7705) |             | AATAAATCCTACTGACCAGTCTTCTTACATCGTTGATAGTGTTACAGTGAAGAATGGTTCCATCCATCTTTA  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7651) |             | AATAAATCCTACTGACCAGTCTTCTTACATCGTTGATAGTGTTACAGTGAAGAATGGTTCCATCCATCTTTA  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7693) |             | AATAAATCCTACTGACCAGTCTTCTTACATCGTTGATAGTGTTACAGTGAAGAATGGTTCCATCCATCTTTA  |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (7652) |             | AATAAATCCTACTGACCAGTCTTCTTACATCGTTGATAGTGTTACAGTGAAGAATGGTTCCATCCATCTTTA  |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (7666) |             | AATAAATCCTACTGACCAGTCTTCTTACATCGTTGATAGTGTTACAGTGAAGAATGGTTCCATCCATCTTTA  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7630) |             | AATAAATCCTACTGACCAGTCTTCTTACATCGTTGATAGTGTTACAGTGAAGAATGGTTCCATCCATCTTTA  |      |      |      |      |      |           |

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|--------------------------------------------------------|--------|-------------|----------------------------------------------------------------------------|------|------|------|------|------|-----------|
|                                                        |        | Section 109 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (7777)      | 7777                                                                       | 7790 | 7800 | 7810 | 7820 | 7830 | 7848      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7777) |             | CTTTGATAAAGCTGGTCAAAAAGACTTATGAAAGACATTCTCTCTCTCATTGTTAACTTAGACAACCTGAG    |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7723) |             | CTTTGATAAAGCTGGTCAAAAAGACTTATGAAAGACATTCTCTCTCTCATTGTTAACTTAGACAACCTGAG    |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7765) |             | CTTTGATAAAGCTGGTCAAAAAGACTTATGAAAGACATTCTCTCTCTCATTGTTAACTTAGACAACCTGAG    |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (7724) |             | CTTTGATAAAGCTGGTCAAAAAGACTTATGAAAGACATTCTCTCTCTCATTGTTAACTTAGACAACCTGAG    |      |      |      |      |      |           |
| hCoV-19/Germanv/HF-RKI-I-438397/2022 EPI ISI 905522... | (7738) |             | CTTTGATAAAGCTGGTCAAAAAGACTTATGAAAGACATTCTCTCTCTCATTGTTAACTTAGACAACCTGAG    |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7702) |             | CTTTGATAAAGCTGGTCAAAAAGACTTATGAAAGACATTCTCTCTCTCATTGTTAACTTAGACAACCTGAG    |      |      |      |      |      |           |
|                                                        |        | Section 110 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (7849)      | 7849                                                                       | 7860 | 7870 | 7880 | 7890 | 7900 | 7910 7920 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7849) |             | AGCTAATAACACTAAAGGTTTCATTGCCTATTAATGTTATAGTTTTTGATGGTAAATCAAAATGTGAAGAATC  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7795) |             | AGCTAATAACACTAAAGGTTTCATTGCCTATTAATGTTATAGTTTTTGATGGTAAATCAAAATGTGAAGAATC  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7837) |             | AGCTAATAACACTAAAGGTTTCATTGCCTATTAATGTTATAGTTTTTGATGGTAAATCAAAATGTGAAGAATC  |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (7796) |             | AGCTAATAACACTAAAGGTTTCATTGCCTATTAATGTTATAGTTTTTGATGGTAAATCAAAATGTGAAGAATC  |      |      |      |      |      |           |
| hCoV-19/Germanv/HE-RKI-I-438397/2022 EPI ISL 905522... | (7810) |             | AGCTAATAACACTAAAGGTTTCATTGCCTATTAATGTTATAGTTTTTGATGGTAAATCAAAATGTGAAGAATC  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7774) |             | AGCTAATAACACTAAAGGTTTCATTGCCTATTAATGTTATAGTTTTTGATGGTAAATCAAAATGTGAAGAATC  |      |      |      |      |      |           |
|                                                        |        | Section 111 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (7921)      | 7921                                                                       | 7930 | 7940 | 7950 | 7960 | 7970 | 7980 7992 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7921) |             | ATCTGCAAAATCAGCGTCTGTTTACTACAGTCAGCTTATGTGTCAACCTATACTGTTACTAGATCAGGCATT   |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISI 90...  | (7867) |             | ATCTGCAAAATCAGCGTCTGTTTACTACAGTCAGCTTATGTGTCAACCTATACTGTTACTAGATCAGGCATT   |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7909) |             | ATCTGCAAAATCAGCGTCTGTTTACTACAGTCAGCTTATGTGTCAACCTATACTGTTACTAGATCAGGCATT   |      |      |      |      |      |           |
| hCoV-19/Enland/PI YM-332B917/2022 EPI ISI 9062229 ...  | (7868) |             | ATCTGCAAAATCAGCGTCTGTTTACTACAGTCAGCTTATGTGTCAACCTATACTGTTACTAGATCAGGCATT   |      |      |      |      |      |           |
| hCoV-19/Germanv/HE-RKI-I-438397/2022 EPI ISL 905522... | (7882) |             | ATCTGCAAAATCAGCGTCTGTTTACTACAGTCAGCTTATGTGTCAACCTATACTGTTACTAGATCAGGCATT   |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (7846) |             | ATCTGCAAAATCAGCGTCTGTTTACTACAGTCAGCTTATGTGTCAACCTATACTGTTACTAGATCAGGCATT   |      |      |      |      |      |           |
|                                                        |        | Section 112 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (7993)      | 7993                                                                       | 8000 | 8010 | 8020 | 8030 | 8040 | 8050 8064 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (7993) |             | AGTGTCTGATGTTGGTGATAGTGCGGAAGTTGCAGTTAAAAATGTTTGATGCTTACGTTAATACGTTTTTCATC |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (7939) |             | AGTGTCTGATGTTGGTGATAGTGCGGAAGTTGCAGTTAAAAATGTTTGATGCTTACGTTAATACGTTTTTCATC |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (7981) |             | AGTGTCTGATGTTGGTGATAGTGCGGAAGTTGCAGTTAAAAATGTTTGATGCTTACGTTAATACGTTTTTCATC |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (7940) |             | AGTGTCTGATGTTGGTGATAGTGCGGAAGTTGCAGTTAAAAATGTTTGATGCTTACGTTAATACGTTTTTCATC |      |      |      |      |      |           |
| hCoV-19/Germanv/HE-RKI-I-438397/2022 EPI ISL 905522... | (7954) |             | AGTGTCTGATGTTGGTGATAGTGCGGAAGTTGCAGTTAAAAATGTTTGATGCTTACGTTAATACGTTTTTCATC |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (7918) |             | AGTGTCTGATGTTGGTGATAGTGCGGAAGTTGCAGTTAAAAATGTTTGATGCTTACGTTAATACGTTTTTCATC |      |      |      |      |      |           |

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|--------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|
|                                                        |  | Section 113 |                                                                           |      |      |      |      |      |      |      |
|                                                        |  | (8065)      | 8065                                                                      | 8070 | 8080 | 8090 | 8100 | 8110 | 8120 | 8136 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (8065)      | AACTTTTAAACGTACCAATGGAAAACTCAAAACACTAGTTGCAACTGCAGAAGCTGAACCTGCAAAGAATGT  |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (8011)      | AACTTTTAAACGTACCAATGGAAAACTCAAAACACTAGTTGCAACTGCAGAAGCTGAACCTGCAAAGAATGT  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  |  | (8053)      | AACTTTTAAACGTACCAATGGAAAACTCAAAACACTAGTTGCAACTGCAGAAGCTGAACCTGCAAAGAATGT  |      |      |      |      |      |      |      |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  |  | (8012)      | AACTTTTAAACGTACCAATGGAAAACTCAAAACACTAGTTGCAACTGCAGAAGCTGAACCTGCAAAGAATGT  |      |      |      |      |      |      |      |
| hCoV-19/Germany/HF-RKI-I-438397/2022_FPI_ISI_905522... |  | (8026)      | AACTTTTAAACGTACCAATGGAAAACTCAAAACACTAGTTGCAACTGCAGAAGCTGAACCTGCAAAGAATGT  |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (7990)      | AACTTTTAAACGTACCAATGGAAAACTCAAAACACTAGTTGCAACTGCAGAAGCTGAACCTGCAAAGAATGT  |      |      |      |      |      |      |      |
|                                                        |  | Section 114 |                                                                           |      |      |      |      |      |      |      |
|                                                        |  | (8137)      | 8137                                                                      | 8150 | 8160 | 8170 | 8180 | 8190 | 8208 |      |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (8137)      | GTCCTTAGACAATGTCTTATCTACTTTTATTTTCAGCAGCTCGGCAAGGGTTTGTGATTTCAGATGTAGAAAC |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (8083)      | GTCCTTAGACAATGTCTTATCTACTTTTATTTTCAGCAGCTCGGCAAGGGTTTGTGATTTCAGATGTAGAAAC |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  |  | (8125)      | GTCCTTAGACAATGTCTTATCTACTTTTATTTTCAGCAGCTCGGCAAGGGTTTGTGATTTCAGATGTAGAAAC |      |      |      |      |      |      |      |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  |  | (8084)      | GTCCTTAGACAATGTCTTATCTACTTTTATTTTCAGCAGCTCGGCAAGGGTTTGTGATTTCAGATGTAGAAAC |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... |  | (8098)      | GTCCTTAGACAATGTCTTATCTACTTTTATTTTCAGCAGCTCGGCAAGGGTTTGTGATTTCAGATGTAGAAAC |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (8062)      | GTCCTTAGACAATGTCTTATCTACTTTTATTTTCAGCAGCTCGGCAAGGGTTTGTGATTTCAGATGTAGAAAC |      |      |      |      |      |      |      |
|                                                        |  | Section 115 |                                                                           |      |      |      |      |      |      |      |
|                                                        |  | (8209)      | 8209                                                                      | 8220 | 8230 | 8240 | 8250 | 8260 | 8270 | 8280 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (8209)      | TAAAGATGTTGTTGAATGTCTTAAATTGTCACATCAATCTGACATAGAAGTTACTGGCGATAGTTGTAATAA  |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  |  | (8155)      | TAAAGATGTTGTTGAATGTCTTAAATTGTCACATCAATCTGACATAGAAGTTACTGGCGATAGTTGTAATAA  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  |  | (8197)      | TAAAGATGTTGTTGAATGTCTTAAATTGTCACATCAATCTGACATAGAAGTTACTGGCGATAGTTGTAATAA  |      |      |      |      |      |      |      |
| hCoV-19/England/PI_YM-332B917/2022_FPI_ISI_9062229 ... |  | (8156)      | TAAAGATGTTGTTGAATGTCTTAAATTGTCACATCAATCTGACATAGAAGTTACTGGCGATAGTTGTAATAA  |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... |  | (8170)      | TAAAGATGTTGTTGAATGTCTTAAATTGTCACATCAATCTGACATAGAAGTTACTGGCGATAGTTGTAATAA  |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (8134)      | TAAAGATGTTGTTGAATGTCTTAAATTGTCACATCAATCTGACATAGAAGTTACTGGCGATAGTTGTAATAA  |      |      |      |      |      |      |      |
|                                                        |  | Section 116 |                                                                           |      |      |      |      |      |      |      |
|                                                        |  | (8281)      | 8281                                                                      | 8290 | 8300 | 8310 | 8320 | 8330 | 8340 | 8352 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (8281)      | CTATATGCTCACCTATAACAAAGTTGAAAACATGACACCCCGTGACCTTGGTGCTTGTATTGACTGTAGTGC  |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (8227)      | CTATATGCTCACCTATAACAAAGTTGAAAACATGACACCCCGTGACCTTGGTGCTTGTATTGACTGTAGTGC  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  |  | (8269)      | CTATATGCTCACCTATAACAAAGTTGAAAACATGACACCCCGTGACCTTGGTGCTTGTATTGACTGTAGTGC  |      |      |      |      |      |      |      |
| hCoV-19/England/PLYM-332B917/2022_EPI_ISL_9062229 ...  |  | (8228)      | CTATATGCTCACCTATAACAAAGTTGAAAACATGACACCCCGTGACCTTGGTGCTTGTATTGACTGTAGTGC  |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... |  | (8242)      | CTATATGCTCACCTATAACAAAGTTGAAAACATGACACCCCGTGACCTTGGTGCTTGTATTGACTGTAGTGC  |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (8206)      | CTATATGCTCACCTATAACAAAGTTGAAAACATGACACCCCGTGACCTTGGTGCTTGTATTGACTGTAGTGC  |      |      |      |      |      |      |      |

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|--------------------------------------------------------|--------|-------------|---------------------------------------------------------------------------|------|------|------|------|------|------|------|
|                                                        |        | Section 117 |                                                                           |      |      |      |      |      |      |      |
|                                                        |        | (8353)      | 8353                                                                      | 8360 | 8370 | 8380 | 8390 | 8400 | 8410 | 8424 |
| SARS-CoV-2 Reference Genome NC_045512.2                |        | (8353)      | GCGTCATATTAATGCGCAGGTAGCAAAAAGTCACAACATTGCTTTGATATGGAACGTTAAAGATTTTCATGTC |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (8299) |             | GCGTCATATTAATGCGCAGGTAGCAAAAAGTCACAACATTACTTTGATATGGAACGTTAAAGATTTTCATGTC |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (8341) |             | GCGTCATATTAATGCGCAGGTAGCAAAAAGTCACAACATTACTTTGATATGGAACGTTAAAGATTTTCATGTC |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229_...   | (8300) |             | GCGTCATATTAATGCGCAGGTAGCAAAAAGTCACAACATTACTTTGATATGGAACGTTAAAGATTTTCATGTC |      |      |      |      |      |      |      |
| hCoV-19/Germany/HF-RKI-T-438397/2022_FPI_ISI_905522... | (8314) |             | GCGTCATATTAATGCGCAGGTAGCAAAAAGTCACAACATTACTTTGATATGGAACGTTAAAGATTTTCATGTC |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8278) |             | GCGTCATATTAATGCGCAGGTAGCAAAAAGTCACAACATTACTTTGATATGGAACGTTAAAGATTTTCATGTC |      |      |      |      |      |      |      |
|                                                        |        | Section 118 |                                                                           |      |      |      |      |      |      |      |
|                                                        |        | (8425)      | 8425                                                                      | 8430 | 8440 | 8450 | 8460 | 8470 | 8480 | 8496 |
| SARS-CoV-2 Reference Genome NC_045512.2                |        | (8425)      | ATTGTCTGAACAACCTACGAAAAACAAATACGTAGTGCTGCTAAAAAGAATAA                     |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (8371) |             | ATTGTCTGAACAACCTACGAAAAACAAATACGTAGTGCTGCTAAAAAGAATAA                     |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (8413) |             | ATTGTCTGAACAACCTACGAAAAACAAATACGTAGTGCTGCTAAAAAGAATAA                     |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229_...   | (8372) |             | ATTGTCTGAACAACCTACGAAAAACAAATACGTAGTGCTGCTAAAAAGAATAA                     |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (8386) |             | ATTGTCTGAACAACCTACGAAAAACAAATACGTAGTGCTGCTAAAAAGAATAA                     |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8350) |             | ATTGTCTGAACAACCTACGAAAAACAAATACGTAGTGCTGCTAAAAAGAATAA                     |      |      |      |      |      |      |      |
|                                                        |        | Section 119 |                                                                           |      |      |      |      |      |      |      |
|                                                        |        | (8497)      | 8497                                                                      | 8510 | 8520 | 8530 | 8540 | 8550 | 8568 |      |
| SARS-CoV-2 Reference Genome NC_045512.2                |        | (8497)      | TGCAACTACTAGACAAGTTGTTAATGTTGTAACAACAAAGATAGCACTTAAGGGTGGTAAAAATTGTTAATAA |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (8443) |             | TGCAACTACTAGACAAGTTGTTAATGTTGTAACAACAAAGATAGCACTTAAGGGTGGTAAAAATTGTTAATAA |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (8485) |             | TGCAACTACTAGACAAGTTGTTAATGTTGTAACAACAAAGATAGCACTTAAGGGTGGTAAAAATTGTTAATAA |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022_FPI_ISI_9062229_...   | (8444) |             | TGCAACTACTAGACAAGTTGTTAATGTTGTAACAACAAAGATAGCACTTAAGGGTGGTAAAAATTGTTAATAA |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (8458) |             | TGCAACTACTAGACAAGTTGTTAATGTTGTAACAACAAAGATAGCACTTAAGGGTGGTAAAAATTGTTAATAA |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8422) |             | TGCAACTACTAGACAAGTTGTTAATGTTGTAACAACAAAGATAGCACTTAAGGGTGGTAAAAATTGTTAATAA |      |      |      |      |      |      |      |
|                                                        |        | Section 120 |                                                                           |      |      |      |      |      |      |      |
|                                                        |        | (8569)      | 8569                                                                      | 8580 | 8590 | 8600 | 8610 | 8620 | 8630 | 8640 |
| SARS-CoV-2 Reference Genome NC_045512.2                |        | (8569)      | TTGGTTGAAGCAGTTAATTAAAGTTACACTTGTGTTTCCTTTTTGTTGCTGCTATTTTCTATTTAATAACACC |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (8515) |             | TTGGTTGAAGCAGTTAATTAAAGTTACACTTGTGTTTCCTTTTTGTTGCTGCTATTTTCTATTTAATAACACC |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (8557) |             | TTGGTTGAAGCAGTTAATTAAAGTTACACTTGTGTTTCCTTTTTGTTGCTGCTATTTTCTATTTAATAACACC |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229_...   | (8516) |             | TTGGTTGAAGCAGTTAATTAAAGTTACACTTGTGTTTCCTTTTTGTTGCTGCTATTTTCTATTTAATAACACC |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022_EPI_ISL_905522... | (8530) |             | TTGGTTGAAGCAGTTAATTAAAGTTACACTTGTGTTTCCTTTTTGTTGCTGCTATTTTCTATTTAATAACACC |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8494) |             | TTGGTTGAAGCAGTTAATTAAAGTTACACTTGTGTTTCCTTTTTGTTGCTGCTATTTTCTATTTAATAACACC |      |      |      |      |      |      |      |

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|                                                        |        | Section 121 |                                                                           |      |      |      |      |      |           |
|--------------------------------------------------------|--------|-------------|---------------------------------------------------------------------------|------|------|------|------|------|-----------|
|                                                        |        | (8641)      | 8641                                                                      | 8650 | 8660 | 8670 | 8680 | 8690 | 8700 8712 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (8641) |             | TGTTTCATGTCATGTCTAAACATACTGACTTTTCAAGTGAAATCATAGGATACAAGGCTATTGATGGTGGTGT |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (8587) |             | TGTTTCATGTCATGTCTAAACATACTGACTTTTCAAGTGAAATCATAGGATACAAGGCTATTGATGGTGGTGT |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (8629) |             | TGTTTCATGTCATGTCTAAACATACTGACTTTTCAAGTGAAATCATAGGATACAAGGCTATTGATGGTGGTGT |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (8588) |             | TGTTTCATGTCATGTCTAAACATACTGACTTTTCAAGTGAAATCATAGGATACAAGGCTATTGATGGTGGTGT |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (8607) |             | TGTTTCATGTCATGTCTAAACATACTGACTTTTCAAGTGAAATCATAGGATACAAGGCTATTGATGGTGGTGT |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8566) |             | TGTTTCATGTCATGTCTAAACATACTGACTTTTCAAGTGAAATCATAGGATACAAGGCTATTGATGGTGGTGT |      |      |      |      |      |           |
|                                                        |        | Section 122 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (8713)      | 8713                                                                      | 8720 | 8730 | 8740 | 8750 | 8760 | 8770 8784 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (8713) |             | CACCTCGTGACATAGCATCTACAGATACTTGTTTTGCTAACAAACATGCTGATTTTGACACATGGTTTAGCCA |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (8659) |             | CACCTCGTGACATAGCATCTACAGATACTTGTTTTGCTAACAAACATGCTGATTTTGACACATGGTTTAGCCA |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (8701) |             | CACCTCGTGACATAGCATCTACAGATACTTGTTTTGCTAACAAACATGCTGATTTTGACACATGGTTTAGCCA |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (8660) |             | CACCTCGTGACATAGCATCTACAGATACTTGTTTTGCTAACAAACATGCTGATTTTGACACATGGTTTAGCCA |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (8674) |             | CACCTCGTGACATAGCATCTACAGATACTTGTTTTGCTAACAAACATGCTGATTTTGACACATGGTTTAGCCA |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8638) |             | CACCTCGTGACATAGCATCTACAGATACTTGTTTTGCTAACAAACATGCTGATTTTGACACATGGTTTAGCCA |      |      |      |      |      |           |
|                                                        |        | Section 123 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (8785)      | 8785                                                                      | 8790 | 8800 | 8810 | 8820 | 8830 | 8840 8856 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (8785) |             | GCGTGGTGGTAGTTATACTAATGACAAAGCTTGCCCATTTGATTGCTGCAGTCATAACAAGAGAAGTGGGTTT |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (8731) |             | GCGTGGTGGTAGTTATACTAATGACAAAGCTTGCCCATTTGATTGCTGCAGTCATAACAAGAGAAGTGGGTTT |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (8773) |             | GCGTGGTGGTAGTTATACTAATGACAAAGCTTGCCCATTTGATTGCTGCAGTCATAACAAGAGAAGTGGGTTT |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (8732) |             | GCGTGGTGGTAGTTATACTAATGACAAAGCTTGCCCATTTGATTGCTGCAGTCATAACAAGAGAAGTGGGTTT |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (8746) |             | GCGTGGTGGTAGTTATACTAATGACAAAGCTTGCCCATTTGATTGCTGCAGTCATAACAAGAGAAGTGGGTTT |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8710) |             | GCGTGGTGGTAGTTATACTAATGACAAAGCTTGCCCATTTGATTGCTGCAGTCATAACAAGAGAAGTGGGTTT |      |      |      |      |      |           |
|                                                        |        | Section 124 |                                                                           |      |      |      |      |      |           |
|                                                        |        | (8857)      | 8857                                                                      | 8870 | 8880 | 8890 | 8900 | 8910 | 8928      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (8857) |             | TGTCGTGCCTGGTTTGCCTGGCAGCATATTACGCACAACATAATGGTGACTTTTTGCATTTCTTACCTAGAGT |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (8803) |             | TGTCGTGCCTGGTTTGCCTGGCAGCATATTACGCACAACATAATGGTGACTTTTTGCATTTCTTACCTAGAGT |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (8845) |             | TGTCGTGCCTGGTTTGCCTGGCAGCATATTACGCACAACATAATGGTGACTTTTTGCATTTCTTACCTAGAGT |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (8804) |             | TGTCGTGCCTGGTTTGCCTGGCAGCATATTACGCACAACATAATGGTGACTTTTTGCATTTCTTACCTAGAGT |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (8818) |             | TGTCGTGCCTGGTTTGCCTGGCAGCATATTACGCACAACATAATGGTGACTTTTTGCATTTCTTACCTAGAGT |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8782) |             | TGTCGTGCCTGGTTTGCCTGGCAGCATATTACGCACAACATAATGGTGACTTTTTGCATTTCTTACCTAGAGT |      |      |      |      |      |           |

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|                                                        |        | Section 125 |                                                                            |      |      |      |      |      |           |
|--------------------------------------------------------|--------|-------------|----------------------------------------------------------------------------|------|------|------|------|------|-----------|
|                                                        |        | (8929)      | 8929                                                                       | 8940 | 8950 | 8960 | 8970 | 8980 | 8990 9000 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (8929) |             | TTTTAGTGCAGTTGGTAACATCTGTTACACACCATCAAAACTTATAGAGTACACTGACTTTGCAACATCAGC   |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (8875) |             | TTTTAGTGCAGTTGGTAACATCTGTTACACACCATCAAAACTTATAGAGTACACTGACTTTGCAACATCAGC   |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (8917) |             | TTTTAGTGCAGTTGGTAACATCTGTTACACACCATCAAAACTTATAGAGTACACTGACTTTGCAACATCAGC   |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (8876) |             | TTTTAGTGCAGTTGGTAACATCTGTTACACACCATCAAAACTTATAGAGTACACTGACTTTGCAACATCAGC   |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (8890) |             | TTTTAGTGCAGTTGGTAACATCTGTTACACACCATCAAAACTTATAGAGTACACTGACTTTGCAACATCAGC   |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8854) |             | TTTTAGTGCAGTTGGTAACATCTGTTACACACCATCAAAACTTATAGAGTACACTGACTTTGCAACATCAGC   |      |      |      |      |      |           |
|                                                        |        | Section 126 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (9001)      | 9001                                                                       | 9010 | 9020 | 9030 | 9040 | 9050 | 9060 9072 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9001) |             | TTGTGTTTTGGCTGCTGAATGTACAATTTTTAAAGATGCTTCTGGTAAGCCAGTACCATATTGTTATGATAC   |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (8947) |             | TTGTGTTTTGGCTGCTGAATGTACAATTTTTAAAGATGCTTCTGGTAAGCCAGTACCATATTGTTATGATAC   |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (8989) |             | TTGTGTTTTGGCTGCTGAATGTACAATTTTTAAAGATGCTTCTGGTAAGCCAGTACCATATTGTTATGATAC   |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (8948) |             | TTGTGTTTTGGCTGCTGAATGTACAATTTTTAAAGATGCTTCTGGTAAGCCAGTACCATATTGTTATGATAC   |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (8962) |             | TTGTGTTTTGGCTGCTGAATGTACAATTTTTAAAGATGCTTCTGGTAAGCCAGTACCATATTGTTATGATAC   |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8926) |             | TTGTGTTTTGGCTGCTGAATGTACAATTTTTAAAGATGCTTCTGGTAAGCCAGTACCATATTGTTATGATAC   |      |      |      |      |      |           |
|                                                        |        | Section 127 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (9073)      | 9073                                                                       | 9080 | 9090 | 9100 | 9110 | 9120 | 9130 9144 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9073) |             | CAATGTACTAGAAAGGTTCTGTTGCTTATGAAAGTTTACGCCCTGACACACGTTATGTGCTCATGGATGGCTC  |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9019) |             | CAATGTACTAGAAAGGTTCTGTTGCTTATGAAAGTTTACGCCCTGACACACGTTATGTGCTCATGGATGGCTC  |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9061) |             | CAATGTACTAGAAAGGTTCTGTTGCTTATGAAAGTTTACGCCCTGACACACGTTATGTGCTCATGGATGGCTC  |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (9020) |             | CAATGTACTAGAAAGGTTCTGTTGCTTATGAAAGTTTACGCCCTGACACACGTTATGTGCTCATGGATGGCTC  |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9034) |             | CAATGTACTAGAAAGGTTCTGTTGCTTATGAAAGTTTACGCCCTGACACACGTTATGTGCTCATGGATGGCTC  |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (8998) |             | CAATGTACTAGAAAGGTTCTGTTGCTTATGAAAGTTTACGCCCTGACACACGTTATGTGCTCATGGATGGCTC  |      |      |      |      |      |           |
|                                                        |        | Section 128 |                                                                            |      |      |      |      |      |           |
|                                                        |        | (9145)      | 9145                                                                       | 9150 | 9160 | 9170 | 9180 | 9190 | 9200 9216 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9145) |             | TATTATTCAATTTCCCTAACACCTACCTTGAAGGTTCTGTTAGAGTGGTAACAACCTTTTGATTCTGAGTACTG |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9091) |             | TATTATTCAATTTCCCTAACACCTACCTTGAAGGTTCTGTTAGAGTGGTAACAACCTTTTGATTCTGAGTACTG |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9133) |             | TATTATTCAATTTCCCTAACACCTACCTTGAAGGTTCTGTTAGAGTGGTAACAACCTTTTGATTCTGAGTACTG |      |      |      |      |      |           |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (9092) |             | TATTATTCAATTTCCCTAACACCTACCTTGAAGGTTCTGTTAGAGTGGTAACAACCTTTTGATTCTGAGTACTG |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9106) |             | TATTATTCAATTTCCCTAACACCTACCTTGAAGGTTCTGTTAGAGTGGTAACAACCTTTTGATTCTGAGTACTG |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9070) |             | TATTATTCAATTTCCCTAACACCTACCTTGAAGGTTCTGTTAGAGTGGTAACAACCTTTTGATTCTGAGTACTG |      |      |      |      |      |           |

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|--------------------------------------------------------|--------|---------------------------------------------------------------------------|------|------|------|------|------|------|-----------|
|                                                        |        | Section 129                                                               |      |      |      |      |      |      |           |
|                                                        |        | (9217)                                                                    | 9217 | 9230 | 9240 | 9250 | 9260 | 9270 | 9288      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9217) | TAGGCACGGCACTTGTGAAAAGATCAGAAGCTGGTGTTTGTGTATCTACTAGTGGTAGATGGGTACTTAACAA |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9163) | TAGGCACGGCACTTGTGAAAAGATCAGAAGCTGGTGTTTGTGTATCTACTAGTGGTAGATGGGTACTTAACAA |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9205) | TAGGCACGGCACTTGTGAAAAGATCAGAAGCTGGTGTTTGTGTATCTACTAGTGGTAGATGGGTACTTAACAA |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9164) | TAGGCACGGCACTTGTGAAAAGATCAGAAGCTGGTGTTTGTGTATCTACTAGTGGTAGATGGGTACTTAACAA |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9178) | TAGGCACGGCACTTGTGAAAAGATCAGAAGCTGGTGTTTGTGTATCTACTAGTGGTAGATGGGTACTTAACAA |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9142) | TAGGCACGGCACTTGTGAAAAGATCAGAAGCTGGTGTTTGTGTATCTACTAGTGGTAGATGGGTACTTAACAA |      |      |      |      |      |      |           |
|                                                        |        | Section 130                                                               |      |      |      |      |      |      |           |
|                                                        |        | (9289)                                                                    | 9289 | 9300 | 9310 | 9320 | 9330 | 9340 | 9350 9360 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9289) | TGATTATTACAGATCTTTACCAGGAGTTTTCTGTGGTGTAGATGCTGTAAATTTACTTACTAATATGTTTAC  |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9235) | TGATTATTACAGATCTTTACCAGGAGTTTTCTGTGGTGTAGATGCTGTAAATTTACTTACTAATATGTTTAC  |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9277) | TGATTATTACAGATCTTTACCAGGAGTTTTCTGTGGTGTAGATGCTGTAAATTTACTTACTAATATGTTTAC  |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9236) | TGATTATTACAGATCTTTACCAGGAGTTTTCTGTGGTGTAGATGCTGTAAATTTACTTACTAATATGTTTAC  |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9250) | TGATTATTACAGATCTTTACCAGGAGTTTTCTGTGGTGTAGATGCTGTAAATTTACTTACTAATATGTTTAC  |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9214) | TGATTATTACAGATCTTTACCAGGAGTTTTCTGTGGTGTAGATGCTGTAAATTTACTTACTAATATGTTTAC  |      |      |      |      |      |      |           |
|                                                        |        | Section 131                                                               |      |      |      |      |      |      |           |
|                                                        |        | (9361)                                                                    | 9361 | 9370 | 9380 | 9390 | 9400 | 9410 | 9420 9432 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9361) | ACCACCTAATTCAACCTATTGGTGCTTTGGACATATCAGCATCTATAGTAGCTGGTGGTATTGTAGCTATCGT |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9307) | ACCACCTAATTCAACCTATTGGTGCTTTGGACATATCAGCATCTATAGTAGCTGGTGGTATTGTAGCTATCGT |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9349) | ACCACCTAATTCAACCTATTGGTGCTTTGGACATATCAGCATCTATAGTAGCTGGTGGTATTGTAGCTATCGT |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9308) | ACCACCTAATTCAACCTATTGGTGCTTTGGACATATCAGCATCTATAGTAGCTGGTGGTATTGTAGCTATCGT |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9322) | ACCACCTAATTCAACCTATTGGTGCTTTGGACATATCAGCATCTATAGTAGCTGGTGGTATTGTAGCTATCGT |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9286) | ACCACCTAATTCAACCTATTGGTGCTTTGGACATATCAGCATCTATAGTAGCTGGTGGTATTGTAGCTATCGT |      |      |      |      |      |      |           |
|                                                        |        | Section 132                                                               |      |      |      |      |      |      |           |
|                                                        |        | (9433)                                                                    | 9433 | 9440 | 9450 | 9460 | 9470 | 9480 | 9490 9504 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9433) | AGTAACATGCCTTGCCTACTATTTTATGAGGTTTGAAGAGCTTTTGGTGAATACAGTCATGTAGTTGCCTT   |      |      |      |      |      |      |           |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9379) | AGTAACATGCCTTGCCTACTATTTTATGAGGTTTGAAGAGCTTTTGGTGAATACAGTCATGTAGTTGCCTT   |      |      |      |      |      |      |           |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9421) | AGTAACATGCCTTGCCTACTATTTTATGAGGTTTGAAGAGCTTTTGGTGAATACAGTCATGTAGTTGCCTT   |      |      |      |      |      |      |           |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9380) | AGTAACATGCCTTGCCTACTATTTTATGAGGTTTGAAGAGCTTTTGGTGAATACAGTCATGTAGTTGCCTT   |      |      |      |      |      |      |           |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9394) | AGTAACATGCCTTGCCTACTATTTTATGAGGTTTGAAGAGCTTTTGGTGAATACAGTCATGTAGTTGCCTT   |      |      |      |      |      |      |           |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9358) | AGTAACATGCCTTGCCTACTATTTTATGAGGTTTGAAGAGCTTTTGGTGAATACAGTCATGTAGTTGCCTT   |      |      |      |      |      |      |           |

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|--------------------------------------------------------|--------|----------------------------------------------------------------------------|------|------|------|------|------|------|------|
|                                                        |        | Section 133                                                                |      |      |      |      |      |      |      |
|                                                        | (9505) | 9505                                                                       | 9510 | 9520 | 9530 | 9540 | 9550 | 9560 | 9576 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9505) | TAATACTTTACTATTTCCTTATGTCATTCACTGTACTCTGTTTAAACACCAGTTTACTCATTCTTACCTGGTGT |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9451) | TAATACTTTACTATTTCCTTATGTCATTCACTGTACTCTGTTTAAACACCAGTTTACTCATTCTTACCTGGTGT |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9493) | TAATACTTTACTATTTCCTTATGTCATTCACTGTACTCTGTTTAAACACCAGTTTACTCATTCTTACCTGGTGT |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9452) | TAATACTTTACTATTTCCTTATGTCATTCACTGTACTCTGTTTAAACACCAGTTTACTCATTCTTACCTGGTGT |      |      |      |      |      |      |      |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (9466) | TAATACTTTACTATTTCCTTATGTCATTCACTGTACTCTGTTTAAACACCAGTTTACTCATTCTTACCTGGTGT |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9430) | TAATACTTTACTATTTCCTTATGTCATTCACTGTACTCTGTTTAAACACCAGTTTACTCATTCTTACCTGGTGT |      |      |      |      |      |      |      |
|                                                        |        | Section 134                                                                |      |      |      |      |      |      |      |
|                                                        | (9577) | 9577                                                                       | 9590 | 9600 | 9610 | 9620 | 9630 | 9648 |      |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9577) | TTATTCTGTTATTTACTTGTACTTGACATTTTATCTTACTAATGATGTTTCTTTTTTAGCACATATTCAGTG   |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9523) | TTATTCTGTTATTTACTTGTACTTGACATTTTATCTTACTAATGATGTTTCTTTTTTAGCACATATTCAGTG   |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9565) | TTATTCTGTTATTTACTTGTACTTGACATTTTATCTTACTAATGATGTTTCTTTTTTAGCACATATTCAGTG   |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9524) | TTATTCTGTTATTTACTTGTACTTGACATTTTATCTTACTAATGATGTTTCTTTTTTAGCACATATTCAGTG   |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9538) | TTATTCTGTTATTTACTTGTACTTGACATTTTATCTTACTAATGATGTTTCTTTTTTAGCACATATTCAGTG   |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9502) | TTATTCTGTTATTTACTTGTACTTGACATTTTATCTTACTAATGATGTTTCTTTTTTAGCACATATTCAGTG   |      |      |      |      |      |      |      |
|                                                        |        | Section 135                                                                |      |      |      |      |      |      |      |
|                                                        | (9649) | 9649                                                                       | 9660 | 9670 | 9680 | 9690 | 9700 | 9710 | 9720 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9649) | GATGGTTATGTTTCACACCTTTAGTACCTTTCTGGATAACAATTGCTTATATCATTTGTATTTCCACAAAGCA  |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9595) | GATGGTTATGTTTCACACCTTTAGTACCTTTCTGGATAACAATTGCTTATATCATTTGTATTTCCACAAAGCA  |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9637) | GATGGTTATGTTTCACACCTTTAGTACCTTTCTGGATAACAATTGCTTATATCATTTGTATTTCCACAAAGCA  |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9596) | GATGGTTATGTTTCACACCTTTAGTACCTTTCTGGATAACAATTGCTTATATCATTTGTATTTCCACAAAGCA  |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9610) | GATGGTTATGTTTCACACCTTTAGTACCTTTCTGGATAACAATTGCTTATATCATTTGTATTTCCACAAAGCA  |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (9574) | GATGGTTATGTTTCACACCTTTAGTACCTTTCTGGATAACAATTGCTTATATCATTTGTATTTCCACAAAGCA  |      |      |      |      |      |      |      |
|                                                        |        | Section 136                                                                |      |      |      |      |      |      |      |
|                                                        | (9721) | 9721                                                                       | 9730 | 9740 | 9750 | 9760 | 9770 | 9780 | 9792 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (9721) | TTTCTATTGGTTCTTTAGTAATTACCTAAAGAGACGTGTAGTCTTTAATGGTGTTTCCTTTAGTACTTTTGA   |      |      |      |      |      |      |      |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (9667) | TTTCTATTGGTTCTTTAGTAATTACCTAAAGAGACGTGTAGTCTTTAATGGTGTTTCCTTTAGTACTTTTGA   |      |      |      |      |      |      |      |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (9709) | TTTCTATTGGTTCTTTAGTAATTACCTAAAGAGACGTGTAGTCTTTAATGGTGTTTCCTTTAGTACTTTTGA   |      |      |      |      |      |      |      |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (9668) | TTTCTATTGGTTCTTTAGTAATTACCTAAAGAGACGTGTAGTCTTTAATGGTGTTTCCTTTAGTACTTTTGA   |      |      |      |      |      |      |      |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (9682) | TTTCTATTGGTTCTTTAGTAATTACCTAAAGAGACGTGTAGTCTTTAATGGTGTTTCCTTTAGTACTTTTGA   |      |      |      |      |      |      |      |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (9646) | TTTCTATTGGTTCTTTAGTAATTACCTAAAGAGACGTGTAGTCTTTAATGGTGTTTCCTTTAGTACTTTTGA   |      |      |      |      |      |      |      |

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|                                                        |  |             |                                                                           |       |       |       |       |       |       |       |
|--------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |  | Section 137 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (9793)      | 9793                                                                      | 9800  | 9810  | 9820  | 9830  | 9840  | 9850  | 9864  |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (9793)      | AGAAGCTGCGCTGTGCACCTTTTGTAAATAAAGAAATGTATCTAAAGTTGCGTAGTGATGTGCTATTACC    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (9739)      | AGAAGCTGCGCTGTGCACCTTTTGTAAATAAAGAAATGTATCTAAAGTTGCGTAGTGATGTGCTATTACC    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (9781)      | AGAAGCTGCGCTGTGCACCTTTTGTAAATAAAGAAATGTATCTAAAGTTGCGTAGTGATGTGCTATTACC    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (9740)      | AGAAGCTGCGCTGTGCACCTTTTGTAAATAAAGAAATGTATCTAAAGTTGCGTAGTGATGTGCTATTACC    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI_ISI_905522... |  | (9754)      | AGAAGCTGCGCTGTGCACCTTTTGTAAATAAAGAAATGTATCTAAAGTTGCGTAGTGATGTGCTATTACC    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (9718)      | AGAAGCTGCGCTGTGCACCTTTTGTAAATAAAGAAATGTATCTAAAGTTGCGTAGTGATGTGCTATTACC    |       |       |       |       |       |       |       |
|                                                        |  | Section 138 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (9865)      | 9865                                                                      | 9870  | 9880  | 9890  | 9900  | 9910  | 9920  | 9936  |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (9865)      | TCTTACGCAATATAATAGATACTTAGCTCTTTATAATAAGTACAAGTATTTTAGTGGAGCAATGGATACAAC  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (9811)      | TCTTACGCAATATAATAGATACTTAGCTCTTTATAATAAGTACAAGTATTTTAGTGGAGCAATGGATACAAC  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (9853)      | TCTTACGCAATATAATAGATACTTAGCTCTTTATAATAAGTACAAGTATTTTAGTGGAGCAATGGATACAAC  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (9812)      | TCTTACGCAATATAATAGATACTTAGCTCTTTATAATAAGTACAAGTATTTTAGTGGAGCAATGGATACAAC  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (9826)      | TCTTACGCAATATAATAGATACTTAGCTCTTTATAATAAGTACAAGTATTTTAGTGGAGCAATGGATACAAC  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (9790)      | TCTTACGCAATATAATAGATACTTAGCTCTTTATAATAAGTACAAGTATTTTAGTGGAGCAATGGATACAAC  |       |       |       |       |       |       |       |
|                                                        |  | Section 139 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (9937)      | 9937                                                                      | 9950  | 9960  | 9970  | 9980  | 9990  | 10008 |       |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (9937)      | TAGCTACAGAGAAGCTGCTTGTGTGTCATCTCGCAAAGGCTCTCAATGACTTCAGTAACTCAGGTTCTGATGT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISI_90...  |  | (9883)      | TAGCTACAGAGAAGCTGCTTGTGTGTCATCTCGCAAAGGCTCTCAATGACTTCAGTAACTCAGGTTCTGATGT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (9925)      | TAGCTACAGAGAAGCTGCTTGTGTGTCATCTCGCAAAGGCTCTCAATGACTTCAGTAACTCAGGTTCTGATGT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (9884)      | TAGCTACAGAGAAGCTGCTTGTGTGTCATCTCGCAAAGGCTCTCAATGACTTCAGTAACTCAGGTTCTGATGT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (9898)      | TAGCTACAGAGAAGCTGCTTGTGTGTCATCTCGCAAAGGCTCTCAATGACTTCAGTAACTCAGGTTCTGATGT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (9862)      | TAGCTACAGAGAAGCTGCTTGTGTGTCATCTCGCAAAGGCTCTCAATGACTTCAGTAACTCAGGTTCTGATGT |       |       |       |       |       |       |       |
|                                                        |  | Section 140 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (10009)     | 10009                                                                     | 10020 | 10030 | 10040 | 10050 | 10060 | 10070 | 10080 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (10009)     | TCTTTACCAACCACCACAAATCTCTATCACCTCAGCTGTTTTGCAGAGTGGTTTTAGAAAAATGGCATTCCC  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  |  | (9955)      | TCTTTACCAACCACCACAAATCTCTATCACCTCAGCTGTTTTGCAGAGTGGTTTTAGAAAAATGGCATTCCC  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (9997)      | TCTTTACCAACCACCACAAATCTCTATCACCTCAGCTGTTTTGCAGAGTGGTTTTAGAAAAATGGCATTCCC  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (9956)      | TCTTTACCAACCACCACAAATCTCTATCACCTCAGCTGTTTTGCAGAGTGGTTTTAGAAAAATGGCATTCCC  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (9970)      | TCTTTACCAACCACCACAAATCTCTATCACCTCAGCTGTTTTGCAGAGTGGTTTTAGAAAAATGGCATTCCC  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (9934)      | TCTTTACCAACCACCACAAATCTCTATCACCTCAGCTGTTTTGCAGAGTGGTTTTAGAAAAATGGCATTCCC  |       |       |       |       |       |       |       |

