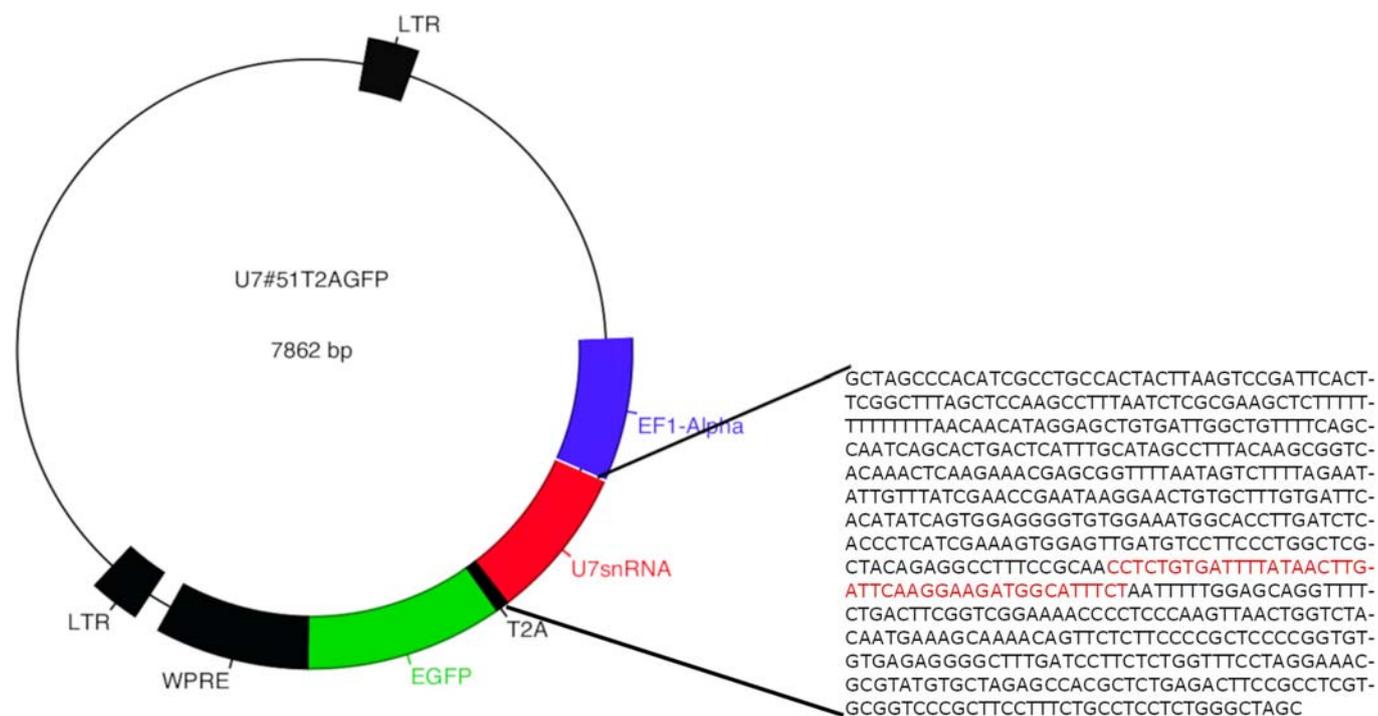
