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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
15 March 2012 (15.03.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/032521 A3

(51) **International Patent Classification**:
*C12N 5/0735* (2010.01)

(21) **International Application Number**:
PCT/IL2011/000722

(22) **International Filing Date**:
7 September 2011 (07.09.2011)

(25) **Filing Language**: English

(26) **Publication Language**: English

(30) **Priority Data**:
61/380,388 7 September 2010 (07.09.2010) US

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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, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17**:

— *of inventorship (Rule 4.17(iv))*

**Published**:

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

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

(88) **Date of publication of the international search report**:
19 July 2012

(15) **Information about Correction**:

**Previous Correction**:
see Notice of 31 May 2012

(54) **Title**: NOVEL METHODS AND CULTURE MEDIA FOR CULTURING PLURIPOTENT STEM CELLS

(57) **Abstract**: Provided is an isolated population of human pluripotent stem cells comprising at least 50% human pluripotent stem cells characterized by an $OCT4^+/TRA1\text{-}60^-/TRA1\text{-}81^-/SSEA1^+/SSEA4^-$ expression signature, and novel methods of generating and maintaining same in a pluripotent, undifferentiated state a suspension culture devoid of cell clumps. Also provided are novel culture media for culturing pluripotent stem cells such as embryonic stem cells and induced pluripotent stem cells in a suspension culture or a two-dimensional culture system while maintaining the cells in a proliferative, pluripotent and undifferentiated state. The novel culture media comprise interleukin 11 (IL11) and Ciliay Neurotrophic Factor (CNTF); bFGF at a concentration of at least 50 ng/ml and an IL6RIL6 chimera; or an animal contaminant-free serum replacement and an IL6RIL6 chimera. Also provided are cell cultures comprising the pluripotent stem cells and the culture media and methods of using same for expanding and maintaining pluripotent stem cells in an undifferentiated state, or for generating lineage-specific cells from the pluripotent stem cells.

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