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|                                                |                                   | Section 141 |                                                                            |       |       |       |       |       |                   |
|------------------------------------------------|-----------------------------------|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------------|
|                                                |                                   | (10081)     | 10081                                                                      | 10090 | 10100 | 10110 | 10120 | 10130 | 10140 10152       |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10081)                  |             | ATCTGGTAAAGTTGAGGGTTGTATGGTACAAGTAACCTTGTGGTACAACCTACACTT                  |       |       |       |       |       | AACGGTCTTTGGCTTGA |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10027) |             | ATCTGGTAAAGTTGAGGGTTGTATGGTACAAGTAACCTTGTGGTACAACCTACACTT                  |       |       |       |       |       | AACGGTCTTTGGCTTGA |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10069)                    |             | ATCTGGTAAAGTTGAGGGTTGTATGGTACAAGTAACCTTGTGGTACAACCTACACTT                  |       |       |       |       |       | AACGGTCTTTGGCTTGA |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (10028)       |             | ATCTGGTAAAGTTGAGGGTTGTATGGTACAAGTAACCTTGTGGTACAACCTACACTT                  |       |       |       |       |       | AACGGTCTTTGGCTTGA |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10042)         |             | ATCTGGTAAAGTTGAGGGTTGTATGGTACAAGTAACCTTGTGGTACAACCTACACTT                  |       |       |       |       |       | AACGGTCTTTGGCTTGA |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10006)        |             | ATCTGGTAAAGTTGAGGGTTGTATGGTACAAGTAACCTTGTGGTACAACCTACACTT                  |       |       |       |       |       | AACGGTCTTTGGCTTGA |
|                                                |                                   | Section 142 |                                                                            |       |       |       |       |       |                   |
|                                                |                                   | (10153)     | 10153                                                                      | 10160 | 10170 | 10180 | 10190 | 10200 | 10210 10224       |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10153)                  |             | TGACGTAGTTTACTGTCCAAGACATGTGATCTGCACCTCTGAAGACATGCTTAACCTAATTATGAAGATTT    |       |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10099) |             | TGACGTAGTTTACTGTCCAAGACATGTGATCTGCACCTCTGAAGACATGCTTAACCTAATTATGAAGATTT    |       |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10141)                    |             | TGACGTAGTTTACTGTCCAAGACATGTGATCTGCACCTCTGAAGACATGCTTAACCTAATTATGAAGATTT    |       |       |       |       |       |                   |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (10100)       |             | TGACGTAGTTTACTGTCCAAGACATGTGATCTGCACCTCTGAAGACATGCTTAACCTAATTATGAAGATTT    |       |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10114)         |             | TGACGTAGTTTACTGTCCAAGACATGTGATCTGCACCTCTGAAGACATGCTTAACCTAATTATGAAGATTT    |       |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10078)        |             | TGACGTAGTTTACTGTCCAAGACATGTGATCTGCACCTCTGAAGACATGCTTAACCTAATTATGAAGATTT    |       |       |       |       |       |                   |
|                                                |                                   | Section 143 |                                                                            |       |       |       |       |       |                   |
|                                                |                                   | (10225)     | 10225                                                                      | 10230 | 10240 | 10250 | 10260 | 10270 | 10280 10296       |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10225)                  |             | ACTCATTTCGTAAGTCTAATCATAATTTCTTGGTACAGGCTGGTAATGTTCAACTCAGGGTTATTGGACATTC  |       |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10171) |             | ACTCATTTCGTAAGTCTAATCATAATTTCTTGGTACAGGCTGGTAATGTTCAACTCAGGGTTATTGGACATTC  |       |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10213)                    |             | ACTCATTTCGTAAGTCTAATCATAATTTCTTGGTACAGGCTGGTAATGTTCAACTCAGGGTTATTGGACATTC  |       |       |       |       |       |                   |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (10172)       |             | ACTCATTTCGTAAGTCTAATCATAATTTCTTGGTACAGGCTGGTAATGTTCAACTCAGGGTTATTGGACATTC  |       |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10186)         |             | ACTCATTTCGTAAGTCTAATCATAATTTCTTGGTACAGGCTGGTAATGTTCAACTCAGGGTTATTGGACATTC  |       |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10150)        |             | ACTCATTTCGTAAGTCTAATCATAATTTCTTGGTACAGGCTGGTAATGTTCAACTCAGGGTTATTGGACATTC  |       |       |       |       |       |                   |
|                                                |                                   | Section 144 |                                                                            |       |       |       |       |       |                   |
|                                                |                                   | (10297)     | 10297                                                                      | 10310 | 10320 | 10330 | 10340 | 10350 | 10368             |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10297)                  |             | TATGCAAAATTGTGTACTTAAAGCTTAAAGGTTGATACAGCCAATCCTAAGACACCTAAGTATAAGTTTGTTCG |       |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10243) |             | TATGCAAAATTGTGTACTTAAAGCTTAAAGGTTGATACAGCCAATCCTAAGACACCTAAGTATAAGTTTGTTCG |       |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10285)                    |             | TATGCAAAATTGTGTACTTAAAGCTTAAAGGTTGATACAGCCAATCCTAAGACACCTAAGTATAAGTTTGTTCG |       |       |       |       |       |                   |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (10244)       |             | TATGCAAAATTGTGTACTTAAAGCTTAAAGGTTGATACAGCCAATCCTAAGACACCTAAGTATAAGTTTGTTCG |       |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10258)         |             | TATGCAAAATTGTGTACTTAAAGCTTAAAGGTTGATACAGCCAATCCTAAGACACCTAAGTATAAGTTTGTTCG |       |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10222)        |             | TATGCAAAATTGTGTACTTAAAGCTTAAAGGTTGATACAGCCAATCCTAAGACACCTAAGTATAAGTTTGTTCG |       |       |       |       |       |                   |

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|                                                |                                   | Section 145 |                                                                              |       |       |       |       |       |             |
|------------------------------------------------|-----------------------------------|-------------|------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                |                                   | (10369)     | 10369                                                                        | 10380 | 10390 | 10400 | 10410 | 10420 | 10430 10440 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10369)                  |             | CATTCAACCAGGACAGACTTTTTTCAGTGTTAGCTTGTTACAATGGTTCACCATCTGGTGTGTACCAATGTGC    |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10315) |             | CATTCAACCAGGACAGACTTTTTTCAGTGTTAGCTTGTTACAATGGTTCACCATCTGGTGTGTACCAATGTGC    |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10357)                    |             | CATTCAACCAGGACAGACTTTTTTCAGTGTTAGCTTGTTACAATGGTTCACCATCTGGTGTGTACCAATGTGC    |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (10316)       |             | CATTCAACCAGGACAGACTTTTTTCAGTGTTAGCTTGTTACAATGGTTCACCATCTGGTGTGTACCAATGTGC    |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10330)         |             | CATTCAACCAGGACAGACTTTTTTCAGTGTTAGCTTGTTACAATGGTTCACCATCTGGTGTGTACCAATGTGC    |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10294)        |             | CATTCAACCAGGACAGACTTTTTTCAGTGTTAGCTTGTTACAATGGTTCACCATCTGGTGTGTACCAATGTGC    |       |       |       |       |       |             |
|                                                |                                   | Section 146 |                                                                              |       |       |       |       |       |             |
|                                                |                                   | (10441)     | 10441                                                                        | 10450 | 10460 | 10470 | 10480 | 10490 | 10500 10512 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10441)                  |             | TATGAGGCA CAATTTTCACTATTTAAGGGTTCATTCCCTTAATGGTTCATGTGGTAGTGTGGTTTTAACATAGA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10387) |             | TATGAGGCA CAATTTTCACTATTTAAGGGTTCATTCCCTTAATGGTTCATGTGGTAGTGTGGTTTTAACATAGA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10429)                    |             | TATGAGGCA CAATTTTCACTATTTAAGGGTTCATTCCCTTAATGGTTCATGTGGTAGTGTGGTTTTAACATAGA  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (10388)       |             | TATGAGGCA CAATTTTCACTATTTAAGGGTTCATTCCCTTAATGGTTCATGTGGTAGTGTGGTTTTAACATAGA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10402)         |             | TATGAGGCA CAATTTTCACTATTTAAGGGTTCATTCCCTTAATGGTTCATGTGGTAGTGTGGTTTTAACATAGA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10366)        |             | TATGAGGCA CAATTTTCACTATTTAAGGGTTCATTCCCTTAATGGTTCATGTGGTAGTGTGGTTTTAACATAGA  |       |       |       |       |       |             |
|                                                |                                   | Section 147 |                                                                              |       |       |       |       |       |             |
|                                                |                                   | (10513)     | 10513                                                                        | 10520 | 10530 | 10540 | 10550 | 10560 | 10570 10584 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10513)                  |             | TTATGACTGTGTCTCTTTTTTGTGTTACATGCACCATATGGAATTACCAACTGGAGTTCATGCTGGCACAGACTT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10459) |             | TTATGACTGTGTCTCTTTTTTGTGTTACATGCACCATATGGAATTACCAACTGGAGTTCATGCTGGCACAGACTT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10501)                    |             | TTATGACTGTGTCTCTTTTTTGTGTTACATGCACCATATGGAATTACCAACTGGAGTTCATGCTGGCACAGACTT  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (10460)       |             | TTATGACTGTGTCTCTTTTTTGTGTTACATGCACCATATGGAATTACCAACTGGAGTTCATGCTGGCACAGACTT  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10474)         |             | TTATGACTGTGTCTCTTTTTTGTGTTACATGCACCATATGGAATTACCAACTGGAGTTCATGCTGGCACAGACTT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10438)        |             | TTATGACTGTGTCTCTTTTTTGTGTTACATGCACCATATGGAATTACCAACTGGAGTTCATGCTGGCACAGACTT  |       |       |       |       |       |             |
|                                                |                                   | Section 148 |                                                                              |       |       |       |       |       |             |
|                                                |                                   | (10585)     | 10585                                                                        | 10590 | 10600 | 10610 | 10620 | 10630 | 10640 10656 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (10585)                  |             | AGAAGGTAACTTTTATGGACCTTTTGTGTTGACAGGCAAAACAGCACAAGCAGCTGGTACGGACACAACCTATTAC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (10531) |             | AGAAGGTAACTTTTATGGACCTTTTGTGTTGACAGGCAAAACAGCACAAGCAGCTGGTACGGACACAACCTATTAC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (10573)                    |             | AGAAGGTAACTTTTATGGACCTTTTGTGTTGACAGGCAAAACAGCACAAGCAGCTGGTACGGACACAACCTATTAC |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (10532)       |             | AGAAGGTAACTTTTATGGACCTTTTGTGTTGACAGGCAAAACAGCACAAGCAGCTGGTACGGACACAACCTATTAC |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (10546)         |             | AGAAGGTAACTTTTATGGACCTTTTGTGTTGACAGGCAAAACAGCACAAGCAGCTGGTACGGACACAACCTATTAC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (10510)        |             | AGAAGGTAACTTTTATGGACCTTTTGTGTTGACAGGCAAAACAGCACAAGCAGCTGGTACGGACACAACCTATTAC |       |       |       |       |       |             |

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|--------------------------------------------------------|--|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |  | Section 149 |                                                                            |       |       |       |       |       |             |
|                                                        |  | (10657)     | 10657                                                                      | 10670 | 10680 | 10690 | 10700 | 10710 | 10728       |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (10657)     | AGTTAATGTTTTAGCTTGGTTGTACGCTGCTGTTATAAATGGAGACAGGTGGTTTCTCAATCGATTTACCAC   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (10603)     | AGTTAATGTTTTAGCTTGGTTGTACGCTGCTGTTATAAATGGAGACAGGTGGTTTCTCAATCGATTTACCAC   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (10645)     | AGTTAATGTTTTAGCTTGGTTGTACGCTGCTGTTATAAATGGAGACAGGTGGTTTCTCAATCGATTTACCAC   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (10604)     | AGTTAATGTTTTAGCTTGGTTGTACGCTGCTGTTATAAATGGAGACAGGTGGTTTCTCAATCGATTTACCAC   |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... |  | (10618)     | AGTTAATGTTTTAGCTTGGTTGTACGCTGCTGTTATAAATGGAGACAGGTGGTTTCTCAATCGATTTACCAC   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (10582)     | AGTTAATGTTTTAGCTTGGTTGTACGCTGCTGTTATAAATGGAGACAGGTGGTTTCTCAATCGATTTACCAC   |       |       |       |       |       |             |
|                                                        |  | Section 150 |                                                                            |       |       |       |       |       |             |
|                                                        |  | (10729)     | 10729                                                                      | 10740 | 10750 | 10760 | 10770 | 10780 | 10790 10800 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (10729)     | AACTCTTAATGACTTTAACTTGTGGCTATGAAGTACAATTATGAACCTCTAACACAAGACCATGTTGACAT    |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (10675)     | AACTCTTAATGACTTTAACTTGTGGCTATGAAGTACAATTATGAACCTCTAACACAAGACCATGTTGACAT    |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (10717)     | AACTCTTAATGACTTTAACTTGTGGCTATGAAGTACAATTATGAACCTCTAACACAAGACCATGTTGACAT    |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (10676)     | AACTCTTAATGACTTTAACTTGTGGCTATGAAGTACAATTATGAACCTCTAACACAAGACCATGTTGACAT    |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (10690)     | AACTCTTAATGACTTTAACTTGTGGCTATGAAGTACAATTATGAACCTCTAACACAAGACCATGTTGACAT    |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (10654)     | AACTCTTAATGACTTTAACTTGTGGCTATGAAGTACAATTATGAACCTCTAACACAAGACCATGTTGACAT    |       |       |       |       |       |             |
|                                                        |  | Section 151 |                                                                            |       |       |       |       |       |             |
|                                                        |  | (10801)     | 10801                                                                      | 10810 | 10820 | 10830 | 10840 | 10850 | 10860 10872 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (10801)     | ACTAGGACCTCTTTCTGCTCAAACCTGGAATTGCCGTTTTAGATATGTGTGCTTCATTAAGAAGAACTACTGCA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (10747)     | ACTAGGACCTCTTTCTGCTCAAACCTGGAATTGCCGTTTTAGATATGTGTGCTTCATTAAGAAGAACTACTGCA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (10789)     | ACTAGGACCTCTTTCTGCTCAAACCTGGAATTGCCGTTTTAGATATGTGTGCTTCATTAAGAAGAACTACTGCA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (10748)     | ACTAGGACCTCTTTCTGCTCAAACCTGGAATTGCCGTTTTAGATATGTGTGCTTCATTAAGAAGAACTACTGCA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (10762)     | ACTAGGACCTCTTTCTGCTCAAACCTGGAATTGCCGTTTTAGATATGTGTGCTTCATTAAGAAGAACTACTGCA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (10726)     | ACTAGGACCTCTTTCTGCTCAAACCTGGAATTGCCGTTTTAGATATGTGTGCTTCATTAAGAAGAACTACTGCA |       |       |       |       |       |             |
|                                                        |  | Section 152 |                                                                            |       |       |       |       |       |             |
|                                                        |  | (10873)     | 10873                                                                      | 10880 | 10890 | 10900 | 10910 | 10920 | 10930 10944 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (10873)     | AAATGGTATGAATGGACGTACCATATTGGGTAGTGCTTTATTAGAAGATGAATTTACACCTTTTGATGTTGT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (10819)     | AAATGGTATGAATGGACGTACCATATTGGGTAGTGCTTTATTAGAAGATGAATTTACACCTTTTGATGTTGT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (10861)     | AAATGGTATGAATGGACGTACCATATTGGGTAGTGCTTTATTAGAAGATGAATTTACACCTTTTGATGTTGT   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (10820)     | AAATGGTATGAATGGACGTACCATATTGGGTAGTGCTTTATTAGAAGATGAATTTACACCTTTTGATGTTGT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (10834)     | AAATGGTATGAATGGACGTACCATATTGGGTAGTGCTTTATTAGAAGATGAATTTACACCTTTTGATGTTGT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   |  | (10798)     | AAATGGTATGAATGGACGTACCATATTGGGTAGTGCTTTATTAGAAGATGAATTTACACCTTTTGATGTTGT   |       |       |       |       |       |             |

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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                           |       |       |       |       |       |       |       | Section 153 |
|                                                        | (10945) | 10945                                                                     | 10950 | 10960 | 10970 | 10980 | 10990 | 11000 | 11016 |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (10945) | TAGACAATGCTCAGGTGTTACTTTCCAAAGTGCAGTGAAAAGAACAATCAAGGGGTACACACCACTGGTTGTT |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (10891) | TAGACAATGCTCAGGTGTTACTTTCCAAAGTGCAGTGAAAAGAACAATCAAGGGGTACACACCACTGGTTGTT |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (10933) | TAGACAATGCTCAGGTGTTACTTTCCAAAGTGCAGTGAAAAGAACAATCAAGGGGTACACACCACTGGTTGTT |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (10892) | TAGACAATGCTCAGGTGTTACTTTCCAAAGTGCAGTGAAAAGAACAATCAAGGGGTACACACCACTGGTTGTT |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-T-438397/2022_FPI_ISI_905522... | (10906) | TAGACAATGCTCAGGTGTTACTTTCCAAAGTGCAGTGAAAAGAACAATCAAGGGGTACACACCACTGGTTGTT |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (10870) | TAGACAATGCTCAGGTGTTACTTTCCAAAGTGCAGTGAAAAGAACAATCAAGGGGTACACACCACTGGTTGTT |       |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       |       | Section 154 |
|                                                        | (11017) | 11017                                                                     | 11030 | 11040 | 11050 | 11060 | 11070 | 11088 |       |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (11017) | ACTCACAATTTTGACTTCACCTTTAGTTTTAGTCCAGAGTACTCAATGGTCTTTGTTCTTTTTTTGTATGA   |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (10963) | ACTCACAATTTTGACTTCACCTTTAGTTTTAGTCCAGAGTACTCAATGGTCTTTGTTCTTTTTTTGTATGA   |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (11005) | ACTCACAATTTTGACTTCACCTTTAGTTTTAGTCCAGAGTACTCAATGGTCTTTGTTCTTTTTTTGTATGA   |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (10964) | ACTCACAATTTTGACTTCACCTTTAGTTTTAGTCCAGAGTACTCAATGGTCTTTGTTCTTTTTTTGTATGA   |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-T-438397/2022_EPI_ISL_905522... | (10978) | ACTCACAATTTTGACTTCACCTTTAGTTTTAGTCCAGAGTACTCAATGGTCTTTGTTCTTTTTTTGTATGA   |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (10942) | ACTCACAATTTTGACTTCACCTTTAGTTTTAGTCCAGAGTACTCAATGGTCTTTGTTCTTTTTTTGTATGA   |       |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       |       | Section 155 |
|                                                        | (11089) | 11089                                                                     | 11100 | 11110 | 11120 | 11130 | 11140 | 11150 | 11160 |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (11089) | AAATGCCTTTTACCTTTTGCTATGGGTATTATTGCTATGTCTGCTTTTGCAATGATGTTTGTCAAACATAA   |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...  | (11035) | AAATGCCTTTTACCTTTTGCTATGGGTATTATTGCTATGTCTGCTTTTGCAATGATGTTTGTCAAACATAA   |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_FPI...  | (11077) | AAATGCCTTTTACCTTTTGCTATGGGTATTATTGCTATGTCTGCTTTTGCAATGATGTTTGTCAAACATAA   |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022_FPI_ISI_9062229 ...   | (11036) | AAATGCCTTTTACCTTTTGCTATGGGTATTATTGCTATGTCTGCTTTTGCAATGATGTTTGTCAAACATAA   |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-T-438397/2022_EPI_ISL_905522... | (11050) | AAATGCCTTTTACCTTTTGCTATGGGTATTATTGCTATGTCTGCTTTTGCAATGATGTTTGTCAAACATAA   |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (11014) | AAATGCCTTTTACCTTTTGCTATGGGTATTATTGCTATGTCTGCTTTTGCAATGATGTTTGTCAAACATAA   |       |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       |       | Section 156 |
|                                                        | (11161) | 11161                                                                     | 11170 | 11180 | 11190 | 11200 | 11210 | 11220 | 11232 |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (11161) | GCATGCATTTCTCTGTTTGTGTTTTGTTACCTTCTCTTGCCACTGTAGCTTATTTTAATATGGTCTATATGCC |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (11107) | GCATGCATTTCTCTGTTTGTGTTTTGTTACCTTCTCTTGCCACTGTAGCTTATTTTAATATGGTCTATATGCC |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (11149) | GCATGCATTTCTCTGTTTGTGTTTTGTTACCTTCTCTTGCCACTGTAGCTTATTTTAATATGGTCTATATGCC |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (11108) | GCATGCATTTCTCTGTTTGTGTTTTGTTACCTTCTCTTGCCACTGTAGCTTATTTTAATATGGTCTATATGCC |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-T-438397/2022_EPI_ISL_905522... | (11122) | GCATGCATTTCTCTGTTTGTGTTTTGTTACCTTCTCTTGCCACTGTAGCTTATTTTAATATGGTCTATATGCC |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (11086) | GCATGCATTTCTCTGTTTGTGTTTTGTTACCTTCTCTTGCCACTGTAGCTTATTTTAATATGGTCTATATGCC |       |       |       |       |       |       |       |             |

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|----------------------------------------------------------------|---------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                                |         | Section 157                                                                |       |       |       |       |       |       |       |
|                                                                | (11233) | 11233                                                                      | 11240 | 11250 | 11260 | 11270 | 11280 | 11290 | 11304 |
| SARS-CoV-2 Reference Genome NC 045512.2 (11233)                |         | TGCTAGTTGGGTGATGCGTATTATGACATGGTTGGATATGGTTGATACTAGTTTGTCCTGGTTTAAAGCTAAA  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (11179)  |         | TGCTAGTTGGGTGATGCGTATTATGACATGGTTGGATATGGTTGATACTAGTNNNNNNNNNTTTAAAGCTAAA  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (11221)  |         | TGCTAGTTGGGTGATGCGTATTATGACATGGTTGGATATGGTTGATACTAGTTTGTCCTGGTTTAAAGCTAAA  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (11180)   |         | TGCTAGTTGGGTGATGCGTATTATGACATGGTTGGATATGGTTGATACTAG-----TTTAAAGCTAAA       |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (11194) |         | TGCTAGTTGGGTGATGCGTATTATGACATGGTTGGATATGGTTGATACTAG-----TTTAAAGCTAAA       |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (11158)   |         | TGCTAGTTGGGTGATGCGTATTATGACATGGTTGGATATGGTTGATACTAG-----TTTAAAGCTAAA       |       |       |       |       |       |       |       |
|                                                                |         | Section 158                                                                |       |       |       |       |       |       |       |
|                                                                | (11305) | 11305                                                                      | 11310 | 11320 | 11330 | 11340 | 11350 | 11360 | 11376 |
| SARS-CoV-2 Reference Genome NC 045512.2 (11305)                |         | AGACTGTGTTATGTATGCATCAGCTGTAGTGTTACTAATCCCTTATGACAGCAAGAAGCTGTGTATGATGATGG |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (11251)  |         | AGACTGTGTTATGTATGCATCAGCTGTAGTGTTACTAATCCCTTATGACAGCAAGAAGCTGTGTATGATGATGG |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (11293)  |         | AGACTGTGTTATGTATGCATCAGCTGTAGTGTTACTAATCCCTTATGACAGCAAGAAGCTGTGTATGATGATGG |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (11243)   |         | AGACTGTGTTATGTATGCATCAGCTGTAGTGTTACTAATCCCTTATGACAGCAAGAAGCTGTGTATGATGATGG |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (11257) |         | AGACTGTGTTATGTATGCATCAGCTGTAGTGTTACTAATCCCTTATGACAGCAAGAAGCTGTGTATGATGATGG |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (11221)   |         | AGACTGTGTTATGTATGCATCAGCTGTAGTGTTACTAATCCCTTATGACAGCAAGAAGCTGTGTATGATGATGG |       |       |       |       |       |       |       |
|                                                                |         | Section 159                                                                |       |       |       |       |       |       |       |
|                                                                | (11377) | 11377                                                                      | 11390 | 11400 | 11410 | 11420 | 11430 | 11448 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (11377)                |         | TGCTAGGAGAGTGTGGACACTTATGAATGTCTTGACACTCGTTTATAAAGTTTATTATGGTAATGCTTTAGAG  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (11323)  |         | TGCTAGGAGAGTGTGGACACTTATGAATGTCTTGACACTCGTTTATAAAGTTTATTATGGTAATGCTTTAGAG  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (11365)  |         | TGCTAGGAGAGTGTGGACACTTATGAATGTCTTGACACTCGTTTATAAAGTTTATTATGGTAATGCTTTAGAG  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (11315)   |         | TGCTAGGAGAGTGTGGACACTTATGAATGTCTTGACACTCGTTTATAAAGTTTATTATGGTAATGCTTTAGAG  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (11329) |         | TGCTAGGAGAGTGTGGACACTTATGAATGTCTTGACACTCGTTTATAAAGTTTATTATGGTAATGCTTTAGAG  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (11293)   |         | TGCTAGGAGAGTGTGGACACTTATGAATGTCTTGACACTCGTTTATAAAGTTTATTATGGTAATGCTTTAGAG  |       |       |       |       |       |       |       |
|                                                                |         | Section 160                                                                |       |       |       |       |       |       |       |
|                                                                | (11449) | 11449                                                                      | 11460 | 11470 | 11480 | 11490 | 11500 | 11510 | 11520 |
| SARS-CoV-2 Reference Genome NC 045512.2 (11449)                |         | TCAAGCCATTTCCATGTGGGCTCTTATAATCTCTGTTACTTCTAACTACTCAGGTGTAGTTACAACGTGTCAT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (11395)  |         | TCAAGCCATTTCCATGTGGGCTCTTATAATCTCTGTTACTTCTAACTACTCAGGTGTAGTTACAACGTGTCAT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (11437)  |         | TCAAGCCATTTCCATGTGGGCTCTTATAATCTCTGTTACTTCTAACTACTCAGGTGTAGTTACAACGTGTCAT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (11387)   |         | TCAAGCCATTTCCATGTGGGCTCTTATAATCTCTGTTACTTCTAACTACTCAGGTGTAGTTACAACGTGTCAT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (11401) |         | TCAAGCCATTTCCATGTGGGCTCTTATAATCTCTGTTACTTCTAACTACTCAGGTGTAGTTACAACGTGTCAT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (11365)   |         | TCAAGCCATTTCCATGTGGGCTCTTATAATCTCTGTTACTTCTAACTACTCAGGTGTAGTTACAACGTGTCAT  |       |       |       |       |       |       |       |

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|                                                |                                   | Section 161 |                                                                           |       |                                                         |       |       |       |             |
|------------------------------------------------|-----------------------------------|-------------|---------------------------------------------------------------------------|-------|---------------------------------------------------------|-------|-------|-------|-------------|
|                                                |                                   | (11521)     | 11521                                                                     | 11530 | 11540                                                   | 11550 | 11560 | 11570 | 11580 11592 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (11521)                  |             | GTTTTTGGCCAGAGGT                                                          | A     | TTGTTTTTATGTGTGTTGAGTATTGCCCTATTTTCTTCATAACTGGTAATACACT |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (11467) |             | GTTTTTGGCCAGAGGT                                                          | T     | TTGTTTTTATGTGTGTTGAGTATTGCCCTATTTTCTTCATAACTGGTAATACACT |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (11509)                    |             | GTTTTTGGCCAGAGGT                                                          | T     | TTGTTTTTATGTGTGTTGAGTATTGCCCTATTTTCTTCATAACTGGTAATACACT |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (11459)       |             | GTTTTTGGCCAGAGGT                                                          | T     | TTGTTTTTATGTGTGTTGAGTATTGCCCTATTTTCTTCATAACTGGTAATACACT |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (11473)         |             | GTTTTTGGCCAGAGGT                                                          | T     | TTGTTTTTATGTGTGTTGAGTATTGCCCTATTTTCTTCATAACTGGTAATACACT |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (11437)        |             | GTTTTTGGCCAGAGGT                                                          | T     | TTGTTTTTATGTGTGTTGAGTATTGCCCTATTTTCTTCATAACTGGTAATACACT |       |       |       |             |
|                                                |                                   | Section 162 |                                                                           |       |                                                         |       |       |       |             |
|                                                |                                   | (11593)     | 11593                                                                     | 11600 | 11610                                                   | 11620 | 11630 | 11640 | 11650 11664 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (11593)                  |             | TCAGTGTATAATGCTAGTTTATTGTTTCTTAGGCTATTTTTGTACTTGTTACTTTGGCCTCTTTTGTTTACT  |       |                                                         |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (11539) |             | TCAGTGTATAATGCTAGTTTATTGTTTCTTAGGCTATTTTTGTACTTGTTACTTTGGCCTCTTTTGTTTACT  |       |                                                         |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (11581)                    |             | TCAGTGTATAATGCTAGTTTATTGTTTCTTAGGCTATTTTTGTACTTGTTACTTTGGCCTCTTTTGTTTACT  |       |                                                         |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (11531)       |             | TCAGTGTATAATGCTAGTTTATTGTTTCTTAGGCTATTTTTGTACTTGTTACTTTGGCCTCTTTTGTTTACT  |       |                                                         |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (11545)         |             | TCAGTGTATAATGCTAGTTTATTGTTTCTTAGGCTATTTTTGTACTTGTTACTTTGGCCTCTTTTGTTTACT  |       |                                                         |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (11509)        |             | TCAGTGTATAATGCTAGTTTATTGTTTCTTAGGCTATTTTTGTACTTGTTACTTTGGCCTCTTTTGTTTACT  |       |                                                         |       |       |       |             |
|                                                |                                   | Section 163 |                                                                           |       |                                                         |       |       |       |             |
|                                                |                                   | (11665)     | 11665                                                                     | 11670 | 11680                                                   | 11690 | 11700 | 11710 | 11720 11736 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (11665)                  |             | CAACCGCTACTTTAGACTGACTCTTGGTGTTTATGATTACTTAGTTTCTACACAGGAGTTTAGATATATGAA  |       |                                                         |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (11611) |             | CAACCGCTACTTTAGACTGACTCTTGGTGTTTATGATTACTTAGTTTCTACACAGGAGTTTAGATATATGAA  |       |                                                         |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (11653)                    |             | CAACCGCTACTTTAGACTGACTCTTGGTGTTTATGATTACTTAGTTTCTACACAGGAGTTTAGATATATGAA  |       |                                                         |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (11603)       |             | CAACCGCTACTTTAGACTGACTCTTGGTGTTTATGATTACTTAGTTTCTACACAGGAGTTTAGATATATGAA  |       |                                                         |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (11617)         |             | CAACCGCTACTTTAGACTGACTCTTGGTGTTTATGATTACTTAGTTTCTACACAGGAGTTTAGATATATGAA  |       |                                                         |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (11581)        |             | CAACCGCTACTTTAGACTGACTCTTGGTGTTTATGATTACTTAGTTTCTACACAGGAGTTTAGATATATGAA  |       |                                                         |       |       |       |             |
|                                                |                                   | Section 164 |                                                                           |       |                                                         |       |       |       |             |
|                                                |                                   | (11737)     | 11737                                                                     | 11750 | 11760                                                   | 11770 | 11780 | 11790 | 11808       |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (11737)                  |             | TTACACAGGGACTACTCCCACCCAAGAATAGCATAGATGCCTTCAAACTCAACATTAAATTGTTGGGTGTTGG |       |                                                         |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (11683) |             | TTACACAGGGACTACTCCCACCCAAGAATAGCATAGATGCCTTCAAACTCAACATTAAATTGTTGGGTGTTGG |       |                                                         |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (11725)                    |             | TTACACAGGGACTACTCCCACCCAAGAATAGCATAGATGCCTTCAAACTCAACATTAAATTGTTGGGTGTTGG |       |                                                         |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022               | EPI ISL 9062229 ... (11675)       |             | TTACACAGGGACTACTCCCACCCAAGAATAGCATAGATGCCTTCAAACTCAACATTAAATTGTTGGGTGTTGG |       |                                                         |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (11689)         |             | TTACACAGGGACTACTCCCACCCAAGAATAGCATAGATGCCTTCAAACTCAACATTAAATTGTTGGGTGTTGG |       |                                                         |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (11653)        |             | TTACACAGGGACTACTCCCACCCAAGAATAGCATAGATGCCTTCAAACTCAACATTAAATTGTTGGGTGTTGG |       |                                                         |       |       |       |             |

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|                                                        |         |                                                                            |       |       |       |       |       |       |       |
|--------------------------------------------------------|---------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |         | Section 165                                                                |       |       |       |       |       |       |       |
|                                                        | (11809) | 11809                                                                      | 11820 | 11830 | 11840 | 11850 | 11860 | 11870 | 11880 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (11809) | TGGCAAACCTTGTATCAAAGTAGCCACTGTACAGTCTAAAAATGTCAGATGTAAAGTGCACATCAGTAGTCTT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  | (11755) | TGGCAAACCTTGTATCAAAGTAGCCACTGTACAGTCTAAAAATGTCAGATGTAAAGTGCACATCAGTAGTCTT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (11797) | TGGCAAACCTTGTATCAAAGTAGCCACTGTACAGTCTAAAAATGTCAGATGTAAAGTGCACATCAGTAGTCTT  |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  | (11747) | TGGCAAACCTTGTATCAAAGTAGCCACTGTACAGTCTAAAAATGTCAGATGTAAAGTGCACATCAGTAGTCTT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... | (11761) | TGGCAAACCTTGTATCAAAGTAGCCACTGTACAGTCTAAAAATGTCAGATGTAAAGTGCACATCAGTAGTCTT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (11725) | TGGCAAACCTTGTATCAAAGTAGCCACTGTACAGTCTAAAAATGTCAGATGTAAAGTGCACATCAGTAGTCTT  |       |       |       |       |       |       |       |
|                                                        |         | Section 166                                                                |       |       |       |       |       |       |       |
|                                                        | (11881) | 11881                                                                      | 11890 | 11900 | 11910 | 11920 | 11930 | 11940 | 11952 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (11881) | ACTCTCAGTTTTTGCAACAACCTCAGAGTAGAATCATCATCTAAATTGTGGGCTCAATGTGTCCAGTTACACAA |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  | (11827) | ACTCTCAGTTTTTGCAACAACCTCAGAGTAGAATCATCATCTAAATTGTGGGCTCAATGTGTCCAGTTACACAA |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (11869) | ACTCTCAGTTTTTGCAACAACCTCAGAGTAGAATCATCATCTAAATTGTGGGCTCAATGTGTCCAGTTACACAA |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  | (11819) | ACTCTCAGTTTTTGCAACAACCTCAGAGTAGAATCATCATCTAAATTGTGGGCTCAATGTGTCCAGTTACACAA |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... | (11833) | ACTCTCAGTTTTTGCAACAACCTCAGAGTAGAATCATCATCTAAATTGTGGGCTCAATGTGTCCAGTTACACAA |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (11797) | ACTCTCAGTTTTTGCAACAACCTCAGAGTAGAATCATCATCTAAATTGTGGGCTCAATGTGTCCAGTTACACAA |       |       |       |       |       |       |       |
|                                                        |         | Section 167                                                                |       |       |       |       |       |       |       |
|                                                        | (11953) | 11953                                                                      | 11960 | 11970 | 11980 | 11990 | 12000 | 12010 | 12024 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (11953) | TGACATTCTCTTAGCTAAAGATACTACTGAAGCCTTTGAAAAAATGGTTTCACTACTTTCTGTTTTGCTTTT   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  | (11899) | TGACATTCTCTTAGCTAAAGATACTACTGAAGCCTTTGAAAAAATGGTTTCACTACTTTCTGTTTTGCTTTT   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (11941) | TGACATTCTCTTAGCTAAAGATACTACTGAAGCCTTTGAAAAAATGGTTTCACTACTTTCTGTTTTGCTTTT   |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  | (11891) | TGACATTCTCTTAGCTAAAGATACTACTGAAGCCTTTGAAAAAATGGTTTCACTACTTTCTGTTTTGCTTTT   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... | (11905) | TGACATTCTCTTAGCTAAAGATACTACTGAAGCCTTTGAAAAAATGGTTTCACTACTTTCTGTTTTGCTTTT   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (11869) | TGACATTCTCTTAGCTAAAGATACTACTGAAGCCTTTGAAAAAATGGTTTCACTACTTTCTGTTTTGCTTTT   |       |       |       |       |       |       |       |
|                                                        |         | Section 168                                                                |       |       |       |       |       |       |       |
|                                                        | (12025) | 12025                                                                      | 12030 | 12040 | 12050 | 12060 | 12070 | 12080 | 12096 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (12025) | CATGCAGGGTGCTGTAGACATAAACAAAGCTTTGTGAAGAAATGCTGGACAACAGGGCAACCTTACAAGCTAT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  | (11971) | CATGCAGGGTGCTGTAGACATAAACAAAGCTTTGTGAAGAAATGCTGGACAACAGGGCAACCTTACAAGCTAT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12013) | CATGCAGGGTGCTGTAGACATAAACAAAGCTTTGTGAAGAAATGCTGGACAACAGGGCAACCTTACAAGCTAT  |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  | (11963) | CATGCAGGGTGCTGTAGACATAAACAAAGCTTTGTGAAGAAATGCTGGACAACAGGGCAACCTTACAAGCTAT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... | (11977) | CATGCAGGGTGCTGTAGACATAAACAAAGCTTTGTGAAGAAATGCTGGACAACAGGGCAACCTTACAAGCTAT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (11941) | CATGCAGGGTGCTGTAGACATAAACAAAGCTTTGTGAAGAAATGCTGGACAACAGGGCAACCTTACAAGCTAT  |       |       |       |       |       |       |       |

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|                                                        |         | Section 169 |                                                                           |       |       |       |       |                   |
|--------------------------------------------------------|---------|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------------------|
|                                                        |         | (12097)     | 12097                                                                     | 12110 | 12120 | 12130 | 12140 | 12150 12168       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12097) |             | AGCCTCAGAGTTTAGTTCCCTTCCATCATATGCAGCTTTTGCTACTGCTCAAGAAGCTTATGAGCAGGCTGT  |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12043) |             | AGCCTCAGAGTTTAGTTCCCTTCCATCATATGCAGCTTTTGCTACTGCTCAAGAAGCTTATGAGCAGGCTGT  |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12085) |             | AGCCTCAGAGTTTAGTTCCCTTCCATCATATGCAGCTTTTGCTACTGCTCAAGAAGCTTATGAGCAGGCTGT  |       |       |       |       |                   |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12035) |             | AGCCTCAGAGTTTAGTTCCCTTCCATCATATGCAGCTTTTGCTACTGCTCAAGAAGCTTATGAGCAGGCTGT  |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (12049) |             | AGCCTCAGAGTTTAGTTCCCTTCCATCATATGCAGCTTTTGCTACTGCTCAAGAAGCTTATGAGCAGGCTGT  |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (12013) |             | AGCCTCAGAGTTTAGTTCCCTTCCATCATATGCAGCTTTTGCTACTGCTCAAGAAGCTTATGAGCAGGCTGT  |       |       |       |       |                   |
|                                                        |         | Section 170 |                                                                           |       |       |       |       |                   |
|                                                        |         | (12169)     | 12169                                                                     | 12180 | 12190 | 12200 | 12210 | 12220 12230 12240 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12169) |             | TGCTAATGGTGATTCTGAAGTTGTTCTTAAAAAGTTGAAGAAGTCTTTGAATGTGGCTAAATCTGAATTTGA  |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12115) |             | TGCTAATGGTGATTCTGAAGTTGTTCTTAAAAAGTTGAAGAAGTCTTTGAATGTGGCTAAATCTGAATTTGA  |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12157) |             | TGCTAATGGTGATTCTGAAGTTGTTCTTAAAAAGTTGAAGAAGTCTTTGAATGTGGCTAAATCTGAATTTGA  |       |       |       |       |                   |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12107) |             | TGCTAATGGTGATTCTGAAGTTGTTCTTAAAAAGTTGAAGAAGTCTTTGAATGTGGCTAAATCTGAATTTGA  |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (12121) |             | TGCTAATGGTGATTCTGAAGTTGTTCTTAAAAAGTTGAAGAAGTCTTTGAATGTGGCTAAATCTGAATTTGA  |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (12085) |             | TGCTAATGGTGATTCTGAAGTTGTTCTTAAAAAGTTGAAGAAGTCTTTGAATGTGGCTAAATCTGAATTTGA  |       |       |       |       |                   |
|                                                        |         | Section 171 |                                                                           |       |       |       |       |                   |
|                                                        |         | (12241)     | 12241                                                                     | 12250 | 12260 | 12270 | 12280 | 12290 12300 12312 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12241) |             | CCGTGATGCAGCCATGCAACGTAAGTTGGAAAAAGATGGCTGATCAAGCTATGACCCAAATGTATAAACAGGC |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12187) |             | CCGTGATGCAGCCATGCAACGTAAGTTGGAAAAAGATGGCTGATCAAGCTATGACCCAAATGTATAAACAGGC |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12229) |             | CCGTGATGCAGCCATGCAACGTAAGTTGGAAAAAGATGGCTGATCAAGCTATGACCCAAATGTATAAACAGGC |       |       |       |       |                   |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12179) |             | CCGTGATGCAGCCATGCAACGTAAGTTGGAAAAAGATGGCTGATCAAGCTATGACCCAAATGTATAAACAGGC |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (12193) |             | CCGTGATGCAGCCATGCAACGTAAGTTGGAAAAAGATGGCTGATCAAGCTATGACCCAAATGTATAAACAGGC |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (12157) |             | CCGTGATGCAGCCATGCAACGTAAGTTGGAAAAAGATGGCTGATCAAGCTATGACCCAAATGTATAAACAGGC |       |       |       |       |                   |
|                                                        |         | Section 172 |                                                                           |       |       |       |       |                   |
|                                                        |         | (12313)     | 12313                                                                     | 12320 | 12330 | 12340 | 12350 | 12360 12370 12384 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12313) |             | TAGATCTGAGGACAAGAGGGGCAAAAGTTACTAGTGCTATGCAGACAATGCTTTTCACTATGCTTAGAAAGTT |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12259) |             | TAGATCTGAGGACAAGAGGGGCAAAAGTTACTAGTGCTATGCAGACAATGCTTTTCACTATGCTTAGAAAGTT |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12301) |             | TAGATCTGAGGACAAGAGGGGCAAAAGTTACTAGTGCTATGCAGACAATGCTTTTCACTATGCTTAGAAAGTT |       |       |       |       |                   |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12251) |             | TAGATCTGAGGACAAGAGGGGCAAAAGTTACTAGTGCTATGCAGACAATGCTTTTCACTATGCTTAGAAAGTT |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (12265) |             | TAGATCTGAGGACAAGAGGGGCAAAAGTTACTAGTGCTATGCAGACAATGCTTTTCACTATGCTTAGAAAGTT |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (12229) |             | TAGATCTGAGGACAAGAGGGGCAAAAGTTACTAGTGCTATGCAGACAATGCTTTTCACTATGCTTAGAAAGTT |       |       |       |       |                   |

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|----------------------------------------------------------------|--|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                                |  | Section 173 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (12385)     | 12385                                                                      | 12390 | 12400 | 12410 | 12420 | 12430 | 12440 | 12456 |
| SARS-CoV-2 Reference Genome NC 045512.2 (12385)                |  |             | GGATAATGATGCACTCAACAACATTATCAACAATGCAAGAGATGGTTGTGTTCCCTTGAACATAATACCTCT   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (12331)  |  |             | GGATAATGATGCACTCAACAACATTATCAACAATGCAAGAGATGGTTGTGTTCCCTTGAACATAATACCTCT   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (12373)  |  |             | GGATAATGATGCACTCAACAACATTATCAACAATGCAAGAGATGGTTGTGTTCCCTTGAACATAATACCTCT   |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (12323)  |  |             | GGATAATGATGCACTCAACAACATTATCAACAATGCAAGAGATGGTTGTGTTCCCTTGAACATAATACCTCT   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (12337) |  |             | GGATAATGATGCACTCAACAACATTATCAACAATGCAAGAGATGGTTGTGTTCCCTTGAACATAATACCTCT   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (12301)   |  |             | GGATAATGATGCACTCAACAACATTATCAACAATGCAAGAGATGGTTGTGTTCCCTTGAACATAATACCTCT   |       |       |       |       |       |       |       |
|                                                                |  | Section 174 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (12457)     | 12457                                                                      | 12470 | 12480 | 12490 | 12500 | 12510 | 12528 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (12457)                |  |             | TACAACAGCAGCCAAACTAATGGTTGTCATACCAGACTATAACACATATAAAAAATACGTGTGATGGGTACAAC |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (12403)  |  |             | TACAACAGCAGCCAAACTAATGGTTGTCATACCAGACTATAACACATATAAAAAATACGTGTGATGGGTACAAC |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (12445)  |  |             | TACAACAGCAGCCAAACTAATGGTTGTCATACCAGACTATAACACATATAAAAAATACGTGTGATGGGTACAAC |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (12395)  |  |             | TACAACAGCAGCCAAACTAATGGTTGTCATACCAGACTATAACACATATAAAAAATACGTGTGATGGGTACAAC |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (12409) |  |             | TACAACAGCAGCCAAACTAATGGTTGTCATACCAGACTATAACACATATAAAAAATACGTGTGATGGGTACAAC |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (12373)   |  |             | TACAACAGCAGCCAAACTAATGGTTGTCATACCAGACTATAACACATATAAAAAATACGTGTGATGGGTACAAC |       |       |       |       |       |       |       |
|                                                                |  | Section 175 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (12529)     | 12529                                                                      | 12540 | 12550 | 12560 | 12570 | 12580 | 12590 | 12600 |
| SARS-CoV-2 Reference Genome NC 045512.2 (12529)                |  |             | ATTTACTTATGCATCAGCATTGTGGGAAATCCAACAGGTTGTAGATGCAGATAGTAAAATTGTTCAACTTAG   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (12475)  |  |             | ATTTACTTATGCATCAGCATTGTGGGAAATCCAACAGGTTGTAGATGCAGATAGTAAAATTGTTCAACTTAG   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (12517)  |  |             | ATTTACTTATGCATCAGCATTGTGGGAAATCCAACAGGTTGTAGATGCAGATAGTAAAATTGTTCAACTTAG   |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (12467)  |  |             | ATTTACTTATGCATCAGCATTGTGGGAAATCCAACAGGTTGTAGATGCAGATAGTAAAATTGTTCAACTTAG   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (12481) |  |             | ATTTACTTATGCATCAGCATTGTGGGAAATCCAACAGGTTGTAGATGCAGATAGTAAAATTGTTCAACTTAG   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (12445)   |  |             | ATTTACTTATGCATCAGCATTGTGGGAAATCCAACAGGTTGTAGATGCAGATAGTAAAATTGTTCAACTTAG   |       |       |       |       |       |       |       |
|                                                                |  | Section 176 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (12601)     | 12601                                                                      | 12610 | 12620 | 12630 | 12640 | 12650 | 12660 | 12672 |
| SARS-CoV-2 Reference Genome NC 045512.2 (12601)                |  |             | TGAAATTAGTATGGACAATTCACCTAATTTAGCATGGCCTCTTATTGTAACAGCTTTAAGGGCCAATTCTGC   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (12547)  |  |             | TGAAATTAGTATGGACAATTCACCTAATTTAGCATGGCCTCTTATTGTAACAGCTTTAAGGGCCAATTCTGC   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (12589)  |  |             | TGAAATTAGTATGGACAATTCACCTAATTTAGCATGGCCTCTTATTGTAACAGCTTTAAGGGCCAATTCTGC   |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (12539)  |  |             | TGAAATTAGTATGGACAATTCACCTAATTTAGCATGGCCTCTTATTGTAACAGCTTTAAGGGCCAATTCTGC   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (12553) |  |             | TGAAATTAGTATGGACAATTCACCTAATTTAGCATGGCCTCTTATTGTAACAGCTTTAAGGGCCAATTCTGC   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (12517)   |  |             | TGAAATTAGTATGGACAATTCACCTAATTTAGCATGGCCTCTTATTGTAACAGCTTTAAGGGCCAATTCTGC   |       |       |       |       |       |       |       |

