Supplementary Table 1: Primers used in qRT-PCR

Name/Target	Sequence	Tm	Source
Hprt_forward	TGATTAGCGATGATGAACCAGG	58.4	(Gotic et al., 2010)
Hprt_reverse	CTTTCATGACATCTCGAGCAAG	60.3	
to take out laminA_reverse	TGAGCGCAGGTTGTACT	52.8	
laminC_reverse	TAGGCTGGCAGGGCTAC	57.6	
laminA/C_forward	GCACCGCTCTCATCAACT	56.0	
MyHC2b_forward	ACAAGCTGCGGGTGAAGAGC	61.4	(Usami et al., 2003)
MyHC2b_reverse	CAGGACAGTGACAAAGAACG	57.3	
Emerin_forward	GTTATTTGACCACCAAGACATACGGG	63.2	(Ozawa et al., 2006)
Emerin_reverse	GGTGATGGAAGGTATCAGCATCTACA	63.2	

References

Gotic, I., Schmidt, W. M., Biadasiewicz, K., Leschnik, M., Spilka, R., Braun, J., Stewart, C. L. and Foisner, R. (2010). Loss of LAP2 alpha delays satellite cell differentiation and affects postnatal fiber-type determination. *Stem Cells* **28**, 480-8.

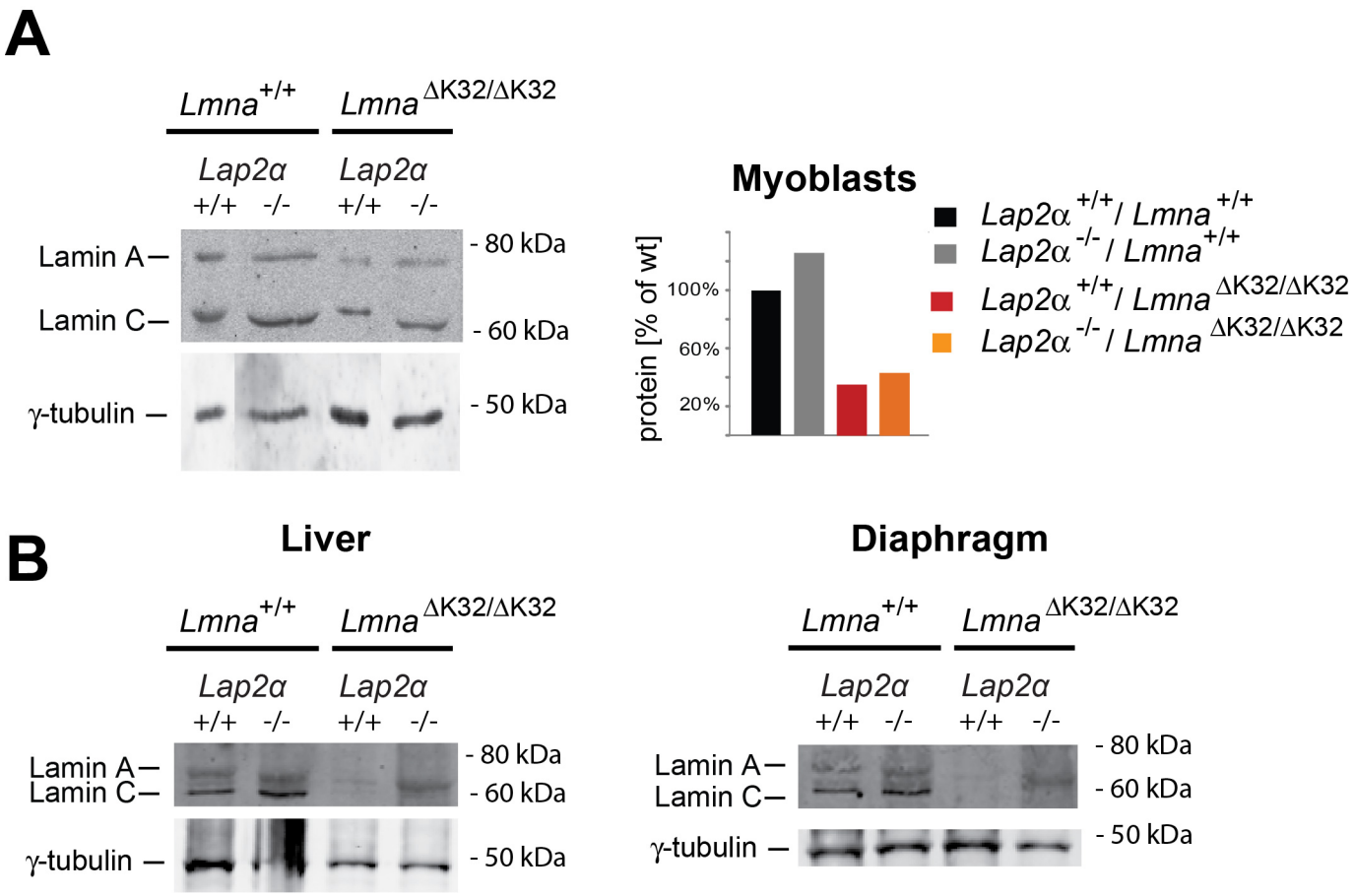
Ozawa, R., Hayashi, Y. K., Ogawa, M., Kurokawa, R., Matsumoto, H., Noguchi, S., Nonaka, I. and Nishino, I. (2006). Emerin-lacking mice show minimal motor and cardiac dysfunctions with nuclear-associated vacuoles. *Am J Pathol* **168**, 907-17.

