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(54) Title: GENE THERAPY SYSTEMS AND RELATED METHODS FOR TREATMENT OF HEARING LOSS

(57) Abstract: The present disclosure describes gene therapy systems, and related methods, useful for treating and/or preventing deafness caused by genetic mutation of the TMPRSS3 gene or the LOXHD1 gene. The compositions and methods disclosed herein use adeno-associated viral (AAV) vector gene delivery of TRMPSS3 or LOXHD1 into the inner ear to restore activity of the TM-PRSS3 gene or the LOXHD1 gene, respectively, promote hair cell survival and restore hearing in patients suffering from hearing loss. As disclosed herein, the systems and methods may utilize a combination of gene therapy (e.g., molecular therapeutics) for hearing loss caused by a genetic mutation together with implantation of a cochlear implant.



FIGURE 6

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
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