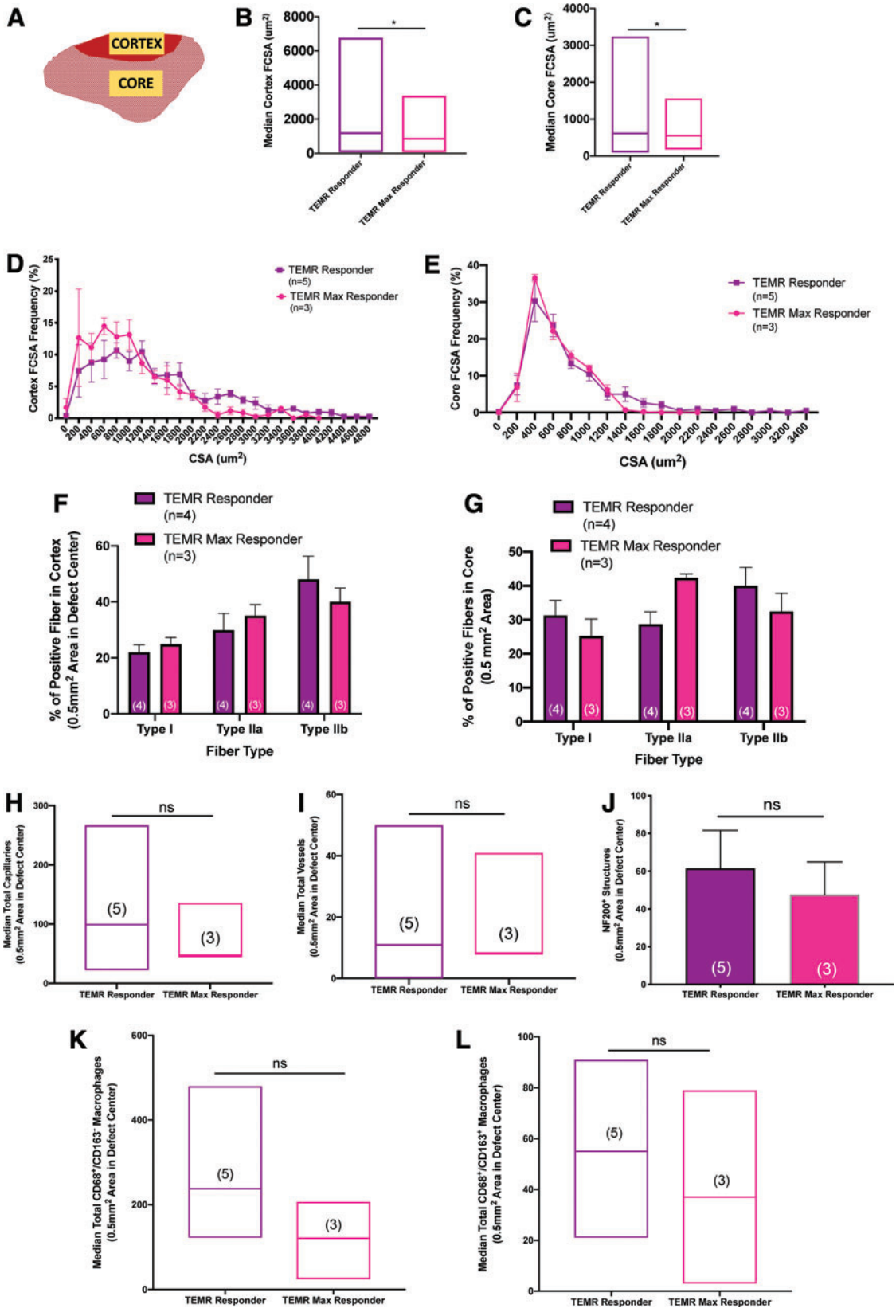
Supplementary Data

SUPPLEMENTARY FIG. S1. Comparison of muscle architecture characteristics in the TEMR responder and TEMR max responder animals. **(A)** Schematic representation of the regions where measurements were obtained (*yellow boxes*) in TEMR responders and TEMR max responders. *Red shading* on the TEMR responder indicates the defect area, where *de novo* muscle regeneration nominally occurred. **(B)** Median FCSA measurements were calculated from ~ 200 fibers in the cortex of the TA from each animal (TEMR responder $n = 5$, TEMR max responder $n = 3$). Medians were significantly different ($^*p < 0.05$, Mann–Whitney test) from each other. Values are the median with minimum to maximum range due to the nonparametric distribution of the data. **(C)** Median FCSA measurements were calculated from ~ 200 fibers in the core of the TA from each animal (TEMR responder $n = 5$, TEMR max responder $n = 3$). Medians were significantly different ($^*p < 0.05$; Mann–Whitney test) from each other. Values are the median with minimum to maximum range. **(D)** The TEMR max responder cortex FCSA frequency distribution curve displays a similar range of FCSA values as that of the TEMR responder muscles and there were no significant differences at any bin size (multiple *t*-tests correcting for false discovery rate, $p > 0.05$ at all points). **(E)** The TEMR max responder core FCSA frequency distribution curve displays a similar range of FCSA values as that of the TEMR responder muscles, and there were no significant differences in any bin size (multiple *t*-tests correcting for false discovery rate, $p > 0.05$ at all points). Please note that when grouped into bins, FCSA had a normal distribution, and therefore, parametric statistical analyses were used, whereas analysis of the entire population of FCSA values revealed a non-normal distribution and required nonparametric statistical analyses. **(F)** In the cortex, two-way ANOVA revealed no effect of treatment ($p > 0.9$), and no treatment–fiber-type interaction ($p > 0.5$), but a significant effect of fiber type ($p < 0.05$). **(G)** In the core, two-way ANOVA revealed no effect