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|--------------------------------------------------------|---------|--------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 177 |
|                                                        | (12673) | 12673                                                                    | 12680 | 12690 | 12700 | 12710 | 12720 | 12730 | 12744       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12673) | TGTCAAATTACAGAATAATGAGCTTAGTCCTGTTGCACTACGACAGATGTCTTGTGCTGCCGGTACTACACA |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12619) | TGTCAAATTACAGAATAATGAGCTTAGTCCTGTTGCACTACGACAGATGTCTTGTGCTGCCGGTACTACACA |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12661) | TGTCAAATTACAGAATAATGAGCTTAGTCCTGTTGCACTACGACAGATGTCTTGTGCTGCCGGTACTACACA |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12611) | TGTCAAATTACAGAATAATGAGCTTAGTCCTGTTGCACTACGACAGATGTCTTGTGCTGCCGGTACTACACA |       |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (12625) | TGTCAAATTACAGAATAATGAGCTTAGTCCTGTTGCACTACGACAGATGTCTTGTGCTGCCGGTACTACACA |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (12589) | TGTCAAATTACAGAATAATGAGCTTAGTCCTGTTGCACTACGACAGATGTCTTGTGCTGCCGGTACTACACA |       |       |       |       |       |       |             |
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 178 |
|                                                        | (12745) | 12745                                                                    | 12750 | 12760 | 12770 | 12780 | 12790 | 12800 | 12816       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12745) | AACTGCTTGCACTGATGACAATGCGTTAGCTTACTACAACACAACAAAGGGAGGTAGGTTTGTACTTGCCT  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12691) | AACTGCTTGCACTGATGACAATGCGTTAGCTTACTACAACACAACAAAGGGAGGTAGGTTTGTACTTGCCT  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12733) | AACTGCTTGCACTGATGACAATGCGTTAGCTTACTACAACACAACAAAGGGAGGTAGGTTTGTACTTGCCT  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12683) | AACTGCTTGCACTGATGACAATGCGTTAGCTTACTACAACACAACAAAGGGAGGTAGGTTTGTACTTGCCT  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (12697) | AACTGCTTGCACTGATGACAATGCGTTAGCTTACTACAACACAACAAAGGGAGGTAGGTTTGTACTTGCCT  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (12661) | AACTGCTTGCACTGATGACAATGCGTTAGCTTACTACAACACAACAAAGGGAGGTAGGTTTGTACTTGCCT  |       |       |       |       |       |       |             |
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 179 |
|                                                        | (12817) | 12817                                                                    | 12830 | 12840 | 12850 | 12860 | 12870 | 12888 |             |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12817) | GTTATCCGATTTACAGGATTTGAAATGGGCTAGATTCCCTAAGAGTGATGGAAGTGGTACTATCTATACAGA |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12763) | GTTATCCGATTTACAGGATTTGAAATGGGCTAGATTCCCTAAGAGTGATGGAAGTGGTACTATCTATACAGA |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12805) | GTTATCCGATTTACAGGATTTGAAATGGGCTAGATTCCCTAAGAGTGATGGAAGTGGTACTATCTATACAGA |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12755) | GTTATCCGATTTACAGGATTTGAAATGGGCTAGATTCCCTAAGAGTGATGGAAGTGGTACTATCTATACAGA |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (12769) | GTTATCCGATTTACAGGATTTGAAATGGGCTAGATTCCCTAAGAGTGATGGAAGTGGTACTATCTATACAGA |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (12733) | GTTATCCGATTTACAGGATTTGAAATGGGCTAGATTCCCTAAGAGTGATGGAAGTGGTACTATCTATACAGA |       |       |       |       |       |       |             |
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 180 |
|                                                        | (12889) | 12889                                                                    | 12900 | 12910 | 12920 | 12930 | 12940 | 12950 | 12960       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (12889) | ACTGGAACCACCTTGTAGGTTTGTACAGACACACCTAAAGGTCCTAAAGTGAAGTATTTATACTTTATTAA  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (12835) | ACTGGAACCACCTTGTAGGTTTGTACAGACACACCTAAAGGTCCTAAAGTGAAGTATTTATACTTTATTAA  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (12877) | ACTGGAACCACCTTGTAGGTTTGTACAGACACACCTAAAGGTCCTAAAGTGAAGTATTTATACTTTATTAA  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (12827) | ACTGGAACCACCTTGTAGGTTTGTACAGACACACCTAAAGGTCCTAAAGTGAAGTATTTATACTTTATTAA  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (12841) | ACTGGAACCACCTTGTAGGTTTGTACAGACACACCTAAAGGTCCTAAAGTGAAGTATTTATACTTTATTAA  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (12805) | ACTGGAACCACCTTGTAGGTTTGTACAGACACACCTAAAGGTCCTAAAGTGAAGTATTTATACTTTATTAA  |       |       |       |       |       |       |             |

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|--------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |  | Section 181 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (12961)     | 12961                                                                     | 12970 | 12980 | 12990 | 13000 | 13010 | 13020 | 13032 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (12961)     | AGGATTAAACAACCTAAATAGAGGTATGGTACTTGGTAGTTTAGCTGCCACAGTACGTCTACAAGCTGGTAA  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (12907)     | AGGATTAAACAACCTAAATAGAGGTATGGTACTTGGTAGTTTAGCTGCCACAGTACGTCTACAAGCTGGTAA  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (12949)     | AGGATTAAACAACCTAAATAGAGGTATGGTACTTGGTAGTTTAGCTGCCACAGTACGTCTACAAGCTGGTAA  |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  |  | (12899)     | AGGATTAAACAACCTAAATAGAGGTATGGTACTTGGTAGTTTAGCTGCCACAGTACGTCTACAAGCTGGTAA  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-T-438397/2022 EPI_ISL_905522... |  | (12913)     | AGGATTAAACAACCTAAATAGAGGTATGGTACTTGGTAGTTTAGCTGCCACAGTACGTCTACAAGCTGGTAA  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423...   |  | (12877)     | AGGATTAAACAACCTAAATAGAGGTATGGTACTTGGTAGTTTAGCTGCCACAGTACGTCTACAAGCTGGTAA  |       |       |       |       |       |       |       |
|                                                        |  | Section 182 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (13033)     | 13033                                                                     | 13040 | 13050 | 13060 | 13070 | 13080 | 13090 | 13104 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (13033)     | TGCAACAGAAGTGCCTGCCAATTCAACTGTATTATCTTTCTGTGCTTTTGTCTGTAGATGCTGCTAAAGCTTA |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (12979)     | TGCAACAGAAGTGCCTGCCAATTCAACTGTATTATCTTTCTGTGCTTTTGTCTGTAGATGCTGCTAAAGCTTA |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (13021)     | TGCAACAGAAGTGCCTGCCAATTCAACTGTATTATCTTTCTGTGCTTTTGTCTGTAGATGCTGCTAAAGCTTA |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  |  | (12971)     | TGCAACAGAAGTGCCTGCCAATTCAACTGTATTATCTTTCTGTGCTTTTGTCTGTAGATGCTGCTAAAGCTTA |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (12985)     | TGCAACAGAAGTGCCTGCCAATTCAACTGTATTATCTTTCTGTGCTTTTGTCTGTAGATGCTGCTAAAGCTTA |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423...   |  | (12949)     | TGCAACAGAAGTGCCTGCCAATTCAACTGTATTATCTTTCTGTGCTTTTGTCTGTAGATGCTGCTAAAGCTTA |       |       |       |       |       |       |       |
|                                                        |  | Section 183 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (13105)     | 13105                                                                     | 13110 | 13120 | 13130 | 13140 | 13150 | 13160 | 13176 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (13105)     | CAAAGATTATCTAGCTAGTGGGGGACAACCAATCACTAATTGTGTTAAGATGTTGTGTACACACACTGGTAC  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (13051)     | CAAAGATTATCTAGCTAGTGGGGGACAACCAATCACTAATTGTGTTAAGATGTTGTGTACACACACTGGTAC  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (13093)     | CAAAGATTATCTAGCTAGTGGGGGACAACCAATCACTAATTGTGTTAAGATGTTGTGTACACACACTGGTAC  |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  |  | (13043)     | CAAAGATTATCTAGCTAGTGGGGGACAACCAATCACTAATTGTGTTAAGATGTTGTGTACACACACTGGTAC  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (13057)     | CAAAGATTATCTAGCTAGTGGGGGACAACCAATCACTAATTGTGTTAAGATGTTGTGTACACACACTGGTAC  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423...   |  | (13021)     | CAAAGATTATCTAGCTAGTGGGGGACAACCAATCACTAATTGTGTTAAGATGTTGTGTACACACACTGGTAC  |       |       |       |       |       |       |       |
|                                                        |  | Section 184 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (13177)     | 13177                                                                     | 13190 | 13200 | 13210 | 13220 | 13230 | 13248 |       |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (13177)     | TGGTCAGGCAATAACAGTACACCCGGAAGCCAATATGGATCAAGAATCCTTTGGTGGTGCATCGTGTGTCT   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (13123)     | TGGTCAGGCAATAACAGTACACCCGGAAGCCAATATGGATCAAGAATCCTTTGGTGGTGCATCGTGTGTCT   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (13165)     | TGGTCAGGCAATAACAGTACACCCGGAAGCCAATATGGATCAAGAATCCTTTGGTGGTGCATCGTGTGTCT   |       |       |       |       |       |       |       |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ...  |  | (13115)     | TGGTCAGGCAATAACAGTACACCCGGAAGCCAATATGGATCAAGAATCCTTTGGTGGTGCATCGTGTGTCT   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (13129)     | TGGTCAGGCAATAACAGTACACCCGGAAGCCAATATGGATCAAGAATCCTTTGGTGGTGCATCGTGTGTCT   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423...   |  | (13093)     | TGGTCAGGCAATAACAGTACACCCGGAAGCCAATATGGATCAAGAATCCTTTGGTGGTGCATCGTGTGTCT   |       |       |       |       |       |       |       |

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|                                                                |  | Section 185 |                                                                           |       |       |       |       |       |             |
|----------------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                                |  | (13249)     | 13249                                                                     | 13260 | 13270 | 13280 | 13290 | 13300 | 13310 13320 |
| SARS-CoV-2 Reference Genome NC 045512.2 (13249)                |  |             | GTACTGCCGTTGCCACATAGATCATCCAAATCCTAAAGGATTTTGTGACTTAAAAGGTAAGTATGTACAAAT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (13195)  |  |             | GTACTGCCGTTGCCACATAGATCATCCAAATCCTAAAGGATTTTGTGACTTAAAAGGTAAGTATGTACAAAT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (13237)  |  |             | GTACTGCCGTTGCCACATAGATCATCCAAATCCTAAAGGATTTTGTGACTTAAAAGGTAAGTATGTACAAAT  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (13187)   |  |             | GTACTGCCGTTGCCACATAGATCATCCAAATCCTAAAGGATTTTGTGACTTAAAAGGTAAGTATGTACAAAT  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (13201) |  |             | GTACTGCCGTTGCCACATAGATCATCCAAATCCTAAAGGATTTTGTGACTTAAAAGGTAAGTATGTACAAAT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (13165)   |  |             | GTACTGCCGTTGCCACATAGATCATCCAAATCCTAAAGGATTTTGTGACTTAAAAGGTAAGTATGTACAAAT  |       |       |       |       |       |             |
|                                                                |  | Section 186 |                                                                           |       |       |       |       |       |             |
|                                                                |  | (13321)     | 13321                                                                     | 13330 | 13340 | 13350 | 13360 | 13370 | 13380 13392 |
| SARS-CoV-2 Reference Genome NC 045512.2 (13321)                |  |             | ACCTACAACCTTGTGCTAATGACCCTGTGGGTTTTACACTTAAAAACACAGTCTGTACCGTCTGCGGTATGTG |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (13267)  |  |             | ACCTACAACCTTGTGCTAATGACCCTGTGGGTTTTACACTTAAAAACACAGTCTGTACCGTCTGCGGTATGTG |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (13309)  |  |             | ACCTACAACCTTGTGCTAATGACCCTGTGGGTTTTACACTTAAAAACACAGTCTGTACCGTCTGCGGTATGTG |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (13259)   |  |             | ACCTACAACCTTGTGCTAATGACCCTGTGGGTTTTACACTTAAAAACACAGTCTGTACCGTCTGCGGTATGTG |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (13273) |  |             | ACCTACAACCTTGTGCTAATGACCCTGTGGGTTTTACACTTAAAAACACAGTCTGTACCGTCTGCGGTATGTG |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (13237)   |  |             | ACCTACAACCTTGTGCTAATGACCCTGTGGGTTTTACACTTAAAAACACAGTCTGTACCGTCTGCGGTATGTG |       |       |       |       |       |             |
|                                                                |  | Section 187 |                                                                           |       |       |       |       |       |             |
|                                                                |  | (13393)     | 13393                                                                     | 13400 | 13410 | 13420 | 13430 | 13440 | 13450 13464 |
| SARS-CoV-2 Reference Genome NC 045512.2 (13393)                |  |             | GAAAGGTTATGGCTGTAGTTGTGATCAACTCCGCGAACCCTATGCTTCAGTCAGCTGATGCACAATCGTTTTT |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (13339)  |  |             | GAAAGGTTATGGCTGTAGTTGTGATCAACTCCGCGAACCCTATGCTTCAGTCAGCTGATGCACAATCGTTTTT |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (13381)  |  |             | GAAAGGTTATGGCTGTAGTTGTGATCAACTCCGCGAACCCTATGCTTCAGTCAGCTGATGCACAATCGTTTTT |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (13331)   |  |             | GAAAGGTTATGGCTGTAGTTGTGATCAACTCCGCGAACCCTATGCTTCAGTCAGCTGATGCACAATCGTTTTT |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (13345) |  |             | GAAAGGTTATGGCTGTAGTTGTGATCAACTCCGCGAACCCTATGCTTCAGTCAGCTGATGCACAATCGTTTTT |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (13309)   |  |             | GAAAGGTTATGGCTGTAGTTGTGATCAACTCCGCGAACCCTATGCTTCAGTCAGCTGATGCACAATCGTTTTT |       |       |       |       |       |             |
|                                                                |  | Section 188 |                                                                           |       |       |       |       |       |             |
|                                                                |  | (13465)     | 13465                                                                     | 13470 | 13480 | 13490 | 13500 | 13510 | 13520 13536 |
| SARS-CoV-2 Reference Genome NC 045512.2 (13465)                |  |             | AAACGGGTTTGCAGGTGTAAGTGCAGCCCGTCTTACACCGTGCGGCACAGGCACTAGTACTGATGTCGTATAC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (13411)  |  |             | AAACGGGTTTGCAGGTGTAAGTGCAGCCCGTCTTACACCGTGCGGCACAGGCACTAGTACTGATGTCGTATAC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (13453)  |  |             | AAACGGGTTTGCAGGTGTAAGTGCAGCCCGTCTTACACCGTGCGGCACAGGCACTAGTACTGATGTCGTATAC |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (13403)   |  |             | AAACGGGTTTGCAGGTGTAAGTGCAGCCCGTCTTACACCGTGCGGCACAGGCACTAGTACTGATGTCGTATAC |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (13417) |  |             | AAACGGGTTTGCAGGTGTAAGTGCAGCCCGTCTTACACCGTGCGGCACAGGCACTAGTACTGATGTCGTATAC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (13381)   |  |             | AAACGGGTTTGCAGGTGTAAGTGCAGCCCGTCTTACACCGTGCGGCACAGGCACTAGTACTGATGTCGTATAC |       |       |       |       |       |             |

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|                                                        |         |                                                                             |       |       |       |       |       |             |
|--------------------------------------------------------|---------|-----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                             |       |       |       |       |       | Section 189 |
|                                                        | (13537) | 13537                                                                       | 13550 | 13560 | 13570 | 13580 | 13590 | 13608       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (13537) | AGGGGCTTTTGACATCTACAATGATAAAAGTAGCTGGTTTTGCTAAATTCCTAAAAACTAATTGTTGTGCGCTTC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (13483) | AGGGGCTTTTGACATCTACAATGATAAAAGTAGCTGGTTTTGCTAAATTCCTAAAAACTAATTGTTGTGCGCTTC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (13525) | AGGGGCTTTTGACATCTACAATGATAAAAGTAGCTGGTTTTGCTAAATTCCTAAAAACTAATTGTTGTGCGCTTC |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (13475) | AGGGGCTTTTGACATCTACAATGATAAAAGTAGCTGGTTTTGCTAAATTCCTAAAAACTAATTGTTGTGCGCTTC |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (13489) | AGGGGCTTTTGACATCTACAATGATAAAAGTAGCTGGTTTTGCTAAATTCCTAAAAACTAATTGTTGTGCGCTTC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (13453) | AGGGGCTTTTGACATCTACAATGATAAAAGTAGCTGGTTTTGCTAAATTCCTAAAAACTAATTGTTGTGCGCTTC |       |       |       |       |       |             |
|                                                        |         |                                                                             |       |       |       |       |       | Section 190 |
|                                                        | (13609) | 13609                                                                       | 13620 | 13630 | 13640 | 13650 | 13660 | 13670 13680 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (13609) | CAAGAAAAGGACGAAGATGACAATTTAATTGATTCTTACTTTGTAGTTAAGAGACACACTTTCTCTAACTAC    |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (13555) | CAAGAAAAGGACGAAGATGACAATTTAATTGATTCTTACTTTGTAGTTAAGAGACACACTTTCTCTAACTAC    |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (13597) | CAAGAAAAGGACGAAGATGACAATTTAATTGATTCTTACTTTGTAGTTAAGAGACACACTTTCTCTAACTAC    |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (13547) | CAAGAAAAGGACGAAGATGACAATTTAATTGATTCTTACTTTGTAGTTAAGAGACACACTTTCTCTAACTAC    |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (13561) | CAAGAAAAGGACGAAGATGACAATTTAATTGATTCTTACTTTGTAGTTAAGAGACACACTTTCTCTAACTAC    |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (13525) | CAAGAAAAGGACGAAGATGACAATTTAATTGATTCTTACTTTGTAGTTAAGAGACACACTTTCTCTAACTAC    |       |       |       |       |       |             |
|                                                        |         |                                                                             |       |       |       |       |       | Section 191 |
|                                                        | (13681) | 13681                                                                       | 13690 | 13700 | 13710 | 13720 | 13730 | 13740 13752 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (13681) | CAACATGAAGAAACAATTTATAATTTACTTAAAGGATTGTCCAGCTGTTGCTAAACATGACTTCTTTAAGTTT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (13627) | CAACATGAAGAAACAATTTATAATTTACTTAAAGGATTGTCCAGCTGTTGCTAAACATGACTTCTTTAAGTTT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (13669) | CAACATGAAGAAACAATTTATAATTTACTTAAAGGATTGTCCAGCTGTTGCTAAACATGACTTCTTTAAGTTT   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (13619) | CAACATGAAGAAACAATTTATAATTTACTTAAAGGATTGTCCAGCTGTTGCTAAACATGACTTCTTTAAGTTT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (13633) | CAACATGAAGAAACAATTTATAATTTACTTAAAGGATTGTCCAGCTGTTGCTAAACATGACTTCTTTAAGTTT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (13597) | CAACATGAAGAAACAATTTATAATTTACTTAAAGGATTGTCCAGCTGTTGCTAAACATGACTTCTTTAAGTTT   |       |       |       |       |       |             |
|                                                        |         |                                                                             |       |       |       |       |       | Section 192 |
|                                                        | (13753) | 13753                                                                       | 13760 | 13770 | 13780 | 13790 | 13800 | 13810 13824 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (13753) | AGAATAGACGGTGACATGGTACCACATATATCACGTCAACGTCTTACTAAATACACAATGGCAGACCTCGTC    |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (13699) | AGAATAGACGGTGACATGGTACCACATATATCACGTCAACGTCTTACTAAATACACAATGGCAGACCTCGTC    |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (13741) | AGAATAGACGGTGACATGGTACCACATATATCACGTCAACGTCTTACTAAATACACAATGGCAGACCTCGTC    |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (13691) | AGAATAGACGGTGACATGGTACCACATATATCACGTCAACGTCTTACTAAATACACAATGGCAGACCTCGTC    |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (13705) | AGAATAGACGGTGACATGGTACCACATATATCACGTCAACGTCTTACTAAATACACAATGGCAGACCTCGTC    |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (13669) | AGAATAGACGGTGACATGGTACCACATATATCACGTCAACGTCTTACTAAATACACAATGGCAGACCTCGTC    |       |       |       |       |       |             |

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|--------------------------------------------------------|---------|-----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |         | Section 193                                                                 |       |       |       |       |       |       |       |
|                                                        | (13825) | 13825                                                                       | 13830 | 13840 | 13850 | 13860 | 13870 | 13880 | 13896 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (13825) | TATGCTTTAAGGCATTTTGATGAAGGTAATTGTGACACATTA AAAAGAAATACTTGT CACATACAATTGTTGT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (13771) | TATGCTTTAAGGCATTTTGATGAAGGTAATTGTGACACATTA AAAAGAAATACTTGT CACATACAATTGTTGT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (13813) | TATGCTTTAAGGCATTTTGATGAAGGTAATTGTGACACATTA AAAAGAAATACTTGT CACATACAATTGTTGT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (13763) | TATGCTTTAAGGCATTTTGATGAAGGTAATTGTGACACATTA AAAAGAAATACTTGT CACATACAATTGTTGT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-T-438397/2022_EPI_ISL_905522... | (13777) | TATGCTTTAAGGCATTTTGATGAAGGTAATTGTGACACATTA AAAAGAAATACTTGT CACATACAATTGTTGT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (13741) | TATGCTTTAAGGCATTTTGATGAAGGTAATTGTGACACATTA AAAAGAAATACTTGT CACATACAATTGTTGT |       |       |       |       |       |       |       |
|                                                        |         | Section 194                                                                 |       |       |       |       |       |       |       |
|                                                        | (13897) | 13897                                                                       | 13910 | 13920 | 13930 | 13940 | 13950 | 13968 |       |
| SARS-CoV-2 Reference Genome NC_045512.2                | (13897) | GATGATGATTATTTCAATAAAAAGGACTGGTATGATTTTGTAGAAAACCCAGATATATTACGCGTATACGCC    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (13843) | GATGATGATTATTTCAATAAAAAGGACTGGTATGATTTTGTAGAAAACCCAGATATATTACGCGTATACGCC    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (13885) | GATGATGATTATTTCAATAAAAAGGACTGGTATGATTTTGTAGAAAACCCAGATATATTACGCGTATACGCC    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (13835) | GATGATGATTATTTCAATAAAAAGGACTGGTATGATTTTGTAGAAAACCCAGATATATTACGCGTATACGCC    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-T-438397/2022_EPI_ISL_905522... | (13849) | GATGATGATTATTTCAATAAAAAGGACTGGTATGATTTTGTAGAAAACCCAGATATATTACGCGTATACGCC    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (13813) | GATGATGATTATTTCAATAAAAAGGACTGGTATGATTTTGTAGAAAACCCAGATATATTACGCGTATACGCC    |       |       |       |       |       |       |       |
|                                                        |         | Section 195                                                                 |       |       |       |       |       |       |       |
|                                                        | (13969) | 13969                                                                       | 13980 | 13990 | 14000 | 14010 | 14020 | 14030 | 14040 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (13969) | AACTTAGGTGAACGTGTACGCCAAGCTTTGTTAAAAACAGTACAATTCTGTGATGCCATGCGAAATGCTGGT    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (13915) | AACTTAGGTGAACGTGTACGCCAAGCTTTGTTAAAAACAGTACAATTCTGTGATGCCATGCGAAATGCTGGT    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (13957) | AACTTAGGTGAACGTGTACGCCAAGCTTTGTTAAAAACAGTACAATTCTGTGATGCCATGCGAAATGCTGGT    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (13907) | AACTTAGGTGAACGTGTACGCCAAGCTTTGTTAAAAACAGTACAATTCTGTGATGCCATGCGAAATGCTGGT    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-T-438397/2022_EPI_ISL_905522... | (13921) | AACTTAGGTGAACGTGTACGCCAAGCTTTGTTAAAAACAGTACAATTCTGTGATGCCATGCGAAATGCTGGT    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (13885) | AACTTAGGTGAACGTGTACGCCAAGCTTTGTTAAAAACAGTACAATTCTGTGATGCCATGCGAAATGCTGGT    |       |       |       |       |       |       |       |
|                                                        |         | Section 196                                                                 |       |       |       |       |       |       |       |
|                                                        | (14041) | 14041                                                                       | 14050 | 14060 | 14070 | 14080 | 14090 | 14100 | 14112 |
| SARS-CoV-2 Reference Genome NC_045512.2                | (14041) | ATTGTTGGTGTACTGACATTAGATAATCAAGATCTCAATGGTAACTGGTATGATTTTCGGTGATTTTCATACAA  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (13987) | ATTGTTGGTGTACTGACATTAGATAATCAAGATCTCAATGGTAACTGGTATGATTTTCGGTGATTTTCATACAA  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022_EPI...  | (14029) | ATTGTTGGTGTACTGACATTAGATAATCAAGATCTCAATGGTAACTGGTATGATTTTCGGTGATTTTCATACAA  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022_EPI_ISL_9062229 ...   | (13979) | ATTGTTGGTGTACTGACATTAGATAATCAAGATCTCAATGGTAACTGGTATGATTTTCGGTGATTTTCATACAA  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-T-438397/2022_EPI_ISL_905522... | (13993) | ATTGTTGGTGTACTGACATTAGATAATCAAGATCTCAATGGTAACTGGTATGATTTTCGGTGATTTTCATACAA  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (13957) | ATTGTTGGTGTACTGACATTAGATAATCAAGATCTCAATGGTAACTGGTATGATTTTCGGTGATTTTCATACAA  |       |       |       |       |       |       |       |

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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 197 |
|                                                        | (14113) | 14113                                                                     | 14120 | 14130 | 14140 | 14150 | 14160 | 14170 | 14184       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (14113) | ACCACGCCAGGTAGTGGAGTTCCTGTTGTAGATTCTTATTATTTCATTGTTAATGCCTATATTAACCTTGACC |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (14059) | ACCACGCCAGGTAGTGGAGTTCCTGTTGTAGATTCTTATTATTTCATTGTTAATGCCTATATTAACCTTGACC |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (14101) | ACCACGCCAGGTAGTGGAGTTCCTGTTGTAGATTCTTATTATTTCATTGTTAATGCCTATATTAACCTTGACC |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (14051) | ACCACGCCAGGTAGTGGAGTTCCTGTTGTAGATTCTTATTATTTCATTGTTAATGCCTATATTAACCTTGACC |       |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (14065) | ACCACGCCAGGTAGTGGAGTTCCTGTTGTAGATTCTTATTATTTCATTGTTAATGCCTATATTAACCTTGACC |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (14029) | ACCACGCCAGGTAGTGGAGTTCCTGTTGTAGATTCTTATTATTTCATTGTTAATGCCTATATTAACCTTGACC |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 198 |
|                                                        | (14185) | 14185                                                                     | 14190 | 14200 | 14210 | 14220 | 14230 | 14240 | 14256       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (14185) | AGGGCTTTAACTGCAGAGTCACATGTTGACACTGACTTAACAAAGCCTTACATTAAGTGGGATTTGTTAAAA  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (14131) | AGGGCTTTAACTGCAGAGTCACATGTTGACACTGACTTAACAAAGCCTTACATTAAGTGGGATTTGTTAAAA  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (14173) | AGGGCTTTAACTGCAGAGTCACATGTTGACACTGACTTAACAAAGCCTTACATTAAGTGGGATTTGTTAAAA  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (14123) | AGGGCTTTAACTGCAGAGTCACATGTTGACACTGACTTAACAAAGCCTTACATTAAGTGGGATTTGTTAAAA  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (14137) | AGGGCTTTAACTGCAGAGTCACATGTTGACACTGACTTAACAAAGCCTTACATTAAGTGGGATTTGTTAAAA  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (14101) | AGGGCTTTAACTGCAGAGTCACATGTTGACACTGACTTAACAAAGCCTTACATTAAGTGGGATTTGTTAAAA  |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 199 |
|                                                        | (14257) | 14257                                                                     | 14270 | 14280 | 14290 | 14300 | 14310 | 14328 |             |
| SARS-CoV-2 Reference Genome NC 045512.2                | (14257) | TATGACTTCACGGAAGAGAGGTTAAAACTCTTTGACCGTTATTTTAAATATTGGGATCAGACATACCACCCA  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (14203) | TATGACTTCACGGAAGAGAGGTTAAAACTCTTTGACCGTTATTTTAAATATTGGGATCAGACATACCACCCA  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (14245) | TATGACTTCACGGAAGAGAGGTTAAAACTCTTTGACCGTTATTTTAAATATTGGGATCAGACATACCACCCA  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (14195) | TATGACTTCACGGAAGAGAGGTTAAAACTCTTTGACCGTTATTTTAAATATTGGGATCAGACATACCACCCA  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (14209) | TATGACTTCACGGAAGAGAGGTTAAAACTCTTTGACCGTTATTTTAAATATTGGGATCAGACATACCACCCA  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (14173) | TATGACTTCACGGAAGAGAGGTTAAAACTCTTTGACCGTTATTTTAAATATTGGGATCAGACATACCACCCA  |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 200 |
|                                                        | (14329) | 14329                                                                     | 14340 | 14350 | 14360 | 14370 | 14380 | 14390 | 14400       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (14329) | AATTGTGTTAACTGTTTGGATGACAGATGCATTCTGCATTGTGCAAACCTTAAATGTTTTATTCTCTACAGTG |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (14275) | AATTGTGTTAACTGTTTGGATGACAGATGCATTCTGCATTGTGCAAACCTTAAATGTTTTATTCTCTACAGTG |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (14317) | AATTGTGTTAACTGTTTGGATGACAGATGCATTCTGCATTGTGCAAACCTTAAATGTTTTATTCTCTACAGTG |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (14267) | AATTGTGTTAACTGTTTGGATGACAGATGCATTCTGCATTGTGCAAACCTTAAATGTTTTATTCTCTACAGTG |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (14281) | AATTGTGTTAACTGTTTGGATGACAGATGCATTCTGCATTGTGCAAACCTTAAATGTTTTATTCTCTACAGTG |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (14245) | AATTGTGTTAACTGTTTGGATGACAGATGCATTCTGCATTGTGCAAACCTTAAATGTTTTATTCTCTACAGTG |       |       |       |       |       |       |             |

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|----------------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------------------------------------------------|------------------|------------------|------------------|------------------|------------------|
|                                                                |         | Section 201                                                               |       |                                                 |                  |                  |                  |                  |                  |
|                                                                | (14401) | 14401                                                                     | 14410 | 14420                                           | 14430            | 14440            | 14450            | 14460            | 14472            |
| SARS-CoV-2 Reference Genome NC_045512.2 (14401)                |         | TTCCAC                                                                    | C     | TACAAGTTTTGGACCACTAGTGAGAAAAATATTTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90... (14347)  |         | TTCCAC                                                                    | T     | TACAAGTTTTGGACCACTAGTGAGAAAAATATTTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (14389)  |         | TTCCAC                                                                    | T     | TACAAGTTTTGGACCACTAGTGAGAAAAATATTTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ... (14339)  |         | TTCCAC                                                                    | T     | TACAAGTTTTGGACCACTAGTGAGAAAAATATTTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... (14353) |         | TTCCAC                                                                    | T     | TACAAGTTTTGGACCACTAGTGAGAAAAATATTTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (14317)   |         | TTCCAC                                                                    | T     | TACAAGTTTTGGACCACTAGTGAGAAAAATATTTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC | ATTGTTGATGGTGTTC |
|                                                                |         | Section 202                                                               |       |                                                 |                  |                  |                  |                  |                  |
|                                                                | (14473) | 14473                                                                     | 14480 | 14490                                           | 14500            | 14510            | 14520            | 14530            | 14544            |
| SARS-CoV-2 Reference Genome NC_045512.2 (14473)                |         | GGATACCACTTCAGAGAGCTAGGTGTTGTACATAATCAGGATGTAACTTACATAGCTCTAGACTTAGTTTT   |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90... (14419)  |         | GGATACCACTTCAGAGAGCTAGGTGTTGTACATAATCAGGATGTAACTTACATAGCTCTAGACTTAGTTTT   |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (14461)  |         | GGATACCACTTCAGAGAGCTAGGTGTTGTACATAATCAGGATGTAACTTACATAGCTCTAGACTTAGTTTT   |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ... (14411)  |         | GGATACCACTTCAGAGAGCTAGGTGTTGTACATAATCAGGATGTAACTTACATAGCTCTAGACTTAGTTTT   |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... (14425) |         | GGATACCACTTCAGAGAGCTAGGTGTTGTACATAATCAGGATGTAACTTACATAGCTCTAGACTTAGTTTT   |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (14389)   |         | GGATACCACTTCAGAGAGCTAGGTGTTGTACATAATCAGGATGTAACTTACATAGCTCTAGACTTAGTTTT   |       |                                                 |                  |                  |                  |                  |                  |
|                                                                |         | Section 203                                                               |       |                                                 |                  |                  |                  |                  |                  |
|                                                                | (14545) | 14545                                                                     | 14550 | 14560                                           | 14570            | 14580            | 14590            | 14600            | 14616            |
| SARS-CoV-2 Reference Genome NC_045512.2 (14545)                |         | AAGGAATTACTTGTGTATGCTGCTGACCCTGCTATGCACGCTGCTTCTGGTAATCTATTACTAGATAAACGC  |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90... (14491)  |         | AAGGAATTACTTGTGTATGCTGCTGACCCTGCTATGCACGCTGCTTCTGGTAATCTATTACTAGATAAACGC  |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (14533)  |         | AAGGAATTACTTGTGTATGCTGCTGACCCTGCTATGCACGCTGCTTCTGGTAATCTATTACTAGATAAACGC  |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ... (14483)  |         | AAGGAATTACTTGTGTATGCTGCTGACCCTGCTATGCACGCTGCTTCTGGTAATCTATTACTAGATAAACGC  |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... (14497) |         | AAGGAATTACTTGTGTATGCTGCTGACCCTGCTATGCACGCTGCTTCTGGTAATCTATTACTAGATAAACGC  |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (14461)   |         | AAGGAATTACTTGTGTATGCTGCTGACCCTGCTATGCACGCTGCTTCTGGTAATCTATTACTAGATAAACGC  |       |                                                 |                  |                  |                  |                  |                  |
|                                                                |         | Section 204                                                               |       |                                                 |                  |                  |                  |                  |                  |
|                                                                | (14617) | 14617                                                                     | 14630 | 14640                                           | 14650            | 14660            | 14670            | 14688            |                  |
| SARS-CoV-2 Reference Genome NC_045512.2 (14617)                |         | ACTACGTGCTTTTCAGTAGCTGCACCTTACTAACAATGTTGCTTTTCAACTGTCAAACCCGGTAATTTTAAAC |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90... (14563)  |         | ACTACGTGCTTTTCAGTAGCTGCACCTTACTAACAATGTTGCTTTTCAACTGTCAAACCCGGTAATTTTAAAC |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (14605)  |         | ACTACGTGCTTTTCAGTAGCTGCACCTTACTAACAATGTTGCTTTTCAACTGTCAAACCCGGTAATTTTAAAC |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/England/PLYM-332B917/2022 EPI_ISL_9062229 ... (14555)  |         | ACTACGTGCTTTTCAGTAGCTGCACCTTACTAACAATGTTGCTTTTCAACTGTCAAACCCGGTAATTTTAAAC |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... (14569) |         | ACTACGTGCTTTTCAGTAGCTGCACCTTACTAACAATGTTGCTTTTCAACTGTCAAACCCGGTAATTTTAAAC |       |                                                 |                  |                  |                  |                  |                  |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423... (14533)   |         | ACTACGTGCTTTTCAGTAGCTGCACCTTACTAACAATGTTGCTTTTCAACTGTCAAACCCGGTAATTTTAAAC |       |                                                 |                  |                  |                  |                  |                  |

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|                                                |                                   | Section 205 |                                                                            |       |       |       |       |       |             |
|------------------------------------------------|-----------------------------------|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                |                                   | (14689)     | 14689                                                                      | 14700 | 14710 | 14720 | 14730 | 14740 | 14750 14760 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (14689)                  |             | AAAGACTTCTATGACTTTGCTGTGTCTAAGGGTTTCTTTAAGGAAGGAAGTTCTGTTGAATTAACACTTC     |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (14635) |             | AAAGACTTCTATGACTTTGCTGTGTCTAAGGGTTTCTTTAAGGAAGGAAGTTCTGTTGAATTAACACTTC     |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (14677)                    |             | AAAGACTTCTATGACTTTGCTGTGTCTAAGGGTTTCTTTAAGGAAGGAAGTTCTGTTGAATTAACACTTC     |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (14627)       |             | AAAGACTTCTATGACTTTGCTGTGTCTAAGGGTTTCTTTAAGGAAGGAAGTTCTGTTGAATTAACACTTC     |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (14641)         |             | AAAGACTTCTATGACTTTGCTGTGTCTAAGGGTTTCTTTAAGGAAGGAAGTTCTGTTGAATTAACACTTC     |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (14605)        |             | AAAGACTTCTATGACTTTGCTGTGTCTAAGGGTTTCTTTAAGGAAGGAAGTTCTGTTGAATTAACACTTC     |       |       |       |       |       |             |
|                                                |                                   | Section 206 |                                                                            |       |       |       |       |       |             |
|                                                |                                   | (14761)     | 14761                                                                      | 14770 | 14780 | 14790 | 14800 | 14810 | 14820 14832 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (14761)                  |             | TTCTTTGCTCAGGATGGTAATGCTGCTATCAGCGATTATGACTACTATCGTTATAATCTACCAACAATGTGT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (14707) |             | TTCTTTGCTCAGGATGGTAATGCTGCTATCAGCGATTATGACTACTATCGTTATAATCTACCAACAATGTGT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (14749)                    |             | TTCTTTGCTCAGGATGGTAATGCTGCTATCAGCGATTATGACTACTATCGTTATAATCTACCAACAATGTGT   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (14699)       |             | TTCTTTGCTCAGGATGGTAATGCTGCTATCAGCGATTATGACTACTATCGTTATAATCTACCAACAATGTGT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (14713)         |             | TTCTTTGCTCAGGATGGTAATGCTGCTATCAGCGATTATGACTACTATCGTTATAATCTACCAACAATGTGT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (14677)        |             | TTCTTTGCTCAGGATGGTAATGCTGCTATCAGCGATTATGACTACTATCGTTATAATCTACCAACAATGTGT   |       |       |       |       |       |             |
|                                                |                                   | Section 207 |                                                                            |       |       |       |       |       |             |
|                                                |                                   | (14833)     | 14833                                                                      | 14840 | 14850 | 14860 | 14870 | 14880 | 14890 14904 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (14833)                  |             | GATATCAGACAACACTACTATTTGTAGTTGAAGTTGTTGATAAGTACTTTGATTGTTACGATGGTGGCTGTATT |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (14779) |             | GATATCAGACAACACTACTATTTGTAGTTGAAGTTGTTGATAAGTACTTTGATTGTTACGATGGTGGCTGTATT |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (14821)                    |             | GATATCAGACAACACTACTATTTGTAGTTGAAGTTGTTGATAAGTACTTTGATTGTTACGATGGTGGCTGTATT |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (14771)       |             | GATATCAGACAACACTACTATTTGTAGTTGAAGTTGTTGATAAGTACTTTGATTGTTACGATGGTGGCTGTATT |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (14785)         |             | GATATCAGACAACACTACTATTTGTAGTTGAAGTTGTTGATAAGTACTTTGATTGTTACGATGGTGGCTGTATT |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (14749)        |             | GATATCAGACAACACTACTATTTGTAGTTGAAGTTGTTGATAAGTACTTTGATTGTTACGATGGTGGCTGTATT |       |       |       |       |       |             |
|                                                |                                   | Section 208 |                                                                            |       |       |       |       |       |             |
|                                                |                                   | (14905)     | 14905                                                                      | 14910 | 14920 | 14930 | 14940 | 14950 | 14960 14976 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (14905)                  |             | AATGCTAACCAAGTCATCGTCAACAACCTAGACAAATCAGCTGGTTTTCCATTTAATAAATGGGGTAAGGCT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (14851) |             | AATGCTAACCAAGTCATCGTCAACAACCTAGACAAATCAGCTGGTTTTCCATTTAATAAATGGGGTAAGGCT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (14893)                    |             | AATGCTAACCAAGTCATCGTCAACAACCTAGACAAATCAGCTGGTTTTCCATTTAATAAATGGGGTAAGGCT   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (14843)       |             | AATGCTAACCAAGTCATCGTCAACAACCTAGACAAATCAGCTGGTTTTCCATTTAATAAATGGGGTAAGGCT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (14857)         |             | AATGCTAACCAAGTCATCGTCAACAACCTAGACAAATCAGCTGGTTTTCCATTTAATAAATGGGGTAAGGCT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (14821)        |             | AATGCTAACCAAGTCATCGTCAACAACCTAGACAAATCAGCTGGTTTTCCATTTAATAAATGGGGTAAGGCT   |       |       |       |       |       |             |

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|                                                        |  | Section 209 |                                                                           |       |       |       |       |       |             |
|--------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |  | (14977)     | 14977                                                                     | 14990 | 15000 | 15010 | 15020 | 15030 | 15048       |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (14977)     | AGACTTTATTATGATTCAATGAGTTATGAGGATCAAGATGCACTTTTCGCATATACAAAACGTAATGTCATC  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (14923)     | AGACTTTATTATGATTCAATGAGTTATGAGGATCAAGATGCACTTTTCGCATATACAAAACGTAATGTCATC  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (14965)     | AGACTTTATTATGATTCAATGAGTTATGAGGATCAAGATGCACTTTTCGCATATACAAAACGTAATGTCATC  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (14915)     | AGACTTTATTATGATTCAATGAGTTATGAGGATCAAGATGCACTTTTCGCATATACAAAACGTAATGTCATC  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (14929)     | AGACTTTATTATGATTCAATGAGTTATGAGGATCAAGATGCACTTTTCGCATATACAAAACGTAATGTCATC  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (14893)     | AGACTTTATTATGATTCAATGAGTTATGAGGATCAAGATGCACTTTTCGCATATACAAAACGTAATGTCATC  |       |       |       |       |       |             |
|                                                        |  | Section 210 |                                                                           |       |       |       |       |       |             |
|                                                        |  | (15049)     | 15049                                                                     | 15060 | 15070 | 15080 | 15090 | 15100 | 15110 15120 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15049)     | CCTACTATAAECTCAAATGAATCTTAAGTATGCCATTAGTGCAAAGAATAGAGCTCGCACCGTAGCTGGTGTC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (14995)     | CCTACTATAAECTCAAATGAATCTTAAGTATGCCATTAGTGCAAAGAATAGAGCTCGCACCGTAGCTGGTGTC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15037)     | CCTACTATAAECTCAAATGAATCTTAAGTATGCCATTAGTGCAAAGAATAGAGCTCGCACCGTAGCTGGTGTC |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (14987)     | CCTACTATAAECTCAAATGAATCTTAAGTATGCCATTAGTGCAAAGAATAGAGCTCGCACCGTAGCTGGTGTC |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15001)     | CCTACTATAAECTCAAATGAATCTTAAGTATGCCATTAGTGCAAAGAATAGAGCTCGCACCGTAGCTGGTGTC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (14965)     | CCTACTATAAECTCAAATGAATCTTAAGTATGCCATTAGTGCAAAGAATAGAGCTCGCACCGTAGCTGGTGTC |       |       |       |       |       |             |
|                                                        |  | Section 211 |                                                                           |       |       |       |       |       |             |
|                                                        |  | (15121)     | 15121                                                                     | 15130 | 15140 | 15150 | 15160 | 15170 | 15180 15192 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15121)     | TCTATCTGTAGTACTATGACCAATAGACAGTTTCATCAAAAAATTATTGAAATCAATAGCCGCCACTAGAGGA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15067)     | TCTATCTGTAGTACTATGACCAATAGACAGTTTCATCAAAAAATTATTGAAATCAATAGCCGCCACTAGAGGA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15109)     | TCTATCTGTAGTACTATGACCAATAGACAGTTTCATCAAAAAATTATTGAAATCAATAGCCGCCACTAGAGGA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15059)     | TCTATCTGTAGTACTATGACCAATAGACAGTTTCATCAAAAAATTATTGAAATCAATAGCCGCCACTAGAGGA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15073)     | TCTATCTGTAGTACTATGACCAATAGACAGTTTCATCAAAAAATTATTGAAATCAATAGCCGCCACTAGAGGA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15037)     | TCTATCTGTAGTACTATGACCAATAGACAGTTTCATCAAAAAATTATTGAAATCAATAGCCGCCACTAGAGGA |       |       |       |       |       |             |
|                                                        |  | Section 212 |                                                                           |       |       |       |       |       |             |
|                                                        |  | (15193)     | 15193                                                                     | 15200 | 15210 | 15220 | 15230 | 15240 | 15250 15264 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15193)     | GCTACTGTAGTAATTGGAACAAGCAAATTCATGGTGGTTGGCACAATATGTTAAAACTGTTTATAGTGAT    |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15139)     | GCTACTGTAGTAATTGGAACAAGCAAATTCATGGTGGTTGGCACAATATGTTAAAACTGTTTATAGTGAT    |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15181)     | GCTACTGTAGTAATTGGAACAAGCAAATTCATGGTGGTTGGCACAATATGTTAAAACTGTTTATAGTGAT    |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15131)     | GCTACTGTAGTAATTGGAACAAGCAAATTCATGGTGGTTGGCACAATATGTTAAAACTGTTTATAGTGAT    |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15145)     | GCTACTGTAGTAATTGGAACAAGCAAATTCATGGTGGTTGGCACAATATGTTAAAACTGTTTATAGTGAT    |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15109)     | GCTACTGTAGTAATTGGAACAAGCAAATTCATGGTGGTTGGCACAATATGTTAAAACTGTTTATAGTGAT    |       |       |       |       |       |             |

