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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 April 2003 (24.04.2003)

PCT

(10) International Publication Number
WO 03/032996 A1

(51) International Patent Classification[7]: A61K 31/505, A61P 25/00, C07D 487/14 // (C07D 487/14, 249:00, 239:00, 235:00)

(21) International Application Number: PCT/US02/32630

(22) International Filing Date: 11 October 2002 (11.10.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/329,567 15 October 2001 (15.10.2001) US

(71) Applicant: SCHERING CORPORATION [US/US]; 2000 Galloping Hill Road, Kenilworth, NJ 07033-0530 (US).

(72) Inventors: TULSHIAN, Deen; 4 Saddle Ridge Drive, Lebanon, NJ 08833 (US). SILVERMAN, Lisa, S.; 214 Hana Road, Edison, NJ 08817 (US). MATASI, Julius, J.; 16 Putnam Road, Monmouth Junction, NJ 08852 (US). KISELGOF, Eugenia, Y.; 14 Hendrick Road, Flemington, NJ 08822 (US). CALDWELL, John, P.; 86 Upper Lakeview Avenue, Ringwood, NJ 07456 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, HR, HU, ID, IL, IN, IS, JP, KG, KR, KZ, LC, LK, LR, LT, LU, LV, MA, MD, MG, MK, MN, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UZ, VC, VN, YU, ZA, ZM.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, HR, HU, ID, IL, IN, IS, JP, KG, KR, KZ, LC, LK, LR, LT, LU, LV, MA, MD, MG, MK, MN, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UZ, VC, VN, YU, ZA, ZM, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

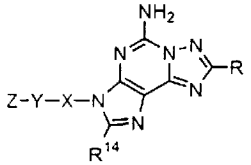
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

Published:

— *with international search report*

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.

(54) Title: IMIDAZO (4,3-E)-1,2,4-TRIAZOLO(1,5-C) PYRIMIDINES AS ADENOSINE A2A RECEPTOR ANTAGONISTS



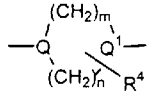
(I)



(a)



(b)



(II)

(57) Abstract: Compounds having the structural formula (I) or a pharmaceutically acceptable salt thereof, wherein R is optionally substituted phenyl or heteroaryl, cycloalkenyl, -C(=CH2)CH3, -C°C-CH3, -CH=C(CH3)2, X is alkylene, -C(O)CH2- or -C(O)N(R2)CH2-;Y is -N(R2)CH2CH2N(R3)-, -OCH2CH2N(R2)-, -O-, -S-, -CH2S-, -(CH2)2-N(R2)-, or optionally substituted divalent heteroaryl, piperidinyl or piperazinyl; and Z is optionally substituted phenyl, phenylalkyl or heteroaryl, diphenylmethyl or R6-C(O)-; or when Y is formula (II) Z is also R6-SO2-, R7-N(R8)-C(O)-, R7-N(R8)-C(S)- or R6OC(O)-;or when Y is 4-piperidinyl, Z can be phenylamino or pyridylamino; or Z and Y together are substituted piperidinyl, substituted pyrrolidinyl or substituted phenyl; R14 is H, halogen or optionally substituted alkyl; and Q, Q1, m, n, R2, R3, R4, R6, R7 and R8 are as defined in the specification are disclosed, their use in the treatment of Parkinson's disease, alone or in combination with other agents for treating Parkinson's disease, and pharmaceutical compositions comprising them.

WO 03/032996 A1