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(54) Title: A HEPATITIS C VIRUS NON-STRUCTURAL NS3/4A FUSION GENE

(57) Abstract: Disclosed herein is the discovery of a novel hepatitis C virus (HCV) isolated from a human patient. Embodiments of the invention include HCV peptides, nucleic acids encoding said HCV peptides, antibodies directed to said peptides, compositions containing said nucleic acids and peptides, as well as, methods of making and using the aforementioned compositions including, but not limited to, diagnostics and medicaments for the treatment and prevention of HCV infection.



WO 02/014362 A3

INTERNATIONAL SEARCH REPORT

Internat	Application No
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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C12N15/40 C07K14/18 C12Q1/68 C12Q1/70 G01N33/576 A61K39/29 C12P21/00		
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 C07K		
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) WPI Data, PAJ, EPO-Internal, CHEM ABS Data, BIOSIS, EMBASE, SEQUENCE SEARCH		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 04008 A (US HEALTH) 28 January 1999 (1999-01-28) page 1, line 12 - line 22 page 5, line 6 - line 15 page 7, line 31 -page 9, line 6 page 9, line 10 -page 11, line 13 page 34, line 20 -page 48, line 21 figures 4G-4H	1-34
A	WO 98 37180 A (ABBOTT LAB) 27 August 1998 (1998-08-27) page 2, line 14 - line 24 page 2, line 28 -page 3, line 26 page 3, line 30 -page 4, line 4 page 9, line 4 -page 10, line 6 figures 1-3 --- -/--	
☒ 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. *Z* document member of the same patent family		
Date of the actual completion of the international search 25 August 2003		Date of mailing of the international search report 08/09/2003
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 Sitch, W

INTERNATIONAL SEARCH REPORT

Internationa Application No
PCT/IB 01/01774

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GORDON ETHEL J ET AL: "Immune responses to hepatitis C virus structural and nonstructural proteins induced by plasmid DNA immunizations." JOURNAL OF INFECTIOUS DISEASES, vol. 181, no. 1, January 2000 (2000-01), pages 42-50, XP002252343 ISSN: 0022-1899 page 42 abstract page 42, right-hand column, paragraph 2 -page 43, right-hand column, paragraph 1 ---	
A	ENCKE J ET AL: "Genetic immunization generates cellular and humoral immune responses against the nonstructural proteins of the hepatitis C virus in a murine model" JOURNAL OF IMMUNOLOGY, THE WILLIAMS AND WILKINS CO. BALTIMORE, US, vol. 161, no. 9, 1 November 1998 (1998-11-01), pages 4917-4923, XP002233910 ISSN: 0022-1767 page 4917 abstract page 4917, right-hand column, paragraph 2 ---	
A	HAHM B ET AL: "NS3-4A OF HEPATITIS C VIRUS IS A CHYMOTRYPSIN-LIKE PROTEASE" JOURNAL OF VIROLOGY, THE AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 69, no. 4, 1 April 1995 (1995-04-01), pages 2534-2539, XP000653587 ISSN: 0022-538X page 2534 abstract page 2534, right-hand column, paragraph 3 ---	
A	WO 99 28482 A (SCHERING CORP) 10 June 1999 (1999-06-10) page 4, line 24 -page 6, line 8 page 19, line 22 - line 28 ---	
P,X	WO 01 96875 A (GEORGE NASCIEMENTO CARLOS ;MEDINA SELBY ANGELICA (US); CHIEN DAVID) 20 December 2001 (2001-12-20) page 3, line 21 -page 8, line 26 page 9, line 13 - line 19 figure 4 --- -/--	1-34

INTERNATIONAL SEARCH REPORT

Internat
Application No
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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	WO 01 38360 A (MEDINA SELBY ANGELICA ;CHIRON CORP (US); COIT DORIS (US); SELBY MA) 31 May 2001 (2001-05-31) page 3, line 16 -page 6, line 25 page 7, line 11 - line 13 figure 9 -----	1-34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 01/01774

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:
see FURTHER INFORMATION sheet PCT/ISA/210
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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claims 23-26 are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition, and although claims 31 and 32 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.

INTERNATIONAL SEARCH REPORT

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