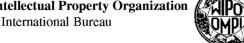
## (19) World Intellectual Property Organization



A61P 25/28 (2006.01)



#### (43) International Publication Date 24 January 2008 (24.01.2008)

# (51) International Patent Classification:

(21) International Application Number:

C07K 16/18 (2006.01)

PCT/US2007/073504

13 July 2007 (13.07.2007) (22) International Filing Date:

(25) Filing Language: **English** 

English (26) Publication Language:

(30) Priority Data:

06014730.3	14 July 2006 (14.07.2006)	EP
	• • • • • • • • • • • • • • • • • • • •	
06020765.1	2 October 2006 (02.10.2006)	EP
60/943,289	11 June 2007 (11.06.2007)	US
60/943,499	12 June 2007 (12.06.2007)	US

(71) Applicants (for all designated States except US): AC IM-MUNE S.A. [CH/CH]; EPFL-PSE Building B, CH-1015 Lausanne (CH). GENENTECH, INC. [US/US]; 1 DNA Way, South San Francisco, CA 94080-4990 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): PFEIFER, Andrea [DE/CH]; Rte de Fenil 16A, CH-1806 St- Légier (CH). PIHLGREN, Maria [SE/CH]; Rue du Centre 42A, CH-1025 St. Sulpice (CH). MUHS, Andreas [DE/CH]; Av. des Cerisiers 39b, CH-1009 Pully (CH). WATTS, Ryan [US/US]; 524 Yale Drive, San Mateo, CA 94402 (US).

(10) International Publication Number

WO 2008/011348 A3

- (74) Agents: PEET, Richard, C. et al.; Foley & Lardner LLP, Washington Harbour, 3000 K Street, Nw, Ste 500, Washington, DC 20007-5143 (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY,

[Continued on next page]

#### (54) Title: HUMANIZED ANTIBODY AGAINST AMYLOID BETA

Hindill	
"""" AAGCTYATGAATATGCAAATCCTCTGAATCTACA TGGTAAATATAGGTTTGTCTATA CCACAAACAGAAAAACATGAGATCACAGGT CTCTCTACAGTTA	
TT COMMENCE THAT A CONTROL OF THE SAME OF	10-
Noti	
CALCT COT CTCCC CCCCCCCCCCCCCCCCCCCCCCCCCC	20:
M G W S C I I L P L V A T A T	
GO ANA AN RIGHTHA AN RIGHTHA CHT THE CITT THE CITT CHARGE AND CHARGE AND THE RIGHT AND ACCESSANCE CHARGE AND C	30:
G V M S D V V M T Q T P L S L P V	
Bg   Kpn    Pstl	
GT-CTT-GSAGATCANGO-TCCAT CT CTTGO-CAN-TCTWSTC-NAOCCT-GTATATAGTALTGOAGNO-CCT-CTTA-CN-TGSTA-CCTGC-CANAGCC-NGCCA-CTT-CTT-CANAGCA-CTC-CTT-CTT-CTT-CTT-CTT-CTT-CTT-CTT-C	40-
S L G D Q A S I S C R S S O S L N Y S N G D T Y L N N Y L O K P G O C2VK	
ФСТ СОДАНОСТ ССТВЯ ТЕТИСИНЕНТ ТССИКСОЙТ ТЕСТВОВЕТСОСИВ СИБЕТ ТОСИВОВЕНТОВИИТСЯВИЕСЯ В ТЕТОКОВСТВИВИЕСЯ В ТЕТОКОВ В ТЕТОК	50-
SPKLL I Y K V S N R P S G V P D R P S G S G S G T D P T L K 1	
ACCUSATION CONTINUES OF THAT THOU TO CHILD AND SEASON OF THE OUT OF CONTINUES OF THE OUT	60-
S R V E A E D L G V Y P C S Q S T N V P N T P G G G T K L B I K	
BomHI:	

(57) Abstract: The present invention is related to chimeric and humanized antibody and to methods and compositions for the therapeutic and diagnostic use in the treatment of amyloidosis, a group of disorders and abnormalities associated with amyloid protein such as Alzheimer's disease.

