

NIMBioS Investigative Workshop - Mathematical Modeling of
Wildlife and Viruses Zoonoses -- Nov 8-10, 2010

Sunday, November 7

6:00-8:00 PM Dinner at Four Points Sheraton Hotel (Meet in Hotel Lobby if interested)

Monday, November 8

- 7:45-8:30 **Breakfast at NIMBioS**
- 8:30-8:50 Welcome and Overview
Workshop I: The processes and mechanisms that lead to disease transmission and host switching
Workshop Moderators: S Lenhart, J. White
- 8:50-9:00 Workshop I Opening Remarks, Workshop Moderator: S Lenhart, J. White
- 9:00-9:30 James O. Lloyd-Smith, Department of Ecology & Evolutionary Biology, University of California, Los Angeles
Spillover, stuttering transmission, and the emergence of human monkeypox
- 9:30-10:00 J Pulliam, Fogarty International Center
Nipah virus emergence in peninsular Malaysia – processes and principles
- 10:00-10:30 **Coffee Break**
- 10:30-11:00 Mac Hyman, Los Alamos National Laboratory and Tulane University
The Dynamics of Zoonotic Surveillance: Risks, Mitigations, and Response
- 11:00-11:30 Parviez Hosseini Conservation Medicine Program, EcoHealth Alliance, New York, USA
Understanding the Dynamics of Nipah Virus in Bats
- 11:30- 1:00 **Lunch at NIMBioS**
- 1:00-2:00 Workshop I Roundtable: (Speakers and All Workshop participants)
Discuss logistics of small group discussions
Moderators: S Lenhart, P. van den Driessche, J. White
- 2:00-2:30 **Coffee Break**
- 2:30-4:00 Small Working Break-Out Group Discussions
Workshop 1, Modeling disease transmission and host switching
Location TBA
Workshop 2, Modeling how microbes in their reservoirs
Location TBA
Workshop 3, Approaches in modeling molecular events
Location TBA
- 4:00- 5:00 Key Note Presentation

Hans Heesterbeek, Theoretical Epidemiology, University of
Utrecht, The Netherlands
Quantifying risk of emerging infections

5:00-7:30 **Poster Session with Dinner**

Tuesday, November 9

Workshop II: Approaches in modeling how microbes are maintained in
their reservoirs

Moderator: Velasco-Hernandez

8:00-8:45 **Breakfast at NIMBioS**

8:45-9:00 Opening Remarks, Velasco-Hernandez

9:00-9:30 J Mills, Center for Disease Control and Prevention

Modeling risk of hantavirus disease in humans: is this possible?

9:30-10:00 Sabra L. Klein, Department of Molecular Microbiology and
Immunology, The Johns Hopkins Bloomberg School of Public Health,
Baltimore, Maryland USA

Endocrine factors influence transmission and persistence of
hantaviruses in rodent reservoirs

10:00-10:30 Michel Langlais, Institut de Mathematiques de Bordeaux, Universite
Victor Segalen Bordeaux

Prey abundance, fragmented spatial structures and parasite persistence
in a predator-prey parasite mathematical model.

10:30-10:45 **Coffee Break**

10:45- 11:45 Workshop II Roundtable: (Speakers and All Workshop participants)

Moderators: Velasco-Hernandez and Allen

11:45- 1:00 **Lunch**

Workshop III. Approaches in modeling molecular events that lead to
transfer and adaptation to a new host

Moderator: R. Ivanek-Miojevic

12:50-1:00 Opening Remarks, R. Ivanek-Miojevic

1:00-1:30 Celia Perales, Centro de Biología Molecular Severo Ochoa, Universidad
Autónoma de Madrid, Cantoblanco, Madrid, Spain
Insights into the mechanism of lethal mutagenesis using differential
DNA denaturation PCR

1:30-2:00 Colleen Jonsson, Center for Predictive Medicine for Biodefense and
Emerging Infectious Diseases, University of Louisville
Molecular Observations of Population Structure and Dynamic of
Hantaviruses in Wild and Laboratory Rodents

2:00-2:30 L. J. Allen, Department of Mathematics and Statistics, Texas Tech
University

Mathematical approaches in modeling of virus populations

2:30-3:00 **Coffee Break**

3:00-4:00 Key Note Presentation
Esteban Domingo, CSIC-UAM Madrid and CIBERehd Barcelona,
Spain
Complexities of virus-host interaction

4:00- 5:00 Workshop 3 Roundtable: (Speakers and All Workshop participants)
Moderators: Ivanek-Miojevic and Jonsson

5:00-6:30 Dinner on your own

7:00-8:30 Small Working Group Discussion
Workshop 1, Modeling disease transmission and host switching
Location TBA
Workshop 2, Modeling how microbes in their reservoirs
Location TBA
Workshop 3, Approaches in modeling molecular events
Location TBA

Wednesday, November 10

8:00-8:45 **Breakfast at NIMBioS**

8:45-9:00 General Opening Remarks

9:00-9:45 Report from Small Working Groups Discussions 1

9:45-10:30 Report from Small Working Groups Discussions 2

10:30-11:15 Report from Small Working Groups Discussions 3

11:15-11:30 Closing Remarks, Future

11:30 **Box Lunch**