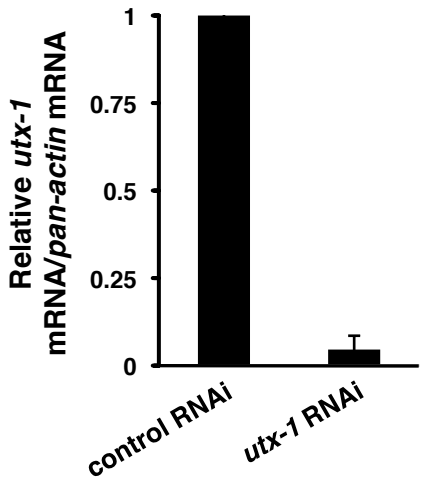
Demethylase Screen

| | Initial screen | | |
|---|---|---|---|
| **RNAi construct** | **Mean +/- SD** | **p values** | **# worms** |
| control | 19.760 +/- 0.568 | | 86/90 |
| ***rbr-2*** | **17.767 +/- 0.805** | **0.0319** | **30/30** |
| *tag-279* | 18.000 +/- 0.701 | 0.0323 | 30/30 |
| *F23D12.5* | 18.225 +/- 1.079 | 0.2650 | 28/30 |
| *C06H2.3* | 18.833 +/- 0.716 | 0.2005 | 30/30 |
| *psr-1* | 19.100 +/- 1.052 | 0.7186 | 30/30 |
| *C29F7.6* | 19.756 +/- 1.047 | 0.8629 | 22/30 |
| *F29B9.2* | 20.495 +/- 0.851 | 0.6823 | 28/30 |
| ***F43G6.6*** | **22.456 +/- 0.758** | **0.0586** | **29/30** |
| ***utx-1*** | **23.560 +/- 1.455** | **0.0012** | **27/30** |
| ***T26A5.5*** | **24.104 +/- 1.259** | **0.0003** | **28/30** |
| control | 18.419 +/- 0.473 | | 52/60 |
| *amx-1* | 18.954 +/- 0.604 | 0.5803 | 29/30 |
| ***lsd-1*** | **22.393 +/- 0.589** | **<0.0001** | **27/30** |
| | **Repeat of targets with >10% change in lifespan** | | |
| control | 17.981 +/- 0.422 | | 78/90 |
| *F43G6.6* | 16.761 +/- 0.431 | 0.0581 | 81/90 |
| *lsd-1* | 19.025 +/- 0.496 | 0.0560 | 85/90 |
| control | 19.185 +/- 0.397 | | 89/90 |
| ***rbr-2*** | **16.111 +/- 0.432** | **<0.0001** | **90/90** |
| control | 18.852 +/- 0.487 | | 88/90 |
| ***utx-1*** | **21.652 +/- 0.584** | **<0.0001** | **82/90** |
| ***T26A5.5* #1** | **21.144 +/- 0.567** | **<0.0009** | **86/90** |
| ***T26A5.5* #2** | **21.374 +/- 0.477** | **<0.0005** | **88/90** |

