

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
12 June 2003 (12.06.2003)

PCT

(10) International Publication Number
WO 03/047516 A2(51) International Patent Classification⁷: **A61K**

(21) International Application Number: PCT/US02/38161

(22) International Filing Date:
27 November 2002 (27.11.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/000,742 30 November 2001 (30.11.2001) US
10/192,347 10 July 2002 (10.07.2002) US(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:
US 10/000,742 (CON)
Filed on 30 November 2001 (30.11.2001)
US 10/192,347 (CON)
Filed on 10 July 2002 (10.07.2002)(71) Applicant (for all designated States except US): **SYNTA PHARMACEUTICALS CORPORATION** [US/US]; 45 Hartwell Avenue, Lexington, MA 02421 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ONO, Mitsunori** [JP/US]; 31 Gleason Road, Lexington, MA 02420 (US). **SUN, Lijun** [CN/US]; 148 Depot Rd., Harvard, MA 01451 (US). **PRZEWLOKA, Teresa** [PL/US]; 3 Baron Park Lane #20, Burlington, MA 01803 (US). **ZHANG, Shijie** [CN/US]; 52 Cadogan Way, Nashua, NH 03062(US). **KOSTIK, Elena** [RU/US]; 10B Park Terrace, Arlington, MA 02474 (US). **YING, Weiwen** [CN/US]; 55 Littleton Road, Unit 29B, Ayer, MA 01432 (US). **WADA, Yumiko** [JP/US]; 16 Kings Way #201B, Waltham, MA 02451 (US). **KOYA, Keizo** [JP/US]; 234 Bonad Road, Chestnut Hill, MA 02467 (US). **WU, Yaming** [US/US]; 6 Scotland Road, Lexington, MA 02420 (US). **ZHOU, Dan** [US/US]; 64 Blossomcrest Road, Lexington, MA 02421 (US). **TATSUTA, Noriaki** [JP/US]; 132 Lowell Street, Lexington, MA 02420 (US).(74) Agent: **TSAO, Rocky, Y.**; Fish & Richardson PC, 225 Franklin Street, Boston, MA 02110-2804 (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, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

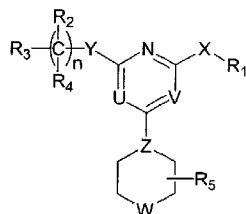
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,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

Published:

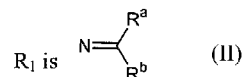
— without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: PYRIMIDINE COMPOUNDS



(I)



(II)

(57) **Abstract:** This invention features pyrimidine compounds of formula (I): R_1 is formula (II), aryl, or heteroaryl; each of R_2 and R_4 , independently, is R^c , halogen, nitro, cyano, isothionitro, SR^c , or OR^c ; or R_2 and R_4 , taken together, is carbonyl; R_3 is R^c , alkenyl, alkynyl, OR^c , $OC(O)R^c$, SO_2R^c , $S(O)R^c$, $S(O_2)NR^cR^d$, SR^c , NR^cR^d , NR^cCOR^d , $NR^cC(O)OR^d$, $NR^cC(O)NR^cR^d$, $NR^cSO_2R^d$, COR^c , $C(O)OR^c$, or $C(O)NR^cR^d$; R_5 is H or alkyl; n is 0, 1, 2, 3, 4, 5, or 6; X is O, S, $S(O)$, $S(O_2)$, or NR^c ; Y is a covalent bond, CH_2 , $C(O)$, $C=N-R^c$, $C=N-OR^c$, $C=N-SR^c$, O, S, $S(O)$, $S(O_2)$, or NR^c ; Z is N or CH; one of U and V is N, and the other is CR^c ; and W is O, S, $S(O)$, $S(O_2)$, NR^c , or $NC(O)R^c$; in which each of R^a and R^b , independently, is H, alkyl, aryl, heteroaryl; and each of R^c and R^d , independently, is H, alkyl, aryl, heteroaryl, cyclyl, heterocyclyl, or alkylcarbonyl. The compounds are useful for treating IL-12 overproduction related diseases (e.g., rheumatoid arthritis, sepsis, Crohn's disease, multiple sclerosis, psoriasis, or insulin-dependent diabetes mellitus).



WO 03/047516 A2



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.