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- Published:
— with international search report
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- 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: ANTICANCER VACCINE AND DIAGNOSTIC METHODS AND REAGENTS

(57) Abstract: The invention provides a method of priming T cells against tumor antigens comprising by obtaining naïve CD4⁺ or DC8⁺ T cells from at least one healthy individual, obtaining at least one protein or peptide from at least one cancerous cell; obtaining antigen presenting cells (APCs), culturing the APCs with the at least one protein or peptide, and adding the T cells to the culture of the APCs. The primed T cells can then be employed to identify the antigens or therapeutically as prophylaxis or treatment for cancers. The invention also provides cyclin molecules, and fragments derived from cyclin molecules, as tumor antigens. The invention provides a method for diagnosing a malignant or pre-malignant condition within a patient. The invention also provides a method for vaccinating a patient against malignancies comprising introducing a protein or peptide consisting essentially of all or an immunogenic fragment of a cyclin protein into the patient.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/30289

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A01N 1/02; A61K 48/00, 35/12; G01N 33/48, 33/536
 US CL : 424/93.1, 277.1; 435/2; 436/64, 542

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. : 424/93.1, 277.1; 435/2; 436/64, 542

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	HASSAN, K.A. et al Clinical Significance of Cyclin B1 Protein Expression in Squamous Cell Carcinoma of the Tongue. Clinical Cancer Res. August 2001, Vol. 7, No. 8, pages 2458-2462, see abstract,	1,2,9
X	COVINI, G. et al Immune response to Cyclin B1 in Hepatocellular Carcinoma. Hepatology. January 1997, Vol. 25, No. 1, pages 75-80, see abstract.	3,4,6,7,10
X	KIM, H.K et al Cyclin E Overexpression as an Independent Risk Factor of Visceral Relapse in Breast Cancer Eur. J. Surg Oncol. August 2001, Vol. 27, No. 5, pages 464-71, see abstract.	1,2,8
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Y		1,3,4,6,7,9,10
X	US 5,543,291 A (KEYOMARSI et al) 06 August 1996 (06.08.1996), column 2, line 3-6	1,2,8
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Y		1,3,4,6,7,9,10
X	US 5,973,119 A (COATS et al) 26 October 1999 (26.10.1999), columns 16,17 lines 30-31, 3-6.	11,12
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Y		14

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	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

20 August 2003 (20.08.2003)

Date of mailing of the international search report

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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.
X	BERARD, F. et al Cross-Priming of Naive CD8 T Cells Against Melanoma Antigens Using Dendritic Cells Loaded with Killed Allogeneic Melanoma Cells. J. Exp. Med. December 2000, Vol. 192, No. 11, pages 1535-1543, see entire document.	16,18,19,20,23,24,25 ,27,28
X --- Y	US 5,962,318 A (ROONEY et al) 05 October 1999 (05.10.1999), column 5, lines 5-40 and abstract	16,18,20,21,24,25 ----- 23
X	US 5,788,963 A (MURPHY et al) 04 August 1998 (04.08.1998), columns 3,5,8-10	16-20,22-25
X --- Y	US 5,846,827 A (CELIS et al) 08 December 1998 (08.12.1998), column 2, lines 48-59	16-18,20-21,27-28 ----- 19,22-25

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/30289

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.:
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. Claim Nos.: 26-30
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/US02/30289

Continuation of B. FIELDS SEARCHED Item 3:

STN DATABASE, MEDLINE, CANCERLIT, BIOSIS, CONFSCI, EMBASE, CAPLUS, USPATFULL, PCTFULL, SCISEARCH