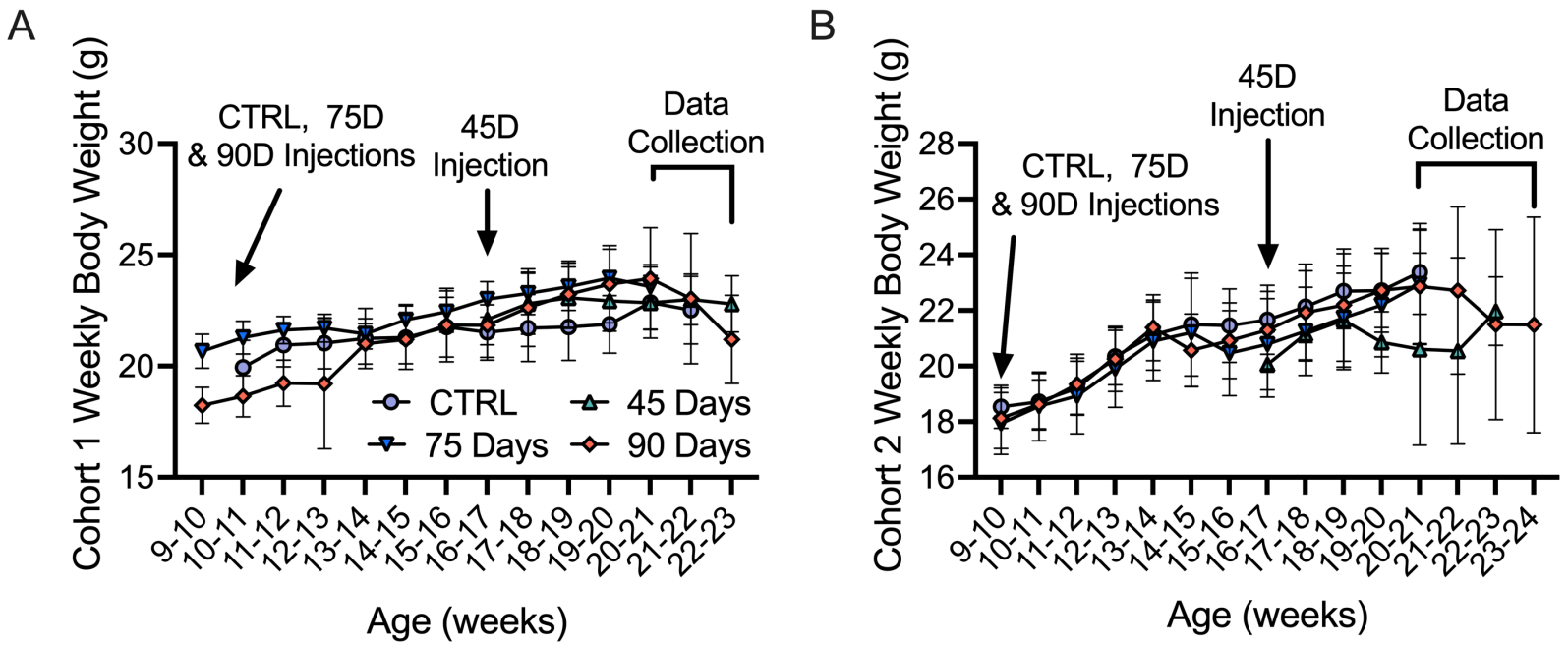
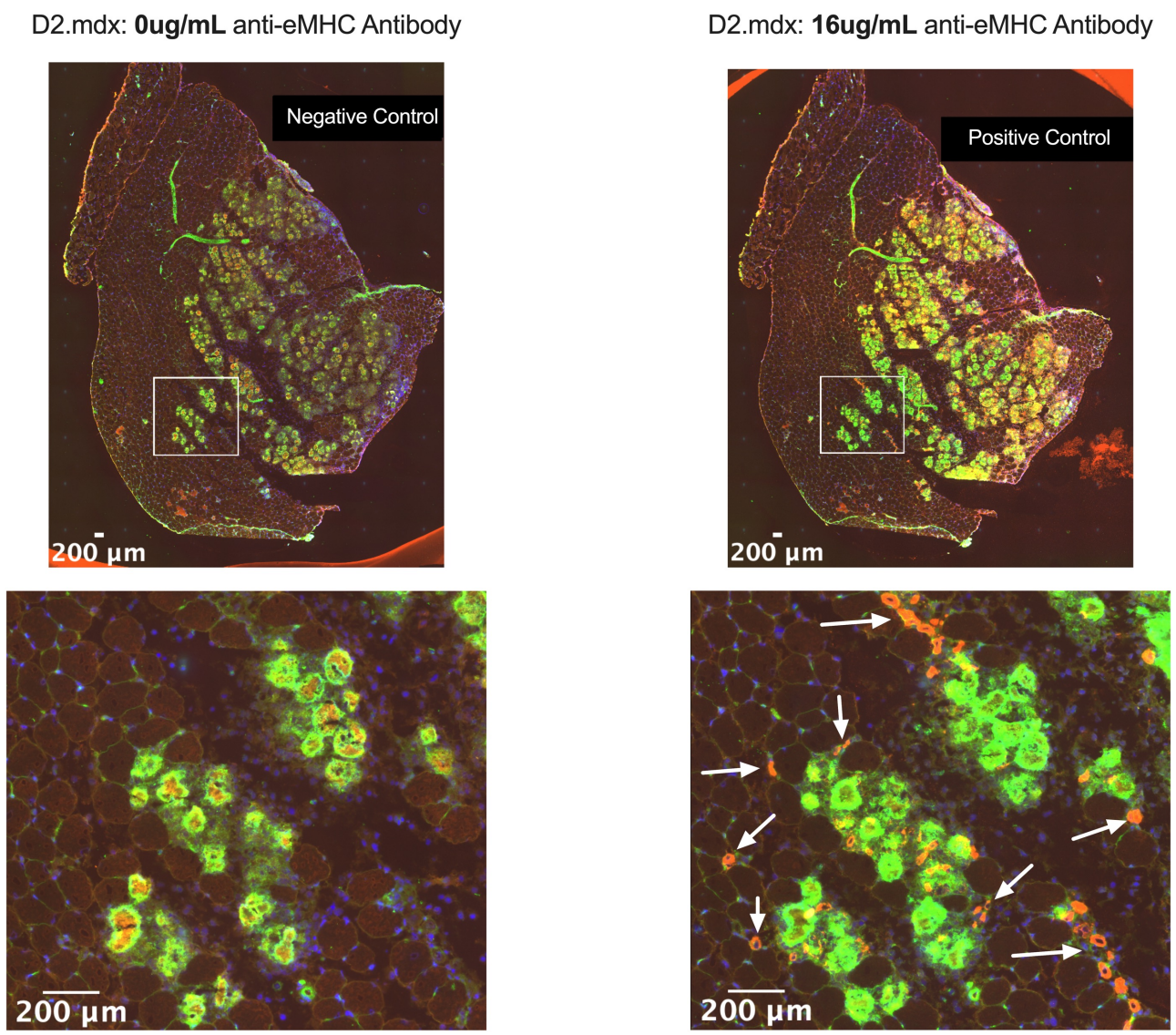
SFigure 1