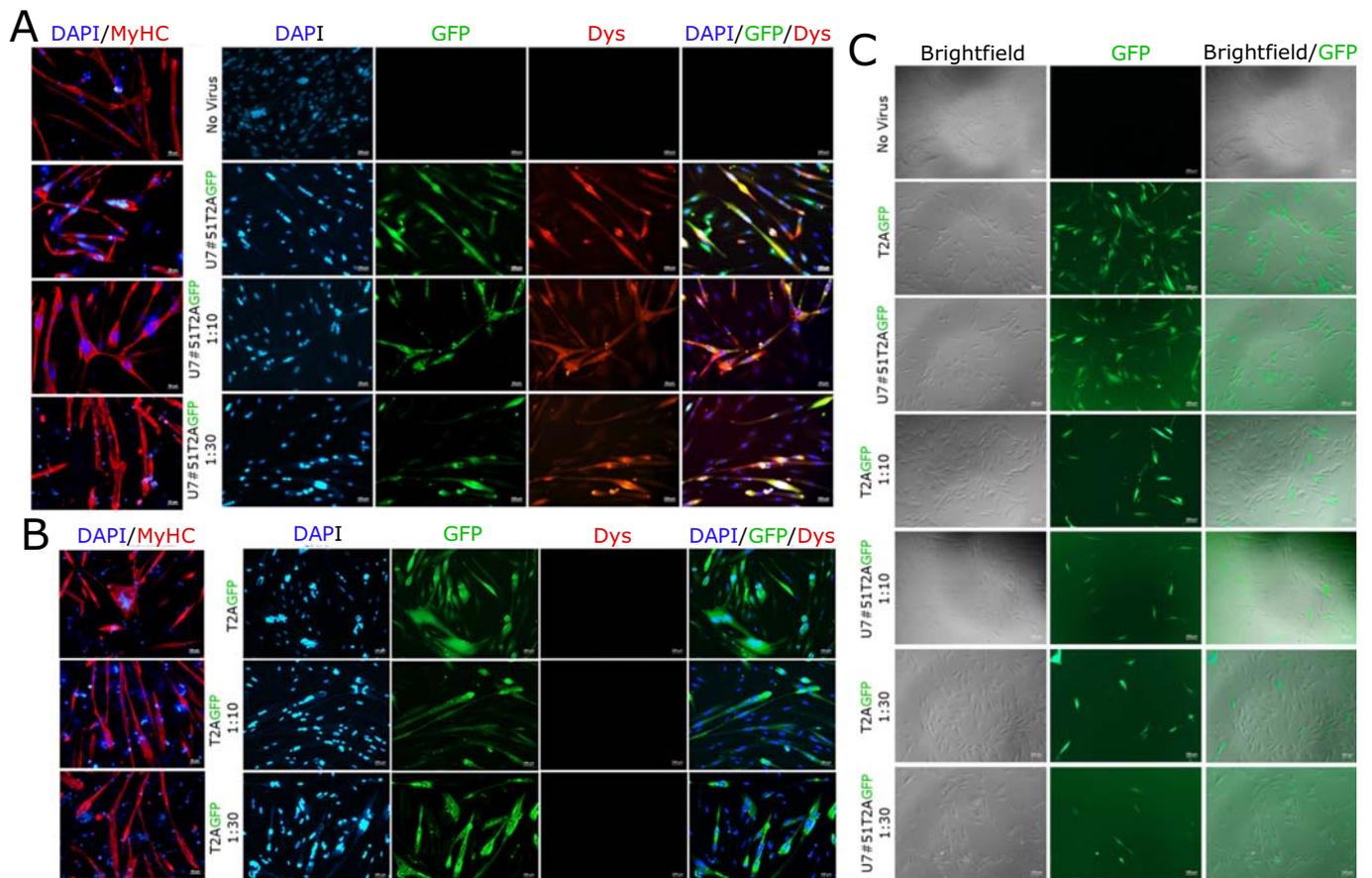


