(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 May 2006 (26.05.2006)

PCT

(10) International Publication Number
WO 2006/055685 A3

(51) International Patent Classification:
C12N 5/00 (2006.01) *A01N 63/00* (2006.01)

(21) International Application Number:
PCT/US2005/041631

(22) International Filing Date:
17 November 2005 (17.11.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/629,220 17 November 2004 (17.11.2004) US

(71) Applicant *(for all designated States except US)*: **NEURALSTEM, INC.** [US/US]; 9700 Great Seneca Hwy., Suite 240, Rockville, Maryland 20850 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **MARSALA, Martin** [US/US]; 1440 Santa Marta Ct., Solana Beach, California 92075 (US). **JOHE, Karl K.** [US/US]; 10841 Stanmore Drive, Potomac, Maryland 20854 (US). **HAZEL, Thomas G.** [US/US]; 14801 Dunleith Street, North Potomac, Maryland 20878 (US). **KAKINOHAMA, Osamu** [JP/US]; 8222 Regents Road, Apt. 204, San Diego, California 92122 (US). **KOLIATSOS, Vassilis** [US/US]; 1921 Old Court Road, Ruxton, Maryland 21104 (US). **YAN, Jun** [US/US]; 5102 Althea Drive, Annandale, Virginia 22003 (US). **REIER, Paul J.** [US/US]; 9732 SW 1st Place, Gainesville, Florida 32607 (US). **VELARDO, Margaret J.** [US/US]; 3101 N. Hampton Dr., Alexandria, Virginia 22302-1513 (US).

(74) Agents: **DAVIS, Bradley E.** et al.; Bell, Boyd & Lloyd LLC, P.O. Box 1135, Chicago, Illinois 60690-1135 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

(88) Date of publication of the international search report:
15 March 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) **Title:** TRANSPLANTATION OF HUMAN NEURAL CELLS FOR TREATMENT OF NEURODEGENERATIVE CONDITIONS

(57) **Abstract:** A method of treating neurodegenerative conditions is provided. Neural stem cells may be implanted at and/or remote from a region of neuron degeneration. The methods can include isolating neural stem cells from regions where specific types of neurons corresponding to the neurons to be replaced are generated. The methods can include isolating neural stem cells secreting growth factors affecting the growth and/or regeneration of specific types of neuron. In this invention, we disclose a method of treating such disorders, including several neurodegenerative disorders arising from the lack of cells that produce particular neurotransmitters in neural circuitry by transplanting exogenously cultured and expanded neural progenitors which, upon transplantation into a neural tissue, differentiate into neurons capable of integrating and producing neurotransmitters in sufficient quantities and in a sufficient manner to overcome the symptoms associated with the neurodegeneration.

WO 2006/055685 A3