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|--------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |  | Section 213 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (15265)     | 15265                                                                     | 15270 | 15280 | 15290 | 15300 | 15310 | 15320 | 15336 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15265)     | GTAGAAAACCCCTCACCTTATGGGTTGGGATTATCCTAAATGTGATAGAGCCATGCCTAACATGCTTAGAATT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15211)     | GTAGAAAACCCCTCACCTTATGGGTTGGGATTATCCTAAATGTGATAGAGCCATGCCTAACATGCTTAGAATT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15253)     | GTAGAAAACCCCTCACCTTATGGGTTGGGATTATCCTAAATGTGATAGAGCCATGCCTAACATGCTTAGAATT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15203)     | GTAGAAAACCCCTCACCTTATGGGTTGGGATTATCCTAAATGTGATAGAGCCATGCCTAACATGCTTAGAATT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... |  | (15217)     | GTAGAAAACCCCTCACCTTATGGGTTGGGATTATCCTAAATGTGATAGAGCCATGCCTAACATGCTTAGAATT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15181)     | GTAGAAAACCCCTCACCTTATGGGTTGGGATTATCCTAAATGTGATAGAGCCATGCCTAACATGCTTAGAATT |       |       |       |       |       |       |       |
|                                                        |  | Section 214 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (15337)     | 15337                                                                     | 15350 | 15360 | 15370 | 15380 | 15390 | 15408 |       |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15337)     | ATGGCCTCACTTGTTCCTTGCTCGCAAACATACAACGTGTTGTAGCTTGTACACCGGTTTCTATAGATTAGCT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15283)     | ATGGCCTCACTTGTTCCTTGCTCGCAAACATACAACGTGTTGTAGCTTGTACACCGGTTTCTATAGATTAGCT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15325)     | ATGGCCTCACTTGTTCCTTGCTCGCAAACATACAACGTGTTGTAGCTTGTACACCGGTTTCTATAGATTAGCT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15275)     | ATGGCCTCACTTGTTCCTTGCTCGCAAACATACAACGTGTTGTAGCTTGTACACCGGTTTCTATAGATTAGCT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15289)     | ATGGCCTCACTTGTTCCTTGCTCGCAAACATACAACGTGTTGTAGCTTGTACACCGGTTTCTATAGATTAGCT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15253)     | ATGGCCTCACTTGTTCCTTGCTCGCAAACATACAACGTGTTGTAGCTTGTACACCGGTTTCTATAGATTAGCT |       |       |       |       |       |       |       |
|                                                        |  | Section 215 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (15409)     | 15409                                                                     | 15420 | 15430 | 15440 | 15450 | 15460 | 15470 | 15480 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15409)     | AATGAGTGTGCTCAAGTATTGAGTGAAATGGTCATGTGTGGCGGTTCACTATATGTTAAACAGGTGGAACC   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15355)     | AATGAGTGTGCTCAAGTATTGAGTGAAATGGTCATGTGTGGCGGTTCACTATATGTTAAACAGGTGGAACC   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15397)     | AATGAGTGTGCTCAAGTATTGAGTGAAATGGTCATGTGTGGCGGTTCACTATATGTTAAACAGGTGGAACC   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15347)     | AATGAGTGTGCTCAAGTATTGAGTGAAATGGTCATGTGTGGCGGTTCACTATATGTTAAACAGGTGGAACC   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15361)     | AATGAGTGTGCTCAAGTATTGAGTGAAATGGTCATGTGTGGCGGTTCACTATATGTTAAACAGGTGGAACC   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15325)     | AATGAGTGTGCTCAAGTATTGAGTGAAATGGTCATGTGTGGCGGTTCACTATATGTTAAACAGGTGGAACC   |       |       |       |       |       |       |       |
|                                                        |  | Section 216 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (15481)     | 15481                                                                     | 15490 | 15500 | 15510 | 15520 | 15530 | 15540 | 15552 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15481)     | TCATCAGGAGATGCCACAACCTGCTTATGCTAATAGTGTTTTTAACATTTGTCAAGCTGTACGGCCAATGTT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15427)     | TCATCAGGAGATGCCACAACCTGCTTATGCTAATAGTGTTTTTAACATTTGTCAAGCTGTACGGCCAATGTT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15469)     | TCATCAGGAGATGCCACAACCTGCTTATGCTAATAGTGTTTTTAACATTTGTCAAGCTGTACGGCCAATGTT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15419)     | TCATCAGGAGATGCCACAACCTGCTTATGCTAATAGTGTTTTTAACATTTGTCAAGCTGTACGGCCAATGTT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15433)     | TCATCAGGAGATGCCACAACCTGCTTATGCTAATAGTGTTTTTAACATTTGTCAAGCTGTACGGCCAATGTT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   |  | (15397)     | TCATCAGGAGATGCCACAACCTGCTTATGCTAATAGTGTTTTTAACATTTGTCAAGCTGTACGGCCAATGTT  |       |       |       |       |       |       |       |

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|----------------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                                |  | Section 217 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (15553)     | 15553                                                                     | 15560 | 15570 | 15580 | 15590 | 15600 | 15610 | 15624 |
| SARS-CoV-2 Reference Genome NC 045512.2 (15553)                |  |             | AATGCACTTTTATCTACTGATGGTAACAAAATTGCCGATAAGTATGTCCGCAATTTACAACACAGACTTTTAT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (15499)  |  |             | AATGCACTTTTATCTACTGATGGTAACAAAATTGCCGATAAGTATGTCCGCAATTTACAACACAGACTTTTAT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (15541)  |  |             | AATGCACTTTTATCTACTGATGGTAACAAAATTGCCGATAAGTATGTCCGCAATTTACAACACAGACTTTTAT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (15491)   |  |             | AATGCACTTTTATCTACTGATGGTAACAAAATTGCCGATAAGTATGTCCGCAATTTACAACACAGACTTTTAT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (15505) |  |             | AATGCACTTTTATCTACTGATGGTAACAAAATTGCCGATAAGTATGTCCGCAATTTACAACACAGACTTTTAT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (15469)   |  |             | AATGCACTTTTATCTACTGATGGTAACAAAATTGCCGATAAGTATGTCCGCAATTTACAACACAGACTTTTAT |       |       |       |       |       |       |       |
|                                                                |  | Section 218 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (15625)     | 15625                                                                     | 15630 | 15640 | 15650 | 15660 | 15670 | 15680 | 15696 |
| SARS-CoV-2 Reference Genome NC 045512.2 (15625)                |  |             | GAGTGTCTCTATAGAAATAGAGATGTTGACACAGACTTTGTGAATGAGTTTTACGCATATTTGCGTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (15571)  |  |             | GAGTGTCTCTATAGAAATAGAGATGTTGACACAGACTTTGTGAATGAGTTTTACGCATATTTGCGTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (15613)  |  |             | GAGTGTCTCTATAGAAATAGAGATGTTGACACAGACTTTGTGAATGAGTTTTACGCATATTTGCGTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (15563)   |  |             | GAGTGTCTCTATAGAAATAGAGATGTTGACACAGACTTTGTGAATGAGTTTTACGCATATTTGCGTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (15577) |  |             | GAGTGTCTCTATAGAAATAGAGATGTTGACACAGACTTTGTGAATGAGTTTTACGCATATTTGCGTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (15541)   |  |             | GAGTGTCTCTATAGAAATAGAGATGTTGACACAGACTTTGTGAATGAGTTTTACGCATATTTGCGTAAACAT  |       |       |       |       |       |       |       |
|                                                                |  | Section 219 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (15697)     | 15697                                                                     | 15710 | 15720 | 15730 | 15740 | 15750 | 15768 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (15697)                |  |             | TTCTCAATGATGATACTCTCTGACGATGCTGTTGTGTGTTTCAATAGCACTTATGCATCTCAAGGTCTAGTG  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (15643)  |  |             | TTCTCAATGATGATACTCTCTGACGATGCTGTTGTGTGTTTCAATAGCACTTATGCATCTCAAGGTCTAGTG  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (15685)  |  |             | TTCTCAATGATGATACTCTCTGACGATGCTGTTGTGTGTTTCAATAGCACTTATGCATCTCAAGGTCTAGTG  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (15635)   |  |             | TTCTCAATGATGATACTCTCTGACGATGCTGTTGTGTGTTTCAATAGCACTTATGCATCTCAAGGTCTAGTG  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (15649) |  |             | TTCTCAATGATGATACTCTCTGACGATGCTGTTGTGTGTTTCAATAGCACTTATGCATCTCAAGGTCTAGTG  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (15613)   |  |             | TTCTCAATGATGATACTCTCTGACGATGCTGTTGTGTGTTTCAATAGCACTTATGCATCTCAAGGTCTAGTG  |       |       |       |       |       |       |       |
|                                                                |  | Section 220 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (15769)     | 15769                                                                     | 15780 | 15790 | 15800 | 15810 | 15820 | 15830 | 15840 |
| SARS-CoV-2 Reference Genome NC 045512.2 (15769)                |  |             | GCTAGCATAAAGAACTTTAAGTCAGTTCTTTATTATCAAAACAATGTTTTTATGTCTGAAGCAAAATGTTGG  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (15715)  |  |             | GCTAGCATAAAGAACTTTAAGTCAGTTCTTTATTATCAAAACAATGTTTTTATGTCTGAAGCAAAATGTTGG  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (15757)  |  |             | GCTAGCATAAAGAACTTTAAGTCAGTTCTTTATTATCAAAACAATGTTTTTATGTCTGAAGCAAAATGTTGG  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (15707)   |  |             | GCTAGCATAAAGAACTTTAAGTCAGTTCTTTATTATCAAAACAATGTTTTTATGTCTGAAGCAAAATGTTGG  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (15721) |  |             | GCTAGCATAAAGAACTTTAAGTCAGTTCTTTATTATCAAAACAATGTTTTTATGTCTGAAGCAAAATGTTGG  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (15685)   |  |             | GCTAGCATAAAGAACTTTAAGTCAGTTCTTTATTATCAAAACAATGTTTTTATGTCTGAAGCAAAATGTTGG  |       |       |       |       |       |       |       |

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|--------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |  | Section 221 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (15841)     | 15841                                                                     | 15850 | 15860 | 15870 | 15880 | 15890 | 15900 | 15912 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15841)     | ACTGAGACTGACCTTACTAAAGGACCTCATGAATTTTGGCTCTCAACATACAATGCTAGTTAAACAGGGTGAT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15787)     | ACTGAGACTGACCTTACTAAAGGACCTCATGAATTTTGGCTCTCAACATACAATGCTAGTTAAACAGGGTGAT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15829)     | ACTGAGACTGACCTTACTAAAGGACCTCATGAATTTTGGCTCTCAACATACAATGCTAGTTAAACAGGGTGAT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15779)     | ACTGAGACTGACCTTACTAAAGGACCTCATGAATTTTGGCTCTCAACATACAATGCTAGTTAAACAGGGTGAT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15793)     | ACTGAGACTGACCTTACTAAAGGACCTCATGAATTTTGGCTCTCAACATACAATGCTAGTTAAACAGGGTGAT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15757)     | ACTGAGACTGACCTTACTAAAGGACCTCATGAATTTTGGCTCTCAACATACAATGCTAGTTAAACAGGGTGAT |       |       |       |       |       |       |       |
|                                                        |  | Section 222 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (15913)     | 15913                                                                     | 15920 | 15930 | 15940 | 15950 | 15960 | 15970 | 15984 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15913)     | GATTATGTGTACCTTCCTTACCCAGATCCATCAAGAATCCTAGGGGCCGGCTGTTTTGTAGATGATATCGTA  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15859)     | GATTATGTGTACCTTCCTTACCCAGATCCATCAAGAATCCTAGGGGCCGGCTGTTTTGTAGATGATATCGTA  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15901)     | GATTATGTGTACCTTCCTTACCCAGATCCATCAAGAATCCTAGGGGCCGGCTGTTTTGTAGATGATATCGTA  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15851)     | GATTATGTGTACCTTCCTTACCCAGATCCATCAAGAATCCTAGGGGCCGGCTGTTTTGTAGATGATATCGTA  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15865)     | GATTATGTGTACCTTCCTTACCCAGATCCATCAAGAATCCTAGGGGCCGGCTGTTTTGTAGATGATATCGTA  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15829)     | GATTATGTGTACCTTCCTTACCCAGATCCATCAAGAATCCTAGGGGCCGGCTGTTTTGTAGATGATATCGTA  |       |       |       |       |       |       |       |
|                                                        |  | Section 223 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (15985)     | 15985                                                                     | 15990 | 16000 | 16010 | 16020 | 16030 | 16040 | 16056 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (15985)     | AAAACAGATGGTACACTTATGATTGAACGGTTCGTGTCTTTAGCTATAGATGCTTACCCACTTACTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (15931)     | AAAACAGATGGTACACTTATGATTGAACGGTTCGTGTCTTTAGCTATAGATGCTTACCCACTTACTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (15973)     | AAAACAGATGGTACACTTATGATTGAACGGTTCGTGTCTTTAGCTATAGATGCTTACCCACTTACTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15923)     | AAAACAGATGGTACACTTATGATTGAACGGTTCGTGTCTTTAGCTATAGATGCTTACCCACTTACTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (15937)     | AAAACAGATGGTACACTTATGATTGAACGGTTCGTGTCTTTAGCTATAGATGCTTACCCACTTACTAAACAT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (15901)     | AAAACAGATGGTACACTTATGATTGAACGGTTCGTGTCTTTAGCTATAGATGCTTACCCACTTACTAAACAT  |       |       |       |       |       |       |       |
|                                                        |  | Section 224 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (16057)     | 16057                                                                     | 16070 | 16080 | 16090 | 16100 | 16110 | 16128 |       |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (16057)     | CCTAATCAGGAGTATGCTGATGTCTTTTCATTTGTACTTACAATACATAAGAAAGCTACATGATGAGTTAACA |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (16003)     | CCTAATCAGGAGTATGCTGATGTCTTTTCATTTGTACTTACAATACATAAGAAAGCTACATGATGAGTTAACA |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (16045)     | CCTAATCAGGAGTATGCTGATGTCTTTTCATTTGTACTTACAATACATAAGAAAGCTACATGATGAGTTAACA |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (15995)     | CCTAATCAGGAGTATGCTGATGTCTTTTCATTTGTACTTACAATACATAAGAAAGCTACATGATGAGTTAACA |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (16009)     | CCTAATCAGGAGTATGCTGATGTCTTTTCATTTGTACTTACAATACATAAGAAAGCTACATGATGAGTTAACA |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   |  | (15973)     | CCTAATCAGGAGTATGCTGATGTCTTTTCATTTGTACTTACAATACATAAGAAAGCTACATGATGAGTTAACA |       |       |       |       |       |       |       |

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|                                                                |  | Section 225 |                                                                           |       |       |       |       |       |             |
|----------------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                                |  | (16129)     | 16129                                                                     | 16140 | 16150 | 16160 | 16170 | 16180 | 16190 16200 |
| SARS-CoV-2 Reference Genome NC 045512.2 (16129)                |  |             | GGACACATGTTAGACATGTATTCTGTTATGCTTACTAATGATAACACTTCAAGGTATTGGGAACCTGAGTTT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (16075)  |  |             | GGACACATGTTAGACATGTATTCTGTTATGCTTACTAATGATAACACTTCAAGGTATTGGGAACCTGAGTTT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (16117)  |  |             | GGACACATGTTAGACATGTATTCTGTTATGCTTACTAATGATAACACTTCAAGGTATTGGGAACCTGAGTTT  |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (16067)  |  |             | GGACACATGTTAGACATGTATTCTGTTATGCTTACTAATGATAACACTTCAAGGTATTGGGAACCTGAGTTT  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (16081) |  |             | GGACACATGTTAGACATGTATTCTGTTATGCTTACTAATGATAACACTTCAAGGTATTGGGAACCTGAGTTT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (16045)   |  |             | GGACACATGTTAGACATGTATTCTGTTATGCTTACTAATGATAACACTTCAAGGTATTGGGAACCTGAGTTT  |       |       |       |       |       |             |
|                                                                |  | Section 226 |                                                                           |       |       |       |       |       |             |
|                                                                |  | (16201)     | 16201                                                                     | 16210 | 16220 | 16230 | 16240 | 16250 | 16260 16272 |
| SARS-CoV-2 Reference Genome NC 045512.2 (16201)                |  |             | TATGAGGCTATGTACACACCGCATACAGTCTTACAGGCTGTTGGGGCTTGTGTTCTTTGCAATTCACAGACT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (16147)  |  |             | TATGAGGCTATGTACACACCGCATACAGTCTTACAGGCTGTTGGGGCTTGTGTTCTTTGCAATTCACAGACT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (16189)  |  |             | TATGAGGCTATGTACACACCGCATACAGTCTTACAGGCTGTTGGGGCTTGTGTTCTTTGCAATTCACAGACT  |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (16139)  |  |             | TATGAGGCTATGTACACACCGCATACAGTCTTACAGGCTGTTGGGGCTTGTGTTCTTTGCAATTCACAGACT  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (16153) |  |             | TATGAGGCTATGTACACACCGCATACAGTCTTACAGGCTGTTGGGGCTTGTGTTCTTTGCAATTCACAGACT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (16117)   |  |             | TATGAGGCTATGTACACACCGCATACAGTCTTACAGGCTGTTGGGGCTTGTGTTCTTTGCAATTCACAGACT  |       |       |       |       |       |             |
|                                                                |  | Section 227 |                                                                           |       |       |       |       |       |             |
|                                                                |  | (16273)     | 16273                                                                     | 16280 | 16290 | 16300 | 16310 | 16320 | 16330 16344 |
| SARS-CoV-2 Reference Genome NC 045512.2 (16273)                |  |             | TCATTAAGATGTGGTGCCTTGCATACGTAGACCATTCTTATGTTGTAAATGCTGTTACGACCATGTCATATCA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (16219)  |  |             | TCATTAAGATGTGGTGCCTTGCATACGTAGACCATTCTTATGTTGTAAATGCTGTTACGACCATGTCATATCA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (16261)  |  |             | TCATTAAGATGTGGTGCCTTGCATACGTAGACCATTCTTATGTTGTAAATGCTGTTACGACCATGTCATATCA |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (16211)  |  |             | TCATTAAGATGTGGTGCCTTGCATACGTAGACCATTCTTATGTTGTAAATGCTGTTACGACCATGTCATATCA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (16225) |  |             | TCATTAAGATGTGGTGCCTTGCATACGTAGACCATTCTTATGTTGTAAATGCTGTTACGACCATGTCATATCA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (16189)   |  |             | TCATTAAGATGTGGTGCCTTGCATACGTAGACCATTCTTATGTTGTAAATGCTGTTACGACCATGTCATATCA |       |       |       |       |       |             |
|                                                                |  | Section 228 |                                                                           |       |       |       |       |       |             |
|                                                                |  | (16345)     | 16345                                                                     | 16350 | 16360 | 16370 | 16380 | 16390 | 16400 16416 |
| SARS-CoV-2 Reference Genome NC 045512.2 (16345)                |  |             | ACATCACATAAAATTAGTCTTGTCTGTTAATCCGTATGTTTGCAATGCTCCAGGTTGTGATGTACAGATGTG  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (16291)  |  |             | ACATCACATAAAATTAGTCTTGTCTGTTAATCCGTATGTTTGCAATGCTCCAGGTTGTGATGTACAGATGTG  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (16333)  |  |             | ACATCACATAAAATTAGTCTTGTCTGTTAATCCGTATGTTTGCAATGCTCCAGGTTGTGATGTACAGATGTG  |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (16283)  |  |             | ACATCACATAAAATTAGTCTTGTCTGTTAATCCGTATGTTTGCAATGCTCCAGGTTGTGATGTACAGATGTG  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (16297) |  |             | ACATCACATAAAATTAGTCTTGTCTGTTAATCCGTATGTTTGCAATGCTCCAGGTTGTGATGTACAGATGTG  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (16261)   |  |             | ACATCACATAAAATTAGTCTTGTCTGTTAATCCGTATGTTTGCAATGCTCCAGGTTGTGATGTACAGATGTG  |       |       |       |       |       |             |

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|                                                |                                   | Section 229 |                                                                           |       |       |       |       |                   |
|------------------------------------------------|-----------------------------------|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------------------|
|                                                |                                   | (16417)     | 16417                                                                     | 16430 | 16440 | 16450 | 16460 | 16470 16488       |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16417)                  |             | ACTCAACTTTACTTAGGAGGTATGAGCTATTATTGTAAATCACATAAACCACCCATTAGTTTTCCATTGTGT  |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16363) |             | ACTCAACTTTACTTAGGAGGTATGAGCTATTATTGTAAATCACATAAACCACCCATTAGTTTTCCATTGTGT  |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16405)                    |             | ACTCAACTTTACTTAGGAGGTATGAGCTATTATTGTAAATCACATAAACCACCCATTAGTTTTCCATTGTGT  |       |       |       |       |                   |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16355)       |             | ACTCAACTTTACTTAGGAGGTATGAGCTATTATTGTAAATCACATAAACCACCCATTAGTTTTCCATTGTGT  |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16369)         |             | ACTCAACTTTACTTAGGAGGTATGAGCTATTATTGTAAATCACATAAACCACCCATTAGTTTTCCATTGTGT  |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16333)        |             | ACTCAACTTTACTTAGGAGGTATGAGCTATTATTGTAAATCACATAAACCACCCATTAGTTTTCCATTGTGT  |       |       |       |       |                   |
|                                                |                                   | Section 230 |                                                                           |       |       |       |       |                   |
|                                                |                                   | (16489)     | 16489                                                                     | 16500 | 16510 | 16520 | 16530 | 16540 16550 16560 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16489)                  |             | GCTAATGGACAAGTTTTTGGTTTATATAAAAAATACATGTGTTGGTAGCGATAATGTTACTGACTTTAATGCA |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16435) |             | GCTAATGGACAAGTTTTTGGTTTATATAAAAAATACATGTGTTGGTAGCGATAATGTTACTGACTTTAATGCA |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16477)                    |             | GCTAATGGACAAGTTTTTGGTTTATATAAAAAATACATGTGTTGGTAGCGATAATGTTACTGACTTTAATGCA |       |       |       |       |                   |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16427)       |             | GCTAATGGACAAGTTTTTGGTTTATATAAAAAATACATGTGTTGGTAGCGATAATGTTACTGACTTTAATGCA |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16441)         |             | GCTAATGGACAAGTTTTTGGTTTATATAAAAAATACATGTGTTGGTAGCGATAATGTTACTGACTTTAATGCA |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16405)        |             | GCTAATGGACAAGTTTTTGGTTTATATAAAAAATACATGTGTTGGTAGCGATAATGTTACTGACTTTAATGCA |       |       |       |       |                   |
|                                                |                                   | Section 231 |                                                                           |       |       |       |       |                   |
|                                                |                                   | (16561)     | 16561                                                                     | 16570 | 16580 | 16590 | 16600 | 16610 16620 16632 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16561)                  |             | ATTGCAACATGTGACTGGACAAATGCTGGTGATTACATTTTAGCTAACACCTGTACTGAAAGACTCAAGCTT  |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16507) |             | ATTGCAACATGTGACTGGACAAATGCTGGTGATTACATTTTAGCTAACACCTGTACTGAAAGACTCAAGCTT  |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16549)                    |             | ATTGCAACATGTGACTGGACAAATGCTGGTGATTACATTTTAGCTAACACCTGTACTGAAAGACTCAAGCTT  |       |       |       |       |                   |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16499)       |             | ATTGCAACATGTGACTGGACAAATGCTGGTGATTACATTTTAGCTAACACCTGTACTGAAAGACTCAAGCTT  |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16513)         |             | ATTGCAACATGTGACTGGACAAATGCTGGTGATTACATTTTAGCTAACACCTGTACTGAAAGACTCAAGCTT  |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16477)        |             | ATTGCAACATGTGACTGGACAAATGCTGGTGATTACATTTTAGCTAACACCTGTACTGAAAGACTCAAGCTT  |       |       |       |       |                   |
|                                                |                                   | Section 232 |                                                                           |       |       |       |       |                   |
|                                                |                                   | (16633)     | 16633                                                                     | 16640 | 16650 | 16660 | 16670 | 16680 16690 16704 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16633)                  |             | TTTGCAGCAGAAACGCTCAAAGCTACTGAGGAGACATTTAAACTGTCTTATGGTATTGCTACTGTACGTGAA  |       |       |       |       |                   |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16579) |             | TTTGCAGCAGAAACGCTCAAAGCTACTGAGGAGACATTTAAACTGTCTTATGGTATTGCTACTGTACGTGAA  |       |       |       |       |                   |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16621)                    |             | TTTGCAGCAGAAACGCTCAAAGCTACTGAGGAGACATTTAAACTGTCTTATGGTATTGCTACTGTACGTGAA  |       |       |       |       |                   |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16571)       |             | TTTGCAGCAGAAACGCTCAAAGCTACTGAGGAGACATTTAAACTGTCTTATGGTATTGCTACTGTACGTGAA  |       |       |       |       |                   |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16585)         |             | TTTGCAGCAGAAACGCTCAAAGCTACTGAGGAGACATTTAAACTGTCTTATGGTATTGCTACTGTACGTGAA  |       |       |       |       |                   |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16549)        |             | TTTGCAGCAGAAACGCTCAAAGCTACTGAGGAGACATTTAAACTGTCTTATGGTATTGCTACTGTACGTGAA  |       |       |       |       |                   |

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|                                                |                                   | Section 233 |                                                                             |       |       |       |       |       |             |
|------------------------------------------------|-----------------------------------|-------------|-----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                |                                   | (16705)     | 16705                                                                       | 16710 | 16720 | 16730 | 16740 | 16750 | 16760 16776 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16705)                  |             | GTGCTGTCTGACAGAGAATTACATCTTTCATGGGAAGTTGGTAAACCTAGACCACCACCTTAACCGAAATTAT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16651) |             | GTGCTGTCTGACAGAGAATTACATCTTTCATGGGAAGTTGGTAAACCTAGACCACCACCTTAACCGAAATTAT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16693)                    |             | GTGCTGTCTGACAGAGAATTACATCTTTCATGGGAAGTTGGTAAACCTAGACCACCACCTTAACCGAAATTAT   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16643)       |             | GTGCTGTCTGACAGAGAATTACATCTTTCATGGGAAGTTGGTAAACCTAGACCACCACCTTAACCGAAATTAT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16657)         |             | GTGCTGTCTGACAGAGAATTACATCTTTCATGGGAAGTTGGTAAACCTAGACCACCACCTTAACCGAAATTAT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16621)        |             | GTGCTGTCTGACAGAGAATTACATCTTTCATGGGAAGTTGGTAAACCTAGACCACCACCTTAACCGAAATTAT   |       |       |       |       |       |             |
|                                                |                                   | Section 234 |                                                                             |       |       |       |       |       |             |
|                                                |                                   | (16777)     | 16777                                                                       | 16790 | 16800 | 16810 | 16820 | 16830 | 16848       |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16777)                  |             | GTCTTTTACTGGTTATCGTGTAACATAAAAAACAGTAAAGTACAAATAGGAGAGTACACCTTTGAAAAAGGTGAC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16723) |             | GTCTTTTACTGGTTATCGTGTAACATAAAAAACAGTAAAGTACAAATAGGAGAGTACACCTTTGAAAAAGGTGAC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16765)                    |             | GTCTTTTACTGGTTATCGTGTAACATAAAAAACAGTAAAGTACAAATAGGAGAGTACACCTTTGAAAAAGGTGAC |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16715)       |             | GTCTTTTACTGGTTATCGTGTAACATAAAAAACAGTAAAGTACAAATAGGAGAGTACACCTTTGAAAAAGGTGAC |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16729)         |             | GTCTTTTACTGGTTATCGTGTAACATAAAAAACAGTAAAGTACAAATAGGAGAGTACACCTTTGAAAAAGGTGAC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16693)        |             | GTCTTTTACTGGTTATCGTGTAACATAAAAAACAGTAAAGTACAAATAGGAGAGTACACCTTTGAAAAAGGTGAC |       |       |       |       |       |             |
|                                                |                                   | Section 235 |                                                                             |       |       |       |       |       |             |
|                                                |                                   | (16849)     | 16849                                                                       | 16860 | 16870 | 16880 | 16890 | 16900 | 16910 16920 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16849)                  |             | TATGGTGATGCTGTTGTTTACCGAGGTACAACAACCTTACAAATTAAATGTTGGTGATTATTTTGTGCTGACA   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16795) |             | TATGGTGATGCTGTTGTTTACCGAGGTACAACAACCTTACAAATTAAATGTTGGTGATTATTTTGTGCTGACA   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16837)                    |             | TATGGTGATGCTGTTGTTTACCGAGGTACAACAACCTTACAAATTAAATGTTGGTGATTATTTTGTGCTGACA   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16787)       |             | TATGGTGATGCTGTTGTTTACCGAGGTACAACAACCTTACAAATTAAATGTTGGTGATTATTTTGTGCTGACA   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16801)         |             | TATGGTGATGCTGTTGTTTACCGAGGTACAACAACCTTACAAATTAAATGTTGGTGATTATTTTGTGCTGACA   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16765)        |             | TATGGTGATGCTGTTGTTTACCGAGGTACAACAACCTTACAAATTAAATGTTGGTGATTATTTTGTGCTGACA   |       |       |       |       |       |             |
|                                                |                                   | Section 236 |                                                                             |       |       |       |       |       |             |
|                                                |                                   | (16921)     | 16921                                                                       | 16930 | 16940 | 16950 | 16960 | 16970 | 16980 16992 |
| SARS-CoV-2 Reference Genome NC                 | 045512.2 (16921)                  |             | TCACATACAGTAATGCCATTAAAGTGCACCTACACTAGTGCCACAAGAGCACTATGTTAGAAATTACTGGCTTA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP                    | 916539/2021 EPI ISL 90... (16867) |             | TCACATACAGTAATGCCATTAAAGTGCACCTACACTAGTGCCACAAGAGCACTATGTTAGAAATTACTGGCTTA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 | EPI... (16909)                    |             | TCACATACAGTAATGCCATTAAAGTGCACCTACACTAGTGCCACAAGAGCACTATGTTAGAAATTACTGGCTTA  |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022              | EPI ISL 9062229 ... (16859)       |             | TCACATACAGTAATGCCATTAAAGTGCACCTACACTAGTGCCACAAGAGCACTATGTTAGAAATTACTGGCTTA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022           | EPI ISL 905522... (16873)         |             | TCACATACAGTAATGCCATTAAAGTGCACCTACACTAGTGCCACAAGAGCACTATGTTAGAAATTACTGGCTTA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021              | EPI_ISL_9049423... (16837)        |             | TCACATACAGTAATGCCATTAAAGTGCACCTACACTAGTGCCACAAGAGCACTATGTTAGAAATTACTGGCTTA  |       |       |       |       |       |             |

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|--------------------------------------------------------|---------|--------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 237 |
|                                                        | (16993) | 16993                                                                    | 17000 | 17010 | 17020 | 17030 | 17040 | 17050 | 17064       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (16993) | TACCCAACACTCAATATCTCAGATGAGTTTTCTAGCAATGTTGCAAATTATCAAAAGGTTGGTATGCAAAAG |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (16939) | TACCCAACACTCAATATCTCAGATGAGTTTTCTAGCAATGTTGCAAATTATCAAAAGGTTGGTATGCAAAAG |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (16981) | TACCCAACACTCAATATCTCAGATGAGTTTTCTAGCAATGTTGCAAATTATCAAAAGGTTGGTATGCAAAAG |       |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (16931) | TACCCAACACTCAATATCTCAGATGAGTTTTCTAGCAATGTTGCAAATTATCAAAAGGTTGGTATGCAAAAG |       |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (16945) | TACCCAACACTCAATATCTCAGATGAGTTTTCTAGCAATGTTGCAAATTATCAAAAGGTTGGTATGCAAAAG |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (16909) | TACCCAACACTCAATATCTCAGATGAGTTTTCTAGCAATGTTGCAAATTATCAAAAGGTTGGTATGCAAAAG |       |       |       |       |       |       |             |
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 238 |
|                                                        | (17065) | 17065                                                                    | 17070 | 17080 | 17090 | 17100 | 17110 | 17120 | 17136       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (17065) | TATTCTACACTCCAGGGACCACCTGGTACTGGTAAGAGTCATTTTGCTATTGGCCTAGCTCTCTACTACCCT |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (17011) | TATTCTACACTCCAGGGACCACCTGGTACTGGTAAGAGTCATTTTGCTATTGGCCTAGCTCTCTACTACCCT |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (17053) | TATTCTACACTCCAGGGACCACCTGGTACTGGTAAGAGTCATTTTGCTATTGGCCTAGCTCTCTACTACCCT |       |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (17003) | TATTCTACACTCCAGGGACCACCTGGTACTGGTAAGAGTCATTTTGCTATTGGCCTAGCTCTCTACTACCCT |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (17017) | TATTCTACACTCCAGGGACCACCTGGTACTGGTAAGAGTCATTTTGCTATTGGCCTAGCTCTCTACTACCCT |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (16981) | TATTCTACACTCCAGGGACCACCTGGTACTGGTAAGAGTCATTTTGCTATTGGCCTAGCTCTCTACTACCCT |       |       |       |       |       |       |             |
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 239 |
|                                                        | (17137) | 17137                                                                    | 17150 | 17160 | 17170 | 17180 | 17190 |       | 17208       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (17137) | TCTGCTCGCATAGTGTATACAGCTTGCTCTCATGCCGCTGTTGATGCACTATGTGAGAAGGCATTAAATAT  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (17083) | TCTGCTCGCATAGTGTATACAGCTTGCTCTCATGCCGCTGTTGATGCACTATGTGAGAAGGCATTAAATAT  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (17125) | TCTGCTCGCATAGTGTATACAGCTTGCTCTCATGCCGCTGTTGATGCACTATGTGAGAAGGCATTAAATAT  |       |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (17075) | TCTGCTCGCATAGTGTATACAGCTTGCTCTCATGCCGCTGTTGATGCACTATGTGAGAAGGCATTAAATAT  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (17089) | TCTGCTCGCATAGTGTATACAGCTTGCTCTCATGCCGCTGTTGATGCACTATGTGAGAAGGCATTAAATAT  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (17053) | TCTGCTCGCATAGTGTATACAGCTTGCTCTCATGCCGCTGTTGATGCACTATGTGAGAAGGCATTAAATAT  |       |       |       |       |       |       |             |
|                                                        |         |                                                                          |       |       |       |       |       |       | Section 240 |
|                                                        | (17209) | 17209                                                                    | 17220 | 17230 | 17240 | 17250 | 17260 | 17270 | 17280       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (17209) | TTGCCTATAGATAAATGTAGTAGAATTATACCTGCACGTGCTCGTGTAGAGTGTTTTGATAAATTCAAAGTG |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (17155) | TTGCCTATAGATAAATGTAGTAGAATTATACCTGCACGTGCTCGTGTAGAGTGTTTTGATAAATTCAAAGTG |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (17197) | TTGCCTATAGATAAATGTAGTAGAATTATACCTGCACGTGCTCGTGTAGAGTGTTTTGATAAATTCAAAGTG |       |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (17147) | TTGCCTATAGATAAATGTAGTAGAATTATACCTGCACGTGCTCGTGTAGAGTGTTTTGATAAATTCAAAGTG |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (17161) | TTGCCTATAGATAAATGTAGTAGAATTATACCTGCACGTGCTCGTGTAGAGTGTTTTGATAAATTCAAAGTG |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (17125) | TTGCCTATAGATAAATGTAGTAGAATTATACCTGCACGTGCTCGTGTAGAGTGTTTTGATAAATTCAAAGTG |       |       |       |       |       |       |             |

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|----------------------------------------------------------------|--|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                                |  | Section 241 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (17281)     | 17281                                                                      | 17290 | 17300 | 17310 | 17320 | 17330 | 17340 | 17352 |
| SARS-CoV-2 Reference Genome NC 045512.2 (17281)                |  |             | AATTCAACATTAGAACAGTATGTCTTTTGTACTGTAAATGCATTGCCTGAGACGACAGCAGATATAGTTGTC   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17227)  |  |             | AATTCAACATTAGAACAGTATGTCTTTTGTACTGTAAATGCATTGCCTGAGACGACAGCAGATATAGTTGTC   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17269)  |  |             | AATTCAACATTAGAACAGTATGTCTTTTGTACTGTAAATGCATTGCCTGAGACGACAGCAGATATAGTTGTC   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17219)   |  |             | AATTCAACATTAGAACAGTATGTCTTTTGTACTGTAAATGCATTGCCTGAGACGACAGCAGATATAGTTGTC   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (17233) |  |             | AATTCAACATTAGAACAGTATGTCTTTTGTACTGTAAATGCATTGCCTGAGACGACAGCAGATATAGTTGTC   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (17197)   |  |             | AATTCAACATTAGAACAGTATGTCTTTTGTACTGTAAATGCATTGCCTGAGACGACAGCAGATATAGTTGTC   |       |       |       |       |       |       |       |
|                                                                |  | Section 242 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (17353)     | 17353                                                                      | 17360 | 17370 | 17380 | 17390 | 17400 | 17410 | 17424 |
| SARS-CoV-2 Reference Genome NC 045512.2 (17353)                |  |             | TTTGATGAAATTTCAATGGCCACAAATTATGATTTGAGTGTGTGTCATGCCAGATTACGTGCTAAGCACTAT   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17299)  |  |             | TTTGATGAAATTTCAATGGCCACAAATTATGATTTGAGTGTGTGTCATGCCAGATTACGTGCTAAGCACTAT   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17341)  |  |             | TTTGATGAAATTTCAATGGCCACAAATTATGATTTGAGTGTGTGTCATGCCAGATTACGTGCTAAGCACTAT   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17291)   |  |             | TTTGATGAAATTTCAATGGCCACAAATTATGATTTGAGTGTGTGTCATGCCAGATTACGTGCTAAGCACTAT   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (17305) |  |             | TTTGATGAAATTTCAATGGCCACAAATTATGATTTGAGTGTGTGTCATGCCAGATTACGTGCTAAGCACTAT   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (17269)   |  |             | TTTGATGAAATTTCAATGGCCACAAATTATGATTTGAGTGTGTGTCATGCCAGATTACGTGCTAAGCACTAT   |       |       |       |       |       |       |       |
|                                                                |  | Section 243 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (17425)     | 17425                                                                      | 17430 | 17440 | 17450 | 17460 | 17470 | 17480 | 17496 |
| SARS-CoV-2 Reference Genome NC 045512.2 (17425)                |  |             | GTGTACATTGGCGACCCTGCTCAATTACCTGCACCACGCACATTGCTAACTAAGGGGCACACTAGAACCAGAA  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17371)  |  |             | GTGTACATTGGCGACCCTGCTCAATTACCTGCACCACGCACATTGCTAACTAAGGGGCACACTAGAACCAGAA  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17413)  |  |             | GTGTACATTGGCGACCCTGCTCAATTACCTGCACCACGCACATTGCTAACTAAGGGGCACACTAGAACCAGAA  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17363)   |  |             | GTGTACATTGGCGACCCTGCTCAATTACCTGCACCACGCACATTGCTAACTAAGGGGCACACTAGAACCAGAA  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (17377) |  |             | GTGTACATTGGCGACCCTGCTCAATTACCTGCACCACGCACATTGCTAACTAAGGGGCACACTAGAACCAGAA  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (17341)   |  |             | GTGTACATTGGCGACCCTGCTCAATTACCTGCACCACGCACATTGCTAACTAAGGGGCACACTAGAACCAGAA  |       |       |       |       |       |       |       |
|                                                                |  | Section 244 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (17497)     | 17497                                                                      | 17510 | 17520 | 17530 | 17540 | 17550 | 17568 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (17497)                |  |             | TATTTCAATTCAGTGTGTAGACTTATGAAAACTATAGGTCCAGACATGTTTCCTCGGAACCTGTGCGGCGTTGT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17443)  |  |             | TATTTCAATTCAGTGTGTAGACTTATGAAAACTATAGGTCCAGACATGTTTCCTCGGAACCTGTGCGGCGTTGT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17485)  |  |             | TATTTCAATTCAGTGTGTAGACTTATGAAAACTATAGGTCCAGACATGTTTCCTCGGAACCTGTGCGGCGTTGT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17435)   |  |             | TATTTCAATTCAGTGTGTAGACTTATGAAAACTATAGGTCCAGACATGTTTCCTCGGAACCTGTGCGGCGTTGT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (17449) |  |             | TATTTCAATTCAGTGTGTAGACTTATGAAAACTATAGGTCCAGACATGTTTCCTCGGAACCTGTGCGGCGTTGT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (17413)   |  |             | TATTTCAATTCAGTGTGTAGACTTATGAAAACTATAGGTCCAGACATGTTTCCTCGGAACCTGTGCGGCGTTGT |       |       |       |       |       |       |       |

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|----------------------------------------------------------------|--|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------------|
|                                                                |  | Section 245                                                               |       |       |       |       |       |       |             |
|                                                                |  | (17569)                                                                   | 17569 | 17580 | 17590 | 17600 | 17610 | 17620 | 17630 17640 |
| SARS-CoV-2 Reference Genome NC 045512.2 (17569)                |  | CCTGCTGAAATTGTTGACACTGTGAGTGCTTTGGTTTATGATAATAAGCTTAAAGCACATAAAGACAAATCA  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17515)  |  | CCTGCTGAAATTGTTGACACTGTGAGTGCTTTGGTTTATGATAATAAGCTTAAAGCACATAAAGACAAATCA  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17557)  |  | CCTGCTGAAATTGTTGACACTGTGAGTGCTTTGGTTTATGATAATAAGCTTAAAGCACATAAAGACAAATCA  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17507)   |  | CCTGCTGAAATTGTTGACACTGTGAGTGCTTTGGTTTATGATAATAAGCTTAAAGCACATAAAGACAAATCA  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (17521) |  | CCTGCTGAAATTGTTGACACTGTGAGTGCTTTGGTTTATGATAATAAGCTTAAAGCACATAAAGACAAATCA  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (17485)   |  | CCTGCTGAAATTGTTGACACTGTGAGTGCTTTGGTTTATGATAATAAGCTTAAAGCACATAAAGACAAATCA  |       |       |       |       |       |       |             |
|                                                                |  | Section 246                                                               |       |       |       |       |       |       |             |
|                                                                |  | (17641)                                                                   | 17641 | 17650 | 17660 | 17670 | 17680 | 17690 | 17700 17712 |
| SARS-CoV-2 Reference Genome NC 045512.2 (17641)                |  | GCTCAATGCTTTAAATGTTTTATAAGGGTGTTATCACGCATGATGTTTCATCTGCAATTAACAGGCCACAA   |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17587)  |  | GCTCAATGCTTTAAATGTTTTATAAGGGTGTTATCACGCATGATGTTTCATCTGCAATTAACAGGCCACAA   |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17629)  |  | GCTCAATGCTTTAAATGTTTTATAAGGGTGTTATCACGCATGATGTTTCATCTGCAATTAACAGGCCACAA   |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17579)   |  | GCTCAATGCTTTAAATGTTTTATAAGGGTGTTATCACGCATGATGTTTCATCTGCAATTAACAGGCCACAA   |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (17593) |  | GCTCAATGCTTTAAATGTTTTATAAGGGTGTTATCACGCATGATGTTTCATCTGCAATTAACAGGCCACAA   |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (17557)   |  | GCTCAATGCTTTAAATGTTTTATAAGGGTGTTATCACGCATGATGTTTCATCTGCAATTAACAGGCCACAA   |       |       |       |       |       |       |             |
|                                                                |  | Section 247                                                               |       |       |       |       |       |       |             |
|                                                                |  | (17713)                                                                   | 17713 | 17720 | 17730 | 17740 | 17750 | 17760 | 17770 17784 |
| SARS-CoV-2 Reference Genome NC 045512.2 (17713)                |  | ATAGGCGTGGTAAGAGAATTCCTTACACGTAACCCCTGCTTGGAGAAAAGCTGTCTTTATTTACCTTATAAT  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17659)  |  | ATAGGCGTGGTAAGAGAATTCCTTACACGTAACCCCTGCTTGGAGAAAAGCTGTCTTTATTTACCTTATAAT  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17701)  |  | ATAGGCGTGGTAAGAGAATTCCTTACACGTAACCCCTGCTTGGAGAAAAGCTGTCTTTATTTACCTTATAAT  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17651)   |  | ATAGGCGTGGTAAGAGAATTCCTTACACGTAACCCCTGCTTGGAGAAAAGCTGTCTTTATTTACCTTATAAT  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (17665) |  | ATAGGCGTGGTAAGAGAATTCCTTACACGTAACCCCTGCTTGGAGAAAAGCTGTCTTTATTTACCTTATAAT  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (17629)   |  | ATAGGCGTGGTAAGAGAATTCCTTACACGTAACCCCTGCTTGGAGAAAAGCTGTCTTTATTTACCTTATAAT  |       |       |       |       |       |       |             |
|                                                                |  | Section 248                                                               |       |       |       |       |       |       |             |
|                                                                |  | (17785)                                                                   | 17785 | 17790 | 17800 | 17810 | 17820 | 17830 | 17840 17856 |
| SARS-CoV-2 Reference Genome NC 045512.2 (17785)                |  | TCACAGAATGCTGTAGCCTCAAAGATTTTGGGACTACCAACTCAAAGCTGTTGATTCATCACAGGGCTCAGAA |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (17731)  |  | TCACAGAATGCTGTAGCCTCAAAGATTTTGGGACTACCAACTCAAAGCTGTTGATTCATCACAGGGCTCAGAA |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (17773)  |  | TCACAGAATGCTGTAGCCTCAAAGATTTTGGGACTACCAACTCAAAGCTGTTGATTCATCACAGGGCTCAGAA |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (17723)   |  | TCACAGAATGCTGTAGCCTCAAAGATTTTGGGACTACCAACTCAAAGCTGTTGATTCATCACAGGGCTCAGAA |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (17737) |  | TCACAGAATGCTGTAGCCTCAAAGATTTTGGGACTACCAACTCAAAGCTGTTGATTCATCACAGGGCTCAGAA |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (17701)   |  | TCACAGAATGCTGTAGCCTCAAAGATTTTGGGACTACCAACTCAAAGCTGTTGATTCATCACAGGGCTCAGAA |       |       |       |       |       |       |             |

