CLAIMS

1. A recombinant adeno-associated vector (rAAV) comprising a nucleic acid sequence comprising a transgene encoding alphaLNNdDeltaG2short.

2. The recombinant AAV of claim 1, wherein the alphaLNNdDeltaG2short comprises SEQ ID NO: 1 or SEQ ID NO: 24.

3. The recombinant AAV of claim 1, wherein the AAV is AAV8 or AAV-DJ.

4. The recombinant AAV of claim 1, further comprising a CMV promoter.

5. The recombinant AAV of claim 4, wherein the CMV promoter comprises SEQ ID NO: 12.

6. The recombinant AAV of claim 1, wherein the recombinant vector further comprises inverted terminal repeats (ITRs).

7. The recombinant AAV of claim 6, wherein the inverted terminal repeat (ITR) is a 5' ITR comprising SEQ ID NO: 11.

8. The recombinant AAV of claim 6, wherein the inverted terminal repeat (ITR) is a 3' ITR comprising SEQ ID NO: 16.

9. A recombinant adeno-associated vector (rAAV) comprising a nucleic acid sequence comprising a transgene encoding alphaLNNdDeltaG2Propeller, wherein the nucleic acid sequence comprises either: (a) SEQ ID NOS: 25, 29, 31, 33, 35, 41, 45 and 55; (b) SEQ ID NOS: 25, 29, 31, 33, 35, 41, 47 and 55; or (c) SEQ ID NOS: 25, 29, 31, 33, 35, 41, 51and 55.

10. A recombinant adeno-associated vector (rAAV) comprising a nucleic acid sequence comprising a transgene encoding alphaLNNdDeltaG2Propeller-2, wherein the nucleic acid sequence comprises SEQ ID NOS: 25, 29, 31, 33, 41, 43, 45 and 55.

11. A recombinant adeno-associated vector (rAAV) comprising a nucleic acid sequence comprising a transgene encoding betaLNNdDeltaG2short, wherein the nucleic acid sequence comprises SEQ ID NOS: 59, 63, 67, 71, 75, 79, 49, 51, 53, 55 and 57.

12. A recombinant adeno-associated vector (rAAV) comprising a nucleic acid sequence comprising a transgene encoding gammaLNNdDeltaG2short, wherein the nucleic acid sequence comprises SEQ ID NOS: 83, 87, 91, 95, 99,103, 49, 51, 53, 55 and 57.

13. A pharmaceutical composition comprising the recombinant AAV of claims 1, 2, 9, 10, 11 or 12 and a pharmaceutical carrier.

14. A kit comprising a container housing comprising the composition of claim 13.

15. A method of restoring laminin polymerization expression and basement membrane assembly in a subject, comprising administering to the subject an effective amount of the recombinant AAV vector of claims 1, 2, 9, 10, 11 or 12.

16. A method of treating laminin α-2 deficiency syndrome in a subject in need thereof, wherein the method comprises administering to the subject an effective amount of the recombinant AAV vector of claim 1.

17. A method of alleviating in a subject at least one of the symptoms associated with laminin deficiencies selected from the group consisting of laminin-deficient muscular dystrophies and laminin α2-deficient muscular dystrophy, wherein the method comprises administering to the subject an effective amount of the recombinant AAV vector of claim 1.

18. A method of alleviating in a subject at least one of the symptoms associated with laminin α2-deficiencies selected from the group consisting of muscle degeneration, regeneration, chronic inflammation, fibrosis, white matter brain anomalies, reduced peripheral nerve conduction, seizures, moderate mental retardation, and respiratory failure, wherein the method comprises administering to the subject an effective amount of the recombinant AAV vector of claim 1.

19. The method of claim 16, 17, or 18, wherein the alphaLNNdDeltaG2short comprises SEQ ID NO: 1 or SEQ ID NO: 24.

20. The method of claim 16, 17, or 18, wherein the AAV is AAV8 or AAV-DJ.

21. The method of claim 16, 17, or 18, wherein the recombinant AAV further comprises a CMV promoter.

22. The method of claim 21, wherein the wherein the CMV promoter comprises SEQ ID NO: 12.

23. The method of claim 16, 17, or 18, wherein the recombinant vector further comprises inverted terminal repeats (ITRs).

24. The method of claim 23, wherein the inverted terminal repeat (ITR) is a 5' ITR comprising SEQ ID NO: 11.

25. The method of claim 23, wherein the inverted terminal repeat (ITR) is a 3' ITR comprising SEQ ID NO: 16.

26. The method of claim 16, 17, or 18, wherein the recombinant AAV is comprised within a pharmaceutical composition further comprising a pharmaceutical carrier.