



**Opening Workshop of the SAMSI Program Genomes To Global Health:
Computational Biology of Infectious Disease**
September 19-22, 2004

PROGRAM & SCHEDULE OF EVENTS

Sunday – September 19, 2004: Tutorials

Radisson Hotel Research Triangle Park
Room H (3rd Floor)

8:00-9:00 am Registration and Continental Breakfast.

9:00-12:30 pm Mathematics and Statistics Tutorials

9:00-9:45 Statistics and Data Analysis
Tom Kepler, Duke University

9:45-10:30 Bioinformatics and Genomics
Tom Kepler, Duke University

10:30-11:00 Coffee Break

11:00-11:45 Epidemiology
Alun Lloyd, North Carolina State University

11:45-12:30 Mathematical Modeling & Simulation
Tom Kepler, Duke University

12:30-1:30 pm Lunch

1:30-5:00 pm Biology Tutorials

1:30-2:30 Molecular Evolution
Jeff Thorne, North Carolina State University

2:30-3:00 Coffee Break

3:00-4:00 Microbiology
Denise Kirschner, University of Michigan

4:00-5:00 Immunology
Lindsay Cowell, Duke University

Monday – September 20, 2004: Workshop

Radisson Hotel Research Triangle Park

Room H (3rd Floor)

8:30-9:00 am Registration and Continental Breakfast

9:00-9:15 am Welcome
Jim Berger, SAMSI
Denise Kirschner, University of Michigan
Lindsay Cowell, Duke University

9:15-9:45 am Opening Address
Tom Kepler, Duke University

SESSION 1: *Biostatistics, Epidemiology, and Public Health*

Session Chair: **Andrew Nobel**, University of North Carolina – Chapel Hill

9:45-10:45 am “Markov Models for Characterizing the Development of HIV Resistance Mutations”
Victor De Gruttola, Harvard School of Public Health

10:45-11:00 am Coffee Break

11:00-12:00 pm “Stochastic Models and Analytic Issues for Interventions Against Pandemic Influenza”
M. Elizabeth Halloran, Emory University

12:00-1:00 pm Lunch

1:00-2:00 pm “From Immunome to Vaccine: Using Immunoinformatics to Design New Vaccines”
Anne De Groot, Brown University

2:00-3:00 pm “New Paradigm for Management of Tropical Diseases”
Ayoade Oduola, World Health Organization

3:00-3:30 pm Coffee Break

Session Chair: **Tim Elston**, University of North Carolina – Chapel Hill

3:30-4:30 pm DISCUSSION: *Mathematical Challenges in Biostatistics and Public Health*

Discussion Leaders:
Alun Lloyd, North Carolina State University
Anthony So, Duke University

4:30-5:30 pm Introduction to Poster Session
Denise Kirschner, University of Michigan

6:30-8:30 pm

Poster Session and Reception at SAMSI

Continuous shuttle service for the Poster Session will be provided by Carolina Livery. The first shuttle will depart from the Radisson at 6:25pm and the last shuttle will leave SAMSI at 8:45pm. **Poster Presenters:** A shuttle will leave at 5:45pm to bring you to SAMSI for set-up.

Tuesday – September 21, 2004: Workshop

Radisson Hotel Research Triangle Park
Room H (3rd Floor)

8:30-9:00 am

Registration and Continental Breakfast

SESSION 2: *Microbiology, Microbial Ecology & Evolution and Microbial Genomics*

Session Chair: **Andrew Nobel**, University of North Carolina – Chapel Hill

9:00-10:15 am

“Use of Repetitive DNA in Helicobacter Pylori for Persistence in Human Hosts”

Martin Blaser, New York University

10:15-10:45 am

Coffee Break

10:45-12:00 pm

“Predicting the Future Evolution of Human Influenza Viruses”

Walter Fitch, University of California – Irvine

12:00-1:00 pm

Lunch

Session Chair: **Scott Schmidler**, Duke University

1:00-2:00 pm

“Bioinformatic Methods for Virulence Gene Prediction in Microbial Pathogens”

Joanna Fuego, IBM

2:00-3:00 pm

“A Mathematical Model for Nutrient Depletion and Detachment in a Heterogeneous Biofilm”

Jorge Velasco-Hernandez, Instituto Mexicano del Petroleo

3:00-3:30 pm

Coffee Break

3:30-4:30 pm

“Modeling Long-Term HIV Dynamics and Antiviral Treatment with Consideration of Pharmacokinetics, Adherence and Drug Susceptibility

Hulin Wu, University of Rochester

4:30-5:30 pm

PANEL DISCUSSION: Mathematical Challenges in Microbiology

Discussion Leader:

Denise Kirschner, University of Michigan

Wednesday – September 22, 2004: Workshop

Radisson Hotel Research Triangle Park

Room H (3rd Floor)

8:30-9:00 am Continental Breakfast

SESSION 3: *Immunology*

Session Chair: **Alun Lloyd**, North Carolina State University

9:00-10:00 am “Monoclonal Antibodies in the Treatment of Disease: Modeling How They Couple Target Cell to Killer Cells”
Byron Goldstein, Los Alamos National Laboratory

10:00-11:00 am “MHC Polymorphism and Peptide Diversity”
Rob De Boer, Utrecht University

11:00-11:30 am Coffee Break

11:30-12:30 pm “A Bioinformatics Approach to the Antigen Presentation and Processing Pathways”
Can Kesmir, Utrecht University

12:30-1:30 pm Lunch

Session Chair: **Scott Schmidler**, Duke University

1:30-2:30 pm PANEL DISCUSSION: “Mathematical Challenges in Immunology and Systems Biomedicine”

Discussion Leaders:

Lindsay Cowell, Duke University

Denise Kirschner, University of Michigan

2:30-3:00 pm Coffee Break

3:00-3:15 pm Charge to the participants and final word.
Tom Kepler, Duke University

3:15-5:00 pm Working Group Formation and Planning