(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 September 2007 (27.09.2007)

PCT

(10) International Publication Number
WO 2007/109307 A3

(51) International Patent Classification:
C12P 21/08 (2006.01) *C12P 21/04* (2006.01)
C07K 16/00 (2006.01) *C12N 5/06* (2006.01)
A61K 39/395 (2006.01) *C12N 15/02* (2006.01)
G01N 33/574 (2006.01) *C07H 21/04* (2006.01)
G01N 33/53 (2006.01)

(21) International Application Number:
PCT/US2007/006999

(22) International Filing Date: 20 March 2007 (20.03.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/784,029 20 March 2006 (20.03.2006) US

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 60/784,029 (CIP)
Filed on 20 March 2006 (20.03.2006)

(71) Applicants *(for all designated States except US)*: **CURAGEN CORPORATION** [US/US]; 322 E. Main Street, Branford, CT 06405 (US). **AMGEN FREMONT, INC.** [US/US]; 6701 Kaiser Drive, Fremont, CA 94555 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **ZHONG, Haihong** [CN/US]; 2269 Long Hill Road, Guilford, CT 06437 (US). **ZHOU, Qing** [US/US]; 1106 Starfish Terrace, Fremont, CA 94536 (US).

(74) Agent: **ELRIFI, Ivor, R.**; Mintz, Levin, Cohn, Ferris, Glovsky And Popeo PC, One Financial Center, Boston, MA 02111 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, 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, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
— *with sequence listing part of description published separately in electronic form and available upon request from the International Bureau*

(88) Date of publication of the international search report:
30 October 2008

(54) Title: ANTIBODIES DIRECTED TO ANGIOPOIETIN-LIKE PROTEIN 4 AND USES THEREOF

(57) Abstract: Antibodies directed to the antigen ANGPTL4 and uses of such antibodies. In accordance with the teachings herein, there are provided fully human monoclonal antibodies directed to the antigen ANGPTL4. Nucleotide sequences encoding, and amino acid sequences comprising, heavy and light chain immunoglobulin molecules, particularly sequences corresponding to contiguous heavy and light chain sequences spanning the framework regions and/or complementarity determining regions (CDR's), specifically from FR1 through FR4 or CDR1 through CDR3, are provided. Hybridomas or other cell lines expressing such immunoglobulin molecules and monoclonal antibodies are also provided.

WO 2007/109307 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US07/06999

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **C12P 21/08**(2006.01);**C07K 16/00**(2006.01);**A61K 39/395**(2006.01);**G01N 33/574**(2006.01),**33/53**(2006.01);**C12P 21/04**(2006.01);**C12N 5/06**(2006.01),**15/02**(2006.01);**C07H 21/04**(2006.01)

USPC: Please See Continuation Sheet
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)
U.S. : 530/387.3, 388.1, 388.15, 391.7; 424/133.1, 141.1, 142.1, 181.1, 183.1; 435/7.23, 7.92, 69.6, 70.21, 326, 449; 536/23.53

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)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DESAI U. et al. Lipid-lowering Effects of Anti-angiopoietin-like 4 Antibody Recapitulate the Lipid Phenotype Found in Angiopoietin-like 4 Knockout Mice. Proc. Natl. Acad. Sci. USA, July 10, 2007, Vol 104. No. 28, pages 11766-11771, see entire document.	1-33
A	HERMANN L. M. et al. Angiopoietin-like-4 is a Potential Angiogenic Mediator in Arthritis. Clinical Immunology. 2005, Vol 115, pages 93-101, see entire document.	1-33

☐ 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 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
29 July 2008 (29.07.2008)

Date of mailing of the international search report
21 AUG 2008

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Facsimile No. (571) 273-3201

Authorized officer
David J. Blanchard

Telephone No. (572) 272-0501

Form PCT/ISA/210 (second sheet) (April 2007)

Continuation of B. FIELDS SEARCHED Item 3:
WEST, medline ,embase, esbiobase, scisearch, lifesci, biosis, biotechno, geneseq, UniProt 12.1, PIR_80, published applications, issued patents.
Search terms: SEQ ID numbers. Angiopoietin-like-4, ANGPTL4, angiogenesis, antibody, inventor search

Continuation of USPC:
530/387.3,388.1,388.15,391.7;424/133.1,141.1,142.1,181.1,183.1;435/7.23,7.92,69.6,70.21,326,449;536/23.53