

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
31 October 2024 (31.10.2024)



(10) International Publication Number
WO 2024/226805 A3

(51) International Patent Classification:

G16H 50/20 (2018.01) G16B 40/20 (2019.01)
G16B 20/00 (2019.01) G06N 20/00 (2019.01)

(21) International Application Number:

PCT/US2024/026282

(22) International Filing Date:

25 April 2024 (25.04.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/498,177 25 April 2023 (25.04.2023) US
63/595,189 01 November 2023 (01.11.2023) US

(71) Applicants: RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY [US/US]; 83 Somerset Street, New Brunswick, NJ 08901 (US). SHANGHAI JIAO TONG UNIVERSITY [CN/CN]; 800 Dongchuan Rd, Minhang District, Shanghai, 200240 (CN).

(72) Inventors; and

(71) Applicants: ZHAO, Liping [US/US]; C/o Rutgers, The State University Of New Jersey, 83 Somerset Street, New Brunswick, NJ 08901 (US). WU, Guojun [US/US]; C/o Rutgers, The State University Of New Jersey, 83 Somerset Street, New Brunswick, NJ 08901 (US). ZHANG, Chen-hong [CN/CN]; C/o Shanghai Jiao Tong University, 800 Dongchuan Rd, Minhang District, Shanghai, 200240 (CN).

(74) Agent: ANTCZAK, Andrew, J. et al.; Morgan, Lewis & Bockius LLP, One Market, Spear Street Tower, San Francisco, CA 94105 (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, MU, 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, SC, 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, 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).

Published:

— with international search report (Art. 21(3))
— with sequence listing part of description (Rule 5.2(a))

(88) Date of publication of the international search report:

06 March 2025 (06.03.2025)

WO 2024/226805 A3

(54) Title: METHODS FOR PREDICTING RESPONSE TO A THERAPY FOR A DISORDER THROUGH CORE MICROBIOME GUILDS

(57) Abstract: Methods and systems for predicting a subject's response to a therapy by obtaining a first plurality of nucleic acid sequences for genomic DNA from a sample from the gut of a subject. Determine, from the nucleic acid sequences, a plurality of genomic abundance values for a plurality of gut bacteria. Apply a model to the plurality of genomic abundance values, thereby obtaining the prediction of a subject's response to a therapy as an output of the model.