Hany Hamed Esmail Khalil, J Infect Dis Ther 2016, 4:6(Suppl)
http://dx.doi.org/10.4172/2332-0877.C1.015

Novel and efficacious compounds disturb influenza A virus infection

Hany Hamed Esmail Khalil
University of Sadat City, Egypt

Influenza A virus is a negative RNA stranded virus of the family Orthomyxoviridae and represents a major public health threat, compounding existing disease conditions. Influenza A virus replicates rapidly within its host and the segmented nature of its genome facilitates re-assortment, whereby whole genes are exchanged between influenza virus subtypes during replication. Antiviral medications are important pharmacological tools in influenza virus prophylaxis and therapy. However, the use of currently available antiviral is impeded by sometimes high levels of resistance in circulating virus strains. Notably, the over use of existing antiviral drugs such as oseltamivir (Tamiflu) and zanamavir (Relenza) increases the likelihood of viral escape mutations. Here, we identified novel anti-influenza compounds through screening of chemical compounds that synthesized de novo and several naturally occurring products on human lung epithelial cells. Computational and experimental screening of extensive natural products and water soluble chemical compounds identified novel influenza virus inhibitors that can reduce influenza virus infection without any detectable toxic effects on host cells. Interestingly, the indicated active chemical compounds inhibit viral replication most likely via interaction with cell receptors and disturb influenza virus entry into host cells. Additionally, the selected natural product inhabits viral replication via increasing of interferon beta (IFN-β) production from infected cells. In conclusion, screening of new synthesis compounds and natural extractions on influenza A virus replication provides a novel and efficacious anti-influenza compounds that can inhibit viral replication and indicates that these compounds are attractive candidates for evaluation as a potential anti-influenza drugs.

Biography

Hany Hamed Esmail Khalil has completed his PhD from Humboldt University in collaboration with Max-Planck Institute for Infection Biology followed by 6 months Postdoctoral Fellowship at Max-Planck Institute for Infection Biology, Berlin, Germany and additional 4 months Postdoctoral Fellowship at Wexner Medical Research Center, Ohio State University, USA. He is the Assistant Professor at Genetic Engineering and Biotechnology Research Institute, Department of Molecular Biology, University of Sadat City Egypt. He is the Principle Investigator in two different projects supported by (STDF) projects ID, 6117 and project ID, 4694.

hkhalil74@gmail.com

Notes: