**Table S6. Quantification and statistical analysis of proteasome subunit reporter expression.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Strain(region) | RNAi treatment | Mean  | Numbers of animals and independent experiments (N) | *P* value against control | *P* value against control+proteasome subunit RNAi |
| *pas-5p::GFP* | Control | 1 | 27 |  |  |
| (whole worm) | *skn-1* | 0.865 | 9 (N = 2) | 0.3550 |  |
|  | *eef-2* | 0.697 | 16 (N = 1) | 0.0041 |  |
|  | *eef-1A.1* | 1.110 | 18 (N = 1) | 0.4405 |  |
|  | *pas-5* | 4.318 | 24 (N = 2) | 0.0034 |  |
|  | *rpn-2* | 4.558 | 11 (N = 2) | 1.71E-11 |  |
|  | *pbs-4* | 4.365 | 7 (N = 1) | 2.48E-06 |  |
| *pas-5p::GFP* | Control | 1 | 27  |  |  |
| (intestine) | *skn-1* | 0.640 | 9 (N = 2) | 0.0258 |  |
|  | *eef-2* | 0.463 | 16 (N = 1) | 6.04E-04 |  |
|  | *eef-1A.1* | 1.014 | 18 (N = 1) | 0.9489 |  |
|  | *pas-5* | 4.786 | 24 (N = 2) | 2.40E-11 |  |
|  | *rpn-2* | 4.470 | 11 (N = 2) | 1.08E-09 |  |
|  | *pbs-4* | 3.856 | 7 (N = 1) | 2.84E-08 |  |
| *pas-5p::GFP* | Control | 1 | 27 |  |  |
| (head) | *skn-1* | 1.055 | 9 (N = 2) | 0.5379 |  |
|  | *eef-2* | 0.967 | 16 (N = 1) | 0.6797 |  |
|  | *eef-1A.1* | 1.065 | 18 (N = 1) | 0.4561 |  |
|  | *pas-5* | 1.711 | 24 (N = 2) | 3.41E-04 |  |
|  | *rpn-2* | 1.740 | 11 (N = 2) | 0.0094 |  |
|  | *pbs-4* | 2.272 | 7 (N = 1) | 0.0088 |  |
| *pbs-4p::GFP* | Control | 1 | 38 |  |  |
| (whole worm) | *skn-1* | 0.923 | 27 (N = 2) | 0.3585 |  |
|  | *eef-2* | 1.000 | 17 (N = 1) | 0.9960 |  |
|  | *eef-1A.1* | 1.014 | 13 (N = 1) | 0.8897 |  |
|  | *pas-5* | 2.862 | 22 (N = 2) | 7.13E-15 |  |
|  | *rpn-2* | 2.715 | 15 ( N = 2) | 1.08E-10 |  |
| *pbs-4p::GFP* | Control | 1 | 38 |  |  |
| (intestine) | *skn-1* | 0.856 | 27 (N = 2) | 0.1432 |  |
|  | *eef-2* | 0.883 | 17 (N = 1) | 0.0618 |  |
|  | *eef-1A.1* | 0.878 | 13 (N = 1) | 0.1869 |  |
|  | *pas-5* | 2.421 | 22 (N = 2) | 2.28E-07 |  |
|  | *rpn-2* | 2.268 | 15 ( N = 2) | 2.05E-23 |  |
| *pbs-4p::GFP* | Control | 1 | 38 |  |  |
| (head) | *skn-1* | 1.004 | 27 (N = 2) | 0.9560 |  |
|  | *eef-2* | 0.954 | 17 (N = 1) | 0.3475 |  |
|  | *eef-1A.1* | 1.036 | 13 (N = 1) | 0.5177 |  |
|  | *pas-5* | 1.616 | 22 (N = 2) | 0.0290 |  |
|  | *rpn-2* | 1.436 | 15 ( N = 2) | 3.27E-04 |  |
| *pbs-4p::GFP* | Control+pas-5 | 1 | 22  |  |  |
| (whole worm) | *skn-1+pas-5* | 0.298 | 26 (N = 2) |  | 5.29E-22 |
| *pbs-4p::GFP* | Control*+pas-5* | 1 | 22 |  |  |
| (intestine) | *skn-1+pas-5* | 0.266 | 26 (N = 2) |  | 1.25E-28 |
| *pbs-4p::GFP* | Control*+pas-5* | 1 | 22 |  |  |
| (head) | *skn-1+pas-5* | 0.593 | 26 (N = 2) |  | 6.29E-12 |
| *pbs-4p::GFP* | Control*+rpn-2* | 1 | 24 |  |  |
| (whole worm) | *skn-1+ rpn-2* | 0.295 | 23 (N = 2) |  | 2.02E-18 |
| *pbs-4p::GFP* | Control*+ rpn-2* | 1 | 24 |  |  |
