





**Supplementary Figure 1: *Slow noise-induced degeneration of spiral ganglion cells.***

These light micrographs of osmium-stained plastic sections are from the 32 kHz place in noise-exposed ears, either 2 wks (**a**) or 2 yrs (**b**) post exposure. With the DIC optics used, only a fraction of the 40  $\mu\text{m}$  section depth is imaged at one focal plane. Thus, during cell counting, the focus was rolled to capture all the cells in the 90  $\mu\text{m}$  x 60  $\mu\text{m}$  x 40  $\mu\text{m}$  cube of which this is one optical slice (see Methods).

**Supplementary Figure 2: *Stereocilia bundles are normal in noise-exposed ears, even when temporary threshold shifts are maximal.*** These confocal images of phalloidin-stained outer hair cells are from the 16 kHz place in a control ear (**a**) and an exposed ear (**b**) fixed 24 hrs post-exposure. The bundles on first-row outer hair cells (OHC 1) are partially obscured by phalloidin staining of the actin in the cuticular plate.