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- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

16 December 2021 (16.12.2021)

(54) Title: METHODS AND COMPOSITIONS FOR PURIFYING ADENO ASSOCIATED VIRUS PARTICLES OR ADENOVIRUSES

(57) Abstract: The present invention relates to compositions and methods for lysing cells and isolating and/or purifying adeno-associated virus particles or adenovirus particles using a detergent selected from the group of alkyltrimethylammonium oxides.

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2021/062605

A. CLASSIFICATION OF SUBJECT MATTER

INV. C12N15/86 C11D1/00
ADD.

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 C11D

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 practicable, search terms used)

EPO-Internal, WPI Data, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2020/023612 A1 (VOYAGER THERAPEUTICS INC [US]) 30 January 2020 (2020-01-30) paragraphs [0009] - [0011], [0352], [1185]-[1192];; claims; example 2 ----- -/-	1-6,9, 11-13



Further documents are listed in the continuation of Box C.



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 application or patent 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

"&" document member of the same patent family

Date of the actual completion of the international search

10 November 2021

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2021/062605

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HUANG Y ET AL: "Insights into pilus assembly and secretion from the structure and functional characterization of usher PapC - Supporting Information", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, vol. 106, no. 18, 5 May 2009 (2009-05-05), pages 7403-7407, XP055829286, US ISSN: 0027-8424, DOI: 10.1073/pnas.0902789106 Retrieved from the Internet: URL:https://www.pnas.org/content/suppl/2009/04/20/0902789106.DCSupplemental/0902789106SI.pdf> page 1, right-hand column, paragraph 3	13
X	GARAMUS V M ET AL: "Scattering from Polymerlike Micelles of TDAO in Salt/Water Solutions at Semidilute Concentrations", LANGMUIR, vol. 16, no. 16, 1 August 2000 (2000-08-01), pages 6431-6437, XP055829288, US ISSN: 0743-7463, DOI: 10.1021/la000085h Retrieved from the Internet: URL:https://pubs.acs.org/doi/pdf/10.1021/la000085h> abstract, experimental section, results and discussion;	13
A	WO 00/32754 A1 (INTROGEN THERAPEUTICS INC [US]; ZHANG SHUYUAN [US] ET AL.) 8 June 2000 (2000-06-08) claims; examples	1-4,6-15
A	MOLEIRINHO M G ET AL: "Clinical-Grade Oncolytic Adenovirus Purification Using Polysorbate 20 as an Alternative for Cell Lysis", CURRENT GENE THERAPY, BENTHAM SCIENCE PUBLISHERS LTD, NL , vol. 18 9 November 2018 (2018-11-09), pages 1-9, XP009509939, ISSN: 1566-5232, DOI: 10.2174/1566523218666181109141257 Retrieved from the Internet: URL:http://www.eurekaselect.com/167211/article abstract, results and discussion;	1-4,6-15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2021/062605

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 all searchable 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 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 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: 1-15(partially)

A method for lysing cells enclosing AAV particles by contacting a suspension of said cells with a composition comprising an alkyltrimethylamine oxide, wherein said composition comprises LDAO as well as subject-matter related thereto;

2. claims: 1-15(partially)

A method for lysing cells enclosing AAV particles by contacting a suspension of said cells with a composition comprising an alkyltrimethylamine oxide, wherein said composition comprises TDAO as well as subject-matter related thereto;

3. claims: 1-4, 6-15(all partially)

A method for lysing cells enclosing AdV particles by contacting a suspension of said cells with a composition comprising an alkyltrimethylamine oxide, as well as subject-matter related thereto;

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2021/062605

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2020023612 A1	30-01-2020	AU 2019310459 A1 CA 3107462 A1 CN 112770812 A EP 3826719 A1 SG 11202100704P A WO 2020023612 A1	18-02-2021 30-01-2020 07-05-2021 02-06-2021 25-02-2021 30-01-2020
WO 0032754 A1	08-06-2000	AT 452183 T AU 775579 B2 CA 2353787 A1 DK 1135469 T3 EP 1135469 A1 ES 2338288 T3 PT 1135469 E US 7732129 B1 US 2002182723 A1 US 2008050770 A1 WO 0032754 A1	15-01-2010 05-08-2004 08-06-2000 12-04-2010 26-09-2001 05-05-2010 23-03-2010 08-06-2010 05-12-2002 28-02-2008 08-06-2000