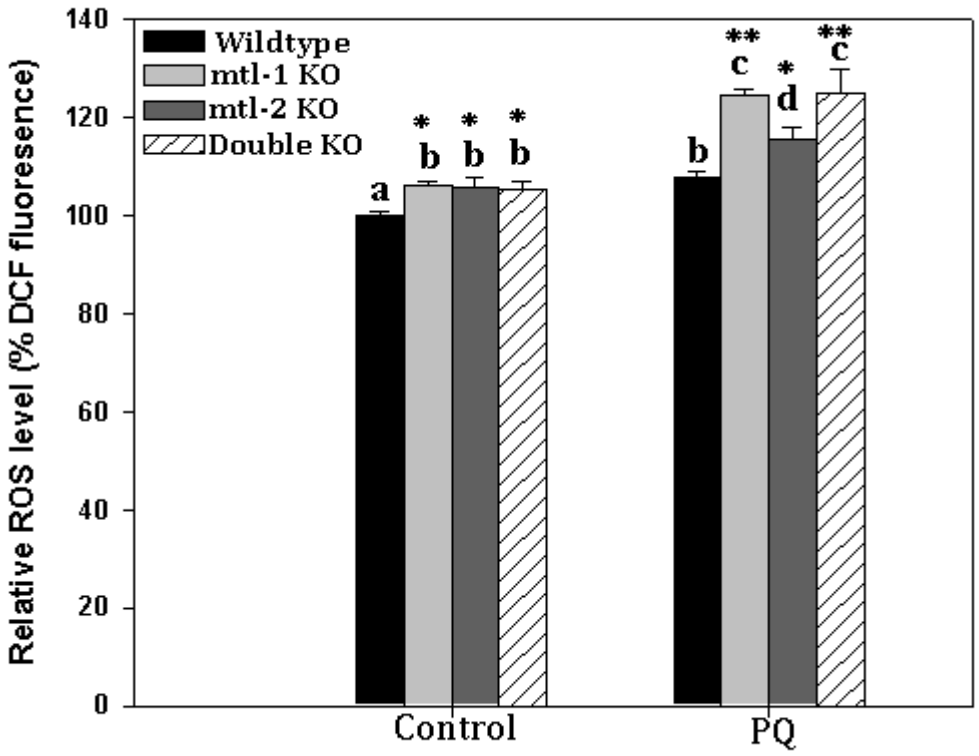


Figure S1. Metallothionein decrease intracellular ROS level. Worms were treated with paraquat for 48hrs, incubated with H2DCF-DA (50μM final concentration for 2.5 hrs at 37ºC). Changes in ROS level was monitored by fluorescence emitted by DCF. Each value is the mean± SEM of three independent replicates. Statistical analysis was performed using the t- student test. Letters and stars (* = P ≤ 0.05 and ** = P ≤ 0.01) represents statistical significance.

