



Figure S1. Gene deletions in MSP-300 and Klar loci. (top) A scheme of the MSP-300 gene locus spanning  $\sim 100$  kb is shown. The different alleles of MSP-300 are shown. MSP-300<sup>43</sup> is identical to Df(2L)MSP-300-3'. (bottom) A scheme of the *klar* locus, which gives rise to three isoforms,  $\alpha$ ,  $\beta$ , and  $\gamma$ . Shown are the exons for the three isoforms Klar  $\beta$ , Klar  $\gamma$ , or Klar  $\alpha$ . Klar  $\alpha$  and  $\gamma$  have C-terminal KASH domains. The *klar*-null allele klar<sup> $\Delta 1-18$ </sup> deletes all of klar's coding exons plus the neighboring gene CG13891. The klar<sup> $\Delta KASH$ </sup> allele (also known as *klar<sup>mCD4</sup>*) is a nonsense mutation that truncates Klar  $\alpha$  and Klar  $\gamma$  just before the KASH domain. The top shows the chromosomal location (in kilobases) from the tip of the left arm of the third chromosome.



Figure S2. **Rearrangement of muscle nuclear organization during different stages of development.** (A and B) Wild-type embryos stained for MHC (green) and MEF-2 (Red; A and B) at embryonic stage 13 (A) and stage 16 (B). (C) Third instar larvae were doubled stained with MHC (green) and lamin (red) antibodies. The cartoon in each panel represents the relative distribution of the muscle nuclei. Bars, 20 µm.