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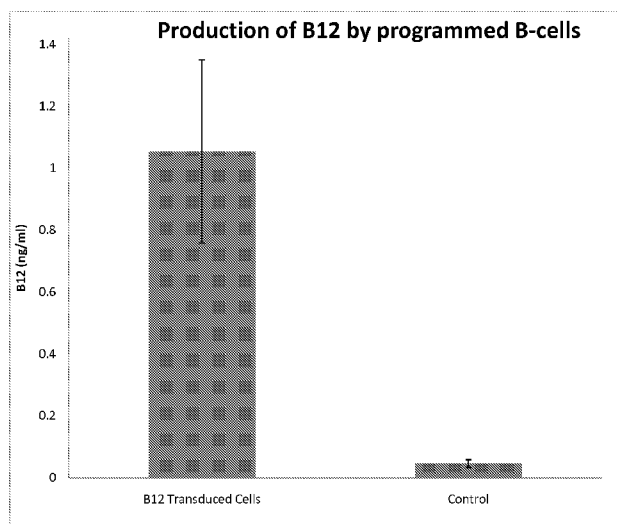
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[Continued on next page]

(54) **Title:** VECTORS AND METHODS FOR TRANSDUCING B CELLS

Figure 1



(57) **Abstract:** The present disclosure provides compositions and methods for transducing B cells. In particular, the present disclosure provides for vectors and methods for transducing resting B cells and methods for differentiating same to express a transgene of interest.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/020578**A. CLASSIFICATION OF SUBJECT MATTER***C12N 15/867(2006.01)i, C12N 5/10(2006.01)i, C12N 5/0781(2010.01)i, C12N 15/13(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 15/867; C12N 15/09; A61K 48/00

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) & Keywords: B cell, transduction, lentiviral vector, measles virus, CD40L, plasma cell

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FUNKE, S. et al. "Targeted cell entry of lentiviral vectors". Mol Ther. 24 June 2008, Vol. 16, No. 8, pp. 1427-1436. - See the whole document, especially abstract; pages 1431, 1434.	1-21
A	FRECHA, C. et al. "Efficient and stable transduction of resting B lymphocytes and primary chronic lymphocyte leukemia cells using measles virus gp displaying lentiviral vectors". Blood. 10 August 2009, Vol. 114, No. 15, pp. 3173-3180. - See the whole document.	1-21
A	BOVIA, F. et al. "Efficient transduction of primary human B lymphocytes and nondividing myeloma B cells with HIV-1-derived lentiviral vectors". Blood. 24 October 2002, Vol. 101, No. 5, pp. 1727-1733. - See the whole document.	1-21
A	BUCHHOLZ, C.J. et al. "Lentiviral vectors with measles virus glycoproteins - dream team for gene transfer?". Trends Biotechnol. 25 March 2009, Vol. 27, No. 5, pp. 259-265. - See the whole document.	1-21
A	US 2003/0203489 A1 (YOSHIKAZU YONEMITSU et al.) 30 October 2003	1-21

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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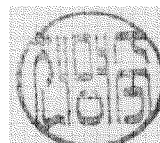
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>- See the whole document .</p> <p>WO 2008/037458 A2 (BUNDESREPUBLIK DEUTSCHLAND, LETZTVERTRETEN DURCH DEN PRAESIDENTEN DES PAUL-EHRLICH-INSTITUTS et al.) 03 April 2008</p> <p>- See the whole document .</p>	1-21

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2011/020578

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003/0203489 A1	30.10.2003	AU 2001-62684 A1	11.12.2001
		AU 6268401 A	11.12.2001
		CA 2413995 A1	02.12.2002
		CN 100531802 C	26.08.2009
		CN 1444650 A0	24.09.2003
		EP 1291419 A1	12.03.2003
		EP 1291419 A4	08.09.2004
		HK 1056576 A1	18.12.2009
		JP 01-092508 A1	06.12.2001
		JP 04-700888 B2	11.03.2011
		KR 10-0807016 B1	25.02.2008
		US 7510706 B2	31.03.2009
		WO 01-92508 A1	06.12.2001
		WO 2008/037458 A2	03.04.2008
EP 2066795 A2	10.06.2009		
US 2010-0189690 A1	29.07.2010		
WO 2008-037458 A3	10.07.2008		
WO 2008-037458 A8	14.05.2009		