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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 February 2016 (25.02.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/029153 A1

(51) **International Patent Classification**:
C12P 19/34 (2006.01) *C12N 9/00* (2006.01)

(21) **International Application Number**:
PCT/US2015/046369

(22) **International Filing Date**:
21 August 2015 (21.08.2015)

(25) **Filing Language**: English

(26) **Publication Language**: English

(30) **Priority Data**:
62/040,284 21 August 2014 (21.08.2014) US

(71) **Applicant**: **MANUS BIOSYNTHESIS, INC.** [US/US]; 1030 Massachusetts Avenue, Cambridge, MA 02138 (US).

(72) **Inventors**: **KUMARAN, Ajikumar, Parayil**; C/o Manus Biosynthesis, Inc., 1030 Massachusetts Avenue, Cambridge, MA 02138 (US). **LIM, Chin, Giaw**; C/o Manus Biosynthesis, Inc., 1030 Massachusetts Avenue, Cambridge, MA 02138 (US). **LI, Liwei**; C/o Manus Biosynthesis, Inc., 1030 Massachusetts Avenue, Cambridge, MA 02138 (US). **GHOSH, Souvik**; C/o Manus Biosynthesis, Inc., 1030 Massachusetts Avenue, Cambridge, MA 02138 (US). **PIRIE, Christopher**; C/o Manus Biosynthesis, Inc., 1030 Massachusetts Avenue, Cambridge, MA 02138 (US). **QUALLEY, Anthony**; C/o Manus Biosynthesis, Inc., 1030 Massachusetts Avenue, Cambridge, MA 02138 (US).

(74) **Agents**: **HAYMAN, Mark L.** et al.; Morgan, Lewis & Bockius LLP, 1111 Pennsylvania Avenue, NW, Washington, D.C. 20004 (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, 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.

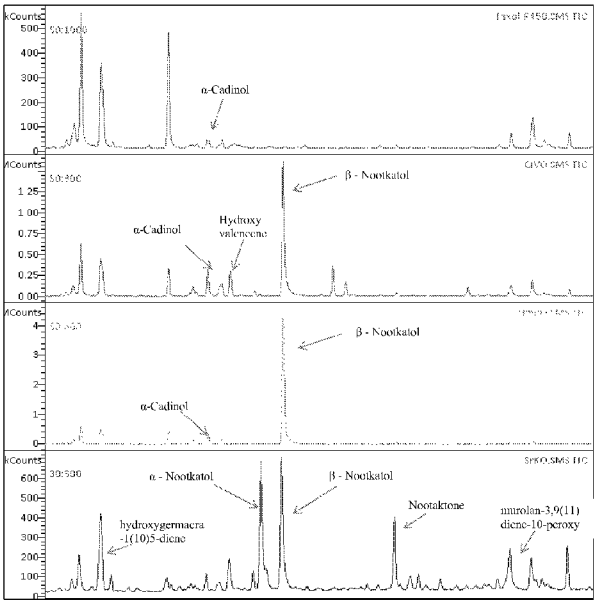
(84) **Designated States** *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU,

[Continued on next page]

(54) **Title**: METHODS FOR PRODUCTION OF OXYGENATED TERPENES

(57) **Abstract**: The present invention relates to methods for producing oxygenated terpenoids. Polynucleotides, derivative enzymes, and host cells for use in such methods are also provided.

Figure 7



WO 2016/029153 A1

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))*

— *with amended claims (Art. 19(1))*

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