Figure S1

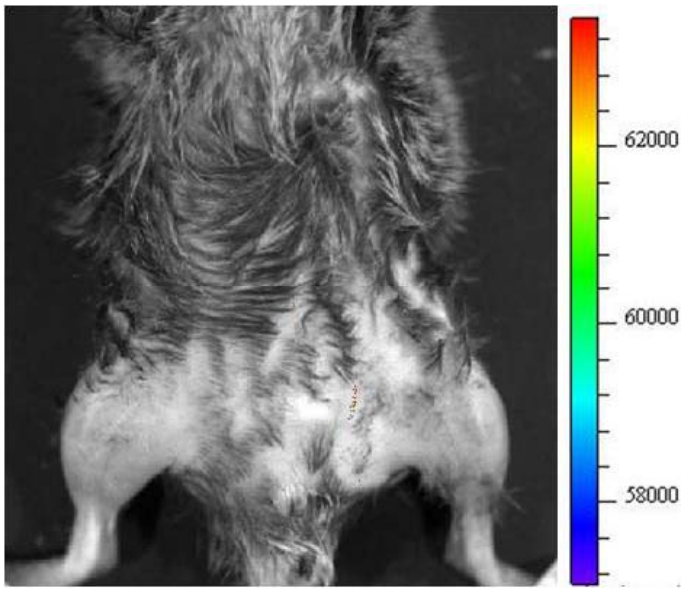

Figure S1. Non-invasive imaging of mice to measure background levels of luciferase expression.

Wild-type Pax7Cre^{ER}/LuSEAP mice were imaged prior to tamoxifen administration to obtain the background luciferase signals.

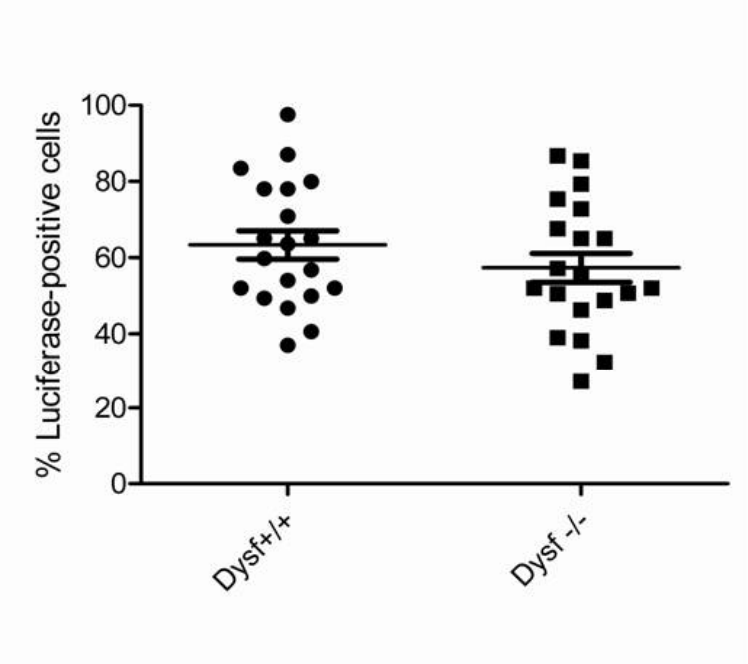

Figure S2. Similar recombination efficiencies of satellite cells from wild-type and dysferlin-deficient Pax7Cre^{ER}/LuSEAP mice.

Quantitative analysis of the numbers of luciferase-positive satellite cells from Dysf$^{+/+}$ /Pax7Cre^{ER}/LuSEAP and Dysf$^{-/-}$/Pax7Cre^{ER}/LuSEAP mice. One week after the final tamoxifen injection, mice were sacrificed and satellite cells were isolated as described in the Methods section. Sorted cells were plated and fixed 12 hours after plating at which time they were stained using a luciferase antibody. The percent luciferase positive cells was calculated by counting the number of cells staining positive for luciferase divided by the total number of cells counted multiplied by 100.

