

Resources for HLB and Citrus Genomics, Genetics, and Breeding Research

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www.citrusgenomedb.org

Non-Technical Summary

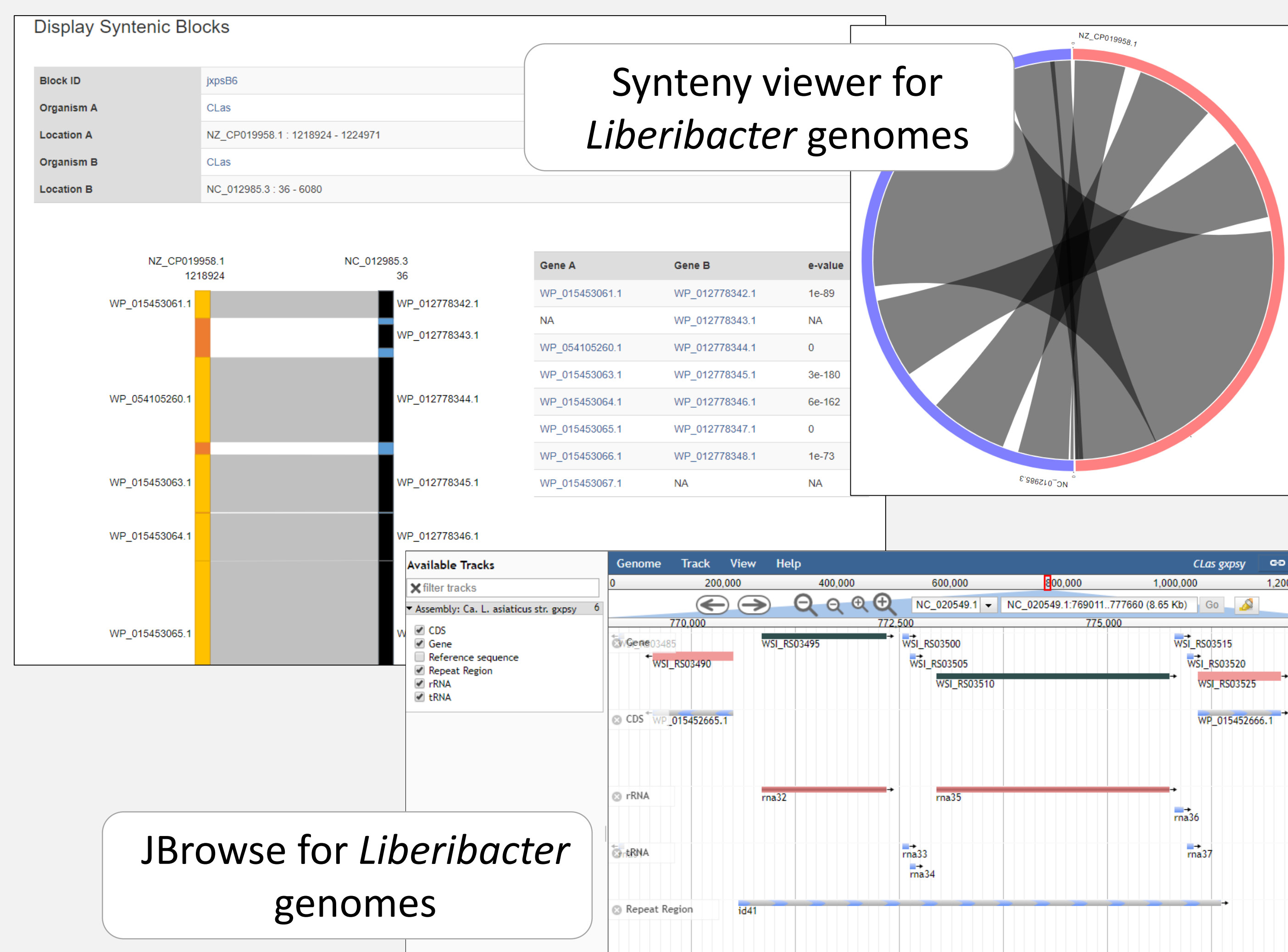
The Citrus Genome Database (CGD) is an integrated community resource for citrus genetics, genomics, and breeding research. The database has tools for citrus breeding management as well as tools for basic and applied research of the host and HLB pathogen.

Abstract

The Citrus Genome Database (CGD) is a resource for HLB and citrus researchers and citrus breeding programs. CGD has tools for citrus and *Ca. Liberibacter* genomics research such as the JBrowse genome browser, a BLAST tool to search genome sequences, and a genome synteny viewer to compare analyzed genomes. Currently, CGD has genomes of six different *Citrus* species and the complete genomes of *Ca. Liberibacter asiaticus*, *americanus*, *africanus*, and *solanacearum*, as well as the complete genome of *Liberibacter crescens*. CitrusCyc, which is a tool to explore the metabolic maps of the JGI produced *C. clementina* and *C. sinensis* genomes, is also available. CGD has a functionally annotated searchable and mapped reference transcriptome (RefTrans) generated from assembly of published RNA-Seq and EST datasets from *C. sinensis*. For citrus, genetic marker, genetic map, and QTL data, current with published papers, is viewable and searchable. Genetic maps can be viewed and compared using MapViewer, allowing export of map images, dot plots, and correspondence matrices for use in presentations and publications. For citrus breeding programs, CGD has the Breeding Information Management System (BIMS), an online system to manage and analyze private breeding data. BIMS is compatible with Field Book, an Android App, to collect field data. Public citrus phenotype data from the USDA-GRIN database is available to explore with BIMS by all users. CGD is being developed based on user feedback and needs from the scientific community to ensure it provides integrated data and tools that enable citrus discovery and crop improvement.

Liberibacter Resources

- Complete genome sequences for *Ca. Liberibacter asiaticus*, *africanus*, *americanus*, *solanacearum*, and *Liberibacter crescens* in CGD
- Genomes in the JBrowse genome viewer
- Genome, CDS, and protein sequences searchable in BLAST with links to genome sequence in JBrowse or CDS/Protein entry in CGD
- Genes and sequences are searchable in CGD with downloadable results in table or FASTA format
- Genome synteny viewer to compare genomes



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