題目: Methamphetamine Reduces Human Influenza A Virus Replication,

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**Abstract**

Methamphetamine (meth) is a highly addictive psychostimulant that is among the most widely abused illicit drugs, with an estimated over 35 million users in the world. Several lines of evidence suggest that chronic meth abuse is a major factor for increased risk of infections with human immunodeficiency virus and possibly other pathogens, due to its immunosuppressive property. Influenza A virus infections frequently cause epidemics and pandemics of respiratory diseases among human populations. However, little is known about whether meth has the ability to enhance influenza A virus replication, thus increasing severity of influenza illness in meth abusers. Herein, we investigated the effects of meth on influenza A virus replication in human lung epithelial A549 cells. The cells were exposed to meth and infected with human influenza A/WSN/33 (H1N1) virus. The viral progenies were titrated by plaque assays, and the expression of viral proteins and cellular proteins involved in interferon responses was examined by Western blotting and immunofluorescence staining. We report the first evidence that meth significantly reduces, rather than increases, virus propagation and the susceptibility to influenza infection in the human lung epithelial cell line, consistent with a decrease in viral protein synthesis. These effects were apparently not caused by meth’s effects on enhancing virus-induced interferon responses in the host cells, reducing viral biological activities, or reducing cell viability. Our results suggest that meth might not be a great risk factor for influenza A virus infection among meth abusers. Although the underlying mechanism responsible for the action of meth on attenuating virus replication requires further investigation, these findings prompt the study to examine whether other structurally similar compounds could be used as anti-influenza agents.