

Departments of Physics Colloquium-BSI lecture

Ebola virus and Marburg virus use different modes of lipid gymnastics to assemble and form new viral particles

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Friday, November 13, 2015

1:30 – 2:30 PM

Venue: OE 134, MMC



Abstract: Lipid enveloped viruses replicate and bud from the host cell where they acquire their lipid coat. *Filoviruses*, which include Ebola and Marburg viruses, bud from the plasma membrane of the host cell. These viruses cause viral hemorrhagic fevers and have a high rate of fatality. To date little is known about how these viruses use plasma membrane lipids to facilitate assembly and budding. This study has investigated the molecular basis of the plasma membrane assembly, budding and egress of these viruses, which is regulated by their matrix protein, VP40. Biochemical and biophysical tools along with cellular imaging and viral replication assays have been used to investigate how VP40 interacts with plasma membrane lipids to regulate viral replication. This presentation will outline the molecular basis of VP40 association with plasma membrane lipids and how lipid-protein interactions regulate VP40 oligomerization and plasma membrane bending. Furthermore, VP40 plasma membrane binding displays sensitivity to the lipid composition in the plasma membrane, which can be altered to inhibit *Filovirus* assembly and egress.

Biography: Robert Stahelin is a Navari Family Scholar and Associate Professor of Biochemistry at Indiana University School of Medicine-South Bend and an Adjunct Associate Professor of Chemistry and Biochemistry at the University of Notre Dame. He received his Ph.D. in chemistry at the University of Illinois at Chicago, which was followed by a postdoc focused on cellular imaging of lipid-protein interaction events at the same institution. He joined the faculty at Indiana University School of Medicine-South Bend and Notre Dame in 2006. His research interests are focused on lipid-protein interactions in the replication cycle of lipid-enveloped viruses.

This lecture is co-sponsored by Physics Department and Biomolecular Science Institute (BSI)

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