

Fig. S1. Measurements scheme. Schematic representation of the measurements performed as presented in histograms describing the distance from nuclear clusters to the dorsal (blue) and ventral (pink) poles of the muscle and overall muscle length (green).

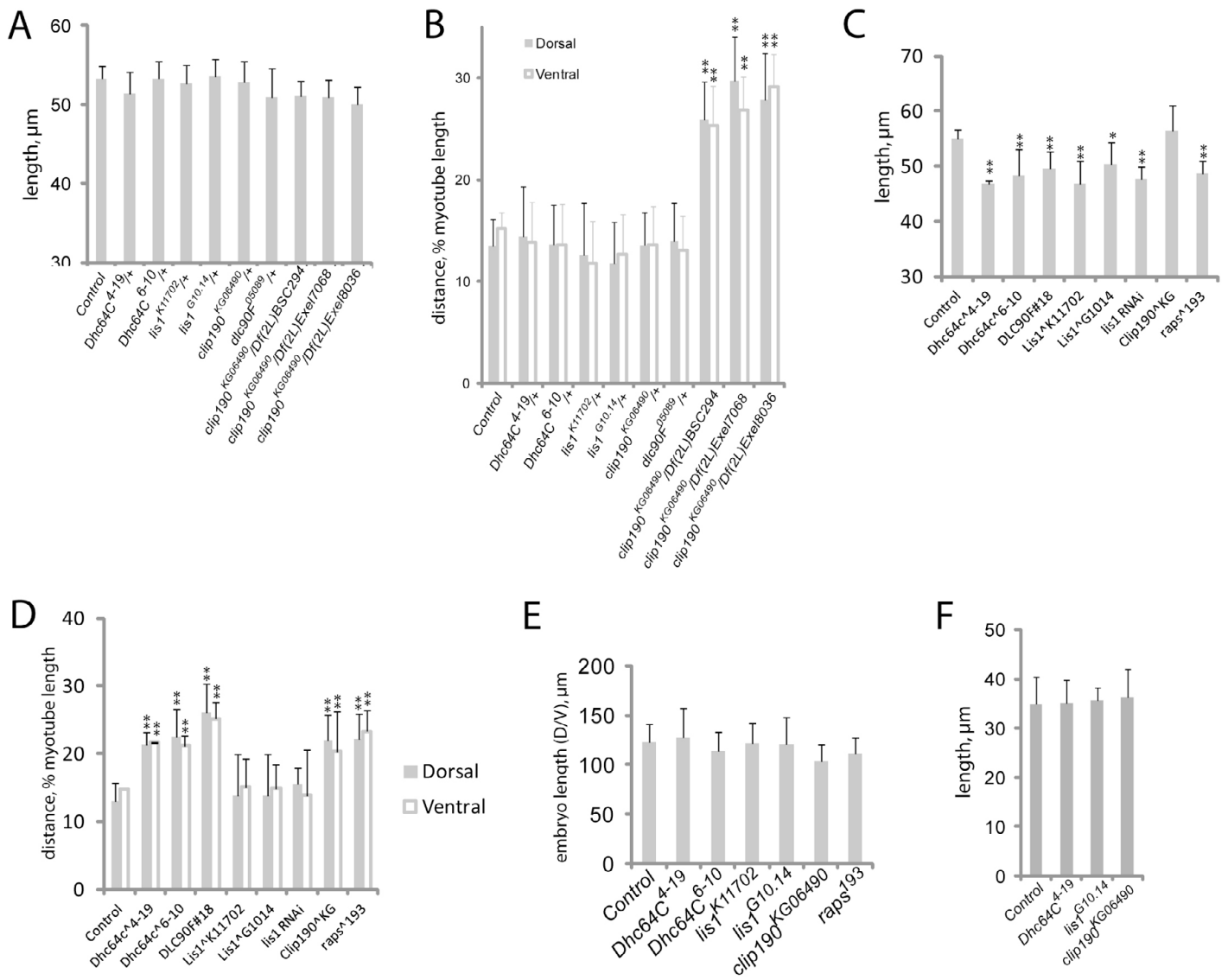


Fig. S2. Length and nuclear position measurements using different markers and in heterozygotes. (A) The average length of the LT muscles in embryos with indicated genotypes determined by Tropomyosin staining. (B) The average distance between the dorsal (gray) and ventral (white) muscle pole and the nearest nucleus as determined by Tropomyosin (muscle) and DsRed (nuclei) staining. (C) The average length of the LT muscles in embryos with the indicated genotypes determined by β -PS-Integrin staining. (D) The average distance between the dorsal (gray) and ventral (white) muscle pole and the nearest nucleus as determined by β -PS-Integrin (muscle attachments) and DsRed (nuclei) staining. (E) The average length of the embryos on the dorsal-ventral axis for the indicated genotypes. (F) The average length of the VL3 muscle in the indicated genotypes. All error bars are s.d. * $P < 0.05$, ** $P < 0.01$.

