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 AAV packaging proteins and/or 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 about 1:0.01 to about 1:100, or are in a molar ratio range of about 100:1 to about 1:0.01, and wherein the mixture of said components (a), (b) and (c) has optionally been incubated for a period of time from about 10 seconds to about 4 hours.

2. A composition according to Claim 1, further comprising cells.

3. A composition according to Claim 2, wherein said cells are in contact with said plasmid/PEI mixture of said components (a), (b) and (c).

4. A composition according to Claim 3, further comprising Free PEI.

5 A composition according to Claim 4, wherein said cells are in contact with said Free PEI.

6. A composition according to Claim 3, wherein said cells have been in contact with the mixture of said components (a), (b) and (c) for at least about 4 hours.

7. A composition according to Claim 3, wherein said cells have been in contact with the mixture of said components (a), (b) and (c) for a period of time in the range of about 4 hours to about 140 hours.

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

9. A composition according to Claim 5, wherein said cells have been in contact with the mixture of said components (a), (b) and (c) and said Free PEI for at least about 4 hours.

10. A composition according to Claim 5, wherein said cells have been in contact with the mixture of said components (a), (b) and (c) for a period of time in the range of about 4 hours to about 140 hours.

11. A composition according to Claim 5, wherein said cells have been in contact with the mixture of said components (a), (b) and (c) for a period of time in the range of about 4 hours to about 96 hours.

12. A composition according to any of Claims 6 to 11, wherein said cells produce recombinant AAV vector comprising a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

13. A composition according to any of Claims 1 to 12, wherein said composition comprises 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.

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

15. A composition according to Claim 14, further comprising cells in contact with said plasmid/PEI mixture of said components (a), (b) and (c) and said plasmid comprising nucleic acids that encode AAV capsid proteins.

16. A composition according to Claim 15, further comprising Free PEI, wherein said cells are in contact with said Free PEI.

17. A composition according to Claim 16, wherein said cells have been in contact with the mixture of said components (a), (b) and (c), said plasmid comprising nucleic acids that encode AAV capsid proteins, and said Free PEI for at least about 4 hours.

18. A composition according to Claim 16, wherein said cells have been in contact with the mixture of said components (a), (b) and (c), said plasmid comprising nucleic acids that encode AAV capsid proteins, and said Free PEI for a period of time in the range of about 4 hours to about 140 hours.

19. A composition according to Claim 16, wherein said cells have been in contact with the mixture of said components (a), (b) and (c), said plasmid comprising nucleic acids that encode AAV capsid proteins, and said Free PEI for a period of time in the range of about 4 hours to about 96 hours.

20. A method for producing transfected cells, said method comprising:

(a) providing a plasmid;

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

(c) mixing the plasmid of (a) with the PEI solution of (b), to produce a plasmid/PEI mixture, and optionally incubating said plasmid/PEI mixture for a period in the range of about 10 seconds to about 4 hours;

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

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

(f) incubating said Free PEI/plasmid/PEI cell culture of step (e) for at least about 4 hours, thereby producing transfected cells.

21. A method according to Claim 20, wherein said plasmid comprises a nucleic acid that encodes a protein or is transcribed into a transcript of interest.

22. 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/or 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 about 1:0.01 to about 1:100, or are in a molar ratio range of about 100:1 to about 1:0.01, to produce a plasmid/PEI mixture, and optionally incubating said plasmid/PEI mixture for a period in the range of about 10 seconds to about 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 about 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.

23. A method according to Claim 20 or 22, 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.

24. A method according to Claim 22, 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.

25. 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/or 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 about 1:0.01 to about 1:100, or are in a molar ratio range of about 100:1 to about 1:0.01, to produce a plasmid/PEI mixture, and optionally incubating the plasmid/PEI mixture for a period of time in the range of about 10 seconds to about 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 about 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.

26. 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/or 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 about 1:0.01 to about 1:100, or in a molar ratio range of

about 100:1 to about 1:0.01, to produce a plasmid/PEI mixture, and optionally incubating said plasmid/PEI mixture for a period of time in the range of about 10 seconds to about 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 about 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.

27. A method according to Claim 25 or 26, 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.

28. 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/or 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 about 1:0.01 to about 1:100, or are in a molar ratio range of about 100:1 to about 1:0.01, to produce a plasmid/PEI mixture, and optionally incubating said plasmid/PEI mixture for a period of time from about 10 seconds to about 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 about 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.

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

30. A composition or method according to any of Claims 3 to 29, wherein said plasmid/PEI cell culture, or said or said Free PEI/plasmid/PEI cell culture, or said nucleic acid/PEI cell culture is incubated for a period of time in the range of about 4 hours to about 140 hours.

31. A composition or method according to any of Claims 1 to 30, wherein said plasmid/PEI mixture has a PEI:plasmid weight ratio in the range of about 0.1:1 to about 5:1, or has a PEI:plasmid weight ratio in the range of about 5:1 to about 0.1:1, or wherein said Free PEI/plasmid/PEI cell culture has a PEI:plasmid weight ratio in the range of about 0.1:1 to about 5:1, or has a PEI:plasmid weight ratio in the range of about 5:1 to about 0.1:1.

32. A composition or method according to any of claims 1 to 31, wherein the PEI of said plasmid/PEI mixture and/or the Free PEI comprises a hydrolyzed linear polyethylenimine.

33. A composition or method according to any of claims 1 to 32, 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.

34. A composition or method according to Claims 1 to 33, wherein the molar ratio of nitrogen (N) in Total PEI to phosphate (P) in plasmid is in the range of about 1:1 to about 50:1 (N:P) in said Free PEI/plasmid/PEI cell culture.

35. A composition or method according to any of Claims 1 to 34, wherein said plasmid/PEI mixture is incubated for a period of time in the range of about 30 seconds to about 4 hours.

36. A composition or method according to any of Claims 1 to 35, wherein the amount of Free PEI is in the range of about 10% to about 90% of Total PEI.

37. A composition or method according to any of Claims 4, 5 and 9-36, 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.

38. A composition or method according to any of Claims 2 to 37, wherein said cells are in suspension culture.