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|--------------------------------------------------------|---------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                            |       |       |       |       |       | Section 249 |
|                                                        | (17857) | 17857                                                                      | 17870 | 17880 | 17890 | 17900 | 17910 | 17928       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (17857) | TATGACTATGTCATATTCACCTCAAACCACTGAAACAGCTCACTCTTGTAATGTAAACAGATTTAATGTTGCT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (17803) | TATGACTATGTCATATTCACCTCAAACCACTGAAACAGCTCACTCTTGTAATGTAAACAGATTTAATGTTGCT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (17845) | TATGACTATGTCATATTCACCTCAAACCACTGAAACAGCTCACTCTTGTAATGTAAACAGATTTAATGTTGCT  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (17795) | TATGACTATGTCATATTCACCTCAAACCACTGAAACAGCTCACTCTTGTAATGTAAACAGATTTAATGTTGCT  |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (17809) | TATGACTATGTCATATTCACCTCAAACCACTGAAACAGCTCACTCTTGTAATGTAAACAGATTTAATGTTGCT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (17773) | TATGACTATGTCATATTCACCTCAAACCACTGAAACAGCTCACTCTTGTAATGTAAACAGATTTAATGTTGCT  |       |       |       |       |       |             |
|                                                        |         |                                                                            |       |       |       |       |       | Section 250 |
|                                                        | (17929) | 17929                                                                      | 17940 | 17950 | 17960 | 17970 | 17980 | 17990 18000 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (17929) | ATTACCAGAGCAAAAAGTAGGCATACCTTTGCATAATGTCTGATAGAGACCTTTATGACAAGTTGCAATTTACA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (17875) | ATTACCAGAGCAAAAAGTAGGCATACCTTTGCATAATGTCTGATAGAGACCTTTATGACAAGTTGCAATTTACA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (17917) | ATTACCAGAGCAAAAAGTAGGCATACCTTTGCATAATGTCTGATAGAGACCTTTATGACAAGTTGCAATTTACA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (17867) | ATTACCAGAGCAAAAAGTAGGCATACCTTTGCATAATGTCTGATAGAGACCTTTATGACAAGTTGCAATTTACA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (17881) | ATTACCAGAGCAAAAAGTAGGCATACCTTTGCATAATGTCTGATAGAGACCTTTATGACAAGTTGCAATTTACA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (17845) | ATTACCAGAGCAAAAAGTAGGCATACCTTTGCATAATGTCTGATAGAGACCTTTATGACAAGTTGCAATTTACA |       |       |       |       |       |             |
|                                                        |         |                                                                            |       |       |       |       |       | Section 251 |
|                                                        | (18001) | 18001                                                                      | 18010 | 18020 | 18030 | 18040 | 18050 | 18060 18072 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (18001) | AGTCTTGAAATTCCACGTAGGAATGTGGCAACTTTACAAGCTGAAAATGTAACAGGACTCTTTAAAGATTGT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (17947) | AGTCTTGAAATTCCACGTAGGAATGTGGCAACTTTACAAGCTGAAAATGTAACAGGACTCTTTAAAGATTGT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (17989) | AGTCTTGAAATTCCACGTAGGAATGTGGCAACTTTACAAGCTGAAAATGTAACAGGACTCTTTAAAGATTGT   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (17939) | AGTCTTGAAATTCCACGTAGGAATGTGGCAACTTTACAAGCTGAAAATGTAACAGGACTCTTTAAAGATTGT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (17953) | AGTCTTGAAATTCCACGTAGGAATGTGGCAACTTTACAAGCTGAAAATGTAACAGGACTCTTTAAAGATTGT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (17917) | AGTCTTGAAATTCCACGTAGGAATGTGGCAACTTTACAAGCTGAAAATGTAACAGGACTCTTTAAAGATTGT   |       |       |       |       |       |             |
|                                                        |         |                                                                            |       |       |       |       |       | Section 252 |
|                                                        | (18073) | 18073                                                                      | 18080 | 18090 | 18100 | 18110 | 18120 | 18130 18144 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (18073) | AGTAAGGTAATCACTGGGTTACATCCTACACAGGCACCTACACACCTCAGTGTTGACACTAAATTCAAAACT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (18019) | AGTAAGGTAATCACTGGGTTACATCCTACACAGGCACCTACACACCTCAGTGTTGACACTAAATTCAAAACT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18061) | AGTAAGGTAATCACTGGGTTACATCCTACACAGGCACCTACACACCTCAGTGTTGACACTAAATTCAAAACT   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (18011) | AGTAAGGTAATCACTGGGTTACATCCTACACAGGCACCTACACACCTCAGTGTTGACACTAAATTCAAAACT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (18025) | AGTAAGGTAATCACTGGGTTACATCCTACACAGGCACCTACACACCTCAGTGTTGACACTAAATTCAAAACT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (17989) | AGTAAGGTAATCACTGGGTTACATCCTACACAGGCACCTACACACCTCAGTGTTGACACTAAATTCAAAACT   |       |       |       |       |       |             |

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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|--|-------------|
|                                                        | (18145) | 18145                                                                     | 18150 | 18160 | 18170 | 18180 | 18190 | 18200 |  | Section 253 |
|                                                        | (18145) | 18216                                                                     |       |       |       |       |       |       |  |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (18145) | GAAGGTTTATGTGTTGACATACCTGGCATAACCTAAGGACATGACCTATAGAAGACTCATCTCTATGATGGGT |       |       |       |       |       |       |  |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (18091) | GAAGGTTTATGTGTTGACGTACCTGGCATAACCTAAGGACATGACCTATAGAAGACTCATCTCTATGATGGGT |       |       |       |       |       |       |  |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18133) | GAAGGTTTATGTGTTGACGTACCTGGCATAACCTAAGGACATGACCTATAGAAGACTCATCTCTATGATGGGT |       |       |       |       |       |       |  |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   | (18083) | GAAGGTTTATGTGTTGACGTACCTGGCATAACCTAAGGACATGACCTATAGAAGACTCATCTCTATGATGGGT |       |       |       |       |       |       |  |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI_ISL_905522... | (18097) | GAAGGTTTATGTGTTGACGTACCTGGCATAACCTAAGGACATGACCTATAGAAGACTCATCTCTATGATGGGT |       |       |       |       |       |       |  |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18061) | GAAGGTTTATGTGTTGACGTACCTGGCATAACCTAAGGACATGACCTATAGAAGACTCATCTCTATGATGGGT |       |       |       |       |       |       |  |             |
|                                                        |         |                                                                           |       |       |       |       |       |       |  |             |
|                                                        | (18217) | 18217                                                                     |       | 18230 | 18240 | 18250 | 18260 | 18270 |  | Section 254 |
|                                                        | (18217) | 18288                                                                     |       |       |       |       |       |       |  |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (18217) | TTTAAAAATGAATTATCAAGTTAATGGTTACCCTAACATGTTTATCACCCGCGAAGAAGCTATAAGACATGTA |       |       |       |       |       |       |  |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (18163) | TTTAAAAATGAATTATCAAGTTAATGGTTACCCTAACATGTTTATCACCCGCGAAGAAGCTATAAGACATGTA |       |       |       |       |       |       |  |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18205) | TTTAAAAATGAATTATCAAGTTAATGGTTACCCTAACATGTTTATCACCCGCGAAGAAGCTATAAGACATGTA |       |       |       |       |       |       |  |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   | (18155) | TTTAAAAATGAATTATCAAGTTAATGGTTACCCTAACATGTTTATCACCCGCGAAGAAGCTATAAGACATGTA |       |       |       |       |       |       |  |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... | (18169) | TTTAAAAATGAATTATCAAGTTAATGGTTACCCTAACATGTTTATCACCCGCGAAGAAGCTATAAGACATGTA |       |       |       |       |       |       |  |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18133) | TTTAAAAATGAATTATCAAGTTAATGGTTACCCTAACATGTTTATCACCCGCGAAGAAGCTATAAGACATGTA |       |       |       |       |       |       |  |             |
|                                                        |         |                                                                           |       |       |       |       |       |       |  |             |
|                                                        | (18289) | 18289                                                                     |       | 18300 | 18310 | 18320 | 18330 | 18340 |  | Section 255 |
|                                                        | (18289) | 18360                                                                     |       |       |       |       |       |       |  |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (18289) | CGTGCATGGATTGGCTTCGATGTCGAGGGGTGTCATGCTACTAGAGAAGCTGTTGGTACCAATTTACCTTTA  |       |       |       |       |       |       |  |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (18235) | CGTGCATGGATTGGCTTCGATGTCGAGGGGTGTCATGCTACTAGAGAAGCTGTTGGTACCAATTTACCTTTA  |       |       |       |       |       |       |  |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18277) | CGTGCATGGATTGGCTTCGATGTCGAGGGGTGTCATGCTACTAGAGAAGCTGTTGGTACCAATTTACCTTTA  |       |       |       |       |       |       |  |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   | (18227) | CGTGCATGGATTGGCTTCGATGTCGAGGGGTGTCATGCTACTAGAGAAGCTGTTGGTACCAATTTACCTTTA  |       |       |       |       |       |       |  |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... | (18241) | CGTGCATGGATTGGCTTCGATGTCGAGGGGTGTCATGCTACTAGAGAAGCTGTTGGTACCAATTTACCTTTA  |       |       |       |       |       |       |  |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18205) | CGTGCATGGATTGGCTTCGATGTCGAGGGGTGTCATGCTACTAGAGAAGCTGTTGGTACCAATTTACCTTTA  |       |       |       |       |       |       |  |             |
|                                                        |         |                                                                           |       |       |       |       |       |       |  |             |
|                                                        | (18361) | 18361                                                                     |       | 18370 | 18380 | 18390 | 18400 | 18410 |  | Section 256 |
|                                                        | (18361) | 18432                                                                     |       |       |       |       |       |       |  |             |
| SARS-CoV-2 Reference Genome NC_045512.2                | (18361) | CAGCTAGGTTTTTCTACAGGTGTTAAACCTAGTTGCTGTACCTACAGGTTATGTTGATACACCTAATAATACA |       |       |       |       |       |       |  |             |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...  | (18307) | CAGCTAGGTTTTTCTACAGGTGTTAAACCTAGTTGCTGTACCTACAGGTTATGTTGATACACCTAATAATACA |       |       |       |       |       |       |  |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18349) | CAGCTAGGTTTTTCTACAGGTGTTAAACCTAGTTGCTGTACCTACAGGTTATGTTGATACACCTAATAATACA |       |       |       |       |       |       |  |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   | (18299) | CAGCTAGGTTTTTCTACAGGTGTTAAACCTAGTTGCTGTACCTACAGGTTATGTTGATACACCTAATAATACA |       |       |       |       |       |       |  |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... | (18313) | CAGCTAGGTTTTTCTACAGGTGTTAAACCTAGTTGCTGTACCTACAGGTTATGTTGATACACCTAATAATACA |       |       |       |       |       |       |  |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18277) | CAGCTAGGTTTTTCTACAGGTGTTAAACCTAGTTGCTGTACCTACAGGTTATGTTGATACACCTAATAATACA |       |       |       |       |       |       |  |             |

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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 257 |
|                                                        | (18433) | 18433                                                                     | 18440 | 18450 | 18460 | 18470 | 18480 | 18490 | 18504       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (18433) | GATTTTTCCAGAGTTAGTGCTAAACCACCGCCTGGAGATCAATTTAAACACCTCATACCACTTATGTACAAA  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (18379) | GATTTTTCCAGAGTTAGTGCTAAACCACCGCCTGGAGATCAATTTAAACACCTCATACCACTTATGTACAAA  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18421) | GATTTTTCCAGAGTTAGTGCTAAACCACCGCCTGGAGATCAATTTAAACACCTCATACCACTTATGTACAAA  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (18371) | GATTTTTCCAGAGTTAGTGCTAAACCACCGCCTGGAGATCAATTTAAACACCTCATACCACTTATGTACAAA  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-T-438397/2022 EPI ISL 905522... | (18385) | GATTTTTCCAGAGTTAGTGCTAAACCACCGCCTGGAGATCAATTTAAACACCTCATACCACTTATGTACAAA  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18349) | GATTTTTCCAGAGTTAGTGCTAAACCACCGCCTGGAGATCAATTTAAACACCTCATACCACTTATGTACAAA  |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 258 |
|                                                        | (18505) | 18505                                                                     | 18510 | 18520 | 18530 | 18540 | 18550 | 18560 | 18576       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (18505) | GGACTTCCTTGGAATGTAGTGCGTATAAAGATTGTACAAATGTTAAGTGACACACTTAAAAATCTCTCTGAC  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (18451) | GGACTTCCTTGGAATGTAGTGCGTATAAAGATTGTACAAATGTTAAGTGACACACTTAAAAATCTCTCTGAC  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18493) | GGACTTCCTTGGAATGTAGTGCGTATAAAGATTGTACAAATGTTAAGTGACACACTTAAAAATCTCTCTGAC  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (18443) | GGACTTCCTTGGAATGTAGTGCGTATAAAGATTGTACAAATGTTAAGTGACACACTTAAAAATCTCTCTGAC  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (18457) | GGACTTCCTTGGAATGTAGTGCGTATAAAGATTGTACAAATGTTAAGTGACACACTTAAAAATCTCTCTGAC  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18421) | GGACTTCCTTGGAATGTAGTGCGTATAAAGATTGTACAAATGTTAAGTGACACACTTAAAAATCTCTCTGAC  |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 259 |
|                                                        | (18577) | 18577                                                                     | 18590 | 18600 | 18610 | 18620 | 18630 |       | 18648       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (18577) | AGAGTCGTATTTGTCTTATGGGCACATGGCTTTGAGTTGACATCTATGAAGTATTTTGTGAAAAATAGGACCT |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (18523) | AGAGTCGTATTTGTCTTATGGGCACATGGCTTTGAGTTGACATCTATGAAGTATTTTGTGAAAAATAGGACCT |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18565) | AGAGTCGTATTTGTCTTATGGGCACATGGCTTTGAGTTGACATCTATGAAGTATTTTGTGAAAAATAGGACCT |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (18515) | AGAGTCGTATTTGTCTTATGGGCACATGGCTTTGAGTTGACATCTATGAAGTATTTTGTGAAAAATAGGACCT |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (18529) | AGAGTCGTATTTGTCTTATGGGCACATGGCTTTGAGTTGACATCTATGAAGTATTTTGTGAAAAATAGGACCT |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18493) | AGAGTCGTATTTGTCTTATGGGCACATGGCTTTGAGTTGACATCTATGAAGTATTTTGTGAAAAATAGGACCT |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 260 |
|                                                        | (18649) | 18649                                                                     | 18660 | 18670 | 18680 | 18690 | 18700 | 18710 | 18720       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (18649) | GAGCGCACCTGTTGTCTATGTGATAGACGTGCCACATGCTTTTCCACTGCTTCAGACACTTATGCCTGTTGG  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (18595) | GAGCGCACCTGTTGTCTATGTGATAGACGTGCCACATGCTTTTCCACTGCTTCAGACACTTATGCCTGTTGG  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18637) | GAGCGCACCTGTTGTCTATGTGATAGACGTGCCACATGCTTTTCCACTGCTTCAGACACTTATGCCTGTTGG  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (18587) | GAGCGCACCTGTTGTCTATGTGATAGACGTGCCACATGCTTTTCCACTGCTTCAGACACTTATGCCTGTTGG  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (18601) | GAGCGCACCTGTTGTCTATGTGATAGACGTGCCACATGCTTTTCCACTGCTTCAGACACTTATGCCTGTTGG  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (18565) | GAGCGCACCTGTTGTCTATGTGATAGACGTGCCACATGCTTTTCCACTGCTTCAGACACTTATGCCTGTTGG  |       |       |       |       |       |       |             |

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|                                                                |  | Section 261 |                                                                            |       |       |       |       |       |             |
|----------------------------------------------------------------|--|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                                |  | (18721)     | 18721                                                                      | 18730 | 18740 | 18750 | 18760 | 18770 | 18780 18792 |
| SARS-CoV-2 Reference Genome NC 045512.2 (18721)                |  |             | CATCATTCTATTGGATTGATTACGTCCTATAATCCGTTTATGATTGATGTTCAACAATGGGGTTTTACAGGT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (18667)  |  |             | CATCATTCTATTGGATTGATTACGTCCTATAATCCGTTTATGATTGATGTTCAACAATGGGGTTTTACAGGT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (18709)  |  |             | CATCATTCTATTGGATTGATTACGTCCTATAATCCGTTTATGATTGATGTTCAACAATGGGGTTTTACAGGT   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (18659)  |  |             | CATCATTCTATTGGATTGATTACGTCCTATAATCCGTTTATGATTGATGTTCAACAATGGGGTTTTACAGGT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (18673) |  |             | CATCATTCTATTGGATTGATTACGTCCTATAATCCGTTTATGATTGATGTTCAACAATGGGGTTTTACAGGT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (18637)   |  |             | CATCATTCTATTGGATTGATTACGTCCTATAATCCGTTTATGATTGATGTTCAACAATGGGGTTTTACAGGT   |       |       |       |       |       |             |
|                                                                |  | Section 262 |                                                                            |       |       |       |       |       |             |
|                                                                |  | (18793)     | 18793                                                                      | 18800 | 18810 | 18820 | 18830 | 18840 | 18850 18864 |
| SARS-CoV-2 Reference Genome NC 045512.2 (18793)                |  |             | AACCTACAAAGCAACCATGATCTGTATTGTCAAGTCCATGGTAATGCACATGTAGCTAGTTGTGATGCAATC   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (18739)  |  |             | AACCTACAAAGCAACCATGATCTGTATTGTCAAGTCCATGGTAATGCACATGTAGCTAGTTGTGATGCAATC   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (18781)  |  |             | AACCTACAAAGCAACCATGATCTGTATTGTCAAGTCCATGGTAATGCACATGTAGCTAGTTGTGATGCAATC   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (18731)  |  |             | AACCTACAAAGCAACCATGATCTGTATTGTCAAGTCCATGGTAATGCACATGTAGCTAGTTGTGATGCAATC   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (18745) |  |             | AACCTACAAAGCAACCATGATCTGTATTGTCAAGTCCATGGTAATGCACATGTAGCTAGTTGTGATGCAATC   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (18709)   |  |             | AACCTACAAAGCAACCATGATCTGTATTGTCAAGTCCATGGTAATGCACATGTAGCTAGTTGTGATGCAATC   |       |       |       |       |       |             |
|                                                                |  | Section 263 |                                                                            |       |       |       |       |       |             |
|                                                                |  | (18865)     | 18865                                                                      | 18870 | 18880 | 18890 | 18900 | 18910 | 18920 18936 |
| SARS-CoV-2 Reference Genome NC 045512.2 (18865)                |  |             | ATGACTAGGTGTCTAGCTGTCCACGAGTGCTTTGTTAAGCGTGTTGACTGGACTATTGAATATCCTATAATT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (18811)  |  |             | ATGACTAGGTGTCTAGCTGTCCACGAGTGCTTTGTTAAGCGTGTTGACTGGACTATTGAATATCCTATAATT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (18853)  |  |             | ATGACTAGGTGTCTAGCTGTCCACGAGTGCTTTGTTAAGCGTGTTGACTGGACTATTGAATATCCTATAATT   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (18803)  |  |             | ATGACTAGGTGTCTAGCTGTCCACGAGTGCTTTGTTAAGCGTGTTGACTGGACTATTGAATATCCTATAATT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (18817) |  |             | ATGACTAGGTGTCTAGCTGTCCACGAGTGCTTTGTTAAGCGTGTTGACTGGACTATTGAATATCCTATAATT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (18781)   |  |             | ATGACTAGGTGTCTAGCTGTCCACGAGTGCTTTGTTAAGCGTGTTGACTGGACTATTGAATATCCTATAATT   |       |       |       |       |       |             |
|                                                                |  | Section 264 |                                                                            |       |       |       |       |       |             |
|                                                                |  | (18937)     | 18937                                                                      | 18950 | 18960 | 18970 | 18980 | 18990 | 19008       |
| SARS-CoV-2 Reference Genome NC 045512.2 (18937)                |  |             | GGTGATGAAGCTGAAGATTAATGCGGCTTGTTAGAAAGGTTCAACACATGGTTGTTAAAGCTGCATTATTAGCA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (18883)  |  |             | GGTGATGAAGCTGAAGATTAATGCGGCTTGTTAGAAAGGTTCAACACATGGTTGTTAAAGCTGCATTATTAGCA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (18925)  |  |             | GGTGATGAAGCTGAAGATTAATGCGGCTTGTTAGAAAGGTTCAACACATGGTTGTTAAAGCTGCATTATTAGCA |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (18875)  |  |             | GGTGATGAAGCTGAAGATTAATGCGGCTTGTTAGAAAGGTTCAACACATGGTTGTTAAAGCTGCATTATTAGCA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (18889) |  |             | GGTGATGAAGCTGAAGATTAATGCGGCTTGTTAGAAAGGTTCAACACATGGTTGTTAAAGCTGCATTATTAGCA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (18853)   |  |             | GGTGATGAAGCTGAAGATTAATGCGGCTTGTTAGAAAGGTTCAACACATGGTTGTTAAAGCTGCATTATTAGCA |       |       |       |       |       |             |

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|                                                        |         | Section 265 |                                                                           |       |       |       |       |       |             |
|--------------------------------------------------------|---------|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | (19009)     | 19009                                                                     | 19020 | 19030 | 19040 | 19050 | 19060 | 19070 19080 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (19009) |             | GACAAATTCCCAGTTCTTCACGACATTGGTAACCCCTAAAGCTATTAAGTGTGTACCTCAAGCTGATGTAGAA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (18955) |             | GACAAATTCCCAGTTCTTCACGACATTGGTAACCCCTAAAGCTATTAAGTGTGTACCTCAAGCTGATGTAGAA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (18997) |             | GACAAATTCCCAGTTCTTCACGACATTGGTAACCCCTAAAGCTATTAAGTGTGTACCTCAAGCTGATGTAGAA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (18947) |             | GACAAATTCCCAGTTCTTCACGACATTGGTAACCCCTAAAGCTATTAAGTGTGTACCTCAAGCTGATGTAGAA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (18961) |             | GACAAATTCCCAGTTCTTCACGACATTGGTAACCCCTAAAGCTATTAAGTGTGTACCTCAAGCTGATGTAGAA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18925) |             | GACAAATTCCCAGTTCTTCACGACATTGGTAACCCCTAAAGCTATTAAGTGTGTACCTCAAGCTGATGTAGAA |       |       |       |       |       |             |
|                                                        |         | Section 266 |                                                                           |       |       |       |       |       |             |
|                                                        |         | (19081)     | 19081                                                                     | 19090 | 19100 | 19110 | 19120 | 19130 | 19140 19152 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (19081) |             | TGGAAGTTCTATGATGCACAGCCTTGTAGTGACAAAGCTTATAAAATAGAAGAATTATTCTATTCTTATGCC  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (19027) |             | TGGAAGTTCTATGATGCACAGCCTTGTAGTGACAAAGCTTATAAAATAGAAGAATTATTCTATTCTTATGCC  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (19069) |             | TGGAAGTTCTATGATGCACAGCCTTGTAGTGACAAAGCTTATAAAATAGAAGAATTATTCTATTCTTATGCC  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (19019) |             | TGGAAGTTCTATGATGCACAGCCTTGTAGTGACAAAGCTTATAAAATAGAAGAATTATTCTATTCTTATGCC  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (19033) |             | TGGAAGTTCTATGATGCACAGCCTTGTAGTGACAAAGCTTATAAAATAGAAGAATTATTCTATTCTTATGCC  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (18997) |             | TGGAAGTTCTATGATGCACAGCCTTGTAGTGACAAAGCTTATAAAATAGAAGAATTATTCTATTCTTATGCC  |       |       |       |       |       |             |
|                                                        |         | Section 267 |                                                                           |       |       |       |       |       |             |
|                                                        |         | (19153)     | 19153                                                                     | 19160 | 19170 | 19180 | 19190 | 19200 | 19210 19224 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (19153) |             | ACACATTCTGACAAATTCACAGATGGTGTATGCCTATTTTGGGAATTGCAATGTCGATAGATATCCTGCTAAT |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (19099) |             | ACACATTCTGACAAATTCACAGATGGTGTATGCCTATTTTGGGAATTGCAATGTCGATAGATATCCTGCTAAT |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (19141) |             | ACACATTCTGACAAATTCACAGATGGTGTATGCCTATTTTGGGAATTGCAATGTCGATAGATATCCTGCTAAT |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (19091) |             | ACACATTCTGACAAATTCACAGATGGTGTATGCCTATTTTGGGAATTGCAATGTCGATAGATATCCTGCTAAT |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (19105) |             | ACACATTCTGACAAATTCACAGATGGTGTATGCCTATTTTGGGAATTGCAATGTCGATAGATATCCTGCTAAT |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (19069) |             | ACACATTCTGACAAATTCACAGATGGTGTATGCCTATTTTGGGAATTGCAATGTCGATAGATATCCTGCTAAT |       |       |       |       |       |             |
|                                                        |         | Section 268 |                                                                           |       |       |       |       |       |             |
|                                                        |         | (19225)     | 19225                                                                     | 19230 | 19240 | 19250 | 19260 | 19270 | 19280 19296 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (19225) |             | TCCATTGTTTGTAGATTTGACACTAGAGTGCTATCTAACCTTAACTTGCCTGGTTGTGATGGTGGCAGTTTG  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (19171) |             | TCCATTGTTTGTAGATTTGACACTAGAGTGCTATCTAACCTTAACTTGCCTGGTTGTGATGGTGGCAGTTTG  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (19213) |             | TCCATTGTTTGTAGATTTGACACTAGAGTGCTATCTAACCTTAACTTGCCTGGTTGTGATGGTGGCAGTTTG  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (19163) |             | TCCATTGTTTGTAGATTTGACACTAGAGTGCTATCTAACCTTAACTTGCCTGGTTGTGATGGTGGCAGTTTG  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (19177) |             | TCCATTGTTTGTAGATTTGACACTAGAGTGCTATCTAACCTTAACTTGCCTGGTTGTGATGGTGGCAGTTTG  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (19141) |             | TCCATTGTTTGTAGATTTGACACTAGAGTGCTATCTAACCTTAACTTGCCTGGTTGTGATGGTGGCAGTTTG  |       |       |       |       |       |             |

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|                                                                |         |                                                                            |       |       |       |       |       | Section 269 |
|                                                                | (19297) | 19297                                                                      | 19310 | 19320 | 19330 | 19340 | 19350 | 19368       |
| SARS-CoV-2 Reference Genome NC 045512.2 (19297)                |         | TATGTAAATAAACATGCATTCCACACACCAGCTTTTGATAAAAAGTGCTTTTGTTAATTTAAACAATTACCA   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19243)  |         | TATGTAAATAAACATGCATTCCACACACCAGCTTTTGATAAAAAGTGCTTTTGTTAATTTAAACAATTACCA   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19285)  |         | TATGTAAATAAACATGCATTCCACACACCAGCTTTTGATAAAAAGTGCTTTTGTTAATTTAAACAATTACCA   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (19235)  |         | TATGTAAATAAACATGCATTCCACACACCAGCTTTTGATAAAAAGTGCTTTTGTTAATTTAAACAATTACCA   |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (19249) |         | TATGTAAATAAACATGCATTCCACACACCAGCTTTTGATAAAAAGTGCTTTTGTTAATTTAAACAATTACCA   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (19213)   |         | TATGTAAATAAACATGCATTCCACACACCAGCTTTTGATAAAAAGTGCTTTTGTTAATTTAAACAATTACCA   |       |       |       |       |       |             |
|                                                                |         |                                                                            |       |       |       |       |       | Section 270 |
|                                                                | (19369) | 19369                                                                      | 19380 | 19390 | 19400 | 19410 | 19420 | 19430 19440 |
| SARS-CoV-2 Reference Genome NC 045512.2 (19369)                |         | TTTTTCTATTACTCTGACAGTCCATGTGAGTCTCATGGAAAACAAGTAGTGTGTCAGATATAGATTATGTACCA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19315)  |         | TTTTTCTATTACTCTGACAGTCCATGTGAGTCTCATGGAAAACAAGTAGTGTGTCAGATATAGATTATGTACCA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19357)  |         | TTTTTCTATTACTCTGACAGTCCATGTGAGTCTCATGGAAAACAAGTAGTGTGTCAGATATAGATTATGTACCA |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (19307)  |         | TTTTTCTATTACTCTGACAGTCCATGTGAGTCTCATGGAAAACAAGTAGTGTGTCAGATATAGATTATGTACCA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (19321) |         | TTTTTCTATTACTCTGACAGTCCATGTGAGTCTCATGGAAAACAAGTAGTGTGTCAGATATAGATTATGTACCA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (19285)   |         | TTTTTCTATTACTCTGACAGTCCATGTGAGTCTCATGGAAAACAAGTAGTGTGTCAGATATAGATTATGTACCA |       |       |       |       |       |             |
|                                                                |         |                                                                            |       |       |       |       |       | Section 271 |
|                                                                | (19441) | 19441                                                                      | 19450 | 19460 | 19470 | 19480 | 19490 | 19500 19512 |
| SARS-CoV-2 Reference Genome NC 045512.2 (19441)                |         | CTAAAGTCTGCTACGTGTATAACACGTTGCAATTTAGGTGGTGCTGTCTGTAGACATCATGCTAATGAGTAC   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19387)  |         | CTAAAGTCTGCTACGTGTATAACACGTTGCAATTTAGGTGGTGCTGTCTGTAGACATCATGCTAATGAGTAC   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19429)  |         | CTAAAGTCTGCTACGTGTATAACACGTTGCAATTTAGGTGGTGCTGTCTGTAGACATCATGCTAATGAGTAC   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (19379)  |         | CTAAAGTCTGCTACGTGTATAACACGTTGCAATTTAGGTGGTGCTGTCTGTAGACATCATGCTAATGAGTAC   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (19393) |         | CTAAAGTCTGCTACGTGTATAACACGTTGCAATTTAGGTGGTGCTGTCTGTAGACATCATGCTAATGAGTAC   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (19357)   |         | CTAAAGTCTGCTACGTGTATAACACGTTGCAATTTAGGTGGTGCTGTCTGTAGACATCATGCTAATGAGTAC   |       |       |       |       |       |             |
|                                                                |         |                                                                            |       |       |       |       |       | Section 272 |
|                                                                | (19513) | 19513                                                                      | 19520 | 19530 | 19540 | 19550 | 19560 | 19570 19584 |
| SARS-CoV-2 Reference Genome NC 045512.2 (19513)                |         | AGATTGTATCTCGATGCTTATAACATGATGATCTCAGCTGGCTTTAGCTTGTGGGTTTACAAACAATTTGAT   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19459)  |         | AGATTGTATCTCGATGCTTATAACATGATGATCTCAGCTGGCTTTAGCTTGTGGGTTTACAAACAATTTGAT   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19501)  |         | AGATTGTATCTCGATGCTTATAACATGATGATCTCAGCTGGCTTTAGCTTGTGGGTTTACAAACAATTTGAT   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ... (19451)  |         | AGATTGTATCTCGATGCTTATAACATGATGATCTCAGCTGGCTTTAGCTTGTGGGTTTACAAACAATTTGAT   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (19465) |         | AGATTGTATCTCGATGCTTATAACATGATGATCTCAGCTGGCTTTAGCTTGTGGGTTTACAAACAATTTGAT   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (19429)   |         | AGATTGTATCTCGATGCTTATAACATGATGATCTCAGCTGGCTTTAGCTTGTGGGTTTACAAACAATTTGAT   |       |       |       |       |       |             |

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|                                                                |  | Section 273 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (19585)     | 19585                                                                     | 19590 | 19600 | 19610 | 19620 | 19630 | 19640 | 19656 |
| SARS-CoV-2 Reference Genome NC 045512.2 (19585)                |  |             | ACTTATAACCTCTGGAACACTTTTACAAGACTTCAGAGTTTAGAAAAATGTGGCTTTTAATGTTGTAAATAAG |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19531)  |  |             | ACTTATAACCTCTGGAACACTTTTACAAGACTTCAGAGTTTAGAAAAATGTGGCTTTTAATGTTGTAAATAAG |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19573)  |  |             | ACTTATAACCTCTGGAACACTTTTACAAGACTTCAGAGTTTAGAAAAATGTGGCTTTTAATGTTGTAAATAAG |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (19523)   |  |             | ACTTATAACCTCTGGAACACTTTTACAAGACTTCAGAGTTTAGAAAAATGTGGCTTTTAATGTTGTAAATAAG |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (19537) |  |             | ACTTATAACCTCTGGAACACTTTTACAAGACTTCAGAGTTTAGAAAAATGTGGCTTTTAATGTTGTAAATAAG |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423... (19501)   |  |             | ACTTATAACCTCTGGAACACTTTTACAAGACTTCAGAGTTTAGAAAAATGTGGCTTTTAATGTTGTAAATAAG |       |       |       |       |       |       |       |
|                                                                |  | Section 274 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (19657)     | 19657                                                                     | 19670 | 19680 | 19690 | 19700 | 19710 | 19728 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (19657)                |  |             | GGACACTTTGATGGACAACAGGGTGAAGTACCAGTTTCTATCATTAATAACACTGTTTACACAAAAGTTGAT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19603)  |  |             | GGACACTTTGATGGACAACAGGGTGAAGTACCAGTTTCTATCATTAATAACACTGTTTACACAAAAGTTGAT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19645)  |  |             | GGACACTTTGATGGACAACAGGGTGAAGTACCAGTTTCTATCATTAATAACACTGTTTACACAAAAGTTGAT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (19595)   |  |             | GGACACTTTGATGGACAACAGGGTGAAGTACCAGTTTCTATCATTAATAACACTGTTTACACAAAAGTTGAT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (19609) |  |             | GGACACTTTGATGGACAACAGGGTGAAGTACCAGTTTCTATCATTAATAACACTGTTTACACAAAAGTTGAT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423... (19573)   |  |             | GGACACTTTGATGGACAACAGGGTGAAGTACCAGTTTCTATCATTAATAACACTGTTTACACAAAAGTTGAT  |       |       |       |       |       |       |       |
|                                                                |  | Section 275 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (19729)     | 19729                                                                     | 19740 | 19750 | 19760 | 19770 | 19780 | 19790 | 19800 |
| SARS-CoV-2 Reference Genome NC 045512.2 (19729)                |  |             | GGTGTGATGTAGAATTGTTTGAAAATAAAACAACATTACCTGTTAATGTAGCATTTGAGCTTTGGGCTAAG   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19675)  |  |             | GGTGTGATGTAGAATTGTTTGAAAATAAAACAACATTACCTGTTAATGTAGCATTTGAGCTTTGGGCTAAG   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19717)  |  |             | GGTGTGATGTAGAATTGTTTGAAAATAAAACAACATTACCTGTTAATGTAGCATTTGAGCTTTGGGCTAAG   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (19667)   |  |             | GGTGTGATGTAGAATTGTTTGAAAATAAAACAACATTACCTGTTAATGTAGCATTTGAGCTTTGGGCTAAG   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (19681) |  |             | GGTGTGATGTAGAATTGTTTGAAAATAAAACAACATTACCTGTTAATGTAGCATTTGAGCTTTGGGCTAAG   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423... (19645)   |  |             | GGTGTGATGTAGAATTGTTTGAAAATAAAACAACATTACCTGTTAATGTAGCATTTGAGCTTTGGGCTAAG   |       |       |       |       |       |       |       |
|                                                                |  | Section 276 |                                                                           |       |       |       |       |       |       |       |
|                                                                |  | (19801)     | 19801                                                                     | 19810 | 19820 | 19830 | 19840 | 19850 | 19860 | 19872 |
| SARS-CoV-2 Reference Genome NC 045512.2 (19801)                |  |             | CGCAACATTAAACCAGTACCAGAGGTGAAAATACTCAATAATTTGGGTGTGGACATTGCTGCTAATACTGTG  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (19747)  |  |             | CGCAACATTAAACCAGTACCAGAGGTGAAAATACTCAATAATTTGGGTGTGGACATTGCTGCTAATACTGTG  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (19789)  |  |             | CGCAACATTAAACCAGTACCAGAGGTGAAAATACTCAATAATTTGGGTGTGGACATTGCTGCTAATACTGTG  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (19739)   |  |             | CGCAACATTAAACCAGTACCAGAGGTGAAAATACTCAATAATTTGGGTGTGGACATTGCTGCTAATACTGTG  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (19753) |  |             | CGCAACATTAAACCAGTACCAGAGGTGAAAATACTCAATAATTTGGGTGTGGACATTGCTGCTAATACTGTG  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423... (19717)   |  |             | CGCAACATTAAACCAGTACCAGAGGTGAAAATACTCAATAATTTGGGTGTGGACATTGCTGCTAATACTGTG  |       |       |       |       |       |       |       |

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|                                                        |         |                                                                          |                              |       |       |       |       |       | Section 277 |
|                                                        | (19873) | 19873                                                                    | 19880                        | 19890 | 19900 | 19910 | 19920 | 19930 | 19944       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (19873) | ATCTGGGACTACAAAAGAGATGCTCCAGCACATATATCTACTATTGGTGTTTGTTC                 | TATGACTGACATAGCC             |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (19819) | ATCTGGGACTACAAAAGAGATGCTCCAGCACATATATCTACTATTGGTGTTTGTTC                 | TATGACTGACATAGCC             |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (19861) | ATCTGGGACTACAAAAGAGATGCTCCAGCACATATATCTACTATTGGTGTTTGTTC                 | TATGACTGACATAGCC             |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (19811) | ATCTGGGACTACAAAAGAGATGCTCCAGCACATATATCTACTATTGGTGTTTGTTC                 | TATGACTGACATAGCC             |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (19825) | ATCTGGGACTACAAAAGAGATGCTCCAGCACATATATCTACTATTGGTGTTTGTTC                 | TATGACTGACATAGCC             |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (19789) | ATCTGGGACTACAAAAGAGATGCTCCAGCACATATATCTACTATTGGTGTTTGTTC                 | TATGACTGACATAGCC             |       |       |       |       |       |             |
|                                                        |         |                                                                          |                              |       |       |       |       |       | Section 278 |
|                                                        | (19945) | 19945                                                                    | 19950                        | 19960 | 19970 | 19980 | 19990 | 20000 | 20016       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (19945) | AAGAAACCAACTGAAACGATTTGTGCACCACTCACTGTCTTTTTT                            | TGATGGTAGAGTTGATGGTCAAGTAGAC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (19891) | AAGAAACCAACTGAAACGATTTGTGCACCACTCACTGTCTTTTTT                            | TGATGGTAGAGTTGATGGTCAAGTAGAC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (19933) | AAGAAACCAACTGAAACGATTTGTGCACCACTCACTGTCTTTTTT                            | TGATGGTAGAGTTGATGGTCAAGTAGAC |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (19883) | AAGAAACCAACTGAAACGATTTGTGCACCACTCACTGTCTTTTTT                            | TGATGGTAGAGTTGATGGTCAAGTAGAC |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (19897) | AAGAAACCAACTGAAACGATTTGTGCACCACTCACTGTCTTTTTT                            | TGATGGTAGAGTTGATGGTCAAGTAGAC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (19861) | AAGAAACCAACTGAAACGATTTGTGCACCACTCACTGTCTTTTTT                            | TGATGGTAGAGTTGATGGTCAAGTAGAC |       |       |       |       |       |             |
|                                                        |         |                                                                          |                              |       |       |       |       |       | Section 279 |
|                                                        | (20017) | 20017                                                                    | 20030                        | 20040 | 20050 | 20060 | 20070 |       | 20088       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20017) | TTATTTAGAAATGCCCGTAATGGTGTTCTTATTACAGAAGGTAGTGTTAAAGGTTTACAACCATCTGTAGGT |                              |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (19963) | TTATTTAGAAATGCCCGTAATGGTGTTCTTATTACAGAAGGTAGTGTTAAAGGTTTACAACCATCTGTAGGT |                              |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20005) | TTATTTAGAAATGCCCGTAATGGTGTTCTTATTACAGAAGGTAGTGTTAAAGGTTTACAACCATCTGTAGGT |                              |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (19955) | TTATTTAGAAATGCCCGTAATGGTGTTCTTATTACAGAAGGTAGTGTTAAAGGTTTACAACCATCTGTAGGT |                              |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (19969) | TTATTTAGAAATGCCCGTAATGGTGTTCTTATTACAGAAGGTAGTGTTAAAGGTTTACAACCATCTGTAGGT |                              |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (19933) | TTATTTAGAAATGCCCGTAATGGTGTTCTTATTACAGAAGGTAGTGTTAAAGGTTTACAACCATCTGTAGGT |                              |       |       |       |       |       |             |
|                                                        |         |                                                                          |                              |       |       |       |       |       | Section 280 |
|                                                        | (20089) | 20089                                                                    | 20100                        | 20110 | 20120 | 20130 | 20140 | 20150 | 20160       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20089) | CCCAAACAAGCTAGTCTTAATGGAGTCACATTAATTGGAGAAGCCGTAAAAACACAGTTCAATTATTATAAG |                              |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20035) | CCCAAACAAGCTAGTCTTAATGGAGTCACATTAATTGGAGAAGCCGTAAAAACACAGTTCAATTATTATAAG |                              |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20077) | CCCAAACAAGCTAGTCTTAATGGAGTCACATTAATTGGAGAAGCCGTAAAAACACAGTTCAATTATTATAAG |                              |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20027) | CCCAAACAAGCTAGTCTTAATGGAGTCACATTAATTGGAGAAGCCGTAAAAACACAGTTCAATTATTATAAG |                              |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20041) | CCCAAACAAGCTAGTCTTAATGGAGTCACATTAATTGGAGAAGCCGTAAAAACACAGTTCAATTATTATAAG |                              |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (20005) | CCCAAACAAGCTAGTCTTAATGGAGTCACATTAATTGGAGAAGCCGTAAAAACACAGTTCAATTATTATAAG |                              |       |       |       |       |       |             |

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|                                                                |  | Section 281                                                                 |       |       |       |       |       |       |       |
|                                                                |  | 20161                                                                       | 20170 | 20180 | 20190 | 20200 | 20210 | 20220 | 20232 |
| (20161)                                                        |  | AAAGTTGATGGTGTGTGTTGCCAACAATTACCTGAAACTTACTTTACTCAGAGTAGAAATTTACAAGAATTTAAA |       |       |       |       |       |       |       |
| SARS-CoV-2 Reference Genome NC_045512.2 (20161)                |  | AAAGTTGATGGTGTGTGTTGCCAACAATTACCTGAAACTTACTTTACTCAGAGTAGAAATTTACAAGAATTTAAA |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90... (20107)  |  | AAAGTTGATGGTGTGTGTTGCCAACAATTACCTGAAACTTACTTTACTCAGAGTAGAAATTTACAAGAATTTAAA |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (20149)  |  | AAAGTTGATGGTGTGTGTTGCCAACAATTACCTGAAACTTACTTTACTCAGAGTAGAAATTTACAAGAATTTAAA |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ... (20099)   |  | AAAGTTGATGGTGTGTGTTGCCAACAATTACCTGAAACTTACTTTACTCAGAGTAGAAATTTACAAGAATTTAAA |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI_ISL_905522... (20113) |  | AAAGTTGATGGTGTGTGTTGCCAACAATTACCTGAAACTTACTTTACTCAGAGTAGAAATTTACAAGAATTTAAA |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (20077)   |  | AAAGTTGATGGTGTGTGTTGCCAACAATTACCTGAAACTTACTTTACTCAGAGTAGAAATTTACAAGAATTTAAA |       |       |       |       |       |       |       |
|                                                                |  | Section 282                                                                 |       |       |       |       |       |       |       |
|                                                                |  | 20233                                                                       | 20240 | 20250 | 20260 | 20270 | 20280 | 20290 | 20304 |
| (20233)                                                        |  | CCCAGGAGTCAAATGGAAATTGATTTCTTAGAATTAGCTATGGATGAATTCATTGAACGGGTATAAATTAGAA   |       |       |       |       |       |       |       |
| SARS-CoV-2 Reference Genome NC_045512.2 (20233)                |  | CCCAGGAGTCAAATGGAAATTGATTTCTTAGAATTAGCTATGGATGAATTCATTGAACGGGTATAAATTAGAA   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90... (20179)  |  | CCCAGGAGTCAAATGGAAATTGATTTCTTAGAATTAGCTATGGATGAATTCATTGAACGGGTATAAATTAGAA   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (20221)  |  | CCCAGGAGTCAAATGGAAATTGATTTCTTAGAATTAGCTATGGATGAATTCATTGAACGGGTATAAATTAGAA   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ... (20171)   |  | CCCAGGAGTCAAATGGAAATTGATTTCTTAGAATTAGCTATGGATGAATTCATTGAACGGGTATAAATTAGAA   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... (20185) |  | CCCAGGAGTCAAATGGAAATTGATTTCTTAGAATTAGCTATGGATGAATTCATTGAACGGGTATAAATTAGAA   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (20149)   |  | CCCAGGAGTCAAATGGAAATTGATTTCTTAGAATTAGCTATGGATGAATTCATTGAACGGGTATAAATTAGAA   |       |       |       |       |       |       |       |
|                                                                |  | Section 283                                                                 |       |       |       |       |       |       |       |
|                                                                |  | 20305                                                                       | 20310 | 20320 | 20330 | 20340 | 20350 | 20360 | 20376 |
| (20305)                                                        |  | GGCTATGCCTTCGAACATATCGTTTATGGAGATTTTAGTCATAGTCAGTTAGGTGGTTTACATCTACTGATT    |       |       |       |       |       |       |       |
| SARS-CoV-2 Reference Genome NC_045512.2 (20305)                |  | GGCTATGCCTTCGAACATATCGTTTATGGAGATTTTAGTCATAGTCAGTTAGGTGGTTTACATCTACTGATT    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90... (20251)  |  | GGCTATGCCTTCGAACATATCGTTTATGGAGATTTTAGTCATAGTCAGTTAGGTGGTTTACATCTACTGATT    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (20293)  |  | GGCTATGCCTTCGAACATATCGTTTATGGAGATTTTAGTCATAGTCAGTTAGGTGGTTTACATCTACTGATT    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ... (20243)   |  | GGCTATGCCTTCGAACATATCGTTTATGGAGATTTTAGTCATAGTCAGTTAGGTGGTTTACATCTACTGATT    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... (20257) |  | GGCTATGCCTTCGAACATATCGTTTATGGAGATTTTAGTCATAGTCAGTTAGGTGGTTTACATCTACTGATT    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (20221)   |  | GGCTATGCCTTCGAACATATCGTTTATGGAGATTTTAGTCATAGTCAGTTAGGTGGTTTACATCTACTGATT    |       |       |       |       |       |       |       |
|                                                                |  | Section 284                                                                 |       |       |       |       |       |       |       |
|                                                                |  | 20377                                                                       | 20390 | 20400 | 20410 | 20420 | 20430 | 20448 |       |
| (20377)                                                        |  | GGACTAGCTAAACGTTTTAAGGAATCACCTTTTGAATTAGAAGATTTTATTCCTATGGACAGTACAGTTAAA    |       |       |       |       |       |       |       |
| SARS-CoV-2 Reference Genome NC_045512.2 (20377)                |  | GGACTAGCTAAACGTTTTAAGGAATCACCTTTTGAATTAGAAGATTTTATTCCTATGGACAGTACAGTTAAA    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90... (20323)  |  | GGACTAGCTAAACGTTTTAAGGAATCACCTTTTGAATTAGAAGATTTTATTCCTATGGACAGTACAGTTAAA    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (20365)  |  | GGACTAGCTAAACGTTTTAAGGAATCACCTTTTGAATTAGAAGATTTTATTCCTATGGACAGTACAGTTAAA    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ... (20315)   |  | GGACTAGCTAAACGTTTTAAGGAATCACCTTTTGAATTAGAAGATTTTATTCCTATGGACAGTACAGTTAAA    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... (20329) |  | GGACTAGCTAAACGTTTTAAGGAATCACCTTTTGAATTAGAAGATTTTATTCCTATGGACAGTACAGTTAAA    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (20293)   |  | GGACTAGCTAAACGTTTTAAGGAATCACCTTTTGAATTAGAAGATTTTATTCCTATGGACAGTACAGTTAAA    |       |       |       |       |       |       |       |

