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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
30 May 2014 (30.05.2014)

WIPO | PCT

(10) International Publication Number
WO 2014/079995 A2

(51) International Patent Classification:
C07D 401/14 (2006.01) *C07D 401/10* (2006.01)
A61K 31/4353 (2006.01) *C07D 471/04* (2006.01)
A61K 31/4427 (2006.01) *C07D 487/04* (2006.01)
C07D 401/04 (2006.01)

(21) International Application Number:
PCT/EP2013/074532

(22) International Filing Date:
25 November 2013 (25.11.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/729,877 26 November 2012 (26.11.2012) US

(71) Applicants: **ABBVIE INC.** [US/US]; 1 North Waukegan Road, North Chicago, Illinois 60064 (US). **ABBVIE DEUTSCHLAND GMBH & CO. KG** [DE/DE]; Max-Planck-Ring 2a, 65205 Wiesbaden (DE).

(72) Inventors: **GENESTE, Hervé**; c/o AbbVie Deutschland GmbH & Co. KG, Max-Planck-Ring 2a, 65205 Wiesbaden (DE). **TURNER, Sean**; c/o AbbVie Deutschland GmbH & Co. KG, Max-Planck-Ring 2a, 65205 Wiesbaden (DE). **OCHSE, Michael**; c/o AbbVie Deutschland GmbH & Co. KG, Max-Planck-Ring 2a, 65205 Wiesbaden (DE). **DRESCHER, Karla**; c/o AbbVie Deutschland GmbH & Co. KG, Max-Planck-Ring 2a, 65205 Wiesbaden (DE). **BLACK, Lawrence A.**; c/o AbbVie Inc., 1 North Waukegan Road, North Chicago, Illinois 60064 (US). **JANTOS, Katja**; c/o AbbVie Deutschland GmbH & Co. KG, Max-Planck-Ring 2a, 65205 Wiesbaden (DE).

(74) Agent: **REITSTÖTTER - KINZEBACH**; Im Zollhof 1, 67061 Ludwigshafen (DE).

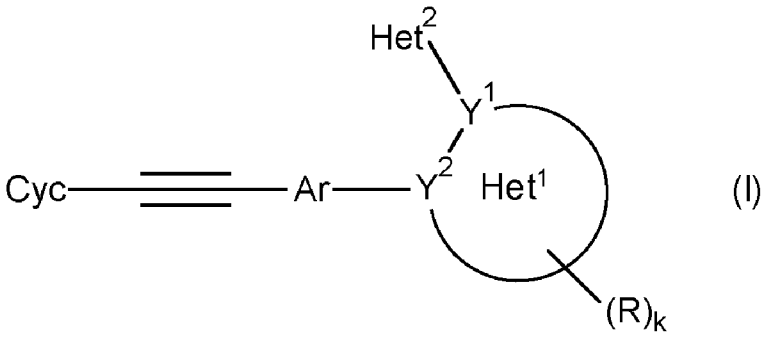
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, 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, SA, 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, KM, 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 INHIBITOR COMPOUNDS OF PHOSPHODIESTERASE TYPE 10A



(I)

(57) Abstract: The present invention relates to compounds of the formula I and their salts etc. which are inhibitors of phosphodiesterase type 10A and to their use for the manufacture of a medicament and which thus are suitable for treating or controlling of medical disorders selected from neurological disorders and psychiatric disorders, for ameliorating the symptoms associated with such disorders and for reducing the risk of such disorders wherein Y^1 and Y^2 are adjacent atoms in Het^1, which are independently selected from the group consisting of carbon and nitrogen; k is 0, 1, 2 or 3; Het^1 is a bivalent monocyclic 5- or 6-membered heteroaromatic radical, having 1, 2 or 3 heteroatoms or heteroatom moieties selected from O, S, N and N-R^a as ring members, or a bivalent fused bicyclic 8-, 9- or 10-membered heteroaromatic radical, having 1, 2, 3 or 4 heteroatoms or heteroatom moieties selected from O, S, N and N-R^a as ring members; Het^2 is inter alia monocyclic 5- or 6-membered hetaryl, having 1, 2 or 3 heteroatoms or heteroatom moieties selected from O, S, N and N-R^{1a} as ring members, Cyc is inter alia optionally substituted monocyclic 5- or 6-membered hetaryl or optionally substituted fused 8-, 9- or 10-membered bicyclic hetaryl; Ar is optionally substituted phenylene or optionally substituted bivalent 6-membered hetaryl; R is attached to a carbon atom of Het^1 and inter alia - halogen, C_1-C_6-alkyl, C_2-C_6-alkenyl, C_2-C_6-alkynyl, C_1-C_6-alkoxy, C_1-C_6-fluoroalkyl, C_1-C_6-fluoroalkoxy, C_3-C_6-cycloalkyl etc.

WO 2014/079995 A2