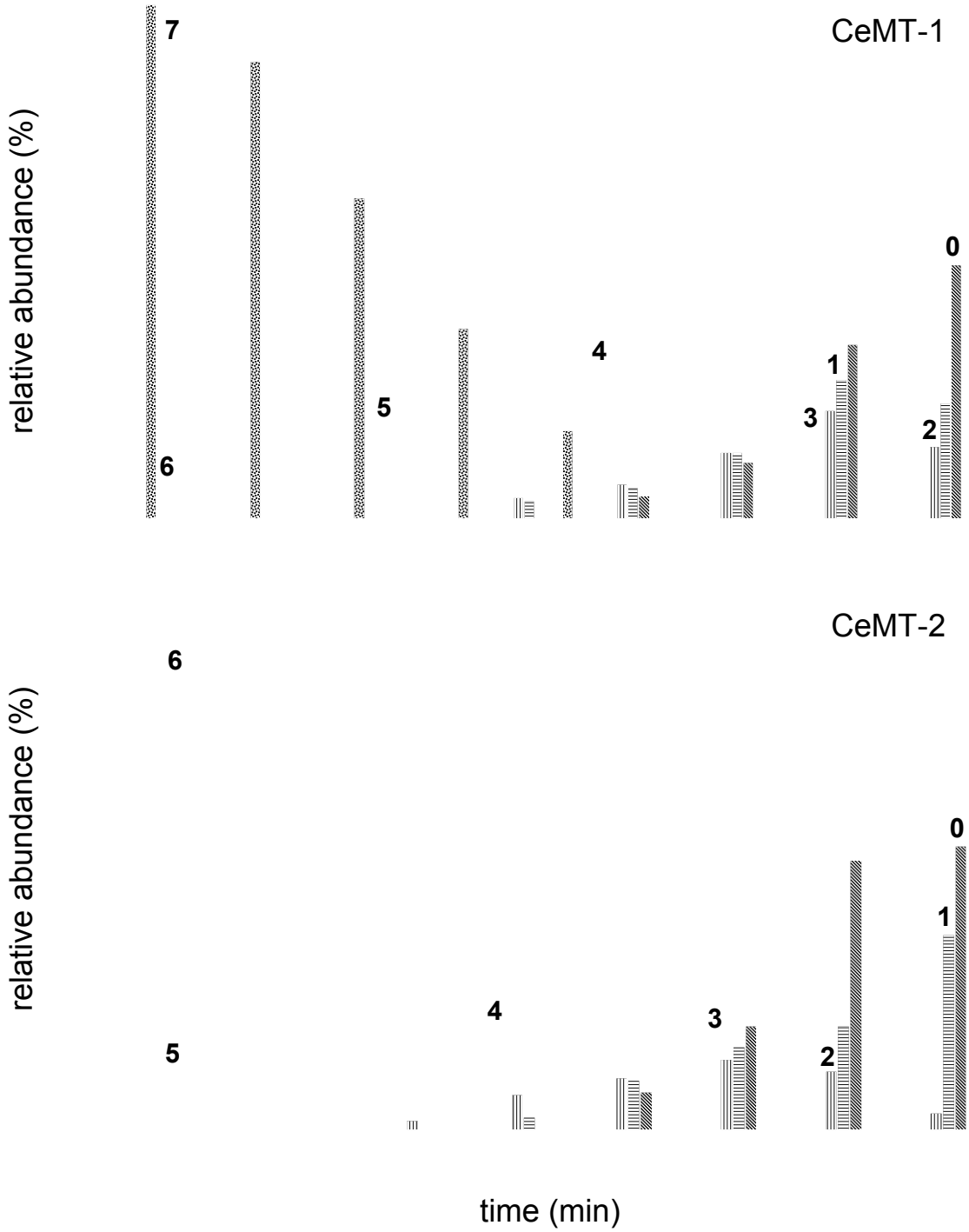


Figure S2: Zinc loss from Zn_7CeMT-1 and Zn_6CeMT-2 during the course of reaction with equimolar (with respect to cysteine thiols) amounts of H_2O_2. Each bar corresponds to the sum of species with a given number of Zn ions bound. In terms of metal loss, both MTs appear to be similarly effective at reacting with H_2O_2.

