

JOINT EVENT

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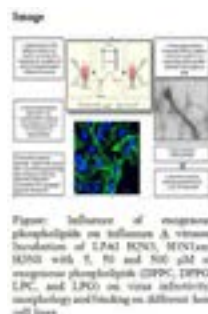
Determine the molecular and biophysical importance of phospholipids on the avian influenza virus infectivity

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The influenza virus infection is influenced by a number of host cell factors, including host cell lipids. These lipids make up the bilayer membranes for both virus particles and host cells. The objective of this study is to determine the biophysical importance of lipids in terms of infectivity by pre-treating Influenza A viruses; avian influenza H2N3 virus, equine Influenza H3N8 virus and pandemic influenza H1N1 virus with various types of phospholipids. 1, 2-dipalmitoyl-sn-glycero-3-phosphocholine (DPPC) had no significant impact on virus infectivity. However, 1, 2-dipalmitoyl-Sn-glycero-3-phospho-(1'-rac-glycerol) (DPPG) had a significant impact on H2N3, H3N8 and H1N1 infectivity. Treating the influenza viruses with lyso-analogues: 1-palmitoyl-2-hydroxy-sn-glycero-3-phospho-(1'-rac-glycerol) (LPG) and 1-palmitoyl-2-hydroxy-sn-glycero-3-phosphocholine (LPC) produced significant inhibition of influenza virus infection using MDCK cells and A549, that was dose-dependent. TEM images showed H2N3 and H3N8 without lipid pre-treatment are mostly spherical or filamentous, respectively. Incubating these viruses with lipids impact their morphology. Investigations of avian influenza H2N3 binding assay by flow cytometry demonstrates a high impact of the negatively charged phospholipids; i.e. either DPPG or LPG, blocking virus binding to cells significantly. Moreover, incubating influenza viruses with negatively charged phospholipids reduce cytokines expression especially IL-8. Overall, pre-incubating the virus with phospholipids seems to have an impact on the ability of the virus to bind to cells. So, specific lipids can be considered as a potential new inhibiting factor for influenza.

Recent Publications

1. Al Dalawi, L.M., 2011, Prevalence of hearing loss in Kirkuk city for the period from 2001 To 2006 Al-Taqani J. 24(7),.
2. Al-Dalawi, L.M. 2012, Prevalence of injuries and the bacteria in skin of ruminants in Kirkuk, Iraq Res. Opin. Anim. Vet. Sci. (Roavs) 2 (3),
3. Al-Dalawi, L.M. 2012, Prevalence of major disease of cattle and sheep on Kirkuk abattoirs. Scientific Symposium 11 For center of revival of Arabian science heritage 2-3/4/2012.
4. L. M. Ahmed. 2010, Isolation of some zoonotic bacteria from native Awassi sheep Al-anbar J. Vet. Sci. 3(2).
5. L.M. Ahmed. 2010, Geographical distribution of hydatid cyst in cattle and sheep In Kirkuk city. Scientific Symposium 11 for centre of revival of Arabian science heritage 11 symposium.



Biography

Lamyaa Al-Dalawi has completed her Graduation in College of Veterinary Medicine, at University of Baghdad, Iraq. She worked as a Veterinarian in the Surgery Department of the Veterinary Medicine, University of Baghdad, Iraq. She has completed her Master degree in Internal and Preventive Medicine in the Veterinary College at the University of Baghdad. She later moved to the Medical Institute as a Lecturer in University of Kirkuk, Iraq. She obtained a scholarship to study PhD at Nottingham University. In October 2014, she started her PhD in the Department of Infection and Immunity/School of Veterinary Medicine and Science at the University of Nottingham.

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