## **Inventory of Supplemental Information**

Supplemental Information includes four supplemental figures—S1 to S4—and Supplemental Experimental Procedures.

Figure S1 – related to Figure 2. Shows the RNA-seq read alignments to identify the multiple *Xirp*2 isoforms in cochlear and utricular hair cells.

Figure S2 – related to Figure 3. Shows the normal mechanotransduction function of *Xirp*2<sup>-/-</sup> hair cells.

Figure S3 – related to Figure 3. Shows the delayed kinocilia degeneration in Xirp2-/- cochlea.

Figure S4 – related to Figure 3. Shows the membrane protrusions at the cells surface of *Xirp*2<sup>-/-</sup> hair cells.