

CLAIMS

Claim 1. A Schwann cell-specific promoter comprising a nucleotide sequence selected from:

5 SEQ ID NO: 4; SEQ ID NO: 8; SEQ ID NO: 9; SEQ ID NO: 11;
SEQ ID NO: 12; SEQ ID NO: 13; SEQ ID NO: 14; SEQ ID NO: 15; SEQ
ID NO: 16

Wherein the length of Schwann cell-specific promoter is in a range of 200bp to 500 bp.

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Claim 2. The Schwann cell-specific promoter of claim 1,
wherein the nucleotide sequence of the Schwann cell-specific promoter is the sequence selected from: SEQ ID NO: 8; SEQ ID NO: 9; SEQ ID NO: 13; and SEQ ID NO:14.

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Claim 3. A Schwann cell-specific expression vector comprising:

a Schwann cell-specific promoter; and
a gene of interest,

20 wherein the Schwann cell-specific promoter has a sequence selected from a group consisting of SEQ ID NO: 4; SEQ ID NO: 8; SEQ ID NO: 9; SEQ ID NO: 11; SEQ ID NO: 12; SEQ ID NO: 13; SEQ ID NO: 14; SEQ ID NO: 15; and SEQ ID NO: 16,

wherein the length of Schwann cell-specific promoter ranges
25 from 200bp to 500 bp,

wherein the gene of interest is configured to be expressed in Schwann cells or a nucleic acid encoding a protein capable of manipulating genes in Schwann cells,

wherein the gene of interest is operably linked to the
5 Schwann cell-specific promoter.

Claim 4. The Schwann cell-specific expression vector of claim 3,

wherein the Schwann cell-specific expression vector is a
10 viral vector or non-viral vector.

Claim 5. The Schwann cell-specific expression vector of claim 3,

wherein the Schwann cell-specific expression vector
15 further comprises one or more regulatory element.

Claim 6. The Schwann cell-specific expression vector of claim 5,

wherein the regulatory element is one or more element
20 selected from a group consisting of an enhancer, artificial intron, polyadenylation signal and Woodchuck hepatitis virus posttranscriptional regulatory element (WPRE).

Claim 7. The Schwann cell-specific expression vector of
25 claim 6,

wherein Schwann cell-specific expression vector comprises the polyadenylation signal,

wherein the polyadenylation signal is a synthetic polyadenylation signal (synpA) or simian virus 40
5 polyadenylation signal (SV40pA).

Claim 8. The Schwann cell-specific expression vector of claim 6,

wherein Schwann cell-specific expression vector comprises
10 the artificial intron and the WPRE,

wherein the artificial intron is a minute virus of mice (MVM) intron, and

wherein the WPRE is a WPRE3.

15 Claim 9. The Schwann cell-specific expression vector of claim 6,

wherein Schwann cell-specific expression vector comprises the artificial intron, the WPRE, and the polyadenylation signal,

wherein the artificial intron is a minute virus of mice
20 (MVM) intron,

wherein the WPRE is a WPRE3, and

wherein the polyadenylation signal is synthetic polyadenylation signal (synpA) or simian virus 40
polyadenylation signal (SV40pA).

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Claim 10. The Schwann cell-specific expression vector of claim 3,

wherein the protein capable of artificially manipulating genes is a Cas protein.

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Claim 11. The Schwann cell-specific expression vector of claim 3,

wherein the gene of interest is a gene associated with treating a disease related to Schwann cell.

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Claim 12. The Schwann cell-specific expression vector of claim 3,

wherein the nucleotide sequence of the Schwann cell-specific promoter is the sequence selected from: SEQ ID NO: 8;

15 SEQ ID NO: 9; SEQ ID NO: 13; and SEQ ID NO: 14.

Claim 13. A composition comprising the expression vector of claim 10, and a guide RNA, which is capable of complexing with the Cas protein.

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Claim 14. The composition of claim 13,

wherein the guide RNA targets a gene that causes a disease related to Schwann cell,

wherein the gene that causes the disease related to Schwann cell is Cx32 (connexin 32) gene, SH3TC2 (SH3 domain and

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tetratricopeptide repeats 2) gene, MPZ (myelin protein zero) gene, EGR2 (early growth response 2) gene, GDAP1 (ganglioside induced differentiation associated protein 1) gene, NDRG1 (N-Myc downstream regulated 1) gene, or PMP22 (peripheral myelin
5 protein 22) gene.