## Expanded View Figures



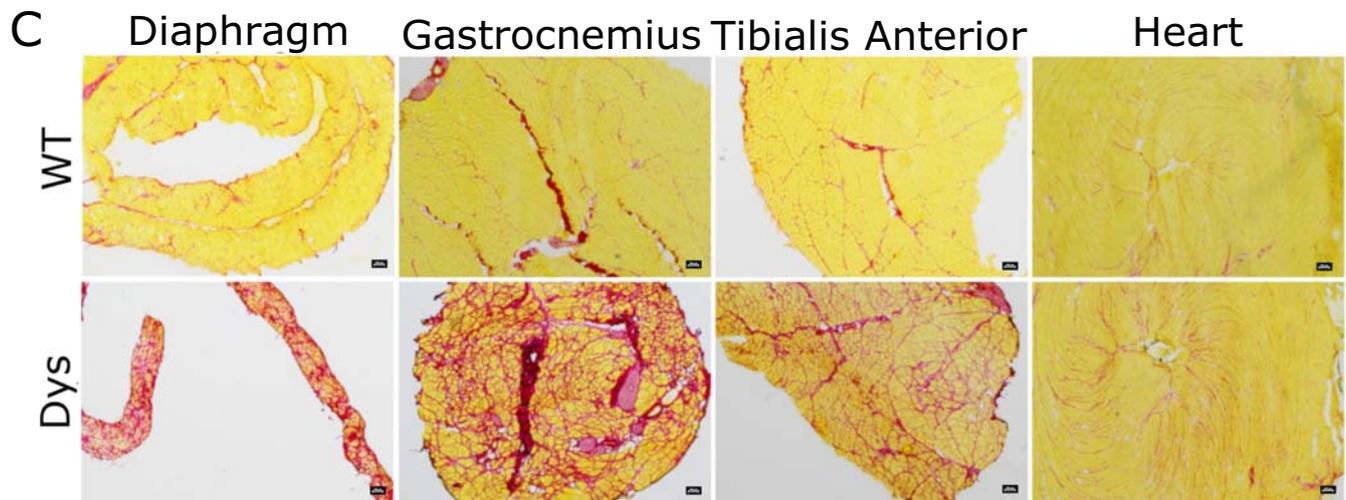
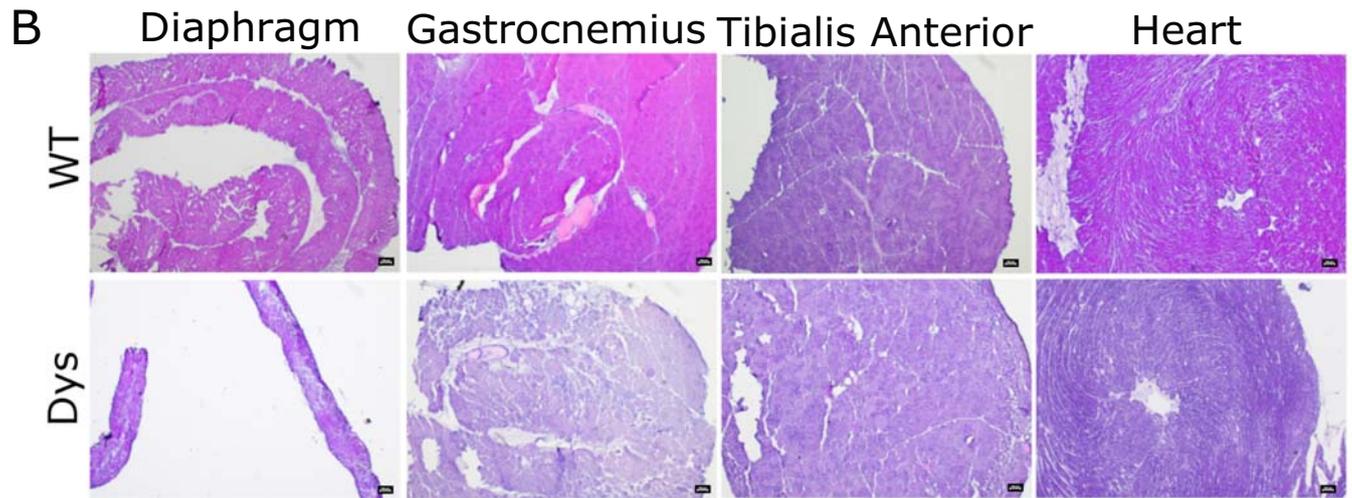
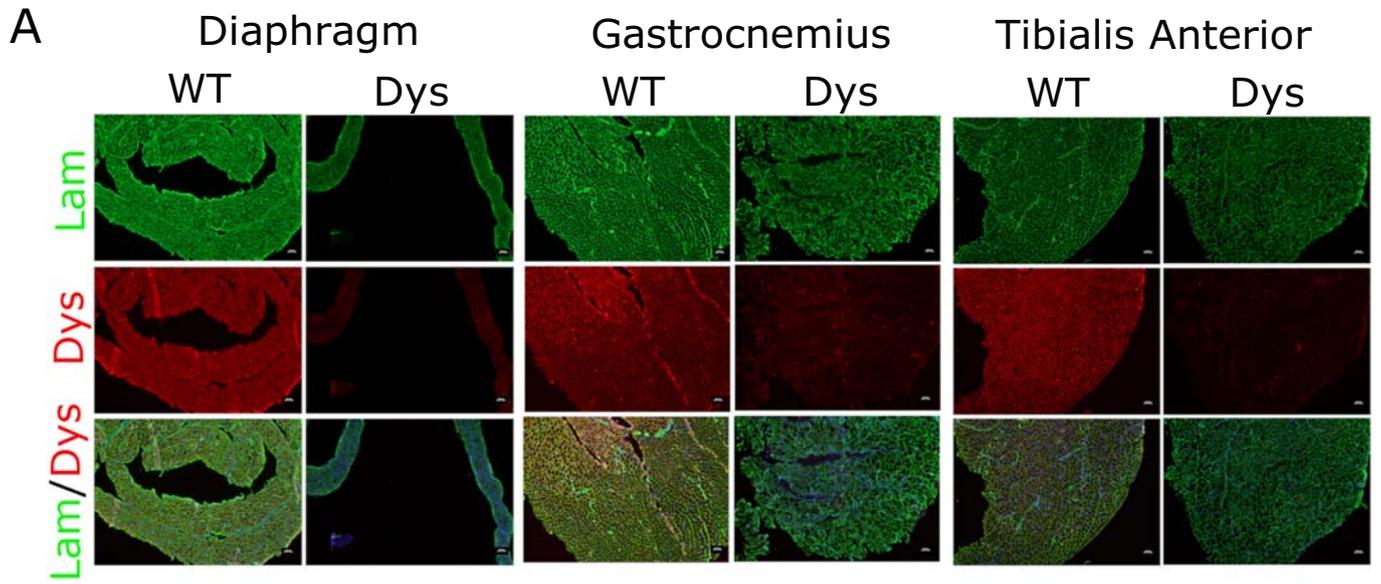
**Figure EV1. Map of I lentiviral vector U7#51T2AGFP and sequence of the snRNA.**

