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(54) **Title:** METHODS AND COMPOSITIONS INVOLVING LCRV PROTEINS

(57) **Abstract:** The present invention concerns methods and compositions involving modified LcrV proteins from *Yersinia* bacteria. These methods and compositions can be employed to invoke an immune response in a subject against the bacteria, while not suppressing the immune system as much as the native LcrV protein. In certain embodiments, the present invention relates to vaccines, as well as methods to protect a subject against *Yersinia pestis* and plague. Moreover, the present invention concerns methods and compositions for suppressing a subject's immune system using nonnative LcrV polypeptides.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/43779

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **A61K 39/02(2006.01);C07H 15/00(2006.01)**

USPC: **424/190.1;536/23.7**

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. : 424/190.1;536/23.7

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)

USPat, USPgPub, EPO, JPO, Derwent, Medline, Biosis, Biotechno, Scisearch, Caba, Dissabs, Embase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SARKER et al. J. Bacteriol. 1998, Vol. 180, pages 1207-1214. The Yersinia Yop Virulon: LcrV Is Required for Extrusion of the Translocators YopB and YopD.	1-5,7-10,13-17,25,27,29-30,34-41,43-48,53,58,61
X --- Y	Motin et al. Infect. Immun. 1994, Vol. 62 pg. 4192-4201. Passive Immunity to Yersinia Mediated by Anti-Recombinant V Antigen and Protein A-V Antigen Fusion Peptide.	1-5,7-10,21,25,27,29-30,54,58-59,61-66,77,81,86-88,109-110,114,118-122,124-129,133,135,138-139,145,149,151 ----- 6,28,31-32,60,83-85,115-117

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

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"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
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"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		

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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.
X --- Y	US 6,638,510 (Brubaker et al) 28 Oct 2003, whole document	1-9,27,29-32,58- 59,61-65,84,86- 88,119- 122,133,135,138- 139,145,149,151 ----- 28,60,83,85