

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 January 2012 (05.01.2012)

PCT

(10) International Publication Number
WO 2012/003452 A3

(51) International Patent Classification:

A61K 38/16 (2006.01) **A61P 9/10** (2006.01)
A61K 38/17 (2006.01) **A61P 25/00** (2006.01)

(21) International Application Number:

PCT/US201 1/042808

(22) International Filing Date:

1 July 2011 (01.07.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/360,739 1 July 2010 (01.07.2010) US

(71) Applicant (for all designated States except US): **THE TEXAS A&M UNIVERSITY SYSTEM** [US/US]; 3369 Tamu, College Station, TX 77843-3369 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **BIX, Gregory, J.** [US/US]; 704 Brussels Road, College Station, TX 77845 (US).

(74) Agents: **EISENSCHENK, Frank, C.** et al; Saliwanchik, Lloyd & Eisenschenk, P.O. Box 142950, Gainesville, FL 32614-2950 (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, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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:

19 April 2012

(54) Title: PERLECAN DOMAIN V PROTECTS, REPAIRS AND RESTORES ISCHEMIC BRAIN STROKE INJURY AND MOTOR FUNCTION

(57) Abstract: The disclosed invention relates to the use of perlecan domain V (DV) for the treatment of stroke, traumatic brain injury (TBI) or spinal cord injuries (SCI). In certain embodiments, fusion proteins of DV can be used for the treatment of stroke, TBI or SCI. DV is also referred to as endorepellin in the art. This application also provides compositions and combination therapies for the treatment of stroke, TCI and/or SCI. Another aspect of the invention provides methods of restoring motor function in subjects having neurological damage arising from a stroke, TBI or SCI.



WO 2012/003452 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US20 11/042808**A. CLASSIFICATION OF SUBJECT MATTER****A61K 38/16(2006.01)i, A61K 38/17(2006.01)1, A61P 9/10(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 38/16; A61K 39/395; A61K 31/70; A01N 63/00; A61K 31/4035; A01K 67/027; A61K 38/17

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), PubMed, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003-0104999 A1 (RENATO V. IOZZO) 05 June 2003 See abstract ; claims .	17-19 ,26-34
A	US 2010-0092469 A1 (J. MARC SIMARD et al.) 15 April 2010 See abstract ; claims .	17-19 ,26-34
A	US 7141551 B1 (ARTHUR A. DECARLO et al.) 28 November 2006 See abstract ; claims .	17-19 ,26-34
A	US 2003-0233669 A1 (ALAN D. SNOW et al.) 18 December 2003 See abstract ; claims .	17-19 ,26-34

☐ 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

"&" document member of the same patent family

Date of the actual completion of the international search

28 FEBRUARY 2012 (28.02.2012)

Date of mailing of the international search report

29 FEBRUARY 2012 (29.02.2012)

Name and mailing address of the ISA/KR

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

Facsimile No. 82-42-472-7140

Authorized officer

PARK, JEONG UNG

Telephone No. 82-42-481-8131



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US20 11/042808**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.: **1-16,20-25,35-37,39,41-45**
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 1-16,20-25,35-37,39,41-45 pertain to methods for treatment of the human 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.: **38,40**
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:
Claims 27 or 29 relate to "a kit", but claims 38 or 40 dependant on claims 27 or 29 relate to "a method".
As claims 38 or 40 do not clearly define the matter for which protection are sought, these claims do not meet the requirement of PCT Article 6.
3. ☒ Claims Nos.: **13,14**
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 /US20 11/042808

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003-0 104999 A1	05 .06 .2003	AU 2002-346651 A 1 AU 2002-346651 A8 US 682 1947 B2 Wo 03-048333 A2 Wo 03-048333 A3	17 .06 .2003 17 .06 .2003 23 .11 .2004 12 .06 .2003 12 .06 .2003
US 2010-0092469 A 1	15 .04 .2010	CA 26 18099 A 1 EP 2 114 160 A 1 wo 2008-098160 A 1	09 .08 .2008 11 .11 .2009 14 .08 .2008
US 7 141 551 B1	28 .11 .2006	AU 2008-255012 A 1 CA 2685257 A 1 EP 2 155 206 A 1 JP 20 10-534621 A KR 10-2010-0017494 A US 2008-0247995 A 1 US 7488719 B1 US 7666852 B2 US 7772204 B1 wo 2008-143863 A 1	27 .11 .2008 14 .11 .2008 24 .02 .2010 11 .11 .2010 16 .02 .2010 09 .10 .2008 10 .02 .2009 23 .02 .2010 10 .08 .2010 27 .11 .2008
US 2003-0233669 A1	18 .12 .2003	US 2007-0089175 A 1 US 6563016 B1 US 7309812 B2	19 .04 .2007 13 .05 .2003 18 .12 .2007