



**L.H. BAKER CENTER FOR BIOINFORMATICS AND
BIOLOGICAL STATISTICS AND IGERT
SEMINAR SERIES**

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**Bioinformatics Resources for Annotation and
Comparative Analysis of Hymenopteran Genomes**

The Hymenoptera Genome Database (HGD; <http://HymenopteraGenome.org>) is an informatics resource that supports genomics of hymenopteran insect species. HGD currently provides genomic data for honey bee (*Apis mellifera*), parasitoid wasp (*Nasonia vitripennis*) and seven species of ants (*Acromyrmex echinator*, *Atta cephalotes*, *Camponotus floridanus*, *Harpegnathos saltator*, *Linepithema humile*, *Pogonomyrmex barbatus*, and *Solenopsis invicta*). We will soon incorporate data for two bumble bee species (*Bombus terrestris* and *B. impatiens*), and two additional *Apis* species (*A. florea* and *A. dorsata*). Bringing these species together across 200 million years in the phylogeny of Hymenoptera greatly facilitates comparative genomics, which will advance our understanding of processes relevant to social insect biology, as well as agriculturally important hymenoptera species. Users may access the data via graphical viewers, BLAST sequence comparison and large dataset download pages. Data includes genome assemblies, computed and manually annotated genes, protein homologs, cDNA sequences, non-coding RNA sequences, RNA-Seq-based expression data and genetic markers. New data mining features will allow searching for orthologs and DNA elements that are conserved across hymenopteran species. With the ultimate goal of connecting sequence to biology, we also seek the expertise of biologists by providing software tools to allow them to identify and annotate their genes of interest. In addition to providing genomic data gathered from external resources, we perform computational genome annotation and develop strategies to improve gene prediction by leveraging sequence conservation and generating consensus gene sets. Some of these approaches may be particularly valuable in genomes with unusual GC contents, such as those of some hymenopteran insects. My talk will provide overviews of the HGD project and our recent gene prediction work for the bee genomes.

Date: Wednesday, March 21

Time: 4:00-5:00 PM

Room: 1414 Molecular Biology

Upcoming Speakers: <http://bioinformatics.iastate.edu/seminar>