CLAIMS:

1. A nucleic acid molecule comprising a first inverted terminal repeat (ITR), a second ITR, and a genetic cassette;

wherein the first ITR and/or the second ITR areis an ITR offrom a non-adeno-associated virus (non-AAV),

wherein the non-AAV ITR is derived from an ITR of a member of the viral family *Parvoviridae* selected from the group consisting of *Bocavirus*, *Dependovirus*, *Erythrovirus*, *Amdovirus*, *Densovirus*, *Iteravirus*, *Contravirus*, *Aveparvovirus*, *Copiparvovirus*, *Protoparvovirus*, *Tetraparvovirus*, *Ambidensovirus*, *Brevidensovirus*, *Hepandensovirus*, *Penstyldensovirus*, Muscovy duck parvovirus (MDPV) strain, porcine parvovirus (U44978), mice minute virus (U34256), canine parvovirus (M19296), and mink enteritis virus (D00765),

wherein the nucleotide sequence of the non-AAV ITR is at least 50% identical to the nucleotide sequence of the ITR from the member of the viral family *Parvoviridae* and retains a functional property of the ITR from the member of the viral family *Parvoviridae*,

wherein the genetic cassette is positioned between the first ITR and the second ITR, and

wherein the genetic cassette encodes a therapeutic protein, a miRNA, or both a therapeutic protein and a miRNA.

2. The nucleic acid molecule of claim 1, wherein the therapeutic protein comprises a clotting factor.

3. The nucleic acid molecule of claim 1 or 2, wherein the member of the viral family *Parvoviridae* is *Dependovirus* or *Erythrovirus*.

4. The nucleic acid molecule of any one of claims 1 to 3, wherein the first ITR and the second ITR are ITRs of a non-AAV.

5. The nucleic acid molecule of any one of claims 1 to 3, wherein the first ITR is an ITR of a non-AAV and the second ITR is an ITR of an adeno-associated virus (AAV) or wherein the first ITR is an ITR of an AAV and the second ITR is an ITR of a non-AAV.

6. The nucleic acid molecule of any one of claims 1 to 5, wherein the member of the viral family *Parvoviridae* is erythrovirus parvovirus B19 (human virus).

7. The nucleic acid molecule of claim 6, wherein the ITR comprises the sequence of SEQ ID NO: 167, 168, 169, 170 or 171.

8. The nucleic acid molecule of any one of claims 1 to 5, wherein the viral family *Parvoviridae* is a *Dependovirus* Goose parvovirus (GPV) strain.

9. The nucleic acid molecule of claim 8, wherein the ITR comprises the sequence of SEQ ID NO: 172, 173, 174, 175 or 176.

10. The nucleic acid molecule of any one of claims 1 to 9, where the first and/or second ITR is a truncated ITR which comprises or consists of a fragment of a naturally occurring ITR, and retains a functional property of the naturally occurring ITR.

11. The nucleic acid molecule of any one of claim 1 to 10, wherein the first ITR and the second ITR are derived from the genomes of two different virus genomes.

12. The nucleic acid molecule of any one of claims 1 to 11, which further comprises a promoter.

13. The nucleic acid molecule of claim 10, wherein the promoter drives expression of the therapeutic protein in hepatocytes, endothelial cells, muscle cells, sinusoidal cells, or any combination thereof.

14. The nucleic acid molecule of claim 10 or 11, wherein the promoter is selected from the group consisting of a mouse thyretin promoter (mTTR), an endogenous human factor VIII promoter (F8), a human alpha-1-antitrypsin promoter (hAAT), a human albumin minimal promoter, a mouse albumin promoter, a tristetraprolin (TTP) promoter, a CASI promoter, a CAG promoter, a cytomegalovirus (CMV) promoter, α1-antitrypsin (AAT), muscle creatine kinase (MCK), myosin heavy chain alpha (αMHC), myoglobin (MB), desmin (DES), SPc5-12, 2R5Sc5-12, dMCK, tMCK, and a phosphoglycerate kinase (PGK) promoter.

15. The nucleic acid molecule of any one of claims 2 to 14, wherein the genetic cassette further comprises:

(a) an intronic sequence,

(b) a post-transcriptional regulatory element,

(c) a 3'UTR poly(A) tail sequence,

(d) an enhancer sequence, or

(e) any combination of (a) – (d).

16. The nucleic acid molecule of claim 15, wherein:

(a) the intronic sequence is positioned 5' to a nucleic acid sequence encoding the clotting factor;

(b) the post-transcriptional regulatory element comprises a mutated woodchuck hepatitis virus post-transcriptional regulatory element (WPRE), a microRNA binding site, a DNA nuclear targeting sequence, or any combination thereof;

(c) the 3'UTR poly(A) tail sequence is selected from the group consisting of bGH poly(A), actin poly(A), hemoglobin poly(A), and any combination thereof; or

(d) any combination of (a) – (c).