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|--------------------------------------------------------|---------|-----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|-------|
|                                                        |         |                                                                             |       |       |       |       |       | Section 285 |       |
|                                                        | (20449) | 20449                                                                       | 20460 | 20470 | 20480 | 20490 | 20500 | 20510       | 20520 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20449) | AACTATTTTCATAACAGATGCGCAAACAGGTTTCATCTAAGTGTGTGTGTTCTGTTATTGATTTATTACTTTGAT |       |       |       |       |       |             |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20395) | AACTATTTTCATAACAGATGCGCAAACAGGTTTCATCTAAGTGTGTGTGTTCTGTTATTGATTTATTACTTTGAT |       |       |       |       |       |             |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20437) | AACTATTTTCATAACAGATGCGCAAACAGGTTTCATCTAAGTGTGTGTGTTCTGTTATTGATTTATTACTTTGAT |       |       |       |       |       |             |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20387) | AACTATTTTCATAACAGATGCGCAAACAGGTTTCATCTAAGTGTGTGTGTTCTGTTATTGATTTATTACTTTGAT |       |       |       |       |       |             |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (20401) | AACTATTTTCATAACAGATGCGCAAACAGGTTTCATCTAAGTGTGTGTGTTCTGTTATTGATTTATTACTTTGAT |       |       |       |       |       |             |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (20365) | AACTATTTTCATAACAGATGCGCAAACAGGTTTCATCTAAGTGTGTGTGTTCTGTTATTGATTTATTACTTTGAT |       |       |       |       |       |             |       |
|                                                        |         |                                                                             |       |       |       |       |       | Section 286 |       |
|                                                        | (20521) | 20521                                                                       | 20530 | 20540 | 20550 | 20560 | 20570 | 20580       | 20592 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20521) | GATTTTGTGTGAAATAATAAAATCCCAAGATTTATCTGTAGTTTCTAAGGTTGTCAAAGTGACTATTGACTAT   |       |       |       |       |       |             |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20467) | GATTTTGTGTGAAATAATAAAATCCCAAGATTTATCTGTAGTTTCTAAGGTTGTCAAAGTGACTATTGACTAT   |       |       |       |       |       |             |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20509) | GATTTTGTGTGAAATAATAAAATCCCAAGATTTATCTGTAGTTTCTAAGGTTGTCAAAGTGACTATTGACTAT   |       |       |       |       |       |             |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20459) | GATTTTGTGTGAAATAATAAAATCCCAAGATTTATCTGTAGTTTCTAAGGTTGTCAAAGTGACTATTGACTAT   |       |       |       |       |       |             |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20473) | GATTTTGTGTGAAATAATAAAATCCCAAGATTTATCTGTAGTTTCTAAGGTTGTCAAAGTGACTATTGACTAT   |       |       |       |       |       |             |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (20437) | GATTTTGTGTGAAATAATAAAATCCCAAGATTTATCTGTAGTTTCTAAGGTTGTCAAAGTGACTATTGACTAT   |       |       |       |       |       |             |       |
|                                                        |         |                                                                             |       |       |       |       |       | Section 287 |       |
|                                                        | (20593) | 20593                                                                       | 20600 | 20610 | 20620 | 20630 | 20640 | 20650       | 20664 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20593) | ACAGAAATTTTCATTTATGCTTTGGTGTAAGATGGCCATGTAGAAACATTTTACCCAAAATTACAATCTAGT    |       |       |       |       |       |             |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20539) | ACAGAAATTTTCATTTATGCTTTGGTGTAAGATGGCCATGTAGAAACATTTTACCCAAAATTACAATCTAGT    |       |       |       |       |       |             |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20581) | ACAGAAATTTTCATTTATGCTTTGGTGTAAGATGGCCATGTAGAAACATTTTACCCAAAATTACAATCTAGT    |       |       |       |       |       |             |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20531) | ACAGAAATTTTCATTTATGCTTTGGTGTAAGATGGCCATGTAGAAACATTTTACCCAAAATTACAATCTAGT    |       |       |       |       |       |             |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20545) | ACAGAAATTTTCATTTATGCTTTGGTGTAAGATGGCCATGTAGAAACATTTTACCCAAAATTACAATCTAGT    |       |       |       |       |       |             |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (20509) | ACAGAAATTTTCATTTATGCTTTGGTGTAAGATGGCCATGTAGAAACATTTTACCCAAAATTACAATCTAGT    |       |       |       |       |       |             |       |
|                                                        |         |                                                                             |       |       |       |       |       | Section 288 |       |
|                                                        | (20665) | 20665                                                                       | 20670 | 20680 | 20690 | 20700 | 20710 | 20720       | 20736 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20665) | CAAGCGTGGCAACCGGGTGTGTGCTATGCCTAATCTTTACAAAATGCAAAGAATGCTATTAGAAAAGTGTGAC   |       |       |       |       |       |             |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20611) | CAAGCGTGGCAACCGGGTGTGTGCTATGCCTAATCTTTACAAAATGCAAAGAATGCTATTAGAAAAGTGTGAC   |       |       |       |       |       |             |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20653) | CAAGCGTGGCAACCGGGTGTGTGCTATGCCTAATCTTTACAAAATGCAAAGAATGCTATTAGAAAAGTGTGAC   |       |       |       |       |       |             |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20603) | CAAGCGTGGCAACCGGGTGTGTGCTATGCCTAATCTTTACAAAATGCAAAGAATGCTATTAGAAAAGTGTGAC   |       |       |       |       |       |             |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20617) | CAAGCGTGGCAACCGGGTGTGTGCTATGCCTAATCTTTACAAAATGCAAAGAATGCTATTAGAAAAGTGTGAC   |       |       |       |       |       |             |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (20581) | CAAGCGTGGCAACCGGGTGTGTGCTATGCCTAATCTTTACAAAATGCAAAGAATGCTATTAGAAAAGTGTGAC   |       |       |       |       |       |             |       |

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|                                                        |         | Section 289                                                               |       |       |       |       |       |             |
|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | 20737                                                                     | 20750 | 20760 | 20770 | 20780 | 20790 | 20808       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20737) | CTTCAAAATTATGGTGATAGTGCAACATTACCTAAAGGCATAATGATGAATGTCGCAAAATATACTCAACTG  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20683) | CTTCAAAATTATGGTGATAGTGCAACATTACCTAAAGGCATAATGATGAATGTCGCAAAATATACTCAACTG  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20725) | CTTCAAAATTATGGTGATAGTGCAACATTACCTAAAGGCATAATGATGAATGTCGCAAAATATACTCAACTG  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20675) | CTTCAAAATTATGGTGATAGTGCAACATTACCTAAAGGCATAATGATGAATGTCGCAAAATATACTCAACTG  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20689) | CTTCAAAATTATGGTGATAGTGCAACATTACCTAAAGGCATAATGATGAATGTCGCAAAATATACTCAACTG  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (20653) | CTTCAAAATTATGGTGATAGTGCAACATTACCTAAAGGCATAATGATGAATGTCGCAAAATATACTCAACTG  |       |       |       |       |       |             |
|                                                        |         | Section 290                                                               |       |       |       |       |       |             |
|                                                        |         | 20809                                                                     | 20820 | 20830 | 20840 | 20850 | 20860 | 20870 20880 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20809) | TGTCAATATTTAAACACATTAAACATTAGCTGTACCCTATAATATGAGAGTTATACATTTTGGTGCTGGTTCT |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20755) | TGTCAATATTTAAACACATTAAACATTAGCTGTACCCTATAATATGAGAGTTATACATTTTGGTGCTGGTTCT |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20797) | TGTCAATATTTAAACACATTAAACATTAGCTGTACCCTATAATATGAGAGTTATACATTTTGGTGCTGGTTCT |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20747) | TGTCAATATTTAAACACATTAAACATTAGCTGTACCCTATAATATGAGAGTTATACATTTTGGTGCTGGTTCT |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20761) | TGTCAATATTTAAACACATTAAACATTAGCTGTACCCTATAATATGAGAGTTATACATTTTGGTGCTGGTTCT |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (20725) | TGTCAATATTTAAACACATTAAACATTAGCTGTACCCTATAATATGAGAGTTATACATTTTGGTGCTGGTTCT |       |       |       |       |       |             |
|                                                        |         | Section 291                                                               |       |       |       |       |       |             |
|                                                        |         | 20881                                                                     | 20890 | 20900 | 20910 | 20920 | 20930 | 20940 20952 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20881) | GATAAAGGAGTTGCACCAGGTACAGCTGTTTTAAGACAGTGGTTGCCTACGGGTACGCTGCTTGTTCGATTCA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20827) | GATAAAGGAGTTGCACCAGGTACAGCTGTTTTAAGACAGTGGTTGCCTACGGGTACGCTGCTTGTTCGATTCA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20869) | GATAAAGGAGTTGCACCAGGTACAGCTGTTTTAAGACAGTGGTTGCCTACGGGTACGCTGCTTGTTCGATTCA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20819) | GATAAAGGAGTTGCACCAGGTACAGCTGTTTTAAGACAGTGGTTGCCTACGGGTACGCTGCTTGTTCGATTCA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20833) | GATAAAGGAGTTGCACCAGGTACAGCTGTTTTAAGACAGTGGTTGCCTACGGGTACGCTGCTTGTTCGATTCA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (20797) | GATAAAGGAGTTGCACCAGGTACAGCTGTTTTAAGACAGTGGTTGCCTACGGGTACGCTGCTTGTTCGATTCA |       |       |       |       |       |             |
|                                                        |         | Section 292                                                               |       |       |       |       |       |             |
|                                                        |         | 20953                                                                     | 20960 | 20970 | 20980 | 20990 | 21000 | 21010 21024 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (20953) | GATCTTAATGACTTTGTCTCTGATGCAGATTCAACTTTGATTGGTGATTGTGCAACTGTACATACAGCTAAT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (20899) | GATCTTAATGACTTTGTCTCTGATGCAGATTCAACTTTGATTGGTGATTGTGCAACTGTACATACAGCTAAT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (20941) | GATCTTAATGACTTTGTCTCTGATGCAGATTCAACTTTGATTGGTGATTGTGCAACTGTACATACAGCTAAT  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (20891) | GATCTTAATGACTTTGTCTCTGATGCAGATTCAACTTTGATTGGTGATTGTGCAACTGTACATACAGCTAAT  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (20905) | GATCTTAATGACTTTGTCTCTGATGCAGATTCAACTTTGATTGGTGATTGTGCAACTGTACATACAGCTAAT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (20869) | GATCTTAATGACTTTGTCTCTGATGCAGATTCAACTTTGATTGGTGATTGTGCAACTGTACATACAGCTAAT  |       |       |       |       |       |             |

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|--------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |  | Section 293 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (21025)     | 21025                                                                     | 21030 | 21040 | 21050 | 21060 | 21070 | 21080 | 21096 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (21025)     | AAATGGGATCTCATTATTAGTGATATGTACGACCCTAAGACTAAAAATGTTACAAAAGAAAATGACTCTAA   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (20971)     | AAATGGGATCTCATTATTAGTGATATGTACGACCCTAAGACTAAAAATGTTACAAAAGAAAATGACTCTAA   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (21013)     | AAATGGGATCTCATTATTAGTGATATGTACGACCCTAAGACTAAAAATGTTACAAAAGAAAATGACTCTAA   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (20963)     | AAATGGGATCTCATTATTAGTGATATGTACGACCCTAAGACTAAAAATGTTACAAAAGAAAATGACTCTAA   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... |  | (20977)     | AAATGGGATCTCATTATTAGTGATATGTACGACCCTAAGACTAAAAATGTTACAAAAGAAAATGACTCTAA   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (20941)     | AAATGGGATCTCATTATTAGTGATATGTACGACCCTAAGACTAAAAATGTTACAAAAGAAAATGACTCTAA   |       |       |       |       |       |       |       |
|                                                        |  | Section 294 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (21097)     | 21097                                                                     | 21110 | 21120 | 21130 | 21140 | 21150 | 21168 |       |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (21097)     | GAGGGTTTTTTTCACTTACATTTGTGGGTTTATACAACAAAAGCTAGCTCTTGGAGGTTCCGTGGCTATAAAG |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (21043)     | GAGGGTTTTTTTCACTTACATTTGTGGGTTTATACAACAAAAGCTAGCTCTTGGAGGTTCCGTGGCTATAAAG |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (21085)     | GAGGGTTTTTTTCACTTACATTTGTGGGTTTATACAACAAAAGCTAGCTCTTGGAGGTTCCGTGGCTATAAAG |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (21035)     | GAGGGTTTTTTTCACTTACATTTGTGGGTTTATACAACAAAAGCTAGCTCTTGGAGGTTCCGTGGCTATAAAG |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (21049)     | GAGGGTTTTTTTCACTTACATTTGTGGGTTTATACAACAAAAGCTAGCTCTTGGAGGTTCCGTGGCTATAAAG |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (21013)     | GAGGGTTTTTTTCACTTACATTTGTGGGTTTATACAACAAAAGCTAGCTCTTGGAGGTTCCGTGGCTATAAAG |       |       |       |       |       |       |       |
|                                                        |  | Section 295 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (21169)     | 21169                                                                     | 21180 | 21190 | 21200 | 21210 | 21220 | 21230 | 21240 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (21169)     | ATAACAGAACATTCTTGGAATGCTGATCTTTATAAGCTCATGGGACACTTCGCATGGTGGACAGCCTTTGTT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (21115)     | ATAACAGAACATTCTTGGAATGCTGATCTTTATAAGCTCATGGGACACTTCGCATGGTGGACAGCCTTTGTT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (21157)     | ATAACAGAACATTCTTGGAATGCTGATCTTTATAAGCTCATGGGACACTTCGCATGGTGGACAGCCTTTGTT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (21107)     | ATAACAGAACATTCTTGGAATGCTGATCTTTATAAGCTCATGGGACACTTCGCATGGTGGACAGCCTTTGTT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (21121)     | ATAACAGAACATTCTTGGAATGCTGATCTTTATAAGCTCATGGGACACTTCGCATGGTGGACAGCCTTTGTT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (21085)     | ATAACAGAACATTCTTGGAATGCTGATCTTTATAAGCTCATGGGACACTTCGCATGGTGGACAGCCTTTGTT  |       |       |       |       |       |       |       |
|                                                        |  | Section 296 |                                                                           |       |       |       |       |       |       |       |
|                                                        |  | (21241)     | 21241                                                                     | 21250 | 21260 | 21270 | 21280 | 21290 | 21300 | 21312 |
| SARS-CoV-2 Reference Genome NC 045512.2                |  | (21241)     | ACTAATGTGAATGCGTCATCATCTGAAGCATTTTAAATTGGATGTAATTATCTTGGCAAACACGCGAACAA   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  |  | (21187)     | ACTAATGTGAATGCGTCATCATCTGAAGCATTTTAAATTGGATGTAATTATCTTGGCAAACACGCGAACAA   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (21229)     | ACTAATGTGAATGCGTCATCATCTGAAGCATTTTAAATTGGATGTAATTATCTTGGCAAACACGCGAACAA   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   |  | (21179)     | ACTAATGTGAATGCGTCATCATCTGAAGCATTTTAAATTGGATGTAATTATCTTGGCAAACACGCGAACAA   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... |  | (21193)     | ACTAATGTGAATGCGTCATCATCTGAAGCATTTTAAATTGGATGTAATTATCTTGGCAAACACGCGAACAA   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (21157)     | ACTAATGTGAATGCGTCATCATCTGAAGCATTTTAAATTGGATGTAATTATCTTGGCAAACACGCGAACAA   |       |       |       |       |       |       |       |

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|----------------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                                |         | Section 297                                                               |       |       |       |       |       |       |       |
|                                                                | (21313) | 21313                                                                     | 21320 | 21330 | 21340 | 21350 | 21360 | 21370 | 21384 |
| SARS-CoV-2 Reference Genome NC 045512.2 (21313)                |         | ATAGATGGTTATGTCATGCATGCAAATTACATATTTTGGAGGAATACAAATCCAATTCAGTTGTCTTCCCTAT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21259)  |         | ATAGATGGTTATGTCATGCATGCAAATTACATATTTTGGAGGAATACAAATCCAATTCAGTTGTCTTCCCTAT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21301)  |         | ATAGATGGTTATGTCATGCATGCAAATTACATATTTTGGAGGAATACAAATCCAATTCAGTTGTCTTCCCTAT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21251)   |         | ATAGATGGTTATGTCATGCATGCAAATTACATATTTTGGAGGAATACAAATCCAATTCAGTTGTCTTCCCTAT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (21265) |         | ATAGATGGTTATGTCATGCATGCAAATTACATATTTTGGAGGAATACAAATCCAATTCAGTTGTCTTCCCTAT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (21229)   |         | ATAGATGGTTATGTCATGCATGCAAATTACATATTTTGGAGGAATACAAATCCAATTCAGTTGTCTTCCCTAT |       |       |       |       |       |       |       |
|                                                                |         | Section 298                                                               |       |       |       |       |       |       |       |
|                                                                | (21385) | 21385                                                                     | 21390 | 21400 | 21410 | 21420 | 21430 | 21440 | 21456 |
| SARS-CoV-2 Reference Genome NC 045512.2 (21385)                |         | TCTTTATTTGACATGAGTAAATTTCCCTTAAATTAAGGGGTACTGCTGTTATGTCTTTAAAGAAGGTCAA    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21331)  |         | TCTTTATTTGACATGAGTAAATTTCCCTTAAATTAAGGGGTACTGCTGTTATGTCTTTAAAGAAGGTCAA    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21373)  |         | TCTTTATTTGACATGAGTAAATTTCCCTTAAATTAAGGGGTACTGCTGTTATGTCTTTAAAGAAGGTCAA    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21323)   |         | TCTTTATTTGACATGAGTAAATTTCCCTTAAATTAAGGGGTACTGCTGTTATGTCTTTAAAGAAGGTCAA    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (21337) |         | TCTTTATTTGACATGAGTAAATTTCCCTTAAATTAAGGGGTACTGCTGTTATGTCTTTAAAGAAGGTCAA    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (21301)   |         | TCTTTATTTGACATGAGTAAATTTCCCTTAAATTAAGGGGTACTGCTGTTATGTCTTTAAAGAAGGTCAA    |       |       |       |       |       |       |       |
|                                                                |         | Section 299                                                               |       |       |       |       |       |       |       |
|                                                                | (21457) | 21457                                                                     | 21470 | 21480 | 21490 | 21500 | 21510 | 21528 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (21457)                |         | ATCAATGATATGATTTTATCTCTTCTTAGTAAAGGTAGACTTATAATTAGAGAAAACAACAGAGTTGTTATT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21403)  |         | ATCAATGATATGATTTTATCTCTTCTTAGTAAAGGTAGACTTATAATTAGAGAAAACAACAGAGTTGTTATT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21445)  |         | ATCAATGATATGATTTTATCTCTTCTTAGTAAAGGTAGACTTATAATTAGAGAAAACAACAGAGTTGTTATT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21395)   |         | ATCAATGATATGATTTTATCTCTTCTTAGTAAAGGTAGACTTATAATTAGAGAAAACAACAGAGTTGTTATT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (21409) |         | ATCAATGATATGATTTTATCTCTTCTTAGTAAAGGTAGACTTATAATTAGAGAAAACAACAGAGTTGTTATT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (21373)   |         | ATCAATGATATGATTTTATCTCTTCTTAGTAAAGGTAGACTTATAATTAGAGAAAACAACAGAGTTGTTATT  |       |       |       |       |       |       |       |
|                                                                |         | Section 300                                                               |       |       |       |       |       |       |       |
|                                                                | (21529) | 21529                                                                     | 21540 | 21550 | 21560 | 21570 | 21580 | 21590 | 21600 |
| SARS-CoV-2 Reference Genome NC 045512.2 (21529)                |         | TCTAGTGATGTTCTTGTTAACTAAACGAACAATGTTTGTCTTTCTTGTTTATTGCCACTAGTCTCTAG      |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21475)  |         | TCTAGTGATGTTCTTGTTAACTAAACGAACAATGTTTGTCTTTCTTGTTTATTGCCACTAGTCTCTAG      |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21517)  |         | TCTAGTGATGTTCTTGTTAACTAAACGAACAATGTTTGTCTTTCTTGTTTATTGCCACTAGTCTCTAG      |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21467)   |         | TCTAGTGATGTTCTTGTTAACTAAACGAACAATGTTTGTCTTTCTTGTTTATTGCCACTAGTCTCTAG      |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (21481) |         | TCTAGTGATGTTCTTGTTAACTAAACGAACAATGTTTGTCTTTCTTGTTTATTGCCACTAGTCTCTAG      |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (21445)   |         | TCTAGTGATGTTCTTGTTAACTAAACGAACAATGTTTGTCTTTCTTGTTTATTGCCACTAGTCTCTAG      |       |       |       |       |       |       |       |

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|                                                                |  | Section 301 |                                                                           |                                           |                                               |       |       |       |             |
|----------------------------------------------------------------|--|-------------|---------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------|-------|-------|-------|-------------|
|                                                                |  | (21601)     | 21601                                                                     | 21610                                     | 21620                                         | 21630 | 21640 | 21650 | 21660 21672 |
| SARS-CoV-2 Reference Genome NC 045512.2 (21601)                |  |             | TCAGTGTGTTAATCTTACAACCAGAACTCAATTACCCCTGCATACACTAATTCTTTACACAGTGGTGTTTA   |                                           |                                               |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21547)  |  |             | TCAGTGTGTTAATCTTACAACCAGAACTCAATTACCCCTGCATACACTAATTCTTTACACAGTGGTGTTTA   |                                           |                                               |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21589)  |  |             | TCAGTGTGTTAATCTTACAACCAGAACTCAATTACCCCTGCATACACTAATTCTTTACACAGTGGTGTTTA   |                                           |                                               |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21539)   |  |             | TCAGTGTGTTAATCTTACAACCAGAACTCAATTACCCCTGCATACACTAATTCTTTACACAGTGGTGTTTA   |                                           |                                               |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (21553) |  |             | TCAGTGTGTTAATCTTACAACCAGAACTCAATTACCCCTGCATACACTAATTCTTTACACAGTGGTGTTTA   |                                           |                                               |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (21517)   |  |             | TCAGTGTGTTAATCTTACAACCAGAACTCAATTACCCCTGCATACACTAATTCTTTACACAGTGGTGTTTA   |                                           |                                               |       |       |       |             |
|                                                                |  | Section 302 |                                                                           |                                           |                                               |       |       |       |             |
|                                                                |  | (21673)     | 21673                                                                     | 21680                                     | 21690                                         | 21700 | 21710 | 21720 | 21730 21744 |
| SARS-CoV-2 Reference Genome NC 045512.2 (21673)                |  |             | TTACCCTGACAAAGTTTTTCAGATCCTCAGTTTTACATTCAACTCAGGACTTGTTCTTACCTTTCTTTTCCAA |                                           |                                               |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21619)  |  |             | TTACCCTGACAAAGTTTTTCAGATCCTCAGTTTTACATTCAACTCAGGACTTGTTCTTACCTTTCTTTTCCAA |                                           |                                               |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21661)  |  |             | TTACCCTGACAAAGTTTTTCAGATCCTCAGTTTTACATTCAACTCAGGACTTGTTCTTACCTTTCTTTTCCAA |                                           |                                               |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21611)   |  |             | TTACCCTGACAAAGTTTTTCAGATCCTCAGTTTTACATTCAACTCAGGACTTGTTCTTACCTTTCTTTTCCAA |                                           |                                               |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (21625) |  |             | TTACCCTGACAAAGTTTTTCAGATCCTCAGTTTTACATTCAACTCAGGACTTGTTCTTACCTTTCTTTTCCAA |                                           |                                               |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (21589)   |  |             | TTACCCTGACAAAGTTTTTCAGATCCTCAGTTTTACATTCAACTCAGGACTTGTTCTTACCTTTCTTTTCCAA |                                           |                                               |       |       |       |             |
|                                                                |  | Section 303 |                                                                           |                                           |                                               |       |       |       |             |
|                                                                |  | (21745)     | 21745                                                                     | 21750                                     | 21760                                         | 21770 | 21780 | 21790 | 21800 21816 |
| SARS-CoV-2 Reference Genome NC 045512.2 (21745)                |  |             | TGTTACTTGGTTCCATGCTA                                                      | ACATG                                     | CTCTGGGACCAATGGTACTAAGAGGTTTGATAACCCTGTCCTACC |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21691)  |  |             | TGTTACTTGGTTCCATGTTA                                                      | NNNNNN                                    | CTCTGGGACCAATGGTACTAAGAGGTTTGATAACCCTGTCCTACC |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21733)  |  |             | TGTTACTTGGTTCCATGTTA                                                      | ACATG                                     | CTCTGGGACCAATGGTACTAAGAGGTTTGATAACCCTGTCCTACC |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21683)   |  |             | TGTTACTTGGTTCCATGTTA                                                      | -----                                     | CTCTGGGACCAATGGTACTAAGAGGTTTGATAACCCTGTCCTACC |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (21697) |  |             | TGTTACTTGGTTCCATGTTA                                                      | -----                                     | CTCTGGGACCAATGGTACTAAGAGGTTTGATAACCCTGTCCTACC |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (21661)   |  |             | TGTTACTTGGTTCCATGTTA                                                      | -----                                     | CTCTGGGACCAATGGTACTAAGAGGTTTGATAACCCTGTCCTACC |       |       |       |             |
|                                                                |  | Section 304 |                                                                           |                                           |                                               |       |       |       |             |
|                                                                |  | (21817)     | 21817                                                                     | 21830                                     | 21840                                         | 21850 | 21860 | 21870 | 21888       |
| SARS-CoV-2 Reference Genome NC 045512.2 (21817)                |  |             | ATTTAATGATGGTGTGTTATTTTGCTTCCAT                                           | TGAGAAGTCTAACATAATAAGAGGCTGGATTTTGGTACTAC |                                               |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (21763)  |  |             | ATTTAATGATGGTGTGTTATTTTGCTTCCAT                                           | TGAGAAGTCTAACATAATAAGAGGCTGGATTTTGGTACTAC |                                               |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (21805)  |  |             | ATTTAATGATGGTGTGTTATTTTGCTTCCAT                                           | TGAGAAGTCTAACATAATAAGAGGCTGGATTTTGGTACTAC |                                               |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (21749)   |  |             | ATTTAATGATGGTGTGTTATTTTGCTTCCAT                                           | TGAGAAGTCTAACATAATAAGAGGCTGGATTTTGGTACTAC |                                               |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (21763) |  |             | ATTTAATGATGGTGTGTTATTTTGCTTCCAT                                           | TGAGAAGTCTAACATAATAAGAGGCTGGATTTTGGTACTAC |                                               |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (21727)   |  |             | ATTTAATGATGGTGTGTTATTTTGCTTCCAT                                           | TGAGAAGTCTAACATAATAAGAGGCTGGATTTTGGTACTAC |                                               |       |       |       |             |

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|                                                                | (22177) | 22177                                                                       | 22190 | 22200 | 22210 | 22220 | 22230 | Section 309<br>22248            |
| SARS-CoV-2 Reference Genome NC_045512.2                        | (22177) | TAAGCACACGCCTATTAATTATA--GTGCGT-----GATCTCCCTCAGGGTTTTTCGGCTTTAGAACCATTGGTG |       |       |       |       |       |                                 |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...          | (22123) | TAAGCACACGCCTATTAANNNTA-GTGCGT-----GATCTCCCTCAGGGTTTTTCGGCTTTAGAACCATTGGTG  |       |       |       |       |       |                                 |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...          | (22165) | TAAGCACACGCCTATTAATTATA-GTGCGT-----GATCTCCCTCAGGGTTTTTCGGCTTTAGAACCATTGGTG  |       |       |       |       |       |                                 |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...           | (22100) | TAAGCACACGCCTATTAGTTCGTGAAGCCAGAAAGATCTCCCTCAGGGTTTTTCGGCTTTAGAACCATTGGTG   |       |       |       |       |       |                                 |
| hCoV-19/Germany/HF-RKI-I-438397/2022 FPI ISI 905522... (22114) |         | NNNNNNNNNNNNNNNNNNNNNNN-NNNNNN----NNNNNNNNNNNNNNNNNNNNNNNNNAGAACCATTGGTG    |       |       |       |       |       |                                 |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...           | (22078) | TAAGCACACGCCTATTATAGTTCGTGAAGCCAGAAAGATCTCCCTCAGGGTTTTTCGGCTTTAGAACCATTGGTG |       |       |       |       |       |                                 |
|                                                                |         |                                                                             |       |       |       |       |       |                                 |
|                                                                | (22249) | 22249                                                                       | 22260 | 22270 | 22280 | 22290 | 22300 | Section 310<br>22310      22320 |
| SARS-CoV-2 Reference Genome NC_045512.2                        | (22243) | AGATTTCGCCAATAGGTATTAACAATCACTAGGTTTCAAACCTTTACTTGCTTTACATAGAAGTTATTTGACTCC |       |       |       |       |       |                                 |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_EPI_ISL_90...          | (22189) | AGATTTCGCCAATAGGTATTAACAATCACTAGGTTTCAAACCTTTACTTGCTTTACATAGAAGTTATTTGACTCC |       |       |       |       |       |                                 |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...          | (22231) | AGATTTCGCCAATAGGTATTAACAATCACTAGGTTTCAAACCTTTACTTGCTTTACATAGAAGTTATTTGACTCC |       |       |       |       |       |                                 |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...           | (22172) | AGATTTCGCCAATAGGTATTAACAATCACTAGGTTTCAAACCTTTACTTGCTTTACATAGAAGTTATTTGACTCC |       |       |       |       |       |                                 |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522...         | (22180) | AGATTTCGCCNNNNNNNNNNNNNNNNNNNNNGGTTTCAAACCTTTACTTGCTTTACATAGAAGTTATTTGACTCC |       |       |       |       |       |                                 |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...           | (22150) | AGATTTCGCCAATAGGTATTAACAATCACTAGGTTTCAAACCTTTACTTGCTTTACATAGAAGTTATTTGACTCC |       |       |       |       |       |                                 |
|                                                                |         |                                                                             |       |       |       |       |       |                                 |
|                                                                | (22321) | 22321                                                                       | 22330 | 22340 | 22350 | 22360 | 22370 | Section 311<br>22380      22392 |
| SARS-CoV-2 Reference Genome NC_045512.2                        | (22315) | TGGTGATTCTTCTTCAGGTTGGACAGCTGGTGCTGCAGCTTATTATGTGGGTTATCTTCAACCTAGGACTTT    |       |       |       |       |       |                                 |
| hCoV-19/Botswana/R69B55 BHP_916539/2021_FPI_ISI_90...          | (22261) | TGGTGATTCTTCTTCAGGTTGGACAGCTGGTGCTGCAGCTTATTATGTGGGTTATCTTCAACCTAGGACTTT    |       |       |       |       |       |                                 |
| hCoV-19/India/HR-MDIU-IGIB1210605800489930/2022 FPI...         | (22303) | TGGTGATTCTTCTTCAGGTTGGACAGCTGGTGCTGCAGCTTATTATGTGGGTTATCTTCAACCTAGGACTTT    |       |       |       |       |       |                                 |
| hCoV-19/Enland/PIMYM-332B917/2022 FPI ISI 9062229 ...          | (22244) | TGGTGATTCTTCTTCAGGTTGGACAGCTGGTGCTGCAGCTTATTATGTGGGTTATCTTCAACCTAGGACTTT    |       |       |       |       |       |                                 |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522...         | (22252) | TGGTGATTCTTCTTCAGGTTGGACAGCTGGTGCTGCAGCTTATTATGTGGGTTATCTTCAACCTANNNNTTT    |       |       |       |       |       |                                 |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...           | (22222) | TGGTGATTCTTCTTCAGGTTGGACAGCTGGTGCTGCAGCTTATTATGTGGGTTATCTTCAACCTAGGACTTT    |       |       |       |       |       |                                 |
|                                                                |         |                                                                             |       |       |       |       |       |                                 |
|                                                                | (22393) | 22393                                                                       | 22400 | 22410 | 22420 | 22430 | 22440 | Section 312<br>22450      22464 |
| SARS-CoV-2 Reference Genome NC_045512.2                        | (22387) | TCTATTAAAAATATAATGAAAATGGAACCATACAGATGCTGTAGACTGTGCACTTGACCCTCTCTCAGAAAC    |       |       |       |       |       |                                 |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI ISL 90...          | (22333) | TCTATTAAAAATATAATGAAAATGGAACCATACAGATGCTGTAGACTGTGCACTTGACCCTCTCTCAGAAAC    |       |       |       |       |       |                                 |
| hCoV-19/India/HR-MDIU-IGIB1210605800489930/2022 EPI...         | (22375) | TCTATTAAAAATATAATGAAAATGGAACCATACAGATGCTGTAGACTGTGCACTTGACCCTCTCTCAGAAAC    |       |       |       |       |       |                                 |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...           | (22316) | TCTATTAAAAATATAATGAAAATGGAACCATACAGATGCTGTAGACTGTGCACTTGACCCTCTCTCAGAAAC    |       |       |       |       |       |                                 |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522...         | (22324) | TCTATTAAAAATATAATGAAAATGGAACCATACAGATGCTGTAGACTGTGCACTTGACCCTCTCTCAGAAAC    |       |       |       |       |       |                                 |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...           | (22294) | TCTATTAAAAATATAATGAAAATGGAACCATACAGATGCTGTAGACTGTGCACTTGACCCTCTCTCAGAAAC    |       |       |       |       |       |                                 |

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|                                                        |         | Section 325 |                                                                            |       |       |       |       |       |             |
|--------------------------------------------------------|---------|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | (23329)     | 23329                                                                      | 23340 | 23350 | 23360 | 23370 | 23380 | 23390 23400 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23323) |             | TACACCATGTTCTTTTGGTGGTGTCTAGTGTTATAACACCAGGAACAAATACTTCTAACCAGGTTGCTGTTCT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23269) |             | TACACCATGTTCTTTTGGTGGTGTCTAGTGTTATAACACCAGGAACAAATACTTCTAACCAGGTTGCTGTTCT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23311) |             | TACACCATGTTCTTTTGGTGGTGTCTAGTGTTATAACACCAGGAACAAATACTTCTAACCAGGTTGCTGTTCT  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23252) |             | TACACCATGTTCTTTTGGTGGTGTCTAGTGTTATAACACCAGGAACAAATACTTCTAACCAGGTTGCTGTTCT  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23260) |             | TACACCATGTTCTTTTGGTGGTGTCTAGTGTTATAACACCAGGAACAAATACTTCTAACCAGGTTGCTGTTCT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23230) |             | TACACCATGTTCTTTTGGTGGTGTCTAGTGTTATAACACCAGGAACAAATACTTCTAACCAGGTTGCTGTTCT  |       |       |       |       |       |             |
|                                                        |         | Section 326 |                                                                            |       |       |       |       |       |             |
|                                                        |         | (23401)     | 23401                                                                      | 23410 | 23420 | 23430 | 23440 | 23450 | 23460 23472 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23395) |             | TTATCAGGATGTTAACTGCACAGAAAGTCCCTGTTGCTATTTCATGCAGATCAACTTACTCCTACTTGGCGTGT |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23341) |             | TTATCAGGATGTTAACTGCACAGAAAGTCCCTGTTGCTATTTCATGCAGATCAACTTACTCCTACTTGGCGTGT |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23383) |             | TTATCAGGATGTTAACTGCACAGAAAGTCCCTGTTGCTATTTCATGCAGATCAACTTACTCCTACTTGGCGTGT |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23324) |             | TTATCAGGATGTTAACTGCACAGAAAGTCCCTGTTGCTATTTCATGCAGATCAACTTACTCCTACTTGGCGTGT |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23332) |             | TTATCAGGATGTTAACTGCACAGAAAGTCCCTGTTGCTATTTCATGCAGATCAACTTACTCCTACTTGGCGTGT |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23302) |             | TTATCAGGATGTTAACTGCACAGAAAGTCCCTGTTGCTATTTCATGCAGATCAACTTACTCCTACTTGGCGTGT |       |       |       |       |       |             |
|                                                        |         | Section 327 |                                                                            |       |       |       |       |       |             |
|                                                        |         | (23473)     | 23473                                                                      | 23480 | 23490 | 23500 | 23510 | 23520 | 23530 23544 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23467) |             | TTATTCTACAGGTTCTAATGTTTTTCAAACACGTGCAGGCTGTTTAAATAGGGGCTGAACATGTCAACAACCTC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23413) |             | TTATTCTACAGGTTCTAATGTTTTTCAAACACGTGCAGGCTGTTTAAATAGGGGCTGAACATGTCAACAACCTC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23455) |             | TTATTCTACAGGTTCTAATGTTTTTCAAACACGTGCAGGCTGTTTAAATAGGGGCTGAACATGTCAACAACCTC |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23396) |             | TTATTCTACAGGTTCTAATGTTTTTCAAACACGTGCAGGCTGTTTAAATAGGGGCTGAACATGTCAACAACCTC |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23404) |             | TTATTCTACAGGTTCTAATGTTTTTCAAACACGTGCAGGCTGTTTAAATAGGGGCTGAACATGTCAACAACCTC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23374) |             | TTATTCTACAGGTTCTAATGTTTTTCAAACACGTGCAGGCTGTTTAAATAGGGGCTGAACATGTCAACAACCTC |       |       |       |       |       |             |
|                                                        |         | Section 328 |                                                                            |       |       |       |       |       |             |
|                                                        |         | (23545)     | 23545                                                                      | 23550 | 23560 | 23570 | 23580 | 23590 | 23600 23616 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23539) |             | ATATGAGTGTGACATACCCATTGGTGCAGGTATATGCGCTAGTTATCAGACTCAGACTAAGTCTCTTCGGCG   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23485) |             | ATATGAGTGTGACATACCCATTGGTGCAGGTATATGCGCTAGTTATCAGACTCAGACTAAGTCTCTTCGGCG   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23527) |             | ATATGAGTGTGACATACCCATTGGTGCAGGTATATGCGCTAGTTATCAGACTCAGACTAAGTCTCTTCGGCG   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23468) |             | ATATGAGTGTGACATACCCATTGGTGCAGGTATATGCGCTAGTTATCAGACTCAGACTAAGTCTCTTCGGCG   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23476) |             | ATATGAGTGTGACATACCCATTGGTGCAGGTATATGCGCTAGTTATCAGACTCAGACTAAGTCTCTTCGGCG   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23446) |             | ATATGAGTGTGACATACCCATTGGTGCAGGTATATGCGCTAGTTATCAGACTCAGACTAAGTCTCTTCGGCG   |       |       |       |       |       |             |

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|                                                        |         | Section 329                                                              |       |       |       |       |       |             |
|--------------------------------------------------------|---------|--------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | 23617                                                                    | 23630 | 23640 | 23650 | 23660 | 23670 | 23688       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23617) | GGCACGTAGTGTAGCTAGTCAATCCATCATTGCCTACACTATGTCACTTGGTGCAGAAAATTCAGTTGCTTA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23557) | GGCACGTAGTGTAGCTAGTCAATCCATCATTGCCTACACTATGTCACTTGGTGCAGAAAATTCAGTTGCTTA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23599) | GGCACGTAGTGTAGCTAGTCAATCCATCATTGCCTACACTATGTCACTTGGTGCAGAAAATTCAGTTGCTTA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23540) | GGCACGTAGTGTAGCTAGTCAATCCATCATTGCCTACACTATGTCACTTGGTGCAGAAAATTCAGTTGCTTA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23548) | GGCACGTAGTGTAGCTAGTCAATCCATCATTGCCTACACTATGTCACTTGGTGCAGAAAATTCAGTTGCTTA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23518) | GGCACGTAGTGTAGCTAGTCAATCCATCATTGCCTACACTATGTCACTTGGTGCAGAAAATTCAGTTGCTTA |       |       |       |       |       |             |
|                                                        |         | Section 330                                                              |       |       |       |       |       |             |
|                                                        |         | 23689                                                                    | 23700 | 23710 | 23720 | 23730 | 23740 | 23750 23760 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23683) | CTCTAATAAAGTCTATTGGCCATACCCACAAATTTTACTATTAGTGTTACCACAGAAATTCACAGTGTCTAT |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23629) | CTCTAATAAAGTCTATTGGCCATACCCACAAATTTTACTATTAGTGTTACCACAGAAATTCACAGTGTCTAT |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23671) | CTCTAATAAAGTCTATTGGCCATACCCACAAATTTTACTATTAGTGTTACCACAGAAATTCACAGTGTCTAT |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23612) | CTCTAATAAAGTCTATTGGCCATACCCACAAATTTTACTATTAGTGTTACCACAGAAATTCACAGTGTCTAT |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23620) | CTCTAATAAAGTCTATTGGCCATACCCACAAATTTTACTATTAGTGTTACCACAGAAATTCACAGTGTCTAT |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23590) | CTCTAATAAAGTCTATTGGCCATACCCACAAATTTTACTATTAGTGTTACCACAGAAATTCACAGTGTCTAT |       |       |       |       |       |             |
|                                                        |         | Section 331                                                              |       |       |       |       |       |             |
|                                                        |         | 23761                                                                    | 23770 | 23780 | 23790 | 23800 | 23810 | 23820 23832 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23755) | GACCAAGACATCAGTAGATTGTACAATGTACATTTGTGGTGATTCAACTGAATGCAGCAATCTTTTGTGCA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23701) | GACCAAGACATCAGTAGATTGTACAATGTACATTTGTGGTGATTCAACTGAATGCAGCAATCTTTTGTGCA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23743) | GACCAAGACATCAGTAGATTGTACAATGTACATTTGTGGTGATTCAACTGAATGCAGCAATCTTTTGTGCA  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23684) | GACCAAGACATCAGTAGATTGTACAATGTACATTTGTGGTGATTCAACTGAATGCAGCAATCTTTTGTGCA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23692) | GACCAAGACATCAGTAGATTGTACAATGTACATTTGTGGTGATTCAACTGAATGCAGCAATCTTTTGTGCA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23662) | GACCAAGACATCAGTAGATTGTACAATGTACATTTGTGGTGATTCAACTGAATGCAGCAATCTTTTGTGCA  |       |       |       |       |       |             |
|                                                        |         | Section 332                                                              |       |       |       |       |       |             |
|                                                        |         | 23833                                                                    | 23840 | 23850 | 23860 | 23870 | 23880 | 23890 23904 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (23827) | ATATGGCAGTTTTTGTACACAATTAAACCGTGCTTTAACTGGAATAGCTGTTGAACAAGACAAAAACACCCA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (23773) | ATATGGCAGTTTTTGTACACAATTAAACCGTGCTTTAACTGGAATAGCTGTTGAACAAGACAAAAACACCCA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (23815) | ATATGGCAGTTTTTGTACACAATTAAACCGTGCTTTAACTGGAATAGCTGTTGAACAAGACAAAAACACCCA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (23756) | ATATGGCAGTTTTTGTACACAATTAAACCGTGCTTTAACTGGAATAGCTGTTGAACAAGACAAAAACACCCA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (23764) | ATATGGCAGTTTTTGTACACAATTAAACCGTGCTTTAACTGGAATAGCTGTTGAACAAGACAAAAACACCCA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (23734) | ATATGGCAGTTTTTGTACACAATTAAACCGTGCTTTAACTGGAATAGCTGTTGAACAAGACAAAAACACCCA |       |       |       |       |       |             |

