NIMBioS
National Institute for Mathematical and Biological Synthesis

NIMBioS Special Seminar

3:30 p.m.*, Thursday, February 27, 2014

Dr. Nicole Mideo

Ecology & Evolutionary Biology
Univ. of Toronto

Explaining the Complex Lives of Malaria Parasites

Despite a wealth of biomedical research into the pathogenesis of infectious diseases, little is known about the basic biology of their etiological agents. For many parasites, we lack satisfying answers to questions such as: what is it specifically about the interaction between hosts and parasites that results in disease symptoms? How do these interactions differ between closely related parasite strains or species? And, which factors have shaped parasite traits that determine harm to host and infectiousness? Using a combination of theoretical and experimental approaches, my work has revealed processes that underlie within-host dynamics of experimental rodent malaria infections and how differences in these processes give rise to the variation observed in patterns of disease across parasite genotypes. I will present results that demonstrate the importance of resource availability and competition and show that such 'bottom-up' mechanisms can explain phenomena that are often attributed to immune-mediated processes. Finally, I will show how verbal hypotheses pervading the literature to explain why malaria parasites seem to invest so little in reproduction (transmission) do not stand up to formal, mathematical scrutiny.

Location: Franklin Classroom, Room 105 at NIMBioS, Claxton Education Bldg, 1122 Volunteer Blvd.

**Join us for refreshments at 3 p.m. in the 1st floor visitor breakroom*

For more information about this and other NIMBioS Seminars, visit http://www.nimbios.org/seminars

The National Institute for Mathematical and Biological Synthesis (NIMBioS) brings together researchers from around the world to collaborate across disciplinary boundaries to investigate solutions to basic and applied problems in the life sciences. NIMBioS is sponsored by the National Science Foundation, the U.S. Department of Homeland Security, and the U.S. Department of Agriculture with additional support from The University of Tennessee, Knoxville.

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