| (intestine) | *skn-1+ rpn-2* | 0.238 | 23 (N = 2) |  | 1.50E-24 |
| *pbs-4p::GFP* | Control*+ rpn-2* | 1 | 24 |  |  |
| (head) | *skn-1+ rpn-2* | 0.536 | 23 (N = 2) |  | 4.49E-15 |
| *rpn-11p::GFP* | Control | 1 | 32 |  |  |
| (whole worm) | *skn-1* | 0.735 | 16 (N = 2) | 1.39E-06 |  |
|  | *eef-2* | 0.930 | 14 (N = 1) | 0.5082 |  |
|  | *eef-1A.1* | 0.978 | 14 (N = 1) | 0.8092 |  |
|  | *pas-5* | 1.667 | 15 (N = 2) | 1.34E-04 |  |
|  | *rpn-2* | 1.964 | 17 (N = 2) | 3.86E-16 |  |
| *rpn-11p::GFP* | Control | 1 | 32 |  |  |
| (intestine) | *skn-1* | 0.717 | 16 (N = 2) | 3.40E-08 |  |
|  | *eef-2* | 0.861 | 14 (N = 1) | 0.1018 |  |
|  | *eef-1A.1* | 0.968 | 14 (N = 1) | 0.6811 |  |
|  | *pas-5* | 1.886 | 15 (N = 2) | 1.07E-05 |  |
|  | *rpn-2* | 1.939 | 17 (N = 2) | 2.39E-21 |  |
| *rpn-11p::GFP* | Control | 1 | 32 |  |  |
| (head) | *skn-1* | 0.904 | 16 (N = 2) | 0.2117 |  |
|  | *eef-2* | 1.152 | 14 (N = 1) | 0.3283 |  |
|  | *eef-1A.1* | 1.041 | 14 (N = 1) | 0.7113 |  |
|  | *pas-5* | 1.508 | 15 (N = 2) | 0.0121 |  |
|  | *rpn-2* | 1.611 | 17 (N = 2) | 3.81E-05 |  |
| *rpn-11p::GFP* | Control*+pas-5* | 1 | 24  |  |  |
| (whole worm) | *skn-1+pas-5* | 0.552 | 18 (N = 2) |  | 5.46E-13 |
| *rpn-11p::GFP* | Control*+pas-5* | 1 | 24 |  |  |
| (intestine) | *skn-1+pas-5* | 0.535 | 18 (N = 2) |  | 1.46E-10 |
| *rpn-11p::GFP* | Control*+pas-5* | 1 | 24 |  |  |
| (head) | *skn-1+pas-5* | 0.710 | 18 (N = 2) |  | 8.28E-07 |
| *rpn-11p::GFP* | Control*+rpn-2* | 1 | 18 |  |  |
| (whole worm) | *skn-1+ rpn-2* | 0.478 | 14 (N = 2) |  | 2.59E-14 |
| *rpn-11p::GFP* | Control*+ rpn-2* | 1 | 18 |  |  |
| (intestine) | *skn-1+ rpn-2* | 0.439 | 14 (N = 2) |  | 5.99E-18 |
| *rpn-11p::GFP* | Control*+ rpn-2* | 1 | 18 |  |  |
| (head) | *skn-1+ rpn-2* | 0.597 | 14 (N = 2) |  | 6.89E-10 |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (whole worm) | *skn-1* | 0.826 | 14 (N = 2) | 0.1138 |  |
|  | *eef-2* | 0.952 | 18 (N = 1) | 0.7080 |  |
|  | *eef-1A.1* | 0.973 | 20 (N = 1) | 0.8435 |  |
|  | *pas-5* | 2.791 | 37 (N = 2) | 1.12E-10 |  |
|  | *rpn-2* | 3.145 | 29 (N = 2) | 1.03E-09 |  |
|  | *pbs-4* | 2.544 | 26 (N = 2) | 7.91E-09 |  |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (intestine) | *skn-1* | 0.769 | 14 (N = 2) | 0.0235 |  |
|  | *eef-2* | 0.961 | 18 (N = 1) | 0.7738 |  |
|  | *eef-1A.1* | 0.901 | 20 (N = 1) | 0.4267 |  |
|  | *pas-5* | 5.460 | 37 (N = 2) | 4.13E-18 |  |
|  | *rpn-2* | 6.019 | 29 (N = 2) | 1.50E-14 |  |
|  | *pbs-4* | 5.650 | 26 (N = 2) | 1.47E-18 |  |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (head) | *skn-1* | 0.968 | 14 (N = 2) | 0.7839 |  |
|  | *eef-2* | 1.012 | 18 (N = 1) | 0.9066 |  |
|  | *eef-1A.1* | 0.930 | 20 (N = 1) | 0.5585 |  |
|  | *pas-5* | 1.547 | 37 (N = 2) | 1.33E-05 |  |