Figure S3

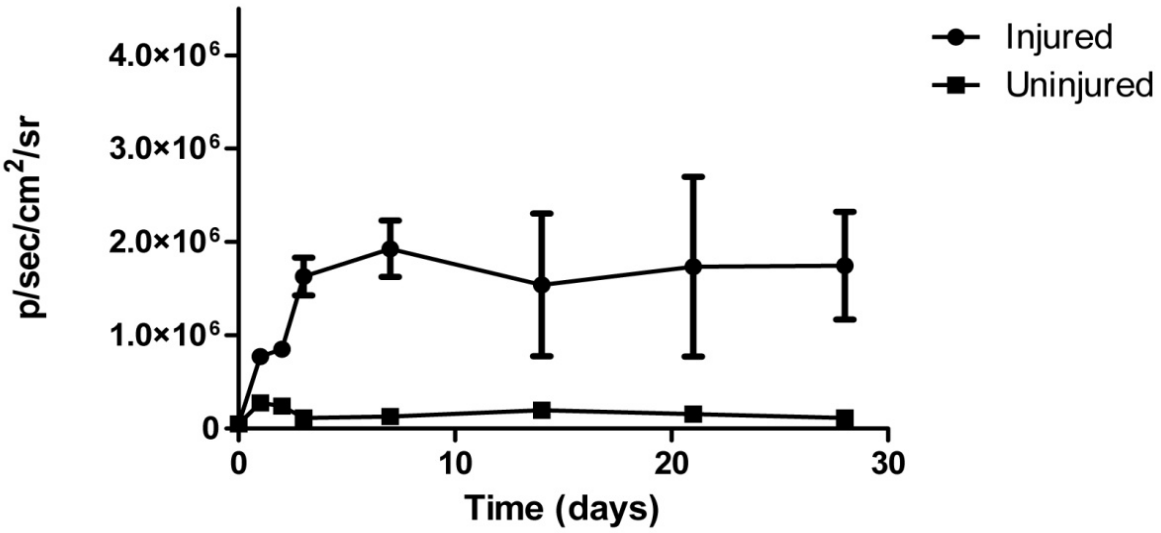

Figure S3. Luciferase signals after acute muscle injury in Pax7Cre^{ER}/LuSEAP mice.

Pax7Cre^{ER}/LuSEAP mice were imaged prior to and after an acute injury to the hindlimb. Luciferase signals plateau at 3 days after injury as assessed by non-invasive bioluminescence imaging.

