



(43) International Publication Date  
22 November 2012 (22.11.2012)

(51) International Patent Classification:

A61K 47/48 (2006.01) A61K 48/00 (2006.01)  
A61K 47/30 (2006.01) A61P 25/00 (2006.01)

(21) International Application Number:

PCT/US2012/038627

(22) International Filing Date:

18 May 2012 (18.05.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/519,228 18 May 2011 (18.05.2011) US

(71) Applicant (for all designated States except US): **CHILDREN'S HOSPITAL MEDICAL CENTER** [US/US];  
3333 Burnet Avenue, Cincinnati, Ohio 45229-3039 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **PAN, Dao** [US/US];  
8431 Heritage Drive, Cincinnati, Ohio 45249 (US).

(74) Agents: **HUNT, Dale C.** et al.; Davis Wright Tremaine LLP, 505 Montgomery Street, Suite 800, San Francisco, California 94111-6533 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- 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))
- with sequence listing part of description (Rule 5.2(a))

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

31 January 2013

(54) Title: TARGETED DELIVERY OF PROTEINS ACROSS THE BLOOD BRAIN BARRIER

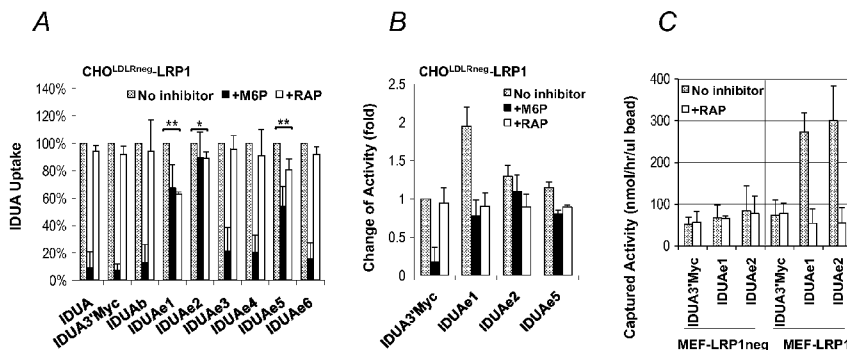


Fig. 8

(57) Abstract: Embodiments of the invention are directed to compositions comprising a peptide sequence, or a nucleic acid encoding the same, wherein the peptide sequence includes a receptor-binding region of apolipoprotein E (apoE), or a sequence variant or fragment thereof, for directing delivery of a given protein or therapeutic across the blood brain barrier. Embodiments of the invention are also directed to methods of using the compositions for treating or preventing a neurological disorder, disease, or symptom in a subject in need thereof.

WO 2012/159052 A3

**A. CLASSIFICATION OF SUBJECT MATTER***A61K 47/48(2006.01)i, A61K 47/30(2006.01)i, A61K 48/00(2006.01)i, A61P 25/00(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)

A61K 47/48; A61K 38/43; A61K 38/08; A61K 38/00; C07K 14/00; A61K 38/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords: delivery, protein, bbb, aplipoprotein

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010-0015117 A1 (VERMA INDER M. et al.) 21 January 2010 See Fig.3,4, example 1, claims 21-40	1-3, 12-23, 25-28
A	US 2011-0021413 A1 (LASKOWITZ DANIEL T. et al.) 27 January 2011 See the whole document	1-3, 12-23, 25-28
A	US 2010-0286025 A1 (ANANTHARAMAIAH GATTADAHALLI M. et al.) 11 November 2010 See the whole document	1-3, 12-23, 25-28

 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 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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

30 NOVEMBER 2012 (30.11.2012)

Date of mailing of the international search report

**03 DECEMBER 2012 (03.12.2012)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office  
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan  
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Shin Chang Hoon

Telephone No. 82-42-481-8406



**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.: 4-11,24,29-38  
because they relate to subject matter not required to be searched by this Authority, namely:  
The subject-matter of claims 4-11,24,29-38 relates to a method of treatment of the human body, and thus relate to a subject matter which this International Searching Authority is not required, under PCT Article17(2)(a)(I) and Rule39.1 (IV), 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/US2012/038627**

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