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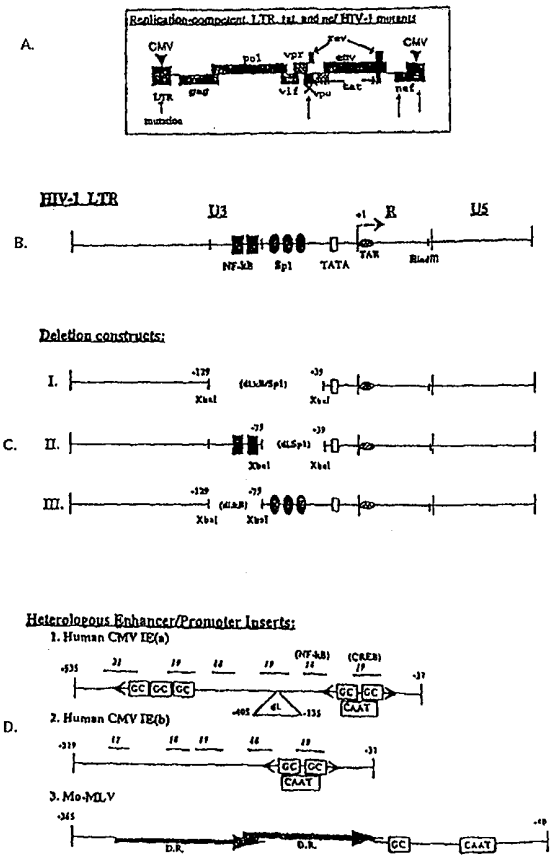
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12 October 2000 (12.10.00)

(54) Title: LENTIVIRAL VECTORS, COMPRISING MODIFIED MAJOR DONOR SPLICE SITES AND MAJOR PACKAGING SIGNALS

(57) Abstract

A packaging vector comprising a nucleotide sequence encoding Gag and Pol proteins of a reference lentivirus, said packaging vector differing from said reference lentivirus at least in that (a) its major splice donor site is either deleted, or if provided, while functional, differs in sequence from that of said reference lentivirus sufficiently so that said major splice donor site is not a potential site for homologous recombination between said packaging vector and said reference lentivirus, and (b) it lacks a functional major packaging signal, which vector, after introduction into a suitable host cell, is capable of causing such cell, either through expression from said vector alone, or through co-expression from said vector and a second vector providing for expression of a compatible envelope protein, to produce packaging vector particles comprising functional Gag and Pol proteins and having a normal or a pseudotyped envelope, where said particles are free of the RNA form of said packaging vector as a result of (b) above, where said cell, as a result of said expression or co-expression, produces particles encapsulating the RNA form of a transducing vector possessing a compatible and functional packaging signal if said transducing vector is introduced into said cell.



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INTERNATIONAL SEARCH REPORT

Inter .onal Application No
PCT/US 99/11516

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/86 C12N5/10

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 6 C12N

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 91 02805 A (VIAGENE INC) 7 March 1991 (1991-03-07) abstract; examples 1,4,7 ---	1-52
X	US 5 665 577 A (SODROSKI JOSEPH G ET AL) 9 September 1997 (1997-09-09) abstract; claim 1 ---	1-52
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
21 June 2000	14.07.00

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Meyer, W

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INTERNATIONAL SEARCH REPORT

Inter. .onal Application No
PCT/US 99/11516

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Inter...onal Application No
PCT/US 99/11516

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Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
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T	IWAKUMA T ET AL: "SELF-INACTIVATING LENTIVIRAL VECTORS WITH U3 AND U5 MODIFICATIONS" VIROLOGY,US,ACADEMIC PRESS,ORLANDO, vol. 261, no. 1, 1999, pages 120-132, XP000882897 ISSN: 0042-6822 the whole document	1-52

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/11516

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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. [X] Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claim 27 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

2. [X] Claims Nos.: 53
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:

see FURTHER INFORMATION sheet PCT/ISA/210

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 II Observations where unity of invention is lacking (Continuation of item 2 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. [X] 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.

[ ] No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 53

Present claim 53 relates to products defined (inter alia) by reference to arbitrary designations and do not constitute a definition through technical parameters as required by Rule 6.3 PCT. In the present context this leads to a lack of clarity within the meaning of Article 6 PCT. It is impossible to compare these internal arbitrary named vectors with what is set out in the prior art. The lack of clarity is such as to render a meaningful complete search impossible. Consequently, no search has been carried out for claim 53.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-49 and 52

   refers to modified packaging vector encoding Gag and Pol, in which the mojor splice donor site is modified

2. Claims: 50, 51

   refers to "reference" lentivirus-derived transducing vectors

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 99/11516

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