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|----------------------------------------------------------------|--|-------------|--------------------------------------------------------------------------|--------------------------|-------|-------|-------|-------|-------|-------|
|                                                                |  | Section 333 |                                                                          |                          |       |       |       |       |       |       |
|                                                                |  | (23905)     | 23905                                                                    | 23910                    | 23920 | 23930 | 23940 | 23950 | 23960 | 23976 |
| SARS-CoV-2 Reference Genome NC 045512.2 (23899)                |  |             | AGAAGTTTTTTGCACAAGTCAAACAAATTTACAAAACACCACCAATTAAAG                      | GATTTTGGTGGTTTTAATTTTTTC |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (23845)  |  |             | AGAAGTTTTTTGCACAAGTCAAACAAATTTACAAAACACCACCAATTAAAT                      | TATTTTGGTGGTTTTAATTTTTTC |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (23887)  |  |             | AGAAGTTTTTTGCACAAGTCAAACAAATTTACAAAACACCACCAATTAAAT                      | TATTTTGGTGGTTTTAATTTTTTC |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (23828)   |  |             | AGAAGTTTTTTGCACAAGTCAAACAAATTTACAAAACACCACCAATTAAAT                      | TATTTTGGTGGTTTTAATTTTTTC |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (23836) |  |             | AGAAGTTTTTTGCACAAGTCAAACAAATTTACAAAACACCACCAATTAAAT                      | TATTTTGGTGGTTTTAATTTTTTC |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (23806)   |  |             | AGAAGTTTTTTGCACAAGTCAAACAAATTTACAAAACACCACCAATTAAAT                      | TATTTTGGTGGTTTTAATTTTTTC |       |       |       |       |       |       |
|                                                                |  | Section 334 |                                                                          |                          |       |       |       |       |       |       |
|                                                                |  | (23977)     | 23977                                                                    | 23990                    | 24000 | 24010 | 24020 | 24030 | 24048 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (23971)                |  |             | ACAAATATTACCAGATCCATCAAAACCAAGCAAGAGGTCATTTATTGAAGATCTACTTTTCAACAAAGTGAC |                          |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (23917)  |  |             | ACAAATATTACCAGATCCATCAAAACCAAGCAAGAGGTCATTTATTGAAGATCTACTTTTCAACAAAGTGAC |                          |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (23959)  |  |             | ACAAATATTACCAGATCCATCAAAACCAAGCAAGAGGTCATTTATTGAAGATCTACTTTTCAACAAAGTGAC |                          |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (23900)   |  |             | ACAAATATTACCAGATCCATCAAAACCAAGCAAGAGGTCATTTATTGAAGATCTACTTTTCAACAAAGTGAC |                          |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (23908) |  |             | ACAAATATTACCAGATCCATCAAAACCAAGCAAGAGGTCATTTATTGAAGATCTACTTTTCAACAAAGTGAC |                          |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (23878)   |  |             | ACAAATATTACCAGATCCATCAAAACCAAGCAAGAGGTCATTTATTGAAGATCTACTTTTCAACAAAGTGAC |                          |       |       |       |       |       |       |
|                                                                |  | Section 335 |                                                                          |                          |       |       |       |       |       |       |
|                                                                |  | (24049)     | 24049                                                                    | 24060                    | 24070 | 24080 | 24090 | 24100 | 24110 | 24120 |
| SARS-CoV-2 Reference Genome NC 045512.2 (24043)                |  |             | ACTTGCAGATGCTGGCTTCATCAAACAATATGGTGATTGCCTTGGTGATATTGCTGCTAGAGACCTCATTTC |                          |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (23989)  |  |             | ACTTGCAGATGCTGGCTTCATCAAACAATATGGTGATTGCCTTGGTGATATTGCTGCTAGAGACCTCATTTC |                          |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24031)  |  |             | ACTTGCAGATGCTGGCTTCATCAAACAATATGGTGATTGCCTTGGTGATATTGCTGCTAGAGACCTCATTTC |                          |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (23972)   |  |             | ACTTGCAGATGCTGGCTTCATCAAACAATATGGTGATTGCCTTGGTGATATTGCTGCTAGAGACCTCATTTC |                          |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (23980) |  |             | ACTTGCAGATGCTGGCTTCATCAAACAATATGGTGATTGCCTTGGTGATATTGCTGCTAGAGACCTCATTTC |                          |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (23950)   |  |             | ACTTGCAGATGCTGGCTTCATCAAACAATATGGTGATTGCCTTGGTGATATTGCTGCTAGAGACCTCATTTC |                          |       |       |       |       |       |       |
|                                                                |  | Section 336 |                                                                          |                          |       |       |       |       |       |       |
|                                                                |  | (24121)     | 24121                                                                    | 24130                    | 24140 | 24150 | 24160 | 24170 | 24180 | 24192 |
| SARS-CoV-2 Reference Genome NC 045512.2 (24115)                |  |             | TGCACAAAAGTTTAAAGGCCTTACTGTTTTGCCACCTTTGCTCACAGATGAAATGATTGCTCAATACACTTC |                          |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24061)  |  |             | TGCACAAAAGTTTAAAGGCCTTACTGTTTTGCCACCTTTGCTCACAGATGAAATGATTGCTCAATACACTTC |                          |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24103)  |  |             | TGCACAAAAGTTTAAAGGCCTTACTGTTTTGCCACCTTTGCTCACAGATGAAATGATTGCTCAATACACTTC |                          |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24044)   |  |             | TGCACAAAAGTTTAAAGGCCTTACTGTTTTGCCACCTTTGCTCACAGATGAAATGATTGCTCAATACACTTC |                          |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (24052) |  |             | TGCACAAAAGTTTAAAGGCCTTACTGTTTTGCCACCTTTGCTCACAGATGAAATGATTGCTCAATACACTTC |                          |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (24022)   |  |             | TGCACAAAAGTTTAAAGGCCTTACTGTTTTGCCACCTTTGCTCACAGATGAAATGATTGCTCAATACACTTC |                          |       |       |       |       |       |       |

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|----------------------------------------------------------------|---------|-----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------|
|                                                                |         |                                                                             |       |       |       |       |       |       |       | Section 337 |
|                                                                | (24193) | 24193                                                                       | 24200 | 24210 | 24220 | 24230 | 24240 | 24250 | 24264 |             |
| SARS-CoV-2 Reference Genome NC 045512.2 (24187)                |         | TGCACTGTTAGCGGGTACAATCACTTCTGGTTGGACCTTTGGTGCAGGTGCTGCATTACAAATACCATTTGC    |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24133)  |         | TGCACTGTTAGCGGGTACAATCACTTCTGGTTGGACCTTTGGTGCAGGTGCTGCATTACAAATACCATTTGC    |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24175)  |         | TGCACTGTTAGCGGGTACAATCACTTCTGGTTGGACCTTTGGTGCAGGTGCTGCATTACAAATACCATTTGC    |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24116)   |         | TGCACTGTTAGCGGGTACAATCACTTCTGGTTGGACCTTTGGTGCAGGTGCTGCATTACAAATACCATTTGC    |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (24124) |         | TGCACTGTTAGCGGGTACAATCACTTCTGGTTGGACCTTTGGTGCAGGTGCTGCATTACAAATACCATTTGC    |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (24094)   |         | TGCACTGTTAGCGGGTACAATCACTTCTGGTTGGACCTTTGGTGCAGGTGCTGCATTACAAATACCATTTGC    |       |       |       |       |       |       |       |             |
|                                                                |         |                                                                             |       |       |       |       |       |       |       | Section 338 |
|                                                                | (24265) | 24265                                                                       | 24270 | 24280 | 24290 | 24300 | 24310 | 24320 | 24336 |             |
| SARS-CoV-2 Reference Genome NC 045512.2 (24259)                |         | TATGCAAATGGCTTATAGGTTTAAATGGTATTGGAGTTACACAGAATGTTCTCTATGAGAACCAAAAATTGAT   |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24205)  |         | TATGCAAATGGCTTATAGGTTTAAATGGTATTGGAGTTACACAGAATGTTCTCTATGAGAACCAAAAATTGAT   |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24247)  |         | TATGCAAATGGCTTATAGGTTTAAATGGTATTGGAGTTACACAGAATGTTCTCTATGAGAACCAAAAATTGAT   |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24188)   |         | TATGCAAATGGCTTATAGGTTTAAATGGTATTGGAGTTACACAGAATGTTCTCTATGAGAACCAAAAATTGAT   |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (24196) |         | TATGCAAATGGCTTATAGGTTTAAATGGTATTGGAGTTACACAGAATGTTCTCTATGAGAACCAAAAATTGAT   |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (24166)   |         | TATGCAAATGGCTTATAGGTTTAAATGGTATTGGAGTTACACAGAATGTTCTCTATGAGAACCAAAAATTGAT   |       |       |       |       |       |       |       |             |
|                                                                |         |                                                                             |       |       |       |       |       |       |       | Section 339 |
|                                                                | (24337) | 24337                                                                       | 24350 | 24360 | 24370 | 24380 | 24390 | 24408 |       |             |
| SARS-CoV-2 Reference Genome NC 045512.2 (24331)                |         | TGCCAACCAATTTAATAGTGTCTATTGGCAAAATTCAGACTCACTTTCTTCCACAGCAAGTGCACCTTGGAAA   |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24277)  |         | TGCCAACCAATTTAATAGTGTCTATTGGCAAAATTCAGACTCACTTTCTTCCACAGCAAGTGCACCTTGGAAA   |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24319)  |         | TGCCAACCAATTTAATAGTGTCTATTGGCAAAATTCAGACTCACTTTCTTCCACAGCAAGTGCACCTTGGAAA   |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24260)   |         | TGCCAACCAATTTAATAGTGTCTATTGGCAAAATTCAGACTCACTTTCTTCCACAGCAAGTGCACCTTGGAAA   |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (24268) |         | TGCCAACCAATTTAATAGTGTCTATTGGCAAAATTCAGACTCACTTTCTTCCACAGCAAGTGCACCTTGGAAA   |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (24238)   |         | TGCCAACCAATTTAATAGTGTCTATTGGCAAAATTCAGACTCACTTTCTTCCACAGCAAGTGCACCTTGGAAA   |       |       |       |       |       |       |       |             |
|                                                                |         |                                                                             |       |       |       |       |       |       |       | Section 340 |
|                                                                | (24409) | 24409                                                                       | 24420 | 24430 | 24440 | 24450 | 24460 | 24470 | 24480 |             |
| SARS-CoV-2 Reference Genome NC 045512.2 (24403)                |         | ACTTCAAGATGTGGTCAACCAATAATGCACAAGCTTTAAACACGCTTGTTAAACAACCTTAGCTCCAAATTTTGG |       |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24349)  |         | ACTTCAAGATGTGGTCAACCAATAATGCACAAGCTTTAAACACGCTTGTTAAACAACCTTAGCTCCAAATTTTGG |       |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24391)  |         | ACTTCAAGATGTGGTCAACCAATAATGCACAAGCTTTAAACACGCTTGTTAAACAACCTTAGCTCCAAATTTTGG |       |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24332)   |         | ACTTCAAGATGTGGTCAACCAATAATGCACAAGCTTTAAACACGCTTGTTAAACAACCTTAGCTCCAAATTTTGG |       |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (24340) |         | ACTTCAAGATGTGGTCAACCAATAATGCACAAGCTTTAAACACGCTTGTTAAACAACCTTAGCTCCAAATTTTGG |       |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (24310)   |         | ACTTCAAGATGTGGTCAACCAATAATGCACAAGCTTTAAACACGCTTGTTAAACAACCTTAGCTCCAAATTTTGG |       |       |       |       |       |       |       |             |

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|----------------------------------------------------------------|--|-------------|----------------------------------------------------------------------------|-------|---------------------------------------------|-------|-------|-------|-------|-------|
|                                                                |  | Section 341 |                                                                            |       |                                             |       |       |       |       |       |
|                                                                |  | (24481)     | 24481                                                                      | 24490 | 24500                                       | 24510 | 24520 | 24530 | 24540 | 24552 |
| SARS-CoV-2 Reference Genome NC 045512.2 (24475)                |  |             | TGCAATTTCAAGTGTTTTAAATGATATC                                               | T     | TTTCACGTCTTGACAAAGTTGAGGCTGAAGTGCAAATTGATAG |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24421)  |  |             | TGCAATTTCAAGTGTTTTAAATGATATC                                               | T     | TTTCACGTCTTGACAAAGTTGAGGCTGAAGTGCAAATTGATAG |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24463)  |  |             | TGCAATTTCAAGTGTTTTAAATGATATC                                               | T     | TTTCACGTCTTGACAAAGTTGAGGCTGAAGTGCAAATTGATAG |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24404)   |  |             | TGCAATTTCAAGTGTTTTAAATGATATC                                               | T     | TTTCACGTCTTGACAAAGTTGAGGCTGAAGTGCAAATTGATAG |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (24412) |  |             | TGCAATTTCAAGTGTTTTAAATGATATC                                               | T     | TTTCACGTCTTGACAAAGTTGAGGCTGAAGTGCAAATTGATAG |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (24382)   |  |             | TGCAATTTCAAGTGTTTTAAATGATATC                                               | T     | TTTCACGTCTTGACAAAGTTGAGGCTGAAGTGCAAATTGATAG |       |       |       |       |       |
|                                                                |  | Section 342 |                                                                            |       |                                             |       |       |       |       |       |
|                                                                |  | (24553)     | 24553                                                                      | 24560 | 24570                                       | 24580 | 24590 | 24600 | 24610 | 24624 |
| SARS-CoV-2 Reference Genome NC 045512.2 (24547)                |  |             | GTTGATCACAGGCAGACTTCAAAGTTTGCAGACATATGTGACTCAACAATTAATTAGAGCTGCAGAAATCAG   |       |                                             |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24493)  |  |             | GTTGATCACAGGCAGACTTCAAAGTTTGCAGACATATGTGACTCAACAATTAATTAGAGCTGCAGAAATCAG   |       |                                             |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24535)  |  |             | GTTGATCACAGGCAGACTTCAAAGTTTGCAGACATATGTGACTCAACAATTAATTAGAGCTGCAGAAATCAG   |       |                                             |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24476)   |  |             | GTTGATCACAGGCAGACTTCAAAGTTTGCAGACATATGTGACTCAACAATTAATTAGAGCTGCAGAAATCAG   |       |                                             |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (24484) |  |             | GTTGATCACAGGCAGACTTCAAAGTTTGCAGACATATGTGACTCAACAATTAATTAGAGCTGCAGAAATCAG   |       |                                             |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (24454)   |  |             | GTTGATCACAGGCAGACTTCAAAGTTTGCAGACATATGTGACTCAACAATTAATTAGAGCTGCAGAAATCAG   |       |                                             |       |       |       |       |       |
|                                                                |  | Section 343 |                                                                            |       |                                             |       |       |       |       |       |
|                                                                |  | (24625)     | 24625                                                                      | 24630 | 24640                                       | 24650 | 24660 | 24670 | 24680 | 24696 |
| SARS-CoV-2 Reference Genome NC 045512.2 (24619)                |  |             | AGCTTCTGCTAATCTTGCTGCTACTAAAAATGTCAGAGTGTGTACTTGGACAATCAAAAAGAGTTGATTTTTTG |       |                                             |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24565)  |  |             | AGCTTCTGCTAATCTTGCTGCTACTAAAAATGTCAGAGTGTGTACTTGGACAATCAAAAAGAGTTGATTTTTTG |       |                                             |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24607)  |  |             | AGCTTCTGCTAATCTTGCTGCTACTAAAAATGTCAGAGTGTGTACTTGGACAATCAAAAAGAGTTGATTTTTTG |       |                                             |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24548)   |  |             | AGCTTCTGCTAATCTTGCTGCTACTAAAAATGTCAGAGTGTGTACTTGGACAATCAAAAAGAGTTGATTTTTTG |       |                                             |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (24556) |  |             | AGCTTCTGCTAATCTTGCTGCTACTAAAAATGTCAGAGTGTGTACTTGGACAATCAAAAAGAGTTGATTTTTTG |       |                                             |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (24526)   |  |             | AGCTTCTGCTAATCTTGCTGCTACTAAAAATGTCAGAGTGTGTACTTGGACAATCAAAAAGAGTTGATTTTTTG |       |                                             |       |       |       |       |       |
|                                                                |  | Section 344 |                                                                            |       |                                             |       |       |       |       |       |
|                                                                |  | (24697)     | 24697                                                                      | 24710 | 24720                                       | 24730 | 24740 | 24750 | 24768 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (24691)                |  |             | TGGAAAGGGCTATCATCTTATGTCCTTCCCTCAGTCAGCACCTCATGGTGTAGTCTTCTTGCATGTGACTTA   |       |                                             |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24637)  |  |             | TGGAAAGGGCTATCATCTTATGTCCTTCCCTCAGTCAGCACCTCATGGTGTAGTCTTCTTGCATGTGACTTA   |       |                                             |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (24679)  |  |             | TGGAAAGGGCTATCATCTTATGTCCTTCCCTCAGTCAGCACCTCATGGTGTAGTCTTCTTGCATGTGACTTA   |       |                                             |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24620)   |  |             | TGGAAAGGGCTATCATCTTATGTCCTTCCCTCAGTCAGCACCTCATGGTGTAGTCTTCTTGCATGTGACTTA   |       |                                             |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (24628) |  |             | TGGAAAGGGCTATCATCTTATGTCCTTCCCTCAGTCAGCACCTCATGGTGTAGTCTTCTTGCATGTGACTTA   |       |                                             |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (24598)   |  |             | TGGAAAGGGCTATCATCTTATGTCCTTCCCTCAGTCAGCACCTCATGGTGTAGTCTTCTTGCATGTGACTTA   |       |                                             |       |       |       |       |       |

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|                                                        |         | Section 345 |                                                                          |                                            |       |       |       |       |             |
|--------------------------------------------------------|---------|-------------|--------------------------------------------------------------------------|--------------------------------------------|-------|-------|-------|-------|-------------|
|                                                        |         | (24769)     | 24769                                                                    | 24780                                      | 24790 | 24800 | 24810 | 24820 | 24830 24840 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (24763) |             | TGTCCCTGCACAAGAAAAGAACTTCACAAC                                           | TGCTCCTGCCATTTGTCATGATGGAAAAGCACACTTTCCTCG |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (24709) |             | TGTCCCTGCACAAGAAAAGAACTTCACAAC                                           | TGCTCCTGCCATTTGTCATGATGGAAAAGCACACTTTCCTCG |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (24751) |             | TGTCCCTGCACAAGAAAAGAACTTCACAAC                                           | TGCTCCTGCCATTTGTCATGATGGAAAAGCACACTTTCCTCG |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (24692) |             | TGTCCCTGCACAAGAAAAGAACTTCACAAC                                           | TGCTCCTGCCATTTGTCATGATGGAAAAGCACACTTTCCTCG |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (24700) |             | TGTCCCTGCACAAGAAAAGAACTTCACAAC                                           | TGCTCCTGCCATTTGTCATGATGGAAAAGCACACTTTCCTCG |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (24670) |             | TGTCCCTGCACAAGAAAAGAACTTCACAAC                                           | TGCTCCTGCCATTTGTCATGATGGAAAAGCACACTTTCCTCG |       |       |       |       |             |
|                                                        |         | Section 346 |                                                                          |                                            |       |       |       |       |             |
|                                                        |         | (24841)     | 24841                                                                    | 24850                                      | 24860 | 24870 | 24880 | 24890 | 24900 24912 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (24835) |             | TGAAGGTGTCTTTGTTTCAAATGGCACACACTGGTTTGTAAACACAAAGGAATTTTATGAACCACAAATCAT |                                            |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (24781) |             | TGAAGGTGTCTTTGTTTCAAATGGCACACACTGGTTTGTAAACACAAAGGAATTTTATGAACCACAAATCAT |                                            |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (24823) |             | TGAAGGTGTCTTTGTTTCAAATGGCACACACTGGTTTGTAAACACAAAGGAATTTTATGAACCACAAATCAT |                                            |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (24764) |             | TGAAGGTGTCTTTGTTTCAAATGGCACACACTGGTTTGTAAACACAAAGGAATTTTATGAACCACAAATCAT |                                            |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (24772) |             | TGAAGGTGTCTTTGTTTCAAATGGCACACACTGGTTTGTAAACACAAAGGAATTTTATGAACCACAAATCAT |                                            |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (24742) |             | TGAAGGTGTCTTTGTTTCAAATGGCACACACTGGTTTGTAAACACAAAGGAATTTTATGAACCACAAATCAT |                                            |       |       |       |       |             |
|                                                        |         | Section 347 |                                                                          |                                            |       |       |       |       |             |
|                                                        |         | (24913)     | 24913                                                                    | 24920                                      | 24930 | 24940 | 24950 | 24960 | 24970 24984 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (24907) |             | TACTACAGACAACACATTTGTGTCTGGTAACTGTGATGTTGTAATAGGAATTGTCAACAACACAGTTTATGA |                                            |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (24853) |             | TACTACAGACAACACATTTGTGTCTGGTAACTGTGATGTTGTAATAGGAATTGTCAACAACACAGTTTATGA |                                            |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (24895) |             | TACTACAGACAACACATTTGTGTCTGGTAACTGTGATGTTGTAATAGGAATTGTCAACAACACAGTTTATGA |                                            |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (24836) |             | TACTACAGACAACACATTTGTGTCTGGTAACTGTGATGTTGTAATAGGAATTGTCAACAACACAGTTTATGA |                                            |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (24844) |             | TACTACAGACAACACATTTGTGTCTGGTAACTGTGATGTTGTAATAGGAATTGTCAACAACACAGTTTATGA |                                            |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (24814) |             | TACTACAGACAACACATTTGTGTCTGGTAACTGTGATGTTGTAATAGGAATTGTCAACAACACAGTTTATGA |                                            |       |       |       |       |             |
|                                                        |         | Section 348 |                                                                          |                                            |       |       |       |       |             |
|                                                        |         | (24985)     | 24985                                                                    | 24990                                      | 25000 | 25010 | 25020 | 25030 | 25040 25056 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (24979) |             | TCCTTTGCAACCTGAATTAGATTCATTCAAGGAGGAGTTAGATAAATATTTTAAGAATCATACATCACCAGA |                                            |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (24925) |             | TCCTTTGCAACCTGAATTAGATTCATTCAAGGAGGAGTTAGATAAATATTTTAAGAATCATACATCACCAGA |                                            |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (24967) |             | TCCTTTGCAACCTGAATTAGATTCATTCAAGGAGGAGTTAGATAAATATTTTAAGAATCATACATCACCAGA |                                            |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (24908) |             | TCCTTTGCAACCTGAATTAGATTCATTCAAGGAGGAGTTAGATAAATATTTTAAGAATCATACATCACCAGA |                                            |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (24916) |             | TCCTTTGCAACCTGAATTAGATTCATTCAAGGAGGAGTTAGATAAATATTTTAAGAATCATACATCACCAGA |                                            |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (24886) |             | TCCTTTGCAACCTGAATTAGATTCATTCAAGGAGGAGTTAGATAAATATTTTAAGAATCATACATCACCAGA |                                            |       |       |       |       |             |

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|----------------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                                |         |                                                                           |       |       |       |       |       | Section 349 |
|                                                                | (25057) | 25057                                                                     | 25070 | 25080 | 25090 | 25100 | 25110 | 25128       |
| SARS-CoV-2 Reference Genome NC 045512.2 (25051)                |         | TGTTGATTTAGGTGACATCTCTGGCATTAAATGCTTCAGTTGTAAACATTCAAAAAGAAATTGACCGCCTCAA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (24997)  |         | TGTTGATTTAGGTGACATCTCTGGCATTAAATGCTTCAGTTGTAAACATTCAAAAAGAAATTGACCGCCTCAA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25039)  |         | TGTTGATTTAGGTGACATCTCTGGCATTAAATGCTTCAGTTGTAAACATTCAAAAAGAAATTGACCGCCTCAA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (24980)   |         | TGTTGATTTAGGTGACATCTCTGGCATTAAATGCTTCAGTTGTAAACATTCAAAAAGAAATTGACCGCCTCAA |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (24988) |         | TGTTGATTTAGGTGACATCTCTGGCATTAAATGCTTCAGTTGTAAACATTCAAAAAGAAATTGACCGCCTCAA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (24958)   |         | TGTTGATTTAGGTGACATCTCTGGCATTAAATGCTTCAGTTGTAAACATTCAAAAAGAAATTGACCGCCTCAA |       |       |       |       |       |             |
|                                                                |         |                                                                           |       |       |       |       |       | Section 350 |
|                                                                | (25129) | 25129                                                                     | 25140 | 25150 | 25160 | 25170 | 25180 | 25190 25200 |
| SARS-CoV-2 Reference Genome NC 045512.2 (25123)                |         | TGAGGTTGCCAAGAATTTAAATGAATCTCTCATCGATCTCCAAGAAGTTGGAAAGTATGAGCAGTATATAAA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (25069)  |         | TGAGGTTGCCAAGAATTTAAATGAATCTCTCATCGATCTCCAAGAAGTTGGAAAGTATGAGCAGTATATAAA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25111)  |         | TGAGGTTGCCAAGAATTTAAATGAATCTCTCATCGATCTCCAAGAAGTTGGAAAGTATGAGCAGTATATAAA  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (25052)   |         | TGAGGTTGCCAAGAATTTAAATGAATCTCTCATCGATCTCCAAGAAGTTGGAAAGTATGAGCAGTATATAAA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (25060) |         | TGAGGTTGCCAAGAATTTAAATGAATCTCTCATCGATCTCCAAGAAGTTGGAAAGTATGAGCAGTATATAAA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (25030)   |         | TGAGGTTGCCAAGAATTTAAATGAATCTCTCATCGATCTCCAAGAAGTTGGAAAGTATGAGCAGTATATAAA  |       |       |       |       |       |             |
|                                                                |         |                                                                           |       |       |       |       |       | Section 351 |
|                                                                | (25201) | 25201                                                                     | 25210 | 25220 | 25230 | 25240 | 25250 | 25260 25272 |
| SARS-CoV-2 Reference Genome NC 045512.2 (25195)                |         | ATGGCCATGGTACATTTGGCTAGGTTTTATAGCTGGCTTGATTGCCATAGTAATGGTGACAATTATGCTTTG  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (25141)  |         | ATGGCCATGGTACATTTGGCTAGGTTTTATAGCTGGCTTGATTGCCATAGTAATGGTGACAATTATGCTTTG  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25183)  |         | ATGGCCATGGTACATTTGGCTAGGTTTTATAGCTGGCTTGATTGCCATAGTAATGGTGACAATTATGCTTTG  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (25124)   |         | ATGGCCATGGTACATTTGGCTAGGTTTTATAGCTGGCTTGATTGCCATAGTAATGGTGACAATTATGCTTTG  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (25132) |         | ATGGCCATGGTACATTTGGCTAGGTTTTATAGCTGGCTTGATTGCCATAGTAATGGTGACAATTATGCTTTG  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (25102)   |         | ATGGCCATGGTACATTTGGCTAGGTTTTATAGCTGGCTTGATTGCCATAGTAATGGTGACAATTATGCTTTG  |       |       |       |       |       |             |
|                                                                |         |                                                                           |       |       |       |       |       | Section 352 |
|                                                                | (25273) | 25273                                                                     | 25280 | 25290 | 25300 | 25310 | 25320 | 25330 25344 |
| SARS-CoV-2 Reference Genome NC 045512.2 (25267)                |         | CTGTATGACCAGTTGCTGTAGTTGTCTCAAGGGCTGTTGTTCTTGTGGATCCTGCTGCAAATTTGATGAAGA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (25213)  |         | CTGTATGACCAGTTGCTGTAGTTGTCTCAAGGGCTGTTGTTCTTGTGGATCCTGCTGCAAATTTGATGAAGA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25255)  |         | CTGTATGACCAGTTGCTGTAGTTGTCTCAAGGGCTGTTGTTCTTGTGGATCCTGCTGCAAATTTGATGAAGA  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (25196)   |         | CTGTATGACCAGTTGCTGTAGTTGTCTCAAGGGCTGTTGTTCTTGTGGATCCTGCTGCAAATTTGATGAAGA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (25204) |         | CTGTATGACCAGTTGCTGTAGTTGTCTCAAGGGCTGTTGTTCTTGTGGATCCTGCTGCAAATTTGATGAAGA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (25174)   |         | CTGTATGACCAGTTGCTGTAGTTGTCTCAAGGGCTGTTGTTCTTGTGGATCCTGCTGCAAATTTGATGAAGA  |       |       |       |       |       |             |

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|----------------------------------------------------------------|--|-------------|-----------------|-------------------------------------------------------------|--------------------------------------------|-------|-------|-------|-------|-------|
|                                                                |  | Section 353 |                 |                                                             |                                            |       |       |       |       |       |
|                                                                |  | (25345)     | 25345           | 25350                                                       | 25360                                      | 25370 | 25380 | 25390 | 25400 | 25416 |
| SARS-CoV-2 Reference Genome NC 045512.2 (25339)                |  |             | CGACTCTGAGCCAGT | GCTCAAAGGAGTCAAATTACATTACACATAAACGAACTTATGGATTTGTTTATGAGA   |                                            |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (25285)  |  |             | CGACTCTGAGCCAGT | GCTCAAAGGAGTCAAATTACATTACACATAAACGAACTTATGGATTTGTTTATGAGA   |                                            |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25327)  |  |             | CGACTCTGAGCCAGT | GCTCAAAGGAGTCAAATTACATTACACATAAACGAACTTATGGATTTGTTTATGAGA   |                                            |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (25268)   |  |             | CGACTCTGAGCCAGT | GCTCAAAGGAGTCAAATTACATTACACATAAACGAACTTATGGATTTGTTTATGAGA   |                                            |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (25276) |  |             | CGACTCTGAGCCAGT | GCTCAAAGGAGTCAAATTACATTACACATAAACGAACTTATGGATTTGTTTATGAGA   |                                            |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (25246)   |  |             | CGACTCTGAGCCAGT | GCTCAAAGGAGTCAAATTACATTACACATAAACGAACTTATGGATTTGTTTATGAGA   |                                            |       |       |       |       |       |
|                                                                |  | Section 354 |                 |                                                             |                                            |       |       |       |       |       |
|                                                                |  | (25417)     | 25417           | 25430                                                       | 25440                                      | 25450 | 25460 | 25470 | 25488 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (25411)                |  |             | ATCTTCACAATTGGA | ACTGTAACCTTTGAAGCAAGGTGAAATCAAGGATGCTACTCCTTCAGATTTTGTTCGC  |                                            |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (25357)  |  |             | ATCTTCACAATTGGA | ACTGTAACCTTTGAAGCAAGGTGAAATCAAGGATGCTACTCCTTCAGATTTTGTTCGC  |                                            |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25399)  |  |             | ATCTTCACAATTGGA | ACTGTAACCTTTGAAGCAAGGTGAAATCAAGGATGCTACTCCTTCAGATTTTGTTCGC  |                                            |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (25340)   |  |             | ATCTTCACAATTGGA | ACTGTAACCTTTGAAGCAAGGTGAAATCAAGGATGCTACTCCTTCAGATTTTGTTCGC  |                                            |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (25348) |  |             | ATCTTCACAATTGGA | ACTGTAACCTTTGAAGCAAGGTGAAATCAAGGATGCTACTCCTTCAGATTTTGTTCGC  |                                            |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (25318)   |  |             | ATCTTCACAATTGGA | ACTGTAACCTTTGAAGCAAGGTGAAATCAAGGATGCTACTCCTTCAGATTTTGTTCGC  |                                            |       |       |       |       |       |
|                                                                |  | Section 355 |                 |                                                             |                                            |       |       |       |       |       |
|                                                                |  | (25489)     | 25489           | 25500                                                       | 25510                                      | 25520 | 25530 | 25540 | 25550 | 25560 |
| SARS-CoV-2 Reference Genome NC 045512.2 (25483)                |  |             | GCTACTGCAACGATA | ACCGATACAAGCCTCACTCCCTTTTCGGATGGCTTATTGTTGGCGTTGCACCTCTTGCT |                                            |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (25429)  |  |             | GCTACTGCAACGATA | ACCGATACAAGCCTCACTCCCTTTTCGGATGGCTTATTGTTGGCGTTGCACCTCTTGCT |                                            |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25471)  |  |             | GCTACTGCAACGATA | ACCGATACAAGCCTCACTCCCTTTTCGGATGGCTTATTGTTGGCGTTGCACCTCTTGCT |                                            |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (25412)   |  |             | GCTACTGCAACGATA | ACCGATACAAGCCTCACTCCCTTTTCGGATGGCTTATTGTTGGCGTTGCACCTCTTGCT |                                            |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (25420) |  |             | GCTACTGCAACGATA | ACCGATACAAGCCTCACTCCCTTTTCGGATGGCTTATTGTTGGCGTTGCACCTCTTGCT |                                            |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (25390)   |  |             | GCTACTGCAACGATA | ACCGATACAAGCCTCACTCCCTTTTCGGATGGCTTATTGTTGGCGTTGCACCTCTTGCT |                                            |       |       |       |       |       |
|                                                                |  | Section 356 |                 |                                                             |                                            |       |       |       |       |       |
|                                                                |  | (25561)     | 25561           | 25570                                                       | 25580                                      | 25590 | 25600 | 25610 | 25620 | 25632 |
| SARS-CoV-2 Reference Genome NC 045512.2 (25555)                |  |             | GTTTTTCAGAGCGCT | TCCAAAATCATAA                                               | CTCAAAAAGAGATGGCAACTAGCACTCTCCAAGGGTGTTCAC |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (25501)  |  |             | GTTTTTCAGAGCGCT | TCCAAAATCATAA                                               | CTCAAAAAGAGATGGCAACTAGCACTCTCCAAGGGTGTTCAC |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (25543)  |  |             | GTTTTTCAGAGCGCT | TCCAAAATCATAA                                               | CTCAAAAAGAGATGGCAACTAGCACTCTCCAAGGGTGTTCAC |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (25484)   |  |             | GTTTTTCAGAGCGCT | TCCAAAATCATAA                                               | CTCAAAAAGAGATGGCAACTAGCACTCTCCAAGGGTGTTCAC |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (25492) |  |             | GTTTTTCAGAGCGCT | TCCAAAATCATAA                                               | CTCAAAAAGAGATGGCAACTAGCACTCTCCAAGGGTGTTCAC |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (25462)   |  |             | GTTTTTCAGAGCGCT | TCCAAAATCATAA                                               | CTCAAAAAGAGATGGCAACTAGCACTCTCCAAGGGTGTTCAC |       |       |       |       |       |

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|--------------------------------------------------------|---------|-------------|--------------|---------------|--------------|--------------|--------------|---------------|--------------------|
|                                                        |         | Section 357 |              |               |              |              |              |               |                    |
|                                                        | (25633) | 25633       | 25640        | 25650         | 25660        | 25670        | 25680        | 25690         | 25704              |
| SARS-CoV-2 Reference Genome NC 045512.2                | (25627) | TTTGT       | TTTGCAACT    | TGCTG         | TTGTTGTTT    | GTAAACAGT    | TTTACTCACAC  | CTTTTGCTCG    | TTTGCTGCTGGCCTTGAA |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (25573) | TTTGT       | TTTGCAACT    | TGCTG         | TTGTTGTTT    | GTAAACAGT    | TTTACTCACAC  | CTTTTGCTCG    | TTTGCTGCTGGCCTTGAA |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (25615) | TTTGT       | TTTGCAACT    | TGCTG         | TTGTTGTTT    | GTAAACAGT    | TTTACTCACAC  | CTTTTGCTCG    | TTTGCTGCTGGCCTTGAA |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (25556) | TTTGT       | TTTGCAACT    | TGCTG         | TTGTTGTTT    | GTAAACAGT    | TTTACTCACAC  | CTTTTGCTCG    | TTTGCTGCTGGCCTTGAA |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (25564) | TTTGT       | TTTGCAACT    | TGCTG         | TTGTTGTTT    | GTAAACAGT    | TTTACTCACAC  | CTTTTGCTCG    | TTTGCTGCTGGCCTTGAA |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (25534) | TTTGT       | TTTGCAACT    | TGCTG         | TTGTTGTTT    | GTAAACAGT    | TTTACTCACAC  | CTTTTGCTCG    | TTTGCTGCTGGCCTTGAA |
|                                                        |         | Section 358 |              |               |              |              |              |               |                    |
|                                                        | (25705) | 25705       | 25710        | 25720         | 25730        | 25740        | 25750        | 25760         | 25776              |
| SARS-CoV-2 Reference Genome NC 045512.2                | (25699) | GCCCC       | TTTTTCTCTAT  | CTTTATGCT     | TTTAGTCTACT  | TTCTTGCAGAG  | TATAAACTTTG  | TAAGAATAATAAT | GAGG               |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (25645) | GCCCC       | TTTTTCTCTAT  | CTTTATGCT     | TTTAGTCTACT  | TTCTTGCAGAG  | TATAAACTTTG  | TAAGAATAATAAT | GAGG               |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (25687) | GCCCC       | TTTTTCTCTAT  | CTTTATGCT     | TTTAGTCTACT  | TTCTTGCAGAG  | TATAAACTTTG  | TAAGAATAATAAT | GAGG               |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (25628) | GCCCC       | TTTTTCTCTAT  | CTTTATGCT     | TTTAGTCTACT  | TTCTTGCAGAG  | TATAAACTTTG  | TAAGAATAATAAT | GAGG               |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (25636) | GCCCC       | TTTTTCTCTAT  | CTTTATGCT     | TTTAGTCTACT  | TTCTTGCAGAG  | TATAAACTTTG  | TAAGAATAATAAT | GAGG               |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (25606) | GCCCC       | TTTTTCTCTAT  | CTTTATGCT     | TTTAGTCTACT  | TTCTTGCAGAG  | TATAAACTTTG  | TAAGAATAATAAT | GAGG               |
|                                                        |         | Section 359 |              |               |              |              |              |               |                    |
|                                                        | (25777) | 25777       | 25790        | 25800         | 25810        | 25820        | 25830        | 25848         |                    |
| SARS-CoV-2 Reference Genome NC 045512.2                | (25771) | CTTTGGC     | TTTGCTGGAAAT | GCCGTTCCAAAAA | CCCATTTATGAT | GCCAACTATTTT | CTTTGCTGGCAT |               |                    |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (25717) | CTTTGGC     | TTTGCTGGAAAT | GCCGTTCCAAAAA | CCCATTTATGAT | GCCAACTATTTT | CTTTGCTGGCAT |               |                    |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (25759) | CTTTGGC     | TTTGCTGGAAAT | GCCGTTCCAAAAA | CCCATTTATGAT | GCCAACTATTTT | CTTTGCTGGCAT |               |                    |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (25700) | CTTTGGC     | TTTGCTGGAAAT | GCCGTTCCAAAAA | CCCATTTATGAT | GCCAACTATTTT | CTTTGCTGGCAT |               |                    |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (25708) | CTTTGGC     | TTTGCTGGAAAT | GCCGTTCCAAAAA | CCCATTTATGAT | GCCAACTATTTT | CTTTGCTGGCAT |               |                    |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (25678) | CTTTGGC     | TTTGCTGGAAAT | GCCGTTCCAAAAA | CCCATTTATGAT | GCCAACTATTTT | CTTTGCTGGCAT |               |                    |
|                                                        |         | Section 360 |              |               |              |              |              |               |                    |
|                                                        | (25849) | 25849       | 25860        | 25870         | 25880        | 25890        | 25900        | 25910         | 25920              |
| SARS-CoV-2 Reference Genome NC 045512.2                | (25843) | ACTAATT     | GTTACGACTAT  | TGTATACCTTACA | ATAGTGTAAC   | TTCTTCAATTG  | TGCATTACTTC  | CAGGTGATGGC   |                    |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (25789) | ACTAATT     | GTTACGACTAT  | TGTATACCTTACA | ATAGTGTAAC   | TTCTTCAATTG  | TGCATTACTTC  | CAGGTGATGGC   |                    |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (25831) | ACTAATT     | GTTACGACTAT  | TGTATACCTTACA | ATAGTGTAAC   | TTCTTCAATTG  | TGCATTACTTC  | CAGGTGATGGC   |                    |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (25772) | ACTAATT     | GTTACGACTAT  | TGTATACCTTACA | ATAGTGTAAC   | TTCTTCAATTG  | TGCATTACTTC  | CAGGTGATGGC   |                    |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (25780) | ACTAATT     | GTTACGACTAT  | TGTATACCTTACA | ATAGTGTAAC   | TTCTTCAATTG  | TGCATTACTTC  | CAGGTGATGGC   |                    |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (25750) | ACTAATT     | GTTACGACTAT  | TGTATACCTTACA | ATAGTGTAAC   | TTCTTCAATTG  | TGCATTACTTC  | CAGGTGATGGC   |                    |

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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | Section 361                                                               |       |       |       |       |       |             |
|                                                        | (25921) | 25921                                                                     | 25930 | 25940 | 25950 | 25960 | 25970 | 25980 25992 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (25915) | ACAACAAGTCCTATTTCTGAACATGACTACCAGATTGGTGGTTATACTGAAAAATGGGAATCTGGAGTAAAA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (25861) | ACAACAAGTCCTATTTCTGAACATGACTACCAGATTGGTGGTTATACTGAAAAATGGGAATCTGGAGTAAAA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (25903) | ACAACAAGTCCTATTTCTGAACATGACTACCAGATTGGTGGTTATACTGAAAAATGGGAATCTGGAGTAAAA  |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (25844) | ACAACAAGTCCTATTTCTGAACATGACTACCAGATTGGTGGTTATACTGAAAAATGGGAATCTGGAGTAAAA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (25852) | ACAACAAGTCCTATTTCTGAACATGACTACCAGATTGGTGGTTATACTGAAAAATGGGAATCTGGAGTAAAA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (25822) | ACAACAAGTCCTATTTCTGAACATGACTACCAGATTGGTGGTTATACTGAAAAATGGGAATCTGGAGTAAAA  |       |       |       |       |       |             |
|                                                        |         | Section 362                                                               |       |       |       |       |       |             |
|                                                        | (25993) | 25993                                                                     | 26000 | 26010 | 26020 | 26030 | 26040 | 26050 26064 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (25987) | GACTGTGTTGTATTACACAGTTACTTCACCTCAGACTATTACCAGCTGTACTCAACTCAATTGAGTACAGAC  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (25933) | GACTGTGTTGTATTACACAGTTACTTCACCTCAGACTATTACCAGCTGTACTCAACTCAATTGAGTACAGAC  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (25975) | GACTGTGTTGTATTACACAGTTACTTCACCTCAGACTATTACCAGCTGTACTCAACTCAATTGAGTACAGAC  |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (25916) | GACTGTGTTGTATTACACAGTTACTTCACCTCAGACTATTACCAGCTGTACTCAACTCAATTGAGTACAGAC  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (25924) | GACTGTGTTGTATTACACAGTTACTTCACCTCAGACTATTACCAGCTGTACTCAACTCAATTGAGTACAGAC  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (25894) | GACTGTGTTGTATTACACAGTTACTTCACCTCAGACTATTACCAGCTGTACTCAACTCAATTGAGTACAGAC  |       |       |       |       |       |             |
|                                                        |         | Section 363                                                               |       |       |       |       |       |             |
|                                                        | (26065) | 26065                                                                     | 26070 | 26080 | 26090 | 26100 | 26110 | 26120 26136 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26059) | ACTGGTGTTGAACATGTTACCTTCTTCATCTACAATAAAATTTGTTGATGAGCCTGAAGAACATGTCCAAATT |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26005) | ACTGGTGTTGAACATGTTACCTTCTTCATCTACAATAAAATTTGTTGATGAGCCTGAAGAACATGTCCAAATT |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26047) | ACTGGTGTTGAACATGTTACCTTCTTCATCTACAATAAAATTTGTTGATGAGCCTGAAGAACATGTCCAAATT |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (25988) | ACTGGTGTTGAACATGTTACCTTCTTCATCTACAATAAAATTTGTTGATGAGCCTGAAGAACATGTCCAAATT |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (25996) | ACTGGTGTTGAACATGTTACCTTCTTCATCTACAATAAAATTTGTTGATGAGCCTGAAGAACATGTCCAAATT |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (25966) | ACTGGTGTTGAACATGTTACCTTCTTCATCTACAATAAAATTTGTTGATGAGCCTGAAGAACATGTCCAAATT |       |       |       |       |       |             |
|                                                        |         | Section 364                                                               |       |       |       |       |       |             |
|                                                        | (26137) | 26137                                                                     | 26150 | 26160 | 26170 | 26180 | 26190 | 26208       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26131) | CACACAATCGACGGTTCATCCGGAGTTGTTAATCCAGTAATGGAACCAATTTATGATGAACCGACGACGACT  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26077) | CACACAATCGACGGTTCATCCGGAGTTGTTAATCCAGTAATGGAACCAATTTATGATGAACCGACGACGACT  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26119) | CACACAATCGACGGTTCATCCGGAGTTGTTAATCCAGTAATGGAACCAATTTATGATGAACCGACGACGACT  |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (26060) | CACACAATCGACGGTTCATCCGGAGTTGTTAATCCAGTAATGGAACCAATTTATGATGAACCGACGACGACT  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (26068) | CACACAATCGACGGTTCATCCGGAGTTGTTAATCCAGTAATGGAACCAATTTATGATGAACCGACGACGACT  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26038) | CACACAATCGACGGTTCATCCGGAGTTGTTAATCCAGTAATGGAACCAATTTATGATGAACCGACGACGACT  |       |       |       |       |       |             |

