



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁶ : C12N 15/36, 15/49, A61K 48/00	A3	(11) International Publication Number: WO 99/53960 (43) International Publication Date: 28 October 1999 (28.10.99)
(21) International Application Number: PCT/US99/08802 (22) International Filing Date: 22 April 1999 (22.04.99) (30) Priority Data: 60/082,600 22 April 1998 (22.04.98) US (63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application US 60/082,600 (CIP) Filed on 22 April 1998 (22.04.98) (71) Applicant (for all designated States except US): CHIRON CORPORATION [US/US]; Intellectual Property – R440, P.O. Box 8097, Emeryville, CA 94622–8097 (US). (72) Inventor; and (75) Inventor/Applicant (for US only): PALIARD, Xavier [US/US]; Chiron Corporation, P.O. Box 8097, Emeryville, CA 94622–8097 (US). (74) Agents: HARBIN, Alisa, A. et al.; Chiron Corporation, Intellectual Property – R440, P.O. Box 8097, Emeryville, CA 49662–8097 (US).	(81) Designated States: CA, JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <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> (88) Date of publication of the international search report: 23 December 1999 (23.12.99)	
(54) Title: ENHANCING IMMUNE RESPONSES TO GENETIC IMMUNIZATION BY USING A CHEMOKINE		
(57) Abstract		
<p>The immune response to a DNA immunogen in a mammal can be enhanced by administration of a chemokine or a polynucleotide encoding the chemokine. This method can be used, for example, to immunize or vaccinate a mammal against an infectious disease or a tumor.</p>		

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INTERNATIONAL SEARCH REPORT

national Application No
PCT/US 99/08802

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/36 C12N15/49 A61K48/00

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 6 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.
X	WO 96 36366 A (DOW STEVE W ;ELMSLIE ROBYN E (US); NAT JEWISH CENTER FOR IMMUNOLO) 21 November 1996 (1996-11-21)	1,2,7,8, 10-21, 27-29
Y	page 6, line 19 -page 8, line 18 page 17, line 24 -page 20, line 3 page 53, line 4 -page 56, line 23 page 89, line 5 -page 92, line 15 ---	3-6, 23-26
X	WO 94 28916 A (BRITISH BIOTECH PHARM ;COMER MICHAEL BERISFORD (GB); MCCOURT MATTH) 22 December 1994 (1994-12-22)	1,2,5-8, 10-21, 25-29
Y	page 4, line 31 -page 5, line 11 page 14, line 24 -page 17, line 27 page 25, line 20 -page 26, line 6 ---	3,4,23, 24
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

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- "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.
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Date of the actual completion of the international search

Date of mailing of the international search report

19 October 1999

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INTERNATIONAL SEARCH REPORT

 International Application No
 PCT/US 99/08802

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 15285 A (WISTAR INST ;ERTL HILDEGUND C J (US); THURIN MAGDALENA (US)) 16 April 1998 (1998-04-16) page 4, line 24 -page 6, line 28 ---	1,7, 10-20, 27-29
X	WO 96 11279 A (US HEALTH) 18 April 1996 (1996-04-18) page 18, line 20 -page 21, line 29 page 24, line 29 -page 28, line 7 ---	1,2,5-7, 10-21, 25-29
Y	KHUDYAKOV Y E ET AL: "LINEAR B-CELL EPITOPES OF THE NS3-NS4-NS5 PROTEINS OF THE HEPATITIS C VIRUS AS MODELED WITH SYNTHETIC PEPTIDES" VIROLOGY, vol. 206, 1 January 1995 (1995-01-01), pages 666-672, XP000574456 ISSN: 0042-6822 page 666 abstract ---	3,4,23, 24
Y	MOLDOVEANU Z ET AL: "IMMUNE RESPONSES INDUCED BY ADMINISTRATION OF ENCAPSIDATED POLIOVIRUS REPLICONS WHICH EXPRESS HIV-1 GAG AND ENVELOPE PROTEINS" VACCINE, vol. 13, no. 11, 1 August 1995 (1995-08-01), pages 1013-1022, XP000571592 ISSN: 0264-410X page 1013 abstract ---	5,6,25, 26
A	WO 97 19696 A (LUSSO PAOLO ;GALLO ROBERT C (US); COCCHI FIORENZA (US); VICO ANTHO) 5 June 1997 (1997-06-05) page 4, line 11 -page 5, line 20 ---	
A	DILLOO ET AL: "COMBINED CHEMOKINE AND CYTOKINE GENE TRANSFER ENHANCES ANTITUMOR IMMUNITY" NATURE MEDICINE, vol. 2, no. 10, October 1996 (1996-10), pages 1090-1095, XP002119425 page 1090 abstract ---	
E	WO 99 29728 A (GALLO ROBERT C ;DEVICO ANTHONY L (US); GARZINO DEMO ALFREDO (US);) 17 June 1999 (1999-06-17) page 12, paragraph 3 -page 25, paragraph 2 -----	1,2,5,6, 8-22, 25-29

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 99/08802

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 11-29 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:

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

International Application No
PCT/US 99/08802

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