Schematic overview of the lentivector U7#51T2AGFP derived from pCDH.EFK.MCH.T2A.GFP, and sequence of the U7 snRNA with underlined in red the antisense sequence. Source data are available online for this figure



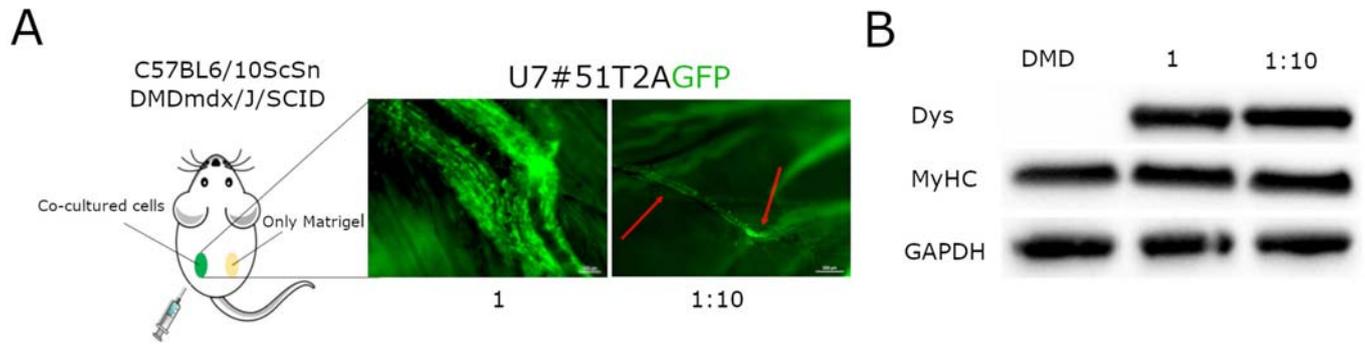
**Figure EV2. Cell-mediated exon skipping induced by lentiviral vector U7#51T2AGFP.**

