



(51) International Patent Classification:

C07D 487/04 (2006.01) A61P 29/00 (2006.01)
A61K 31/4985 (2006.01) A61P 37/00 (2006.01)

(21) International Application Number:

PCT/US2015/064062

(22) International Filing Date:

4 December 2015 (04.12.2015)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/088,068 5 December 2014 (05.12.2014) US

(71) Applicants: ARRAY BIOPHARMA INC. [US/US];
3200 Walnut Street, Boulder, Colorado 80301 (US). CEL-
GENE CORPORATION [US/US]; 86 Morris Avenue,
Summit, New Jersey 07901 (US).

(72) Inventors: ALLEN, Shelley; c/o Array BioPharma Inc.,
3200 Walnut Street, Boulder, Colorado 80301 (US).
BOYS, Mark Laurence; c/o Array BioPharma Inc., 3200
Walnut Street, Boulder, Colorado 80301 (US). CHI-
CARELLI, Mark J.; c/o Array BioPharma Inc., 3200
Walnut Street, Boulder, Colorado 80301 (US). FELL, Jay
Bradford; c/o Array BioPharma Inc., 3200 Walnut Street,
Boulder, Colorado 80301 (US). FISCHER, John P.; c/o
Array BioPharma Inc., 3200 Walnut Street, Boulder, Col-
orado 80301 (US). GAUDINO, John; c/o Array Bio-
Pharma Inc., 3200 Walnut Street, Boulder, Colorado
80301 (US). HICKEN, Erik James; c/o Array BioPharma
Inc., 3200 Walnut Street, Boulder, Colorado 80301 (US).
HINKLIN, Ronald Jay; c/o Array BioPharma Inc., 3200
Walnut Street, Boulder, Colorado 80301 (US). KRASER,
Christopher F.; c/o Array BioPharma Inc., 3200 Walnut

Street, Boulder, Colorado 80301 (US). LAIRD, Ellen; c/o
Array BioPharma Inc., 3200 Walnut Street, Boulder, Col-
orado 80301 (US). ROBINSON, John E.; c/o Array Bio-
Pharma Inc., 3200 Walnut Street, Boulder, Colorado
80301 (US). TANG, Tony P.; c/o Array BioPharma Inc.,
3200 Walnut Street, Boulder, Colorado 80301 (US). BUR-
GESS, Laurence E.; c/o Array BioPharma Inc., 3200 Wal-
nut Street, Boulder, Colorado 80301 (US). RIEGER,
Robert Andrew; c/o Array BioPharma Inc., 3200 Walnut
Street, Boulder, Colorado 80301 (US). PHENEGER, Jed;
c/o Array BioPharma Inc., 3200 Walnut Street, Boulder,
Colorado 80301 (US). SATOH, Yoshitaka; 17041 Cloud-
croft Drive, Poway, CA 92064 (US). LEFTHERIS, Ka-
terina; 10719 Passerine Way, San Diego, California 92121
(US). RAHEJA, Raj K.; 12739 Beeler Creek Trail, Po-
way, California 92064 (US). BENNETT, Brydon L.;
10835 Ashlar Place, San Diego, California 92131 (US).

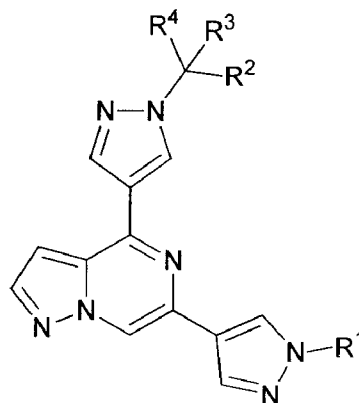
(74) Agents: HARRIS, Robert J. et al.; Viksnins Harris &
Padys PLLP, 7851 Metro Parkway, Suite 325, Bloomington,
Minnesota 55425 (US).

(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, 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, 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,

[Continued on next page]

(54) Title: 4,6-SUBSTITUTED-PYRAZOLO[1,5-a]PYRAZINES AS JANUS KINASE INHIBITORS



(I)

(57) Abstract: Compounds of Formula I: and stereoisomers and pharmaceutically acceptable salts and solvates thereof in which R¹, R², R³ and R⁴ have the meanings given in the specification, are inhibitors of one or more JAK kinases and are useful in the treatment of JAK kinase-associated diseases and disorders, such as autoimmune diseases, inflammatory diseases, rejection of transplanted organs, tissues and cells, as well as hematologic disorders and malignancies and their co-morbidities.



GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, 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:

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