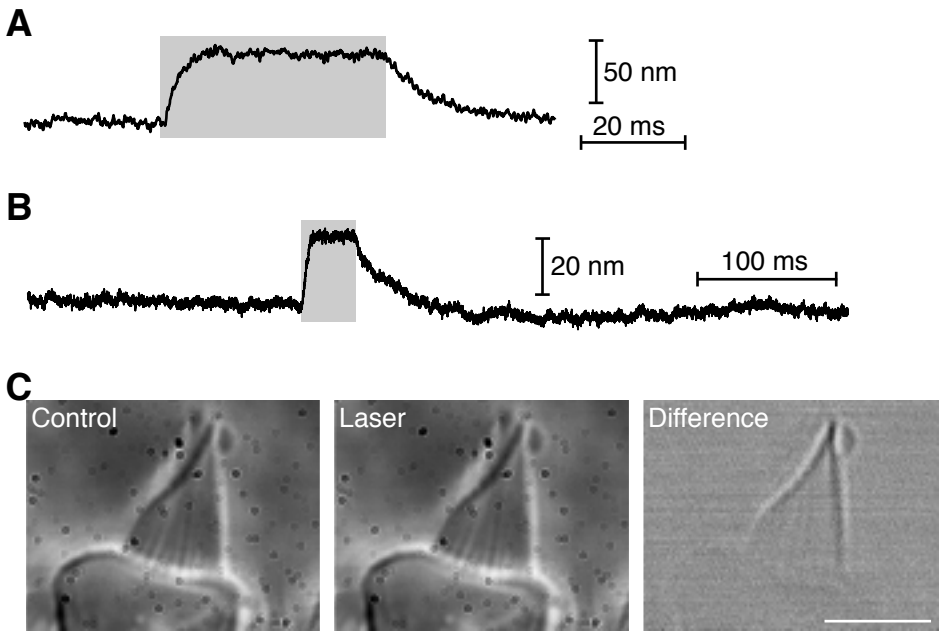

Figure S1. Ultraviolet stimulation of hair bundles, Related to Figure 1.

(A) A hair cell that had been extruded from the epithelium was irradiated orthogonal to its plane of symmetry. The resulting hair-bundle motion along the axis of sensitivity, which was recorded on a dual photodiode, confirmed that photonic force did not underlie the light-evoked response. Wavelength, 375 nm; power density, 106 $MW \cdot m^{-2}$. (B) A hair bundle from the murine utriculus moved in response to ultraviolet illumination. The bundle remained in the utricular epithelium and was irradiated from a direction orthogonal to the plane of the utriculus. Wavelength, 405 nm, power density, 57 $MW \cdot m^{-2}$. (C) Subtraction of a video frame acquired during laser irradiation of a hair bundle (center) from that before irradiation (left) reveals light-evoked motion (right) that was maximal at the top of the hair bundle. The soma did not move detectably. Irradiation was orthogonal to the hair bundle's axis of sensitivity. Frame rate, 250 Hz; scale bar, 5 μm; wavelength, 375 nm; power density, 106 $MW \cdot m^{-2}$.

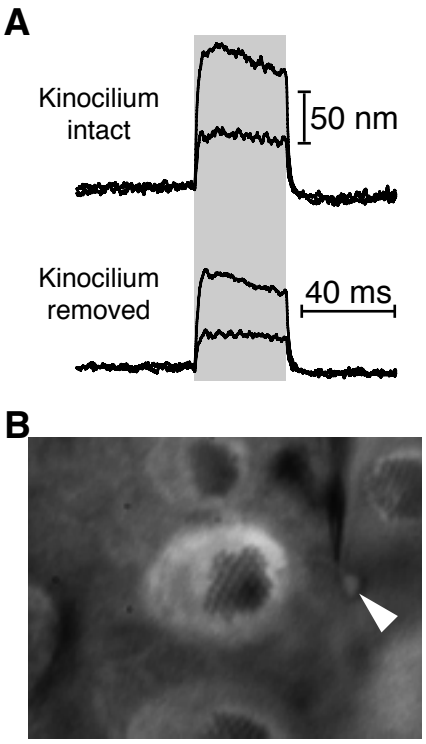

Figure S2. Absence of a contribution from the kinocilium, Related to Figure 1.

(A) The movement of a hair bundle was recorded in response to pulses of ultraviolet light at two power densities, 35 $MW \cdot m^{-2}$ and 71 $MW \cdot m^{-2}$ (upper traces). The bundle's motion was similar after its kinocilium had been carefully separated from the stereociliary cluster with a sharp glass microelectrode (lower traces). (B) Held against the epithelial surface, the kinocilium's bulbous end (arrowhead) lay immediately to the right of the dissection electrode's tip. Wavelength, 375 nm. This cell remained in the saccular epithelium and was irradiated from a direction orthogonal to the plane of the sacculus.

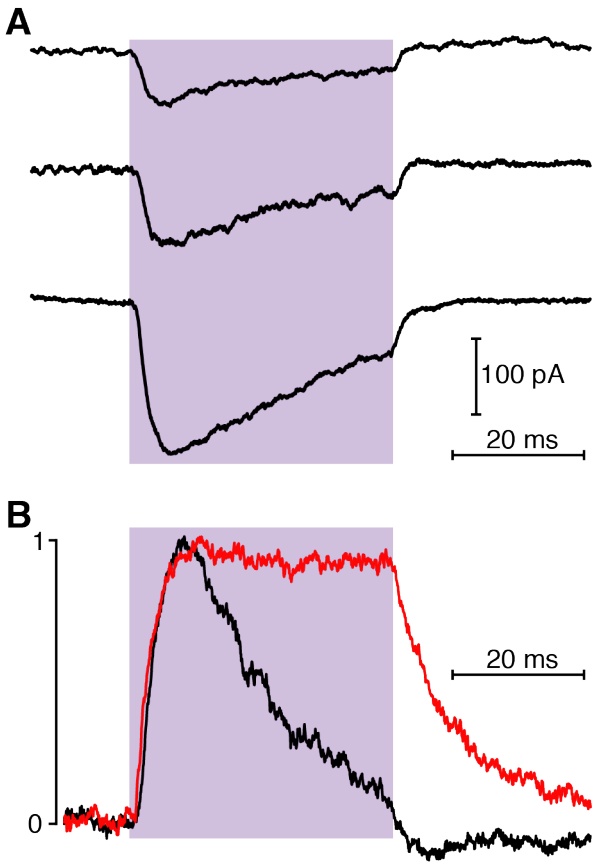

Figure S3. Adaptation of the light-evoked mechanotransduction current, Related to Figure 2.

(A) Representative light-evoked currents from three hair cells showed adaptation during protracted illumination. Wavelength, 375 nm; power density, 106 MW·m^{-2}. (B) During a simultaneous recording of light-evoked current (black) and hair-bundle displacement (red), the bundle moved 54 nm and the transduction current reached -109 pA. To allow comparison of time courses the current trace has been inverted and both records have been normalized to their maxima. Wavelength, 375 nm; power density, 106 MW·m^{-2}. The cells were extruded from the epithelium and were irradiated from a direction orthogonal to the axis of sensitivity of their hair bundles.

