

(51) International Patent Classification:
C12N 5/00 (2006.01)(21) International Application Number:
PCT/US2014/038611(22) International Filing Date:
19 May 2014 (19.05.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/824,507 17 May 2013 (17.05.2013) US(71) Applicant: THE RESEARCH FOUNDATION FOR
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NY 14202-4040 (US).(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, LT, 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, 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))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

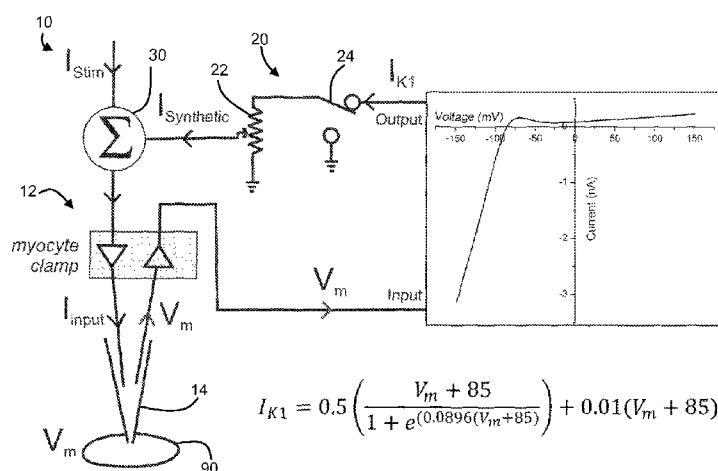
(88) Date of publication of the international search report:
5 February 2015(54) Title: ELECTRONIC EXPRESSION OF THE INWARD RECTIFIER IN CARDIOCYTES DERIVED FROM HUMAN IN-
DUCED PLURIPOTENT STEM CELLS

Fig. 1

(57) Abstract: Systems and methods are provided for improving action potential morphology in iPSC- derived cardiac myocytes and utilizing such myocytes. Improved morphology may include, for example, physiological resting membrane potentials. Membrane voltages of the myocyte are measured and a synthetic inward rectifying current is applied to the myocyte based on the membrane voltage.