



US008722046B2

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

(10) **Patent No.:** **US 8,722,046 B2**  
(45) **Date of Patent:** **May 13, 2014**

(54) **HUMAN MONOCLONAL ANTIBODIES  
PROTECTIVE AGAINST BUBONIC PLAGUE**

(75) Inventors: **Kei Amemiya**, Rockville, MD (US);  
**Dimiter S. Dimitrov**, Frederick, MD  
(US); **Xiaodong Xiao**, Frederick, MD  
(US)

(73) Assignee: **The United States of America as  
Represented by the Secretary of the  
Army**, Washington, DC (US)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/260,413**

(22) PCT Filed: **Apr. 8, 2010**

(86) PCT No.: **PCT/US2010/001051**

§ 371 (c)(1),  
(2), (4) Date: **Dec. 14, 2011**

(87) PCT Pub. No.: **WO2010/117455**

PCT Pub. Date: **Oct. 14, 2010**

(65) **Prior Publication Data**

US 2012/0114656 A1 May 10, 2012

**Related U.S. Application Data**

(60) Provisional application No. 61/212,166, filed on Apr.  
8, 2009.

(51) **Int. Cl.**

**A61K 39/395** (2006.01)  
**C12P 21/08** (2006.01)  
**A61K 39/40** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **424/142.1**; 424/150.1; 530/388.15;  
530/388.2

(58) **Field of Classification Search**  
None  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2006/0093609 A1\* 5/2006 Hill et al. .... 424/164.1

OTHER PUBLICATIONS

MacCallum et al, J. Mol. Biol., 262,732-745, 1996.\*  
Casset et al, Biochemical and Biophysical Research Communica-  
tions, 307:198-205, 2003.\*  
Paul, Fundamental Immunology, 3rd Edition, 1993, pp. 292-295.\*  
Rudikoff et al, Proc. Natl. Acad. Sci. USA, 79(6):1979-1983, Mar.  
1982.\*  
Colman P. M., Research in Immunology, 145:33-36, 1994.\*  
Bendig M. M. Methods: A Companion to Methods in Enzymology,  
1995; 8:83-93.\*

\* cited by examiner

*Primary Examiner* — Padma V Baskar

(74) *Attorney, Agent, or Firm* — Elizabeth Arwine

(57) **ABSTRACT**

In this application are described fully human monoclonal  
antibodies which specifically recognize F1 or V antigen of *Y.*  
*pestis* and epitopes recognized by these monoclonal antibod-  
ies. Also provided are mixtures of antibodies of the present  
invention, as well as methods of using individual antibodies  
or mixtures thereof for the detection, prevention, and/or  
therapeutical treatment of plague infections in vitro and in  
vivo.

**16 Claims, 8 Drawing Sheets**