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(71) Applicant *(for all designated States except US)*: **UNIVERSITY OF IOWA RESEARCH FOUNDATION** [US/US]; Iowa Centers for Enterprise, 2660 University Capitol Centre, Iowa City, Iowa 52242 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **ENGELHARDT, John, F.** [US/US]; 16 Burr Oak Ct., Iowa City, Iowa 52246 (US). **ZHANG, Liang** [CN/US]; 240 Hawkeye Court, Iowa City, Iowa 52246 (US).

(74) Agents: **STEFFEY, Charles, E.** et al.; Schwegman, Lundberg & Woessner, P.A., P. O. Box 2938, Minneapolis, Minnesota 55402 (US).

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31 January 2008

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS AND COMPOUNDS TO MODULATE PARVOVIRUS TRANSDUCTION OF MAMMALIAN CELLS OR TO ALTER VIRUS INFECTION, METHOD TO IDENTIFY A VIRAL RECEPTOR OR CO-RECEPTOR

(57) Abstract: The invention provides a method to identify an agent that alters parvovirus transduction of mammalian cells. Also provided is a method to enhance transgene expression in a mammalian cell, as well as a method to identify an agent that alters NADPH oxidase activity in parvovirus transduced mammalian cells.

WO 2007/127464 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/010434

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N33/50 G01N33/573 G01N33/566 C12N15/864

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)
G01N 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)
EPO-Internal, BIOSIS, EMBASE, WPI Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 00/75365 A2 (UNIV IOWA RES FOUND [US]; ENGELHARDT JOHN F [US]; DUAN DONGSHENG [US]) 14 December 2000 (2000-12-14) the whole document claims	1-6, 12-20, 25-29
A	SANLIOGLU S ET AL: "Cellular redox state alters recombinant adeno-associated virus transduction through tyrosine phosphatase pathways." GENE THERAPY AUG 1999, vol. 6, no. 8, August 1999 (1999-08), pages 1427-1437, XP002450231 ISSN: 0969-7128 cited in the application the whole document	1-6, 25-29

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[X] Further documents are listed in the continuation of Box C.

[X] 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 document 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 another 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.

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Date of the actual completion of the international search	Date of mailing of the international search report
22 November 2007	05/12/2007

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	STRICKER, J

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/010434

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	LAMBETH J DAVID: "NOX enzymes and the biology of reactive oxygen." NATURE REVIEWS. IMMUNOLOGY MAR 2004, vol. 4, no. 3, March 2004 (2004-03), pages 181-189, XP002450232 ISSN: 1474-1733 cited in the application the whole document	1-6, 25-29
A	WO 2005/119251 A (UNIV GENEVE [CH]; KRAUSE KARL-HEINZ [CH]; BANFI BOTOND [US]) 15 December 2005 (2005-12-15) abstract; claims 1-17	25-29
A	WO 03/095667 A (AREXIS AB [SE]; HOLMDAHL RIKARD [SE]; OLOFSSON PETER [SE]) 20 November 2003 (2003-11-20) abstract; claims 55-61,66-82,93	25-29
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/010434

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/10402 A (DYKE KNOX VAN [US]) 11 April 1996 (1996-04-11) page 16, lines 26,27 page 17, lines 13,15 claims 1,19,20,41,42	21
X	WO 2004/112727 A (AVIGEN INC [US]; ARBETMAN ALEJANDRA ELENA [US]; COLOSI PETER [US]; LOC) 29 December 2004 (2004-12-29) abstract page 25, lines 9-21 pages 59-62; table 4 page 62, lines 12-19	7-10, 22-24
Y		11
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Y	paragraphs [0001], [0008], [0018], [0039] - [0041]; claim 2	11
Y	LIN H C ET AL: "Prediction of tyrosine sulfation sites in animal viruses" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, ACADEMIC PRESS INC. ORLANDO, FL, US, vol. 312, no. 4, 26 December 2003 (2003-12-26), pages 1154-1158, XP004476397 ISSN: 0006-291X abstract	11
Y	US 6 037 177 A (SNYDER RICHARD [US]) 14 March 2000 (2000-03-14) abstract	11
A	US 2005/181423 A1 (BARAK LARRY S [US] ET AL) 18 August 2005 (2005-08-18) abstract	30-37
A	SANLIOGLU ET AL: "Novel approaches to augment adeno-associated virus type-2 endocytosis and transduction" VIRUS RESEARCH, AMSTERDAM, NL, vol. 104, no. 1, August 2004 (2004-08), pages 51-59, XP005107903 ISSN: 0168-1702 cited in the application abstract Chapter "4. Discussion" on p.57	30-37

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/010434

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SANLIOGLU S ET AL: "Endocytosis and nuclear trafficking of adeno-associated virus type 2 are controlled by rac1 and phosphatidylinositol-3 kinase activation." JOURNAL OF VIROLOGY OCT 2000, vol. 74, no. 19, October 2000 (2000-10), pages 9184-9196, XP002459344 ISSN: 0022-538X cited in the application abstract	30-37

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/010434

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. [X] Claims Nos.: 12-24, as regards industrial applicability
because they relate to subject matter not required to be searched by this Authority, namely:

see FURTHER INFORMATION sheet PCT/ISA/210

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:

see additional sheet

1. [X] As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers 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.

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

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Although claims 12-24 are 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.

Continuation of Box II.1

Claims Nos.: 12-24, as regards industrial applicability

Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-6, 12-14, 15-20, 21, 25-29

1. A method to identify an agent that alters parvovirus transduction of mammalian cells,
12. A method to enhance parvovirus infection of mammalian cells,
15. A method to enhance transgene expression in a mammalian cell,
21. A method to inhibit parvovirus infection of mammalian cells,
25. A method to identify an agent that alters NADPH oxidase activity in parvovirus transduced mammalian cells;
-> all involving the modulation of NADPH oxidase activity.

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2. claims: 7-11, 22-24

7. A method to identify viral capsid modifications that enhance parvovirus transduction of mammalian cells,
22. A method to alter parvovirus infection of mammalian cells,
24. A method to alter viral production;
-> all involving the use of parvovirus having a modified capsid.

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3. claims: 30-37

30. A method to identify a viral receptor or co-receptor,
-> involving the use of Rac containing endosomes.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2007/010434

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