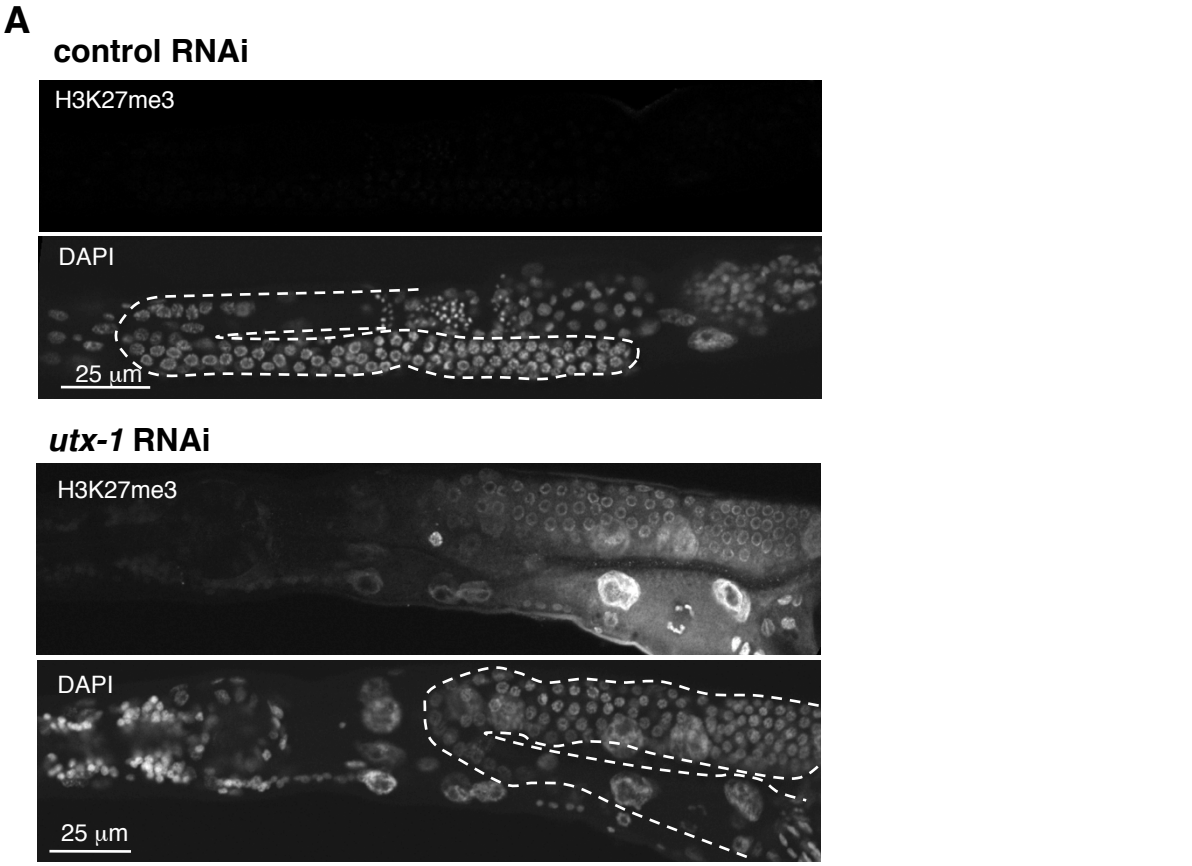
**Supplementary Table 1**

| | | 1 | | | 2 | | |
|---|---|---|---|---|---|---|---|
| **N2 + *RNAi*** | **Mean +/- SD** | **p values** | **# worms** | **Mean +/- SD** | **p values** | **# worms** | **Combined p values** |
| N2 control | 18.158 +/- 0.525 | | 68/90 | | | | |
| N2 *T26A5.5* (**Adult**) | 21.173 +/- 0.624 | 0.0005 | 64/90 | | | | |
| N2 control | 15.716 +/- 0.343 | | 79/90 | 16.989 +/- 0.317 | | 73/95 | |
| N2 *utx-1* **(L1)** | 17.697 +/- 0.386 | <0.0001 | 95/116 | 19.662 +/- 0.649 | <0.0001 | 66/93 | <0.0001 |
| N2 control | 16.540 +/- 0.417 | | 80/88 | 17.214 +/- 0.451 | | 73/95 | |
| N2 *utx-1* **(Adult)** | 21.385 +/- 0.584 | <0.0001 | 60/73 | 20.813 +/- 0.564 | <0.0001 | 66/93 | <0.0001 |
| **Strain** | **Mean +/- SD** | **p values** | **# worms** | **Mean +/- SD** | **p values** | **# worms** | **Combined p values** |
| N2 | 21.736 +/- 0.529 | | 63/90 | 20.550 +/- 0.570 | | 76/90 | |
| *T26A5.5(ok2364)* | 21.140 +/- 0.430 | 0.1782 | 67/90 | 20.427 +/- 0.514 | 0.7993 | 88/90 | |
| stDp2/+ | 11.771 +/- 0.385 | | 45/90 | 12.594 +/- 0.349 | | 63/92 | |
| stDp2/*utx-1(tm3118)* | 17.684 +/- 0.355 | <0.0001 | 64/86 | 16.054 +/- 0.378 | <0.0001 | 71/92 | <0.0001 |
| N2 control | 13.717 +/- 0.509 | | 66/88 | 16.932 +/- 0.607 | | 73/90 | |
| N2 *utx-1* | 15.779 +/- 0.477 | 0.0040 | 72/85 | 20.931 +/- 0.610 | <0.0001 | 71/91 | <0.0001 |
| *glp-1(e2141)* control | 16.369 +/- 0.442 | 0.0002 | 86/92 | 20.674 +/- 0.608 | <0.0001 | 89/92 | <0.0001 |
| *glp-1(e2141) utx-1* | 18.191 +/- 0.432 | 0.0088 | 84/92 | 23.960 +/- 0.666 | 0.0006 | 89/92 | <0.0001 |
| **Statistical comparison** | | | | | | | |
| N2 *utx-1*/*glp-1 utx-1* | | 0.0005 | | | <0.0001 | | <0.0001 |
| Two-way ANOVA N2/*glp-1* +/- *utx-1* | | 0.0244 | | | 0.5740 | | 0.0738 |
| N2 control | 15.378 +/- 0.453 | | 75/93 | | | | |
| N2 *utx-1* | 18.940 +/- 0.666 | <0.0001 | 68/92 | | | | |
| *eat-2(ad1116 )* control | 17.025 +/- 0.463 | 0.0219 | 80/88 | | | | |
| *eat-2(ad1116 ) utx-1* | 19.875 +/- 0.524 | <0.0001 | 85/93 | | | | |
| **Statistical comparison** | | | | | | | |
| N2 *utx-1*/*eat-2 utx-1* | | 0.5274 | | | | | |
| Two-way ANOVA N2/*eat-2* +/- *utx-1* | | <0.0001 | | | | | |
| N2 control | 19.627 +/- 0.659 | | 71/93 | 21.369 +/- 0.479 | | 74/90 | |
| N2 *utx-1* | 25.162 +/- 0.785 | <0.0001 | 64/92 | 24.452 +/- 0.641 | <0.0001 | 75/90 | <0.0001 |
| *daf-16(mu86)* control | 15.596 +/- 0.284 | <0.0001 | 78/92 | 16.224 +/- 0.370 | <0.0001 | 85/90 | <0.0001 |
| *daf-16(mu86) utx-1* | 16.429 +/- 0.255 | 0.0195 | 69/92 | 16.614 +/- 0.337 | <0.6034 | 88/90 | <0.0640 |
| **Statistical comparison** | | | | | | | |
| N2 *utx-1*/*daf-16(mu86) utx-1* | | <0.0001 | | | <0.0001 | | <0.0001 |
| Two-way ANOVA N2/*daf-16* +/- utx-*1* | | <0.0001 | | | 0.0036 | | <0.0001 |
| N2 control | 21.369 +/- 0.479 | | 74/90 | 19.627 +/- 0.659 | | 71/93 | |
| N2 *utx-1* | 24.452 +/- 0.641 | <0.0001 | 75/90 | 25.162 +/- 0.785 | <0.0001 | 64/92 | <0.0001 |
| *daf-2(e1370)* control | 39.792 +/- 1.056 | <0.0001 | 81/90 | 27.431 +/- 1.535 | <0.0001 | 74/90 | <0.0001 |
| *daf-2(e1370 utx-1* | 39.226 +/- 1.212 | 0.5367 | 59/92 | 28.893 +/- 1.302 | 0.6484 | 63/91 | 0.7153 |
| **Statistical comparison** | | | | | | | |
| N2 *utx-1*/*daf-2(e1370) utx-1* | | <0.0001 | | | <0.0001 | | <0.0001 |
| Two-way ANOVA N2/*daf-2* +/- utx-*1* | | 0.0393 | | | 0.0777 | | 0.0207 |

