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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 January 2022 (20.01.2022)

WIPO | PCT

(10) International Publication Number
WO 2022/015247 A1

(51) International Patent Classification:
C12N 5/071 (2010.01)

(21) International Application Number:
PCT/SG2021/050418

(22) International Filing Date:
16 July 2021 (16.07.2021)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10202006843S 17 July 2020 (17.07.2020) SG

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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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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).

Declarations under Rule 4.17:
— *of inventorship (Rule 4.17(iv))*

Published:
— *with international search report (Art. 21(3))*
— *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

WO 2022/015247 A1

(54) **Title:** GINGIVAL TISSUES AND METHODS OF PREPARATION THEREOF

(57) **Abstract:** The present invention relates to a method of preparing a three-dimensional (3D) cell composition comprising the steps of a) forming a support matrix containing oral fibroblasts suspended within the support matrix by mixing fibrinogen, a modifier and oral fibroblasts with thrombin, b) incubating the support matrix in a cell culture media for a sufficient time to allow development of a first layer of the three-dimensional cell composition, and c) seeding oral keratinocytes on a surface of the first layer and culturing the oral keratinocytes to form a second layer of the three-dimensional cell composition. In specific embodiments of the invention, the method is exemplified for the production of an artificial gingival tissue, wherein polyethylene oxide), 4-arm, succinimidyl glutarate terminated is used as the modifier. Also disclosed are uses of the 3D cell composition which include treatment of a gum disease or condition, regenerative therapy and for in vitro testing.