



(51) International Patent Classification:

C07D 519/00 (2006.01) *A61P 25/18* (2006.01)
A61K 31/519 (2006.01) *A61P 25/24* (2006.01)
A61P 25/00 (2006.01)

(21) International Application Number:

PCT/DK2011/000136

(22) International Filing Date:

18 November 2011 (18.11.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

PA 2010 01045 19 November 2010 (19.11.2010) DK
 61/415,356 19 November 2010 (19.11.2010) US

(71) Applicant (for all designated States except US): **H. LUNDBECK A/S** [DK/DK]; Ottiliavej 9, DK-2500 Valby (DK).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KEHLER, Jan** [DK/DK]; Nymøllevej 28, DK-2800 Lyngby (DK). **NIELSEN, Jacob** [DK/DK]; Bodilsgade 2, 4.th., DK-1732 København V (DK). **MARIGO, Mauro** [IT/DK]; Jyttevej 23, DK-2740 Skovlunde (DK). **KILBURN, John, Paul** [GB/DK]; Kærsgårdvej 7, DK-4690 Haslev (DK). **LANGGÅRD, Morten** [DK/DK]; Rågevej 20, DK-2600 Glostrup (DK).

(74) Common Representative: **H. LUNDBECK A/S**; Ottiliavej 9, DK-2500 Valby (DK).

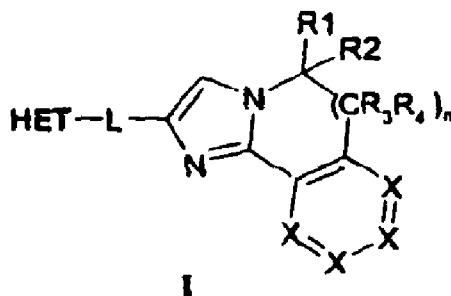
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG,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

— with international search report (Art. 21(3))

(54) Title: IMIDAZOLE DERIVATIVES AS PDE10A ENZYME INHIBITORS



(57) Abstract: This invention is directed to compounds (I) which are PDE10A enzyme inhibitors. The invention provides a pharmaceutical composition comprising a therapeutically effective amount of a compound of the invention and a pharmaceutically acceptable carrier. The present invention also provides processes for the preparation of the compounds of formula I. The present invention further provides a method of treating a subject suffering from a neurodegenerative disorder comprising administering to the subject a therapeutically effective amount of a compound of formula I. The present invention also provides a method of treating a subject suffering from a drug addiction comprising administering to the subject a therapeutically effective amount of a compound of formula I. The present invention further provides a method of treating, a subject suffering from a psychiatric disorder comprising administering to the subject a therapeutically effective amount of a compound of formula I.

