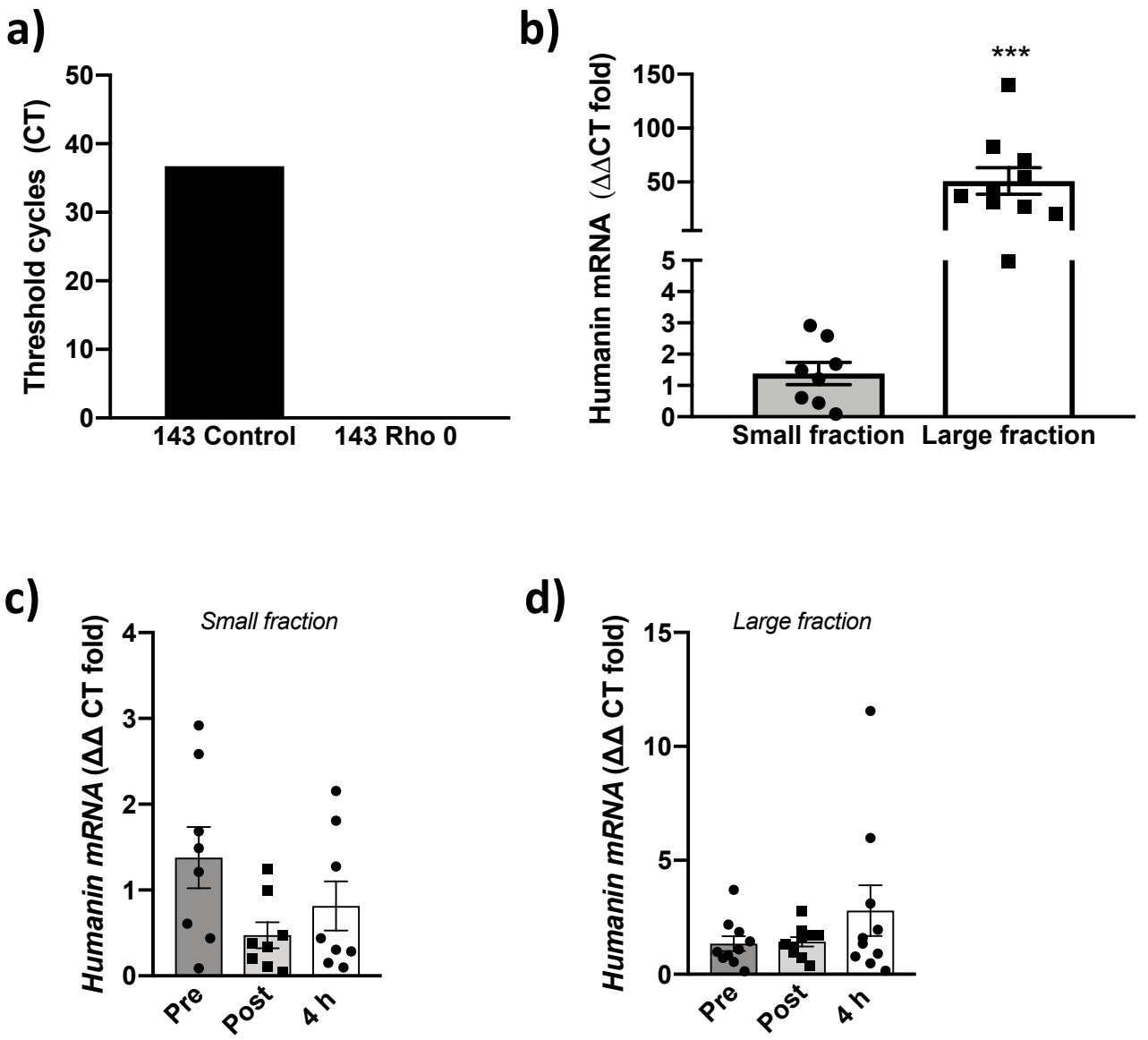
Supplementary Table 1. SYBR green assay sequences

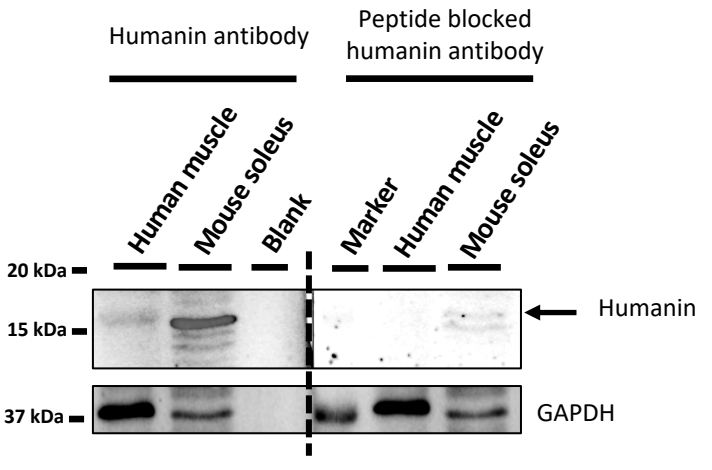
Gene	Forward primer	Reverse primer
PPARGC1A	AGCCTCTTTGCCCAGATCTT	GGCAATCCGTCTTCATCCAC
36B4	GTGATGTGCAGCTGATCAAGACT	GATGACCAGCCCAAAGGAGA
BAX	AGCTGCAGAGGATGATTGCC	GCGTCCCAAAGTAGGAGAGG
B2M	GTGATGTGCAGCTGATCAAGACT	GATGACCAGCCCAAAGGAGA

Supplementary Table 2. Taqman assay ID's

Gene	Assay ID
MT-RNR2	HS02596860s1
Humanin	Custom designed Taqman small RNA assay against humanin sequence https://www.thermofisher.com/order/catalog/product/4398987?SID=srch-srp-4398987#/4398987?SID=srch-srp-4398987
RNU44	001094
RNU48	001006



Supplementary figure 1. The custom TaqMan® small RNA assays designed against the humanin sequence is not amplified in cells that do not have any mitochondrial DNA (143B Rho 0 cells) **(a)**, and humanin mRNA levels in large (>200 nucleotides) and small (<200 nucleotides) mRNA muscle fractions at rest before initiation of exercise training **(b)**. Absolute ΔΔCT data for *Humanin* mRNA in small **(c)** and large fraction **(d)**. ***p<0.001 vs small fraction for student t-test.



Supplementary figure 2. Validation of humanin antibody (Sigma, catalogue # H2414) specificity. Incubating the humanin antibody with a humanin peptide (antibody blocking) eliminates the ~15 kDa band where humanin in tissue is reported to be detected at. The same samples were loaded at the same time for each membrane, and membranes were transferred and imaged at the same time following overnight incubation in the native or blocked antibody.