Retrovirology

Oral presentation

Time-Resolved Imaging of Single Retrovirus-Cell Fusion

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from 2005 International Meeting of The Institute of Human Virology
Baltimore, USA, 29 August – 2 September 2005

Published: 8 December 2005

Retrovirology 2005, **2**(Suppl 1):S4 doi:10.1186/1742-4690-2-S1-S4

Membrane fusion induced by retroviral envelope glycoproteins (Env) has been studied by imaging early events during single virus entry. Viral particles were visualized by incorporating a membrane dye and by entrapping GFP within the virus interior. Lipid and content (GFP) transfer from viruses to cells was simultaneously monitored by confocal microscopy. Content mixing usually occurred after lipid transfer, suggesting that fusion proceeded through a hemifusion intermediate. Our data also revealed that small pores connecting the viral and cell membranes are the key intermediate of retrovirus fusion. These pores can persist for several minutes before they either irreversibly close, aborting virus entry, or fully enlarge, leading to nucleocapsid delivery and infection.