What is claimed is:

1. An in vitro method of producing neural stem cells (NSCs) comprising:

(a) treating human pluripotent stem cells (hPSCs) with a checkpoint kinase 1 (CK1) inhibitor and a bone morphogenic protein (BMP) inhibitor; and

(b) analyzing the cells for neural stem cell markers.

2. The method of claim 1, wherein the CK1 inhibitor is SB218078.

3. The method of claim 1, wherein the BMP inhibitor is selected from the group consisting of: Dorsomorphin, LD-193189 and DMH-1.

4. The method of claim 1, wherein the CK1 inhibitor is SB218078 and the BMP inhibitor is Dorsomorphin, or wherein the CK1 inhibitor is SB218078 and the BMP inhibitor is LD-193189, or wherein the CK1 inhibitor is SB218078 and the BMP inhibitor is DMH-1.

5. The method of claim 1, wherein the neural stem cell markers are selected from the group consisting of: BRN2, CD113, CD15, CXCR4, DCX, FABP7, FOXA2, FOX04, GFAP, LMX1A, Musashi-1, MAP2, Nestin, OTX2, PAX6, TUBB3, SOX1, SOX2, SOX3 and ST6GALNAC5 or any combination thereof.

6. An in vitro method of generating dopaminergic neurons from human pluripotent stem cells comprising:

(a) treating human pluripotent stem cells (hPSCs) with a checkpoint kinase 1 (CK1) inhibitor and a bone morphogenic protein (BMP) inhibitor;

(b) identifying neural stem cells by identifying neural stem cell markers;

(c) treating NSCs with at least one dopaminergic neuron inducing compound; and

(d) analyzing cells for dopaminergic neuron cell markers.

7. The method of claim 6, wherein the CK1 inhibitor is SB218078 and the BMP inhibitor is selected from the group consisting of: Dorsomorphin, LD-193189 and DMH-1, or wherein the CK1 inhibitor is SB218078 and the BMP inhibitor is DMH-1.

8. The method of claim 6, wherein the neural stem cell markers are selected from the group consisting of: BRN2, CD113, CD15, CXCR4, DCX, FABP7, FOXA2, FOX04, GFAP, LMX1A, Musashi-1, MAP2, Nestin, OTX2, PAX6, TUBB3, SOX1, SOX2, SOX3 and ST6GALNAC5 or any combination thereof.

9. The method of claim 6, wherein the dopaminergic neuron inducing compound is selected from the group consisting of: Homoquinolinic acid, L-Cysteinesulfinic acid, Kynurenic acid, (R)-(+)-HA-966, m-Chlorophenylbiguanide hydrochloride, Calpeptin, Dimaprit dihydrochloride, 8-Hydroxy-DPAT hydrobromide, trans-4-Hydroxycrotonic acid, Fasudil hydrochloride, Thioperamide, Retinoic acid, AM580, TTNPB, Remoxipride hydrochloride, ICI 215,001 hydrochloride, Imiloxan hydrochloride, Spiperone hydrochloride, Kenpaullone, CL 218872, CV 1808, Ro 15-4513, Linopirdine dihydrochloride, Guggulsterone, Ch 55, 3-MATIDA, SEW 2871, Immethridine dihydrobromide, LY 364947, Tranylcypromine hydrochloride, (-)-Cytisine and Nilutamide, or any combination thereof.

10. The method of claim 6, wherein the dopaminergic neuron inducing compound is Guggulsterone.

11. The method of claim 6, wherein the dopaminergic neuron cell markers are selected from the group consisting of: TUJ1, TH, Dat, Foxa2, Nurr-1, Girlc2, MAPT, SYT4, FOXA1, DDC, ASCL1, PINK1, PAX5, LMX1B, PITX3, NURR-1, LMX1A, EN1, PAX2, TFF3, PITX2, DCX, MAP2, PITX1 and VMAT2.

12. A kit for the production of NSCs comprising:

(a) a checkpoint kinase inhibitor (CK1) and a bone morphogenic protein (BMP) inhibitor;

(b) reagents to assay for neural stem cell markers; and

(c) directions for the derivation of NSCs from hPSCs.

13. A kit for the production of dopaminergic neurons comprising:

(a) a checkpoint kinase inhibitor (CK1) and a bone morphogenic protein (BMP) inhibitor;

(b) reagents to assay for neural stem cell markers;

(c) at least one dopaminergic neuron inducing compound;

(d) reagents to assay for dopaminergic neuron stem cell markers; and

(e) directions for the production of dopaminergic neurons from hPSCs.