### WO 2008/011348 A3



$$\label{eq:total_total_total} \begin{split} & \text{TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,} \\ & \text{ZM, ZW.} \end{split}$$

(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
- (88) Date of publication of the international search report: 10 July 2008

International application No PCT/US2007/073504

A. CLASSIFICATION OF SUBJECT MATTER INV. C07K16/18 A61P25/28

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

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, EMBASE, Sequence Search, WPI Data

Category*	Citation of document, with indication, where appropriate, of the	ne relevant nassages	Relevant to claim No.
	oración oracocament, with indication, where appropriate, or in	ie reievani passages	Helevani to claim No.
X	BARD F ET AL: "Epitope and is specificities of antobodies to beta-amyloid peptide for prote against Alzheimer's disease-li neuropathology" PROCEEDINGS OF THE NATIONAL ACSCIENCES OF USA, NATIONAL ACAD SCIENCE, WASHINGTON, DC, US, vol. 100, no. 4, 18 February 2003 (2003-02-18), 2023-2028, XP002982464 ISSN: 0027-8424 page 2023; table 1	ction ke ADEMY OF EMY OF	1-152
	ther documents are listed in the continuation of Box C.	X See patent family annex.	
'A' docum consider filling of docum which citation other	ent defining the general state of the art which is not dered to be of particular relevance document but published on or after the international date ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another or or ofter special reason (as specified) lent referring to an oral disclosure, use, exhibition or means ent published prior to the international filing date but han the priority date claimed	<ul> <li>"T" later document published after the Inte or priority date and not in conflict with cited to understand the principle or the invention</li> <li>"X" document of particular relevance; the cannot be considered novel or cannot involve an inventive step when the do</li> <li>"Y" document of particular relevance; the cannot be considered to involve an in document is combined with one or moments, such combination being obvious in the art.</li> <li>"&amp;" document member of the same patent</li> </ul>	the application but early underlying the slaimed invention be considered to current is taken alone laimed invention wentive step when the ore other such docuus to a person skilled
	actual completion of the international search	Date of mailing of the international sea	rch report
Date of the		1	
	2 March 2008	14/05/2008	

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LIU RUITIAN ET AL: "Single chain variable fragments against beta-amyloid (Abeta) can inhibit Abeta aggregation and prevent Abeta-induced neurotoxicity" BIOCHEMISTRY, AMERICAN CHEMICAL SOCIETY. EASTON, PA, US, vol. 43, no. 22, 12 May 2004 (2004-05-12), pages 6959-6967, XP002395890 ISSN: 0006-2960 page 6963 - page 6964	1-152
X	SOLOMON B ET AL: "MONOCLONAL ANTIBODIES INHIBIT IN VITRO FIBRILLAR AGGREGATION OF THE ALZHEIMER BETA-AMYLOID PEPTIDE" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE, WASHINGTON, DC, US, vol. 93, January 1996 (1996-01), pages 452-455, XP002942850 ISSN: 0027-8424 abstract	1-152
X	WO 2006/055178 A (MERCK & CO INC [US]; ACUMEN PHARMACEUTICALS INC [US]; UNIV NORTHWESTER) 26 May 2006 (2006-05-26) page 61; table 2	1-152
X	WO 02/096937 A (NEUROCHEM INC [CA]; GERVAIS FRANCINE [CA]; HEBERT LISE [CA]; CHALIFOUR) 5 December 2002 (2002-12-05) page 65; table 2 page 65; example 2	1–152
Χ	WO 03/070760 A (HOFFMANN LA ROCHE [CH]; MORPHOSYS AG [DE]; BARDROFF MICHAEL [DE]; BOHR) 28 August 2003 (2003-08-28) page 72; figure 9	1-152
X	WO 00/72880 A (NEURALAB LTD [US]; SCHENK DALE B [US]; BARD FREDERIQUE [US]; VASQUEZ N) 7 December 2000 (2000-12-07) table 6 page 90	1-152
X	WO 01/62801 A (UNIV WASHINGTON [US]; LILLY CO ELI [US]; HOLTZMAN DAVID M [US]; DEMATT) 30 August 2001 (2001-08-30) example 16 example 12 page 149; table 21	1-152