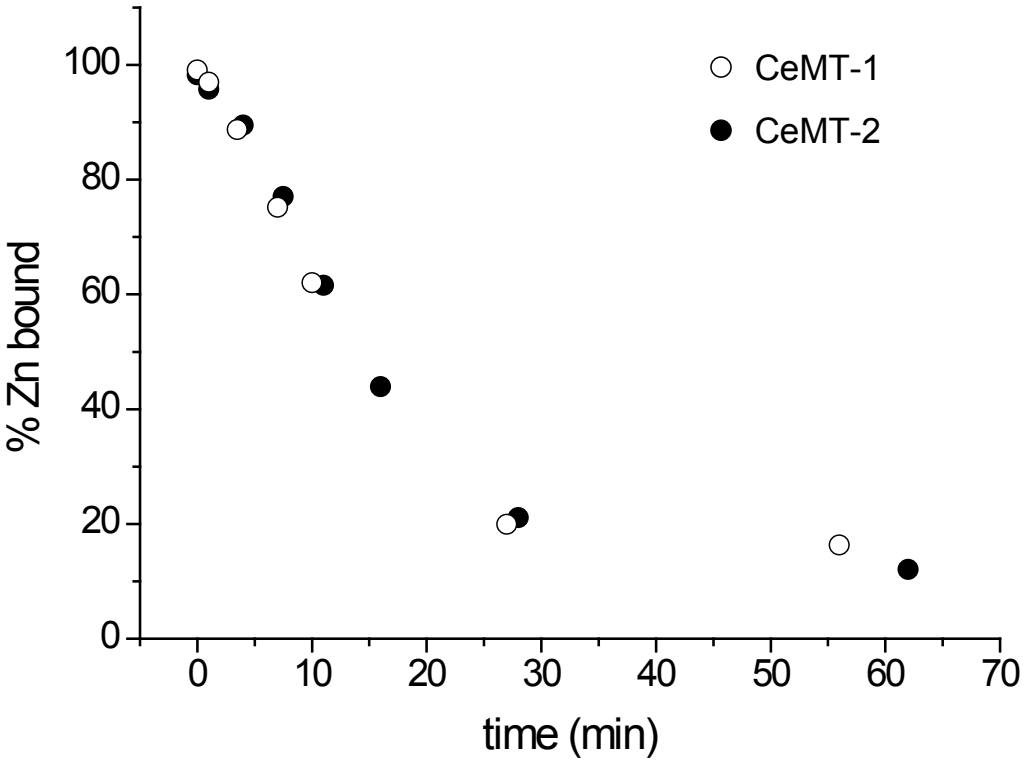


Figure S3: Semi-quantitative analysis of metal loss from *C. elegans* metallothioneins, as observed by ESI-MS. See experimental for details regarding data evaluation. Metal loss from CeMT-1 and CeMT-2 proceeds with comparable speed.

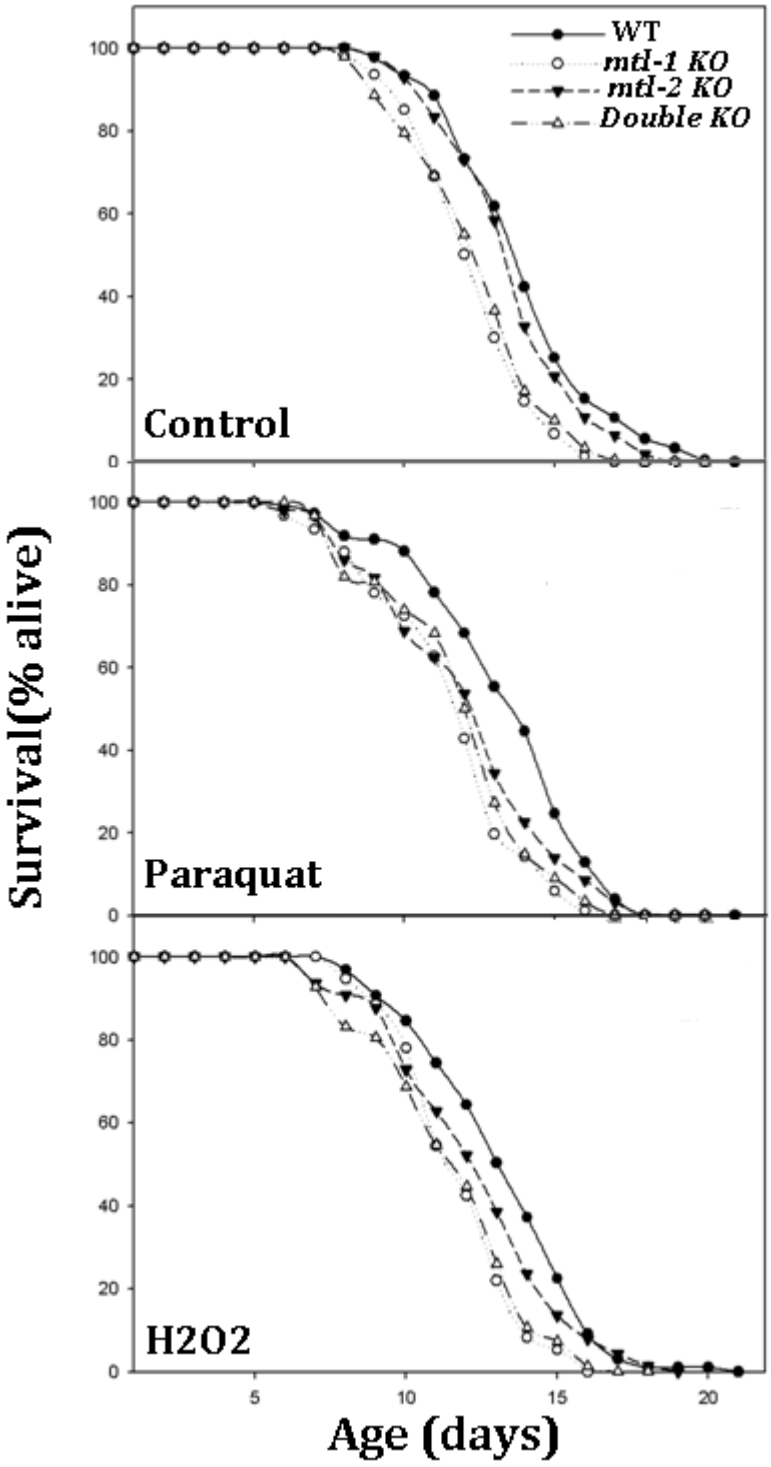
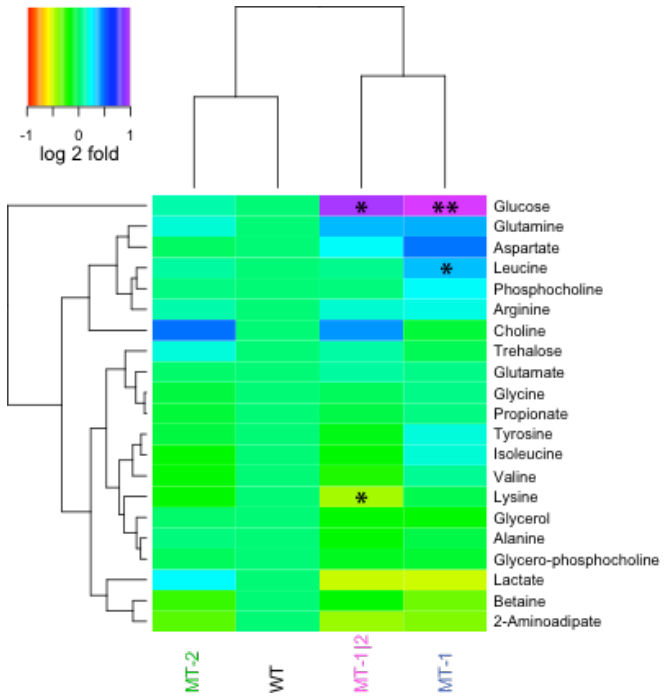