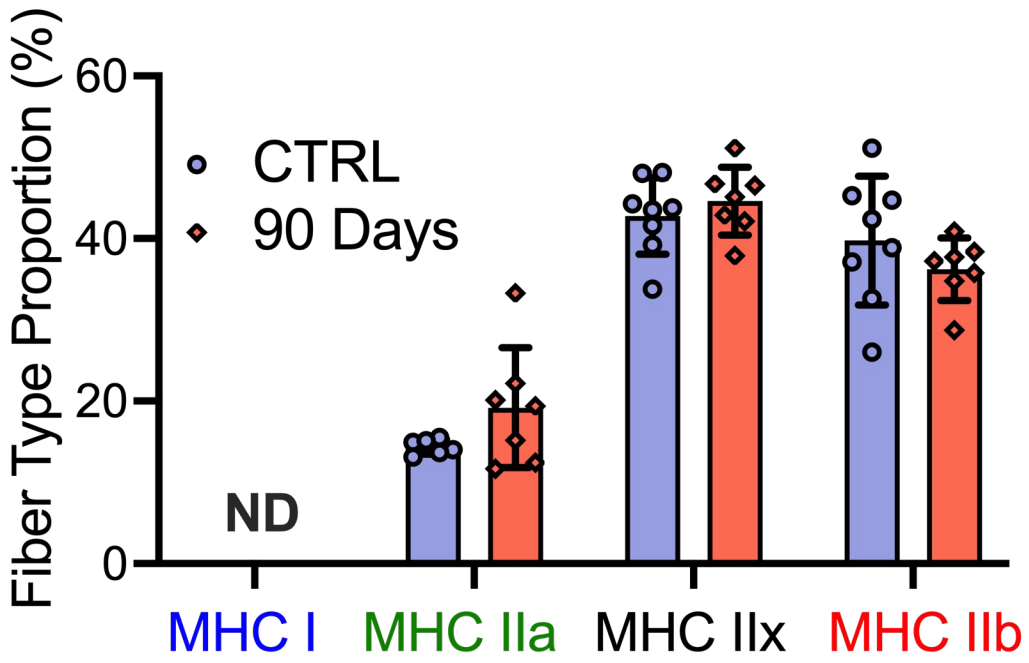
SFigure 1. Weekly body weights and age of EOC injections throughout study. This study used two mice per "n" from separate cohorts to obtain enough tissue to complete all experiments. Weekly body weights were measured in mice from cohort 1 (**A**, n =12) and cohort 2 (**B**, n =12). Results represent mean ± SD. All data was analyzed using a one-way ANOVA and followed by a two-stage step-up method of Benjamini, Krieger and Yukutieli multiple comparisons test. C57BL/6J female mice ~75 days post PBS injection as controls (CTRL); C57BL/6J female mice ~45 days post ovarian cancer injection (45 Days); C57BL/6J female mice ~75 days post ovarian cancer injection (75 Days); C57BL/6J female mice ~90 days post ovarian cancer injection (90 Days).

