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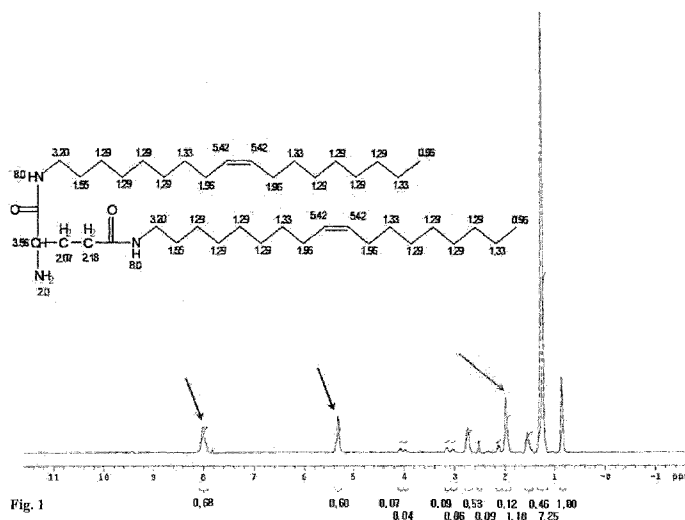
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Published:

— with international search report

[Continued on next page]

(54) Title: A NOVEL CATIONIC LIPID, A PREPARATION METHOD OF THE SAME AND A DELIVERY SYSTEM COMPRISING THE SAME



(57) Abstract: The present invention provides a novel cationic lipid, a preparation method of the same and a delivery system comprising the same. The cationic lipid of the present invention is used for the preparation of delivery systems of nucleic acids or physiologically active anionic proteins. The cationic lipid of the present invention can be conveniently prepared and purified by a simple process and is therefore economically highly advantageous for industrial-scale production thereof. Further, a nucleic acid or protein delivery system comprising the cationic lipid of the present invention not only significantly improves the intracellular delivery efficiency of desired nucleic acid drugs (such as DNAs, RNAs, siRNAs, antisense oligonucleotides, and nucleic acid aptamers) or anionic proteins having physiological activity, but also is usefully used to augment therapeutic efficacy of nucleic acid or protein drugs due to attenuated cytotoxicity of the delivery system.



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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2008/004819**A. CLASSIFICATION OF SUBJECT MATTER***C07C 237/04(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)

IPC C07C

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)

e-KIPASS, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003/0199090 A1 (Sean D. Monahan, et al.) 23 October 2003 See the whole document, especially page 29-30, paragraphs [0308], [0310]-[0312]; page 34-35, paragraph [0385].	1-17, 20-21
A	US 2007/0142324 A1 (Bruno Perly, et al.) 21 June 2007 See compounds 21, 22, 32 and 8b in pages 9, 12, 21 and 23.	1-17, 20-21
A	WO 00/37046 A1 (UNIVERSITY OF WASHINGTON) 29 June 2000 See page 15, "Glutamate-Based Analogs". -----End of documents-----	1-17, 20-21

☐ 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

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"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

25 FEBRUARY 2009 (25.02.2009)

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2008/004819**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.: 18-19
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 18-19 pertain to methods for treatment of the human or animal body by therapy, and thus relate to a subject matter which this international Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.
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:

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 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 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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2008/004819

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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