

CLAIMS

【Claim 1】

An adeno-associated virus (AAV) complex, comprising a polynucleotide sequence encoding a transgene between a first inverted terminal repeat (ITR) and a second ITR, wherein the first ITR is not modified and the second ITR is modified, wherein in the second ITR, all or part of a stem-loop structure, which is formed of *rep*-binding element (RBE), RBE', A, A', B, B', C, C', and D regions, is modified, wherein the modified ITR exists as an open-end without forming any of the stem region and the loop region of the stem-loop structure .

【Claim 2】

The adeno-associated virus complex of claim 1, further comprising an operably linked promoter, a polynucleotide sequence encoding a transgene, and a polyadenylation sequence, between the first ITR and the second ITR.

【Claim 3】

The adeno-associated virus complex of claim 1, wherein the AAV is of an AAV serotype selected from the group consisting of AAV1, AAV2, AAV3, AAV4, AAV5, AAV6, AAV7, AAV8, AAV9, AAV10, AAV11, and AAV12.

【Claim 4】

The adeno-associated virus complex of claim 1, wherein in the second ITR, all of B, B', C, C', and RBE' regions are deleted, and either A or A' region, whichever is closer to 3'-end of (+) strand of the transgene or 5'-end of (-) strand of the transgene, is deleted.

【Claim 5】

The adeno-associated virus complex of claim 1, wherein the second ITR comprises a terminal resolution site (*trs*) sequence and an RBE sequence.

【Claim 6】

The adeno-associated virus complex of claim 2, wherein the promoter is a tissue-specific promoter.

【Claim 7】

The adeno-associated virus complex of claim 1, wherein the transgene is a

therapeutic gene.

【Claim 8】

The adeno-associated virus complex of claim 1, wherein the transgene is GFP, Luciferase, TP53, RPE65, TPP1, or FVIII.

【Claim 9】

Use of adeno-associated virus complex of claim 1 in the manufacture of a medicament for gene therapy.

【Claim 10】

A composition comprising the adeno-associated virus complex of claim 1 and a pharmaceutically acceptable carrier.