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(71) Applicant: **NATIONAL UNIVERSITY OF SINGAPORE** [SG/SG]; 21 Lower Kent Ridge Road, Singapore 119077 (SG).

(72) Inventors: **ZHANG, Su-Chun**; c/o Duke-NUS Medical School, 8 College Road, Singapore 169857 (SG). **KANG, Phil Jun**; c/o Duke-NUS Medical School, 8 College Road, Singapore 169857 (SG).

(74) Agent: **JURISASIA LLC**; 9 Raffles Place, Republic Plaza #29-02, Singapore 048619 (SG).

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(54) Title: METHOD OF GENERATING MIDBRAIN DOPAMINE PROGENITORS AND NEURONS FROM STEM CELLS

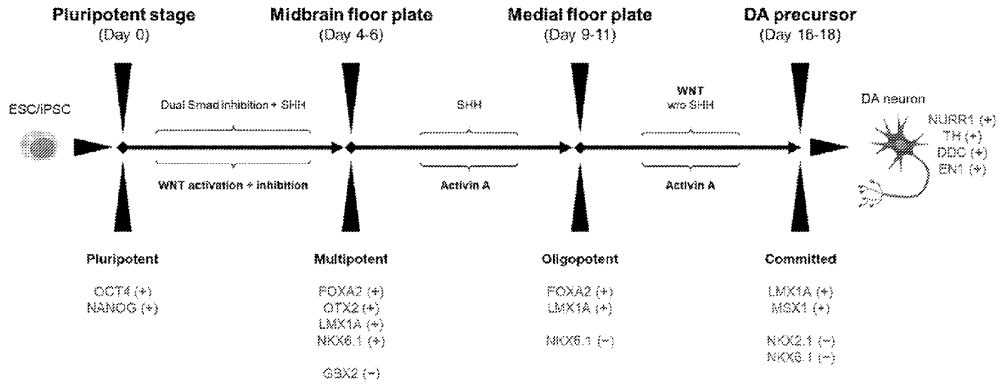


Figure 9

(57) Abstract: Disclosed is a method of generating midbrain dopamine progenitors (mDAPs) from human pluripotent stem cells (hPSCs), comprising: (a) treating hPSCs with a Wnt agonist and a Wnt antagonist, to generate midbrain floor plate progenitors (mFPPs); (b) treating the mFPPs with Activin A and a sonic hedgehog (SHH) agonist to restrict the mFPPs to medial mFPPs; and (c) removing the SHH agonist and adding the Wnt agonist to differentiate medial mFPPs to mDAPs. Also disclosed is a plurality of midbrain dopamine progenitors (mDAPs) or midbrain dopamine neurons (mDANs) generated by the method as disclosed herein, and a pharmaceutical composition comprising the plurality of mDAPs. Further disclosed is a method of treating a neurological disease of a subject, comprising administering the plurality of mDAPs or the pharmaceutical composition as disclosed herein into a neurological disease site of the subject.

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