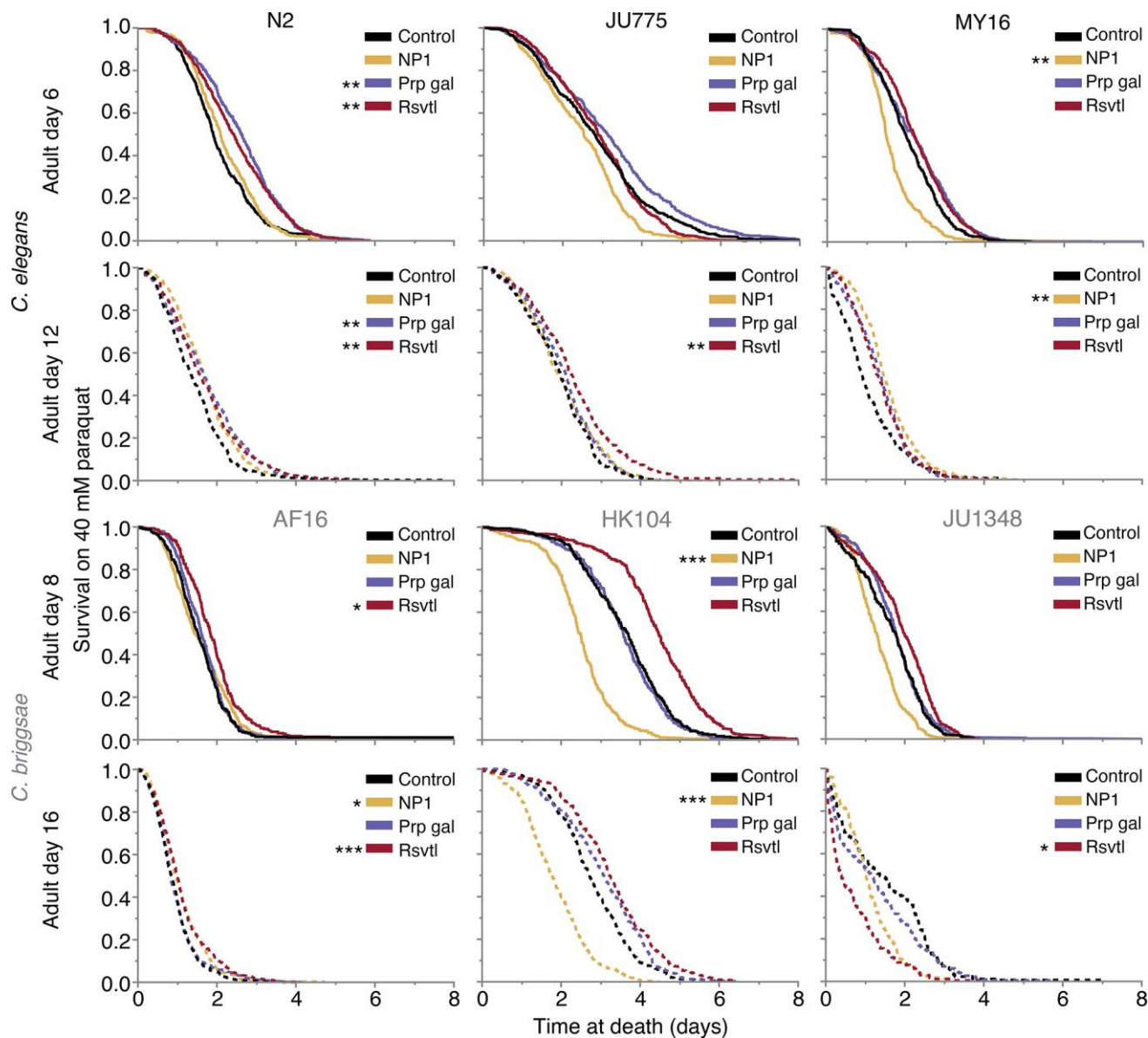
