

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
29 November 2007 (29.11.2007)

PCT

(10) International Publication Number
WO 2007/136893 A3

- (51) International Patent Classification:
C07K 16/22 (2006.01) A61K 39/395 (2006.01)
C12N 15/13 (2006.01) A61P 35/00 (2006.01)
C12N 5/10 (2006.01)
- (21) International Application Number:
PCT/US2007/061936
- (22) International Filing Date: 9 February 2007 (09.02.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/772,310 10 February 2006 (10.02.2006) US
60/780,608 9 March 2006 (09.03.2006) US
60/885,866 19 January 2007 (19.01.2007) US
- (71) Applicant (for all designated States except US): GENEN-TECH, INC. [US/US]; 1 DNA Way, MS-49, South San Francisco, California 94080 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): DESNOYERS, Luc [CA/US]; 2050 Stockton Street, San Francisco, California 94133 (US). FRENCH, Dorothy [US/US]; 23 Michael Court, San Carlos, California 94070 (US).
- (74) Agent: POLIZZI, Catherine M.; Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, CA 94304-1018 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, 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, LV, LY, MA, MD, ME, 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, 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, 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
- (88) Date of publication of the international search report:
15 May 2008

(54) Title: ANTI-FGF19 ANTIBODIES AND METHODS USING SAME

VL Sequences

```

Kabat#  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
                                     Kabat - CDR L1
                                     Chothia - CDR L1
                                     Contact - CDR L1
mu1A6  D I X M T Q S P S S M Y A S L G E R V T I P C K A S Q D I N S F L S W P Q

Kabat# 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
                                     Kabat - CDR L2
                                     Chothia - CDR L2
                                     Contact - CDR L2
mu1A6  Q K P G K S P K T L I Y R A N R L V D G V P S R F S G S G S G Q D Y S L T I S S L E Y

Kabat# 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108
                                     Kabat - CDR L3
                                     Chothia - CDR L3
                                     Contact - CDR L3
mu1A6  E D M G I Y Y C L Q Y D E F P L T F G A G T K V E I K R

```

(57) Abstract: The invention provides anti-FGF19 antibodies, and compositions comprising and methods of using these antibodies, methods using anti-FGF19 antibodies, and methods comprising detection of FGF19 and/or FGFR4.

WO 2007/136893 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/061936

A. CLASSIFICATION OF SUBJECT MATTER

INV. C07K16/22 C12N15/13 C12N5/10 A61K39/395 A61P35/00

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)
C07K C12N A61K A61P

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 practical, search terms used)

EPO-Internal, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/103725 A (GENENTECH INC [US]; FRENCH DOROTHY [US]; ASHKENAZI AVI J [US]; DESNOYE) 18 December 2003 (2003-12-18) abstract page 14, paragraph 5 page 22, paragraph 4 page 69, paragraph 1 page 70, paragraphs 1,2 claims 13-31,52-178 examples 1-13 ----- -/--	1-92

 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 document 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 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

12 March 2008

Date of mailing of the international search report

28/03/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Ferreira, Roger

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/061936

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>NICHOLAS KATRINA ET AL: "A mouse model of hepatocellular carcinoma: ectopic expression of fibroblast growth factor 19 in skeletal muscle of transgenic mice." THE AMERICAN JOURNAL OF PATHOLOGY JUN 2002, vol. 160, no. 6, June 2002 (2002-06), pages 2295-2307, XP002972820 ISSN: 0002-9440 cited in the application the whole document</p>	1-17, 57-74
X	<p>US 2002/012961 A1 (BOTSTEIN DAVID [US] ET AL) 31 January 2002 (2002-01-31)</p> <p>abstract paragraphs [0171] - [0311]</p>	52, 54, 55, 57-83, 85-90
P, X	<p>DESNOYERS L R ET AL: "Targeting FGF19 inhibits tumor growth in colon cancer xenograft and FGF19 transgenic hepatocellular carcinoma models." ONCOGENE 3 JAN 2008, vol. 27, no. 1, 3 January 2008 (2008-01-03), pages 85-97, XP002472193 ISSN: 1476-5594 Published online on 25.06.2007 the whole document</p>	1-92
T	<p>HOTZEL K H ET AL: "Targeting FGF19 as a therapeutic for hepatocellular carcinoma" EJC SUPPLEMENTS, vol. 5, no. 4, September 2007 (2007-09), page 65, XP022332827 & 14TH EUROPEAN CANCER CONFERENCE (ECCO 14); BARCELONA, SPAIN; SEPTEMBER 23 -27, 2007 ISSN: 1359-6349 the whole document</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/061936

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.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 33-56 and 75-84 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
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 allsearchable 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.:

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/US2007/061936

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03103725	A	18-12-2003	AU 2003243400 A1 22-12-2003
			CA 2486252 A1 18-12-2003
			EP 1553912 A1 20-07-2005
			JP 2005528905 T 29-09-2005
			MX PA04012243 A 25-02-2005
			US 2005166274 A1 28-07-2005
			US 2007143871 A1 21-06-2007
			ZA 200409492 A 22-02-2006
<hr style="border-top: 1px dashed black;"/>			
US 2002012961	A1	31-01-2002	NONE
<hr style="border-top: 1px dashed black;"/>			