Supporting Information

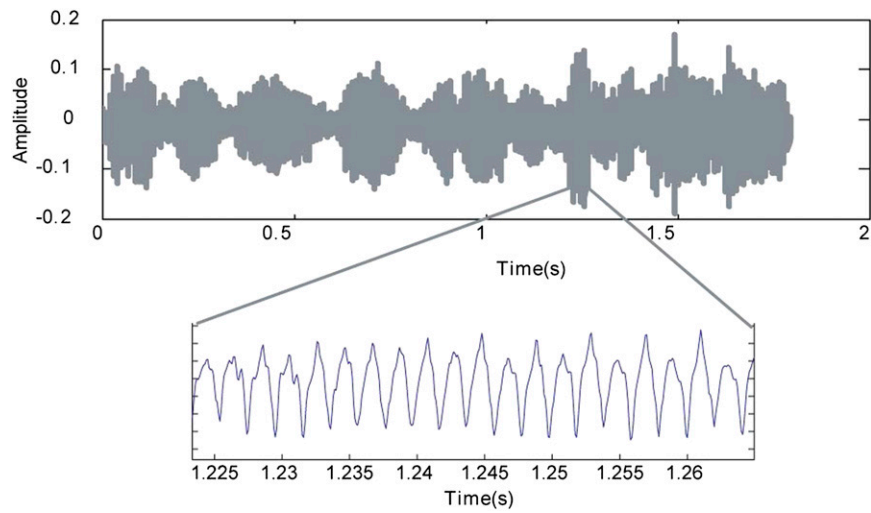## Zhang et al. 10.1073/pnas.1312477110

Fig. S1. Waveform retrieved from a 1.8-s-long natural yellow jacket sound by MATLAB software. The *y*-axis represents the sound amplitude. The sound intensity ranged from 55 to 65 dB.
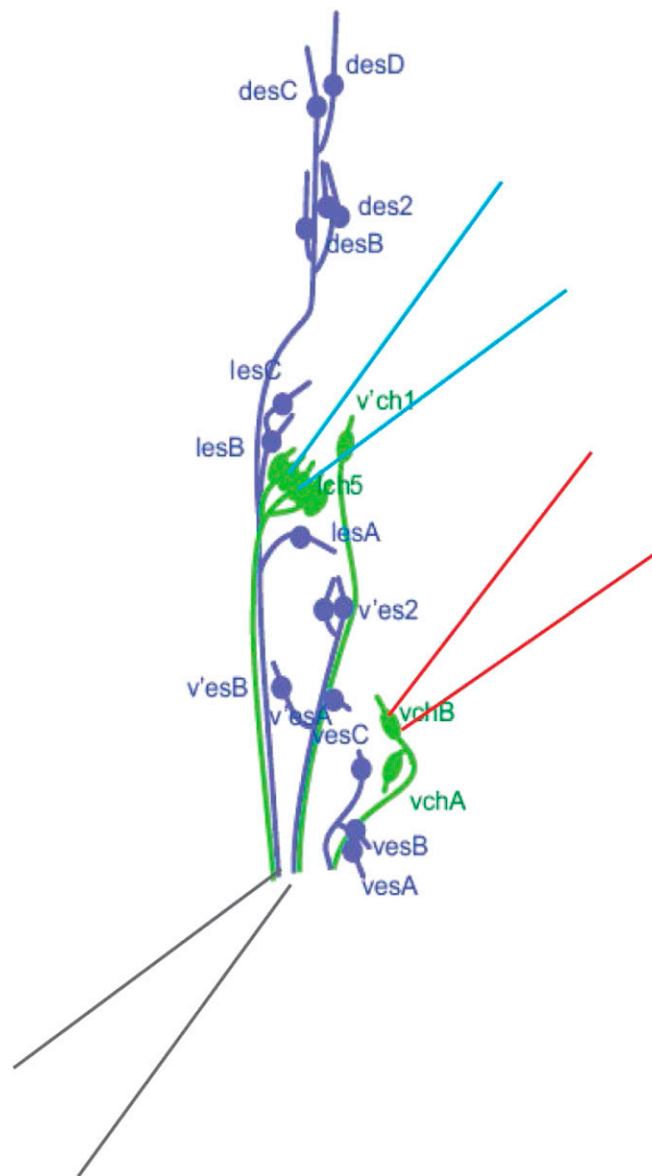
Fig. S2. Diagram of Cho neuron recording methods. Green, Cho neurons; magenta, other sensory neurons; red, electrode for a single Cho neuron; cyan, electrode for grouped Cho neurons; gray, electrode for nerve recording.
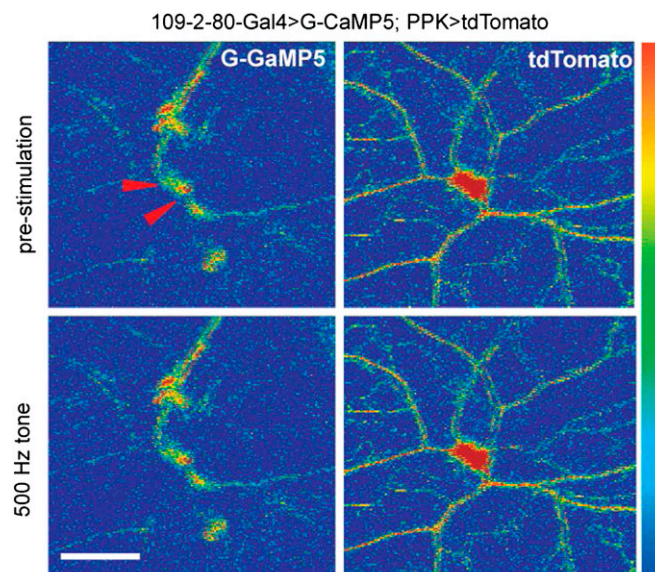
Fig. S3. Class IV da neurons (labeled by PPK-Gal4) did not respond to the 500-Hz pure tone. (*Left*) G-CaMP5 channel showing all da neurons in the cluster. Red arrows indicate the class IV neuron cell bodies. (*Right*) tdTomato channel by a class IV neuron-specific driver. Both channels are shown with rainbow pseudocolor (range, 1–255). (Scale bar: 20 μm.)
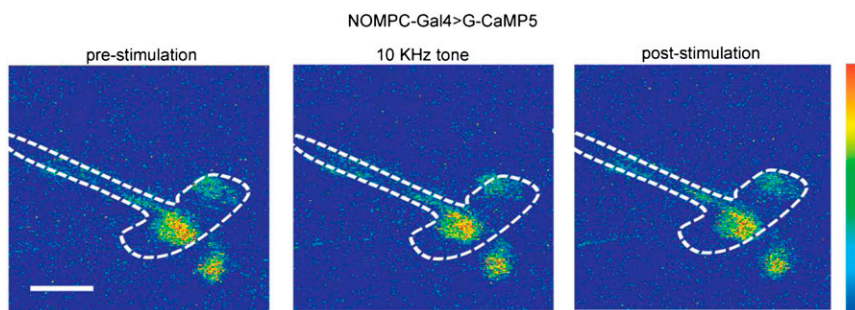