SFigure 2



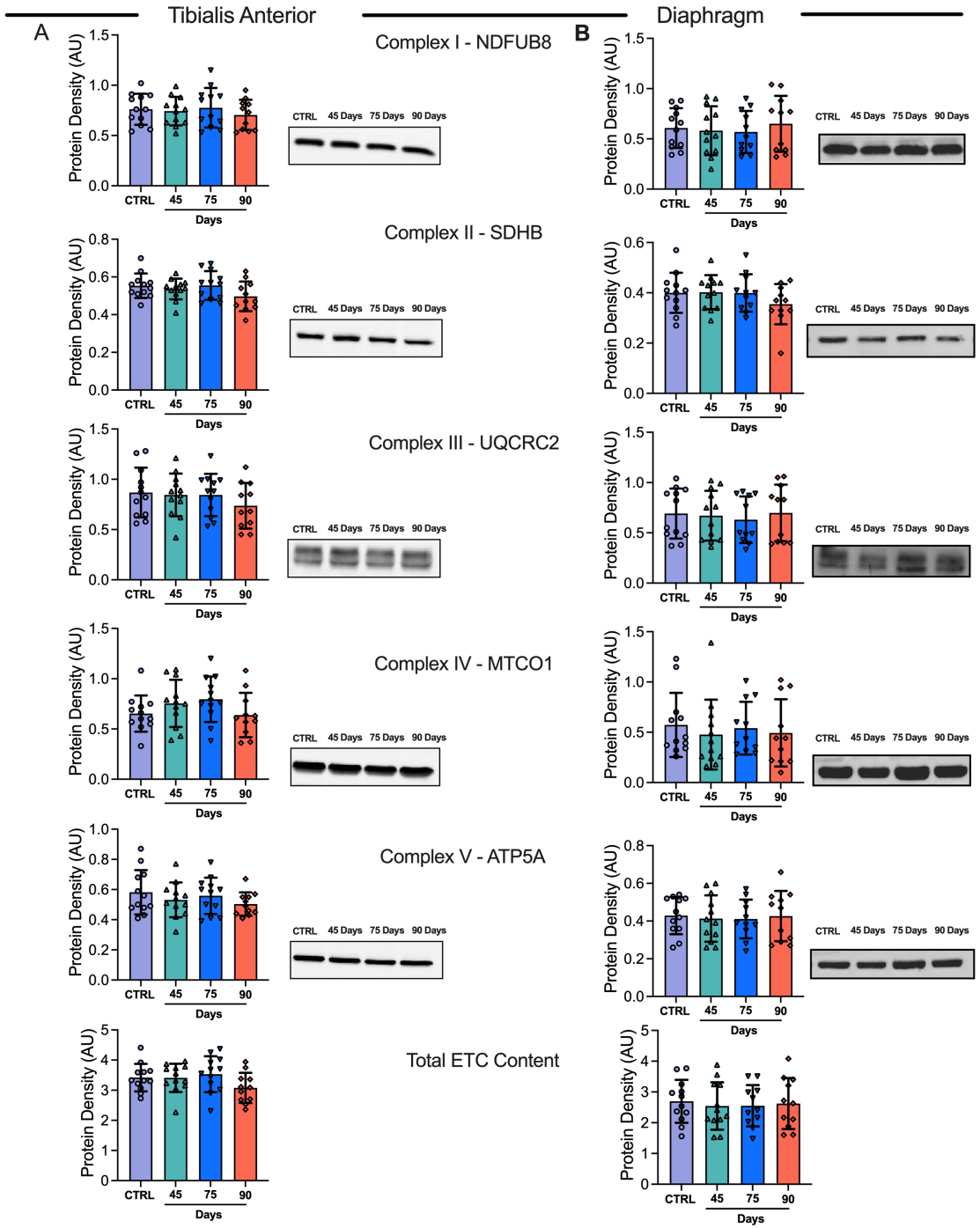
SFigure 2. Positive and negative control experiments of eMHC protocol. Tibialis anterior muscle from D2.mdx mice were used as a positive control to validate the eMHC histology technique. Technical replicates of the same tissue were incubated with no eMHC antibody (left) and with 16μg/mL of eMHC primary antibody (right).

