



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

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>A61K 39/095, 39/108</b>	<b>A3</b>	<b>(11) International Publication Number:</b> <b>WO 95/29662</b> <b>(43) International Publication Date:</b> 9 November 1995 (09.11.95)
<b>(21) International Application Number:</b> PCT/US95/04446 <b>(22) International Filing Date:</b> 20 April 1995 (20.04.95)  <b>(30) Priority Data:</b> 08/230,402                      20 April 1994 (20.04.94)                      US  <b>(71) Applicant:</b> U.S. DEPARTMENT OF THE ARMY [US/US]; Medical Research and Development Command, Fort Detrick, Frederick, MD 21702-5012 (US).  <b>(72) Inventors:</b> BHATTACHARJEE, Apurba; 2809 Jutland Road, Kensington, MD 20895 (US). CROSS, Alan; 6810 Brookville Road, Chevy Chase, MD 20815 (US). SADOFF, Erald; 1622 Kalmia Road, Washington, DC 20012 (US). ZOLLINGER, Wendell; 14400 Morton Hall Road, Silver Spring, MD 20906 (US).  <b>(74) Agents:</b> BENT, Stephen, A. et al.; Foley & Lardner, Suite 500, 3000 K Street, N.W., Washington, DC 20007-5109 (US).	<b>(81) Designated States:</b> AU, CA, FI, JP, KR, NO, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <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>  <b>(88) Date of publication of the international search report:</b> 30 November 1995 (30.11.95)	
<b>(54) Title:</b> VACCINE AGAINST GRAM-NEGATIVE BACTERIAL INFECTIONS  <b>(57) Abstract</b>  A vaccine, effective in inducing the production of antibodies with which to immunize a second subject passively against infection by Gram-negative bacteria and LPS-mediated pathology, comprises a non-covalent polyvalent complex formed between purified, detoxified LPS derived from <i>E. coli</i> and purified outer membrane protein derived from <i>N. meningitidis</i> . The same vaccine will also actively immunize a host subject against Gram-negative bacterial infections and LPS-mediated pathology. Meningococcal infections are included among those Gram-negative bacterial infections protected against by the vaccine.		

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## INTERNATIONAL SEARCH REPORT

Internat. Application No  
PCT/US 95/04446A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 A61K39/095 A61K39/108

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	US-A-4 707 543 (ZOLLINGER ) 17 November 1987 see the whole document ---	1-18
A	EP-A-0 109 688 (THE WELCOME FOUNDATION LIMITED) 30 May 1984 see claims 1-21 ---	1-18
A	WO-A-87 07148 (MIDCON LABS, INC.) 3 December 1987 see claims 1-17 -----	1-18

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

18 August 1995

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 95/04446

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4707543	17-11-87	NONE	
EP-A-109688	30-05-84	JP-A- 59176214 US-A- 4753796	05-10-84 28-06-88
WO-A-8707148	03-12-87	DE-D- 3750725 DE-T- 3750725 EP-A- 0367757 US-A- 4789544 ZA-A- 8703698	08-12-94 08-06-95 16-05-90 06-12-88 18-11-87