US007973020B2

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

(10) **Patent No.: US 7,973,020 B2**
(45) **Date of Patent: Jul. 5, 2011**

(54) **COMPOSITIONS AND METHODS FOR INHIBITING EXPRESSION OF A GENE FROM THE EBOLA VIRUS**

(75) Inventors: **Sina Bavari**, Frederick, MD (US); **Kelly Lyn Warfield**, Adamstown, MD (US); **Pamela Tan**, Kulmbach (DE); **Anna Borodovsky**, Cambridge, MA (US); **Tatiana Novobrantseva**, Wellesley, MA (US); **Antonin de Fougerolles**, Brookline, MA (US)

(73) Assignees: **Alnylam Pharmaceuticals, Inc.**, Cambridge, MA (US); **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.: **12/789,414**

(22) Filed: **May 27, 2010**

(65) **Prior Publication Data**

US 2011/0060031 A1 Mar. 10, 2011

Related U.S. Application Data

(62) Division of application No. 12/055,295, filed on Mar. 25, 2008, now Pat. No. 7,759,320.

(60) Provisional application No. 60/908,793, filed on Mar. 29, 2007.

(51) **Int. Cl.**

C07H 21/02	(2006.01)
C07H 21/04	(2006.01)
A61K 31/70	(2006.01)

(52) **U.S. Cl.** **514/44**; 536/23.1; 536/24.3; 536/24.33; 536/24.5

(58) **Field of Classification Search** 514/44; 536/23.1, 24.3, 24.33, 24.5
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,624,803	A	4/1997	Noonberg et al.
2003/0143732	A1	7/2003	Fosnaugh et al.
2004/0259247	A1	12/2004	Tuschl et al.
2005/0058982	A1	3/2005	Han et al.
2006/0205963	A1	9/2006	Rubinstein et al.
2006/0257851	A1	11/2006	Bentwich
2007/0004664	A1	1/2007	McSwiggen et al.
2007/0031844	A1	2/2007	Khvorova et al.
2007/0135370	A1	6/2007	MacLachlan et al.

FOREIGN PATENT DOCUMENTS

WO	WO 2006/050414	A	5/2006
WO	WO 2007/048046	A	4/2007

OTHER PUBLICATIONS

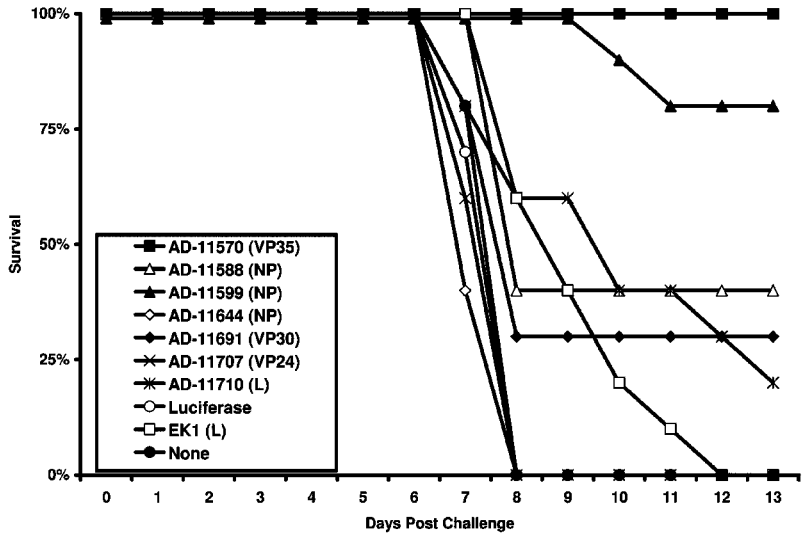
Examiner's First Report on Australian Patent Application No. 2008232891, Apr. 19, 2010, 3 pages.

Enterlein, S., et al., "Antiviral strategies against Nipah and *Ebola* virus: exploring gene silencing mechanisms to identify potential antiviral targets" Antiviral Research, Elsevier Science BV., May 1, 2006, p. A38, vol. 70, No. 1.

(Continued)

Primary Examiner — Sean McGarry
Assistant Examiner — Terra Cotta Gibbs
(74) *Attorney, Agent, or Firm* — Fenwick & West LLP

(57) **ABSTRACT**

The invention relates to a double-stranded ribonucleic acid (dsRNA) for inhibiting the expression of a gene from the Ebola virus.

9 Claims, 8 Drawing Sheets