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(54) Title: CHIMERIC INFLUENZA VIRUS-LIKE PARTICLES

(57) Abstract: Chimeric Influenza virus-like particles including gag polypeptides are described. Virus-like particles are generated with a gag polypeptide, a neuraminidase polypeptide and optionally a hemagglutinin polypeptide. Preferred methods of generation include expression in insect cells.

INTERNATIONAL SEARCH REPORT

International application No

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A CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C12N 7/00; C12P 21/06 (2008.04)

USPC - 435/235.1; 435/69.1

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 7/00, C12P 21/06 (2008 04)

USPC - 435/235 1,435/69 1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 435/236, 435/5, 435/320 1,435/455, 424/186 1,424/209 1,530/350, 536/23 72Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST(USPT,PGPB,EPAB,JPAB), Google Patents, Google Scholar influenza, virus like particle, hemagglutinin, neuraminidase, gag, murine leukemia virus, M2, adjuvant, covalent or conjugate, flagellin, N-terminus, drift variant, homotypic or homosubtypic, heterotypic or heterosubtypic

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	US 2005/0186621 A1 (GALARZA et al) 25 Aug 2005 (25 08 2005), para [0014], [0039], [0041], [0080], [0081], [0086], [0093], [0095] and [01 10]	1-52
Y	WO 2004/042001 A2 (COMPANS et al) 21 May 2004 (21 05 2004), pg 5, para 3, pg 22, para 5, and pg 29, para 6	1-52
Y	DE FILETTE et al Universal Influenza A Vaccine Optimization of M2-based Constructs Virology Jun 2005, 337(1) 149-161 , pg 149, abstract	6
Y	US 2006/0088555 A1 (SOTOMAYOR et al) 27 Apr 2006 (27 04 2006), para [0007], [0083] and [0138]	11-12 and 14-16
Y	GERHARD et al Prospects for Universal Influenza Virus Vaccine, Emerging Infectious Diseases, Apr 2006, 12(4) 569-574, pg 570, col 2, para 2	37
Y	SAMBHARA et al Heterosubtypic Immunity against Human Influenza A Viruses, Including Recently Emerged Avian H5 and H9 Viruses, Induced by FLU-ISCOM Vaccine in Mice Requires both Cytotoxic T-Lymphocyte and Macrophage Function Cellular Immunology Aug 2001 , 211(2) 143-153, pg 144, col 1, para 2, pg 146, col 1, para 1, pg 151, col 2, para 2, and pg 152, col 1, para 2	40-52
Y	TAKADA et al Intranasal immunization with formalin-inactivated virus vaccine induces a broad spectrum of heterosubtypic immunity against influenza A virus infection in mice Vaccine Jul 2003, 21(23) 3212-3218, pg 3213, col 1, para 1	42

 Further documents are listed in the continuation of Box C

D

* 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
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"F" document published prior to the international filing date but later than the priority date claimed	

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