What is Claimed is:

1. A composition comprising a plasmid/PEI mixture, said plasmid/PEI mixture comprising components:

(a) one or more plasmids comprising nucleic acids encoding adeno-associated virus (AAV) packaging proteins and nucleic acids encoding helper proteins;

(b) a plasmid comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest; and

(c) a polyethylenimine (PEI) solution,

wherein said plasmids of (a) and (b) are in a molar ratio range of 1:0.01 to 1:100, and wherein the mixture of said components (a), (b) and (c) has optionally been incubated for a period of time from 10 seconds to 4 hours;

(d) cells,

wherein said cells are in contact with said plasmid/PEI mixture of said components (a), (b) and (c); and

(e) Free PEI, wherein the amount of Free PEI is between 25% and 65% of Total PEI;

wherein said cells have been in contact with the mixture of said components (a), (b) and (c) and said Free PEI for at least 4 hours.

2. The composition according to Claim 1, wherein said cells have been in contact with the mixture of said components (a), (b) and (c) and said Free PEI for a period of time in the range of 4 hours to 140 hours.

3. The composition according to Claim 1, wherein said cells have been in contact with the mixture of said components (a), (b) and (c) and said Free PEI for a period of time in the range of 4 hours to 96 hours.

4. The composition according to any of Claims 1 to 3, wherein said cells produce recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

5. The composition according to any of Claims 1 to 4, wherein said composition is in a container, said container optionally comprising a flask, plate, bag, or bioreactor, said

container optionally sterile, and/or said container optionally suitable for maintaining cell viability or growth.

6. The composition according to Claim 1, further comprising a plasmid comprising nucleic acids that encode AAV capsid proteins.

7. The composition according to any of Claims 1 to 6, wherein said plasmid/PEI mixture has a PEI:plasmid weight ratio in the range of 0.1:1 to 5:1, or wherein said Free PEI/plasmid/PEI cell culture has a PEI:plasmid weight ratio in the range of 0.1:1 to 5:1.

8. The composition according to any of claims 1 to 7, wherein the PEI of said plasmid/PEI mixture and/or the Free PEI comprises a hydrolyzed linear polyethylenimine.

9. The composition according to any of claims 1 to 8, wherein the PEI of said plasmid/PEI mixture and/or said Free PEI comprises a hydrolyzed linear polyethylenimine with a molecular weight in the range of 4,000 to 160,000 and/or in the range of 2,500 to 250,000 molecular weight in free base form.

10. The composition according to Claims 1 to 9, wherein the molar ratio of nitrogen (N) in Total PEI to phosphate (P) in plasmid is in the range of 1:1 to 50:1 (N:P) in said Free PEI/plasmid/PEI cell culture.

11. The composition according to any of Claims 1 to 10, wherein said plasmid/PEI mixture is incubated for a period of time in the range of 30 seconds to 4 hours.

12. The composition according to any of Claims 4 to 11, wherein said Free PEI is added to said cells before, at the same time as, or after said plasmid/PEI mixture is contacted with said cells.

13. The composition according to any of Claims 1 to 12, wherein said cells are in suspension culture.