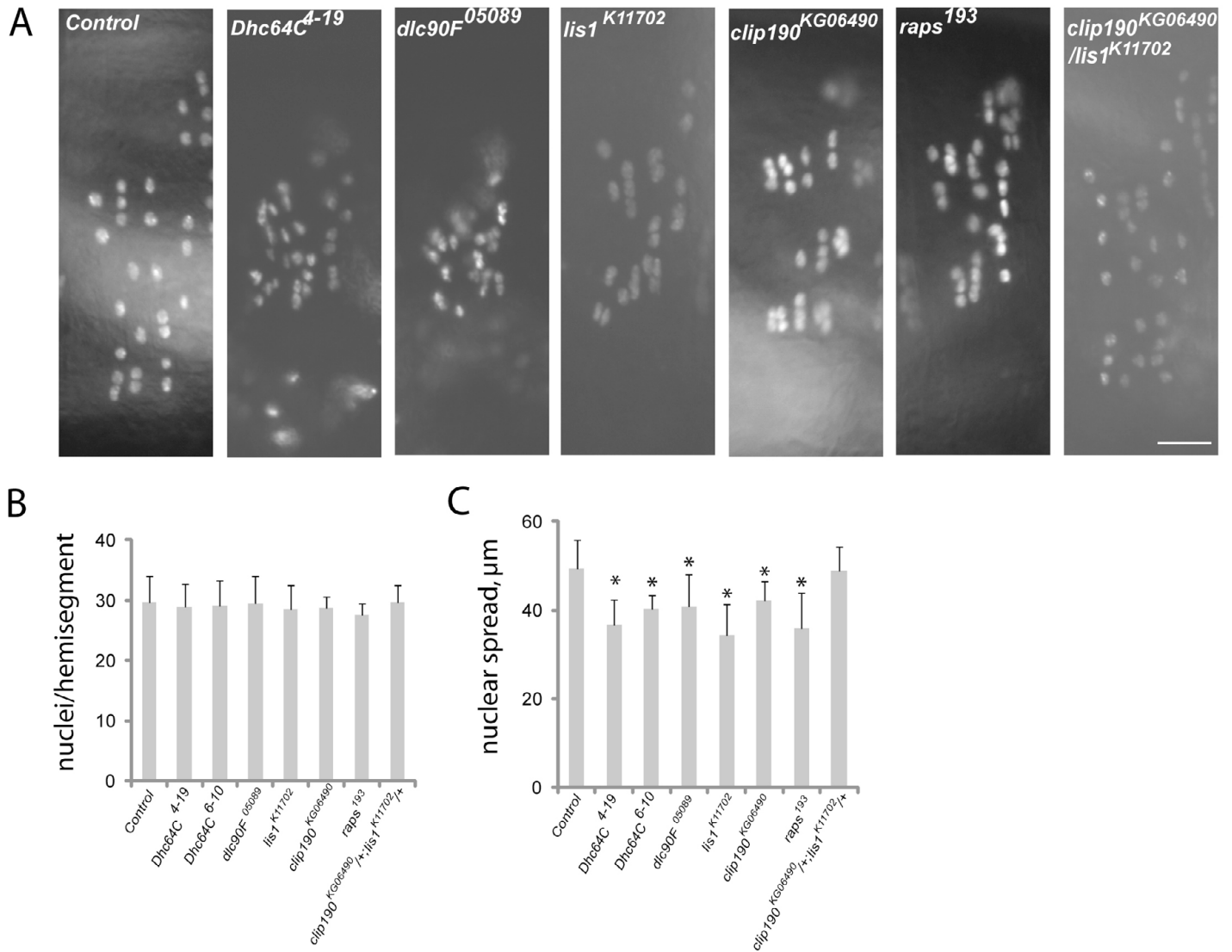


Fig. S3. Effects of mutations in stage 17 embryos. (A) Widefield images of *apterousME-DsRed* in stage 17 embryos (16.5 hours AEL). Staging was accomplished by performing timed lays in which 15-minute egg lays were aged for 16.5 hours. Scale bar: 10 μm . (B) The number of *apterousME-DsRed* nuclei per hemisegment in stage 17 embryos of the indicated genotypes. (C) The spread of nuclei in stage 17 embryos of the indicated genotypes. Spread was