

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 May 2010 (20.05.2010)

(10) International Publication Number
WO 2010/057121 A1

PCT

(51) International Patent Classification:

C07D 403/12 (2006.01) **C07D 417/14** (2006.01)
C07D 403/14 (2006.01) **C07D 471/04** (2006.01)
C07D 407/14 (2006.01) **A61K 31/497** (2006.01)
C07D 409/14 (2006.01) **A61P 25/16** (2006.01)
C07D 413/14 (2006.01) **A61P 25/18** (2006.01)

(21) International Application Number:

PCT/US2009/064637

(22) International Filing Date:

16 November 2009 (16.11.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/114,567 14 November 2008 (14.11.2008) US
61/166,212 2 April 2009 (02.04.2009) US

(71) Applicant (for all designated States except US): **AMGEN INC.** [US/US]; One Amgen Center Drive, Thousand Oaks, California 91320-1799 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ALLEN, Jennifer R.** [US/US]; 5255 Via Capote, Newbury Park, California 91320 (US). **BOURBEAU, Matthew P.** [US/US]; 22038 Vanowen St., #106, Woodland Hills, California 91303 (US). **CHEN, Ning** [CN/US]; 2342 Gillingham Circle, Thousand Oaks, California 91362 (US). **HU, Essa** [US/US]; 3824 Fountain Street, Camarillo, California 93012 (US). **KUNZ, Roxanne** [US/US]; 451 San Vincente Blvd., Apt. #11, Santa Monica, California 90402 (US). **RUMFELT, Shannon** [US/US]; 2766 Wendell Street, Camarillo, California 93010 (US).

(74) Agent: **LEMOINE, Elsa D.**; Amgen Inc., One Amgen Center Drive, Patent Operations, M/S 28-2-C, Thousand Oaks, California 91320-1799 (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, 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, 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, MK, MT, NL, NO, PL, PT, RO, 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:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

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

(54) Title: PYRAZINE COMPOUNDS AS PHOSPHODIESTERASE 10 INHIBITORS

(57) Abstract: Pyrazine compounds, and compositions containing them, and processes for preparing such compounds. Provided herein also are methods of treating disorders or diseases treatable by inhibition of PDE10, such as obesity, non-insulin dependent diabetes, schizophrenia, bipolar disorder, obsessive-compulsive disorder, and the like.



WO 2010/057121 A1