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 said one or more reprogramming factors is selected from Sox 10, Nkx6.2, or Olig2.~~

~~3.~~ 2. The method of ~~claim 2~~ claim 1, wherein at least two reprogramming factors selected from Sox 10, Nkx6.2, or Olig2 are expressed in said cultured somatic cells.

~~4.~~ 3. The method of ~~claim 3~~ claim 2, wherein all three reprogramming factors are selected from Sox 10, Nkx6.2, or Olig2 are expressed in said cultured somatic cells.

~~5.~~ 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.

~~6.~~ 5. The method of ~~claim 5~~ claim 4, wherein [[one]] 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.

~~7.~~ 8. The method of claim 1, wherein the one or more reprogramming factors is expressed

from a vector comprising an inducible promoter.

~~8.~~ 7. The method of ~~claim 7~~ claim 6, wherein the vector is a lentiviral vector.

~~9.~~ 8. The method of ~~claim 7~~ claim 6, wherein said vector further includes a selectable marker.

~~10.~~ 9. The method of claim 1, wherein said somatic cells are fibroblasts, hematopoietic cells, adipocytes or chondrocytes.

~~11.~~ 10. The method of ~~claim 10~~ claim 9, wherein the somatic cells are fibroblasts.

~~12.~~ 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.

~~13. The method of claim 12, wherein said sorting step is accomplished by using one or more markers specific for glial cells.~~

~~14.~~ 12. The method of ~~claim 13~~ 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.

~~15.~~ 13. The method of claim 1, further comprising a step of expanding said population of glial cells after said expressing step.

~~16.~~ 14. The method of claim 1, wherein said glial cells are oligodendrocyte progenitor cells.

~~17.~~ 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.

~~18.~~ 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.

~~19.~~ 17. A population of glial cells produced by the method of claim 1.

~~20.~~ 18. The population of glial cells of ~~claim 19~~ claim 17, wherein the glial cells are oligodendrocyte progenitor cells.

~~21.~~ 19. The population of glial cells of ~~claim 20~~ claim 18, wherein at least 5% of said population of cells are glial cells.

~~22.~~ 20. The population of glial cells of ~~claim 21~~ claim 19, wherein at least 10% of said population of cells are glial cells.

~~23~~. 21. A pharmaceutical preparation comprising the population of glial cells of ~~claim 19~~ claim 17.

~~24.~~ 22. ~~A research tool~~ An assay comprising the population of glial cells of ~~claim 19~~ claim 17.

~~25.~~ 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.

~~26. The method of claim 25, wherein said one or more reprogramming factors is selected from Sox 10, Nkx6.2, or Olig2.~~

~~27.~~ 24. The method of ~~claim 26~~ claim 23, wherein [[one]] 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.

~~28.~~ 25. The method of ~~claim 25~~ claim 23, further comprising a step of sorting said population of oligodendrocyte progenitor cells after said expressing step.

~~29.~~ 26. The method of ~~claim 28~~ claim 25, further comprising a step of expanding said population of oligodendrocyte progenitor cells after said sorting step.

~~30.~~ 27. The method of ~~claim 29~~ claim 26, further comprising culturing said expanded population of ~~glial cells~~ oligodendrocyte progenitor cells in the presence of one or more of

sonic hedgehog, noggin, insulin-like growth factor, neurotrophin 3 and/or triiodothryonine.

~~31.~~ 28. The method of ~~claim 30~~ claim 27, comprising culturing said expanded population of ~~glial cells~~ oligodendrocyte progenitor cells in the presence of three or more of sonic hedgehog, noggin, insulin like growth factor, neurotrophin 3 and/or triiodothryonine.

~~32.~~ 29. The method of ~~claim 25~~ claim 23, wherein one or more of the reprogramming factors are expressed from one or more endogenous genes in the fibroblasts.

~~33.~~ 30. The method of ~~claim 25~~ claim 23, wherein one or more of the reprogramming factors are expressed from one or more exogenous genes in the fibroblasts.

~~34.~~ 31. A method for producing ~~oligodendrocyte progenitor~~ 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, ~~Olig1, Nkx2.2, ST18, MYT1 or GM98~~ 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.

~~35. The method of claim 34, wherein said one or more reprogramming factors is selected from Sox 10, Nkx6.2, or Olig2.~~

~~36.~~ 32. The method of ~~claim 34~~ 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.

~~37.~~ 33. The method of ~~claim 36~~ claim 31, wherein at least two reprogramming factors selected from Sox 10, Nkx6.2, or Olig2 are expressed in said somatic cells.

~~38.~~ 34. The method of ~~claim 37~~ claim 32, wherein all three reprogramming factors selected from Sox 10, Nkx6.2, and Olig2 are expressed in said somatic cells.

~~39.~~ 35. The method of ~~claim 34~~ claim 31, wherein said enriched population of glial cells comprises at least 30% glial cells.

~~40.~~ 36. The method of ~~claim 39~~ claim 35, wherein said enriched population of glial cells comprises at least 50% glial cells.

~~41.~~ 37. The method of ~~claim 40~~ claim 36, wherein said enriched population of glial cells comprises at least 80% glial cells.

~~42.~~ 38. The method of ~~claim 41~~ claim 36, wherein said enriched population of glial cells comprises at least 90% glial cells.

~~43.~~ 39. A pharmaceutical preparation comprising said enriched population of glial cells of

~~claim 42~~ claim 37.

~~44.~~ 40. ~~A research tool or diagnostic tool~~ An assay comprising said enriched population of glial cells of ~~claim 42~~ 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.