

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
17 January 2002 (17.01.2002)

PCT

(10) International Publication Number
WO 02/005146 A3

(51) International Patent Classification⁷: **G06F 19/00**

(21) International Application Number: PCT/US01/21823

(22) International Filing Date: 10 July 2001 (10.07.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/217,661 10 July 2000 (10.07.2000) US

(71) Applicant: **XENCOR, INC.** [US/US]; 111 W. Lemon Avenue, Monrovia, CA 91016 (US).

(72) Inventors: **CHIRINO, Arthur, J.**; 6816 Pueblo Vista, Camarillo, CA 93012 (US). **DAHIYAT, Bassil, I.**; 3829 Luna Court, Altadena, California 91001 (US).

(74) Agents: **TRECARTIN, Richard, F.** et al.; Flehr Hohbach Test Albritton & Herbert LLP, Suite 3400, 4 Embarcadero Center, San Francisco, CA 94111-4187 (US).

(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, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

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

Published:
— with international search report

(88) Date of publication of the international search report:
1 May 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.

(54) Title: METHOD FOR DESIGNING PROTEIN LIBRARIES WITH ALTERED IMMUNOGENICITY

(57) Abstract: The present invention relates to the use of a variety of computational methods for modulating the immunogenicity of proteins by identifying and then altering potential amino acid sequences that elicit an immune response in a host organism. In particular, protein will be screened for MHC binding sequences, T cell epitopes and B cell epitopes.



WO 02/005146 A3

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 01/21823

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F19/00

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)

IPC 7 G06F

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 47089 A (CALIFORNIA INST OF TECHN) 22 October 1998 (1998-10-22) cited in the application claims 1-27	1-18
Y	WO 00 34317 A (ADAIR FIONA SUZANNE ;CARR FRANCIS JOSEPH (GB); HAMILTON ANITA ANNE) 15 June 2000 (2000-06-15) cited in the application abstract; claims 1-5	1-18

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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

27 January 2003

Date of mailing of the international search report

05/02/2003

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

Filloy García, E

INTERNATIONAL SEARCH REPORT

Internatio  plication No

PCT/US 01/21823

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PIERCE N A ET AL: "Conformational Splitting: A More Powerful Criterion for Dead-End Elimination" JOURNAL OF COMPUTATIONAL CHEMISTRY, JOHN WILEY AND SONS, CHICHESTER, GB, vol. 21, no. 11, 21 June 2000 (2000-06-21), pages 999-1009, XP002220680 ISSN: 0192-8651 the whole document -----	1-18

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Publication No

PCT/US 01/21823

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9847089	A	22-10-1998	AU 751331 B2	15-08-2002
			AU 6965498 A	11-11-1998
			EP 1255209 A2	06-11-2002
			EP 0974111 A1	26-01-2000
			JP 2002510966 T	09-04-2002
			US 2002106694 A1	08-08-2002
			US 6188965 B1	13-02-2001
			WO 9847089 A1	22-10-1998
			US 6269312 B1	31-07-2001
			US 2001032052 A1	18-10-2001
			US 2001039480 A1	08-11-2001
			US 2002004706 A1	10-01-2002
WO 0034317	A	15-06-2000	AU 1667600 A	26-06-2000
			CA 2342967 A1	15-06-2000
			CN 1294596 T	09-05-2001
			EP 1051432 A2	15-11-2000
			WO 0034317 A2	15-06-2000
			JP 2002534959 T	22-10-2002
			AU 4635699 A	24-01-2000