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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
23 April 2020 (23.04.2020)

WIPO | PCT

(10) International Publication Number
WO 2020/079431 A1

(51) International Patent Classification:
C12M 3/00 (2006.01) *C12N 5/071* (2010.01)
C12M 1/12 (2006.01)

(21) International Application Number:
PCT/GB2019/052952

(22) International Filing Date:
16 October 2019 (16.10.2019)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1816911.0 17 October 2018 (17.10.2018) GB

(71) Applicant: **QUEEN MARY UNIVERSITY OF LONDON** [GB/GB]; Mile End Road, London E1 4NS (GB).

(72) Inventors: **HANNEN, Rosalind Francesca**; Centre for Cell Biology & Cutaneous Research, Blizard Institute of Cell and Molecular Science, Blizard Building, 4 Newark Street, London E1 2AT (GB). **CASTREJÓN-PITA, Jose Rafael**; School of Engineering & Materials Science, Queen Mary University of London, Mile End Road, London E1 4NS (GB).

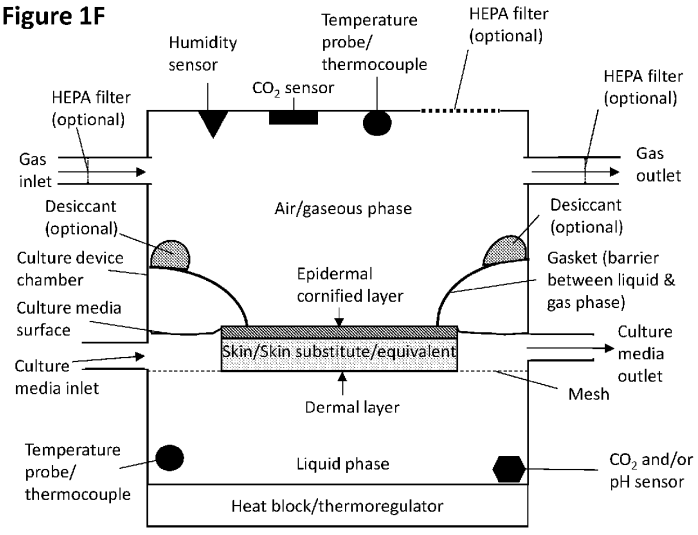
(74) Agent: **J A KEMP LLP**; 14 South Square, Gray's Inn, London WC1R 5JJ (GB).

(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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, 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).

(54) Title: SKIN CULTURING APPARATUS AND METHOD

Figure 1F



(57) Abstract: The invention provides a skin culturing apparatus configured for biphasic culturing of mammalian skin and/or a mammalian skin substitute. The apparatus comprises a first chamber that is configured to provide a gaseous environment having a relative humidity below 90% and comprising less than 5% CO_2, and a second chamber that is configured to provide tissue culture medium at a temperature of 33.0-37.5°C and pH of 6.1-7.9. The invention also provides methods for culturing mammalian skin and/or skin substitutes, as well as methods for testing mammalian skin and/or mammalian skin substitutes cultured in the skin culturing apparatus.

WO 2020/079431 A1

[Continued on next page]

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