measured as the distance between the outer edges of the most ventral and most dorsal nuclei. Error bars indicate s.d. * $P < 0.05$.

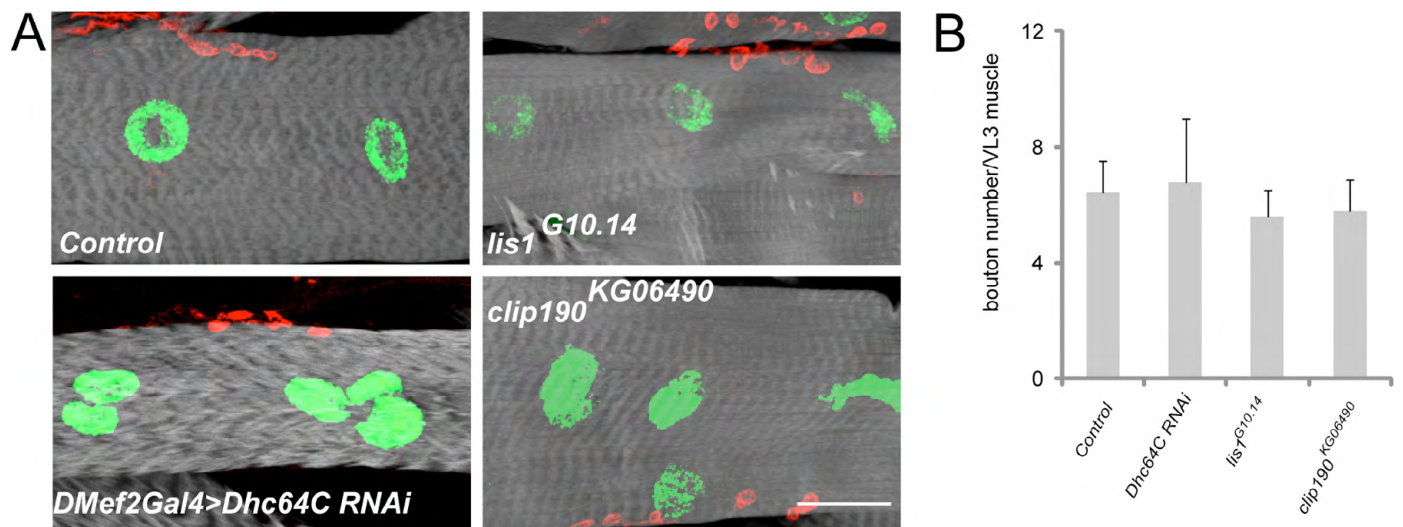


Fig. S4. Neuromuscular synapses are unaffected in L3 larvae. (A) VL3 muscles from L3 larvae that were dissected and stained with phalloidin to mark actin (gray), Hoechst to mark nuclei (green) and mouse anti-Discs large to indicate postsynaptic structures (red). Scale bar: 20 μ m. (B) The number of boutons per VL3 muscle.