

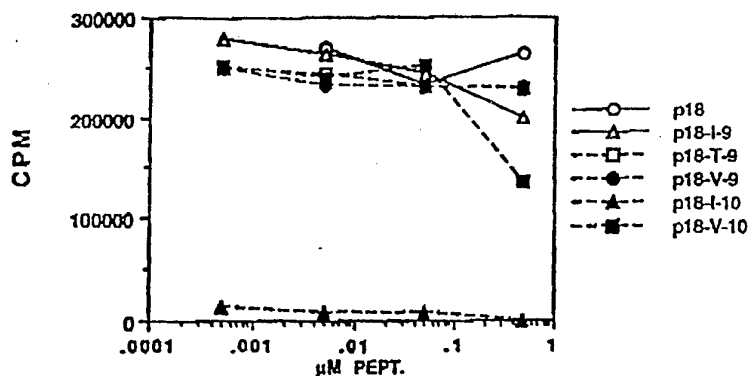


## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification 5 : C12N 15/49, C07K 13/00, C12N 15/86 A61K 39/21 // (A61K 39/21, 31:40) C07K 15/00</p>	A3	<p>(11) International Publication Number: <b>WO 93/18055</b></p> <p>(43) International Publication Date: 16 September 1993 (16.09.93)</p>
<p>(21) International Application Number: PCT/US93/01925</p> <p>(22) International Filing Date: 8 March 1993 (08.03.93)</p> <p>(30) Priority data: 847,311 6 March 1992 (06.03.92) US</p> <p>(71) Applicant: THE GOVERNMENT OF THE UNITED STATES OF AMERICA as represented by THE DEPARTMENT OF HEALTH AND HUMAN SERVICES [US/US]; National Institutes of Health, Box OTT, Bethesda, MD 20892 (US).</p> <p>(72) Inventors: BERZOFSKY, Jay ; 9321 Corsica Drive, Bethesda, MD 20814 (US). TAKESHITA, Toshiyuki ; 263 Congressional Lane, Rockville, MD 20852 (US). SHIRAI, Mutsunori ; 381 Congressional Lane, Rockville, MD 2052 (US). PENDLETON, C., David ; 9100 Old Georgetown Road, Bethesda, MD 20814 (US). MARGULIES, David, H. ; 7805 Radnor Road, Bethesda, MD 20817 (US). KOZLOWSKI, Steven ; 2501 Q Street, N.W., #105, Washington, DC 20007 (US).</p>	<p>(74) Agents: SVENSSON, Leonard, R. et al.; Birch, Stewart, Kolasch &amp; Birch, P.O. Box 747, Falls Church, VA 22046 (US).</p> <p>(81) Designated States: AU, CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p><b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 17 March 1994 (17.03.94)</p>	

(54) Title: PEPTIDES STIMULATING CYTOTOXIC LYMPHOCYTES RESPONSE TO HIV-I GP 160

IN18-230 8/14/91 p18 PEPTIDE TRUNCATIONS PRESENTED TO PLATE BOUND H-2Dd IN BSA. READOUT BY GROWTH INHIBITION B4.2.3



## (57) Abstract

Peptides having high activity in the eliciting of a cytotoxic T lymphocyte response to the HIV-1 envelope glycoprotein gp160 are described. The activation of 12-15 residue peptides by proteolytic degradation to shorter peptides is shown as are general techniques for characterizing such activation processes.

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**INTERNATIONAL SEARCH REPORT**

International Application No

PCT/US 93/01925

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 5 C12N15/49 C07K13/00 C12N15/86 A61K39/21 //(A61K39/21,  
 31:40) C07K15/00

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 5 C07K A61K

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)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	JOURNAL OF EXPERIMENTAL MEDICINE vol. 175, no. 6 , June 1992 pages 1417 - 1422 KOZLOWSKI, S. ET AL. 'Serum angiotensin-1 converting enzyme activity processes a Human Immunodeficiency Virus 1 gp160 peptide for presentation by major Histocompatibility Complex Class I molecules' see the whole document ---	1-4, 12-41
X	WO,A,89 07112 (THE UNITED STATES OF AMERICA, DEPARTMENT OF COMMERCE) 10 August 1989 cited in the application see the whole document --- ---	1,2,11, 12,15,16
	-/--	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the international search  14 January 1994	Date of mailing of the international search report  17 -02- 1994
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  CHAM BONNET, F

