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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 August 2015 (27.08.2015)

WIPO | PCT

(10) International Publication Number
WO 2015/124618 A1

(51) International Patent Classification:
G01N 33/50 (2006.01) *C12N 5/0793* (2010.01)

(21) International Application Number:
PCT/EP2015/053403

(22) International Filing Date:
18 February 2015 (18.02.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
14155726.4 19 February 2014 (19.02.2014) EP

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

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *with sequence listing part of description (Rule 5.2(a))*

WO 2015/124618 A1

(54) Title: GANGLIOSIDES FOR STANDARDIZING AND INCREASING THE SENSITIVITY OF CELLS TO BOTULINUM NEUROTOXINS IN *IN VITRO* TEST SYSTEMS

(57) Abstract: The present invention pertains to a method for standardizing the sensitivity of induced pluripotent stem cell (iPS)-derived neurons to a neurotoxin polypeptide, comprising the steps of: a) cultivating different batches of induced pluripotent stem cell-derived neurons in a cell culture medium comprising GT1b for at least 3 hours; b) contacting the different batches of induced pluripotent stem cell-derived neurons of step a) with a neurotoxin polypeptide; c) cultivating the different batches of induced pluripotent stem cell-derived neurons of step b) for at least 24 hours in the presence of GT1b under conditions which allow for the neurotoxin polypeptide to exert its biological activity, thereby standardizing the sensitivity of the induced pluripotent stem cell-derived neurons to a neurotoxin polypeptide. The invention further relates to a method for the generation of induced pluripotent stem cell-derived neurons having a standardized sensitivity to a neurotoxin polypeptide, comprising the steps of: a) providing different batches of induced pluripotent stem cell-derived neurons; b) cultivating the different batches of induced pluripotent stem cell-derived neurons of step a) in a cell culture medium comprising GT1b for at least 3 hours, thereby standardizing the sensitivity of the induced pluripotent stem cell-derived neurons to a neurotoxin polypeptide. In addition, encompassed by the present invention is a method for determining the biological activity of a neurotoxin polypeptide, comprising the steps of: a) cultivating induced pluripotent stem cell-derived neurons in a cell culture medium comprising GT1b for at least 3 hours; b) contacting the induced pluripotent stem cell-derived neurons of step a) with a neurotoxin polypeptide; c) cultivating the induced pluripotent stem cell-derived neurons of step b) for at least 24 hours in the presence of GT1b under conditions which allow for the neurotoxin polypeptide to exert its biological activity; and d) determining the biological activity of the neurotoxin polypeptide in said cells. Finally, the invention relates to the use of GT1b for a) standardizing the sensitivity of different batches of induced pluripotent stem cell-derived neurons to a neurotoxin polypeptide; or b) reducing the variability of the sensitivity of different batches of induced pluripotent stem cell-derived neurons to a neurotoxin polypeptide.