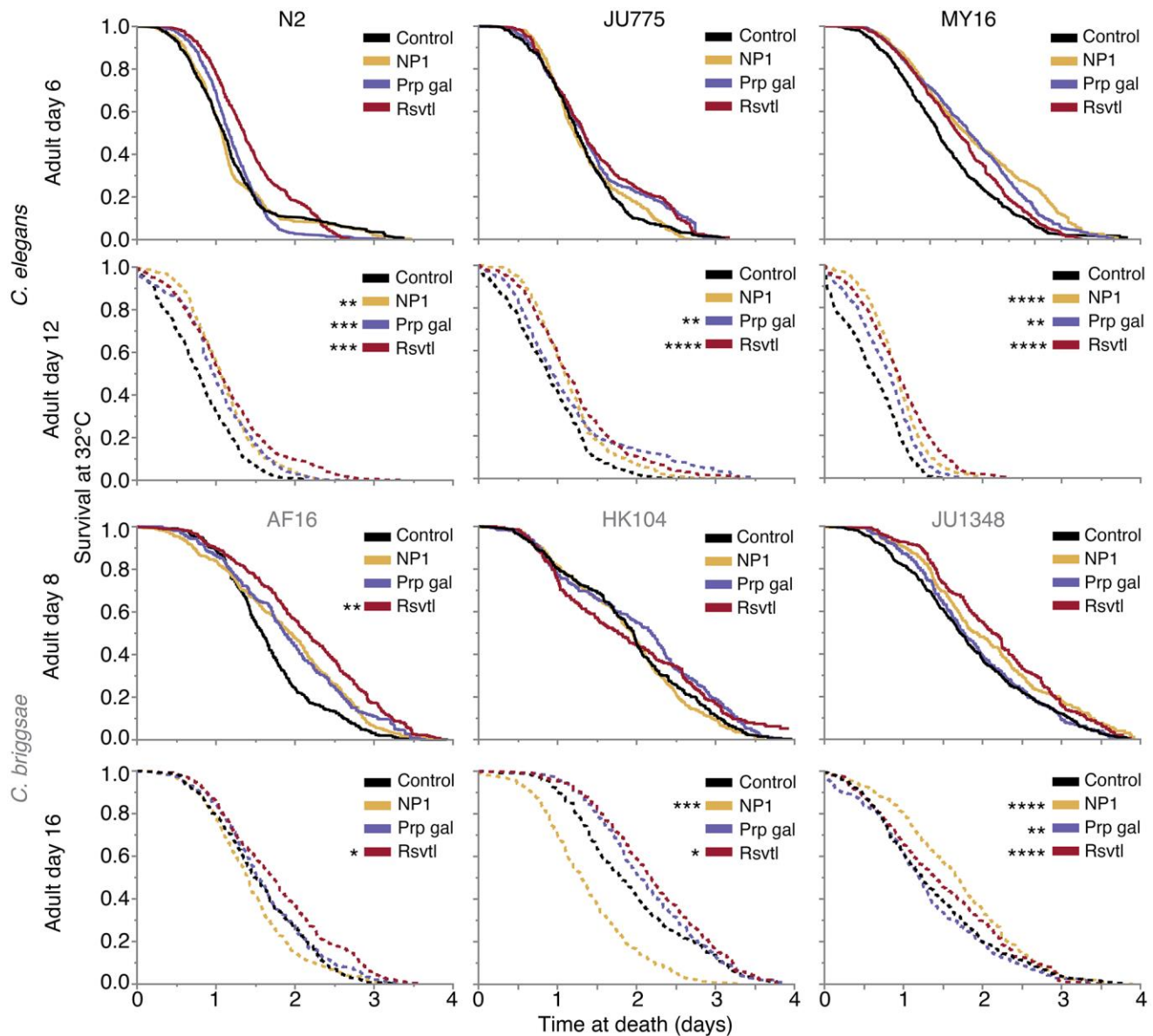


