

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

(19) World Intellectual Property
Organization
International Bureau



WIPO | PCT



(10) International Publication Number
WO 2016/038157 A1

(43) International Publication Date
17 March 2016 (17.03.2016)

- (51) **International Patent Classification:**
G01N 33/574 (2006.01)
- (21) **International Application Number:**
PCT/EP2015/070752
- (22) **International Filing Date:**
10 September 2015 (10.09.2015)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
14184200.5 10 September 2014 (10.09.2014) EP
- (71) **Applicants:** **IDCGS CLÍNICA DE DIAGNÓSTICOS MÉDICOS LTDA** [BR/BR]; Avenida Professor Noé de Azevedo 208, 13RD, Vila Mariana, 04117-000 São Paulo (BR). **BIOCRATES LIFE SCIENCES AG** [AT/AT]; Eduard-Bodem-Gasse 8, A-6020 Innsbruck (AT). **FUNDAÇÃO PIO XII HOSPITAL DE CÂNCER DE BARRETOS CNPJ/MF** [BR/BR]; Rua Antenor Duarte Vilela, Dr Paulo Prata, 2450 SP, 04117-0 São Paulo (BR).
- (72) **Inventors:** **LOPES CARVALHO, Andre**; Fundação Pio XII Hospital de Câncer de Barretos CNPJ/MF, Rua Antenor Duarte Vilela, 1331, Doutor Paulo Prata, 14780-000 Barretos (BR). **DA COSTA VIEIRA, René Aloisio**; Fundação Pio XII Hospital de Câncer de Barretos CNPJ/MF, Rua Antenor Duarte Vilela, 1331, Doutor Paulo Prata, 14780-000 Barretos (BR). **GUERREIRO DA SILVA, Ismael Dale Cotrim**; IDCGS Clinica de Diagnosticos Medicos LTDA, Avenida Professor Noé de Azevedo 208, 13RD Floor, Vila Mariana, 04117-000 São Paulo (BR). **GUIMARAES LO TURCO, Edson**; IDCGS Clinica de Diagnosticos Medicos LTDA, Avenida Profess-
- or Noé de Azevedo 208, 13RD Floor, Vila Mariana, 04117-000 São Paulo (BR). **KOAL, Therese**; Biocrates Life Sciences AG, Eduard-Bodem-Gasse 8, A-6020 Innsbruck (AT).
- (74) **Agent:** **TER MEER STEINMEISTER & PARTNER PATENTANWÄLTE MBB**; Nymphenburger Straße 4, 80335 München (DE).
- (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, 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))*

(54) **Title:** BIOMARKERS FOR ASSESSING BREAST CANCER

(57) **Abstract:** The present invention relates to a metabolic biomarker set for use in assessing breast cancer in a mammalian subject. In particular, the invention relates to a metabolic biomarker set for screening and/or diagnosing breast cancer, the metabolic biomarker set comprising at least (a) one amino acid selected from glutamine, glutamate and serine, and one lipid, or (b) glutamine and glutamate. Further, the invention relates to a metabolic biomarker set for prediction of therapeutic response to breast cancer neoadjuvant chemotherapy. Further, the invention relates to a metabolic biomarker set for assessing biochemical reflection of breast cancer tumor activity. Further, the invention relates to a metabolic biomarker set for subclassification between intrinsic breast cancer tumor subtypes. Moreover, the present invention relates to a method for assessing breast cancer, which comprises obtaining a biological sample, preferably blood, from a mammalian subject and measuring in the biological sample the amount and/or ratios of metabolites. By employing the specific biomarkers and the method according to the present invention it becomes possible to more properly and reliably assess breast cancer.



WO 2016/038157 A1