



(43) International Publication Date
1 November 2012 (01.11.2012)

(10) International Publication Number
WO 2012/149307 A3

- (51) **International Patent Classification:**
A61K 39/00 (2006.01) *A61K 39/245* (2006.01)
- (21) **International Application Number:**
PCT/US2012/035441
- (22) **International Filing Date:**
27 April 2012 (27.04.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/479,611 27 April 2011 (27.04.2011) US
- (71) **Applicant (for all designated States except US):** **IM-MUNE DESIGN CORP.** [US/US]; 1124 Columbia Street, Suite 700, Seattle, WA 98104 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **ROBBINS, Scott, H.** [US/US]; 20119 44th Avenue NE, Lake Forest Park, WA 98155 (US). **DUBENSKY, Thomas, W., Jr.** [US/US]; 1124 Columbia Street, Suite 700, Seattle, WA 98104 (US).
- (74) **Agent:** **BRUSCA, Eric, M.**; Marshall, Gerstein & Borun LLP, 233 S. Wacker Drive, 6300 Willis Tower, Chicago, IL 60606-6357 (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, 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))

- (88) **Date of publication of the international search report:**
14 March 2013

(54) **Title:** SYNTHETIC LONG PEPTIDE (SLP)-BASED VACCINES

(57) **Abstract:** Synthetic long peptides and an adjuvant are formulated together and administered to a subject in order to raise an immune response. In certain embodiments, the adjuvant is GLA.



WO 2012/149307 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/035441

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

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, Sequence Search, 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.
X	LEFFERS NINKE ET AL: "Immunization with a P53 synthetic long peptide vaccine induces P53-specific immune responses in ovarian cancer patients, a phase II trial.", INTERNATIONAL JOURNAL OF CANCER. JOURNAL INTERNATIONAL DU CANCER, vol. 125, no. 9, 1 November 2009 (2009-11-01), pages 2104-2113, XP002684856, ISSN: 1097-0215 page 2111; figure 2	1-3,8-10
X	US 2008/131466 A1 (REED STEVEN G [US] ET AL) 5 June 2008 (2008-06-05) page 12 - page 13; examples 7-16 ----- -/-	1-5,8-13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"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)

"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

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

15 October 2012

Date of mailing of the international search report

24/01/2013

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Vollbach, Silke

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/035441

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.:

see additional sheet(s)

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: 4, 5, 11-13(completely); 1-3, 8-10(partially)

An immunogenic composition comprising one or more synthetic long peptide and as adjuvant a substituted glucosyl

2. claims: 1-3, 6-10(all partially)

An immunogenic composition comprising one or more synthetic long peptide derived from the cancer antigen Ny-ESO-1 and as adjuvant a substituted glucosyl

3. claims: 1-3, 6-10(all partially)

An immunogenic composition comprising one or more synthetic long peptide derived from the cancer antigen TRP2 and as adjuvant a substituted glucosyl

4. claims: 1-3, 6-10(all partially)

An immunogenic composition comprising one or more synthetic long peptide derived from the cancer antigen CAIX and as adjuvant a substituted glucosyl

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/035441

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	RHEA N COLER ET AL: "A Synthetic Adjuvant to Enhance and Expand Immune Responses to Influenza Vaccines", PLOS ONE,, vol. 5, no. 10, E13677, 1 January 2010 (2010-01-01), pages 1-11, XP002649019, page 2 -----	1-3,8-10
X	RHEA N. COLER ET AL: "Development and Characterization of Synthetic Glucopyranosyl Lipid Adjuvant System as a Vaccine Adjuvant", PLOS ONE, vol. 6, no. 1, E16333, 26 January 2011 (2011-01-26), pages 1-12, XP055030261, DOI: 10.1371/journal.pone.0016333 page 6 -----	1-3,8-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/035441

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008131466	A1	05-06-2008	AT 555808 T 15-05-2012
		AU 2007354917 A1	18-12-2008
		CA 2662921 A1	18-12-2008
		CN 101516396 A	26-08-2009
		DK 2068918 T3	30-07-2012
		EP 2068918 A1	17-06-2009
		EP 2468300 A1	27-06-2012
		EP 2484375 A2	08-08-2012
		EP 2486938 A1	15-08-2012
		ES 2387327 T3	20-09-2012
		JP 2010504914 A	18-02-2010
		KR 20090079209 A	21-07-2009
		PT 2068918 E	06-08-2012
		SI 2068918 T1	28-09-2012
		US 2008131466 A1	05-06-2008
		WO 2008153541 A1	18-12-2008