Fig. S4. Cho neurons did not response to a 1-s high-frequency (10 kHz) sound. Pseudocolor shows the G-CaMP signal. (Color range: 1–255; scale bar: 10 μm.)
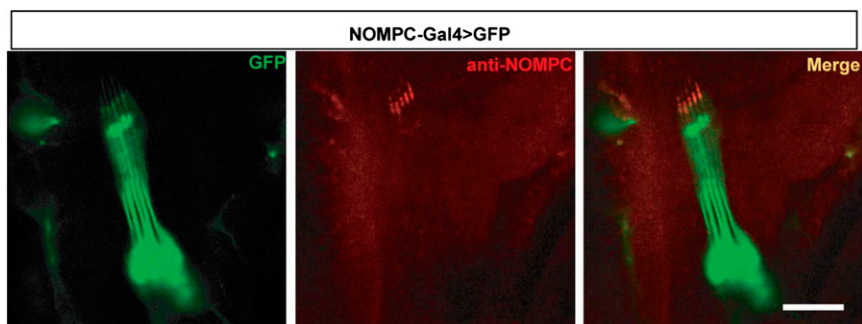

Fig. S5. Antibody staining of NOMPC channels on the larval Cho neurons. (Scale bar: 20 μm.)
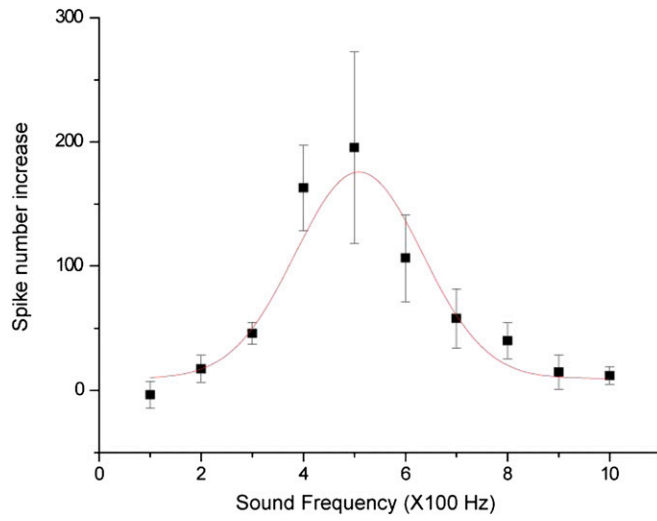
Fig. S6. Tuning curve from recording of Cho neuron activity in *nompC* mutant larvae at a sound intensity of 60 dB. Samples are from seven recordings.
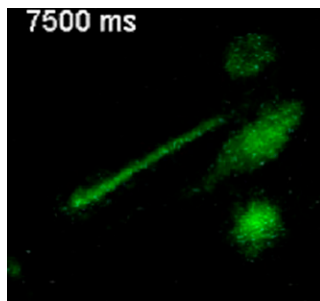

Movie S1. Larval startle response to natural sound from wasps.

Movie S1

Movie S2. Larval startle response to 500-Hz pure tones.

Movie S3. Time-lapse movie of Ca^{2+} activity in Cho neurons elicited by a 500-Hz pure tone.