



Friday, May 30, 2008
2:00 pm – 3:00 pm
COOK 31 18 A&B

Structural Evaluation of Bound, Unbound and Mutational Versions of Epstein–Barr Virus glycoprotein 42

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ABSTRACT:

With the recent solution of the unbound structure for EBV gp42, new opportunities have arisen to evaluate the changes this protein adopts between its unbound and bound-to-HLA Class II states. It also sheds light on the reasons that some mutational forms of gp42 are expressed at the cell surface but do not functionally operate in fusion. This current study evaluates the differences between bound and unbound gp42, and analyzes some structural possibilities in selected mutational states.

Research Advisor:

Richard M. Longnecker, Department of Microbiology-Immunology, Feinberg School of Medicine

The modularity landscape of networks

Kenji Wellman – Masters Student

ABSTRACT:

Modeling networks is of fundamental importance to computational systems biology. Biological examples include metabolic networks, the signal transduction networks, and neurological networks (Newman & Girvan, 2004). Such networks can include ones inferred from large amounts of high-throughput data, or pieced together from many years of experimental data (for instance the KEGG database). Many of these networks divide naturally into modules in which there is a high degree of connectivity between the nodes, also known as the "community structure" (Guimera & Amaral, 1995). These clusters could represent functional units of the system (Guimera & Amaral, 1995). Extracting this structure could provide useful information that would aid in inferring evolutionary relationships and the function of the components in the system, or in predicting behavior of the system under different environmental cues (Newman & Girvan, 2004). For instance, the modularity of a system is an important characteristic that affects the spread of disease in a network (Watts and Strogatz, 1998). Additionally, possible drug targets can be evaluated in the context of the module in which they belong.

Research Advisor:

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