A61K 31/7088 (2006.01)  A61K 48/00 (2006.01)

A61K 31/7088 (2006.01)  A61K 48/00 (2006.01)

(18) International Classification:

(57) Abstract:
Provided are formulations, compositions and methods for delivering biological moieties such as modified nucleic acids into cells to modulate protein expression. Such compositions and methods include the delivery of biological moieties, and are useful for production of proteins.
**INTERNATIONAL SEARCH REPORT**

**International application No**
PCT/US2012/031781

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**A. CLASSIFICATION OF SUBJECT MATTER**

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<th>INV.</th>
<th>A61K3 1/7088</th>
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According to International Patent Classification (IPC) or to both national classification and IPC

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**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

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<td>X</td>
<td>NAGATA S ET AL: &quot;MOLECULAR CLONING AND EXPRESSION OF CDNA FOR HUMAN GRANULOCYTE COLONY-STIMULATING FACTOR&quot;, NATURE: INTERNATIONAL WEEKLY JOURNAL OF SCIENCE, NATURE PUBLISHING GROUP, UNITED KINGDOM, vol. 319, 30 January 1986 (1986:01:30), page 415-418, XP000847676, ISSN: 0028-0836, DOI: 10.1038/3 19415A0 the whole document</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

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**Date of the actual completion of the international search**

12 October 2012

**Date of mailing of the international search report**

11/01/2013

**Name and mailing address of the ISA/Authorized officer**

Faber, Cerstin

European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
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Form PCT/ISA/210 (second sheet) (April 2005)
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).

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ 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.:

I-20(partially)

Remainder of 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.
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<td>wo 99/14346 A2 (SEQUITUR INC [US]) 25 March 1999 (1999-03-25) page 28, line 14 - line 23; claims 1-32; example 1</td>
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Form PCT/ISA/210 (continuation of second sheet) (April 2009)
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This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: l-20(partially)

   Method of producing a polypeptide of interest in a cell, tissue or bodily fluid of a mammalian subject comprising administering to said subject a pharmaceutical composition comprising a polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#4.

2. claims: l-20(partially)

   Method of producing a polypeptide of interest in a cell, tissue or bodily fluid of a mammalian subject comprising administering to said subject a pharmaceutical composition comprising a polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#7.

3. claims: l-20(partially)

   Method of producing a polypeptide of interest in a cell, tissue or bodily fluid of a mammalian subject comprising administering to said subject a pharmaceutical composition comprising a polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#8.

4. claims: l-20(partially)

   Method of producing a polypeptide of interest in a cell, tissue or bodily fluid of a mammalian subject comprising administering to said subject a pharmaceutical composition comprising a polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#12.

5. claims: 21, 22 (partially)

   An isolated polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#4.

6. claims: 21, 22 (partially)

   An isolated polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#7.
7. claims: 21, 22 (partially)

An isolated polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#8.

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8. claims: 21, 22 (partially)

An isolated polynucleotide, said polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#12.

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9. claims: 23-25 (partially)

A pharmaceutical composition comprising a polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#4 further comprising a 5' Cap structure and a polyA tail of approximately 160 nucleotides in length.

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10. claims: 23-25 (partially)

A pharmaceutical composition comprising a polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#7 further comprising a 5' Cap structure and a polyA tail of approximately 160 nucleotides in length.

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11. claims: 23-25 (partially)

A pharmaceutical composition comprising a polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#8 further comprising a 5' Cap structure and a polyA tail of approximately 160 nucleotides in length.

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12. claims: 23-25 (partially)

A pharmaceutical composition comprising a polynucleotide comprising a sequence selected from the group consisting of SEQ ID NO#12 further comprising a 5' Cap structure and a polyA tail of approximately 160 nucleotides in length.

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**INTERNATIONAL SEARCH REPORT**

**Information on patent family members**

**International application No**

PCT/US2012/031781

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