

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
13 July 2023 (13.07.2023)



(10) International Publication Number
WO 2023/133124 A2

(51) International Patent Classification:
A61K 35/12 (2015.01) *A61K 47/34* (2017.01)

(21) International Application Number:
PCT/US2023/010091

(22) International Filing Date:
04 January 2023 (04.01.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/296,274 04 January 2022 (04.01.2022) US

(71) Applicant: **RONAWK, LLC** [US/US]; 500 N. Rogers
Road, Suite 500-B20, Olathe, Kansas 66062 (US).

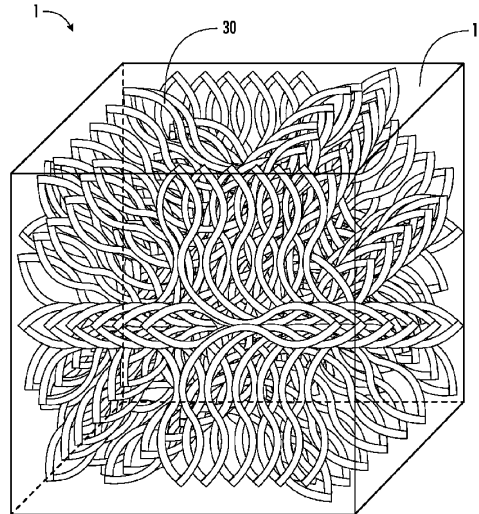
(72) Inventor: **MELLOTT, Adam J.**; 9304 NW 59th Terrace,
Parkville, Missouri 65152 (US).

(74) Agent: **JOHNSON, III, John E.** et al.; Burr & Forman
LLP, Customer No. 148433, 101 South Tryon Street, Suite
2610, Charlotte, North Carolina 28280 (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, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE,
KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU,
LY, MA, MD, 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, CV,
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,

(54) Title: **ACELLULAR SUBSTRATES AND METHODS OF MAKING THE SAME**



PRODUCT READY TO USE

FIG. 1

(57) Abstract: Acellular substrates that provide continuous 3D growth of a variety of cells and/or tissues and methods of making the same are provided. The acellular substrates have a three-dimensional (3D) macrostructure defined by a continuous matrix of extracellular matrix (ECM) material associated with a first cell type of interest and a network of microporous channels and/or chambers extending throughout the continuous matrix of ECM material associated with the first cell type of interest. Methods of forming a personalized graft using a patient's own cells is also provided.

[Continued on next page]



WO 2023/133124 A2

DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,
LV, MC, ME, 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:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

- *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*