## INTERNATIONAL SEARCH REPORT

Intern. Application No

PCT/US 93/01925

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	US-Published-Patent-Application-7-760530 (Berzofsky, J.A.,Takahashi, H. & Germain, R.N.) (Published in NTIS GAZETTE December 15th 1992) see the whole document	1,2,11, 12,15,16
E	& WO,A,93 05812 (GOVERNMENT OF THE USA, DEPARTMENT OF HEALTH AND HUMAN SERVICES) 1 April 1993 cited in the application see the whole document	1,2,11, 12,15,16
X	--- VACCINES 91 vol. 0, no. 0 , 1991 , COLD SPRING HARBOR LABORATORY pages 1 - 7 TAKAHASHI, H. ET AL. 'A unique subunit immunogen iscom-gp160 can elicit MHC class-I-restricted hiv envelope-specific CD8-positive CTLs' see the whole document	1,2,12, 13,15,16
O,X	& MODERN APPROACH TO NEW VACCINES INCLUDING PREVENTION OF AIDS, 8TH ANNUAL MEETING, COLD SPRING HARBOR, NEW YORK, USA, SEPTEMBER 1990	1,2,12, 13,15,16
X	--- AIDS RESEARCH AND HUMAN RETROVIRUSES vol. 7, no. 2 , February 1991 page 144 BERZOFSKY, J.A. ET AL. 'Induction of cytotoxic T cells to HIV proteins' see abstract	1,2,11, 12,15,16
O,X	& ANNUAL MEETING SPONSORED BY THE LABORATORY OF TUMOR CELL BIOLOGY, NATIONAL CANCER INSTITUTE, HYATT REGENCY HOTEL, BETHESDA, MARYLAND, USA, AUGUST 11-17 1990	1,2,11, 12,15,16
X	--- JOURNAL OF EXPERIMENTAL MEDICINE vol. 171, no. 2 , 1 February 1990 pages 571 - 576 TAKAHASHI, H. ET AL. 'An immunodominant class I-restricted cytotoxic T lymphocyte determinant of Human Immunodeficiency Virus type 1 induces CD4 class II-restricted help for itself' cited in the application see the whole document	1,2,11, 12,15,16
4	--- -/--	

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 93/01925

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JOURNAL OF CELLULAR BIOCHEMISTRY vol. 0, no. 16D , 5 March 1992 page 66 KOZLOWSKI, S. ET AL. 'A component of fetal calf serum processes a class I-restricted peptide into its active form' see Abstract O 430 ---	18
A	WO,A,91 02544 (INSTITUT PASTEUR, UNIVERSITE PIERRE ET MARIE CURIE) 7 March 1991 see the whole document ---	1
A	WO,A,91 14449 (INSTITUT PASTEUR) 3 October 1991 see the whole document ---	1
A	EP,A,0 402 088 (MERCK & CO. INC.) 12 December 1990 see the whole document ---	1
P,A	EP,A,0 490 667 (NIPPON MINING COMPANY) 17 June 1992 see the whole document ---	18-23
P,A	EP,A,0 518 672 (MERCK & CO. INC.) 16 December 1992 see page 2, line 22 - line 32 -----	21-23

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 93/01925

**Box I Observations where certain claims were found unsearchable (Continuation of item 1 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:  
Remark : Although claims 15-26, 28-41 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 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:

- claims 1-26, 28-41 all complete and 27 partially
- claim 27 (partially)

See PCT/ISA/206 mailed on 08/11/93

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

Information on patent family members

Intern. Patent Application No

PCT/US 93/01925

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO-A-8907112	10-08-89	AU-A- 3204489	25-08-89
		EP-A- 0400076	05-12-90
		JP-T- 3503166	18-07-91
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