Data in Brief ∎ (∎∎∎∎) ∎∎∎–∎∎∎

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Data Article

Fluorescence microscopy data on expression of Paired Box Transcription Factor 7 in skeletal muscle of APOBEC2 knockout mice

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ABSTRACT

The data presented in this article are related to the research articles entitled "APOBEC2 negatively regulates myoblast differentiation in muscle regeneration" and "Data supporting possible implication of APOBEC2 in self-renewal functions of myogenic stem satellite cells: toward understanding the negative regulation of myoblast differentiation" (Ohtsubo et al., 2017a, 2017b) [1,2]. This article provides *in vivo* phenotypical data to show that Paired Box Transcription Factor 7 (Pax7)-positive cell number (per myofiber) is significantly lower in APOBEC2 (a member of apoB mRNA editing enzyme, catalytic polypeptide-like family)-knockout muscle than the control wild-type tissue at the same age of 8-wk-old in mice. The emerging results support an essential role for APOBEC2 in the self-renewal functions of myogenic stem satellite cells,

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namely the re-establishment of quiescent status after activation and proliferation of myoblasts.

Specifications Table

Subject area	*Biology*
More specific subject area	*Skeletal muscle biology, tissue-specific stem cell physiology*
Type of data	*Image (microscopy), graph*
How data was acquired	*Fluorescence microscopic system (Leica DMI6000B fluorescence microscope equipped with a DFC365FX digital camera and LAS AF 3.1.0 software)*
Data format	*Raw (microscopy), analyzed (Pax7-positive cell counting)*
Experimental factors	*Cryo-cross sections of tibialis anterior (TA) muscle from adult male wild type and APOBEC2-knockout (KO) mice, double-immunostained with anti-Pax7 and anti-laminin antibodies, and counted for Pax7-positive cell number per myofiber*
Experimental features	*Pax7/laminin-immunofluorescence microscopy*
Data source location	*Fukuoka, Japan*
Data accessibility	*All relevant data are within the article*

Value of the data

- Resident myogenic stem satellite cell population concerned here is a valuable target of research on *postnatal* muscle fiber growth, hyperplasia/hypertrophy, regeneration, fiber-type commitment, and moto-neuritogenesis.
- Molecular mechanisms for self-renewal functions of satellite cells are important research subjects and hence of value to the scientific community.
- APOBEC2 expression is predominant in skeletal and cardiac muscles and elevated exclusively at the early-differentiation phase of myoblasts in muscle regeneration; however the biological and physiological significance is still unclear (see Refs. [3,4]).
- The particular idea of an essential role for APOBEC2 in the self-renewal functions was raised by the previous study in single myofiber culture (see Ref. [2]) and further supported by the present *in vivo* study to show that Pax7-positive satellite cell population was significantly lower in APOBEC2-KO muscle than the control at the same adult phase in mice.
- The idea extends our understanding of the previous finding that APOBEC2 negatively drives regulation of myoblast differentiation and fusion (see Ref. [1]).

1. Data

We tested a hypothesis that cytidine deaminase APOBEC2 may be an important mediator in the self-renewal functions of satellite cells, namely in the re-establishment of quiescent status after activation and proliferation of myoblasts. De Luca et al. [5] reported that defect of the ability of satellite cell self-renewal led to diminished number of satellite cells in skeletal muscle tissues. Accordingly, we compared satellite cell number in TA muscle between wild-type (WT) and APOBEC2-KO mice by immunofluorescence using antibody against Pax7, a well-known reliable marker for

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