SFigure 3



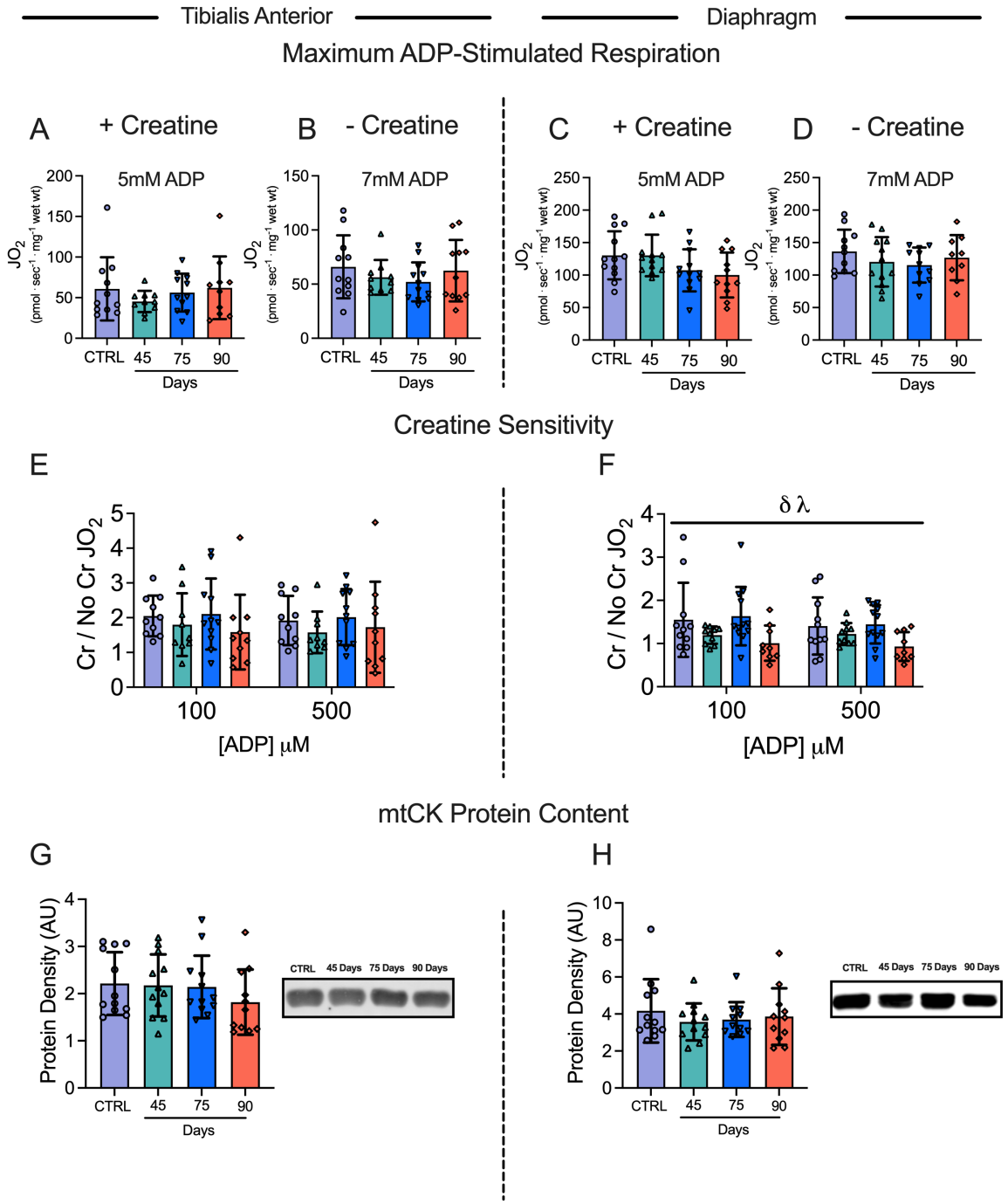
SFigure 3. Fiber type analysis of red tibialis anterior. Fiber type distribution of type IIa, type IIx and type IIb. n=7-8. Results represent mean ± SD. All data was analyzed using an unpaired T-Test. C57BL/6J female mice ~75 days post PBS injection as controls (CTRL); C57BL/6J female mice ~90 days post ovarian cancer injection (90 Days).