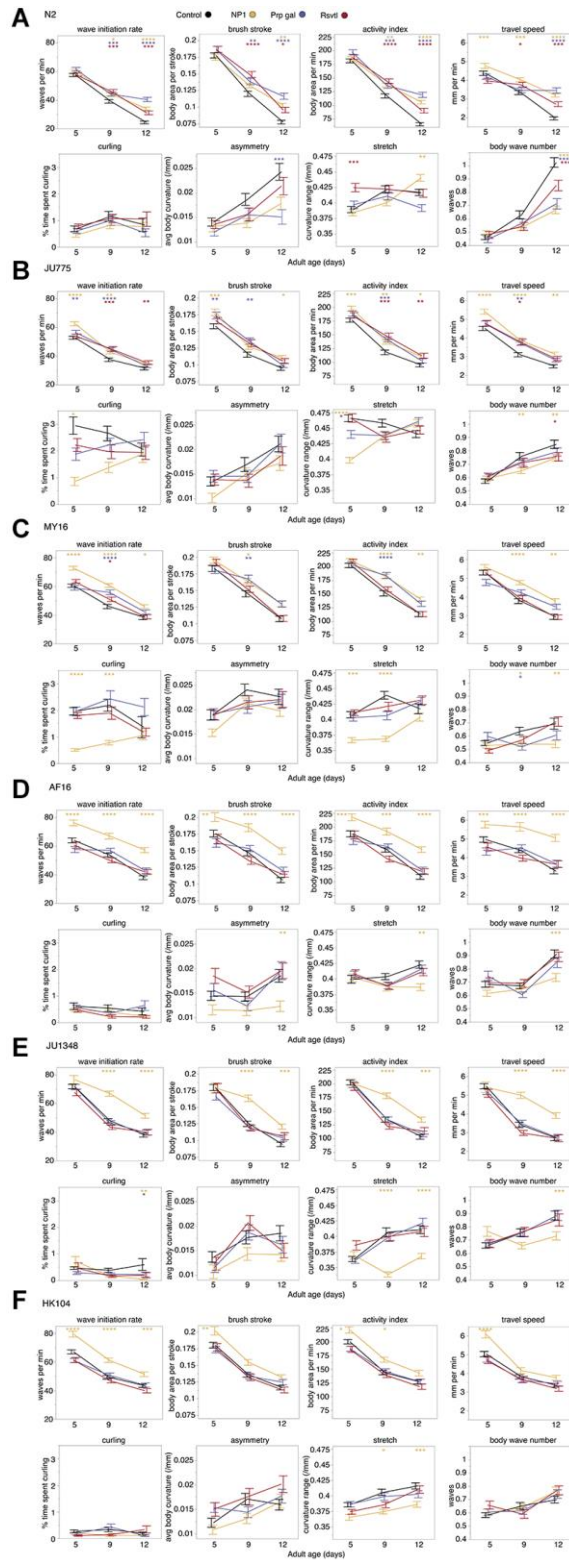
SUPPLEMENTARY FIGURES



Supplementary Figure 1. Kaplan-Meier curves showing the effect of adult exposure to NP1, propyl gallate, or resveratrol on survival under oxidative stress conditions (40 mM paraquat) beginning at early and late mid-life (adult days 6 and 12 for *C. elegans*, days 8 and 16 for *C. briggsae*). Solid lines indicate early mid-life, dashed indicate late mid-life. Each curve represents multiple biological and technical replicates conducted at each of the three CITP testing sites. Asterisks represent p -values from the CPH model such that ** $p < 0.0001$, *** $p < 0.001$, ** $p < 0.01$, and * $p < 0.05$.**