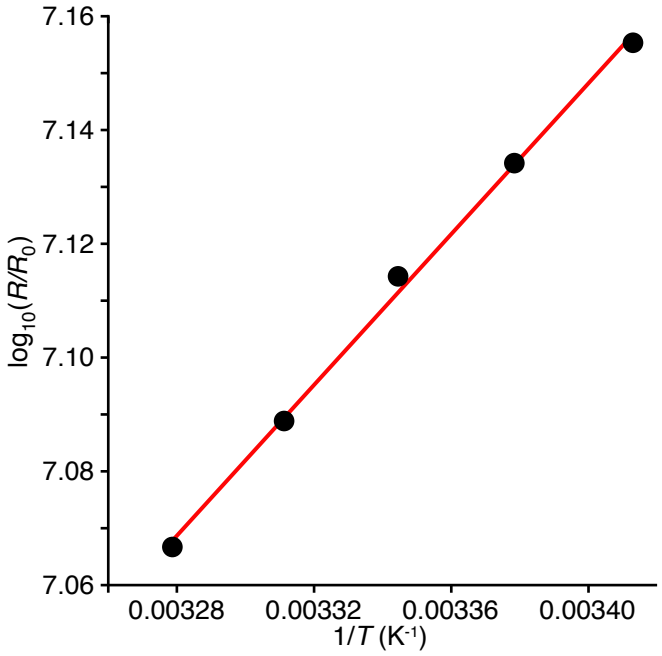

Figure S4. Calibration of a temperature-sensing microelectrode, Related to STAR Methods.

The glass electrode's tip resistance was measured in saline solution at various temperatures. A plot of the logarithm of the resistance divided by the reference value R_0 = 77.62 kΩ against the reciprocal of the temperature yields the linear relation $\log_{10}(R/R_0) = 662.83/T$ with coefficient of determination $r^2 = 0.998$.