Figure S4: Difference in death rate between wild type and MT knockout under control and stress conditions. The data represents the percentage of live worms at any given day starting from L1s (n >100) as day 1.

A



B

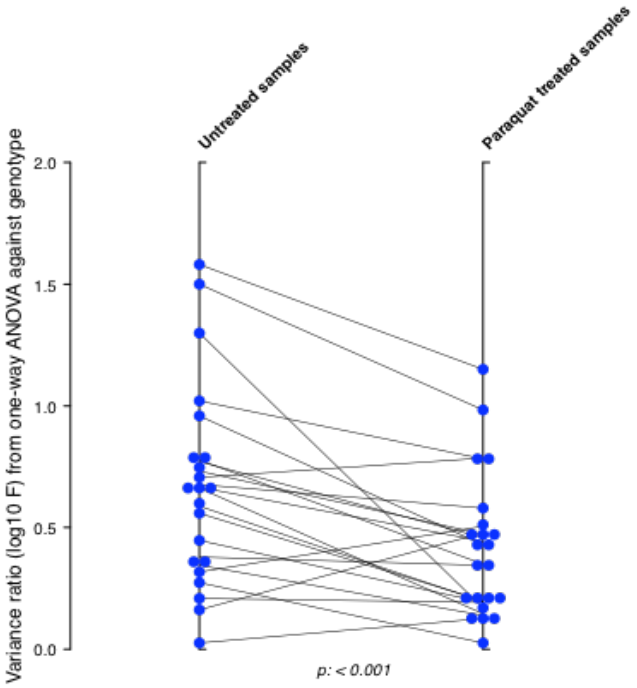


Figure S5: The metabolic differences between strains are greater in untreated than in paraquat-exposed worms. **A.** Metabolite changes in MT deletion strains compared to wild type, for paraquat-exposed worms only. Data presented as clustered heat map of fold-changes for selected metabolites. The number of significant differences is much greater than for fold-changes calculated with respect to unexposed worms (Fig. 5). **B.** Comparison of significant differences for individual metabolites across all four genotypes calculated by one-way ANOVA for untreated (left hand side) and paraquat-treated (right hand side) samples. The ordinate represents $\log_{10} F$ (variance ratio). It is apparent that F tends to decrease from the untreated compared to the paraquat-treated condition, i.e. the metabolic differences between strains decrease ($P < 0.001$, Wilcoxon matched pairs signed-ranks test).