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| **Supplemental File 1a**. *Test of sex differences in hair cell KV channel data.*  |
| Cell Type | Parameter | Subgroup | Male vs Female posthoc p-value | Test |
| Type I HC | Tail Vhalf | +/+,+/––/– | 0.0023 \*\* a0.57 | Normal, homogeneous varianceANOVA: Genotype (2 levels), Sex (2 levels), Zone (2 levels), Genotype\*Sex. |
| Tail S | +/+,+/––/– | 0.980.58 | ANOVA: Genotype (2 levels), Sex (2 levels), Zone (2 levels), Genotype\*Sex. Normal, homogeneous variance |
| Tail gDensity | +/+,+/––/– | 0.9990.936 | Normal, nonhomogeneous varianceWelch ANOVA: Genotype\*Sex |
| Type II HC | Peak Vhalf | +/+,+/––/– | 0.950.28 | Normal, homogeneous varianceANOVA: Genotype (2 levels), Sex (2 levels), Zone (2 levels), Genotype\*Sex. |
| Peak S | +/+,+/––/– | 0.9990.97 | Normal, homogeneous varianceANOVA: Genotype (2 levels), Sex (2 levels), Zone (2 levels), Genotype\*Sex. |
| Peak gDensity | +/+,+/––/– | 0.640.43 | Normal, nonhomogeneous varianceWelch ANOVA: Genotype\*Sex |
| % inactivation at 30 mV | +/+,+/––/– | 0.980.82 | Normal, homogeneous varianceANOVA: Genotype (2 levels), Sex (2 levels), Zone (2 levels), Genotype\*Sex. |

*a* g, 0.9. Male KV1.8+/+,+/–, –85 ± 1 mV (40) vs. Female KV1.8+/+,+/–, –79 ± 2 mV (12)

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| **Supplemental File 1b**. *We did not detect a genotype effect on* s*oma size of type I HCs. The perimeter of cross-sections of basolateral cell bodies was manually measured from immunohistochemistry sections with sufficient autofluorescence in the 488 channel to distinguish cell morphology, and anti-calretinin to label type II hair cells and calyx-only afferents. Cells were measured from two female littermates.* |
| Cell Type | *Kcna10* Genotype | Age | Weight (g) | Perimeter (μm) | Test |
| Type I HC | +/+–/– | P117P117 | 24.925.2 | 47 ± 1 (19)46 ± 1 (28) | ANOVA: p=0.1, power = 0.07 |

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| **Supplemental Table 1c**. *Detected zonal but not genotype differences in hair cell IKir and IH­.*  |
| Cell Type | Zone | IH + IKir current density (-1\*pA/pF) | Kv1.8+/+,+/– *vs* Kv1.8–/– p-value | ES *vs* Striola p-value | Test |
| Type I HC | ESStriola | 48 ± 3 (78)13.0 ± 2 (19) | 0.3 | 4E-9 \*\*\*\* *a* | Non-normal, KWA |
| Type II HC | ESStriola | 55 ± 2 (116)39 ± 4 (20) | 0.19 (0.25 power) | 0.0058 \*\* *b* | Normal, homogeneous variance. 2-way ANOVA: Genotype (2 levels), Zone (2 levels) |

*a* g 1.4

*b*g 0.6