Claims

1. A polynucleotide comprising a GJB2 promoter comprising:

(a) a first region having (i) at least 85% sequence identity to SEQ ID NO: 3; or (ii) at least 85% sequence identity to SEQ ID NO: 1 or a functional portion or derivative thereof comprising at least one of SEQ ID NOs: 3-12, operably linked to

(b) a second region having (i) at least 85% sequence identity to SEQ ID NO: 20; or (ii) at least 85% sequence identity to SEQ ID NO: 2 or a functional portion or derivative thereof comprising at least one of SEQ ID NOs: 20-24,

wherein the distance between the first region and the second region in the polynucleotide is no more than 1 kilobase (kb).

2. The polynucleotide of claim 1, wherein the first region has the sequence of SEQ ID NO: 3.

3. The polynucleotide of claim 1, wherein the first region has the sequence of SEQ ID NO: 1

4. The polynucleotide of claim 1, wherein the first region has the sequence of any one of SEQ ID NOs: 4-19.

5. The polynucleotide of any one of claims 1-4, wherein the second region has the sequence of SEQ ID NO: 20.

6. The polynucleotide of any one of claims 1-4, wherein the second region has the sequence of SEQ ID NO: 2.

7. The polynucleotide of any one of claims 1-4, wherein the second region has the sequence of any one of SEQ ID NOs: 21-28.

8. The polynucleotide of any one of claims 1-7, wherein the first region is fused directly to the second region without a linker.

9. The polynucleotide of claim 8, wherein the GJB2 promoter has at least 85% sequence identity to SEQ ID NO: 30.

10. The polynucleotide of claim 9, wherein the GJB2 promoter has the sequence of SEQ ID NO: 30.

11. The polynucleotide of claim 8, wherein the GJB2 promoter has at least 85% sequence identity to SEQ ID NO: 31, SEQ ID NO: 32, SEQ ID NO: 33, SEQ ID NO: 34, or SEQ ID NO: 35.

12. The polynucleotide of claim 11, wherein the GJB2 promoter has the sequence of SEQ ID NO: 31, SEQ ID NO: 32, SEQ ID NO: 33, SEQ ID NO: 34, or SEQ ID NO: 35.

13. The polynucleotide of any one of claims 1-12, wherein the GJB2 promoter is operably linked to a polynucleotide encoding an expression product.

14. The polynucleotide of claim 13, wherein the expression product is a protein, a short hairpin RNA (shRNA), an antisense oligonucleotide (ASO), a component of a gene editing system, or a microRNA.

15. The polynucleotide of claim 13, wherein the expression product is Gjb2 or Gjb6.

16. The polynucleotide of any one of claims 1-15, wherein the polynucleotide further comprises a GJB2 enhancer operably linked to the GJB2 promoter.

17. The polynucleotide of claim 16, wherein the GJB2 enhancer has at least 85% sequence identity to a nucleotide sequence of any one of SEQ ID NOs: 52-63.

18. The polynucleotide of claim 16 or 17, wherein the GJB2 enhancer has the sequence of any one of SEQ ID NOs: 52-63.

19. The polynucleotide of any one of claims 16-18, wherein the GJB2 enhancer is located 5' of the promoter.

20. The polynucleotide of any one of claims 16-18, wherein the GJB2 enhancer is located 3' of the promoter.

21. A nucleic acid vector comprising the polynucleotide of any one of claims 1-20.

22. An *in vitro* method of expressing an expression product in a GJB2-expressing cell, comprising contacting the GJB2-expressing cell with the nucleic acid vector of claim 21.

23. Use of the nucleic acid vector of claim 21 in the manufacture of a medicament for expressing an expression product in a GJB2-expressing cell in a subject.

24. The method of claim 22 or use of claim 23, wherein the GJB2-expressing cell is a GJB2-expressing inner ear cell.

25. Use of the nucleic acid vector of claim 21 in the manufacture of a medicament for treating a subject having or at risk of developing GJB2-related hearing loss, wherein the medicament is to be administered to an inner ear of the subject, and wherein the expression product is Gjb2 or Gjb6.

26. The use of claim 25, wherein the GJB2-related hearing loss is DFNB1 or DFNA3.

27. The use of claim 26, wherein the subject has a mutation in GJB2, a mutation in GJB6, or a mutation in both GJB2 and GJB6.

28. Use of the nucleic acid vector of claim 21 in the manufacture of a medicament for inducing or increasing cochlear hair cell regeneration in a subject in need thereof, wherein the medicament is to be administered to an inner ear of the subject, and wherein the nucleic acid vector comprises a GJB2 enhancer having at least 85% sequence identity to SEQ ID NO:59 and the expression product promotes or increases cochlear supporting cell proliferation or differentiation of cochlear supporting cells into cochlear hair cells.

29. Use of the nucleic acid vector of claim 21 in the manufacture of a medicament for treating a subject having or at risk of developing hearing loss associated with damage to or loss of cochlear hair cells, wherein the medicament is to be administered to an inner ear of the subject, and wherein the nucleic acid vector comprises a GJB2 enhancer having at least 85% sequence identity to SEQ ID NO: 59 and the expression product promotes or increases cochlear supporting cell proliferation or differentiation of cochlear supporting cells into cochlear hair cells.

30. The use of claim 28 or 29, wherein the polynucleotide encoding the expression product is a polynucleotide listed in Table 5, or an inhibitory RNA directed to LATS1 and/or LATS2.

31. Use of the nucleic acid vector of claim 21 in the manufacture of a medicament for treating a subject having or at risk of developing genetic hearing loss associated with a mutation in a gene that is endogenously expressed in cochlear supporting cells, wherein the medicament is to be administered to an inner ear of the subject, and wherein the enhancer has at least 85% sequence identity to SEQ ID NO: 59 and the polynucleotide encoding the expression product is a wild-type form of the gene that is mutated in cochlear supporting cells.

32. The use of claim 31, wherein the genetic hearing loss is associated with a disease listed in Table 6 and the polynucleotide encoding the expression product is a wild-type form of a gene that is mutated in said disease.