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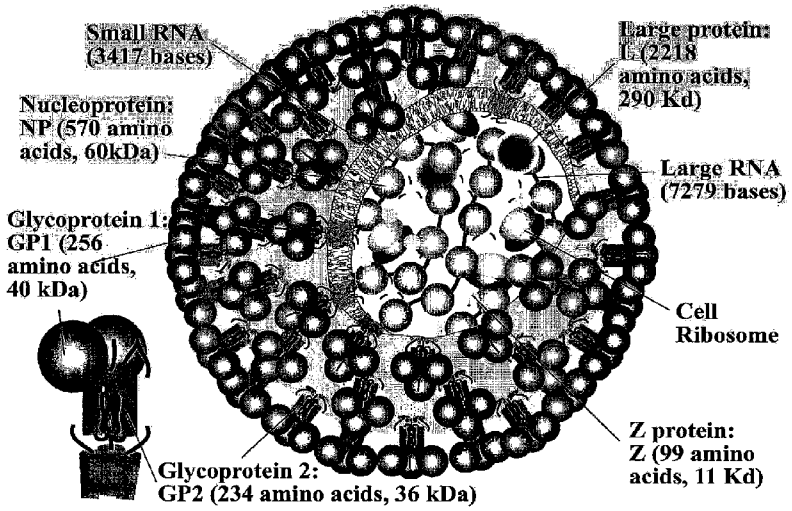
— *with international search report (Art. 21(3))*

— *with sequence listing part of description (Rule 5.2(a))*

(88) Date of publication of the international search report:
29 September 2011

(54) Title: LASSA VIRUS-LIKE PARTICLES AND METHODS OF PRODUCTION THEREOF

Figure 1



(57) Abstract: The instant invention is directed to novel Lassa virus-like particle (VLP) compositions and methods of production thereof. The inventive VLPs comprise, for example, the Lassa virus (LASV) Z matrix protein, glycoproteins (GPs)-I and -2, and nucleoprotein (NP). A novel method for producing these VLPs comprises constructing multicistronic plasmids for the expression of VLP protein components from a single vector. One example is a tricistronic vector containing DNA sequences encoding the LASV Z, GPC and NP proteins. The VLPs provided by the present invention can be used for research, therapeutic and diagnostic purposes.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/048972

A. CLASSIFICATION OF SUBJECT MATTER

C12N 15/40(2006.01)i, C12N 7/01(2006.01)i, A61K 39/12(2006.01)i, A61P 31/14(2006.01)i, C12Q 1/70(2006.01)i

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)

C12N 15/40; C07K 14/08; A61K 38/16

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

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal), Google, PubMed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	STRECKER, T. et al., Lassa virus Z protein is a matrix protein and sufficien t for the release of virus-like particles, Journal of Virology, Oct. 2003, V ol. 77, No. 19, pages 10700-10705	1-14
A	See abstract, figs. 2-3, page 10702	15
A	WO 2008-124176 A2 (THE ADMINISTRATORS OF THE TULANE EDUCATIONAL FUND et al.) 16 October 2008 See abstract, paragraphs 14, 142, claims 1, 91	1-15
A	LENZ, O. et al., Identification of a Novel Consensus Sequence at the Cleavag e Site of the Lassa Virus Glycoprotein, Journal of Virology, Dec. 2000, Vol. 74, No. 23, pages 11418-11421 See abstract	1-15
PX	SCHLIE, K. et al., Viral Protein Determinants of Lassa Virus Entry and Relea se from Polarized Epithelial Cells, Journal of Virology, Apr. 2010, Vol. 84, No. 7, pages 3178-3188 See abstract, page 3179	1-15

☐ 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 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	Date of mailing of the international search report
14 JUNE 2011 (14.06.2011)	**15 JUNE 2011 (15.06.2011)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
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Seo-gu, Daejeon 302-701, Republic of Korea

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/048972

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.: 16
because they relate to subject matter not required to be searched by this Authority, namely:
Claim 16 pertains to method for treatment of the human body by therapy, as well as diagnostic method, and thus relate to a subject matter which this International Searching Authority is not required to search under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT.

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:

1. ☐ As all required addtional 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 fee, this Authority did not invite payment of any additional fee.

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.:

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/048972

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2008-124176 A2	16.10.2008	AP20090050280	31.12.2009
		EP 2155777 A2	24.02.2010
		US 2010-261640 A1	14.10.2010
		WO 2008-124176 A2	16.10.2008
		WO 2008-124176 A3	16.10.2008