

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
28 April 2005 (28.04.2005)

PCT

(10) International Publication Number
WO 2005/037989 A3

(51) International Patent Classification:

C07K 16/00 (2006.01) **C12N 15/63** (2006.01)
C07H 21/04 (2006.01) **A61K 39/395** (2006.01)
C12N 15/00 (2006.01)

(21) International Application Number:

PCT/US2003/024918

(22) International Filing Date: 26 July 2003 (26.07.2003)

(25) Filing Language: English

(26) Publication Language: English

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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

Published:

— with international search report

(88) Date of publication of the international search report:
3 May 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: BINDING DOMAIN-IMMUNOGLOBULIN FUSION PROTEINS

(57) Abstract: The invention relates to novel binding domain-immunoglobulin fusion proteins that feature a binding domain for a cognate structure such as an antigen, a counterreceptor or the like, a wild-type IgG1, IGA or IgE hinge region polypeptide or a mutant IgG1 hinge region polypeptide having either zero, one or two cysteine residues, and immunoglobulin CH2 and CH3 domains, and that are capable of ADCC and/or CDC while occurring predominantly as polypeptides that are compromised in their ability to form disulfide-linked multimers. The fusion proteins can be recombinantly produced at high expression levels. Also provided are related compositions and methods, including cell surface forms of the fusion proteins and immunotherapeutic applications of the fusion proteins and of polynucleotides encoding such fusion proteins.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/24918

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8): C07K 16/00(2007.01);C07H 21/04(2007.01);C12N 15/00(2007.01),15/63(2007.01);A61K 39/395(2007.01)

USPC: 530/387.3,388.1,388.22,388.8;536/23.53;435/69.6,320.1;424/133.1

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, 388.22, 388.8; 536/23.53; 435/69.6, 320.1; 424/133.1

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.
X	SHAN D. et al. Characterization of scFv-Ig Constructs Generated from the Anti-CD20 mAb Using Linker Peptides of Varying Lengths. The Journal of Immunology, June 1, 1999, vol. 162, No. 11, pages 6589-6595, especially Fig. 3 and pg. 6590, 1st col.	1, 3, 8-9, 11-12, 15-17, 27-28, 35-38, 41, 49-50, 52-57
A	US 7,148,321 (GILLIES et al) 12 December 2006 (12.12.2006), see entire document.	1-4, 6-20, 22-42, 44-50, 52-57, 62-73

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	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"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	"&"	document member of the same patent family

Date of the actual completion of the international search

04 December 2006 (04.12.2006)

Date of mailing of the international search report

22 JAN 2007

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/24918

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

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

2. Claim Nos.: 5, 43 and 51
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 5, 43 and 51 are drawn to specific sequences, but lack sequence identifiers. A search of the claims in the absence of the sequence identifiers would not be meaningful.

3. Claim Nos.: 21 and 58-61
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 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.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US03/24918

Continuation of B. FIELDS SEARCHED Item 3:

WEST, medline, embase, scisearch, lifesci, biosis, confsci, biotechno, proeng, dissabs, inventor search
search terms: scFv-Ig, mutant hinge, cys, IgG1, IgG hinge, IgE hinge, IgA hinge, hinge deletion/substitution