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(88) Date of publication of the international search report:
22 January 2009

(54) Title: ADENOVIRAL VECTORS ENCODING A PATHOGEN OR TUMOUR ANTIGEN

(57) Abstract: An adenoviral vector comprising a promoter further comprising a fragment of the 5' untranslated region of the CMV IEl gene including intron A and a nucleic acid sequence encoding a pathogen or tumour antigen for use as a medicament.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. C12N15/861 C12N15/863 A61K39/015 A61K39/04

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)
A61K

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, Sequence Search, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 2007/100584 A (GOVERMENT OF THE UNITED STATES [US]; GOVERMENT OF THE UNITED STATES [U) 7 September 2007 (2007-09-07) page 41, page 44, lines 17-19 part 4	1,4,5, 14-16,45

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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 :

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"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
3 December 2008	10/12/2008

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, Fax: (+31-70) 340-3016	Bernhardt, Wiebke

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/001262

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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X	GILBERT S C ET AL: "Enhanced CD8 T cell immunogenicity and protective efficacy in a mouse malaria model using a recombinant adenoviral vaccine in heterologous prime-boost immunisation regimes" VACCINE, BUTTERWORTH SCIENTIFIC. GUILDFORD, GB, vol. 20, no. 7-8, 15 January 2002 (2002-01-15), pages 1039-1045, XP004332973 ISSN: 0264-410X	1,4-10, 14-21, 25-29, 33, 35-37, 39, 45-47,58
Y	abstract page 1040, left-hand column -& WO 01/21201 A (ISIS INNOVATION [GB]; SCHNEIDER JOERG [GB]; GILBERT SARAH CATHERINE [G) 29 March 2001 (2001-03-29) pages 8,18	2,3, 11-13, 22-24, 30-32, 34,38, 40-44, 48-57
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INTERNATIONAL SEARCH REPORT

International application No
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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.
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X	WO 02/04493 A (CHIRON CORP [US]; UNIV STELLENBOSCH [ZA]; ZUR MEGEDE JAN [US]; BARNETT) 17 January 2002 (2002-01-17) pages 3,4,53; claims 64,82	1,4,5; 14-16,45
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Y	WO 2007/027860 A (GENVEC INC [US]; NASA [US]; BRUDER JOSEPH T [US]; KOVESDI IMRE [US]; K) 8 March 2007 (2007-03-08) pages 5,27,28, paragraphs 68,79; example 5	7-10,18, 20,21, 26,28, 29,38, 40,41, 52-54
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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	MONTGOMERY D L ET AL: "HETEROLOGOUS AND HOMOLOGOUS PROTECTION AGAINST INFLUENZA A BY DNA VACCINATION: OPTIMIZATION OF DNA VECTORS" DNA AND CELL BIOLOGY, MARY ANN LIEBERT, NEW YORK, NY, US, vol. 12, no. 9, 1 November 1993 (1993-11-01), pages 777-783, XP000565708 ISSN: 1044-5498 abstract; figure 1	1-32,45, 48-57
A	XU Z-L ET AL: "Strength evaluation of transcriptional regulatory elements for transgene expression by adenovirus vector" JOURNAL OF CONTROLLED RELEASE, ELSEVIER, AMSTERDAM, NL, vol. 81, no. 1-2, 17 May 2002 (2002-05-17), pages 155-163, XP004351113 ISSN: 0168-3659 abstract; figure 1	1-32,45, 48-57
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INTERNATIONAL SEARCH REPORT

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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	LI ET AL: "Viral vectors for malaria vaccine development" VACCINE, BUTTERWORTH SCIENTIFIC. GUILDFORD, GB, vol. 25, no. 14, 15 March 2007 (2007-03-15), pages 2567-2574, XP005925103 ISSN: 0264-410X page 2569, left-hand column	33-41, 46,47,58
A	EP 1 589 108 A (OXXON THERAPEUTICS LTD [GB]) 26 October 2005 (2005-10-26) pages 4-7 formulation 4, page 7	33-41, 46,47,58

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INTERNATIONAL SEARCH REPORT

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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.:
because they relate to subject matter not required to be searched by this Authority, namely:

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. ☐ 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.:

1-58

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-32, 45, 48-57

An immunogenic composition comprising an adenoviral vector said adenoviral vector further comprising a promoter comprising a fragment of the 5' untranslated region of the CMV IE1 gene including intron A and a nucleic acid sequence encoding a pathogen or tumor antigen; first or further medical use of said vector; method of eliciting an immune response comprising administering said vector; a simian adenoviral vector comprising said features; a composition, a vaccine or a kit comprising the adenoviral vector

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2. claims: 33-44, 46, 47, 58

A product, composition or a kit comprising (i) a priming composition comprising an adenoviral vector said adenoviral vector further comprising a long heterologous promotor wherein the promoter is a fragment of the 5' untranslated region of the CMV IE1 gene including intron A and a nucleic acid sequence encoding a pathogen or tumor antigen; and (ii) a boosting composition comprising a recombinant pox virus vector, said pox virus vector further comprising at least one nucleic acid sequene encoding a pathogen or tumour antigen which is the same as at least one antigen of the priming composition; a method of eliciting an immune response administering said product or composition; a kit comprising said composition or product

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3. claims: 59-63

Method for enhancing the T cell immunogenicity of an immunogenic composition or vaccine comprising (i) an adenoviral vector said adenoviral vector further comprising a promoter comprising a fragment of the 5' untranslated region of the CMV IE1 gene including intron A and a nucleic acid sequence encoding a pathogen or tumor antigen; and (ii) an CpG adjuvant; a composition comprising said immunogenic composition and a CpG adjuvant; medical uses of said compositions

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2008/001262

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