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- (71) Applicants: THE BROAD INSTITUTE, INC. [US/US];
7 Cambridge Center, Room 7034, Cambridge, MA 02142 (US).
DANA-FARBER CANCER INSTITUTE, INC. [US/US];
450 Brookline Avenue, Boston, MA 02215 (US).
THE GENERAL HOSPITAL CORPORATION [US/US];
55 Fruit Street, Boston, MA 02114 (US).

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- (72) Inventors: HACOHEN, Nir; 117 Mason Terrace, Brookline, MA 02446 (US). WU, Catherine, J.; 117 Mason Terrace, Brookline, MA 02446 (US). FRITSCH, Edward, F.; 74 Minot Road, Concord, MA 01742 (US).
- (74) Agents: CORLESS, Peter, F. et al.; Edwards Wildman Palmer LLP, P.O. Box 55874, Boston, MA 02205 (US).
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(54) Title: COMPOSITIONS AND METHODS FOR PERSONALIZED NEOPLASIA VACCINES

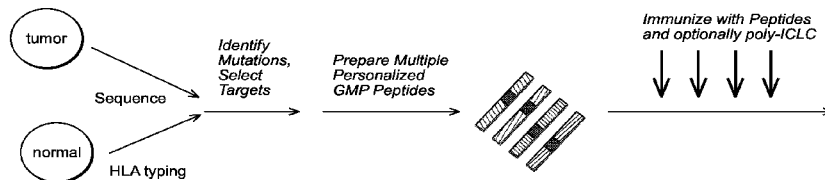


FIG. 1

(57) Abstract: The invention provides a method of making a personalized neoplasia vaccine for a subject diagnosed as having a neoplasia, which includes identifying a plurality of mutations in the neoplasia, analyzing the plurality of mutations to identify a subset of at least five neo-antigenic mutations predicted to encode neo-antigenic peptides, the neo-antigenic mutations selected from the group consisting of missense mutations, neoORF mutations, and any combination thereof, and producing, based on the identified subset, a personalized neoplasia vaccine.

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INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61K39/00 A61P35/00
 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, WPI Data, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/159754 A2 (BIONTECH AG [DE]; TRON TRANSLATIONALE ONKOLOGIE AN DER UNIVERSITAETSME) 29 November 2012 (2012-11-29) abstract page 2, last paragraph - page 3, paragraph 1 page 3, paragraph 4 - page 5, paragraph 1 page 5, paragraph 4 - page 9, paragraph 3 page 10, paragraph 2-3 page 11, last paragraph - page 12, paragraph 6 page 21, last paragraph - page 22, paragraph 1 page 39, paragraph 2 page 51, paragraph 3 page 63, last paragraph examples 1-5,7-8 -/--	1-4,6-8, 11-17, 19,22, 24-26, 29-33,39

Further documents are listed in the continuation of Box C.

See patent family annex.

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- "E" earlier application or patent but published on or after the international filing date
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- "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
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Date of the actual completion of the international search

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

Authorized officer

Noë, Veerle

INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>claims 1-3,8,9,10,12,16,18,19,21 -----</p> <p>LI LIJIN ET AL: "Cancer genome sequencing and its implications for personalized cancer vaccines.", CANCERS 2011, vol. 3, no. 4, 2011, pages 4191-4211, XP002730781, ISSN: 2072-6694 page 4199, line 2 - page 2120, paragraph 1 page 4202, last paragraph - page 4203, paragraph 4</p>	<p>1-7, 9-13,15, 19-25, 27-31, 33,39</p>
X	<p>-----</p> <p>DATABASE BIOSIS [Online] BIOSCIENCES INFORMATION SERVICE, PHILADELPHIA, PA, US; November 2012 (2012-11), RAJASAGI MOHINI ET AL: "Systematic Identification of Personal Mutated Tumor-Specific Neoantigens in CLL", XP002730782, Database accession no. PREV201300232333 abstract</p>	<p>1-3,8, 19-21, 23,39</p>
X	<p>-----</p> <p>RAMMENSEE H-G ET AL: "TOWARDS PATIENT-SPECIFIC TUMOR ANTIGEN SELECTION FOR VACCINATION", IMMUNOLOGICAL REVIEWS, BLACKWELL PUBLISHING, MUNKSGAARD, vol. 188, 1 October 2002 (2002-10-01), pages 164-176, XP008026240, ISSN: 0105-2896, DOI: 10.1034/J.1600-065X.2002.18815.X abstract page 167, column 2, paragraph 2 - page 168 page 169, column 2, paragraph 2 - page 170, column 1, paragraph 2</p>	<p>1,2,19, 20,38,39</p>
X	<p>-----</p> <p>N VAN DE ROEMER ET AL: "P1737: IVAC: individualized vaccines for cancer", IMMUNOLOGY., vol. 137, no. Suppl. 1, Sp. Iss. SI, 1 September 2012 (2012-09-01), - 8 September 2012 (2012-09-08), page 715, XP55144307, GB ISSN: 0019-2805, DOI: 10.1111/imm.12002 abstract</p> <p>-----</p> <p style="text-align: center;">-/--</p>	<p>1-4, 11-13, 19-22, 29-31,39</p>

INTERNATIONAL SEARCH REPORT

International application No PCT/US2014/033185

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>JAHAN S. KHALILI ET AL: "In silico prediction of tumor antigens derived from functional missense mutations of the cancer gene census", ONCOIMMUNOLOGY, vol. 1, no. 8, 1 November 2012 (2012-11-01), pages 1281-1289, XP055144271, ISSN: 2162-4011, DOI: 10.4161/onci.21511 the whole document</p> <p align="center">-----</p>	<p>1,2,5,9, 10,19, 21,23, 27,28</p>
X,P	<p>WO 2014/012051 A1 (PERSIMMUNE INC [US]) 16 January 2014 (2014-01-16)</p> <p>abstract paragraphs [0006], [0007], [0008], [0011] - [0017], [0030], [0049], [0050], [0051], [0055], [0068], [0071] - [0073], [0075], [0076] examples 1-3</p> <p align="center">-----</p>	<p>1-4,6-8, 11-17, 19-22, 24-26, 29-33,39</p>

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2014/033185

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. (means)
 - on paper
 - in electronic form
 - b. (time)
 - in the international application as filed
 - together with the international application in electronic form
 - subsequently to this Authority for the purpose of search
2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012159754 A2	29-11-2012	AU 2012261237 A1	14-11-2013
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		JP 2014523406 A	11-09-2014
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		US 2014178438 A1	26-06-2014
		WO 2012159754 A2	29-11-2012

WO 2014012051 A1	16-01-2014	NONE	
