



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>5</sup> : C12N 15/31, 15/63, C07K 7/08 C07K 7/10, 15/00, A61K 39/102 A61K 47/48</p>	A3	<p>(11) International Publication Number: <b>WO 93/15205</b></p> <p>(43) International Publication Date: 5 August 1993 (05.08.93)</p>
<p>(21) International Application Number: PCT/CA93/00041</p> <p>(22) International Filing Date: 3 February 1993 (03.02.93)</p> <p>(30) Priority data: 9202219.3 3 February 1992 (03.02.92) GB</p> <p>(71) Applicant (for all designated States except US): CON- NAUGHT LABORATORIES LIMITED [CA/CA]; 1755 Steeles Avenue West, Willowdale, Ontario M2R 3T4 (CA).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (for US only) : CHONG, Pele [CA/ CA]; 32 Estoril Street, Richmond Hill, Ontario L4C 0B6 (CA). KANDIL, Ali [CA/CA]; 245 Park Home Avenue, Willowdale, Ontario M2R 1A1 (CA). SIA, Charles [GB/ CA]; 27 Mabley Crescent, Thornhill, Ontario L4J 2Z7 (CA). KLEIN, Michel, H. [CA/CA]; 16 Munro Boule- vard, Willowdale, Ontario M2P 1B9 (CA).</p>	<p>(74) Agent: STEWART, Michael, I.; Sim &amp; McBurney, 330 University Avenue, Suite 701, Toronto, Ontario M5A 1R7 (US).</p> <p>(81) Designated States: AU, BR, CA, FI, JP, KR, NO, RU, UA, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p><b>Published</b> <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></p> <p>(88) Date of publication of the international search report: 3 March 1994 (03.03.94)</p>	
<p>(54) Title: SYNTHETIC HAEMOPHILUS INFLUENZAE CONJUGATE VACCINE</p> <p>(57) Abstract</p> <p>Synthetic peptides have an amino acid sequence corresponding to at least one antigenic determinant of at least one protein, usually a structural protein, particularly the P1, P2 and P6 protein, of <i>Haemophilus influenzae</i> (Hi), particularly type b, and are used as is, in chimeric T-B form, in lipidated form, linked to a carrier molecule, particularly a synthetic PRP molecule and/or polymerized to form molecular aggregates, in vaccines against Hi.</p>		

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# INTERNATIONAL SEARCH REPORT

International Application No **PCT/CA 93/00041**

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) <sup>6</sup>				
According to International Patent Classification (IPC) or to both National Classification and IPC				
Int. Cl. 5	C 12 N 15/31	C 12 N 15/63		
C 07 K 7/10	C 07 K 15/00	A 61 K 39/102		
		C 07 K 7/08		
		A 61 K 47/48		
II. FIELDS SEARCHED				
Minimum Documentation Searched <sup>7</sup>				
Classification System	Classification Symbols			
Int. Cl. 5	C 12 N G 01 N	C 07 K C 07 H  A 61 K		
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>8</sup>				
III. DOCUMENTS CONSIDERED TO BE RELEVANT <sup>9</sup>				
Category <sup>10</sup>	Citation of Document, <sup>11</sup> with indication, where appropriate, of the relevant passages <sup>12</sup>	Relevant to Claim No. <sup>13</sup>		
X	WO, A, 9106652 (CONNAUGHT LABORATORIES LIMITED) 16 May 1991 see the whole document	1-3, 6, 10, 11, 17-19, 21-26, 28, 29, 34-38, 15, 16, 25, 26, 28, 33,		
Y	see especially page 15, table 2	15, 16, 25, 26, 28, 33,		
Y	---			
Y	WO, A, 9002557 (PRAXIS BIOLOGICS, INC.) 22 March 1990 see page 38, line 17 - page 42, line 6 see page 99, line 30 - page 101, line 5 --- -/-	15, 16, 39, 43, 48-53		
<p><sup>10</sup> Special categories of cited documents:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <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> </td> <td style="width: 50%; vertical-align: top;"> <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>"&amp;" document member of the same patent family</p> </td> </tr> </table>			<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>"&amp;" document member of the same patent family</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>"&amp;" 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			
08-07-1993	01-02-1994			
International Searching Authority	Signature of Authorized Officer			
EUROPEAN PATENT OFFICE	W. SITCH			

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
Y	EP,A,0276516 (DE STAAT DER NEDERLANDEN) 3 August 1988 cited in the application see page 2, line 1 - page 7, line 42 ---	25,26, 28
Y	WO,A,9011778 (THE ROCKEFELLER UNIVERSITY) 18 October 1990 see the whole document ---	33
Y	EP,A,0245078 (CONNAUGHT LABORATORIES LIMITED) 11 November 1987 see page 3, line 19 - page 4, line 4 ---	41,42
A	EP,A,0378929 (CONNAUGHT LABORATORIES LIMITED) 25 July 1990 ---	
A	INFECTION AND IMMUNITY vol. 49, no. 3, 1985, WASHINGTON D.C., USA pages 544 - 549 MUNSON ET AL 'PURIFICATION AND PARTIAL CHARACTERIZATION OF OUTER MEMBRANE PROTEINS P5 AND P6 FROM HAEMOPHILUS INFLUENZAE TYPE B' ---	
A	EP,A,0320942 (AMERICAN CYANAMID COMPANY) 21 June 1989 cited in the application -----	

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/CA93/00041

**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 claim 44 is 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:

See PCT/ISA/206 mailed on 30/09/1993.

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.:

Part. 1-3,6,10,11,15-19,21-26,28,29,33-53.

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

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

CA 9300041  
SA 69702

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 16/12/93. 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
WO-A- 9106652	16-05-91	EP-A- 0500576	02-09-92
		JP-T- 5501202	11-03-93
WO-A- 9002557	22-03-90	US-A- 5098997	24-03-92
		AU-A- 3379693	29-04-93
		AU-B- 631378	26-11-92
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		JP-T- 4502147	16-04-92
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		JP-A- 63045228	26-02-88
		US-A- 4950480	21-08-90
		US-A- 5194254	16-03-93
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EP-A- 0320942	21-06-89	JP-A- 1238594	22-09-89