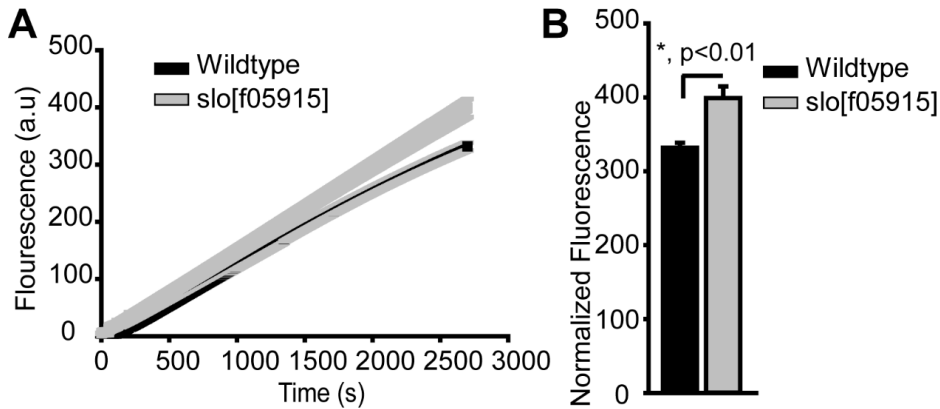


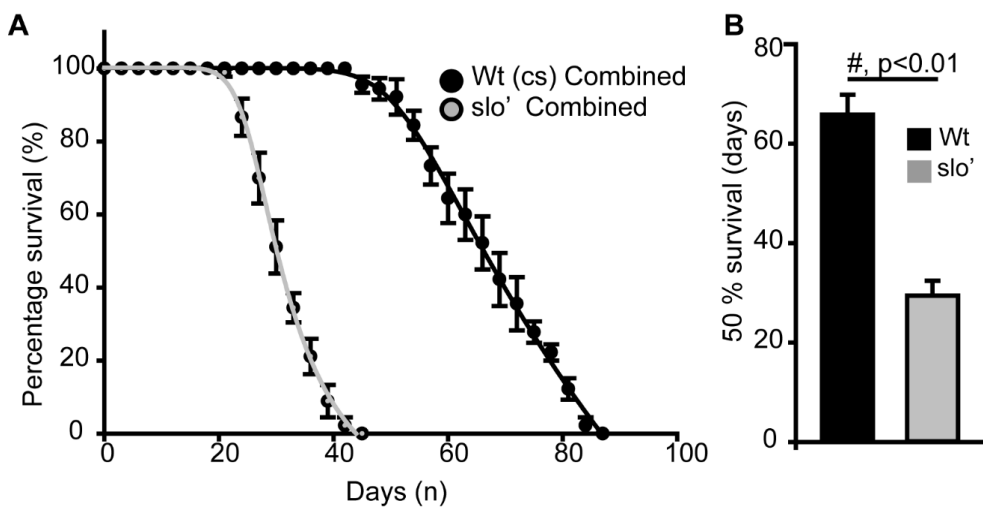
### Supplementary Figure. S1

***slo<sup>f05915</sup>* mitochondria produce increased ROS.** The graphs show isolated wild-type (black) and *slo<sup>f05915</sup>* mitochondria (gray) with increased ROS produced by complex II/III, in the presence of succinate as substrate (A). Histograms show a significant increase in ROS in *slo<sup>f05915</sup>* mitochondria (B).



