



(51) International Patent Classification:

C12N 15/11 (2006.01) C12N 5/00 (2006.01)
A01N 63/00 (2006.01)

(21) International Application Number:

PCT/US2015/013069

(22) International Filing Date:

27 January 2015 (27.01.2015)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/931,984 27 January 2014 (27.01.2014) US

(71) Applicants: **THE CHILDREN'S HOSPITAL OF PHILADELPHIA** [US/US]; 34th and Civic Center Boulevard, Philadelphia, PA 19104 (US). **TRUSTEES OF THE UNIVERSITY OF PENNSYLVANIA** [US/US]; 3160 Market Street, Suite 200, Philadelphia, PA 19104 (US).

(72) Inventors: **HUANG, Yanping**; 157 Flintlock Road, Drexel Hill, PA 19026 (US). **BURKHARDT, Janis, K.**; 30 Llanfair Circle, Ardmore, PA 19003 (US). **KAMBAYASHI, Taku**; 2212 Swedesford Road, Malvern, PA 19355 (US).

(74) Agents: **NETTER, Robert, C.** et al.; Dann, Dorfman, Herrell & Skillman, 1600 Market Street, Suite 2400, Philadelphia, PA 19103-2307 (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, 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))
- with sequence listing part of description (Rule 5.2(a))

(88) Date of publication of the international search report:

5 November 2015

(54) Title: COMPOSITIONS AND METHODS FOR TREATING AUTOIMMUNE AND INFLAMMATORY DISEASES

(57) Abstract: Compositions and methods are provided for the treatment and/or prevention of an inflammatory and/or autoimmune disease or disorder.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 15/13069

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C12N 15/11, A01N 63/00, C12N 5/00 (2015.01)

CPC - A61K 38/00, A61K 35/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8): C12N 15/11, A01N 63/00, C12N 5/00 (2015.01)

CPC: A61K 38/00, A61K 35/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 424/93.7; 435/375, 435/366, 514/44AElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWest, PatBase, Google Patents, Google Scholar: Crk, crkL, inhibit*, ligand*, inflammatory, autoimmune, isoform*, siRNA, shRNA, antisense, graft versus host disease, GVHD, graft, disease, crkl, crklI, isoform*, carrier*, pharmaceutical, allogeneic hematopoietic, stem cell, leukemia, lymphoma, inhibit*, prevent*, immunosuppressant, anti-inflammato

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	'Abl Family Kinases Modulate T Cell' Mediated Inflammation and Chemokine-Induced Migration Through a HEF1-Rap1 Signaling Module' by Gu et al. Sci Signal 5(233) ra51, 20 March 2013 (20.03.2013), abstract, pg 2, para 3, pg 3, para 2	1-21
Y	US 2011/0189095 A1 (ARAP et al.) 4 August 2011 (04.08.2011); para [0039], [0114], [0163]	1-21
Y	Rodrigues, Sonia P., et al. "Crkl and CrklI function as key signaling integrators for migration and invasion of cancer cells." Molecular cancer research 3.4 (2005): 183-194. entire document, especially abstract.	2, 4, 10/(2,4)
Y	WO 2009/076551 A2 (DAS et al.) 18 June 2009 (18.06.2009); para [0098], SEQ ID NO: 28	7, 10/7
Y	US 2007/0249048 A1 (DAI et al.) 25 October 2007 (25.10.2007); para [0027], [0100]	8-10
Y	WO 2001/025405 A1 (BARTELMEZ et al.) 12 April 2001 (12.04.2001); Page 5, ln 11-18	11-18
Y	US 2004/0067220 A1 (SYKES M.) 8 April 2004 (8.04.2004); abstract, para [0012], [0018], [0064], [0163]	19-21

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel, or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

9 April 2015 (09.04.2015)

Date of mailing of the international search report

15 MAY 2015

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-8300

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774