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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 July 2008 (24.07.2008)

PCT

(10) International Publication Number
WO 2008/088688 A1

(51) International Patent Classification:
C07D 491/10 (2006.01) *A61P 3/00* (2006.01)
A61K 31/438 (2006.01) *C07D 495/04* (2006.01)

(21) International Application Number:
PCT/US2008/000221

(22) International Filing Date: 8 January 2008 (08.01.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/880,302 12 January 2007 (12.01.2007) US

(71) Applicants *(for all designated States except US)*: **MERCK & CO., INC.** [US/US]; 126 East Lincoln Avenue, Rahway, NJ 07065-0907 (US). **BANYU PHARMACEUTICAL CO., LTD.** [JP/JP]; Kitanomaru Square, 1-13-12, Kudankita, Chiyoda-ku, Tokyo 102-8667 (JP).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **IINO, Tomoharu** [JP/JP]; Kitanomaru Square, 1-13-12, Kudankita, Chiyoda-ku, Tokyo 102-8667 (JP). **JONA, Hideki** [JP/JP]; Kitanomaru Square, 1-13-12, Kudankita, Chiyoda-ku, Tokyo 102-8667 (JP). **SHIBATA, Jun** [JP/JP]; Kitanomaru Square, 1-13-12, Kudankita, Chiyoda-ku, Tokyo 102-8667 (JP). **SHIMAMURA, Tadashi** [JP/JP]; Kitanomaru Square, 1-13-12, Kudankita, Chiyoda-ku, Tokyo 102-8667 (JP). **YAMAKAWA, Takeru** [JP/JP]; Kitanomaru Square, 1-13-12, Kudankita, Chiyoda-ku, Tokyo 102-8667 (JP). **YANG, Lihu** [US/US]; 126 East Lincoln Avenue, Rahway, NJ 07065-0907 (US).

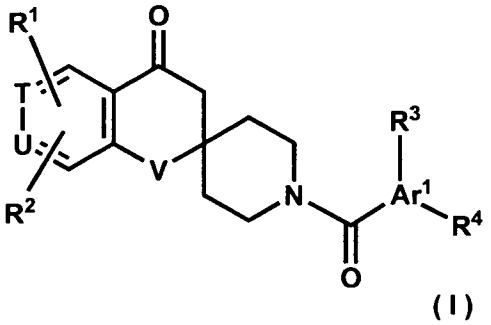
(74) Common Representative: **MERCK & CO., INC.**; 126 East Lincoln Avenue, Rahway, NJ 07065-0907 (US).

(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, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (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*

(54) **Title:** SUBSTITUTED SPIROCHROMANONE DERIVATIVES AS ACC INHIBITORS



(I)

(57) **Abstract:** The invention relates to a compound of a general formula (I): (I) wherein Ar^1 represents a group formed from an aromatic ring selected from a group consisting of indole, 1H-indazole, 2H-indazole, 1H-thieno[2,3-c]pyrazole, 1H-pyrazolo[3,4-b]pyridine, benzo[b]furan, benzimidazole, benzoxazole, 1,2-benzisoxazole and imidazo[1,2-a]pyridine; R^1 and R^2 each represent a hydrogen atom, a halogen atom, a cyano group, a C2-C6 alkenyl group, a C1-C6 alkoxy group, a halo-C1-C6 alkoxy group, a cyclo-C3-C6 alkyloxy group, a C2-C7 alkanoyl group, a halo-C2-C7 alkanoyl group, a C2-C7 alkoxycarbonyl group, a halo-C2-C7 alkoxycarbonyl group, a cyclo-C3-C6 alkyloxycarbonyl group, an aralkyloxycarbonyl group, a carbamoyl-C1-C6 alkoxy group, a carboxy-C2-C6 alkenyl group, or a group of -Q1-N(R^a)-Q2-R^b; an optionally-substituted C1-C6 alkyl, aryl or heterocyclic group; or a C1-C6 alkyl or C2-C6 alkenyl group having the aryl or heterocyclic group; R^3 and R^4 each represent a hydrogen atom, a halogen atom, a nitro group, a cyclo-C3-C6 alkyl group, a carbamoyl group optionally substituted with a C1-C6 alkyl or cyclo-C3-C6 alkyl group, or a group of -N(R^e)R^f; an optionally-substituted C2-C7 alkanoyl, C1-C6 alkoxy, C2-C7 alkoxycarbonyl, cyclo-C3-C6 alkyloxycarbonyl, C1-C6 alkylsulfonyl, C1-C6 alkylthio, cyclo-C3-C6 alkyloxy, cyclo-C3-C6 alkyl-C1-C6 alkoxy, cyclo-C3-C6 alkylsulfonyl, cyclo-C3-C6 alkylthio or cyclo-C3-C6 alkyl-C1-C6 alkylthio group; or an optionally-substituted C1-C6 alkyl group; T and U each represent a nitrogen atom or a methine group; and V represents an oxygen atom or a sulfur atom. The compound of the invention is useful as therapeutical agents for various ACC-related diseases.

WO 2008/088688 A1