Title: The Malaria Host-Pathogen Interaction Center (MaHPIC): Computational Challenges Associated with Host-Pathogen Interaction Studies.

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Abstract:
MaHPIC is comprised of a team of interdisciplinary researchers interested in host-pathogen interactions between malaria parasites and primates. We are utilizing a systems biology approach. We seek to understand the malarial disease process in various clinical scenarios as they relate to human infection.
Several experimental plans have been designed, each of which is driven by the strategic infection, monitoring, collection, analysis, and integration of large, unique, 'omic' data sets in combination with hematological and clinical parameters of malaria. MaHPIC will produce and integrate very large host-pathogen datasets relating to the malaria infection and development of disease. The data sets we will use include: metabolomics, immune profiling, functional genomics, proteomics and lipidomics. We will integrate the data with the aid of informatics and use the data to inform computational modeling approaches. I will discuss the challenges associated with integrating, viewing, analyzing and querying the vast amount of data that this project will produce. In particular I will discuss the challenges of designing the tools and visualization needed to support studies of the host-pathogen interaction.
We are grateful for financial support and guidance from the NIH National Institute of Allergy and Infectious Diseases (NIAID) and look forward to a productive period of innovative discovery. More information can be found at (http://www.systemsbiology.emory.edu/).