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Supplementary Materials for

Gene therapy rescues disease phenotype in a spinal muscular atrophy with respiratory distress type 1 (SMARD1) mouse model

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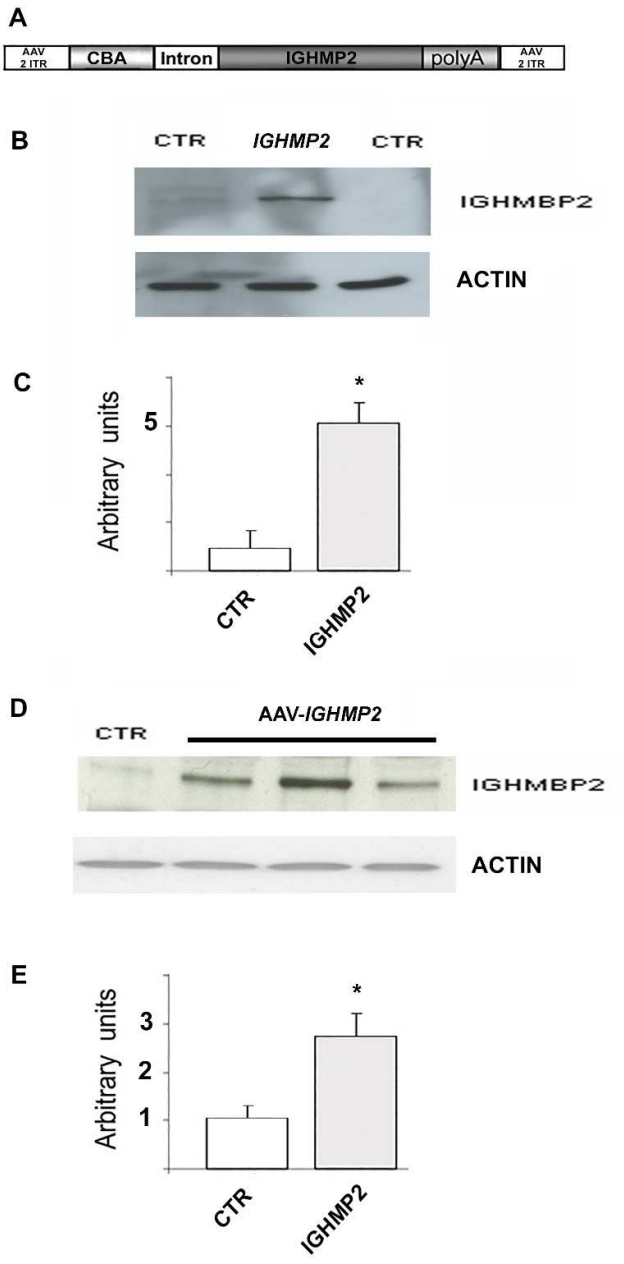
The PDF file includes:

Other Supplementary Material for this manuscript includes the following:
(available at www.advances.sciencemag.org/cgi/content/full/1/2/e1500078/DC1)

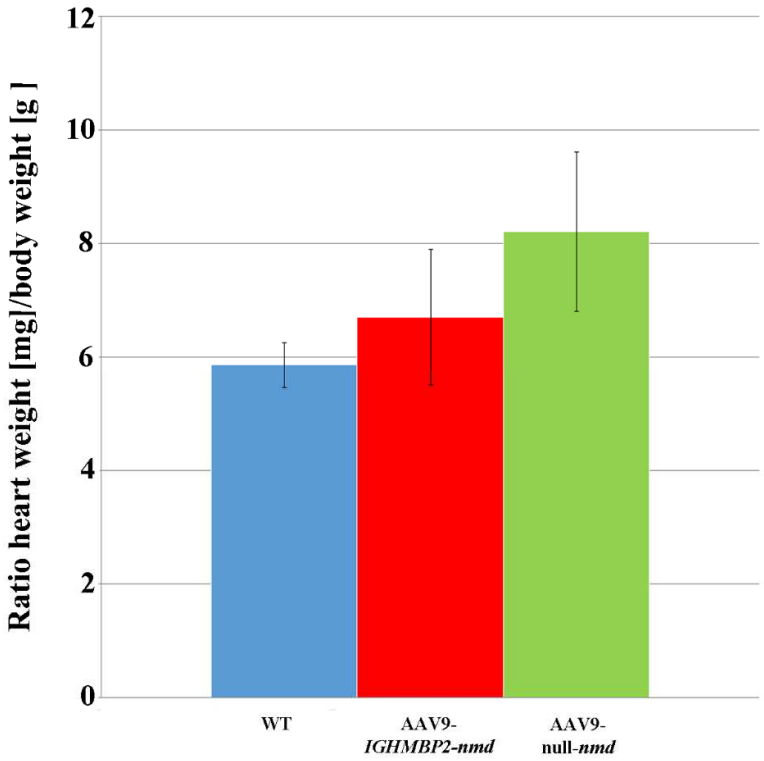
Movie S1 (.mp4 format). Gross appearance of an AAV9-*IGHMBP2*–treated *nmd* mouse.

Supplementary Fig. S1. Validation of *IGHMBP2* constructs in vitro and in vivo.



(**A**) Schematic of the designed plasmid. pAAV-*IGHMBP2*: plasmid carrying *IGHMBP2* and a chimeric intron placed downstream of the CBA promoter. AAV2 inverted terminal repeats appear in flanking positions. (**B**) Western blot of IGHMBP2 expression 3 days after transfection of HEK293 cells with the plasmid. IGHMBP2 levels were normalized to β-actin levels. (**C**) Quantification of IGHMBP2 levels in transfected HEK293 cells with respect to untransfected cells. Values are mean ± SEM of IGHMBP2:β-actin expression levels ($n = 3$, $^*P < 0.01$). (**D**) Two weeks after the injection of 1 $\times 10^{10}$ vg AAV9-*IGHMBP2* into the gastrocnemius muscle of C57BL/6 mice, IGHMBP2 levels were detected by western blotting. (**E**) Quantification of IGHMBP2 levels in AAV9-*IGHMBP2*-injected gastrocnemius muscle compared to uninjected muscle. Values are mean ± SEM of IGHMBP2:β-actin expression levels ($n = 3$, $^*P < 0.01$).

Supplementary Fig. S2. AAV9-*IGHMBP2* administration ameliorates SMARD1 cardiomyopathy.



Heart weight (mg) to body weight (g) ratios were increased in AAV9-null-*nmd* mice; these ratios decreased after AAV9-*IGHMBP2* treatment ($P = 0.1$, ANOVA).

Supplementary Movie S1. Gross appearance of an AAV9-*IGHMBP2*–treated *nmd* mouse.

Note the rescued phenotype and locomotor abilities of AAV-IGHMBP2 *nmd* mouse (the mouse with a larger size) versus the AAV9-null treated *nmd* mouse (the small mouse).