SFigure 4



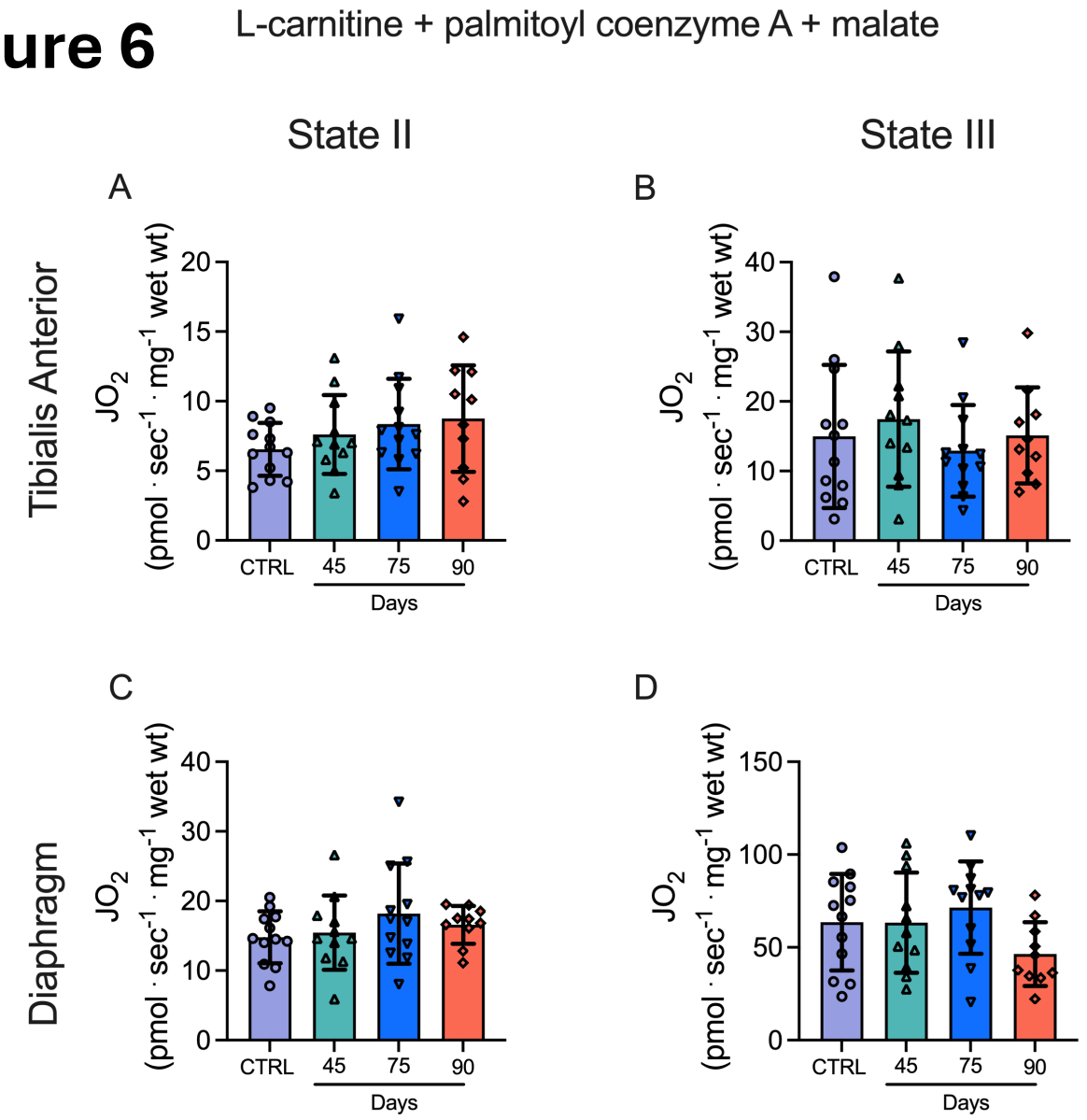
SFigure 4. Muscle-specific evaluation of electron transport chain (ETC) complex subunit markers in EOC injected tibialis anterior and diaphragm skeletal muscle. Protein content of ETC subunits was quantified in the tibialis anterior (**A**, n = 12) and diaphragm (**B**, n = 12) Results represent mean ± SD. All data was analyzed using a one-way ANOVA or Kruskal-Wallis test when data did not fit normality. All ANOVAs were followed by a two-stage step-up method of Benjamini, Krieger and Yukutieli multiple comparisons test. C57BL/6J female mice ~75 days post PBS injection as controls (CTRL); C57BL/6J female mice ~45 days post ovarian cancer injection (45 Days); C57BL/6J female mice ~75 days post ovarian cancer injection (75 Days); C57BL/6J female mice ~90 days post ovarian cancer injection (90 Days).

