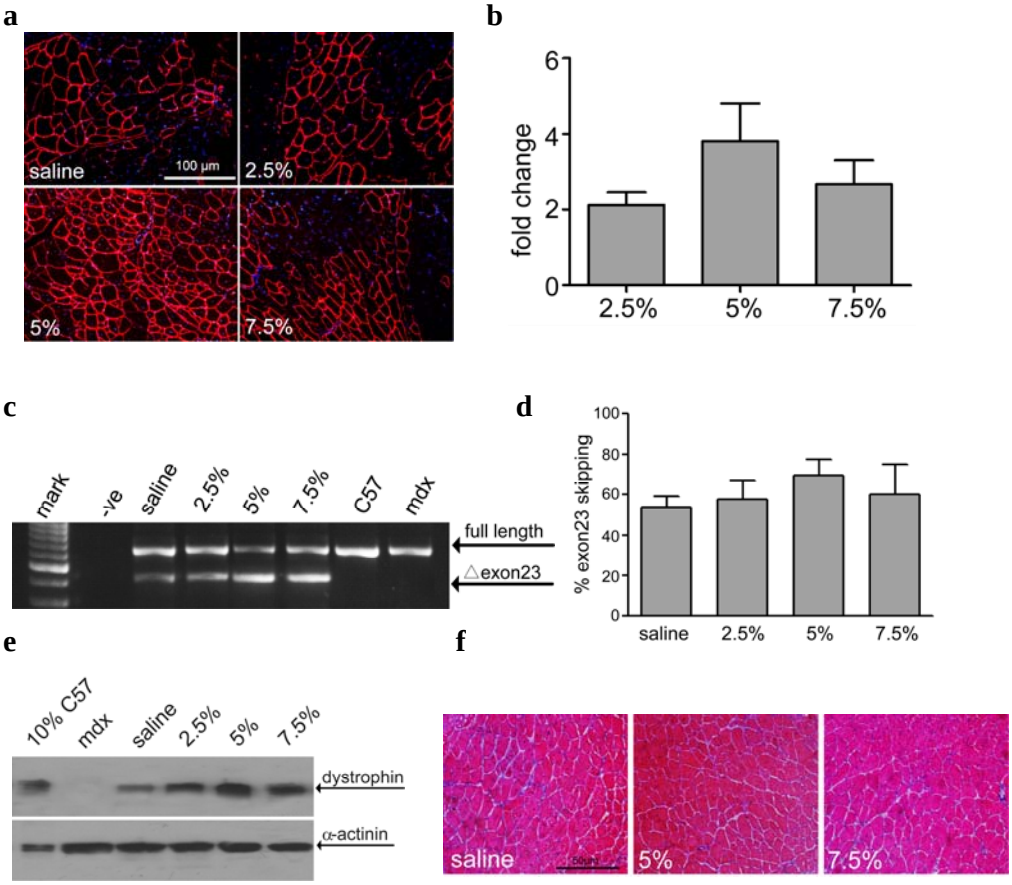
**Supplementary Information**

**Supplementary Figure 1.**

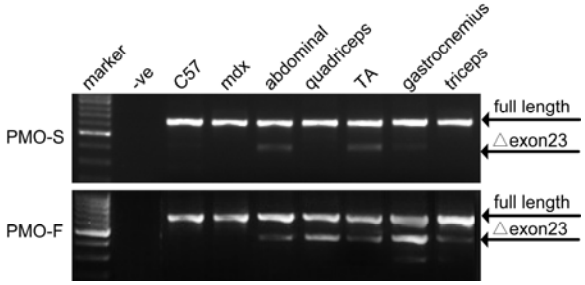



**Optimization of different concentrations of fructose with PMO in *mdx* mice intramuscularly.** Dystrophin expression following one single intramuscular injection of 2 μg PMO in 2.5%, 5% or 7.5% fructose in adult *mdx* mice, respectively. (**a**) Immunohistochemistry for dystrophin protein expression in *mdx* mice treated with PMO in different concentrations of fructose (scale bar=100 μm). (**b**) Quantitative analysis of dystrophin-positive fibres in TA muscles from *mdx* mice treated with PMO in different concentrations of fructose. The comparison was normalized to the saline treatment group and presented as fold change relative to saline. (**c**) RT-PCR

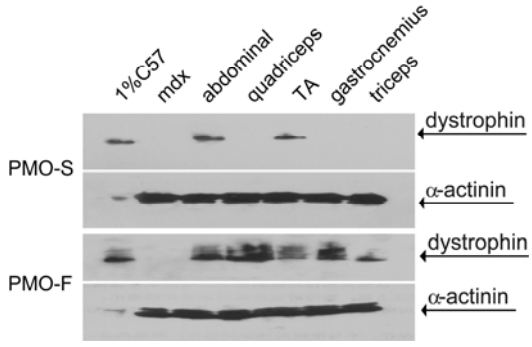
analysis to detect dystrophin exon-skipping transcripts in the treated tissues with PMO in different concentrations of fructose, respectively. △exon 23 is for exon 23 skipped bands. (**d**) Quantitative analysis of exon 23 skipping efficiency in treated TA muscles. (**e**) Western blot to detect dystrophin protein expression in the indicated muscle groups from treated *mdx* mice compared with *C57BL6* and untreated *mdx* mice. Total protein (5 μg) from tibialis anterior of *C57BL6* and treated and untreated *mdx* mice (50 μg) were loaded with α-actinin used as a loading control (n=3). (**f**) Histological examination of TA muscle sections from *mdx* mice treated with PMO in 5%, 7.5% fructose or saline, respectively (scale bar = 50 μm).

**Supplementary Figure 2.**

**a**




**b**




**Evaluation of PMO-F at 25 mg/kg/week dose for 3 weeks in *mdx* mice**

**intravenously.** (**a**) RT-PCR analysis to detect dystrophin exon-skipping transcripts in the treated tissues with PMO-F and PMO-S, respectively. Δexon 23 is for exon 23 skipped bands. (**b**) Western blot to detect dystrophin protein expression in the indicated muscle groups from treated *mdx* mice compared with *C57BL6* and untreated *mdx* mice. Total protein (0.5 μg) from tibialis anterior of *C57BL6* and treated and untreated *mdx* mice (50 μg) were loaded with α-actinin used as a loading control (n=3).