



(12) **United States Patent**
Kopeccko et al.

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(54) **SALMONELLA TYPHI TY21A EXPRESSING YERSINIA PESTIS F1-V FUSION PROTEIN AND USES THEREOF**

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C07K 2319/40 (2013.01)

(71) Applicant: **The United States of America, as represented by the Secretary, Department of Health and Human Services, Washington, DC (US)**

(58) **Field of Classification Search**
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C07K 14/24; C07K 2319/00
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See application file for complete search history.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 79 days.

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(57) **ABSTRACT**

Related U.S. Application Data

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Described herein is the generation of a plasmid construct for expression of a *Yersinia pestis* F1-V fusion protein. In the disclosed plasmid, the F1-V fusion protein coding sequence is operably linked to the *E. coli* htrA promoter, and is fused in-frame to the *E. coli* HlyA secretion signal sequence. Also described is *Salmonella enterica* serovar Typhi strain Ty21a containing the F1-V fusion protein expression plasmid, such as for use as an oral vaccine against plague.

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19 Claims, 5 Drawing Sheets

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1747 bp Fragment of pHtrF1-V-hly