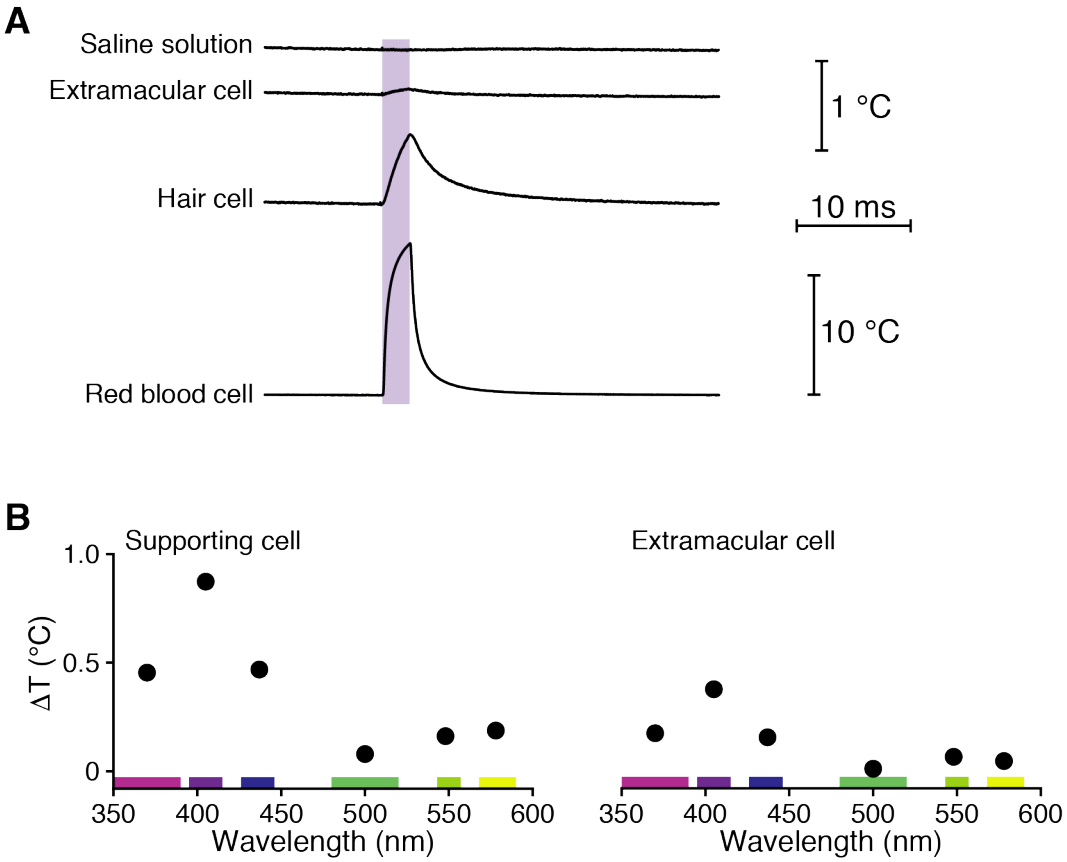

Figure S5. Heat production through ultraviolet irradiation of other cell types, Related to Figure 5.

(A) Irradiation of saline solution did not lead to a measurable increase in temperature. However, irradiating extramacular cells, hair cells, or red blood cells generated temperature increases. Temperature was measured using a calibrated electrode at a distance of 2 µm from the cellular surface. Wavelength, 375 nm; power density, 106 $MW \cdot m^{-2}$. The lowest calibration bar pertains only to the erythrocyte. (B) Thermal action spectra show that the temperature increases (ΔT) measured above a supporting cell and an extramacular cell are similar in shape to that of a hair cell, indicating that the responsible absorbers are ubiquitous.

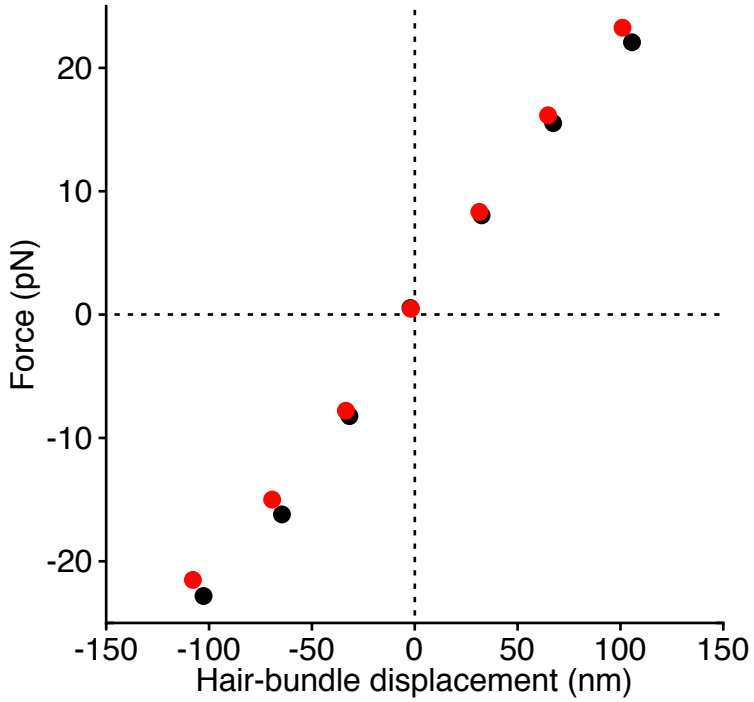

Figure S6. Negligible effect of ultraviolet irradiation on stereociliary pivots, Related to Figure 7.

A hair bundle with tip links disrupted by iontophoresis of EGTA was displaced with a calibrated glass fiber. The force required to move the bundle is plotted against its displacement. In this hair bundle, the stiffness of the stereociliary pivots was 224 $\mu N \cdot m^{-1}$ without irradiation (black) and 221 $\mu N \cdot m^{-1}$ during ultraviolet irradiation (red). The same experiment was repeated in four cells and yielded an average stiffness of 289 ± 64 $\mu N \cdot m^{-1}$ without irradiation and 291 ± 76 $\mu N \cdot m^{-1}$ during ultraviolet illumination, confirming that light did not alter this value. The hair cells for this experiment remained in the saccular epithelium and were irradiated from a direction orthogonal to the plane of the sacculus. Wavelength, 405 nm; power density, 70 $MW \cdot m^{-2}$.