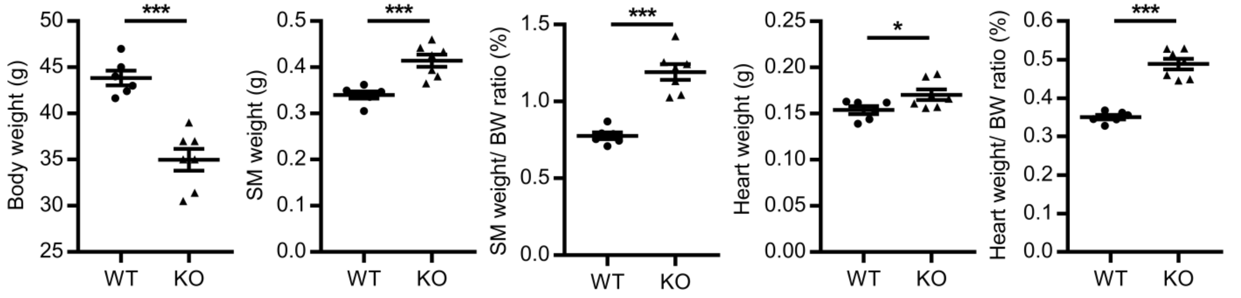
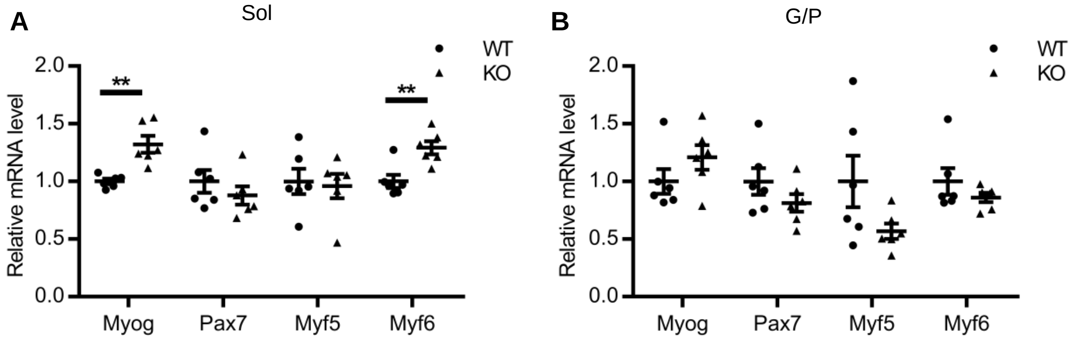
Supplemental Figure 1.



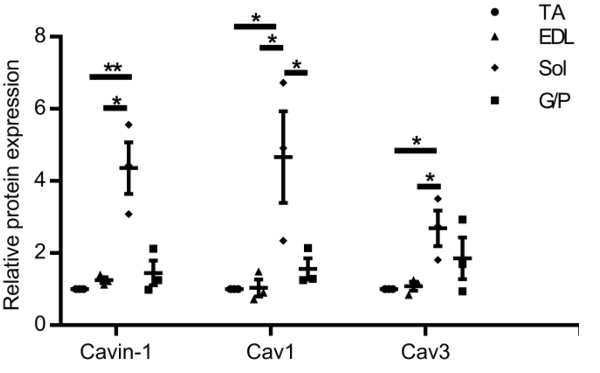

**Supplemental Figure 1.** Muscle weights and body weights in 7 month-old male WT and cavin-1 KO mice (n=6-7). Data are represented as mean ± SEM. 2-tailed Student's t-test was used for comparison between WT and KO mice. **P* < 0.05 and ****P* < 0.001.

Supplemental Figure 2.



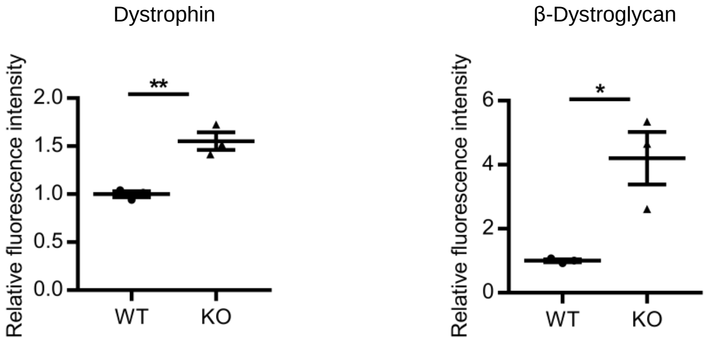

**Supplemental Figure 2**. mRNA expression of myogenic markers in **(A)** soleus (Sol) muscle and **(B)** gastrocnemius/plantaris (G/P) muscle of 3 month-old WT and KO mice (n=6). Data are represented as mean ± SEM. Bonferroni's multiple comparison test was used to determine the statistical significance. $*P < 0.05$ and $**P < 0.01$.

Supplemental Figure 3.




**Supplemental Figure 3.** Densitometric quantification of caveolae protein levels determined by western blots in tibialis anterior (TA), extensor digitorumlongus (EDL), soleus (Sol) and gastrocnemius/plantaris (G/P) muscles from wild type mice, normalized to MyoD protein levels, indicating the highest protein expression of cavin-1, Cav1 and Cav3 in soleus muscle (n=3). Data are represented as mean ± SEM. 2-tailed Student's t-test was used for comparison between Sol and TA, EDL and G/P, respectively. $^*P < 0.05$ and $^{**}P < 0.01$.

