

| Figure     | Strain              | Condition                   | Median $\pm$ SEM<br>(days) | \$ Max $\pm$ SEM<br>(days) | # deaths/total | P value        |                      |
|------------|---------------------|-----------------------------|----------------------------|----------------------------|----------------|----------------|----------------------|
|            |                     |                             |                            |                            |                | vs control     | vs <i>phb-1</i> RNAi |
| Figure 1a  | N2                  | Control RNAi                | 18 $\pm$ 1                 | 22.49 $\pm$ 1.02           | 336/489 (3)    |                |                      |
|            |                     | <i>atfs-1</i> RNAi          | 18.33 $\pm$ 0.88           | 22.53 $\pm$ 1.45           | 350/490 (3)    | 0.5436 (ns)    |                      |
|            |                     | <i>phb-1</i> RNAi           | 16.33 $\pm$ 1.2            | 18.68 $\pm$ 1.59           | 250/490 (3)    |                |                      |
|            |                     | <i>phb-1;atfs-1</i> RNAi    | 17 $\pm$ 1.53              | 20.49 $\pm$ 1.86           | 358/490 (3)    |                | 0.0139 (*)           |
| Figure S1a | <i>phb-2</i>        | Control RNAi                | 17.67 $\pm$ 0.33           | 23.43 $\pm$ 0.43           | 137/151 (2)    |                |                      |
|            |                     | <i>atfs-1</i> RNAi          | 18.67 $\pm$ 0.88           | 22.5 $\pm$ 0.2             | 177/203 (2)    | 0.9568 (ns)    |                      |
| Figure 1b  | <i>daf-2</i>        | Control RNAi                | 44.75 $\pm$ 2.02           | 53.62 $\pm$ 3.28           | 332/625 (4)    |                |                      |
|            |                     | <i>atfs-1</i> RNAi          | 33.67 $\pm$ 4.33           | 39.13 $\pm$ 5.32           | 367/514 (3)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 75 $\pm$ 10                | 103.7 $\pm$ 1.94           | 211/300 (2)    |                |                      |
|            |                     | <i>phb-1;atfs-1</i> RNAi    | 51 $\pm$ 7                 | 53.64 $\pm$ 6.6            | 213/236 (2)    |                | <0.0001 (****)       |
| Figure S1b | <i>phb-2;daf-2</i>  | Control RNAi                | 54.33 $\pm$ 4.26           | 73.33 $\pm$ 1.06           | 150/276 (2)    |                |                      |
|            |                     | <i>atfs-1</i> RNAi          | 26.33 $\pm$ 1.76           | 35.67 $\pm$ 0.69           | 208/250 (2)    | <0.0001 (****) |                      |
| Figure S1c | N2                  | OP50-1                      | 13.67 $\pm$ 0.33           | 23.43 $\pm$ 0.44           | 282/403 (3)    |                |                      |
|            | <i>atfs-1</i>       | OP50-1                      | 16.33 $\pm$ 0.88           | 25.09 $\pm$ 0.76           | 116/393 (3)    | <0.0001 (****) |                      |
|            | <i>daf-2</i>        | OP50-1                      | 49 $\pm$ 3.46              | 64.6 $\pm$ 1.26            | 146/430 (3)    |                |                      |
|            | <i>daf-2;atfs-1</i> | OP50-1                      | 36.67 $\pm$ 5.61           | 55.86 $\pm$ 1.96           | 137/433 (3)    | <0.0001 (****) |                      |
| Figure S1f | N2                  | Control RNAi                | 19                         | 23.61                      | 89/150 (1)     |                |                      |
|            |                     | Control + <i>phb-1</i> RNAi | 15                         | 18.04                      | 72/150 (1)     | <0.0001 (****) |                      |
|            | <i>daf-2</i>        | Control RNAi                | 48                         | 60.39                      | 105/115 (1)    |                |                      |
|            |                     | Control + <i>phb-1</i> RNAi | 65                         | 103.5                      | 134/160 (1)    | <0.0001 (****) |                      |
| Figure 2f  | N2                  | Control RNAi                | 19 $\pm$ 1.16              | 26.35 $\pm$ 1.65           | 287/511 (3)    |                |                      |
|            |                     | <i>znf-622</i> RNAi         | 17.67 $\pm$ 0.67           | 22.86 $\pm$ 1.38           | 290/600 (3)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 17.67 $\pm$ 0.67           | 23.96 $\pm$ 0.96           | 313/540 (3)    |                |                      |
|            |                     | <i>phb-1;znf-622</i> RNAi   | 18.33 $\pm$ 0.67           | 24.08 $\pm$ 1.3            | 278/540 (3)    |                | 0.8730 (ns)          |
| Figure 2g  | <i>daf-2</i>        | Control RNAi                | 42 $\pm$ 3                 | 48.37 $\pm$ 2.67           | 177/361 (2)    |                |                      |