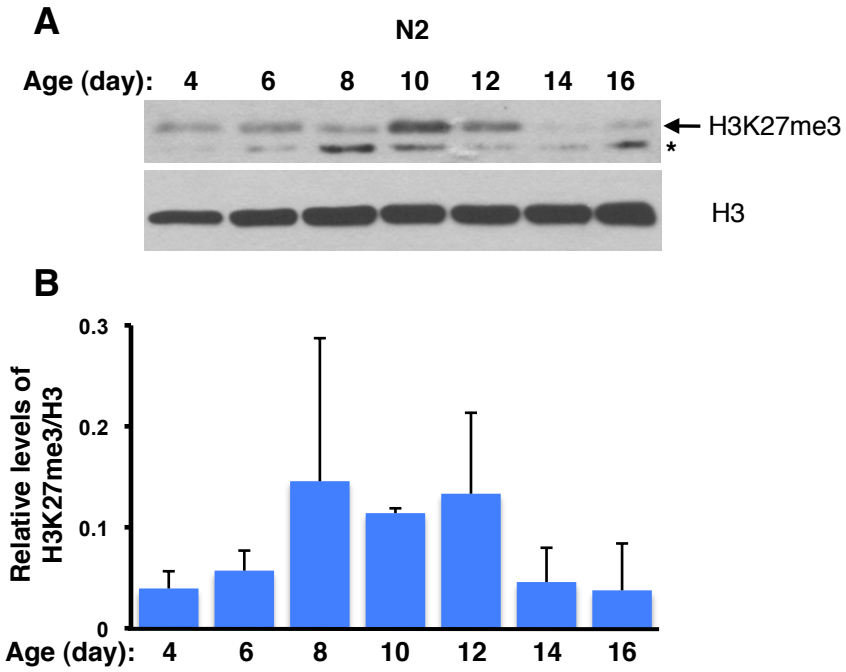
# Supplementary Table 2




**Supplementary Fig. 1**




**Supplementary Fig. 2**




**Supplementary Fig. 3**