### Supplementary Table S2. Summary of survival-span statistics

Median, mean and maximum survival and statistical significance were calculated for each experiment. *Mean survival lifespan. p-values were based on median survival lifespan.

| Strain       | FA treatment | FA treated survival-span (d)* | No. of treated animals | Control survival-span (d)* | No. of Control animals | Max survival-span (d) | p-value versus Control |
|--------------|--------------|-------------------------------|------------------------|---------------------------|------------------------|----------------------|------------------------|
| N2 Bristol (WT) | C120         | 11 (45.4%)                    | 93/120                 | 6                         | 6.82                   | 91/120               | 16/10                  | <0.0001                |
|              | C120         | 10 (20%)                      | 85/120                 | 8                         | 7.28                   | 93/120               | 17/10                  | <0.0001                |
|              | C120         | 13 (53.8%)                    | 95/120                 | 6                         | 6.06                   | 93/120               | 16/10                  | <0.0001                |
|              | C16:0        | 8 (25%)                       | 109/120                | 6                         | 6.06                   | 93/120               | 12/10                  | <0.0001                |
|              | C16:0        | 9 (11.1%)                     | 94/120                 | 8                         | 7.42                   | 97/120               | 12/10                  | <0.0001                |
|              | C16:0        | 9 (11.1%)                     | 106/120                | 8                         | 7.44                   | 87/120               | 12/10                  | 0.0045                 |
| JIN1375 (hh-30) | C120       | 10 (40%)                      | 103/120                | 6                         | 5.46                   | 81/120               | 15/8                   | <0.0001                |
|              | C120         | 9 (44.4%)                     | 103/120                | 5                         | 5.09                   | 89/120               | 16/7                   | <0.0001                |
|              | C120         | 13 (61.5%)                    | 104/120                | 5                         | 4.07                   | 88/120               | 15/7                   | <0.0001                |
|              | C16:0        | 8 (37.5%)                     | 98/120                 | 5                         | 4.07                   | 88/120               | 9/7                    | <0.0001                |
|              | C16:0        | 8 (50%)                       | 98/120                 | 4                         | 4.23                   | 90/120               | 10/6                   | <0.0001                |
|              | C16:0        | 9 (44.4%)                     | 102/120                | 5                         | 4.56                   | 89/120               | 10/7                   | <0.0001                |
| Strain | RNAi treatment | FA treatment | RNAI / FA treated survival-span (d) | No. of treated animals | Control survival-span (d) | Control survival-span (d)* | No. of Control animals | Max survival-span (d) | p-value versus Control |
|--------|----------------|--------------|-----------------------------------|------------------------|--------------------------|---------------------------|--------------------------|-------------------|------------------------|
| N2 Bristol (WT) | | | | | | | | | |
| prx-5 (JA) | none | 8 | 7 | 89/120 | 8 | 7.23 | 89/120 | 11/10 | 0.4624 |
| prx-5 (JA) | none | 8 (-12.5%) | 7.36 (-5.28%) | 88/120 | 9 | 7.55 | 83/120 | 10/10 | 0.2838 |
| prx-5 (JA) | none | 9 (11.11%) | 7 (-1%) | 85/120 | 8 | 7.07 | 84/120 | 10/10 | 0.7177 |
| atgl-1 (JA) | none | 6 (-33.32%) | 5.21 (-38.77%) | 88/120 | 8 | 7.23 | 89/120 | 8/10 | <0.0001 |
| atgl-1 (JA) | none | 7 (-28.57%) | 6.47 (-16.69%) | 88/120 | 9 | 7.55 | 83/120 | 8/10 | <0.0001 |
| atgl-1 (JA) | none | 5 (-60%) | 4.75 (-48.84%) | 84/120 | 8 | 7.07 | 84/120 | 8/10 | <0.0001 |
| cpt-1 (JA) | none | 3 (-166.66%) | 3.38 (-106.21%) | 83/120 | 8 | 6.97 | 86/120 | 5/10 | <0.0001 |
| prx-5 (JA) | C12,0 | 12 | 9.92 (-6.04%) | 88/120 | 12 | 10.52 | 87/120 | 15/15 | 0.3020 |
| prx-5 (JA) | C12,0 | 12 (8.33%) | 10.17 (-3.34%) | 84/120 | 11 | 10.51 | 86/120 | 15/15 | 0.8463 |
| prx-5 (JA) | C12,0 | 10 (-10%) | 9.46 (-2.21%) | 105/120 | 11 | 9.67 | 107/120 | 15/15 | 0.2236 |
| atgl-1 (JA) | C12,0 | 11 (-9.99%) | 9.57 (-9.92%) | 89/120 | 12 | 10.52 | 87/120 | 15/15 | 0.1780 |
| atgl-1 (JA) | C12,0 | 12 (8.33%) | 10.59 (0.75%) | 88/120 | 11 | 10.51 | 86/120 | 15/15 | 0.8616 |
| atgl-1 (JA) | C12,0 | 12 (8.33%) | 9.76 (0.92%) | 95/120 | 11 | 9.67 | 107/120 | 15/15 | 0.9674 |
| cpt-1 (JA) | C12,0 | 9 (-11.11%) | 8.11 (-14.05%) | 102/120 | 10 | 9.25 | 98/120 | 15/15 | 0.2773 |
| prx-5 (JA) | C16,0 | 8.5 (-41.17%) | 8.61 (-12.07%) | 104/120 | 12 | 9.65 | 89/120 | 14/14 | 0.0228 |
| prx-5 (JA) | C16,0 | 9 (-22.22%) | 9.17 (-14.14%) | 91/120 | 11 | 9.55 | 85/120 | 14/14 | 0.462 |
| prx-5 (JA) | C16,0 | 10 (-5%) | 9 (-2.77%) | 101/120 | 10.5 | 9.25 | 110/120 | 14/14 | 0.3369 |
| atgl-1 (JA) | C16,0 | 11 (-9.99%) | 9.78 (1.32%) | 87/120 | 12 | 9.65 | 89/120 | 14/14 | 0.5313 |
| atgl-1 (JA) | C16,0 | 12 (8.33%) | 10.18 (6.18%) | 89/120 | 11 | 9.55 | 85/120 | 14/14 | 0.1805 |
| atgl-1 (JA) | C16,0 | 11.5 (8.33%) | 9.38 (1.38%) | 102/120 | 10.5 | 9.25 | 110/120 | 14/14 | 0.6918 |
| cpt-1 (JA) | C16,0 | 3 (-200%) | 5.48 (-32.28%) | 104/120 | 9 | 8.4 | 97/120 | 12/15 | <0.0001 |

