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 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 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. A method for producing transfected cells that produce recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest, said method comprising:

(a) providing one or more plasmids comprising nucleic acids encoding AAV packaging proteins and nucleic acids encoding helper proteins;

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

(c) providing a solution comprising polyethylenimine (PEI);

(d) mixing the plasmids of steps (a) and (b) with the PEI solution of step (c), wherein said plasmids are in a molar ratio range of 1:0.01 to 1:100, to produce a plasmid/PEI mixture, and optionally incubating said plasmid/PEI mixture for a period in the range of 10 seconds to 4 hours;

(e) contacting cells with said plasmid/PEI mixture of step (d), to produce a plasmid/PEI cell culture;

(f) adding Free PEI to said plasmid/PEI cell culture produced in step (e) to produce a Free PEI/plasmid/PEI cell culture; and

(g) incubating said Free PEI/plasmid/PEI cell culture of step (f) for at least 4 hours, thereby producing transfected cells that produce recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

8. The method according to Claim 7, further comprising the step of harvesting said transfected cells produced in steps (f) or (g) and/or culture medium from said transfected cells produced in steps (f) or (g) to produce a cell and/or culture medium harvest.

9. The method according to Claim 8, further comprising isolating and/or purifying recombinant AAV vector from said cell and/or culture medium harvest of step (g) thereby producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

10. A method for producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest, said method comprising the steps:

(a) providing one or more plasmids comprising nucleic acids encoding AAV packaging proteins and nucleic acids encoding helper proteins;

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

(c) providing a solution comprising polyethylenimine (PEI);

(d) mixing said plasmids of steps (a) and (b) with said PEI solution of step (c), wherein said plasmids are in a molar ratio range of 1:0.01 to 1:100, to produce a plasmid/PEI mixture, and optionally incubating the plasmid/PEI mixture for a period of time in the range of 10 seconds to 4 hours;

(e) contacting cells with said plasmid/PEI mixture produced in step (d), to produce a plasmid/PEI cell culture;

(f) adding Free PEI to said plasmid/PEI cell culture produced in step (e) to produce a Free PEI/plasmid/PEI cell culture;

(g) incubating said plasmid/PEI cell culture of step (e) or said Free PEI/plasmid/PEI cell culture of step (f) for at least 4 hours to produce transfected cells;

(h) harvesting said transfected cells produced in step (g) and/or culture medium from the transfected cells produced in step (g) to produce a cell and/or culture medium harvest; and

(i) isolating and/or purifying recombinant AAV vector from said cell and/or culture medium harvest produced in step (h) thereby producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

11. A method for producing transfected cells that produce recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest, said method comprising the steps:

(a) providing a mixture of components (i), (ii) and (iii):

(i) one or more plasmids comprising nucleic acids encoding AAV packaging proteins and nucleic acids encoding helper proteins;

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

(iii) a polyethylenimine (PEI) solution,

(b) mixing said plasmids (i) and (ii) with said PEI solution (iii) so that said plasmids are in a molar ratio range of 1:0.01 to 1:100, to produce a plasmid/PEI mixture, and optionally incubating said plasmid/PEI mixture for a period of time in the range of 10 seconds to 4 hours;

(c) contacting cells with said plasmid/PEI mixture produced in step (b) to produce a plasmid/PEI cell culture;

(d) adding Free PEI to said plasmid/PEI cell culture produced in step (c) to produce a Free PEI/plasmid/PEI cell culture;

(e) incubating said plasmid/PEI cell culture of step (c) or said Free PEI/plasmid/PEI cell culture of step (d) for at least 4 hours to produce transfected cells that produce recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

12. The method according to Claim 10 or 11, further comprising the step of harvesting the transfected cells produced in step (e) and/or culture medium from the transfected cells produced in step (e) to produce a cell and/or culture medium harvest; and/or isolating and/or purifying recombinant AAV vector from the cell and/or culture medium harvest of step (e), thereby producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

13. A method for producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest, comprising the step:

(a) providing a mixture of components (i), (ii) and (iii):

(i) one or more plasmids comprising nucleic acids encoding AAV packaging proteins and nucleic acids encoding helper proteins;

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

(iii) a polyethylenimine (PEI) solution,

(b) mixing said plasmids (i) and (ii) with said PEI solution (iii) so that said plasmids are in a molar ratio range of 1:0.01 to 1:100, to produce a plasmid/PEI mixture, and optionally incubating said plasmid/PEI mixture for a period of time from 10 seconds to 4 hours;

(c) contacting cells with said plasmid/PEI mixture produced in step (b) to produce a plasmid/PEI cell culture;

(d) adding Free PEI to said plasmid/PEI cell culture produced in step (c) to produce a Free PEI/plasmid/PEI cell culture;

(e) incubating said plasmid/PEI cell culture of step (c) or said Free PEI/plasmid/PEI cell culture of step (d) for at least 4 hours to produce transfected cells;

(f) harvesting said transfected cells produced in step (e) and/or culture medium from the transfected cells produced in step (e) to produce a cell and/or culture medium harvest; and

(g) isolating and/or purifying recombinant AAV vector from the cell and/or culture medium harvest produced in step (f), thereby producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

14. A method for producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest, comprising the steps:

(a) providing a mixture of components (i), (ii) and (iii):

(i) one or more plasmids comprising nucleic acids encoding AAV packaging proteins and nucleic acids encoding helper proteins;

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

(iii) a polyethylenimine (PEI) solution,

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

(b) contacting cells with the mixture produced in step (a) to produce a plasmid/PEI cell culture;

(c) adding Free PEI to said plasmid/PEI cell culture produced in step (b) to produce a Free PEI/plasmid/PEI cell culture;

(d) incubating said plasmid/PEI cell culture of step (b) or said Free PEI/plasmid/PEI cell culture of step (c) for at least 4 hours to produce transfected cells;

(e) harvesting said transfected cells produced in step (d) and/or culture medium from the transfected cells produced in step (d) to produce a cell and/or culture medium harvest; and

(f) isolating and/or purifying recombinant AAV vector from the cell and/or culture medium harvest produced in step (e), thereby producing recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

15. The composition or method according to any of Claims 1 to 14, wherein said plasmid/PEI mixture has a PEI:plasmid weight ratio in the range of about 0.1:1 to about 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.

16. The composition or method according to any of claims 1 to 15, wherein the PEI of said plasmid/PEI mixture and/or the Free PEI comprises a hydrolyzed linear polyethylenimine.

17. The composition or method according to any of claims 1 to 16, 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 about 4,000 to about 160,000 and/or in the range of about 2,500 to about 250,000 molecular weight in free base form.

18. The composition or method according to Claims 1 to 17, 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.

19. The composition or method according to any of Claims 1 to 18, wherein said plasmid/PEI mixture is incubated for a period of time in the range of 30 seconds to 4 hours.

20. The composition or method according to any of Claims 1 to 19, wherein the amount of Free PEI is in the range of 10% to 90% of Total PEI.

21. The composition or method according to any of Claims 4 to 20, 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.

22. The composition or method according to any of Claims 1 to 21, wherein said cells are in suspension culture.