We claim:

1. A method for producing glial cells comprising:

(a) providing somatic cells from a patient;

(b) culturing said somatic cells; and

(c) expressing one or more reprogramming factors selected from Sox 10, Nkx6.2, or Olig2 in said cultured somatic cells to produce a population of glial cells.

2. The method of claim 1, wherein at least two reprogramming factors selected from Sox 10, Nkx6.2, or Olig2 are expressed in said cultured somatic cells.

3. The method of claim 2, wherein all three reprogramming factors are selected from Sox 10, Nkx6.2, or Olig2 are expressed in said cultured somatic cells.

4. The method of claim 1, wherein one or more reprogramming factors selected from Olig1, Nkx2.2, ST18, MYT1 or GM98 is expressed in said cultured somatic cells.

5. The method of claim 4, wherein two or more reprogramming factors selected from Sox 10, Nkx6.2, and Olig2, and at least one reprogramming factors selected from Olig1, Nkx2.2, ST18, MYT1 or GM98 are expressed in said somatic cells.

6. The method of claim 1, wherein the one or more reprogramming factors is expressed from a vector comprising an inducible promoter.

7. The method of claim 6, wherein the vector is a lentiviral vector.

8. The method of claim 6, wherein said vector further includes a selectable marker.

9. The method of claim 1, wherein said somatic cells are fibroblasts, hematopoietic cells, adipocytes or chondrocytes.

10. The method of claim 9, wherein the somatic cells are fibroblasts.

11. The method of claim 1, further comprising a sorting step after said expressing step to sort said population of glial cells from said cultured somatic cells to produce an enriched population of glial cells, wherein said sorting step is accomplished by using one or more markers specific for glial cells.

12. The method of claim 11, wherein said one or more markers is selected from PLP-1, myelin basic protein (MBP), A2B2, A2B5, nextin, platelet-derived growth factor alpha receptor, SOXIO, Olig1, chondroitin sulphate proteoglycan NG2, myelin-associated glycoprotein, myelin oligodendrocyte glycoprotein, or galactocerebrosides 01 or GalC.

13. The method of claim 1, further comprising a step of expanding said population of glial cells after said expressing step.

14. The method of claim 1, wherein said glial cells are oligodendrocyte progenitor cells.

15. The method of claim 1, wherein one or more of the reprogramming factors are expressed from one or more endogenous genes in the somatic cells.

16. The method of claim 1, wherein one or more of the reprogramming factors are expressed from one or more exogenous genes in the somatic cells.

17. A population of glial cells produced by the method of claim 1.

18. The population of glial cells of claim 17, wherein the glial cells are oligodendrocyte progenitor cells.

19. The population of glial cells of claim 18, wherein at least 5% of said population of cells are glial cells.

20. The population of glial cells of claim 19, wherein at least 10% of said population of cells are glial cells.

21. A pharmaceutical preparation comprising the population of glial cells of claim 17.

22. An assay comprising the population of glial cells of claim 17.

23. A method for producing oligodendrocyte progenitor cells comprising:
(a) providing fibroblasts from a patient;
(b) culturing said fibroblasts; and
(c) expressing one or more reprogramming factors selected from Sox 10, Nkx6.2, and Olig2, and one or more reprogramming factors selected from Olig1, Nkx2.2, ST18, MYT1 or GM98 in said fibroblasts to produce a population of induced fibroblasts, where said induced

fibroblasts are reprogrammed into oligodendrocyte progenitor cells.

24. The method of claim 23, wherein two or more reprogramming factors selected from Sox 10, Nkx6.2, and Olig2, and at least one reprogramming factors selected from Olig1, Nkx2.2, ST18, MYT1 or GM98 are expressed in said somatic cells.

25. The method of claim 23, further comprising a step of sorting said population of oligodendrocyte progenitor cells after said expressing step.

26. The method of claim 25, further comprising a step of expanding said population of oligodendrocyte progenitor cells after said sorting step.

27. The method of claim 26, further comprising culturing said expanded population of oligodendrocyte progenitor cells in the presence of one or more of sonic hedgehog, noggin, insulin-like growth factor, neurotrophin 3 and/or triiodothryonine.

28. The method of claim 27, comprising culturing said expanded population of oligodendrocyte progenitor cells in the presence of three or more of sonic hedgehog, noggin, insulin like growth factor, neurotrophin 3 and/or triiodothryonine.

29. The method of claim 23, wherein one or more of the reprogramming factors are expressed from one or more endogenous genes in the fibroblasts.

30. The method of claim 23, wherein one or more of the reprogramming factors are expressed from one or more exogenous genes in the fibroblasts.

31. A method for producing glial cells comprising:

(a) providing fibroblasts from a patient;

(b) culturing said fibroblasts;

(c) delivering a vector driving expression of one or more reprogramming factors selected from Sox 10, Nkx6.2, and Olig2 to said fibroblasts;

(d) inducing expression of said one or more reprogramming factors to produce a population of induced fibroblasts, where said induced fibroblasts are reprogrammed into glial cells;

(e) expanding said glial cells;

(f) sorting said glial cells to produce an enriched population of glial cells; and

(g) expanding said enriched population of glial cells.

32. The method of claim 31, further comprising expressing wherein one or more reprogramming factors selected from Sox 10, Nkx6.2, and Olig2, and at least one reprogramming factors selected from Olig1, Nkx2.2, ST18, MYT1 or GM98 are expressed in said somatic cells.

33. The method of claim 31, wherein at least two reprogramming factors selected from Sox 10, Nkx6.2, or Olig2 are expressed in said somatic cells.

34. The method of claim 32, wherein all three reprogramming factors selected from Sox 10, Nkx6.2, and Olig2 are expressed in said somatic cells.

35. The method of claim 31, wherein said enriched population of glial cells comprises at least 30% glial cells.

36. The method of claim 35, wherein said enriched population of glial cells comprises at least 50% glial cells.

37. The method of claim 36, wherein said enriched population of glial cells comprises at least 80% glial cells.

38. The method of claim 36, wherein said enriched population of glial cells comprises at least 90% glial cells.

39. A pharmaceutical preparation comprising said enriched population of glial cells of claim 37.

40. An assay comprising said enriched population of glial cells of claim 38.

41. The method of claim 31, further comprising culturing said expanded population of glial cells in the presence of one or more of sonic hedgehog, noggin, insulin-like growth factor, neurotrophin 3 and/or triiodothryonine.

42. The method of claim 41, further comprising culturing said expanded population of glial cells in the presence of three or more of sonic hedgehog, noggin, insulin-like growth factor, neurotrophin 3 and/or triiodothryonine.