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Structural surprises from the **Alphaviruses** and **Flaviviruses**

Enveloped viruses infect cells via a membrane fusion reaction which leads to the release of their viral genome into the cytosol of the host cell. Semliki Forest virus (SFV), an alphavirus, displays on its surface glycoprotein spikes formed by the trimerization of the E1-E2 glycoproteins, which are responsible for the early steps in the viral life cycle. Upon exposure of the virion to the low pH of endosomes, E1 mediates the fusion reaction of the viral and host cell membranes. We report the crystal structure of the ectodomain of E1 at neutral pH, refined at 3 Å resolution. The SFV-E1 glycoprotein is an elongated molecule with a structure similar to the ectodomain of the E protein from the Tick Borne Encephalitis Virus (TBE), a flavivirus. This structural homology supports the idea of a conserved mode of fusion between flaviviruses and alphaviruses. Together with mutagenesis, biochemical and other structural data, a model for the fusion reaction induced by class II viral envelope proteins can be proposed.

Date: Friday September 20, 2002
Venue: LT 20
Time: 4 - 5 pm
Host: Dr Swaminathan

All are welcome