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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
8 August 2002 (08.08.2002)

PCT

(10) International Publication Number
WO 02/060898 A1

(51) International Patent Classification[7]: C07D 417/12, A61P 11/06, 29/00, C07D 277/56, A61K 31/427

(21) International Application Number: PCT/IB01/02728

(22) International Filing Date:
24 December 2001 (24.12.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/265,486 31 January 2001 (31.01.2001) US

(71) Applicant *(for all designated States except US)*: **PFIZER PRODUCTS INC.** [US/US]; Eastern Point Road, Groton, CT 06340 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **MARFAT, Anthony** [US/US]; Pfizer Global Research and Development, Eastern Point Road, Groton, CT 06340 (US). **MCKECHNEY, Michael, William** [US/US]; 1 Canon Ridge, Fairport, NY 14450 (US).

(74) Agents: **LUMB, J., Trevor** et al.; Pfizer Inc., 201 Tabor Road, Morris Plains, NJ 07950 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, 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, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(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, 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, GQ, 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 02/060898 A1

(54) Title: THIAZOLYL-, OXAZOLYL-, PYRROLYL-, AND IMIDAZOLYL-ACID AMIDE DERIVATIVES USEFUL AS INHIBITORS OF PDE4 ISOZYMES

(57) Abstract: Compounds useful as inhibitors or PDE4 in the treatment of diseases regulated by the activation and degranulation of eosinophils, especially asthma, chronic bronchitis, and chronic obstructive pulmonary disease, of the formula (I), where j is 0 or 1; k is 0 or 1; m is 0, 1, 2 or 3; n is 1 or 2; W^1 is -O-; or $-S(=O)_t-$, where t is 0, 1 or 2; or $-N(R^3)-$; W^2 is $-O-CR^AR^B-$ or is absent; Y is $=C(R^1{}_a)-$ or $-[N\Rightarrow(O)_k]-$ where k is 0 or 1; R^A and R^B are -H; -F; $-CF_3$; $-(C_1-C_4)$ alkyl; $-(C_3-C_7)$ cycloalkyl; phenyl; or benzyl substituted with 0 to 3 substituents R^{10}; or R^A and R^B are taken together, but only in the case where m is 1, to form a spiro moiety; R^C and R^D have the same meaning as R^A and R^B except that one of them must be -H, R^1 and R^2 are -H; -F; -CI;- CN; $-NO_2$; $-(C_1-C_4)$ alkyl; $-(C_2-C_4)$ alkynyl; fluorinated $-(C_1-C_3)$ alkyl; $-OR^{16}$; and $-C(=O)NR^{22}{}_aR^{22}{}_b$; R^3 is H; $-(C_1-C_3)$ alkyl; phenyl; benzyl; or $-OR^{16}$; R^4, R^5 and R^6 in addition to other meanings may be taken together to form formula (II), G^1 is a saturated or unsaturated carbon ring system; where optionally one carbon atom may be replaced by a heteroatom selected from N, O, and S; $-G^2$ is a saturated or unsaturated carbon ring system; wherein one carbon atom of may be replaced by a heteroatom selected from N, O, and S; and E is selected from formula (III).