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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: IMMUNOSTIMULATORY POLYNUCLEOTIDE SEQUENCES FOR USE IN SUPPRESSING HEPATITIS VIRUS INFECTION

(57) Abstract: Methods are provided for the treatment of hepatitis B virus (HBV) and hepatitis C virus (HCV) infections. A polynucleotide comprising an immunostimulatory sequence is administered to an individual who has been exposed to or infected by HBV and/or HCV. The polynucleotide is not administered with a HCV or HBV antigen. Administration of the polynucleotide results in amelioration of symptoms of HBV and/or HCV infection.



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INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/711 A61P31/14 C07H21/00

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 A61K A61P C07H

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)

EPO-Internal, WPI Data, SEQUENCE SEARCH, MEDLINE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 55495 A (DYNAVAX TECHNOLOGIES CORP ;DINA DINO (US); ROMAN MARK (US); SCHWAR) 10 December 1998 (1998-12-10) cited in the application page 5, line 26 - line 37 claims 1-5,56,60,61,65,66 SEQ ID n 2 example 1 --- -/--	1-20

☒ 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
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- "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.
- "&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/07931

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MARTIN-OROZCO E ET AL: "ENHANCEMENT OF ANTIGEN-PRESENTING CELL SURFACE MOLECULES INVOLVED IN COGNATE INTERACTIONS BY IMMUNOSTIMULATORY DNA SEQUENCES" INTERNATIONAL IMMUNOLOGY, OXFORD UNIVERSITY PRESS, GB, vol. 11, no. 7, 1999, pages 111-118, XP000938271 ISSN: 0953-8178 cited in the application abstract Sequence of ISS-ODN page 1112, column 1, paragraph 2 Results page 1117, column 2, line 2 - line 7 ---	1-20
X	WO 98 52581 A (WU TONG ;DAVIS HEATHER L (CA); OTTAWA CIVIC HOSPITAL LOEB RES (CA)) 26 November 1998 (1998-11-26) cited in the application claims 30,49,55 page 23, line 1,2,13 Sequence ID n 2 ---	1-4, 6-11, 13-19
X	WO 99 51259 A (UNIV IOWA RES FOUND) 14 October 1999 (1999-10-14) cited in the application claims 1-4,10 page 12, line 27 -page 13, line 1,2,22 seq ID n 3, 24, 49, 70, 76, 100, 103 ---	1-4, 6-11, 13-19
A	ROMAN MARK ET AL: "Immunostimulatory DNA sequences function as T helper-1-promoting adjuvants" NATURE MEDICINE, NATURE PUBLISHING, CO, US, vol. 3, no. 8, August 1997 (1997-08), pages 849-854, XP002188113 ISSN: 1078-8956 abstract page 850, column 1, paragraph 2 methods figures 2,3 --- -/--	1-20

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/07931

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DAVIS H ET AL: "CpG DNA is a potent enhancer of specific immunity in mice immunized with recombinant hepatitis B surface antigen" JOURNAL OF IMMUNOLOGY, THE WILLIAMS AND WILKINS CO. BALTIMORE, US, vol. 160, no. 2, 15 January 1998 (1998-01-15), pages 870-876, XP002109526 ISSN: 0022-1767 abstract page 871, column 2, paragraph 4 -page 873, column 2, paragraph 5 ----	1-20
A	VAN NEST G ET AL: "An immunostimulatory oligonucleotide (ISS ODN) enhances immune responses to HBV vaccine in a variety of animal species including primates." ABSTRACTS OF THE INTERSCIENCE CONFERENCE ON ANTIMICROBIAL AGENTS AND, vol. 39, 1999, page 374 XP001070533 39th Interscience Conference on Antimicrobial Agents and Chemotherapy; San Francisco, California, USA; September 26-29, 1999, 1999 the whole document -----	1-20

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: all partially

Present claims 1-20 relate to an extremely large number of possible polynucleotidic sequences comprising the minimal motifs mentioned in said claims. In particular claims 1 and 2 are so broad that it is impossible to cover all the sequences comprising such minimal motifs. Support and disclosure is to be found for only a very small proportion of the compounds claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, and in particular limited to polynucleotidic sequences comprising the minimal motif RRCGYTCG or RRCGYTCC as in claim 3.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/07931

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