

CLAIMS

1. A construct comprising a promoter sequence operably linked to a first set of one or more copies of coding sequences each encoding a viral accessory protein or a recombinant viral vector genome, wherein the construct further comprises two
5 recombinase recognition sites in opposite orientations.
2. The construct of claim 1, wherein the promoter sequence becomes operably linked to more or fewer copies of the coding sequences relative to the first set of one or more copies of coding sequences upon a recombination event via the two recombinase
10 recognition sites.
3. The construct of claim 1, wherein the two recombinase recognition sites flank the promoter sequence.
- 15 4. The construct of claim 1, wherein the recombinase recognition sites flank at least one coding sequence encoding a viral accessory protein, flank a recombinant viral vector genome, flank the one or more copies of the viral accessory protein coding sequence, flank the one or more copies of the recombinant viral vector genome coding sequence, flank the promoter and the one or more copies of the viral accessory protein coding
20 sequence, or flank a promoter and the one or more copies of the recombinant viral vector genome coding sequence.
5. The construct of any one of claims 1 to 4, further comprising a second set of one or more copies of the coding sequences, wherein, upon inversion via the two recombinase
25 recognition sites, the promoter becomes operably linked to the second set of coding sequences.
6. The construct of claim 1, further comprising one or more endonuclease recognition motifs.
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7. The construct of claim 6, wherein the one or more endonuclease recognition motifs are protospacer adjacent motifs.

8. The construct of claim 5, wherein the viral accessory protein or recombinant viral vector genome is from a virus selected from the group consisting of lentivirus, retrovirus, herpesvirus, adenovirus, and adeno-associated virus.
- 5 9. The construct of claim 5, wherein the first and second sets of one or more copies of coding sequences are capable of providing different levels of expression of the coding sequences depending on an orientation of the promoter.
- 10 10. The construct of claim 5, wherein the first and second sets of one or more copies of coding sequences comprise different copy numbers.
11. The construct of claim 1, wherein the promoter comprises an inducible, recombined, or edited promoter.
- 15 12. The construct of claim 1, wherein the recombinase recognition sites comprise two palindromic recognition regions flanking a spacer region.
13. The construct of claim 1, wherein each of the recombinase recognition sites comprises a lox site.
- 20 14. The construct of claim 13, wherein the lox site comprises a wildtype lox site or a mutant lox site.
15. The construct of claim 12, wherein the spacer region is selected from the group consisting of loxP, lox511, lox2272, lox5171, m2, m3, and m7.
- 25 16. The construct of any one of claims 1 to 15, wherein the recombinase is a Cre-recombinase.
- 30 17. The construct of claim 1, wherein each of the recombinase recognition sites are a Flippase recombinase target sequence.
18. The construct of claim 17, wherein the recombinase is a Flippase recombinase.

19. The construct of claim 1, wherein the first set of the one or more copies of coding sequences comprises two or more copies of the coding sequences arranged as a polycistronic expression cassette.
- 5 20. The construct of claim 19, wherein the polycistronic expression cassette is in the sense orientation downstream of the promoter prior to promoter inversion.
21. The construct of claim 19, wherein the polycistronic expression cassette further comprises one or more viral skip sequences, internal ribosome entry site elements, or
10 both.
22. The construct of claim 21, wherein the viral skip sequences are selected from the group consisting of P2A, T2A, E2A, and F2A.
- 15 23. The construct of claim 5, wherein the second set of the one or more copies of coding sequences comprises a monocistronic expression cassette.
24. The construct of claim 23, wherein the monocistronic expression cassette is in the antisense orientation upstream of the promoter prior to promoter inversion.
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25. The construct of any of claims 1 to 24, wherein the viral accessory protein is a fusion protein.
26. The construct of any of claims 1 to 24, wherein the viral accessory protein comprises a
25 sequence encoding a structural viral protein, a regulatory viral protein, or both.
27. The construct of claim 26, wherein the structural and regulatory proteins are selected from the group consisting of Gag, Pol, Rev, Env, Tat, Nef, Vpr, Vif, Vpu, and Vpx.
- 30 28. The construct of any of claims 1 to 24, wherein the viral accessory protein comprises a sequence encoding one or more viral accessory protein domains.
29. The construct of claim 28, wherein the one or more viral accessory protein domains are selected from the group consisting of CA, MA, NC, p6, SP1, RT, IN, PR, and DU.

30. The construct of any one of claims 1 to 29, wherein a sequence encoding the viral accessory protein or one or more viral accessory protein domains comprise a wild-type sequence, a codon optimized sequence, or both.

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