

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

(19) World Intellectual Property  
Organization

International Bureau

(43) International Publication Date  
08 February 2024 (08.02.2024)



(10) International Publication Number  
**WO 2024/031030 A2**

(51) International Patent Classification:  
*A61K 41/00* (2020.01) *A61P 25/00* (2006.01)

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).

(21) International Application Number:  
PCT/US2023/071631

**Published:**

(22) International Filing Date:  
03 August 2023 (03.08.2023)

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

(25) Filing Language: English

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

(26) Publication Language: English

(30) Priority Data:  
63/370,375 03 August 2022 (03.08.2022) US

(72) Inventor; and

(71) Applicant: **SHI, Xiandong** [US/US]; 64 Sandy Hollow  
Road, Port Washington, NY 11050 (US).

(72) Inventors: **CHENG, Xingguo**; 19913 26th Ave, Flushing,  
NY 11358 (US). **Ji, Yue**; 149-36 Cherry Ave, Flushing, NY  
11355 (US). **YAN, Zhanqing**; 7 Dorchester Dr, Glen Head,  
NY 11545 (US). **TAN, Jianyou**; 145 Lawrence Drive, Short  
Hills, NY 07078 (US).

(74) Agent: **WONG, Mei, Lin**; 1370 Valley Vista Drive, Suite  
200, Diamond Bar, CA 91765 (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,

(54) Title: QUANTITATIVE METHOD OF DETERMINING A MENTAL STATUS BASED ON DRD1 AND/OR DRD5, AND ITS APPLICATION THEREOF

(57) Abstract: A method of treatment of mental disorder of a subject includes the steps of: normalizing an expression of both DRD1 and DRD5, which belong to DRD1-like family, of the subject to a preset standard level. The DRD1/5 level and expression can be increased or decreased bidirectionally by targeting an upstream promoter sequence of DRD1/5. The promoter activity of DRD1/5 can be attenuated by using an antipsychotic which directly targets the DRD1/5 promoter. The antipsychotics being used are typical and/or atypical antipsychotic medications such as Haloperidol, Risperidone, Clozapine and Cariprazine. The treatment is also useful for the subject with an impaired constitutive expression of DRD1/5 gene. The method can be used to treat schizophrenia, autism, depression, mania and bipolar disorders by normalizing the DRD1/5 expression level. The promoter gene sequencing of DRD1 and/or DRD5 can also be used for quantitative mental health screening through comparing with a standard sequence database.

WO 2024/031030 A2