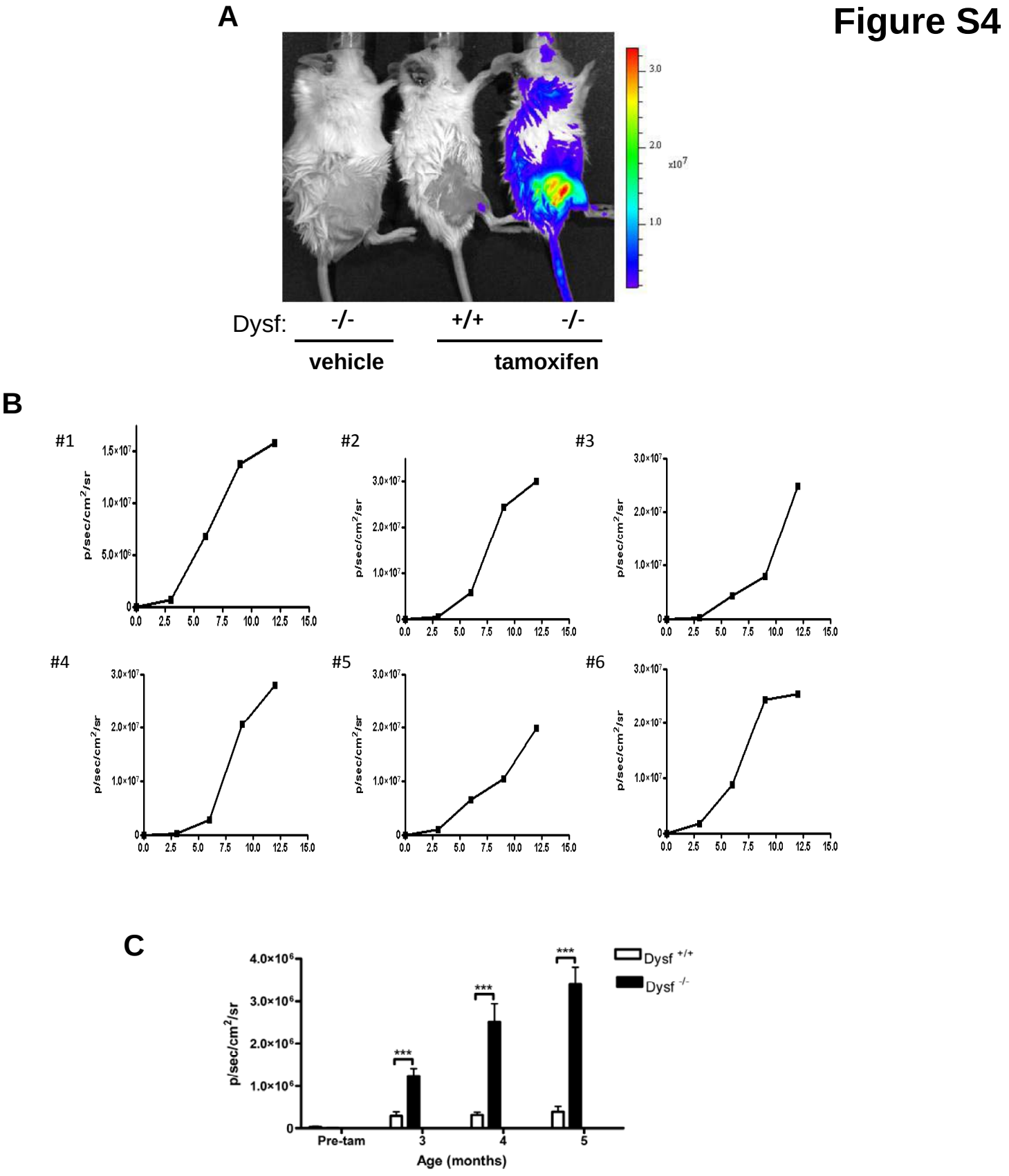

Figure S4. Detection of luciferase by non-invasive imaging

(A) Non-invasive images of wild type and dysferlin-deficient Pax7Cre^{ER}/LuSEAP mice imaged at 9 months of age and after administration of tamoxifen or vehicle control, as indicated. (**B**) Luciferase signals measured over time in single limbs of 6 individual dysferlin-deficient Pax7Cre^{ER}/LuSEAP mice. (**C**) Luciferase signals from distal hindlimb muscles of both wild-type and dysferlin-deficient Pax7CRE^{ER}/LuSEAP mice before tamoxifen administration (Pre-tam) and at 3,4, and 5 months of age.

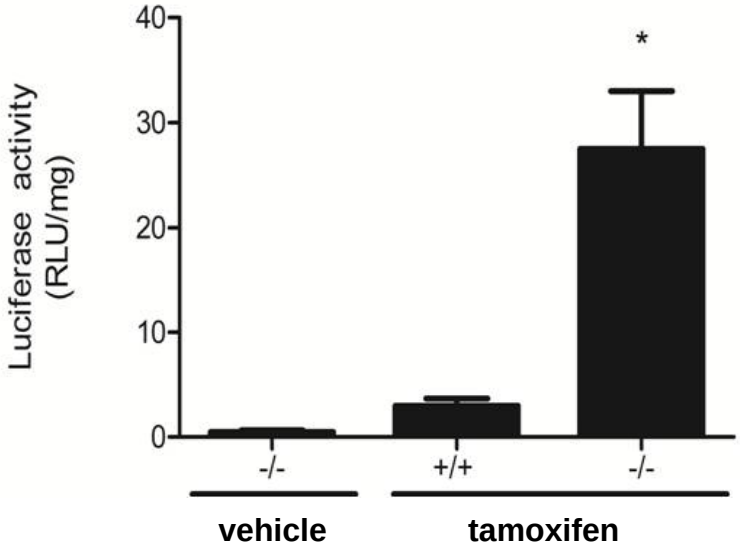

Figure S5. Detection of luciferase by biochemical analyses.

Luciferase activity, measured biochemically, in the hindlimb muscles of wild-type and dysferlin-deficient Pax7Cre^{ER}/LuSEAP measured at twelve-months of age after administration of tamoxifen or vehicle control, as indicated.