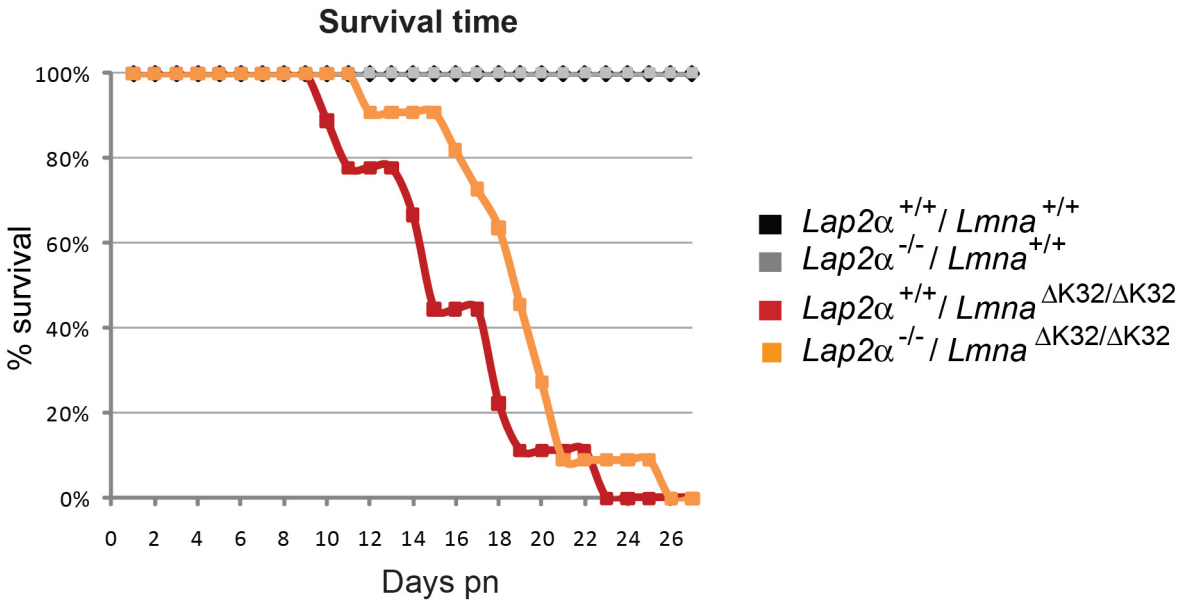
Usami, A., Abe, S. and Ide, Y. (2003). Myosin heavy chain isoforms of the murine masseter muscle during pre- and post-natal development. *Anat Histol Embryol* **32**, 244-8.

Legends to Supplementary Figures

Supplementary Fig. S1: Lamin A/C expression is significantly reduced in ΔK32 Lamin A/C expressing myoblasts and tissues. (A) Immunoblot analyses of myoblast lysates of single and double mutant *Lmna*$^{\Delta K32/\Delta K32}$, and *Lap2α*$^{-/-}$ mice and wild-type control littermates probed for lamin A/C, and γ-tubulin. Protein levels were quantified using LICOR Odyssee Infrared Imaging System. Band intensities of lamins A and C were combined and normalized to the band intensity of the γ-tubulin loading control. (B) Immunoblot analyses of diaphragm and liver lysates of 16 day old single and double mutant *Lmna*$^{\Delta K32/\Delta K32}$ and *Lap2*$^{-/-}$ mice and wild type control littermates probed for lamin A/C and γ-tubulin proteins.

Supplementary Fig. S2: Loss of LAP2α in *Lmna*$^{\Delta K32/\Delta K32}$ does not significantly change life span. From post natal day 6 onward, *Lmna*$^{\Delta K32/\Delta K32}$ mice showed a delayed growth and increased lethality compared to wild-type, irrespective of LAP2α expression. LAP2α deficiency slightly but statistically insignificantly increases survival time (*P*-value <0.43 as determined by Log-rank test).


A
Lmna+/+
LmnaΔK32/ΔK32
Lap2α
+/+ -/-
Lap2α
+/+ -/-
Lamin A—
Lamin C—
- 80 kDa
- 60 kDa
γ-tubulin —
- 50 kDa
Myoblasts
protein [% of wt]
100%
60%
20%
Lap2α+/+/ Lmna+/+
Lap2α-/-/ Lmna+/+
Lap2α+/+/ LmnaΔK32/ΔK32
Lap2α-/-/ LmnaΔK32/ΔK32
B
Liver
Lmna+/+
LmnaΔK32/ΔK32
Lap2α
+/+ -/-
Lap2α
+/+ -/-
Lamin A—
Lamin C—
- 80 kDa
- 60 kDa
γ-tubulin —
- 50 kDa
Diaphragm
Lmna+/+
LmnaΔK32/ΔK32
Lap2α
+/+ -/-
Lap2α
+/+ -/-
Lamin A—
Lamin C—
- 80 kDa
- 60 kDa
γ-tubulin —
- 50 kDa


Survival time
100%
80%
60%
40%
20%
0%
% survival
0
2
4
6
8
10
12
14
16
18
20
22
24
26
Days pn
Lap2α +/+ / Lmna +/+
Lap2α -/- / Lmna +/+
Lap2α +/+ / Lmna ΔK32/ΔK32
Lap2α -/- / Lmna ΔK32/ΔK32