17. The nucleic acid molecule of claim 16, wherein:

(a) the intronic sequence comprises SEQ ID NO: 115;

(b) the microRNA binding site comprises a binding site to miR142-3p;

(c) the 3'UTR poly(A) tail sequence comprises bGH poly(A); or

(d) any combination of (a) – (c).

18. The nucleic acid molecule of any one of claims 2 to 17, wherein the nucleic acid molecule comprises in this order:

(a) the first ITR, which is an ITR of a non-AAV family member of *Parvoviridae*

selected from the group consisting of *Bocavirus*, *Dependovirus*, *Erythrovirus*, *Amdovirus*, *Densovirus*, *Iteravirus*, *Contravirus*, *Aveparvovirus*, *Copiparvovirus*, *Protoparvovirus*, *Tetraparvovirus*, *Ambidensovirus*, *Brevidensovirus*, *Hepandensovirus*, *Penstyldensovirus*,

Muscovy duck parvovirus (MDPV) strain, porcine parvovirus (U44978), mice minute virus (U34256), canine parvovirus (M19296), and mink enteritis virus (D00765);

(b) a TTP promoter;

(c) a synthetic intron;

(d) a nucleotide sequence, which encodes a clotting factor;

(e) a post-transcriptional regulatory element, which comprises WPRE;

(f) a 3'UTR poly(A) tail sequence, which comprises bGHpA; and

(g) the second ITR, which is an ITR of a non-AAV family member of *Parvoviridae*

selected from the group consisting of *Bocavirus*, *Dependovirus*, *Erythrovirus*, *Amdovirus*, *Densovirus*, *Iteravirus*, *Contravirus*, *Aveparvovirus*, *Copiparvovirus*, *Protoparvovirus*, *Tetraparvovirus*, *Ambidensovirus*, *Brevidensovirus*, *Hepandensovirus*, *Penstyldensovirus*, Muscovy duck parvovirus (MDPV) strain, porcine parvovirus (U44978), mice minute virus (U34256), canine parvovirus (M19296), and mink enteritis virus (D00765).

19. The nucleic acid molecule of any one of claims 2 to 18, wherein the clotting factor comprises factor I (FI), factor II (FII), factor V (FV), factor VII (FVII), factor VIII (FVIII), factor IX (FIX), factor X (FX), factor XI (FXI), factor XII (FXII), factor XIII (FVIII), Von Willebrand factor (VWF), prekallikrein, high-molecular weight kininogen, fibronectin, antithrombin III, heparin cofactor II, protein C, protein S, protein Z, Protein Z-related protease inhibitor (ZPI), plasminogen, alpha 2-antiplasmin, tissue plasminogen activator(tPA), urokinase, plasminogen activator inhibitor-1 (PAI-1), plasminogen activator inhibitor-2 (PAI2), or any combination thereof.

20. The nucleic acid molecule of claim 19, wherein the FVIII comprises an amino acid sequence at least about 70%, at least about 75%, at least about 80%, at least about 85%, at least about 90%, at least about 95%, at least about 96%, at least about 97%, at least about 98%, at least about 99%, or 100% identical to an amino acid sequence as set forth in a sequence selected from SEQ ID NOs: 103, 106, and 109.

21. The nucleic acid molecule of claim 19, wherein the nucleic acid encoding the FVIII comprises a nucleotide sequence of at least about 60% at least about 65%, at least about 70% at least about 75%, at least about 80%, at least about 85%, at least about 90%, at least about

95%, at least about 96%, at least about 97%, at least about 98%, at least about 99%, or about 100% identical to a nucleotide sequence of SEQ ID NO: 107.

22. The nucleic acid molecule of any one of claims 2 to 21, wherein the clotting factor comprises a heterologous moiety selected from the group consisting of albumin or a fragment thereof, an immunoglobulin Fc region, the C-terminal peptide (CTP) of the β subunit of human chorionic gonadotropin, a PAS sequence, a HAP sequence, a transferrin or a fragment thereof, an albumin-binding moiety, a derivative thereof, or any combination thereof.

23. The nucleic acid molecule of any one of claims 19 to 22, wherein the FVIII further comprises an FcRn binding partner.

24. The nucleic acid molecule of any one of claims 1 to 23, wherein the nucleic acid molecule is formulated with a delivery agent comprising a lipid nanoparticle.

25. The nucleic acid molecule of any one of claims 1 to 24, wherein the nucleic acid molecule is a single stranded nucleic acid.

26. The nucleic acid molecule of any one of claims 1 to 24, which is in the form of a closed-end DNA (ceDNA).

27. A pharmaceutical composition comprising the nucleic acid molecule of any one of claims 1 to 26 and a pharmaceutically acceptable carrier.

28. The nucleic acid molecule of any one of claims 2 to 26 or the pharmaceutical composition of claim 27, for use for expressing a clotting factor in a subject in need thereof.

29. A baculovirus system for production of the nucleic acid molecule of any one of claims 1-26 wherein the nucleic acid molecule is produced in insect cells.