|            |                     | <i>znf-622</i> RNAi         | 26 $\pm$ 1                 | 33.31 $\pm$ 2.8            | 237/360 (2)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 68 $\pm$ 6                 | 87.32 $\pm$ 6.35           | 155/360 (2)    |                |                      |
|            |                     | <i>phb-1;znf-622</i> RNAi   | 37.5 $\pm$ 1.5             | 54.51 $\pm$ 1.5            | 209/357 (2)    |                | <0.0001 (****)       |
| Figure 2h  | N2                  | Control RNAi                | 19 $\pm$ 1.16              | 26.35 $\pm$ 1.65           | 287/511 (3)    |                |                      |
|            |                     | <i>tlf-1</i> RNAi           | 16 $\pm$ 1                 | 19.70 $\pm$ 0.55           | 357/510 (3)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 17.67 $\pm$ 0.67           | 23.96 $\pm$ 0.96           | 313/540 (3)    |                |                      |
|            |                     | <i>phb-1;tlf-1</i> RNAi     | 17 $\pm$ 0                 | 22.27 $\pm$ 0.43           | 441/540 (3)    |                | <0.0001 (****)       |
| Figure 2i  | <i>daf-2</i>        | Control RNAi                | 42 $\pm$ 3                 | 48.37 $\pm$ 2.67           | 177/361 (2)    |                |                      |
|            |                     | <i>tlf-1</i> RNAi           | 21.5 $\pm$ 3.5             | 27.16 $\pm$ 3.36           | 286/360 (2)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 68 $\pm$ 6                 | 87.32 $\pm$ 6.35           | 155/360 (2)    |                |                      |
|            |                     | <i>phb-1;tlf-1</i> RNAi     | 28.5 $\pm$ 0.5             | 44.04 $\pm$ 11.96          | 226/360 (2)    |                | <0.0001 (****)       |
| Figure 3b  | N2                  | Control RNAi                | 18 $\pm$ 1                 | 23.05 $\pm$ 0.57           | 172/299 (2)    |                |                      |
|            |                     | <i>usp-48</i> RNAi          | 13 $\pm$ 1                 | 14.13 $\pm$ 1.04           | 160/345 (2)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 16 $\pm$ 1                 | 18.13 $\pm$ 0.05           | 136/300 (2)    |                |                      |
|            |                     | <i>phb-1;usp-48</i> RNAi    | 12 $\pm$ 2                 | 12.90 $\pm$ 1.84           | 190/348 (2)    |                | <0.0001 (****)       |
| Figure 3c  | <i>daf-2</i>        | Control RNAi                | 47.5 $\pm$ 0.5             | 58.88 $\pm$ 1.51           | 155/264 (2)    |                |                      |
|            |                     | <i>usp-48</i> RNAi          | 16.5 $\pm$ 1.5             | 19.4 $\pm$ 0.34            | 114/321 (2)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 75 $\pm$ 10                | 103.7 $\pm$ 1.94           | 211/300 (2)    |                |                      |
|            |                     | <i>phb-1;usp-48</i> RNAi    | 18 $\pm$ 0                 | 20.22 $\pm$ 0.66           | 289/355 (2)    |                | <0.0001 (****)       |
| Figure S6a | <i>daf-7</i>        | Control RNAi                | 22 $\pm$ 1                 | 26.32 $\pm$ 2.13           | 88/379 (2)     |                |                      |
|            |                     | <i>usp-48</i> RNAi          | 15 $\pm$ 0                 | 16.3 $\pm$ 0.6             | 73/380 (2)     | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 24 $\pm$ 1                 | 35.03 $\pm$ 2.23           | 116/331 (2)    |                |                      |
|            |                     | <i>phb-1;usp-48</i> RNAi    | 14 $\pm$ 1                 | 15.96 $\pm$ 0.01           | 108/304 (2)    |                | <0.0001 (****)       |
| Figure S6b | <i>lsp-1</i>        | Control RNAi                | 22.5 $\pm$ 1.5             | 25.38 $\pm$ 2.16           | 101/346 (2)    |                |                      |
|            |                     | <i>usp-48</i> RNAi          | 15.50 $\pm$ 0.5            | 17.22 $\pm$ 1.2            | 115/351 (2)    | <0.0001 (****) |                      |
|            |                     | <i>phb-1</i> RNAi           | 32 $\pm$ 1                 | 46.3 $\pm$ 1.4             | 223/348 (2)    |                |                      |
|            |                     | <i>phb-1;usp-48</i> RNAi    | 19.5 $\pm$ 0.5             | 22 $\pm$ 0.01              | 248/356 (2)    |                | <0.0001 (****)       |

All ageing experiments were performed on plates seeded with HT115(DE3) or OP50-1 *E. coli* as indicated.

P values were calculated using the Log-rank (Mantel-Cox) test.

\$ day where more than 90% of population is dead.

# Confirmed death events divided by the total number of animals included the assay.

Total equals the number of animals that died plus the number of animals that were censored.

The number of independent lifespan assays for each strain is shown in parentheses.