|  | *rpn-2* | 1.786 | 29 (N = 2) | 2.00E-07 |  |
|  | *pbs-4* | 1.537 | 26 (N = 2) | 2.25E-04 |  |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (whole worm) | Control*+pas-5* | 2.791 | 37 (N = 2) | 1.12E-10 |  |
|  | *skn-1+pas-5* | 1.049 | 18 (N = 2) | 0.7738 | 5.61E-09 |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (intestine) | Control*+pas-5* | 5.460 | 37 (N = 2) | 4.13E-18 |  |
|  | *skn-1+pas-5* | 0.859 | 18 (N = 2) | 0.3229 | 3.85E-19 |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (head) | Control*+pas-5* | 1.547 | 37 (N = 2) | 1.33E-05 |  |
|  | *skn-1+pas-5* | 1.003 | 18 (N = 2) | 0.9857 | 0.0013 |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (whole worm) | Control*+rpn-2* | 3.145 | 29 (N = 2) | 1.03E-09 |  |
|  | *skn-1+ rpn-2* | 1.211 | 17 (N = 2) | 0.1587 | 51.70E-08 |
| *rpt-5p::GFP* | Control | 1 | 40 |  |  |
| (intestine) | Control*+ rpn-2* | 6.019 | 29 (N = 2) | 1.50E-14 |  |
|  | *skn-1+ rpn-2* | 1.150 | 17 (N = 2) | 0.2523 | 1.77E-14 |
| *rpt-5p::GFP* | *Control* | 1 | 40 |  |  |
| (head) | *Control+ rpn-2* | 1.786 | 29 (N = 2) | 2.00E-07 |  |
|  | *skn-1+ rpn-2* | 1.295 | 17 (N = 2) | 0.0296 | 0.0027 |
| *rpn-2p::GFP* | Control | 1 | 8 |  |  |
| (whole worm) | *skn-1* | 0.941 | 10 (N = 2) | 0.4293 |  |
|  | *pas-5* | 3.067 | 9 (N = 2) | 0.0079 |  |
| *rpn-2p::GFP* | Control | 1 | 8 |  |  |
| (intestine) | *skn-1* | 0.961 | 10 (N = 2) | 0.4602 |  |
|  | *pas-5* | 4.719 | 9 (N = 2) | 0.0004 |  |
| *rpn-2p::GFP* | Control | 1 | 8 |  |  |
| (head) | *skn-1* | 0.945 | 10 (N = 2) | 0.4691 |  |
|  | *pas-5* | 1.600 | 9 (N = 2) | 0.0686 |  |
| *RPN-11::GFP* | Control | 1 | 11 |  |  |
| (whole worm) | *skn-1* | 0.822 | 6 (N = 1) | 0.0477 |  |
| *RPN-11::GFP* | Control | 1 | 11 |  |  |
| (intestine) | *skn-1* | 0.837 | 6 (N = 1) | 0.0578 |  |
| *RPN-11::GFP* | Control | 1 | 11 |  |  |
| (head) | *skn-1* | 0.857 | 6 (N = 1) | 0.2724 |  |
| *RPN-11::GFP* | Control | 1 | 18 |  |  |
| (whole worm) | Control+*pas-5* | 1.818 | 12 (N = 2) | 5.50E-14 |  |
|  | *skn-1+pas-5* | 1.048 | 9 (N = 2) | 0.469 | 1.10E-08 |
|  | Control*+rpn-2* | 2.290 | 22 (N = 2) | 2.37E-08 |  |
|  | *skn-1+ rpn-2* | 1.073 | 11 (N = 2) | 0.218 | 5.54E-08 |
| *RPN-11::GFP* | Control | 1 | 18 |  |  |
| (intestine) | Control+*pas-5* | 1.824 | 12 (N = 2) | 1.36E-18 |  |
|  | *skn-1+pas-5* | 1.010 | 9 (N = 2) | 0.892 | 1.55E-07 |
|  | Control*+rpn-2* | 2.331 | 22 (N = 2) | 1.51E-07 |  |
|  | *skn-1+ rpn-2* | 1.144 | 11 (N = 2) | 0.010 | 8.96E-07 |
| *RPN-11::GFP* | Control | 1 | 18 |  |  |
| (head) | Control+*pas-5* | 1.467 | 12 (N = 2) | 0.0005 |  |
|  | *skn-1+pas-5* | 0.966 | 9 (N = 2) | 0.460 | 0.0002 |
|  | Control*+rpn-2* | 1.921 | 22 (N = 2) | 1.35E-06 |  |
|  | *skn-1+ rpn-2* | 1.033 | 11 (N = 2) | 0.620 | 2.78E-06 |