CITRUS GENOME DATABASE

Resources for Citrus Genomics, Genetics, Breeding and Disease Research

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www.citrusgenomedb.org

Non-Technical Summary

The Citrus Genome Database (CGD) is being developed as an one-stop resource for citrus genetics, genomics, and breeding research. The database has tools for citrus breeding management as well as tools for basic and applied research of the host, pathogen, and vector.

Abstract

The Citrus Genome Database (CGD) is being developed as a one-stop, integrated and curated resource for citrus genetics, genomics, breeding and disease research. In this presentation we highlight CGD features that provide the citrus community with data and tools to help Huanglongbing (HLB) research. The database has been redesigned and features a streamlined user interface that allows for quick access to data and tools. It contains curated citrus genetic marker, map, and QTL data, genome data for clementine and sweet orange, as well as annotated reference transcriptomes (RefTrans) generated by analysis of published RNA-Seq and EST datasets. The database also has the most up-to-date version of CitrusCyc v3.0 which includes metabolic maps for the *C. clementina* and *C. sinensis* genomes. Tools such as BLAST for searches against the genome sequences and annotations, JBrowse for viewing genomes, and CMap/MapViewer for viewing and comparing genetic map data are also available on CGD. The Breeding Information Management System (BIMS) V1.0 is currently being implemented in CGD. It enables breeders to upload, manage and analyze their breeding program data within their private, secure account, while also providing access to the public data and tools. In addition to citrus data, the genomes of the Candidatus *Liberibacter*' species and the psyllid vector are available in JBrowse and the sequence data is searchable with the BLAST tool. As a community resource, CGD is being developed based on user feedback to provide the data and tools that will enable research and crop improvement.

Liberibacter Resources

- Complete genome sequences for Ca. *Liberibacter asiaticus*, *africanus*, *americanus*, *solanacearum*, and *Liberibacter crescens* in CGD
- Bacterial genomes loaded into the JBrowse genome viewer along with gene, CDS, tRNA and mRNA features
- Bacterial genome, CDS, and protein sequences searchable in BLAST
- BLAST results have link-out to genome sequence in JBrowse or CDS/Protein entry in CGD
- Genes and sequences are searchable with downloadable results in table or FASTA format

JBrowse and BLAST for Citrus genomes too

New MapViewer allows for easy viewing of map regions with draggable zoom settings and user defined feature colors

CitrusCyc to view pathways in *C. sinensis* and *C. clementina* genomes

New homepage design for easier access to data and tools

- Search and download information in tables for maps, markers, QTLs, genes, transcripts
- Search sequence information and download in excel and FASTA formats

- Species information easily accessed using Species Quick Start
- Species pages allow for easy access to species-specific data and tools

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