

Author's Accepted Manuscript

Comparison of Traditional Intranasal and Aerosol Inhalation Inoculation of Guinea Pigs with Visualizing Influenza Virus

Yi Zhang, Zhendong Guo, Zhongyi Wang, Yingying Fu, Zongzheng Zhao, Linna Liu, Jun Qian



PII: S0021-8502(17)30034-4
DOI: <http://dx.doi.org/10.1016/j.jaerosci.2017.05.008>
Reference: AS5130

To appear in: *Journal of Aerosol Science*

Received date: 25 January 2017
Revised date: 12 April 2017
Accepted date: 15 May 2017

Cite this article as: Yi Zhang, Zhendong Guo, Zhongyi Wang, Yingying Fu, Zongzheng Zhao, Linna Liu and Jun Qian, Comparison of Traditional Intranasa and Aerosol Inhalation Inoculation of Guinea Pigs with Visualizing Influenza Virus, *Journal of Aerosol Science* <http://dx.doi.org/10.1016/j.jaerosci.2017.05.008>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

Comparison of Traditional Intranasal and Aerosol Inhalation Inoculation of Guinea Pigs with Visualizing Influenza Virus

Yi Zhang^a, Zhendong Guo^a, Zhongyi Wang^a, Yingying Fu^b, Zongzheng
Zhao^a, Linna Liu^{a*}, Jun Qian^{a*}

^aThe Laboratory of Air Microbiology and Biosecurity, Institute of Military Veterinary, Academy of
Military Medical Sciences, 666 West Liuying Road, Changchun 130122, China;

^bKey Laboratory of Jilin Province for Zoonosis Prevention and Control, Changchun 130122,
China

liulinna7@126.com

qian1970@126.com

*Corresponding author. Tel./fax.: +86-431-8698-5801 (J.Q.); Tel.: +86-431-8698-5856 (L.L.).

Abstract

Influenza A virus has caused intermittent pandemics with potentially devastating consequences in human populations. Under natural conditions, influenza virus is mainly spread person-to-person through the air; however, in studies of influenza virology, the virus is typically intranasally instilled in the form of large liquid droplets. The dynamics of influenza virus infection and real-time progression of respiratory tract infection are still poorly understood, partly due to a lack of available efficient replication-competent viruses that stably express a reporter gene. To address this limitation, we constructed a replication-competent influenza A virus carrying a *Gussia luciferase* reporter gene in the NA segment of the viral genome (IAV-Gluc). The recombinant virus (IAV-Gluc) stably expressed *Gussia luciferase*, and the viral load in lungs was proportional to the fluorescence intensity. Although IAV-Gluc was less virulent than wild-type virus (PR8), it efficiently infected and replicated within murine lungs and was pathogenic in mice. After challenging guinea pigs with the equivalent doses of virus using two different methods, namely, intranasal (IN) inoculation and aerosol exposure (AR), it was found that the animals subjected to IN inoculation showed greater virus deposition in the lungs (12.27%) than those

Download English Version:

<https://daneshyari.com/en/article/5753853>

Download Persian Version:

<https://daneshyari.com/article/5753853>

[Daneshyari.com](https://daneshyari.com)