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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 April 2009 (16.04.2009)

PCT

(10) International Publication Number
WO 2009/046784 A1

(51) International Patent Classification:
C07D 417/12 (2006.01) *C07D 417/14* (2006.01)
C07D 213/74 (2006.01) *A61P 3/00* (2006.01)
C07D 401/12 (2006.01) *A61K 31/4427* (2006.01)
C07D 401/14 (2006.01) *A61K 31/444* (2006.01)

(21) International Application Number:
PCT/EP2008/006649

(22) International Filing Date: 13 August 2008 (13.08.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
07019691.0 9 October 2007 (09.10.2007) EP
08001168.7 23 January 2008 (23.01.2008) EP

(71) Applicant *(for all designated States except US)*: **MERCK PATENT GMBH** [DE/DE]; Frankfurter Strasse 250, 64293 Darmstadt (DE).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **BURGDORF, Lars, Thore** [DE/DE]; Gabelsbergerstrasse 21, 60389 Frankfurt am Main (DE). **BEIER, Norbert** [DE/DE]; Maximilian-Kolbe-Strasse 11, 64354 Reinheim (DE). **GLEITZ, Johannes** [DE/DE]; Schuknechtstrasse 52, 64289 Darmstadt (DE). **CHARON, Christine** [FR/FR]; 1, chemin de la Justice, F-91940 Gometz-le-Chatel (FR). **CRAVO, Daniel** [FR/FR]; 123, avenue Jules Ferry, F-78500 Sartrouville (FR).

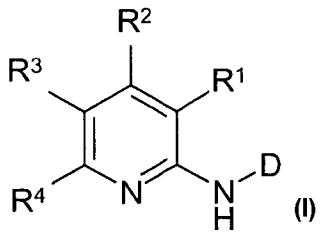
(74) Common Representative: **MERCK PATENT GMBH**; Frankfurter Strasse 250, 64293 Darmstadt (DE).

(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, 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, ST, 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:** PYRIDINE DERIVATIVES USEFUL AS GLUCOKINASE ACTIVATORS



(I)

(57) **Abstract:** Novel heterocyclic compounds of the formula (I) in which R^1, R^2, R^3, R^4 and D have the meanings indicated in Claim 1, are activators of glucokinase and can be used for the prevention and/o treatment of Diabetes Typ 1 and 2, obesity, neuropathy and/or nephropathy.

WO 2009/046784 A1