

## Supplementary Information

Table. Summary of neuronal subclass and related function

| Class              | Area                    | Subclass (main targets)      | Related Function  |
|--------------------|-------------------------|------------------------------|---|
| IT neuron          | MOs (medial)            | IT-5 (AUD)                   | Corollary discharge in the auditory cortex <sup>1</sup>   |
|                    | ACA                     | IT-5 (VIS)                   | Top-down modulation on visual processing <sup>2</sup>   |
|                    |                         | IT-6 (RSP)                   |   |
|                    | ORBm                    | IT-1 (ENT)                   |   |
|                    | ORBvl                   | IT-5 (AUD)                   | Associative learning <sup>3</sup>   |
|                    | ORB1                    | IT-3 (SS)                    | Flexible behavior <sup>4</sup>  |
|                    | Ald                     | IT-2 (Alp)                   |   |
|                    |                         | IT-4 (MOp)                   |   |
| AIV                | IT-1 (ENT)              |                              |   |
|                    | IT-2 (Alp)              |                              |   |
| PT neuron          | MOs                     | PT-2 (MY)                    | Motor execution <sup>5</sup>  |
|                    |                         | PT-1 (TH)                    | Motor planning <sup>5</sup>   |
|                    | ACAd                    | PT-5 (SCm)                   | Top-down modulation on visual processing <sup>6</sup>   |
|                    |                         | PT-6 (Pons)                  |   |
|                    | ACAv                    | PT-4 (SCm)                   | Top-down modulation on visual processing <sup>6</sup>   |
|                    |                         | PT-8 (HY)                    |   |
|                    | ORB1                    | PT-1 (SCm)                   |   |
|                    | Ald                     | PT-2 (MY)                    |   |
| PT-11, 12 (TH, HY) |                         | Feeding control <sup>7</sup> |   |
| CT neuron          | MOs (anterior, lateral) | CT-3 (MD, VM)                | Motor preparation and persistent activity <sup>8</sup>  |
|                    | MOs (posterior, medial) | CT-1 (CL, LD)                |   |
|                    | ACAd                    | CT-1, 2 (CL, LD, AD)         |   |
|                    | ACAv                    | CT-2 (CL, AD)                |   |
|                    | PL/IL/ORBm (mPFC)       | CT-6 (MD, RE, PT)            | Sustaining prefrontal activity during working memory maintenance <sup>9</sup> ;<br>thalamic control of functional cortical connectivity <sup>10</sup> |
|                    | ORBvl                   | CT-4, 6 (MD, RE)             |   |
|                    | ORB1                    | CT-3, 4, 5 (MD, SMT)         |   |
|                    | Ald                     | CT-3, 4 (MD, VM)             |   |

## Reference

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