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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
28 March 2013 (28.03.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/041119 A1

(51) International Patent Classification:
C07D 487/04 (2006.01) *A61P 19/02* (2006.01)
A61K 31/4985 (2006.01)

(21) International Application Number:
PCT/EP2011/066220

(22) International Filing Date:
19 September 2011 (19.09.2011)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant *(for all designated States except US)*: **SANOFI** [FR/FR]; 54, rue de la Boétie, F-75008 Paris (FR).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **NAZARÉ, Marc** [DE/DE]; c/o Sanofi-Aventis Deutschland GmbH, Industriepark Hoechst, 65926 Frankfurt am Main (DE). **HALLAND, Nis** [DK/DE]; c/o Sanofi-Aventis Deutschland GmbH, Industriepark Hoechst, 65926 Frankfurt am Main (DE). **SCHMIDT, Friedemann** [DE/DE]; c/o Sanofi-Aventis Deutschland GmbH, Industriepark Hoechst, 65926 Frankfurt am Main (DE). **WEISS, Tilo** [DE/DE]; c/o Sanofi-Aventis Deutschland GmbH, Industriepark Hoechst, 65926 Frankfurt am Main (DE). **DIETZ, Uwe** [DE/DE]; c/o Sanofi-Aventis Deutschland GmbH, Industriepark Hoechst, 65926 Frankfurt am Main (DE). **HOFMEISTER, Armin** [DE/DE]; c/o Sanofi-Aventis Deutschland GmbH, Industriepark Hoechst, 65926 Frankfurt am Main (DE).

(74) Agent: **KUJATH, Eckard**; c/o Sanofi-Aventis Deutschland GmbH, Patents Germany, Industriepark Hoechst, Geb. K 801, 65926 Frankfurt am Main (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, 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, 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).

Declarations under Rule 4.17:

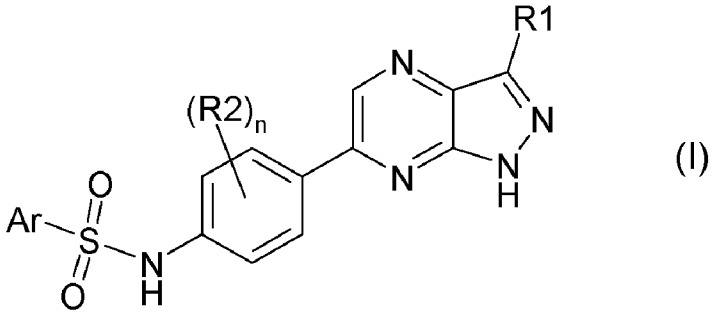
— *of inventorship (Rule 4.17(iv))*

Published:

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

WO 2013/041119 A1

(54) Title: N-[4-(1H-PYRAZOLO[3,4-B]PYRAZIN-6-YL)-PHENYL]-SULFONAMIDES AND THEIR USE AS PHARMACEUTICALS



(I)

(57) Abstract: The present invention relates to N-[4-(1H-pyrazolo[3,4-b]pyrazin-6-yl)-phenyl]- sulfonamides of the formula I, wherein Ar, R1, R2 and n have the meanings indicated in the claims. The compounds of the formula I are valuable pharmacologically active compounds which modulate protein kinase activity, specifically the activity of serum and glucocorticoid regulated kinase (SGK), in particular of serum and glucocorticoid regulated kinase isoform 1 (SGK-1, SGK1), and are suitable for the treatment of diseases in which SGK activity is inappropriate, for example degenerative joint disorders or inflammatory processes such as osteoarthritis or rheumatism. The invention furthermore relates to processes for the preparation of the compounds of the formula I, their use as pharmaceuticals, and pharmaceutical compositions comprising them.