

## **Descriptions of Additional Supplementary Files**

**Supplementary movie 1:** A video of WT and Nrf2-KO mice onboard the ISS in the HCU.

**Supplementary movie 2:** A video of representative appearance of Nrf2-KO (M6 and A3) and WT (M4 and A4) mice after flight return (M6 and M4) and end of experiment ground control mice (A3 and A4).

**Supplementary data 1:** Gene set enrichment analysis (GSEA) of gene expression induced by space flight in WT mice.

**Supplementary data 2:** All source data for graphs and charts presented in the main figures.