**Supplementary Table S3A. Summary of survival-span statistics for wildtype animals.** Median, mean and maximum survival and statistical significance were calculated for each experiment. *Mean survival lifespan. p-values were based on median survival lifespan.
| Strain  | RNAi treatment | FA treatment | RNAi / FA treated survival-span (d) | RNAi / FA treated survival-span (d)* | No. of treated animals | Control survival-span (d) | Control survival-span (d)* | No. of Control animals | Max survival-span (d) | P-value versus Control |
|---------|----------------|---------------|-----------------------------------|--------------------------------------|------------------------|--------------------------|--------------------------|------------------------|-------------------|------------------------|
| **JIN1375 (hlh-30)** | | | | | | | | | | |
| *pxr-5 ( JA)* | none | 3 | 3.16 | 3.16 | 86/120 | 4 | 3.97 | 85/120 | 6/6 | < 0.0001 |
| *pxr-5 ( JA)* | none | 3 | 3.09 | 3.09 | 93/120 | 4 | 3.78 | 88/120 | 5/6 | < 0.0001 |
| *pxr-5 ( JA)* | none | 3 | 2.98 | 2.98 | 84/120 | 4 | 3.74 | 85/120 | 5/6 | < 0.0001 |
| *atgl-1 ( JA)* | none | 4 | 3.56 | 3.56 | 90/120 | 4 | 3.97 | 85/120 | 6/6 | 0.0032 |
| *atgl-1 ( JA)* | none | 4 | 3.5 | 3.5 | 94/120 | 4 | 3.78 | 88/120 | 5/6 | 0.0018 |
| *atgl-1 ( JA)* | none | 4 | 3.15 | 3.15 | 83/120 | 4 | 3.74 | 85/120 | 5/6 | 0.0004 |
| *cpr-1 ( JA)* | none | 4 | 3.74 | 3.74 | 87/120 | 4 | 3.62 | 85/120 | 6/6 | 0.6441 |
| *prx-5 ( JA)* | C12.0 | 4 | 4.06 | 4.06 | 87/120 | 7 | 7.67 | 84/120 | 6/14 | < 0.0001 |
| *prx-5 ( JA)* | C12.0 | 3 | 3.5 | 3.5 | 86/120 | 10 | 9.03 | 91/120 | 5/14 | < 0.0001 |
| *prx-5 ( JA)* | C12.0 | 3 | 3.1 | 3.1 | 94/120 | 10 | 8.83 | 112/120 | 5/15 | < 0.0001 |
| *atgl-1 ( JA)* | C12.0 | 6 | 5.5 | 5.5 | 88/120 | 7 | 7.67 | 84/120 | 10/14 | < 0.0001 |
| *atgl-1 ( JA)* | C12.0 | 9 | 7.29 | 7.29 | 87/120 | 10 | 9.03 | 91/120 | 10/14 | < 0.0001 |
| *atgl-1 ( JA)* | C12.0 | 11.5 | 9.33 | 9.33 | 98/120 | 10 | 8.83 | 112/120 | 14/15 | 0.4269 |
| *cpr-1 ( JA)* | C12.0 | 9 | 8.37 | 8.37 | 101/120 | 9 | 8.37 | 100/120 | 15/15 | 0.4095 |
| *prx-5 ( JA)* | C16.0 | 4 | 4.33 | 4.33 | 100/120 | 7 | 6.55 | 90/120 | 6/10 | < 0.0001 |
| *prx-5 ( JA)* | C16.0 | 3 | 3.19 | 3.19 | 84/120 | 9 | 6.97 | 86/120 | 5/10 | < 0.0001 |
| *atgl-1 ( JA)* | C16.0 | 3 | 2.9 | 2.9 | 102/120 | 9 | 8.39 | 103/120 | 5/12 | < 0.0001 |
| *atgl-1 ( JA)* | C16.0 | 6 | 6.03 | 6.03 | 91/120 | 7 | 6.55 | 90/120 | 10/11 | 0.0068 |
| *cpr-1 ( JA)* | C16.0 | 9 | 7.34 | 7.34 | 89/120 | 9 | 6.97 | 86/120 | 10/10 | 0.4547 |
| *atgl-1 ( JA)* | C16.0 | 11 | 8.48 | 8.48 | 94/120 | 9 | 8.39 | 103/120 | 13/14 | 0.1734 |
| *cpr-1 ( JA)* | C16.0 | 6.5 | 6.05 | 6.05 | 110/120 | 7 | 6.27 | 105/120 | 10/10 | 0.0637 |

Supplementary Table S3B. Summary of survival-span statistics for *hlh-30* mutant animals. Median, mean and maximum survival and statistical significance were calculated for each experiment. *Mean survival lifespan. p-values were based on median survival lifespan.