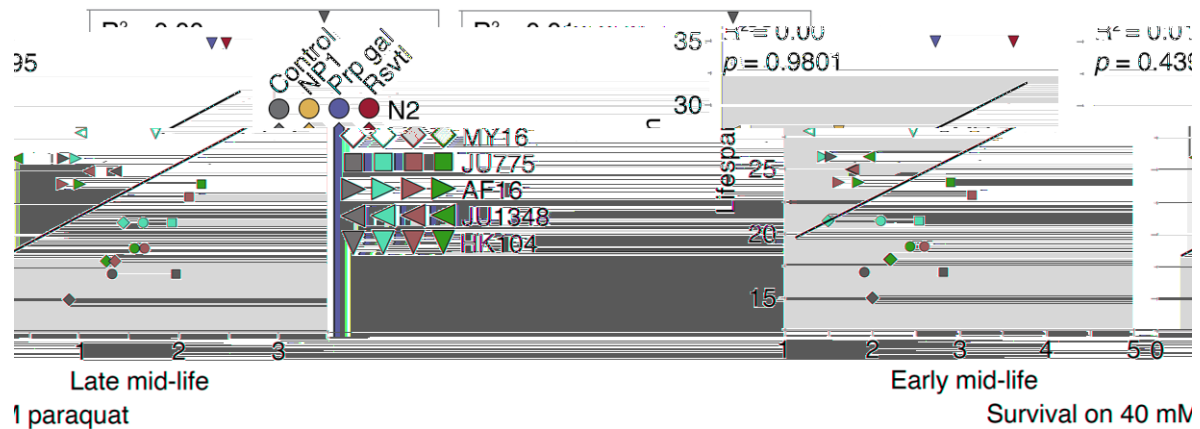


Supplementary Figure 2. Kaplan-Meier curves showing the effect of adult exposure to NP1, propyl gallate, or resveratrol on thermotolerance at 32°C beginning on day 6 and 12 (*C. elegans*) or day 8 and 16 (*C. briggsae*) of adulthood. Solid lines indicate early mid-life, dashed indicate late mid-life. Each curve represents multiple biological and technical replicates conducted at each of the three CITP testing sites. Asterisks represent *p*-values from the CPH model such that ***p* < 0.0001, ****p* < 0.001, ***p* < 0.01, and **p* < 0.05.**

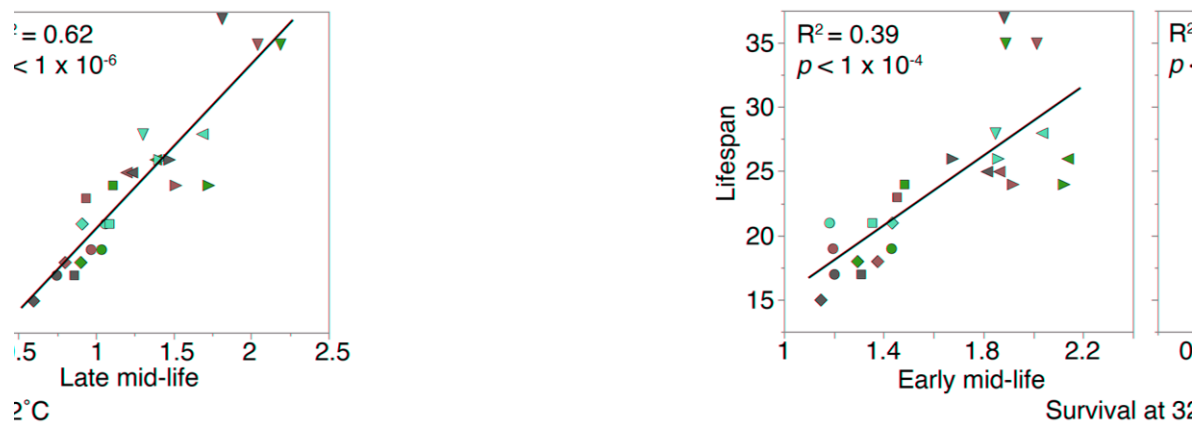


Supplementary Figure 3. The effect of adult exposure to NP1, propyl gallate, or resveratrol on eight measures of swimming ability with age. Data is shown for three *C. elegans* strains: (A) N2, (B) JU775, and (C) MY16, and three *C. briggsae* strains: (D) AF16, (E) JU1348, and (F) HK104. Swimming assays were run at early mid-life, mid-life, and late mid-life (days 5, 9, and 12 of adulthood, respectively). The line represents the mean of an individual trial, bars represent the mean \pm the standard error of the mean, and the colors correspond to the compound treatment (black-control, yellow-NP1, purple-propyl gallate, red-resveratrol). Two biological replicates were completed at each of the three CITP testing sites. Asterisks represent p -values from the linear mixed model such that **** $p < 0.0001$, *** $p < 0.001$, ** $p < 0.01$, and * $p < 0.05$.

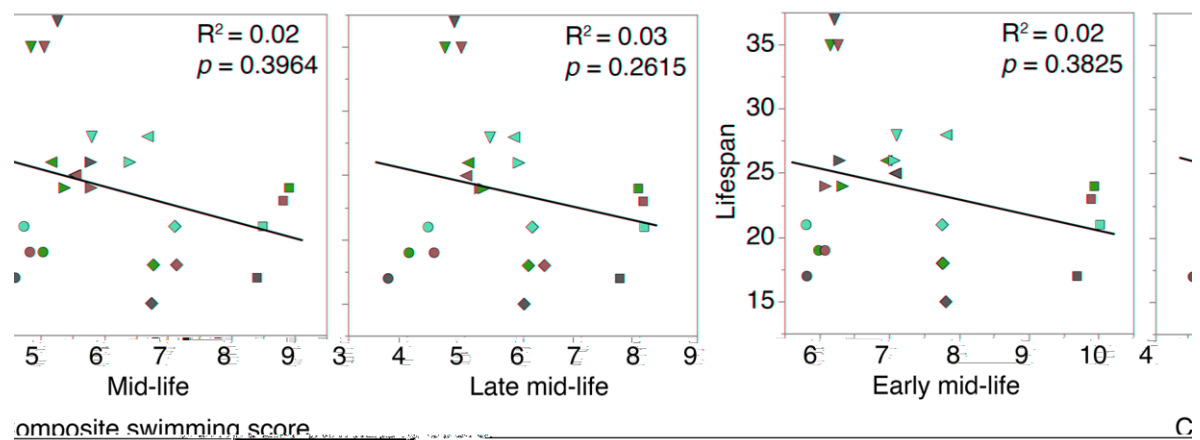
A Lifespan vs. oxidative stress resistance



