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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
13 February 2003 (13.02.2003)

PCT

(10) International Publication Number
WO 03/011878 A3

(51) International Patent Classification[7]: C12N 5/10, 5/12, 5/16, 5/20, 5/24, 9/10, 15/12, 15/13, 15/54, C07K 16/28, 16/30, A61K 39/395

(21) International Application Number: PCT/US02/24739

(22) International Filing Date: 5 August 2002 (05.08.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/309,516 3 August 2001 (03.08.2001) US

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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, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, 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, IE, IT, LU, MC, NL, PT, SE, 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:
6 November 2003

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.

WO 03/011878 A3

(54) Title: ANTIBODY GLYCOSYLATION VARIANTS HAVING INCREASED ANTIBODY-DEPENDENT CELLULAR CYTOTOXICITY

(57) Abstract: The present invention relates to the field of glycosylation engineering of proteins. More particularly, the present invention relates to glycosylation engineering to generate proteins with improved therapeutic properties, including antibodies with increased antibody-dependent cellular cytotoxicity.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/24739

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 5/10, 5/12, 5/16, 5/20, 5/24, 9/10, 15/12, 15/13, 15/54; C07K 16/28, 16/30; A61K 39/395
US CL : 435/325, 326, 330, 332, 334, 343, 343.1, 343.2, 344, 344.1; 530/387.1, 388.2, 388.22, 388.7, 388.73;
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. : 435/325, 326, 330, 332, 334, 343, 343.1, 343.2, 344, 344.1; 530/387.1, 388.2, 388.22, 388.7, 388.73;

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)
U.S. Patent Database using EAST(BRS); Medline, Embase, Biosis and Caplus

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	UMANA et al. Engineered glyoforms of an antineuroblastoma IgG1 with opitimized antibody-dependent cellular cytotoxic activity. Nature Biotechnology. February 1999, Vol. 17, pages 176-180, see entire document.	1-5, 10, 15-23, 28-34
X	TANEMURA et al. Reduction of the major swine xenoantigen GALalpha(1,3)GAL by transfection of N-acetylglucosaminyl transferase III(GnT-III) gene. Transplantation Proceedings. 1997, Vol. 29, pages 891-892, especially pages 891 and 892, 2nd col.	1-5, 18, 20-25, 28, 30-34
X	FUKUTA et al. Control of bisecting GlcNAc addition to N-linked sugar chains. Journal of Biological Chemistry. 04 August 2000, Vol. 275, No. 31, pages 23456-23461, especially pages 23456 and 23457.	1,5,18
X	US 6,153,433 A (MIYOSHI et al) 28 November 2000 (28.11.2000), col. 7, lines 26-40.	1,5,18
P,X	DAVIES et al. Expression of GnTIII in a recombinant anti-CD20 CHO production cell line: expression of anitbodies with altered glycoforms leads to an increase in ADCC through higher affinity for FcgammaRIII. Biotechnol. Bioeng. 20 August 2001, Vol. 74, pages 288-294, especially pages 288-290.	1-5, 10, 11, 17-25, 28, 30-34

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
07 July 2003 (07.07.2003)	23 JUL 2003
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Form PCT/ISA/210 (second sheet) (July 1998)

PCT/US02/24739

INTERNATIONAL SEARCH REPORT

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	UMANA et al. Tetracycline-regulated overexpression of glycosyltransferases in chines hamster ovary cells. Biotechnol. Bioeng. 1999, Vol. 65, pages 542-549, see entire document.	1-34, 36-38