Supplemental Figure S4.




**Supplemental Figure 4.** Relative intracellular fluorescence intensity of dystrophin and β-dystroglycan on WT and cavin-1 KO muscle sections. Mean intracellular fluorescence intensity (sarcolemmal fluorescence excluded) was measure in >100 myofibers for each muscle cryosection (3 mice/group). Data are represented as mean ± SEM. 2-tailed Student's t-test was used for comparison between WT and KO. *$P$ < 0.05 and **$P$ < 0.01.

Supplemental Table 1. Primer sequences used for quantitative real-time PCR

| Gene | Forward Primer | Reverse Primer |
|---|---|---|
| Atrogin-1 | AACCGGGAGGCCAGCTAAAGAACA | TGGGCCTACAGAACAGACAGTGC |
| MuRF-1 | GAGAACCTGGAGAAGCAGCT | CCGCGGTTGGTCCAGTAG |
| Mstn | AGTGGATCTAAATGAGGGCAGT | GTTTCCAGGCGCAGCTTAC |
| Igf-1 | TGGATGCTCTTCAGTTCGTG | TGGTAGATGGGGGCTGATAC |
| Col1a1 | ACATGTTCAGCTTTGTGGACC | TAGGCCATTGTGTATGCAGC |
| Col3a1 | TGGTAGAAAGGACACAGAGGC | TCCAACTTCACCCTTAGCACC |
| Col4a1 | ACAAAAGGGTGATGCTGGAG | CTCCCTTTGTACCGTTGCAT |
| Col5a1 | CTCCAACACCTCCAATCCAG | GTCCTCCAATCCCCTCAAAG |
| Col6a1 | GATGAGGGTGAAGTGGGAGA | CAGCACGAAGAGGATGTCAA |
| Col6a2 | ATGTGAGGGAGACCTGTGGA | TGTGCCTGTTTCTGACTTGG |
| Col6a3 | CAGAACCATTGTTTCTCACT | AGGACTACACATCTTTTCAC |
| Fn1 | TTAAGCTCACATGCCAGTGC | TCGTCATAGCACGTTGCTTC |
| Vim | CGGAAAGTGGAATCCTTGCA | CACATCGATCTGGACATGCTGT |
| Tgfb1 | ATTCCTGGCGTTACCTTGG | AGCCCTGTATTCCGTCTCCT |
| Ndufa9 | CTTTGGGCTGAGTCCATTTG | TTGAGCTCCAGTGGTGTGG |
| Sdhd | GCACATTCACCTGTCACCAA | AGGGATTCAAGTACCCAGCAG |
| Cyt c | TCCATCAGGGTATCCTCTCC | GGAGGCAAGCATAAGACTGG |
| Cox5a | GGGTCACACGAGACAGATGA | GGAACCAGATCATAGCCAACA |
| Cox5b | GATGAGGAGCAGGCTACTGG | CAGCCAAACCAGATGATA |
| Nrf1 | CTCTGCATCTCACCCTCCAAAC | TCGCACCACATTCTCCAAAG |
| Erra | GCAGGGCAGTGGGAAGCTA | CCTCTTGAAGAAGGCTTTGCA |
| MtfA | TGCTAAAGATGATAGGATTCGTTACG | CGACGGATGAGATCACTTCGT |
| Ucp2 | CCCTAATGGCTGCCTACCAA | GGGTCCAGGTCAGCATGG |
| Ucp3 | TACCCAACCTTGGCTAGACG | GCCTGGCAATCTTTTGCTT |
| Mcad | CAACACTCGAAAGCGGCTCA | ACTTGCGGGCAGTTGCTTG |
| Lcad | GGACTCCGGTTCTGCTTCCA | TGCAATCGGGTACTCCCACA |
| Scd1 | GGCCTGTACGGGATCATACTG | GGTCATGTAGTAGAAAATCCCGAAGA |
| MHCI | CCTTGGCACCAATGTCCCGGCTC | GAAGCGCAATGCAGAGTCGGTG |
| MHCIIa | ATGAGCTCCGACGCCGAG | TCTGTTAGCATGAACTGGTAGGCG |
| MHCIIx | AAGGAGCAGGACACCAGCGCCCA | ATCTCTTTGGTCACTTTCCTGCT |
| MHCIIb | GTGATTTCTCCTGTCACCTCTC | GGAGGACCGCAAGAACGTGCTGA |
| Tfam | CTGCACTCTGCCCATCCAAA | CTGAGCATTCGCAGGCCTTT |
| Nd1 | GCCACCTTACAAATAAGCGCTCTC | ACGCAATTTCCTGGCTCTGC |
| Myog | TTGCTCAGCTCCCTCAACCA | TGTGGGAGTTGCATTCACTGG |
| Pax7 | TGCCGATATCAGGAGACTGGGTC | TTTCTCCACATCCGGAGTCGC |
| Myf5 | AAGGCTCCTGTATCCCCTCAC | TGACCTTCTTCAGGCGTCTAC |
| Myf6 | GGGCCTCAAAGGCTTCGTT | CCACAGATCGTCGGAAAGCAG |
| 36B4 | GAGGAATCAGATGAGGATATGGGA | AAGCAGGCTGACTTGGTTGC |