



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁵ : C07K 7/08, 7/10, 15/00 C07K 17/00, G01N 33/574, 33/531	A3	(11) International Publication Number: WO 90/12807 (43) International Publication Date: 1 November 1990 (01.11.90)
(21) International Application Number: PCT/US90/02017 (22) International Filing Date: 13 April 1990 (13.04.90) (30) Priority data: 338,289 14 April 1989 (14.04.89) US Not furnished 11 April 1990 (11.04.90) US (71) Applicant: BAYLOR COLLEGE OF MEDICINE [US/US]; One Baylor Plaza, Houston, TX 77030 (US). (72) Inventors: XU, Hong-Ji ; 333 Holly Creek Court, Apt. 119, The Woodlands, TX 77381 (US). BENEDICT, William, F. ; 21 E. Wedgewood Glen, The Woodlands, TX 77381 (US). HU, Shi-Xue ; 333 Holly Creek Court, Apt. 119, The Woodlands, TX 77381 (US).	(74) Agent: BOULWARE, Margaret, A.; One Riverway, Suite 1100, Houston, TX 77056-1903 (US). (81) Designated States: AT (European patent), AU, BE (European patent), CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 10 January 1991 (10.01.91)	
(54) Title: PURIFIED, HIGHLY SPECIFIC ANTIBODIES AGAINST GENE PRODUCTS INCLUDING RETINOBLASTOMA AND METHOD		
(57) Abstract <p>A method of identifying epitopes to gene products, specifically the human retinoblastoma (Rb) gene and the corresponding antigenic polypeptides. The amino acid sequence has a combination of low solubility and high hydrophilicity. Highly specific high-affinity anti-Rb-IgGs have been purified using the techniques of this invention. The anti-Rb-IgGs have been used to immuno-precipitate and produce Western Blot patterns associated with normal and abnormal Rb proteins. The method and products of this invention can be used in various diagnostic procedures.</p>		

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INTERNATIONAL SEARCH REPORT

International Application No PCT/US 90/02017

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC IPC ⁵ : C 07 K 7/08, C 07 K 7/10, C 07 K 15/00, C 07 K 17/00, G 01 N 33/574, G 01 N 33/531		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System ¹	Classification Symbols	
IPC ⁵	C 07 K	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	EP, A, 0259031 (MASSACHUSETTS EYE & EAR INFIRMARY) 9 March 1988 see claims 1 and 7 --	5-38,46
A	WO, A, 87/06940 (THE REGENTS OF THE UNIVERSITY OF CALIFORNIA) 19 November 1987 see claims, especially claim 4, peptide 6 --	1-4
P,X	Oncogene Research, volume 1, 1989, Harwood Academic Publishers GmbH, (GB), J-Y. Shew et al.: "Antibodies detecting abnormalities of the retinoblastoma susceptibility gene product (pp110 ^{RB}) in osteosarcomas and synovial sarcomas", pages 205-214 see page 206, figure 1, peptide C ----	2-4,9-14
<p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"Δ" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
30th October 1990	10. 12. 90	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	Nurla TORIBIO <i>N. TORIBIO</i>	

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

V. OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND PARTIALLY SEARCHABLE

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

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

1. 1. 1.

2. Claim numbers 1-4, 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:

Reason: The wording of claim 1 is too general to make a comprehensive search possible, since it could cover millions of peptides.

3. Claim numbers because they are dependent claims and are not drafted in accordance with the second and third sentences of PCT Rule 6.4(a).

VI. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

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 of the international application.

2. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. 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 claim numbers:

4. As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

The additional search fees were accompanied by applicant's protest.

No protest accompanied the payment of additional search fees.

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

US 9002017
SA 38921

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 17/11/90. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A- 0259031	09-03-88	AU-B- 600293	09-08-90
		JP-A- 63119698	24-05-88
WO-A- 8706940	19-11-87	AU-B- 596670	10-05-90
		AU-A- 7480387	01-12-87
		EP-A- 0269677	08-06-88
		JP-T- 1501518	01-06-89
		US-A- 4918162	17-04-90