**Supplementary Figure 1.**

**A-F)** Amount of cystine (nmol/mg of protein) in WT and *Ctns*-/- rats at different timepoints in various tissues. Boxed values indicate fold-change compared to WT at same timepoint. Two-way ANOVA performed, all data are plotted mean ± SEM. \*P<0.05, \*\*P<0.01, \*\*\*P<0.001. n = 5 WT and 6 *Ctns*-/- per group. **G-L)** Graphs displaying quantification of total activity (cm), percentage of time spent in the inner area of the arena and number of rearing behaviours in 15 mins in both females and males. Two-way ANOVA performed, no significance observed. n= 13 *Ctns-/-* and 11 WT.Representative images of trabecular **(M-P)** and cortical **(Q-T)** bone in tibias from female WT and *Ctns*-/- rats at 12 and 17 months of age. n= 14 *Ctns-/-* and 13 WT.