SFigure 5



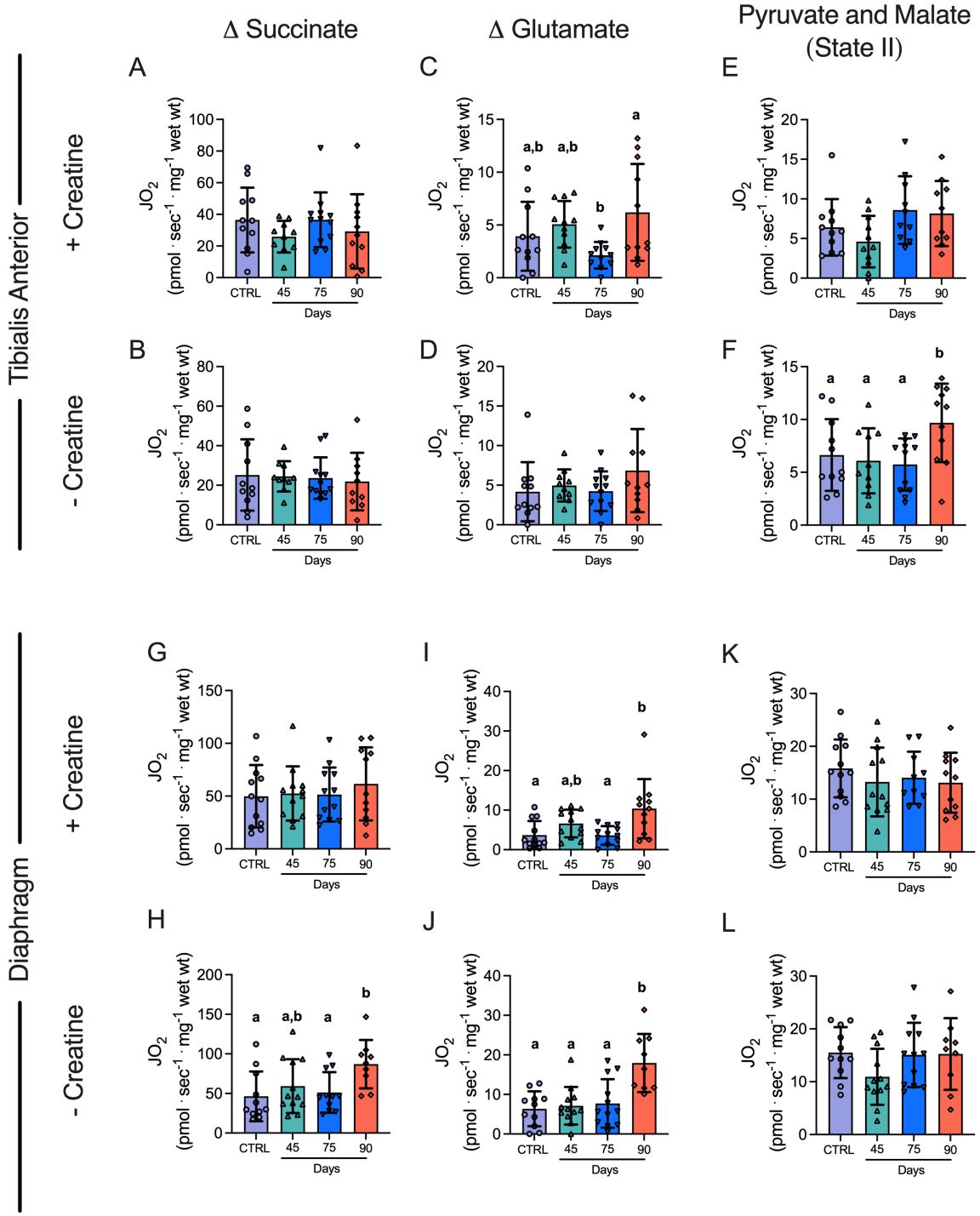
SFigure 5. Maximum ADP-stimulated respiration, creatine sensitivity ratios and mitochondrial creatine kinase (mtCK) protein content in tibialis anterior and diaphragm muscle of EOC injected mice. Maximum ADP-stimulated mitochondrial respiration was evaluated in the tibialis anterior and diaphragm both in the presence and absence of creatine (**A-D**, n = 9-12). A ratio of +Creatine/-Creatine respiration in the tibialis anterior and diaphragm muscle was generated at 100μM and 500μM (apparent Km of mtCK) as an index of creatine sensitivity (**E & F**, n = 9-12). mtCK protein content was also quantified in both muscles (n = 12). Results represent mean ± SD. λ $p < 0.05$ 75 Day vs 90 Day; δ $p < 0.05$ Control versus 90 Day. Figures A-D, G and H were analyzed using a one-way ANOVA or Kruskal-Wallis test when data did not fit normality. Figures E and H were analyzed using a two-way ANOVA (main effect shown only). All ANOVAs were followed by a two-stage step-up method of Benjamini, Krieger and Yukutieli multiple comparisons test. C57BL/6J female mice ~75 days post PBS injection as controls (CTRL); C57BL/6J female mice ~45 days post ovarian cancer injection (45 Days); C57BL/6J female mice ~75 days post ovarian cancer injection (75 Days); C57BL/6J female mice ~90 days post ovarian cancer injection (90 Days).

