



GMOD: Database Resources for Emerging Model Organisms

Dave Clements Hilmar Lapp Todd J. Vision
 National Evolutionary Synthesis Center (NESCent), Durham, NC, USA
<http://nescent.org> clements@nescent.org



Abstract

More affordable sequencing technologies have given many emerging model organism communities an unprecedented volume of data. GMOD enables small research communities to establish web-accessible genomic databases with minimal informatics investment. GMOD is a collection of interoperable open source software components for managing, annotating and visualizing genomic data. GMOD components are used in many smaller research and emerging model organism communities, where informatics budgets are often tight. NESCent has recently joined GMOD and sponsors the GMOD Help Desk to enhance and promote GMOD for small research communities. GMOD is widely used in arthropod research.

Getting Started with GMOD

Start at GMOD.org

Download Software

FAQs and HOWTOS

Project Events

Contribute Code! We're open source

Project News

GMOD for Biologists

Contribute Doc! GMOD.org is a Wiki

Support: Help Desk, mailing lists

The most popular GMOD Components

<http://gmod.org>

GMOD Support

Support is available from active mailing lists, the web site, GMOD meetings, and a new GMOD Help Desk. The Help Desk answers user questions, writes documentation and online tutorials, and offers training workshops, including GMOD Summer School. If you have questions please contact the help desk.

help@gmod.org

July 16-17, 2008
U of Toronto

July 11-13, 2008
NESCent, Durham, NC

What Can GMOD Do?

GMOD has components for many common genomic data tasks. Chado, GMOD includes Chado, a modular database schema, that supports many common needs.

If you have	& you need to	then GMOD can help with
Genomic Sequence	View Annotate Organize	GBrowse Apollo Chado Sequence Module
Comparative, Synteny	View Annotate Organize	CMap, SynView, SynBrowse, Sybil Sybil Chado Map Module
Phylogenetic Trees	Organize View	Chado Organism, Phylogeny modules GMODWeb
Phenotype, Genotype	Organize View	Chado Genetics Module GMODWeb
Microarray and Expression	View Organize	Java TreeView, Caryoscope, GeneXplorer Chado Mage, Expression Modules
Ontologies	Curate View	Chado CV module GO Term Viewer
Pathways	View, predict, organize	Pathway Tools
Publications	Curate/search Organize	TextPresso, PubSearch Chado Publication Module

GBrowse Genome Browser

GBrowse is a web-based viewer for displaying genomes and their annotation. It is highly configurable by end-users and site administrators. If you have sequence and/or genomic annotation, GBrowse can show it.

Apollo Genome Editor

The Apollo genome editor is used to annotate genomic sequences. Apollo supports adding new annotations and refining computational annotations. It is used in several community annotation efforts, and by full-time curators as well.

Chado Database Schema

Chado is the unifying data model for GMOD. It is a modular and extensible database design for biological data. Chado supports sequence, phylogenetic, phenotypic, gene expression and many other datatypes. Chado has recently been extended with the Natural Diversity module, which supports stocks, individuals, pedigrees, crosses, geo-locations, and phenotype and genotype experiments. Taxonomy and phylogenetic trees in Chado's core modules have also been rationalized.

Who Uses GMOD?

AphidBase, BeeBase, BeetleBase, ButterflyBase, FlyBase, GnpAnnot-Lep, HeliconiusBase, VectorBase, wFleaBase, and hundreds of other large and small communities.



The GMOD Help Desk is hosted by NESCent and is funded by National Institutes of Health grants to Ian Holmes at UC Berkeley and James Hu at Texas A&M.

National Evolutionary Synthesis Center (NESCent)

NESCent sponsors synthetic, interdisciplinary and transformative research in evolutionary biology. NESCent is located in Durham NC and is a collaborative effort of Duke University, North Carolina State University, and the University of North Carolina at Chapel Hill.

<http://www.nescent.org>

NESCent is supported by the National Science Foundation (Grant # EF-0423641)