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(54) Title: EMULSAN AND EMULSAN ANALOGS IMMUNIZATION FORMULATIONS AND USE

(57) Abstract: Immunization formulations comprising an antigen and an emulsan or emulsan analog are formed and can be administered to a host. The emulsan or emulsan analog is an adjuvant in the immunization formulation. The emulsan or emulsan analog is secreted from *Acinetobacter calcoaceticus*. In particular, the emulsan or emulsan analog is secreted from *Acinetobacter calcoaceticus* RAG-1. The emulsan analog is produced and secreted from *Acinetobacter calcoaceticus* cultured in the presence of varying fatty acid sources. The emulsan analog is also produced and secreted from mutants of *Acinetobacter calcoaceticus*, such as transposon mutants of *Acinetobacter calcoaceticus* RAG-1.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/05805

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K39/39 C12N15/01				
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 C12P C12N				
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, BIOSIS, WPI Data, PAJ, MEDLINE, CHEM ABS Data, SCISEARCH				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	MOLITOR T W ET AL: "POTENTIATING EFFECT OF ADJUVANTS ON HUMORAL IMMUNITY TO PORCINE PARVOVIRUS VACCINES IN GUINEA-PIGS" VETERINARY MICROBIOLOGY, vol. 10, no. 3, 1985, pages 209-218, XP000946611 ISSN: 0378-1135	1, 12, 37		
Y	the whole document	2-11, 38		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.				
<input type="checkbox"/> Patent family members are listed in annex.				
° Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> </tr> </table>			"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. "&" document member of the same patent family
"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. "&" document member of the same patent family			
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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.
Y	LEAHY JOSEPH G ET AL: "Transposon mutagenesis in Acinetobacter calcoaceticus RAG-1." JOURNAL OF BACTERIOLOGY, vol. 175, no. 6, 1993, pages 1838-1840, XP000946627 ISSN: 0021-9193 cited in the application	5,6
A	the whole document	22,23,32
Y	GORKOVENKO ALEXANDER ET AL: "Bioengineering of emulsifier structure: Emulsan analogs." CANADIAN JOURNAL OF MICROBIOLOGY, vol. 43, no. 4, 1997, pages 384-390, XP000946620 ISSN: 0008-4166 cited in the application	2-4,7-9, 11,38
A	the whole document	19,20, 24-26, 28,32-35
Y	ZHANG JINWEN ET AL: "Incorporation of 2-hydroxyl fatty acids by Acinetobacter calcoaceticus RAG-1 to tailor emulsan structure." INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, vol. 20, no. 1, 1997, pages 9-21, XP000946632 ISSN: 0141-8130 cited in the application	2-4, 7-11,38
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A	SMITS JUDIT E G ET AL: "Assessment of humoral immune response in mink (Mustela vison): Antibody production and detection." JOURNAL OF WILDLIFE DISEASES, vol. 32, no. 2, 1996, pages 358-361, XP000946653 ISSN: 0090-3558 the whole document	13,17
P,X	GROSS, R. ET AL: "Natural polymeric surfactants of medical importance" POLYM. MATER. SCI. ENG. (1999), 81, 505-506, XP000946657 the whole document	1-38