SFigure 6



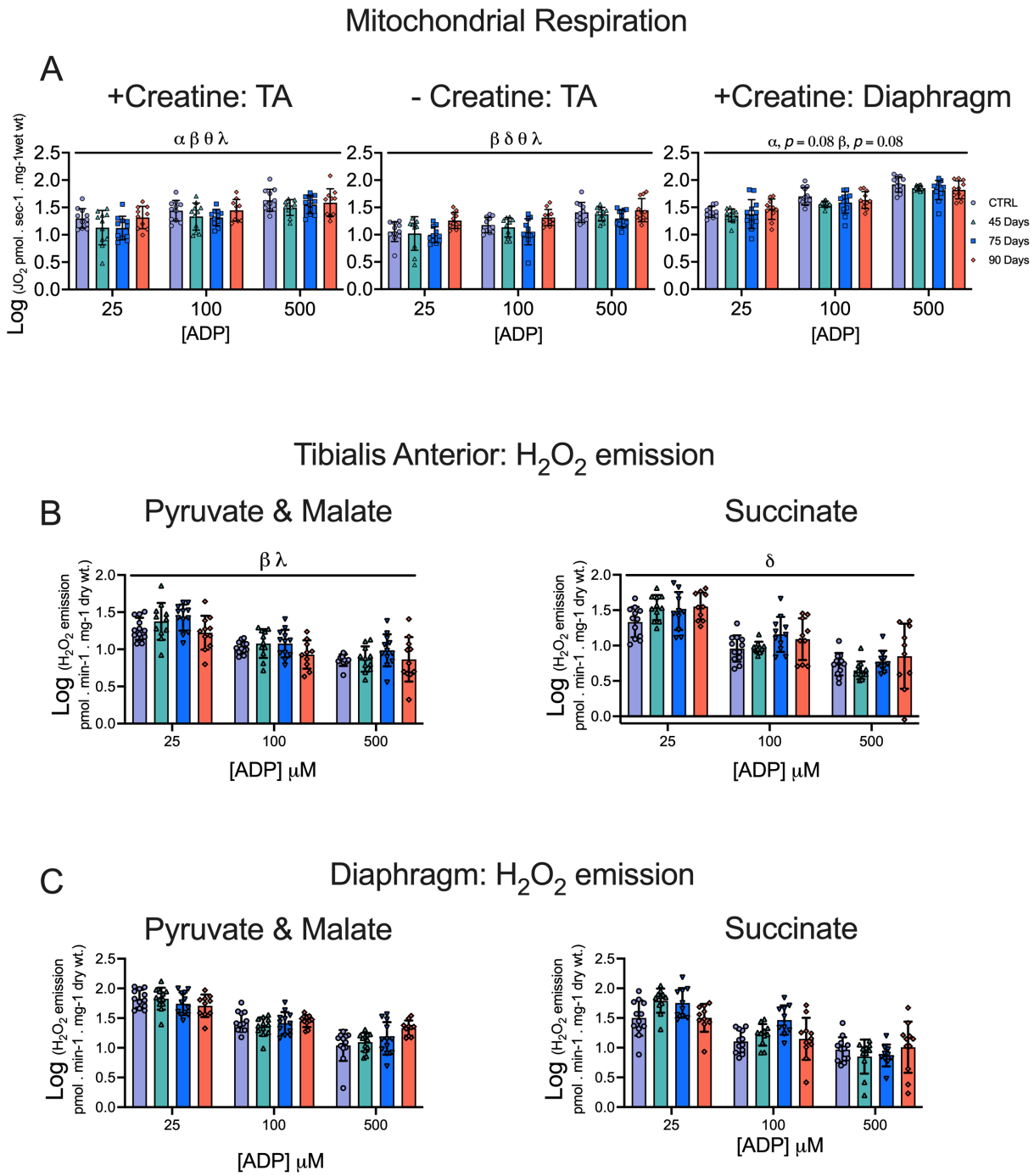
SFigure 6. Fatty acid-supported mitochondrial respiration in tibialis anterior and diaphragm of EOC injected mice. State II (L-carnitine + palmitoyl coenzyme A + malate; absence of ADP) mitochondrial respiration was evaluated in the tibialis anterior and diaphragm muscle in the presence of 20mM creatine (**A & C**, n = 10-12). State III (5mM ADP) mitochondrial respiration was also evaluated in TA and diaphragm muscle (**B & D**, n =10-12) Results represent mean ± SD. All data was analyzed using a one-way ANOVA or Kruskal-Wallis test when data did not fit normality. All ANOVAS were followed by a two-stage step-up method of Benjamini, Krieger and Yukutieli multiple comparisons test. C57BL/6J female mice ~75 days post PBS injection as controls (CTRL); C57BL/6J female mice ~45 days post ovarian cancer injection (45 Days); C57BL/6J female mice ~75 days post ovarian cancer injection (75 Days); C57BL/6J female mice ~90 days post ovarian cancer injection (90 Days).

