



- (51) **International Patent Classification:**
A61K 39/00 (2006.01) *C07K 14/245* (2006.01)
- (21) **International Application Number:**
PCT/US2013/036197
- (22) **International Filing Date:**
11 April 2013 (11.04.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/622,900 11 April 2012 (11.04.2012) US
13/830,853 14 March 2013 (14.03.2013) US
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- (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,

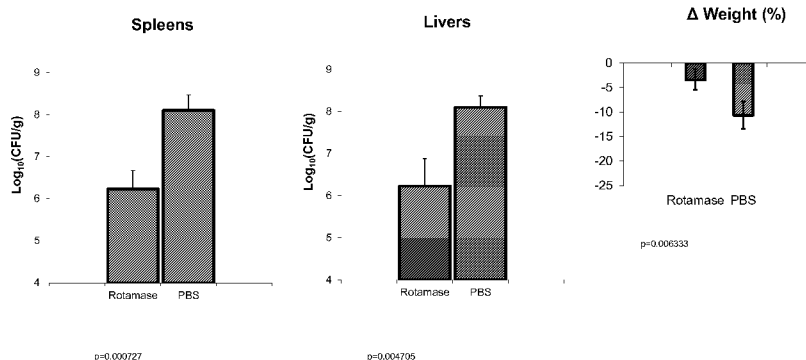
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, 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, RW, SD, SL, 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, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- with sequence listing part of description (Rule 5.2(a))
- (88) **Date of publication of the international search report:**
12 December 2013

(54) **Title:** USE OF MICROBIAL GENE PRODUCTS TO PREVENT OR TREAT MICROBIAL INFECTIONS



(57) **Abstract:** The invention provides immunomodulatory proteins, e.g., useful to prevent, inhibit or treat microbial infection.

WO 2013/155320 A3

INTERNATIONAL SEARCH REPORT

International application No PCT/US2013/036197

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61K39/00 C07K14/245
 ADD.

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)
 A61K C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, BIOSIS, EMBASE, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2008/038250 A1 (ZLATKIN IGOR [US] ET AL) 14 February 2008 (2008-02-14) claims 55, 59-64; sequence 3 -----	1,3-6, 8-10, 12-22, 24-33,35
Y	WO 2007/081301 A2 (US HEALTH [US]; SHER ALAN [US]; YAROVINSKY FELIX [US]) 19 July 2007 (2007-07-19) claims 1, 10; sequence 1 -----	1,3-6, 8-10, 12-22, 24-33,35
Y	WO 2005/010040 A1 (BARROS RES INST [US]; UNIV MICHIGAN STATE [US]; AYLSWORTH CHARLES [US]) 3 February 2005 (2005-02-03) claim 1; sequence 2 -----	1,3-6, 8-10, 12-22, 24-33,35
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- | | |
|---|---|
| <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> | <p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p> |
|---|---|

Date of the actual completion of the international search

26 July 2013

Date of mailing of the international search report

29/10/2013

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/036197

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/159513 A1 (CHENG QIONG [US] ET AL) 24 June 2010 (2010-06-24)	21,24,26
Y	sequence 21	1,3-6, 8-10, 12-20, 22,25, 27-33,35
Y	----- YAROVINSKY FELIX ET AL: "TLR11 activation of dendritic cells by a protozoan profilin-like protein", SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, US, vol. 308, no. 5728, 10 June 2005 (2005-06-10), pages 1626-1629, XP002571249, ISSN: 1095-9203, DOI: 10.1126/SCIENCE.1109893 [retrieved on 2005-04-28] the whole document	1,3-6, 8-10, 12-22, 24-33,35
Y	----- Lori Neal: "Use of Toxoplasma gondii parasite derived protein as an immunotherapeutic for Listeria monocytogenes infection", 30 November 2010 (2010-11-30), XP055072693, Retrieved from the Internet: URL:http://fri.wisc.edu/docs/pdf/Neal_FRES H_30Nov2010.pdf [retrieved on 2013-07-24] the whole document	1,3-6, 8-10, 12-22, 24-33,35
Y	----- US 6 605 709 B1 (BRETON GARY L [US]) 12 August 2003 (2003-08-12)	1,3-6, 8-10, 12-22, 24-33,35
T	paragraphs [0003], [0006], [0009] - [0011]; sequence 2621 ----- NEAL LORI ET AL: "TLR11-dependent and -independent recognition of Toxoplasma gondii enhances innate immunity to bacterial infection", THE JOURNAL OF IMMUNOLOGY, THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS, US, vol. 188, no. 53.3, 8 May 2012 (2012-05-08), XP009171460, ISSN: 0022-1767 -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/036197

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1, 3-22, 24-36(all partially)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 3-22, 24-36(all partially)

polypeptide with SEQ ID NO:3 which corresponds to cyclophilin (peptidyl-prolyl cis-trans isomerase) from E.coli. Provided are methods and compositions for treating microbial infections using said polypeptide alone or in combination with one of SEQ ID NOs:1, 2, or 4. Provided is likewise a method to augment an immune response in a mammal to an immunogen

2. claims: 1, 3-22, 24-36(all partially)

polypeptide with SEQ ID NO:4 which corresponds to the Ropthry protein 39 (Rop39) from Toxoplasma gondii. For related subject-matter, see invention I.

3. claims: 2, 23(completely); 3-20, 22, 24-36(partially)

polypeptide with SEQ ID NOs:1 or 2 which correspond to a profilin from T.gondii. For related subject-matter, see invention I.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2013/036197

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008038250	A1	14-02-2008	NONE

WO 2007081301	A2	19-07-2007	NONE

WO 2005010040	A1	03-02-2005	AU 2004259727 A1 03-02-2005
			CA 2532250 A1 03-02-2005
			EP 1644408 A1 12-04-2006
			JP 2008500005 A 10-01-2008
			US 2005169935 A1 04-08-2005
			US 2009136999 A1 28-05-2009
			WO 2005010040 A1 03-02-2005

US 2010159513	A1	24-06-2010	NONE

US 6605709	B1	12-08-2003	NONE
