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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
29 November 2001 (29.11.2001)

PCT

(10) International Publication Number
WO 01/90081 A1

(51) International Patent Classification[7]: C07D 241/08, 223/10, 267/10, 243/08, 207/27, 211/76, 225/02, 265/10, 267/22, 279/06, 239/10, 243/04, 405/12, 401/12, 409/12, 409/06, 411/12, 417/12, 413/06, 405/06, 403/12, 417/14, 417/06, 401/06, 403/06, 405/14, 409/14, 413/14, A61K 31/395, 31/495, 31/55, A61P 1/06, 11/06, 13/06, 21/02

(21) International Application Number: PCT/EP01/05584

(22) International Filing Date: 16 May 2001 (16.05.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/207,483 25 May 2000 (25.05.2000) US
60/267,579 9 February 2001 (09.02.2001) US

(71) Applicant: F. HOFFMANN-LA ROCHE AG [CH/CH]; 124 Grenzacherstrasse, CH-4070 Basle (CH).

(72) Inventors: DVORAK, Charles, Alois; 525 Ashton Avenue, Palo Alto, CA 94306 (US). FISHER, Lawrence, Emerson; 1036 Marilyn Drive, Mountain View, CA 94040 (US). GREEN, Keena, Lynn; 6043 Joaquin Murieta Avenue #J, Newark, CA 94560 (US). HARRIS, Ralph, New, III; 65-D Clinton Street, Redwood City, CA 94062 (US). MAAG, Hans; 745 Stanford Avenue, Menlo Park, CA 94025 (US). PRINCE, Anthony; 36 Farm Road, Los Altos, CA 94024 (US). REPKE, David, Bruce; 406 South Temple Drive, Milpitas, CA 95035 (US). STABLER, Russell, Stephen; 348 North Rengstorff Avenue, Mountain View, CA 94043 (US).

(74) Agent: WAECHTER, Dieter; 124 Grenzacherstrasse, CH-4070 Basle (CH).

(81) Designated States *(national)*: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CO, CU, CZ, DE, DK, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW.

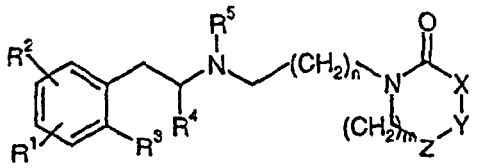
(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML,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

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.

WO 01/90081 A1

(54) Title: SUBSTITUTED 1-AMINOALKYL-LACTAMS AND THEIR USE AS MUSCARINIC RECEPTOR ANTAGONISTS



(I)

(57) Abstract: This invention relates to compounds which are generally muscarinic M2/M3 receptor antagonists and which are represented by Formula (I) wherein one of X, Y or Z is independently -S-,-0- CH_2- or >N-R^6, the others are -CH_2-; m is an integer from 0 to 3 inclusive; n is an integer from 1 to 6 inclusive; R^4 is (C_{1-6})-alkyl; R^5 is independently in each occurrence (C_{1-6})-alkyl, (C_{1-6})-alkenyl, (C_{1-6})- alkynyl or cycloalkyl; and R^1, R^2, and R^3 are hydrogen or specified substituents. These compounds are useful for treating diseases associated with smooth muscle disorders.