CLAIMS:

1. A method for obtaining a population of oligodendrocyte progenitor cells (OPCs) from undifferentiated pluripotent stem cells, the method comprising:

a) obtaining a culture of undifferentiated pluripotent human embryonic stem cells (hESCs);

b) culturing the undifferentiated pluripotent hESCs for a first time period under culture conditions sufficient to induce differentiation of the hESCs to neuroectoderm cells and to neural progenitor cells; and

c) culturing the neural progenitor cells from step b) for a second time period under culture conditions sufficient to differentiate the neural progenitor cells to OPCs.

2. The method of claim 1, wherein the pluripotent cells in step b) are cultured on laminin in an adherent tissue culture vessel, or in a suspended complex, or both.

3. The method of claim 1, wherein the pluripotent stem cells are human embryonic stem cells (hESCs); or wherein the pluripotent stem cells are human induced pluripotent stem cells (hiPSCs).

4. The method of claim 1, wherein the undifferentiated hESCs of step b) are cultured in the presence of Dorsomorphin, PD0325901, and RA; optionally further comprising the step of culturing in the presence of AA and RA.

5. The method of claim 1, wherein the neuroectoderm cells from step b) are cultured in the presence of EGF and hsbFGF; optionally further comprising the step of culturing in the presence of EGF and PDGF-AA.

6. The method of claim 1, wherein the first time period is from about 3 days to about 60 days; optionally wherein: i) the first time period is from about 10 days to about 15 days; or ii) the first time period is about 14 days.

7. The method of claim 1, wherein the second time period is from about 10 days to about 60 days; optionally wherein i) the second time period is from about 20 days to about 40 days; or ii) the second time period is about 28 days.

8. The method of claim 1, wherein the differentiated hESCs in step b) are cryopreserved at about day 14; optionally: i) wherein the cryopreserved cells are thawed, and

wherein the subsequently thawed cells are cultured in any remaining steps of the method, further optionally wherein the cryopreserved neuroectoderm cells are thawed and cultured in accordance with step c); or ii) comprising the step of cryopreserving the neural progenitor cells from step b) at or about the completion of the first time period.

9. The method of claim 7, wherein in ii) the OPCs of step c) are cryopreserved.

10. The method of claim 9, wherein the cryopreserved OPCs are thawed.

11. The method of claim 1, wherein the OPCs express one or more markers selected from neural/glial antigen 2 (NG2), platelet-derived growth factor receptor A (PDGFRα), and platelet-derived growth factor receptor B (PDGFRβ).

12. A method of formulating an oligodendrocyte progenitor cells (OPCs) composition for administration to a subject directly after thawing, said method comprising: (a) suspending the OPCs according to claim 1 in a cryopreservation media to form a cell suspension, (b) storing the cell suspension at a cryopreservation temperature, and (c) thawing the cryopreserved suspension.

13. The method of claim 12, wherein the cryopreservation media comprises one or more of adenosine, dextran-40, lactobionic acid, HEPES (N-(2-Hydroxyethyl) piperazine-N'- (2-ethanesulfonic acid)), sodium hydroxide, L-glutathione, potassium chloride, potassium bicarbonate, potassium phosphate, dextrose, sucrose, mannitol, calcium chloride, magnesium chloride, potassium hydroxide, sodium hydroxide, dimethyl sulfoxide (DMSO), and water.

14. A pharmaceutical composition comprising the OPCs according to claim 1 and a cryopreservation media; optionally wherein the cryopreservation media comprises one or more of adenosine, dextran-40, lactobionic acid, HEPES (N-(2-Hydroxyethyl) piperazine-N'- (2-ethanesulfonic acid)), sodium hydroxide, L-glutathione, potassium chloride, potassium bicarbonate, potassium phosphate, dextrose, sucrose, mannitol, calcium chloride, magnesium chloride, potassium hydroxide, sodium hydroxide, dimethyl sulfoxide (DMSO), and water.

15. Use of the composition of claim 14 in the manufacture of a medicament for treating a spinal injury in a subject.

16. The use according to claim 15, wherein the medicament is adapted for: a) administering into or adjacent to a spinal cord injury site; or b) administering i) by injection; ii) by implantation; or iii) by transplantation.

17. The pharmaceutical composition of claim 14, wherein concentration of cells is i) about 1 x 10^6 cells per mL to about 100 x 10^6 cells per mL; or ii) 100 x 10^6 cells per mL.

18. The pharmaceutical composition of claim 14, wherein the pharmaceutical composition is stored at a volume of i) about 100 microliters to about 1 milliliter; or ii) 250 microliters; or 300 microliters.

19. The pharmaceutical composition of claim 14, wherein the cryopreservation media is a cryosolution, optionally wherein the cryosolution is CryoStor10 (CS10).

20. The pharmaceutical composition of claim 14, wherein the OPCs express one or more markers selected from neural/glial antigen 2 (NG2), platelet-derived growth factor receptor A (PDGFRα), and platelet-derived growth factor receptor B (PDGFRβ).