0100	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	PCT/US2007/073504
<del></del>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Χ .	WO 2006/066171 A (NEURALAB LTD; WYETH CORP [US]; JACOBSON JACK STEVEN [US]) 22 June 2006 (2006-06-22) page 71, line 16 page 144 page 95 page 149; table 21	1-152
P,X	WO 2007/068412 A (AC IMMUNE SA [CH]; GREFERATH RUTH [DE]; HICKMAN DAVID [CH]; MUHS ANDRE) 21 June 2007 (2007-06-21) page 10	145-148
		·

International application No. PCT/US2007/073504

### INTERNATIONAL SEARCH REPORT

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. X Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:  Although claims 93-99, 151 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 antibody.
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 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 reportcovers 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
The was not paid within the time limit specified in the invitation.  No protest accompanied the payment of additional search fees.

Information on patent family members

		PC1/US200//0/3504		0020077 07 0004		
	tent document in search report		Publication date	l	Patent family member(s)	Publication date
WO	2006055178	Α	26-05-2006	AU CA EP KR	2005306997 A1 2584859 A1 1812062 A2 20070094890 A	26-05-2006 26-05-2006 01-08-2007 27-09-2007
WO	02096937	A	05-12-2002	AT CA CN EP JP	369380 T 2449056 A1 1662554 A 1392728 A2 2005508863 T	15-08-2007 05-12-2002 31-08-2005 03-03-2004 07-04-2005
WO	03070760	А	28-08-2003	AU BR CA CN HR JP MX US ZA	2003218995 A1 0307837 A 2477012 A1 1630665 A 20040712 A2 2005527199 T PA04008077 A 2005169925 A1 200406604 A	09-09-2003 07-12-2004 28-08-2003 22-06-2005 30-06-2005 15-09-2005 14-12-2005 04-08-2005 14-06-2005
WO	0072880	A	07-12-2000	AU BG BR CCN CZ DE EP GB HU JP MNO NZ PLK TR UY ZA	5303100 A 106241 A 0011000 A 2370311 A1 1359301 A 1814287 A 20013824 A3 10084643 T0 200100626 A 1185298 A2 2368794 A 20010877 A2 0201250 A2 6154 A 2003517461 T 2007269804 A PA01011621 A 20015773 A 515403 A 357182 A1 16982001 A3 200103447 T2 200202231 T2 263503 B 26182 A1 200109487 A	18-12-2000 30-08-2002 19-02-2002 07-12-2000 17-07-2002 09-08-2006 13-11-2002 11-07-2002 17-02-2003 13-03-2002 15-05-2002 30-04-2005 28-08-2002 09-11-2001 27-05-2003 18-10-2007 22-06-2005 25-01-2002 28-05-2004 26-07-2004 06-11-2002 21-11-2002 21-11-2002 21-11-2006 29-12-2000 17-02-2003
` WO	0162801	A	30-08-2001	AT AU BR CA CN CZ DE DE DE	279442 T 4178601 A 0108676 A 2400559 A1 1426423 A 20022851 A3 1257584 T1 60106394 D1 60106394 T2 1257584 A2	15-10-2004 03-09-2001 07-01-2003 30-08-2001 25-06-2003 17-09-2003 28-05-2003 18-11-2004 09-03-2006 20-11-2002

Information on patent family members

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 0162801	Α		ES	2184660	<b>T</b> 1	16-04-2003
	• •		HK	1048640		01-04-2005
			HR	20020693	-	31-12-2004
			HU	0204074	A2	28-03-2003
			JP	2003523764	T `	12-08-2003
			MΧ	PA02008145	Α	05-04-2004
			NO	20023957		22-10-2002
			ΝZ	520800		30-04-2004
			PĹ	356798	A1	12-07-2004
			PT		T	31-01-2005
			SK	12212002		07-10-2003
			TR	200202799		21-03-2003
			US	2004043418	A1	04-03-2004
WO 2006066171	Α	22-06-2006	AR	051800	A1	07-02-2007
			CA	2589017	A1	22-06-2006
			ΕP	1838349	A1	03-10-2007
			UY	29283	A1	30-06-2006
WO 2007068412	A	21-06-2007	AR	058326	A1	30-01-2008
			US	2007166311	A1	19-07-2007