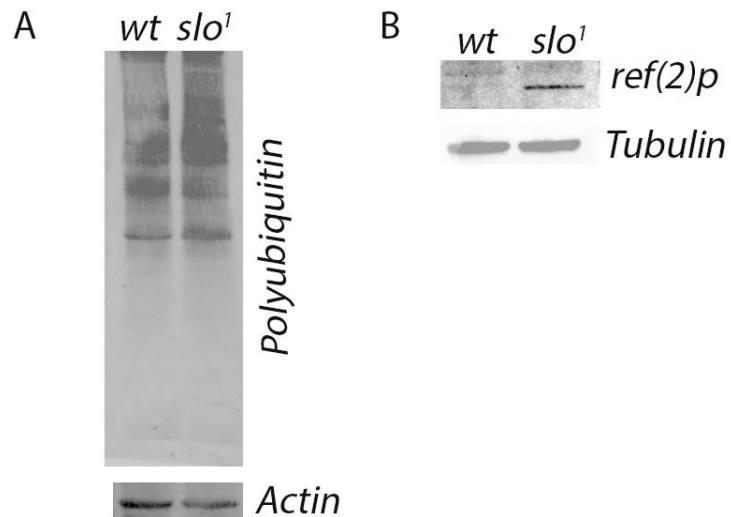
### Supplementary Figure. S2

***slo<sup>1</sup>* mutants result in accelerated aging when males and females are grown together.** *Drosophila* BK<sub>Ca</sub> (*slo<sup>1</sup>*) mutants show significantly reduced lifespan of males and females by approximately 50% compared to wt flies (A). The inset shows 50% survival for wt (black) and *slo<sup>1</sup>* (gray), which was reduced significantly for *slo<sup>1</sup>* (B).



### Supplementary Figure. S3

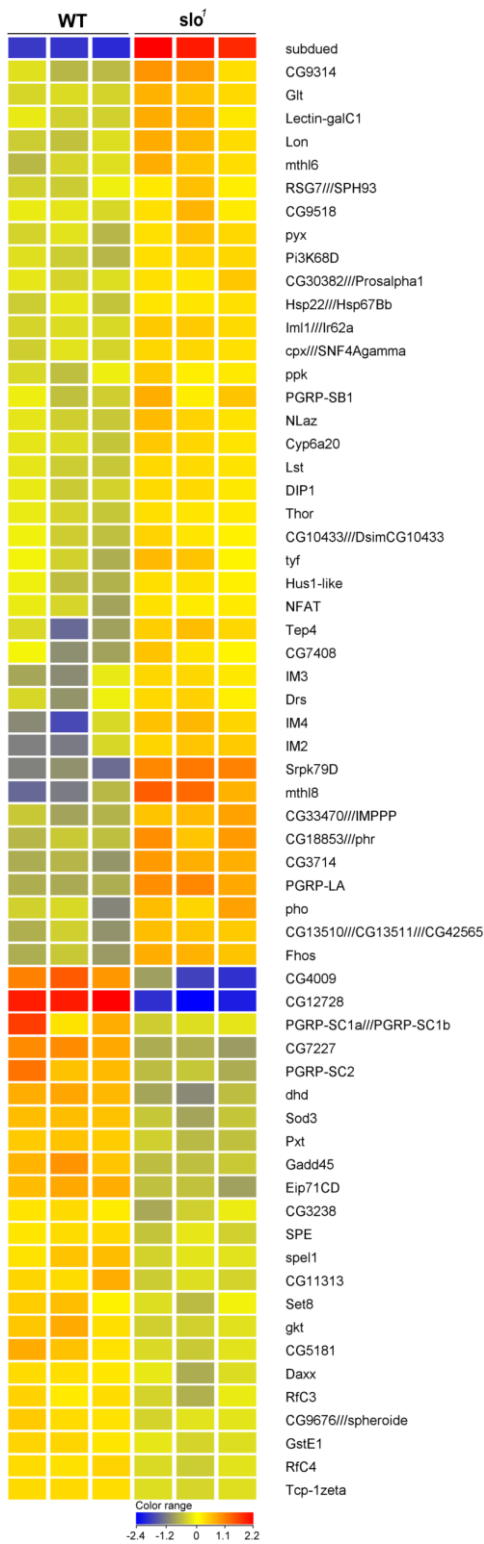
Increased levels of protein aggregates in *slo*<sup>1</sup> mutants. **A.** Western blot with Anti-Poly (Ubq) antibodies indicating increased ubiquitination of proteins in *slo*<sup>1</sup> mutants. Actin was used a control. **B.** Ref(2)p levels in wt and *slo*<sup>1</sup> mutants lysates. Tubulin was used a control.



**Supplementary Figure. S4**

Heat map of oxidative stress-related genes altered in *slo*<sup>1</sup> mutants in comparison to wt flies.

The color range indicates a fold change in gene expression.



### Supplementary Figure. S5

Females overexpressing human (Hs) BK<sub>Ca</sub> do not show a change in life span as compared to control flies (A). (B) Bar graph showing 50% survival of control and Hs BK<sub>Ca</sub> overexpressing female flies.

