**Supplement**

**Repressor element 1-silencing transcription factor deficiency yields profound hearing loss through Kv7.4 channel upsurge in auditory neurons and hair cells**

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**Supplementary File 1a**

The primer sequences for genotyping

|  |  |
| --- | --- |
| Primer | Sequence(5' - 3') |
| Rest forward | GCCCACACGCCAGGCCTGAAC |
| Rest reverse | TCGGTCCCGAGGCTCGAAGTGG |
| Rest DEL forward | GCACAAGCAGCGCACTATTA |
| Rest DEL reverse | CGGGCG GATTAGGTA AGTTT |
| Atoh1 forward | CCGGCAGAGTTTACAGAAGC |
| Atoh1 reverse | ATGTTTAGCTG GCCCAAATG |
| Atoh1 control forward | CTAGGCCACAGAATTGAAAGATCT |
| Atoh1 control reverse | GTAGGTGGAAATTCTAGCATCATCC |

**Supplementary File 1b**

The primer sequences for real-time PCR

|  |  |
| --- | --- |
| Primer | Sequence(5' - 3') |
| Nav1.1 forward | CTCCTCAAATGGGTGGCCTA |
| Nav1.1 reverse | GATTTGATGGCCCCGAGTTC |
| Nav1.6 forward | CCTGGTGTTCACTGGGATCT |
| Nav1.6 reverse | AGGCCCAGCTCCATTAAACT |
| Nav1.7 forward | CGAGAGCGGAGAGATGGATT |
| Nav1.7 reverse | TTCGCTTCAGTGTGGTTGTG |
| Kv3.4 forward | TTCTTTTGCCTGGACACTGC |
| Kv3.4 reverse | GCCACAACGTCGATAATGCT |
| Kv1.1 forward | GGCGAGAGGGGTTTCCAAAT |
| Kv1.1 reverse | GGCTTCAGAGCCAGAAGGTT |
| Kv1.2 forward | GGAGGCTCTGGTACCCATCT |
| Kv1.2 reverse | CCTTTGGAAGGAAGGAGGCA |
| HCN1 forward | ACATGCTGTGCATTGGTTATGGCG |
| HCN1 reverse | AACAAACATTGCGTAGCAGGTGGC |
| HCN2 forward | ACTTCCGCACCGGCATTGTTATTG |
| HCN2 reverse | TCGATTCCCTTCTCCACTATGAGG |
| Kv7.2 forward | AGGAAGCCGTTCTGTGTGAT |
| Kv7.2 reverse | GCAGAGGAAGCCAATGTAC |
| Kv7.3 forward | GAAGACAGGGGCTATGGGAAT |
| Kv7.3 reverse | GTTTTGGAGTGGATGGAGGTC |
| Kv7.4 forward | ATGGGGCGCGTAGTCAAGGT |
| Kv7.4 reverse | GGGCTGTGGTAGTCCGAGGTG |

**Supplementary File 1c**

The primer sequences for single-cell RT-PCR

|  |  |
| --- | --- |
| Primer | Sequence(5' - 3') |
| Primer sequences in Figure 1B  Rest forward | CGACACATGCGGACTCATTC |
| Rest reverse | AGAGGCCACATAATTGCACTG |
| Primer sequences in Figure 1-figure supplement 1  Rest forward  Rest reverse | GGTCTGATCCCGCTCCG  TGGCCATAACTGTACTCCTCTG |
| GAPDH forward | CCAGCCTCGTCCCGTAGACA |
| GAPDH reverse | CTCGTGGTTCACACCCATCA |