B Lifespan vs. thermotolerance

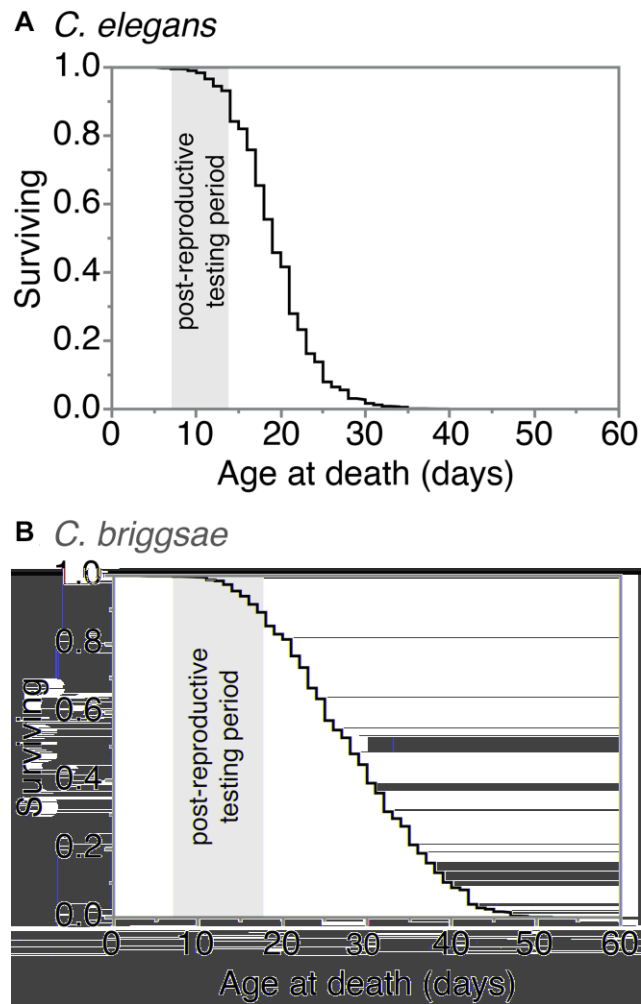


C Lifespan vs. swimming ability



Supplementary Figure 4. Correlation between lifespan and age-specific health measures after pharmaceutical intervention.

Health was measured at early and late mid-life for all assays, with an additional measurement at mid-life for swimming ability. Median values were used for composite swimming ability, while Kaplan-Meier medians were used for lifespan, (A) oxidative stress resistance, and (B) thermotolerance, while median values were used for (C) composite swimming ability. Kendall's tau correlation coefficients were calculated using data from three *C. elegans* strains (N2, MY16, and JU775) and three *C. briggsae* strains (AF16, JU1348, and HK104) across multiple compound interventions (DMSO controls, NP1, propyl gallate and resveratrol). The only significant correlation with lifespan was for thermotolerance, with $R^2 = 0.39$ for early mid-life, and $R^2 = 0.62$ at late mid-life ($p < 0.0001$).



Supplementary Figure 5. Kaplan-Meier lifespan curves showing overall species lifespan curves for (A) *C. elegans*, and (B) *C. briggsae*. Each curve consists of our previously published baseline survival data [34] from the three strains tested within a given species: N2, JU775, and MY16 for *C. elegans*, and AF16, JU1348, and HK104 for *C. briggsae*. Ages tested for health metrics were chosen based on the end of reproduction up until the (approximate) 5% quantile of survival under baseline conditions.