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Supplemental Information

Myosin II-driven contractions of supporting cap cells promote sensory adaptation of *Drosophila* proprioceptors

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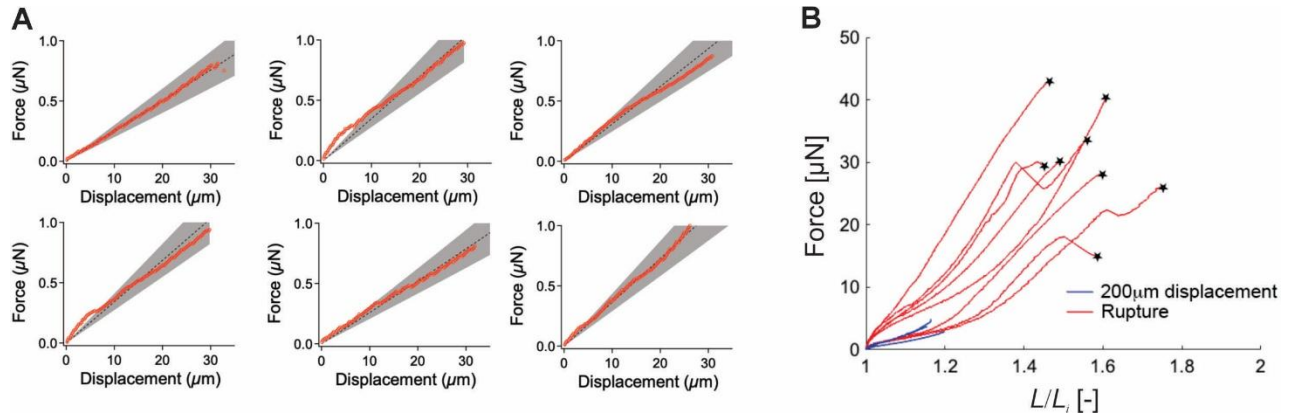


Figure S1. Force spectroscopy of lch5 organs. Related to Figure 2. (A) Force-displacement curves of control organs (red) with the fitting results using Eq. 4 (black dotted lines). The gray shaded areas indicate a $\pm 20\%$ error range. **(B)** Rupture points of lch5 organs. Lch5 organs withstand up to 300% strain before rupture. Representative force curves of wild-type lch5 organs are plotted against the stretched length (L) normalized by the resting length (L_i), which is approximately twice the relaxed length (L_0). $L/L_i \sim 1.5$ at rupture, corresponds to a strain $(L - L_0)/L_0$ of $\sim 300\%$. Red curves show the response of organs stretched by lateral pushing of their midpoint by a microneedle until rupture (asterisks) ($N = 8$). Some organs partially ruptured before complete rupture. Organ lengths are determined from video recordings. For comparison, blue curves show the response of lch5 organs laterally stretched with a needle by $200\ \mu\text{m}$ ($N = 3$). Some of the red curves show a much stiffer initial response than the rest and the small amplitude comparisons, likely due to a more extensive tissue preparation procedure required for the large amplitude pulls, where other tissue debris can end up affecting the initial response of the organs.

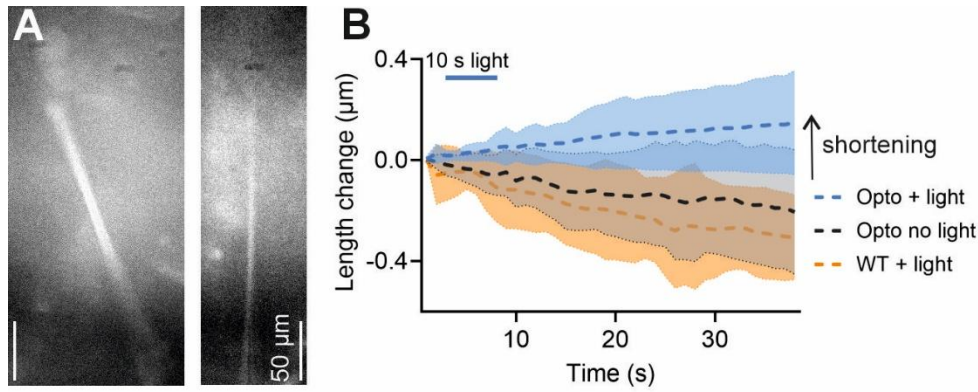


Figure S2. Change in relative length of lch5 organs caused by optogenetic activation of myosin. Related to Figure 3. (A) Fluorescent images showing expression of RhoGEF2-CRY2/CIBN system in lch5 cap cells. Images from two different organs/larvae are displayed. Scale bars: 50 μm. **(B)** Relative length change of lch5 organs following optogenetic activation of myosin in cap cells. Traces show the length change of lch5 over time with (dark blue/light blue, average ± SD, N = 8 larvae) and without (dark grey/light grey, average ± SEM, N = 7 larvae) light-induced optogenetic myosin-II activation as well as a wildtype control with 10 s of illumination with blue light (orange/light orange, average ± SD, N = 6 larvae).

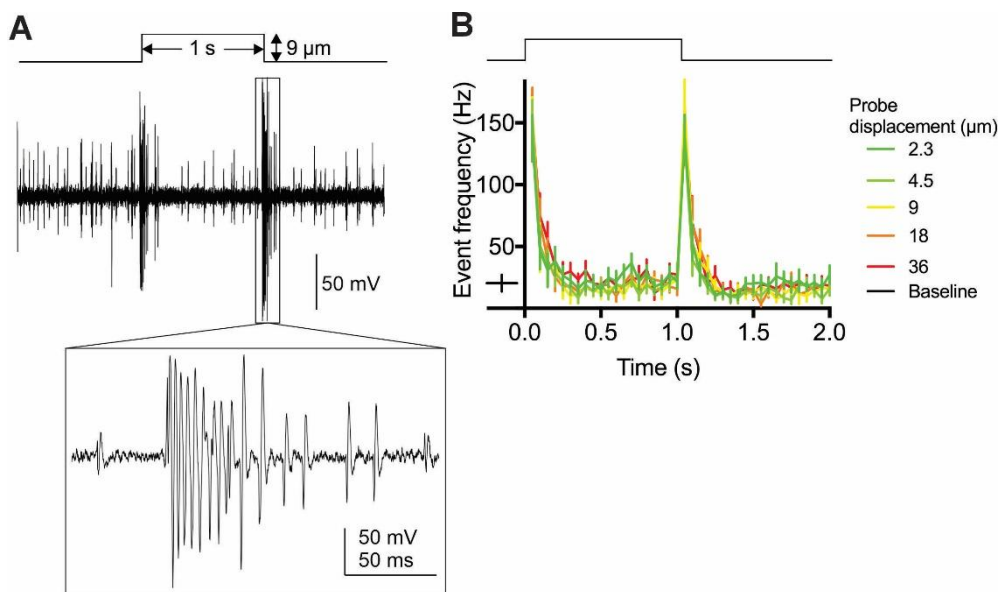


Figure S3. Mechano-electrical transduction of lch5 neurons. Related to Figure 4 (A) Representative recordings from an lch5 axon bundle evoked by a single-step stretching protocol. Boxed region shows a burst of action potentials. **(B)** Action potential frequencies (50 ms bins) for all step sizes (color coded) robustly show adapting and symmetrical responses (N = 8)