of treatment ($p > 0.9$), and no interaction ($p > 0.06$), but in contrast, no effect of fiber type either ($p = 0.2$) capillaries **(H)** and vessels **(I)** were quantified. There were no significant differences between the TEMR responders and TEMR max responders for both analyses (Mann–Whitney test, $p > 0.9$). **(J)** TEMR max responders had levels of innervation comparable to the TEMR responders (unpaired *t*-test, $p = 0.7$). **(K)** $CD68^+/CD163^-$ macrophage numbers were not significantly different between TEMR responders and TEMR max responders (Mann–Whitney test, $p = 0.1$). **(L)** $CD68^+/CD163^+$ macrophage numbers were not significantly different between TEMR responders and TEMR max responders (Mann–Whitney test, $p = 0.6$). Values are expressed as the median ± range except in **(F**, **G**, and **J)**, where they are expressed as the mean ± standard error of the mean. Sample sizes are noted in parentheses. ns, not significant; ANOVA, analysis of variance; TEMR, tissue-engineered muscle repair; TA, tibialis anterior; FCSA, fiber cross-sectional area.


A
CORTEX
CORE
B
Median Cortex FCSA (um²)
8000
6000
4000
2000
0
*
TEMR Responder
TEMR Max Responder
C
Median Core FCSA (um²)
4000
3000
2000
1000
0
*
TEMR Responder
TEMR Max Responder
D
Cortex FCSA Frequency (%)
TEMR Responder (n=5)
TEMR Max Responder (n=3)
CSA (um²)
E
Core FCSA Frequency (%)
TEMR Responder (n=5)
TEMR Max Responder (n=3)
CSA (um²)
F
TEMR Responder (n=4)
TEMR Max Responder (n=3)
% of Positive Fiber in Cortex (0.5mm² Area in Defect Center)
Type I
Type IIa
Type IIb
Fiber Type
G
TEMR Responder (n=4)
TEMR Max Responder (n=3)
% of Positive Fibers in Core (0.5 mm² Area)
Type I
Type IIa
Type IIb
Fiber Type
H
Median Total Capillaries (0.5mm² Area in Defect Center)
ns
TEMR Responder
TEMR Max Responder
I
Median Total Vessels (0.5mm² Area in Defect Center)
ns
TEMR Responder
TEMR Max Responder
J
NF200⁺ Structures (0.5mm² Area in Defect Center)
ns
TEMR Responder
TEMR Max Responder
K
Median Total CD68⁺/CD163⁺ Macrophages (0.5mm² Area in Defect Center)
ns
TEMR Responder
TEMR Max Responder
L
Median Total CD68⁺/CD163⁺ Macrophages (0.5mm² Area in Defect Center)
ns
TEMR Responder
TEMR Max Responder