



(43) International Publication Date
4 April 2013 (04.04.2013)

(10) International Publication Number
WO 2013/048214 A2

- (51) **International Patent Classification:** Not classified
- (21) **International Application Number:**
PCT/KR2012/007965
- (22) **International Filing Date:**
28 September 2012 (28.09.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
10-2011-0100369
30 September 2011 (30.09.2011) KR
10-2012-0033444 30 March 2012 (30.03.2012) KR
- (71) **Applicant:** **C&C RESEARCH LABORATORIES** [KR/KR]; DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR).
- (72) **Inventors:** **HO, Pil Su**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR). **YOON, Dong Oh**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR). **HAN, Sun Young**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR). **LEE, Won Il**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR). **KIM, Jung Sook**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR). **PARK, Woul Seong**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR). **AHN, Sung Oh**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Su-

won-si, Gyeonggi-do 440-746 (KR). **KIM, Hye Jung**; C&C Research Labs., DRC, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 440-746 (KR).

(74) **Agent:** **CHOL, Kyu Pal**; Halla Classic Building 4F., 824-11, Yeoksam-dong, Kangnam-gu, Seoul 135-080 (KR).

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (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 (Rule 48.2(g))*

(54) **Title:** NOVEL HETEROCYCLIC DERIVATIVES AND THEIR USES

(57) **Abstract:** The present invention relates to novel heterocyclic compounds useful in preparing drugs for treatment of diseases associated with various functions of the histamine 4 receptor. Especially, the said drugs are useful for treatment of inflammatory diseases, allergy, pain, nasal polyps, rhinitis, chronic sinusitis, nasal congestion, nasal itch, asthma, chronic obstructive pulmonary disease, rheumatoid arthritis, atopic dermatitis, psoriasis, eczema, pruritus, itchy skin, urticaria, idiopathic chronic urticaria, scleroderma, conjunctivitis, keratoconjunctivitis, ocular inflammation, dry eye, cardiac dysfunction, arrhythmia, atherosclerosis, multiple sclerosis, inflammatory bowel disease (including colitis, Crohn's disease, ulcerative colitis), inflammatory pain, neuropathic pain, osteoarthritic pain, autoimmune thyroid disease, immune-mediated (also known as type I) diabetes, lupus, post-operative adhesions, vestibular disorders and cancer.



WO 2013/048214 A2