Omicron BA.1

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|                                         |         | Section 365                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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|                                         | (26209) | 26209                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 26220 | 26230 | 26240 | 26250 | 26260 | 26270 | 26280 |
| SARS-CoV-2 Reference Genome NC 045512.2 | (26203) | ACTAGCGTGCCTTTGTAAGCACAAAGCTGATGAGTACGAACTTATGTACTCATTTCGTTTCGGAAGAGACAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAGGTTAG 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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------|-------|-------|-------|-------------|
|                                                        |         |                                                                           |                                                                       |                                                           |       |       |       | Section 369 |
|                                                        | (26497) | 26497                                                                     | 26510                                                                 | 26520                                                     | 26530 | 26540 | 26550 | 26568       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26491) | TAGTTTTTCTGTTTGGAACTTTAATTTTAGCCATGGCAG                                   | A                                                                     | TTCCAACGGTACTATTACCGTTGAAGAGCTTA                          |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26437) | TAGTTTTTCTGTTTGGAACTTTAATTTTAGCCATGGCAG                                   | G                                                                     | TTCCAACGGTACTATTACCGTTGAAGAGCTTA                          |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26479) | TAGTTTTTCTGTTTGGAACTTTAATTTTAGCCATGGCAG                                   | G                                                                     | TTCCAACGGTACTATTACCGTTGAAGAGCTTA                          |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26420) | TAGTTTTTCTGTTTGGAACTTTAATTTTAGCCATGGCAG                                   | G                                                                     | TTCCAACGGTACTATTACCGTTGAAGAGCTTA                          |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (26428) | TAGTTTTTCTGTTTGGAACTTTAATTTTAGCCATGGCAG                                   | G                                                                     | TTCCAACGGTACTATTACCGTTGAAGAGCTTA                          |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26398) | TAGTTTTTCTGTTTGGAACTTTAATTTTAGCCATGGCAG                                   | G                                                                     | TTCCAACGGTACTATTACCGTTGAAGAGCTTA                          |       |       |       |             |
|                                                        |         |                                                                           |                                                                       |                                                           |       |       |       | Section 370 |
|                                                        | (26569) | 26569                                                                     | 26580                                                                 | 26590                                                     | 26600 | 26610 | 26620 | 26630 26640 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26563) | AAAAGCTCCTTGAA                                                            | C                                                                     | AATGGAACCTAGTAATAGGTTTCCTATTCCCTTACATGGATTGTCTTCTACAATTTG |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26509) | AAAAGCTCCTTGAA                                                            | C                                                                     | AATGGAACCTAGTAATAGGTTTCCTATTCCCTTACATGGATTGTCTTCTACAATTTG |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26551) | AAAAGCTCCTTGAA                                                            | C                                                                     | AATGGAACCTAGTAATAGGTTTCCTATTCCCTTACATGGATTGTCTTCTACAATTTG |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26492) | AAAAGCTCCTTGAA                                                            | C                                                                     | AATGGAACCTAGTAATAGGTTTCCTATTCCCTTACATGGATTGTCTTCTACAATTTG |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (26500) | AAAAGCTCCTTGAA                                                            | C                                                                     | AATGGAACCTAGTAATAGGTTTCCTATTCCCTTACATGGATTGTCTTCTACAATTTG |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26470) | AAAAGCTCCTTGAA                                                            | C                                                                     | AATGGAACCTAGTAATAGGTTTCCTATTCCCTTACATGGATTGTCTTCTACAATTTG |       |       |       |             |
|                                                        |         |                                                                           |                                                                       |                                                           |       |       |       | Section 371 |
|                                                        | (26641) | 26641                                                                     | 26650                                                                 | 26660                                                     | 26670 | 26680 | 26690 | 26700 26712 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26635) | CCTATGCCAACAGGAATAGGTTTTTGTATATAATTAAGTTAATTTTCCTCTGGCTGTTATGGCCAGTAACCTT |                                                                       |                                                           |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26581) | CCTATGCCAACAGGAATAGGTTTTTGTATATAATTAAGTTAATTTTCCTCTGGCTGTTATGGCCAGTAACCTT |                                                                       |                                                           |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26623) | CCTATGCCAACAGGAATAGGTTTTTGTATATAATTAAGTTAATTTTCCTCTGGCTGTTATGGCCAGTAACCTT |                                                                       |                                                           |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26564) | CCTATGCCAACAGGAATAGGTTTTTGTATATAATTAAGTTAATTTTCCTCTGGCTGTTATGGCCAGTAACCTT |                                                                       |                                                           |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (26572) | CCTATGCCAACAGGAATAGGTTTTTGTATATAATTAAGTTAATTTTCCTCTGGCTGTTATGGCCAGTAACCTT |                                                                       |                                                           |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26542) | CCTATGCCAACAGGAATAGGTTTTTGTATATAATTAAGTTAATTTTCCTCTGGCTGTTATGGCCAGTAACCTT |                                                                       |                                                           |       |       |       |             |
|                                                        |         |                                                                           |                                                                       |                                                           |       |       |       | Section 372 |
|                                                        | (26713) | 26713                                                                     | 26720                                                                 | 26730                                                     | 26740 | 26750 | 26760 | 26770 26784 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26707) | TAG                                                                       | CTTGTTTTGTGCTTGCTGCTGTTTACAGAATAAATTGGATCACCGGTGGAATTGCTATCGCAATGGCTT |                                                           |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26653) | TAA                                                                       | CTTGTTTTGTGCTTGCTGCTGTTTACAGAATAAATTGGATCACCGGTGGAATTGCTATCGCAATGGCTT |                                                           |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26695) | TAA                                                                       | CTTGTTTTGTGCTTGCTGCTGTTTACAGAATAAATTGGATCACCGGTGGAATTGCTATCGCAATGGCTT |                                                           |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26636) | TAA                                                                       | CTTGTTTTGTGCTTGCTGCTGTTTACAGAATAAATTGGATCACCGGTGGAATTGCTATCGCAATGGCTT |                                                           |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (26644) | TAA                                                                       | CTTGTTTTGTGCTTGCTGCTGTTTACAGAATAAATTGGATCACCGGTGGAATTGCTATCGCAATGGCTT |                                                           |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (26614) | TAA                                                                       | CTTGTTTTGTGCTTGCTGCTGTTTACAGAATAAATTGGATCACCGGTGGAATTGCTATCGCAATGGCTT |                                                           |       |       |       |             |

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|--------------------------------------------------------|---------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |         | Section 373                                                                |       |       |       |       |       |       |       |
|                                                        | (26785) | 26785                                                                      | 26790 | 26800 | 26810 | 26820 | 26830 | 26840 | 26856 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26779) | GTCTTG TAGGCTTGATGTGGCTCAGCTACTTCATTGCTTCTTTTCAGACTGTTTGCGCGTACGCGTTCCATGT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26725) | GTCTTG TAGGCTTGATGTGGCTCAGCTACTTCATTGCTTCTTTTCAGACTGTTTGCGCGTACGCGTTCCATGT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26767) | GTCTTG TAGGCTTGATGTGGCTCAGCTACTTCATTGCTTCTTTTCAGACTGTTTGCGCGTACGCGTTCCATGT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26708) | GTCTTG TAGGCTTGATGTGGCTCAGCTACTTCATTGCTTCTTTTCAGACTGTTTGCGCGTACGCGTTCCATGT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (26716) | GTCTTG TAGGCTTGATGTGGCTCAGCTACTTCATTGCTTCTTTTCAGACTGTTTGCGCGTACGCGTTCCATGT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26686) | GTCTTG TAGGCTTGATGTGGCTCAGCTACTTCATTGCTTCTTTTCAGACTGTTTGCGCGTACGCGTTCCATGT |       |       |       |       |       |       |       |
|                                                        |         | Section 374                                                                |       |       |       |       |       |       |       |
|                                                        | (26857) | 26857                                                                      | 26870 | 26880 | 26890 | 26900 | 26910 | 26928 |       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26851) | GGTCATTCAATCCAGAACTAACATTCTTCTCAACGTGCCACTCCATGGCACTATTCTGACCAGACCGCTTC    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26797) | GGTCATTCAATCCAGAACTAACATTCTTCTCAACGTGCCACTCCATGGCACTATTCTGACCAGACCGCTTC    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26839) | GGTCATTCAATCCAGAACTAACATTCTTCTCAACGTGCCACTCCATGGCACTATTCTGACCAGACCGCTTC    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26780) | GGTCATTCAATCCAGAACTAACATTCTTCTCAACGTGCCACTCCATGGCACTATTCTGACCAGACCGCTTC    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (26788) | GGTCATTCAATCCAGAACTAACATTCTTCTCAACGTGCCACTCCATGGCACTATTCTGACCAGACCGCTTC    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26758) | GGTCATTCAATCCAGAACTAACATTCTTCTCAACGTGCCACTCCATGGCACTATTCTGACCAGACCGCTTC    |       |       |       |       |       |       |       |
|                                                        |         | Section 375                                                                |       |       |       |       |       |       |       |
|                                                        | (26929) | 26929                                                                      | 26940 | 26950 | 26960 | 26970 | 26980 | 26990 | 27000 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26923) | TAGAAAGTGAACCTCGTAATCGGAGCTGTGATCCTTCGTGGACATCTTCGTATTGCTGGACACCATCTAGGAC  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26869) | TAGAAAGTGAACCTCGTAATCGGAGCTGTGATCCTTCGTGGACATCTTCGTATTGCTGGACACCATCTAGGAC  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26911) | TAGAAAGTGAACCTCGTAATCGGAGCTGTGATCCTTCGTGGACATCTTCGTATTGCTGGACACCATCTAGGAC  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26852) | TAGAAAGTGAACCTCGTAATCGGAGCTGTGATCCTTCGTGGACATCTTCGTATTGCTGGACACCATCTAGGAC  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (26860) | TAGAAAGTGAACCTCGTAATCGGAGCTGTGATCCTTCGTGGACATCTTCGTATTGCTGGACACCATCTAGGAC  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26830) | TAGAAAGTGAACCTCGTAATCGGAGCTGTGATCCTTCGTGGACATCTTCGTATTGCTGGACACCATCTAGGAC  |       |       |       |       |       |       |       |
|                                                        |         | Section 376                                                                |       |       |       |       |       |       |       |
|                                                        | (27001) | 27001                                                                      | 27010 | 27020 | 27030 | 27040 | 27050 | 27060 | 27072 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (26995) | GCTGTGACATCAAGGACCTGCCTAAAGAAATCACTGTTGCTACATCACGAACGCTTTCTTATTACAAATTGG   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (26941) | GCTGTGACATCAAGGACCTGCCTAAAGAAATCACTGTTGCTACATCACGAACGCTTTCTTATTACAAATTGG   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (26983) | GCTGTGACATCAAGGACCTGCCTAAAGAAATCACTGTTGCTACATCACGAACGCTTTCTTATTACAAATTGG   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26924) | GCTGTGACATCAAGGACCTGCCTAAAGAAATCACTGTTGCTACATCACGAACGCTTTCTTATTACAAATTGG   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (26932) | GCTGTGACATCAAGGACCTGCCTAAAGAAATCACTGTTGCTACATCACGAACGCTTTCTTATTACAAATTGG   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (26902) | GCTGTGACATCAAGGACCTGCCTAAAGAAATCACTGTTGCTACATCACGAACGCTTTCTTATTACAAATTGG   |       |       |       |       |       |       |       |

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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------------|
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 377 |
|                                                        | (27073) | 27073                                                                     | 27080 | 27090 | 27100 | 27110 | 27120 | 27130 | 27144       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27067) | GAGCTTCGCAGCGTGTAGCAGGTGACTCAGGTTTTGCTGCATACAGTCGCTACAGGATTGGCAACTATAAAAT |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27013) | GAGCTTCGCAGCGTGTAGCAGGTGACTCAGGTTTTGCTGCATACAGTCGCTACAGGATTGGCAACTATAAAAT |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27055) | GAGCTTCGCAGCGTGTAGCAGGTGACTCAGGTTTTGCTGCATACAGTCGCTACAGGATTGGCAACTATAAAAT |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (26996) | GAGCTTCGCAGCGTGTAGCAGGTGACTCAGGTTTTGCTGCATACAGTCGCTACAGGATTGGCAACTATAAAAT |       |       |       |       |       |       |             |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (27004) | GAGCTTCGCAGCGTGTAGCAGGTGACTCAGGTTTTGCTGCATACAGTCGCTACAGGATTGGCAACTATAAAAT |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (26974) | GAGCTTCGCAGCGTGTAGCAGGTGACTCAGGTTTTGCTGCATACAGTCGCTACAGGATTGGCAACTATAAAAT |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 378 |
|                                                        | (27145) | 27145                                                                     | 27150 | 27160 | 27170 | 27180 | 27190 | 27200 | 27216       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27139) | TAAACACAGACCATTCCAGTAGCAGTGACAATATTGCTTTGCTTGTACAGTAAGTGACAACAGATGTTTCAT  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27085) | TAAACACAGACCATTCCAGTAGCAGTGACAATATTGCTTTGCTTGTACAGTAAGTGACAACAGATGTTTCAT  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27127) | TAAACACAGACCATTCCAGTAGCAGTGACAATATTGCTTTGCTTGTACAGTAAGTGACAACAGATGTTTCAT  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (27068) | TAAACACAGACCATTCCAGTAGCAGTGACAATATTGCTTTGCTTGTACAGTAAGTGACAACAGATGTTTCAT  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (27076) | TAAACACAGACCATTCCAGTAGCAGTGACAATATTGCTTTGCTTGTACAGTAAGTGACAACAGATGTTTCAT  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (27046) | TAAACACAGACCATTCCAGTAGCAGTGACAATATTGCTTTGCTTGTACAGTAAGTGACAACAGATGTTTCAT  |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 379 |
|                                                        | (27217) | 27217                                                                     | 27230 | 27240 | 27250 | 27260 | 27270 | 27288 |             |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27211) | CTCGTTGACTTTTCAGGTTACTATAGCAGAGATATTACTAATTATTATGAGGACTTTTAAAGTTTCCATTTGG |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27157) | CTCGTTGACTTTTCAGGTTACTATAGCAGAGATATTACTAATTATTATGCGGACTTTTAAAGTTTCCATTTGG |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27199) | CTCGTTGACTTTTCAGGTTACTATAGCAGAGATATTACTAATTATTATGCGGACTTTTAAAGTTTCCATTTGG |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (27140) | CTCGTTGACTTTTCAGGTTACTATAGCAGAGATATTACTAATTATTATGCGGACTTTTAAAGTTTCCATTTGG |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (27148) | CTCGTTGACTTTTCAGGTTACTATAGCAGAGATATTACTAATTATTATGCGGACTTTTAAAGTTTCCATTTGG |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (27118) | CTCGTTGACTTTTCAGGTTACTATAGCAGAGATATTACTAATTATTATGCGGACTTTTAAAGTTTCCATTTGG |       |       |       |       |       |       |             |
|                                                        |         |                                                                           |       |       |       |       |       |       | Section 380 |
|                                                        | (27289) | 27289                                                                     | 27300 | 27310 | 27320 | 27330 | 27340 | 27350 | 27360       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27283) | AATCTTGATTACATCATAAACCTCATAATTAAAAATTTATCTAAGTCACTAACTGAGAATAAATATTCTCAA  |       |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27229) | AATCTTGATTACATCATAAACCTCATAATTAAAAATTTATCTAAGTCACTAACTGAGAATAAATATTCTCAA  |       |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27271) | AATCTTGATTACATCATAAACCTCATAATTAAAAATTTATCTAAGTCACTAACTGAGAATAAATATTCTCAA  |       |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (27212) | AATCTTGATTACATCATAAACCTCATAATTAAAAATTTATCTAAGTCACTAACTGAGAATAAATATTCTCAA  |       |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (27220) | AATCTTGATTACATCATAAACCTCATAATTAAAAATTTATCTAAGTCACTAACTGAGAATAAATATTCTCAA  |       |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (27190) | AATCTTGATTACATCATAAACCTCATAATTAAAAATTTATCTAAGTCACTAACTGAGAATAAATATTCTCAA  |       |       |       |       |       |       |             |

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|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |         | Section 381                                                               |       |       |       |       |       |       |       |
|                                                        | (27361) | 27361                                                                     | 27370 | 27380 | 27390 | 27400 | 27410 | 27420 | 27432 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27355) | TTAGATGAAGAGCAACCAATGGAGATTGATTAAACGAACATGAAAATTATTCTTTTCTTGGCACTGATAACA  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27301) | TTAGATGAAGAGCAACCAATGGAGATTGATTAAACGAACATGAAAATTATTCTTTTCTTGGCACTGATAACA  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27343) | TTAGATGAAGAGCAACCAATGGAGATTGATTAAACGAACATGAAAATTATTCTTTTCTTGGCACTGATAACA  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (27284) | TTAGATGAAGAGCAACCAATGGAGATTGATTAAACGAACATGAAAATTATTCTTTTCTTGGCACTGATAACA  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... | (27292) | TTAGATGAAGAGCAACCAATGGAGATTGATTAAACGAACATGAAAATTATTCTTTTCTTGGCACTGATAACA  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (27262) | TTAGATGAAGAGCAACCAATGGAGATTGATTAAACGAACATGAAAATTATTCTTTTCTTGGCACTGATAACA  |       |       |       |       |       |       |       |
|                                                        |         | Section 382                                                               |       |       |       |       |       |       |       |
|                                                        | (27433) | 27433                                                                     | 27440 | 27450 | 27460 | 27470 | 27480 | 27490 | 27504 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27427) | CTCGCTACTTGTGAGCTTTATCACTACCAAGAGTGTGTTAGAGGTACAACAGTACTTTTAAAAGAACCTTGC  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27373) | CTCGCTACTTGTGAGCTTTATCACTACCAAGAGTGTGTTAGAGGTACAACAGTACTTTTAAAAGAACCTTGC  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27415) | CTCGCTACTTGTGAGCTTTATCACTACCAAGAGTGTGTTAGAGGTACAACAGTACTTTTAAAAGAACCTTGC  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (27356) | CTCGCTACTTGTGAGCTTTATCACTACCAAGAGTGTGTTAGAGGTACAACAGTACTTTTAAAAGAACCTTGC  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (27364) | CTCGCTACTTGTGAGCTTTATCACTACCAAGAGTGTGTTAGAGGTACAACAGTACTTTTAAAAGAACCTTGC  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (27334) | CTCGCTACTTGTGAGCTTTATCACTACCAAGAGTGTGTTAGAGGTACAACAGTACTTTTAAAAGAACCTTGC  |       |       |       |       |       |       |       |
|                                                        |         | Section 383                                                               |       |       |       |       |       |       |       |
|                                                        | (27505) | 27505                                                                     | 27510 | 27520 | 27530 | 27540 | 27550 | 27560 | 27576 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27499) | TCTTCTGGAACATACGAGGGCAATTCACCATTTTCATCCTCTAGCTGATAACAAATTTGCACTGACTTGCTTT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27445) | TCTTCTGGAACATACGAGGGCAATTCACCATTTTCATCCTCTAGCTGATAACAAATTTGCACTGACTTGCTTT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27487) | TCTTCTGGAACATACGAGGGCAATTCACCATTTTCATCCTCTAGCTGATAACAAATTTGCACTGACTTGCTTT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (27428) | TCTTCTGGAACATACGAGGGCAATTCACCATTTTCATCCTCTAGCTGATAACAAATTTGCACTGACTTGCTTT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (27436) | TCTTCTGGAACATACGAGGGCAATTCACCATTTTCATCCTCTAGCTGATAACAAATTTGCACTGACTTGCTTT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (27406) | TCTTCTGGAACATACGAGGGCAATTCACCATTTTCATCCTCTAGCTGATAACAAATTTGCACTGACTTGCTTT |       |       |       |       |       |       |       |
|                                                        |         | Section 384                                                               |       |       |       |       |       |       |       |
|                                                        | (27577) | 27577                                                                     | 27590 | 27600 | 27610 | 27620 | 27630 | 27648 |       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (27571) | AGCACTCAATTTGCTTTTGTCTTGCTGACGGCGTAAACACGTCTATCAGTTACGTGCCAGATCAGTTTCA    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (27517) | AGCACTCAATTTGCTTTTGTCTTGCTGACGGCGTAAACACGTCTATCAGTTACGTGCCAGATCAGTTTCA    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (27559) | AGCACTCAATTTGCTTTTGTCTTGCTGACGGCGTAAACACGTCTATCAGTTACGTGCCAGATCAGTTTCA    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (27500) | AGCACTCAATTTGCTTTTGTCTTGCTGACGGCGTAAACACGTCTATCAGTTACGTGCCAGATCAGTTTCA    |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (27508) | AGCACTCAATTTGCTTTTGTCTTGCTGACGGCGTAAACACGTCTATCAGTTACGTGCCAGATCAGTTTCA    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423...   | (27478) | AGCACTCAATTTGCTTTTGTCTTGCTGACGGCGTAAACACGTCTATCAGTTACGTGCCAGATCAGTTTCA    |       |       |       |       |       |       |       |

## Omicron BA.1

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|--------------------------------------------------------|--|-------------|-----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                        |  | Section 393 |                                                                             |       |       |       |       |       |       |       |
|                                                        |  | (28225)     | 28225                                                                       | 28230 | 28240 | 28250 | 28260 | 28270 | 28280 | 28296 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (28219)     | TAGAGTATCATGACGTTTCGTGTTGTTTTAGATTTTCATCTAAACGAACAAACTTAAAATGTCTGATAATGGACC |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (28165)     | TAGAGTATCATGACGTTTCGTGTTGTTTTAGATTTTCATCTAAACGAACAAACTTAAAATGTCTGATAATGGACC |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (28207)     | TAGAGTATCATGACGTTTCGTGTTGTTTTAGATTTTCATCTAAACGAACAAACTTAAAATGTCTGATAATGGACC |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (28148)     | TAGAGTATCATGACGTTTCGTGTTGTTTTAGATTTTCATCTAAACGAACAAACTTAAAATGTCTGATAATGGACC |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (28156)     | TAGAGTATCATGACGTTTCGTGTTGTTTTAGATTTTCATCTAAACGAACAAACTTAAAATGTCTGATAATGGACC |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (28126)     | TAGAGTATCATGACGTTTCGTGTTGTTTTAGATTTTCATCTAAACGAACAAACTTAAAATGTCTGATAATGGACC |       |       |       |       |       |       |       |
|                                                        |  | Section 394 |                                                                             |       |       |       |       |       |       |       |
|                                                        |  | (28297)     | 28297                                                                       | 28310 | 28320 | 28330 | 28340 | 28350 | 28368 |       |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (28291)     | CCAAAATCAGCGAAATGCACCCCGCATTACGTTTGGTGGACCCCTCAGATTCAACTGGCAGTAACCAGAATGG   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (28237)     | CCAAAATCAGCGAAATGCACCCCGCATTACGTTTGGTGGACCCCTCAGATTCAACTGGCAGTAACCAGAATGG   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (28279)     | CCAAAATCAGCGAAATGCACCCCGCATTACGTTTGGTGGACCCCTCAGATTCAACTGGCAGTAACCAGAATGG   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (28220)     | CCAAAATCAGCGAAATGCACCCCGCATTACGTTTGGTGGACCCCTCAGATTCAACTGGCAGTAACCAGAATGG   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (28228)     | CCAAAATCAGCGAAATGCACCCCGCATTACGTTTGGTGGACCCCTCAGATTCAACTGGCAGTAACCAGAATGG   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (28198)     | CCAAAATCAGCGAAATGCACCCCGCATTACGTTTGGTGGACCCCTCAGATTCAACTGGCAGTAACCAGAATGG   |       |       |       |       |       |       |       |
|                                                        |  | Section 395 |                                                                             |       |       |       |       |       |       |       |
|                                                        |  | (28369)     | 28369                                                                       | 28380 | 28390 | 28400 | 28410 | 28420 | 28430 | 28440 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (28363)     | AGAACGCAATGGGGCGCGATCAAAACAACGTCGGCCCCAAGGTTTACCCAATAATACTGCGTCTTGGTTTCAC   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (28309)     | NNNNNNNNATGGGGCGCGATCAAAACAACGTCGGCCCCAAGGTTTACCCAATAATACTGCGTCTTGGTTTCAC   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (28351)     | AGAACGCAATGGGGCGCGATCAAAACAACGTCGGCCCCAAGGTTTACCCAATAATACTGCGTCTTGGTTTCAC   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (28292)     | -----TGGGGCGCGATCAAAACAACGTCGGCCCCAAGGTTTACCCAATAATACTGCGTCTTGGTTTCAC       |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (28300)     | -----TGGGGCGCGATCAAAACAACGTCGGCCCCAAGGTTTACCCAATAATACTGCGTCTTGGTTTCAC       |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   |  | (28270)     | -----TGGGGCGCGATCAAAACAACGTCGGCCCCAAGGTTTACCCAATAATACTGCGTCTTGGTTTCAC       |       |       |       |       |       |       |       |
|                                                        |  | Section 396 |                                                                             |       |       |       |       |       |       |       |
|                                                        |  | (28441)     | 28441                                                                       | 28450 | 28460 | 28470 | 28480 | 28490 | 28500 | 28512 |
| SARS-CoV-2 Reference Genome NC_045512.2                |  | (28435)     | CGCTCTCACTCAACATGGCAAGGAAGACCTTAAATTCCCTCGAGGACAAGGCGTTCCAATTAACACCAATAG    |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP_916539/2021 EPI_ISL_90...  |  | (28381)     | CGCTCTCACTCAACATGGCAAGGAAGACCTTAAATTCCCTCGAGGACAAGGCGTTCCAATTAACACCAATAG    |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  |  | (28423)     | CGCTCTCACTCAACATGGCAAGGAAGACCTTAAATTCCCTCGAGGACAAGGCGTTCCAATTAACACCAATAG    |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI_ISL_9062229 ...   |  | (28355)     | CGCTCTCACTCAACATGGCAAGGAAGACCTTAAATTCCTCGAGGACAAGGCGTTCCAATTAACACCAATAG     |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI_ISL_905522... |  | (28363)     | CGCTCTCACTCAACATGGCAAGGAAGACCTTAAATTCCCTCGAGGACAAGGCGTTCCAATTAACACCAATAG    |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI_ISL_9049423...   |  | (28333)     | CGCTCTCACTCAACATGGCAAGGAAGACCTTAAATTCCCTCGAGGACAAGGCGTTCCAATTAACACCAATAG    |       |       |       |       |       |       |       |

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|                                                        |         | Section 397 |                                                                           |       |       |       |       |       |             |
|--------------------------------------------------------|---------|-------------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | (28513)     | 28513                                                                     | 28520 | 28530 | 28540 | 28550 | 28560 | 28570 28584 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (28507) |             | CAGTCCAGATGACCAAATTTGGCTACTACCGAAGAGCTACCAGACGAATTCGTGGTGGTGACGGTAAAATGAA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (28453) |             | CAGTCCAGATGACCAAATTTGGCTACTACCGAAGAGCTACCAGACGAATTCGTGGTGGTGACGGTAAAATGAA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (28495) |             | CAGTCCAGATGACCAAATTTGGCTACTACCGAAGAGCTACCAGACGAATTCGTGGTGGTGACGGTAAAATGAA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (28427) |             | CAGTCCAGATGACCAAATTTGGCTACTACCGAAGAGCTACCAGACGAATTCGTGGTGGTGACGGTAAAATGAA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (28435) |             | CAGTCCAGATGACCAAATTTGGCTACTACCGAAGAGCTACCAGACGAATTCGTGGTGGTGACGGTAAAATGAA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (28405) |             | CAGTCCAGATGACCAAATTTGGCTACTACCGAAGAGCTACCAGACGAATTCGTGGTGGTGACGGTAAAATGAA |       |       |       |       |       |             |
|                                                        |         | Section 398 |                                                                           |       |       |       |       |       |             |
|                                                        |         | (28585)     | 28585                                                                     | 28590 | 28600 | 28610 | 28620 | 28630 | 28640 28656 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (28579) |             | AGATCTCAGTCCAAGATGGTATTTCTACTACCTAGGAACTGGGCCAGAAGCTGGACTTCCCTATGGTGCTAA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (28525) |             | AGATCTCAGTCCAAGATGGTATTTCTACTACCTAGGAACTGGGCCAGAAGCTGGACTTCCCTATGGTGCTAA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (28567) |             | AGATCTCAGTCCAAGATGGTATTTCTACTACCTAGGAACTGGGCCAGAAGCTGGACTTCCCTATGGTGCTAA  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (28499) |             | AGATCTCAGTCCAAGATGGTATTTCTACTACCTAGGAACTGGGCCAGAAGCTGGACTTCCCTATGGTGCTAA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (28507) |             | AGATCTCAGTCCAAGATGGTATTTCTACTACCTAGGAACTGGGCCAGAAGCTGGACTTCCCTATGGTGCTAA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (28477) |             | AGATCTCAGTCCAAGATGGTATTTCTACTACCTAGGAACTGGGCCAGAAGCTGGACTTCCCTATGGTGCTAA  |       |       |       |       |       |             |
|                                                        |         | Section 399 |                                                                           |       |       |       |       |       |             |
|                                                        |         | (28657)     | 28657                                                                     | 28670 | 28680 | 28690 | 28700 | 28710 | 28728       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (28651) |             | CAAAGACGGCATCATATGGGTTGCAACTGAGGGAGCCTTGAATACACCAAAAGATCAATTGGCACCCGCAA   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (28597) |             | CAAAGACGGCATCATATGGGTTGCAACTGAGGGAGCCTTGAATACACCAAAAGATCAATTGGCACCCGCAA   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (28639) |             | CAAAGACGGCATCATATGGGTTGCAACTGAGGGAGCCTTGAATACACCAAAAGATCAATTGGCACCCGCAA   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (28571) |             | CAAAGACGGCATCATATGGGTTGCAACTGAGGGAGCCTTGAATACACCAAAAGATCAATTGGCACCCGCAA   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (28579) |             | CAAAGACGGCATCATATGGGTTGCAACTGAGGGAGCCTTGAATACACCAAAAGATCAATTGGCACCCGCAA   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (28549) |             | CAAAGACGGCATCATATGGGTTGCAACTGAGGGAGCCTTGAATACACCAAAAGATCAATTGGCACCCGCAA   |       |       |       |       |       |             |
|                                                        |         | Section 400 |                                                                           |       |       |       |       |       |             |
|                                                        |         | (28729)     | 28729                                                                     | 28740 | 28750 | 28760 | 28770 | 28780 | 28790 28800 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (28723) |             | TCCTGCTAACAATGCTGCAATCGTGCTACAACCTCCTCAAGGAACAACATTGCCAAAAGGCTTCTACGCAGA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (28669) |             | TCCTGCTAACAATGCTGCAATCGTGCTACAACCTCCTCAAGGAACAACATTGCCAAAAGGCTTCTACGCAGA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (28711) |             | TCCTGCTAACAATGCTGCAATCGTGCTACAACCTCCTCAAGGAACAACATTGCCAAAAGGCTTCTACGCAGA  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (28643) |             | TCCTGCTAACAATGCTGCAATCGTGCTACAACCTCCTCAAGGAACAACATTGCCAAAAGGCTTCTACGCAGA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (28651) |             | TCCTGCTAACAATGCTGCAATCGTGCTACAACCTCCTCAAGGAACAACATTGCCAAAAGGCTTCTACGCAGA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (28621) |             | TCCTGCTAACAATGCTGCAATCGTGCTACAACCTCCTCAAGGAACAACATTGCCAAAAGGCTTCTACGCAGA  |       |       |       |       |       |             |

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|----------------------------------------------------------------|--|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                                                |  | Section 401 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (28801)     | 28801                                                                      | 28810 | 28820 | 28830 | 28840 | 28850 | 28860 | 28872 |
| SARS-CoV-2 Reference Genome NC 045512.2 (28795)                |  |             | AGGGAGCAGAGGCGGCAGTCAAGCCTCTTCTCGTTCCCTCATCACGTAGTCGCAACAGTTCAAGAAATTCAAC  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (28741)  |  |             | AGGGAGCAGAGGCGGCAGTCAAGCCTCTTCTCGTTCCCTCATCACGTAGTCGCAACAGTTCAAGAAATTCAAC  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (28783)  |  |             | AGGGAGCAGAGGCGGCAGTCAAGCCTCTTCTCGTTCCCTCATCACGTAGTCGCAACAGTTCAAGAAATTCAAC  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (28715)   |  |             | AGGGAGCAGAGGCGGCAGTCAAGCCTCTTCTCGTTCCCTCATCACGTAGTCGCAACAGTTCAAGAAATTCAAC  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HF-RKI-I-438397/2022 EPI ISL 905522... (28723) |  |             | AGGGAGCAGAGGCGGCAGTCAAGCCTCTTCTCGTTCCCTCATCACGTAGTCGCAACAGTTCAAGAAATTCAAC  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (28693)   |  |             | AGGGAGCAGAGGCGGCAGTCAAGCCTCTTCTCGTTCCCTCATCACGTAGTCGCAACAGTTCAAGAAATTCAAC  |       |       |       |       |       |       |       |
|                                                                |  | Section 402 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (28873)     | 28873                                                                      | 28880 | 28890 | 28900 | 28910 | 28920 | 28930 | 28944 |
| SARS-CoV-2 Reference Genome NC 045512.2 (28867)                |  |             | TCCAGGCAGCAGTAAAGGAACCTTCTCCTGCTAGAAATGGCTGGCAATGGCGGTGATGCTGCTCTTGCTTTGCT |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (28813)  |  |             | TCCAGGCAGCAGTAAAGGAACCTTCTCCTGCTAGAAATGGCTGGCAATGGCGGTGATGCTGCTCTTGCTTTGCT |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (28855)  |  |             | TCCAGGCAGCAGTAAAGGAACCTTCTCCTGCTAGAAATGGCTGGCAATGGCGGTGATGCTGCTCTTGCTTTGCT |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (28787)   |  |             | TCCAGGCAGCAGTAAAGGAACCTTCTCCTGCTAGAAATGGCTGGCAATGGCGGTGATGCTGCTCTTGCTTTGCT |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (28795) |  |             | TCCAGGCAGCAGTAAAGGAACCTTCTCCTGCTAGAAATGGCTGGCAATGGCGGTGATGCTGCTCTTGCTTTGCT |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (28765)   |  |             | TCCAGGCAGCAGTAAAGGAACCTTCTCCTGCTAGAAATGGCTGGCAATGGCGGTGATGCTGCTCTTGCTTTGCT |       |       |       |       |       |       |       |
|                                                                |  | Section 403 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (28945)     | 28945                                                                      | 28950 | 28960 | 28970 | 28980 | 28990 | 29000 | 29016 |
| SARS-CoV-2 Reference Genome NC 045512.2 (28939)                |  |             | GCTGCTTGACAGATTGAACCAGCTTGAGAGCAAAATGTCTGGTAAAGGCCAACAACAACAAGGCCAAACTGT   |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (28885)  |  |             | GCTGCTTGACAGATTGAACCAGCTTGAGAGCAAAATGTCTGGTAAAGGCCAACAACAACAAGGCCAAACTGT   |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (28927)  |  |             | GCTGCTTGACAGATTGAACCAGCTTGAGAGCAAAATGTCTGGTAAAGGCCAACAACAACAAGGCCAAACTGT   |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (28859)   |  |             | GCTGCTTGACAGATTGAACCAGCTTGAGAGCAAAATGTCTGGTAAAGGCCAACAACAACAAGGCCAAACTGT   |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (28867) |  |             | GCTGCTTGACAGATTGAACCAGCTTGAGAGCAAAATGTCTGGTAAAGGCCAACAACAACAAGGCCAAACTGT   |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423... (28837)   |  |             | GCTGCTTGACAGATTGAACCAGCTTGAGAGCAAAATGTCTGGTAAAGGCCAACAACAACAAGGCCAAACTGT   |       |       |       |       |       |       |       |
|                                                                |  | Section 404 |                                                                            |       |       |       |       |       |       |       |
|                                                                |  | (29017)     | 29017                                                                      | 29030 | 29040 | 29050 | 29060 | 29070 | 29088 |       |
| SARS-CoV-2 Reference Genome NC 045512.2 (29011)                |  |             | CACTAAGAAATCTGCTGCTGAGGCTTCTAAGAAGCCTCGGCCAAAAACGTACTGCCACTAAAGCATACAATGT  |       |       |       |       |       |       |       |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90... (28957)  |  |             | CACTAAGAAATCTGCTGCTGAGGCTTCTAAGAAGCCTCGGCCAAAAACGTACTGCCACTAAAGCATACAATGT  |       |       |       |       |       |       |       |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI... (28999)  |  |             | CACTAAGAAATCTGCTGCTGAGGCTTCTAAGAAGCCTCGGCCAAAAACGTACTGCCACTAAAGCATACAATGT  |       |       |       |       |       |       |       |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ... (28931)   |  |             | CACTAAGAAATCTGCTGCTGAGGCTTCTAAGAAGCCTCGGCCAAAAACGTACTGCCACTAAAGCATACAATGT  |       |       |       |       |       |       |       |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... (28939) |  |             | CACTAAGAAATCTGCTGCTGAGGCTTCTAAGAAGCCTCGGCCAAAAACGTACTGCCACTAAAGCATACAATGT  |       |       |       |       |       |       |       |
| hCoV-19/USA/DE-CDC-LC0472738/2021 EPI ISL 9049423... (28909)   |  |             | CACTAAGAAATCTGCTGCTGAGGCTTCTAAGAAGCCTCGGCCAAAAACGTACTGCCACTAAAGCATACAATGT  |       |       |       |       |       |       |       |

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|                                                        |         | Section 405 |                                                                            |       |       |       |       |       |             |
|--------------------------------------------------------|---------|-------------|----------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | (29089)     | 29089                                                                      | 29100 | 29110 | 29120 | 29130 | 29140 | 29150 29160 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29083) |             | AACACAAGCTTTTCGGCAGACGTGGTCCAGAACAAACCCAAGGAAATTTTGGGGACCAGGAACATAATCAGACA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29029) |             | AACACAAGCTTTTCGGCAGACGTGGTCCAGAACAAACCCAAGGAAATTTTGGGGACCAGGAACATAATCAGACA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29071) |             | AACACAAGCTTTTCGGCAGACGTGGTCCAGAACAAACCCAAGGAAATTTTGGGGACCAGGAACATAATCAGACA |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (29003) |             | AACACAAGCTTTTCGGCAGACGTGGTCCAGAACAAACCCAAGGAAATTTTGGGGACCAGGAACATAATCAGACA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29011) |             | AACACAAGCTTTTCGGCAGACGTGGTCCAGAACAAACCCAAGGAAATTTTGGGGACCAGGAACATAATCAGACA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (28981) |             | AACACAAGCTTTTCGGCAGACGTGGTCCAGAACAAACCCAAGGAAATTTTGGGGACCAGGAACATAATCAGACA |       |       |       |       |       |             |
|                                                        |         | Section 406 |                                                                            |       |       |       |       |       |             |
|                                                        |         | (29161)     | 29161                                                                      | 29170 | 29180 | 29190 | 29200 | 29210 | 29220 29232 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29155) |             | AGGAACTGATTACAAACATTGGCCGCAAAATTGCACAATTTGCCCCAGCGCTTCAGCGTTCTTCGGAATGTC   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29101) |             | AGGAACTGATTACAAACATTGGCCGCAAAATTGCACAATTTGCCCCAGCGCTTCAGCGTTCTTCGGAATGTC   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29143) |             | AGGAACTGATTACAAACATTGGCCGCAAAATTGCACAATTTGCCCCAGCGCTTCAGCGTTCTTCGGAATGTC   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (29075) |             | AGGAACTGATTACAAACATTGGCCGCAAAATTGCACAATTTGCCCCAGCGCTTCAGCGTTCTTCGGAATGTC   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29083) |             | AGGAACTGATTACAAACATTGGCCGCAAAATTGCACAATTTGCCCCAGCGCTTCAGCGTTCTTCGGAATGTC   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29053) |             | AGGAACTGATTACAAACATTGGCCGCAAAATTGCACAATTTGCCCCAGCGCTTCAGCGTTCTTCGGAATGTC   |       |       |       |       |       |             |
|                                                        |         | Section 407 |                                                                            |       |       |       |       |       |             |
|                                                        |         | (29233)     | 29233                                                                      | 29240 | 29250 | 29260 | 29270 | 29280 | 29290 29304 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29227) |             | GCGCATTGGCATGGAAGTCACACCTTCGGGAACGTGGTTGACCTACACAGGTGCCATCAAATTGGATGACAA   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29173) |             | GCGCATTGGCATGGAAGTCACACCTTCGGGAACGTGGTTGACCTACACAGGTGCCATCAAATTGGATGACAA   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29215) |             | GCGCATTGGCATGGAAGTCACACCTTCGGGAACGTGGTTGACCTACACAGGTGCCATCAAATTGGATGACAA   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (29147) |             | GCGCATTGGCATGGAAGTCACACCTTCGGGAACGTGGTTGACCTACACAGGTGCCATCAAATTGGATGACAA   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29155) |             | GCGCATTGGCATGGAAGTCACACCTTCGGGAACGTGGTTGACCTACACAGGTGCCATCAAATTGGATGACAA   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29125) |             | GCGCATTGGCATGGAAGTCACACCTTCGGGAACGTGGTTGACCTACACAGGTGCCATCAAATTGGATGACAA   |       |       |       |       |       |             |
|                                                        |         | Section 408 |                                                                            |       |       |       |       |       |             |
|                                                        |         | (29305)     | 29305                                                                      | 29310 | 29320 | 29330 | 29340 | 29350 | 29360 29376 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29299) |             | AGATCCAAATTTCAAAGATCAAGTCATTTTGCTGAATAAGCATATTGACGCATACAAAACATTCCCACCAAC   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29245) |             | AGATCCAAATTTCAAAGATCAAGTCATTTTGCTGAATAAGCATATTGACGCATACAAAACATTCCCACCAAC   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29287) |             | AGATCCAAATTTCAAAGATCAAGTCATTTTGCTGAATAAGCATATTGACGCATACAAAACATTCCCACCAAC   |       |       |       |       |       |             |
| hCoV-19/England/PLYM-332B917/2022 EPI ISL 9062229 ...  | (29219) |             | AGATCCAAATTTCAAAGATCAAGTCATTTTGCTGAATAAGCATATTGACGCATACAAAACATTCCCACCAAC   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29227) |             | AGATCCAAATTTCAAAGATCAAGTCATTTTGCTGAATAAGCATATTGACGCATACAAAACATTCCCACCAAC   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29197) |             | AGATCCAAATTTCAAAGATCAAGTCATTTTGCTGAATAAGCATATTGACGCATACAAAACATTCCCACCAAC   |       |       |       |       |       |             |

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|                                                        |         | Section 409                                                               |       |       |       |       |       |             |
|--------------------------------------------------------|---------|---------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------------|
|                                                        |         | 29377                                                                     | 29390 | 29400 | 29410 | 29420 | 29430 | 29448       |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29377) | AGAGCCTAAAAAGGACAAAAAGAAGAAGGCTGATGAAACTCAAGCCTTACCGCAGAGACAGAAGAAACAGCA  |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29317) | AGAGCCTAAAAAGGACAAAAAGAAGAAGGCTGATGAAACTCAAGCCTTACCGCAGAGACAGAAGAAACAGCA  |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29359) | AGAGCCTAAAAAGGACAAAAAGAAGAAGGCTGATGAAACTCAAGCCTTACCGCAGAGACAGAAGAAACAGCA  |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (29291) | AGAGCCTAAAAAGGACAAAAAGAAGAAGGCTGATGAAACTCAAGCCTTACCGCAGAGACAGAAGAAACAGCA  |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29299) | AGAGCCTAAAAAGGACAAAAAGAAGAAGGCTGATGAAACTCAAGCCTTACCGCAGAGACAGAAGAAACAGCA  |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29269) | AGAGCCTAAAAAGGACAAAAAGAAGAAGGCTGATGAAACTCAAGCCTTACCGCAGAGACAGAAGAAACAGCA  |       |       |       |       |       |             |
|                                                        |         | Section 410                                                               |       |       |       |       |       |             |
|                                                        |         | 29449                                                                     | 29460 | 29470 | 29480 | 29490 | 29500 | 29510 29520 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29449) | AACTGTGACTCTTCTTCTGCTGCAGATTTGGATGATTTCTCCAAACAATTGCAACAATCCATGAGCAGTGC   |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29389) | AACTGTGACTCTTCTTCTGCTGCAGATTTGGATGATTTCTCCAAACAATTGCAACAATCCATGAGCAGTGC   |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29431) | AACTGTGACTCTTCTTCTGCTGCAGATTTGGATGATTTCTCCAAACAATTGCAACAATCCATGAGCAGTGC   |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (29363) | AACTGTGACTCTTCTTCTGCTGCAGATTTGGATGATTTCTCCAAACAATTGCAACAATCCATGAGCAGTGC   |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29371) | AACTGTGACTCTTCTTCTGCTGCAGATTTGGATGATTTCTCCAAACAATTGCAACAATCCATGAGCAGTGC   |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29341) | AACTGTGACTCTTCTTCTGCTGCAGATTTGGATGATTTCTCCAAACAATTGCAACAATCCATGAGCAGTGC   |       |       |       |       |       |             |
|                                                        |         | Section 411                                                               |       |       |       |       |       |             |
|                                                        |         | 29521                                                                     | 29530 | 29540 | 29550 | 29560 | 29570 | 29580 29592 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29521) | TGACTCAACTCAGGCCTAAACTCATGCAGACCACACAAGGCAGATGGGCTATATAAACGTTTTTCGCTTTTCC |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29461) | TGACTCAACTCAGGCCTAAACTCATGCAGACCACACAAGGCAGATGGGCTATATAAACGTTTTTCGCTTTTCC |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29503) | TGACTCAACTCAGGCCTAAACTCATGCAGACCACACAAGGCAGATGGGCTATATAAACGTTTTTCGCTTTTCC |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (29435) | TGACTCAACTCAGGCCTAAACTCATGCAGACCACACAAGGCAGATGGGCTATATAAACGTTTTTCGCTTTTCC |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29443) | TGACTCAACTCAGGCCTAAACTCATGCAGACCACACAAGGCAGATGGGCTATATAAACGTTTTTCGCTTTTCC |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29413) | TGACTCAACTCAGGCCTAAACTCATGCAGACCACACAAGGCAGATGGGCTATATAAACGTTTTTCGCTTTTCC |       |       |       |       |       |             |
|                                                        |         | Section 412                                                               |       |       |       |       |       |             |
|                                                        |         | 29593                                                                     | 29600 | 29610 | 29620 | 29630 | 29640 | 29650 29664 |
| SARS-CoV-2 Reference Genome NC 045512.2                | (29593) | GTTTACGATATATAGTCTACTCTTGTGCAGAATGAATTCTCGTAACTACATAGCACAAAGTAGATGTAGTTAA |       |       |       |       |       |             |
| hCoV-19/Botswana/R69B55 BHP 916539/2021 EPI ISL 90...  | (29587) | GTTTACGATATATAGTCTACTCTTGTGCAGAATGAATTCTCGTAACTACATAGCACAAAGTAGATGTAGTTAA |       |       |       |       |       |             |
| hCoV-19/India/HR-MDU-IGIB1210605800489930/2022 EPI...  | (29533) | GTTTACGATATATAGTCTACTCTTGTGCAGAATGAATTCTCGTAACTACATAGCACAAAGTAGATGTAGTTAA |       |       |       |       |       |             |
| hCoV-19/Enland/PLYM-332B917/2022 EPI ISL 9062229 ...   | (29575) | GTTTACGATATATAGTCTACTCTTGTGCAGAATGAATTCTCGTAACTACATAGCACAAAGTAGATGTAGTTAA |       |       |       |       |       |             |
| hCoV-19/Germany/HE-RKI-I-438397/2022 EPI ISL 905522... | (29507) | GTTTACGATATATAGTCTACTCTTGTGCAGAATGAATTCTCGTAACTACATAGCACAAAGTAGATGTAGTTAA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29515) | GTTTACGATATATAGTCTACTCTTGTGCAGAATGAATTCTCGTAACTACATAGCACAAAGTAGATGTAGTTAA |       |       |       |       |       |             |
| hCoV-19/USA/DE-CDC-LC0472738/2021_EPI_ISL_9049423...   | (29485) | GTTTACGATATATAGTCTACTCTTGTGCAGAATGAATTCTCGTAACTACATAGCACAAAGTAGATGTAGTTAA |       |       |       |       |       |             |

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