SFigure 7



SFigure 7. Multiple substrate evaluation of oxygen consumption in tibialis anterior and diaphragm of EOC injected mice. Oxygen consumption was evaluated in tibialis anterior bundles using succinate both in the presence and absence of creatine (**A & B**). Glutamate-supported respiration was also evaluated in the presence and absence of creatine (**C & D**). State. II (absence of ADP) was also evaluated in the presence and absence of creatine (**E & F**). This was repeated in the diaphragm (**G-L**). Results represent mean ± SD. n = 9-12. Lettering denotes statical significance when different from each other ($p < 0.05$). All data was analyzed using a one-way ANOVA or Kruskal-Wallis test when data did not fit normality. All ANOVAs were followed by a two-stage step-up method of Benjamini, Krieger and Yukutieli multiple comparisons test. C57BL/6J female mice ~75 days post PBS injection as controls (CTRL); C57BL/6J female mice ~45 days post ovarian cancer injection (45 Days); C57BL/6J female mice ~75 days post ovarian cancer injection (75 Days); C57BL/6J female mice ~90 days post ovarian cancer injection (90 Days).

SFigure 8



SFigure 8. Log transformed data for analysis in tibialis anterior and diaphragm that did not fit a normal distribution. Data that did not fit normality were log transformed and then analyzed using standard 2-way ANOVAs. Results represent mean ± SD. n = 9-12. α $p < 0.05$ Control versus 45 Day; β $p < 0.05$ Control versus 75 Day; δ $p < 0.05$ Control versus 90 Day; θ $p < 0.05$ 45 Day versus 90 Day; λ $p < 0.05$ 75 Day vs 90 Day. All Data were analyzed using a two-way ANOVA. All ANOVAs were followed by a two-stage step-up method of Benjamini, Krieger and Yukutieli multiple comparisons test. C57BL/6J female mice ~75 days post PBS injection as controls (CTRL); C57BL/6J female mice ~45 days post ovarian cancer injection (45 Days); C57BL/6J female mice ~75 days post ovarian cancer injection (75 Days); C57BL/6J female mice ~90 days post ovarian cancer injection (90 Days).

STable 1

Oligo name	Oligo sequence (5' to 3')
m-actb Fwd	CATTGCTGACAGGATGCAGAAGG
m-actb Rev	TGCTGGAAGGTGGACAGTGAGG
m-TNFa Fw	AGAATGAGGCTGGATAAGAT
m-TNFa Rev	GAGGCAACAAGGTAGAGA
m-IL6 Fw	ACAGAAGGAGTGGCTAAG
m-IL6 Rev	AGAGAACAACATAAGTCAGATAC
m-Murf1 Fw	ACCTGCTGGTGGAAAACATC
m-Murf1 Rev	AGGAGCAAGTAGGCACCTCA
m-Atrogin1 Fw	AGCGCTTCTTGGATGAGAAA
m-Atrogin1 Rev	ACGTCGTAGTTCAGGCTGCT
m-RyR1 Fw	TGCTCAAGGAACAGCTGAAG
m-RyR1 Rev	GGGCTCGAACTGACAGAGAC
m-Serca 1 (Atp2a1) -Fw	ACACAGACCCTGTCCCTGAC
m-Serca 1 (Atp2a1) -Rev	TGCAGTGGAGTCTTGTCCTG
m-Serca 2 (Atp2a2) -Fw	TACTGACCCTGTCCCTGACC
m-Serca 2 (Atp2a2) -Rev	CACCACCACTCCCATAGC

STable 1. List of primers used for qtPCR.