Date / Time:
Tuesday, 21 February 2012
12pm – 1pm

Venue:
Department of Microbiology
Seminar Room,
Blk MD4,
5 Science Drive 2, Level 3,
Singapore 117576

Convener:
A/Prof Tan Yee Joo

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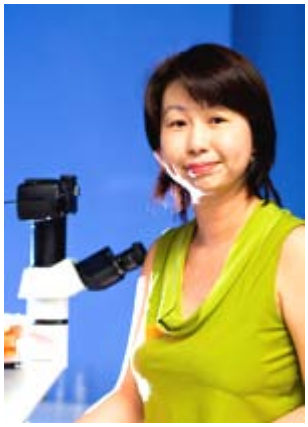
Seminar Coordinators
****
Dept. of Microbiology
Assoc Prof Tan Yee Joo
@ 6516 3692

Immunology Program
Dr Zhang Yongliang
@ 6516 6407

Dr. Shee-Mei Lok
Assistant Professor
Duke-NUS GMS



Dengue Virus Structures

Abstract
Dengue virus (DENV) consists of four serotypes, Dengue 1, 2, 3 and 4, and is the causative agent for dengue fever and the more severe dengue hemorrhagic fever (DHF). Although DENV infects approximately 50-100 million people each year, no effective vaccine has been licensed for human use. To facilitate development of vaccine and therapeutics, it is essential to understand structural changes of virus during its infection cycle and also the mechanism of inhibition by antiviral agents. Here I will present structures of dengue virus at different stages of infection and also its complexes with antiviral agents, such as antibodies and peptides.

Selected Publications:
1. Victor A. Kostyuchenko, Joanita Jakana, Xiangan Liu, Andrew D. Haddow, Myint Aung, Scott C. Weaver, Wah Chiu*, and **Shee-Mei Lok***. (2011). The 6Å resolution cryo-EM Barmah Forest virus structure shows detailed transmembrane proteins architecture and interactions. Journal of Virology. J Virol. 2011 Sep;85(18):9327-33

2. Costin JM, Jenwitheesuk E**, Lok SM**, Hunsperger E, Conrads KA, Fontaine KA, Rees CR, Rossmann MG, Isern S, Samudrala R, Michael SF (2010). Structural Optimization and De Novo Design of Dengue Virus Entry InhibitoryPeptides. PLOS Neglected Tropical Diseases. 22:721

3. Cherrier MV, Kaufmann B, Nybakken GE, **Lok SM**, Warren J, Chen B, Nelson CA, Holdaway H, Kostyuchenko V, Holdaway HA, Chipman P, Kuhn RJ, Diamond M, Rossmann MG, Fremont D (2009). Structural basis for the preferential recognition of immature flaviviruses by a fusion-loop antibody. EMBO J. 28: 3269-3272.

4. Li L, **Lok SM**, Yu IM, Zhang Y, Kuhn RJ, Chen J, Rossmann MG. (2008). Structure of the flavivirus precursor membrane-envelope protein complex and its implication for maturation. Science. 319: 1830-1834.

5. **Lok SM**, Kostyuchenko V, Nybakken GE, Holdaway HA, Battisti AJ, Sukupolvi-Petty S, Sedlak D, Fremont DH, Chipman PR, Roehrig JT, Diamond MS, Kuhn RJ, Rossmann MG. (2008). Binding of a neutralizing antibody to dengue virus resulted in an altered arrangement of the surface glycoproteins. Nature Structural and Molecular Biology. 15 (3): 312-317.