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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
15 March 2007 (15.03.2007)

PCT

(10) International Publication Number
WO 2007/028654 A1

(51) International Patent Classification:
C07D 513/04 (2006.01) *A61K 31/542* (2006.01)
C07D 487/04 (2006.01) *A61K 31/4439* (2006.01)
C07D 498/04 (2006.01) *A61K 31/551* (2006.01)
A61K 31/4985 (2006.01) *A61P 25/00* (2006.01)
A61K 31/5383 (2006.01)

(21) International Application Number:
PCT/EP2006/008845

(22) International Filing Date:
7 September 2006 (07.09.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0518472.6 9 September 2005 (09.09.2005) GB
0611153.8 6 June 2006 (06.06.2006) GB

(71) Applicant *(for all designated States except US)*: **SMITHKLINE BEECHAM CORPORATION** [US/US]; One Franklin Plaza, PO Box 7929, Philadelphia, Pennsylvania 19101 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ALVARO, Giuseppe** [IT/IT]; GlaxoSmithKline SpA, Via Alessandro Fleming 2, I-37135 Verona (IT). **ANDREOTTI, Daniele** [IT/IT]; GlaxoSmithKline SpA, Via Alessandro Fleming 2, I-37135 Verona (IT). **BELVEDERE, Sandro** [IT/IT]; GlaxoSmithKline SpA, Via Alessandro Fleming 2, I-37135 Verona (IT). **DI FABIO, Romano** [IT/IT]; GlaxoSmithKline SpA, Via Alessandro Fleming 2, I-37135 Verona (IT). **FALCHI, Alessandro** [IT/IT]; GlaxoSmithKline SpA, Via Alessandro Fleming 2, I-37135 Verona (IT). **GIOVANNINI, Riccardo** [IT/IT]; GlaxoSmithKline SpA, Via Alessandro Fleming 2, I-37135 Verona (IT).

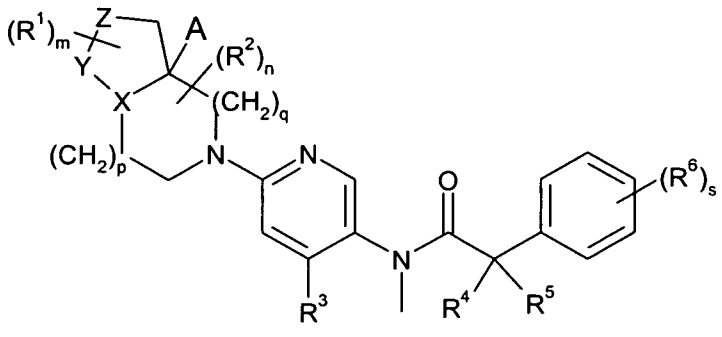
(74) Agent: **DOLTON, Peter**; GlaxoSmithKline, Corporate Intellectual Property, Cn925.1, 980 Great West Road, Brentford Middlesex TW8 9GS (GB).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: PYRIDINE DERIVATIVES AND THEIR USE IN THE TREATMENT OF PSYCHOTIC DISORDERS



(I)

(57) Abstract: There are provided according to the invention novel compounds of formula (I) or a pharmaceutically acceptable salt thereof: (I) wherein: X represents a nitrogen atom; Y represents $-C(H_2)-$, $(-C(H_2)-)_2$, $-S(O_2)-$ or $-C(=O)-$; Z represents $-C(H_2)-$, $-S(O_2)-$, $-N(R^z)-$, or an oxygen or sulphur atom; A represents hydrogen or $-CH_2OH$; R^z represents hydrogen, C_{1-6} alkyl, C_{1-6} alkoxy, -COR7 or -SO2R7; R^1 represents halogen, C_{1-6} alkyl, C_{1-6} alkoxy, =O, haloC_{1-6} alkyl, haloC_{1-6} alkoxy, hydroxyl or $-CH_2OH$; m represents an integer from 0 to 3; R^2 represents halogen, =O, C_{1-6}alkyl (optionally substituted by one or more hydroxyl groups), $-COOR^7$, $-CONR^7R^8$, C_{1-6} alkoxy, haloC_{1-6} alkyl, haloC_{1-6}alkoxy or C_{1-6} alkyloC_{1-6} alkyl; n represents an integer from 0 to 3; p and q independently represent an integer from 0 to 2; R^3 represents an -aryl, -heteroaryl, -heterocyclyl, -aryl-aryl, -aryl-heteroaryl, -aryl-heterocyclyl, -heteroaryl-aryl, -heteroaryl-heteroaryl, -heteroaryl-heterocyclyl, -heterocyclyl-aryl, -heterocyclyl-heteroaryl or -heterocyclyl-heterocyclyl group, all of which may be optionally substituted by one or more (e.g. 1, 2 or 3) halogen, C_{1-6} alkyl (optionally substituted by one or more hydroxyl groups), C_{3-8}cycloalkyl, C_{1-6} alkoxy, hydroxyl, haloC_{1-6}alkyl, haloC_{1-6} alkoxy, cyano, $-S-C_{1-6}$ alkyl, $-SO-C_{1-6}$ alkyl, $-SO_2-C_{1-6}$ alkyl, $-COR^7$, $-CONR^7R^8$, $-NR^7R^8$, $-NR^7COC_{1-6}$ alkyl, $-NR^7SO_2-C_{1-6}$alkyl, C_{1-6} alkyl-NR^7R^8, $-OCONR^7R^8$, $-NR^7CO_2R^8$ or $-SO_2NR^7R^8$ groups; R^4 and R^5 independently represent C_{1-6} alkyl, or R^4 and R^5 together with the carbon atom to which they are attached may together form a C_{3-8}cycloalkyl group; R6 represents halogen, C_{1-6} alkyl, C_{3-8}cycloalkyl, C_{1-6} alkoxy, haloC_{1-6} alkyl or haloC_{1-6} alkoxy; s represents an integer from 0 to 4; R^7 and R^8 independently represent hydrogen, C_{1-6} alkyl or C_{3-8}cycloalkyl; or solvates thereof.

WO 2007/028654 A1

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.