(A) Representative IF images showing expression of Dystrophin and GFP in a DMD-U7/DMD TIM cells co-culture ( $n = 3$  biological replicates). (B) Representative IF images showing expression of Dystrophin and GFP in a DMD-GFP/DMD TIM cells co-culture ( $n = 3$  biological replicates). (C) Representative live analysis showing expression of GFP in a DMD-U7 or DMD-GFP/DMD TIM cells co-culture ( $n = 3$  biological replicates). Data Information: Experiments have been replicated for at least three times. Source data are available online for this figure



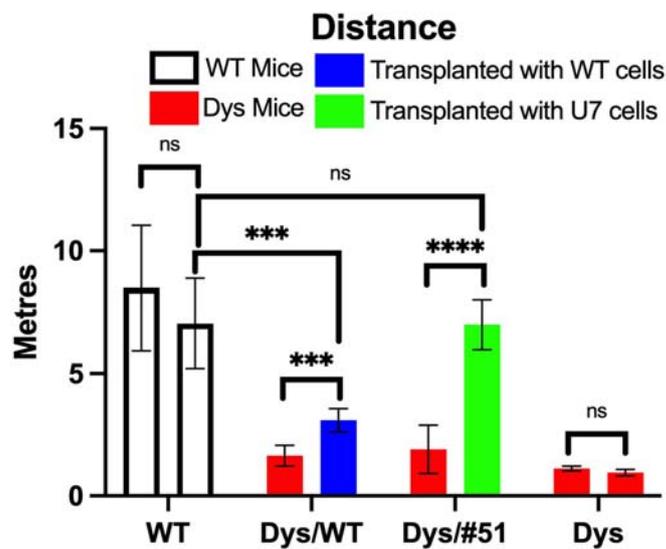
**◀ Figure EV3. Phenotypical characterization of NSG-mdx-D51 mice.**

Phenotypical characterization of 6 months old NSG-mdx-D51 mice by (A). Representative IF images showing expression of dystrophin and Laminin of Diaphragm; Gastrocnemius; Tibialis Anterior ( $n = 6$  biological replicates). (B) Representative Haematoxylin and Eosin staining of Diaphragm; Gastrocnemius; Tibialis Anterior; Heart. ( $n = 6$  biological replicates). (C) Representative Sirius Red staining of Diaphragm; Gastrocnemius; Tibialis Anterior; Heart ( $n = 6$  biological replicates). Data Information: Experiments have been replicated for at least three times. Source data are available online for this figure



**Figure EV4. Transplantation of DMD-U7 cells in a Matrigel plug under the back skin of mdx/SCID mouse.**

(A) Representative IF images showing expression of GFP in a DMD-U7/DMD TIM cells co-culture in a matrigel plug implanted under the dorsal skin of mdx/SCID mice ( $n = 3$  biological replicates). (B) Representative WB image of Dys expression from matrigel plug implanted under the dorsal skin of mdx/SCID. Samples are from left to right: DMD: DMD TIM cells; 1: DMD U7 cells; 1:10: DMD U7 cells co-cultured with a 10-fold excess of DMD TIM cells. ( $n = 3$  biological replicates). Data Information: Experiments have been replicated for at least three times. Source data are available online for this figure



**Figure EV5. Improving of mice motility after cells transplant.**

Treadmill motility assay analysis before and after transplantation with either  $5 \times 10^5$  WT TIM or  $5 \times 10^5$  DMD-U7 cells ( $n = 6$  biological replicates). Data Information: Data are shown as mean  $\pm$  SD. \* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ , \*\*\*\* $P < 0.0001$ . Multiple t-test are followed by Bonferroni correction unpaired t-test. The mean differences between two group were calculated with 2-way anova. Experiments have been replicated for at least three times. Source data are available online for this figure