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**WO 02/000844 A3**

(54) Title: POLYNUCLEOTIDE VACCINE ADJUVANTS AND FORMULATIONS CONTAINING CATIONIC SURFACTANTS, AND METHODS OF USE

(57) Abstract: Improved polynucleotide vaccine adjuvants and related polynucleotide vaccine formulations are disclosed which are useful in prophylactic or therapeutic vaccine and/or gene therapy-based applications. These adjuvants comprise a block copolymer and a cationic surfactant component. The inclusion of a cationic surfactant results in an increased percentage of polynucleotide that is physically associated with the adjuvant *in vitro*, resulting in enhanced *in vivo* immune responses to polynucleotide vaccines.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/20200

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :C08L 53/00; C07C 53/00; A61K 48/00; C12N 15/63

US CL :525/88,89,93; 568/624; 514/44; 435/320.1

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)

U.S. : 525/88,89,93; 568/624; 514/44; 435/320.1

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 practicable, search terms used)

Please See Extra Sheet.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,990,241 A (EMANUELE et al.) 23 November 1999, see whole document.	1-25
Y	US 5,567,859 A (EMANUELE et al. ) 22 October 1996, see whole document.	1-25
Y, P	US 6,086,899 A (BALASUBRAMANIAN et al.) 11 July 2000, see whole document.	1-25
Y	NEWMAN, M.J. et al. Development of adjuvant-active nonionic block copolymers. Adv. Drug. Deliv. Rev. July 1998, Vol. 32, No. 3, pages 199-223, see whole document.	1-25

 Further documents are listed in the continuation of Box C.  See patent family annex.

"A"	document defining the general state of the art which is not considered to be of particular relevance	"I"	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
"E"	earlier document published on or after the international filing date	"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
"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)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 21 SEPTEMBER 2001	Date of mailing of the international search report 19 MAR 2003
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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US01/20200

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	TODD, C.W. et al. Development of an adjuvant-active nonionic block copolymer for use in oil-free subunit vaccines formulations. Vaccine. 1997, Vol. 15, No. 5, pages 564-570, see whole document.	1-25

INTERNATIONAL SEARCH REPORT

International application No.  
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B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

BRS-EAST- USPAT, DERWINT, EPO, JPO ; DIALOG- MEDLINE, EMBASE, CANCERLIT, BIOSIS, SCISEARCH  
search terms: crl-1005, poe-pop-poe, bak, cationic surfactant, vaccine, plasmid, dna, naked dna