

Genomes & Diversity

As of June of 2013, Gramene hosts a total of 25 complete and 12 partial genomes. In collaboration with Ensembl Genomes, for each reference genome we incorporate community annotation from primary sources and enrich this information with a series of standardized analyses. These include functional annotation by InterProScan and classification using controlled vocabularies (e.g., GO and PO). Evolutionary histories are provided by Compara phylogenetic gene trees and complemented by analyses of whole genome alignments. In recent years, Gramene has positioned itself as a resource for genome variation data in *Arabidopsis*, rice, maize, sorghum, wheat, grape, and *Brachypodium*.

Pathways & Networks

Gramene produces and hosts or mirrors metabolic pathways databases and visualization tools including AraCyc v10 developed by the Plant Metabolic Network.

We recently introduced the Plant Reactome [<http://plantreactome.oicr.on.ca>], a new platform for the comparative analysis of plant metabolic and regulatory networks, produced in collaboration with the Human Reactome Project. The current release of Plant

Reactome includes a beta version of the rice pathways database. We plan to include *Arabidopsis* pathways later this Summer.



Outreach & Releases

Our release cycle is moving from two to five major releases per year, ensuring timely updates to data and software. We work closely with plant researchers to develop standard formats to release new data, and interact closely with those we serve and collaborate with at key plant science meetings including the *International Conference on Arabidopsis Research*, *Maize Genetics Conference*, *Plant and Animal Genomes*, and *Plant Biology*.

Web Services

- Gramene Mart for customized data dumps
- DAS for sequence alignments
- Public MySQL server
- Entry points for TASSEL, Flapjack and PICARA
- RESTful API

Cite Us

Youens-Clark et al (2010). Gramene database in 2010: updates and extensions. *NAR* 39:D1085-94

Contact us

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Our news blog at <http://news.gramene.org/>

Visit our  Facebook page!

Funding

Current work is being supported by the NSF Plant Genome Research Resource grant award #1127112 and the USDA-ARS.



GRAMENE



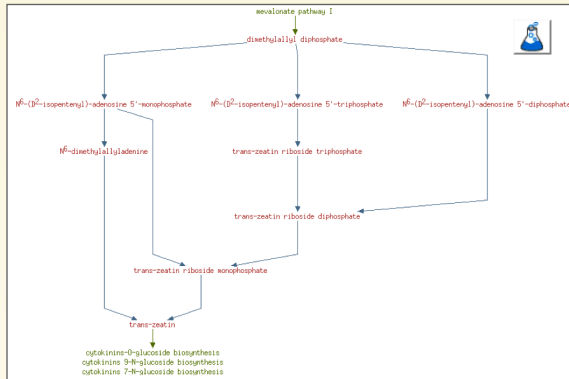
Image: Gramene 36b (March 2013). By J Stein

Comparative genomics in *Arabidopsis* and across the plant kingdom

<http://www.gramene.org/>

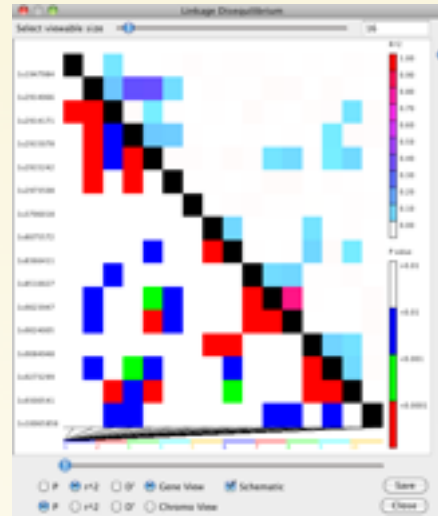
Gramene continues to grow, now at 25 complete genomes (build 37), including crops, model organisms and lower plants. Together these serve as a reference resource for comparative analyses, for the broad scientific community, in support of basic and translational research which impact societal interests in food security, energy production, and climate change.

Arabidopsis thaliana col Pathway: trans-zeatin biosynthesis

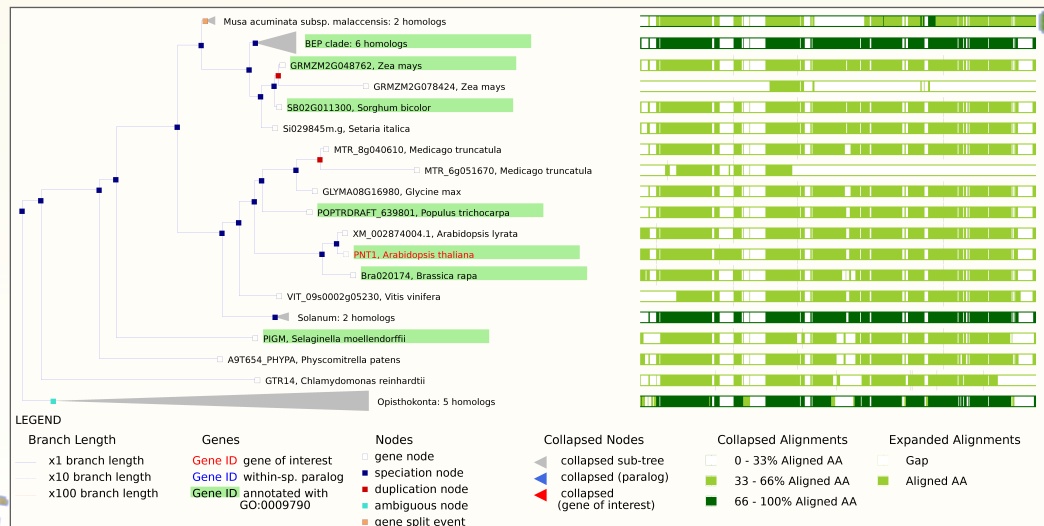


Gramene has biological pathways for various plant species, including *Arabidopsis thaliana*, *Oryza sativa*, and *Zea mays*, and a reference plant pathway database (PlantCyc)

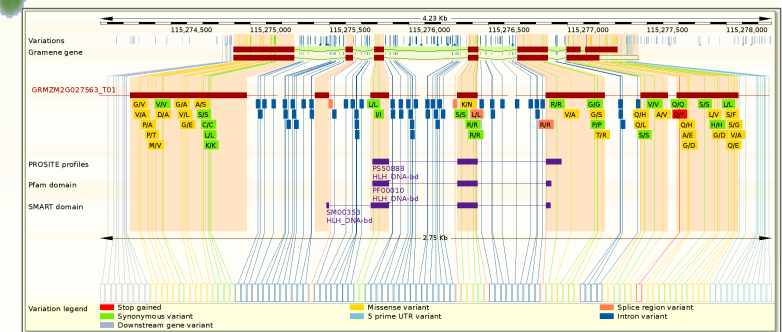
The Tassel program can be used to analyze Gramene's diversity data, generate LD plots, run MLM/GLM analyses, and more



The multi-species view shows alignments in the context of gene annotations across multiple species



Phylogenetic tree for *Arabidopsis* gene PNT1, a glycosyltransferase, associated with embryo development (GO:0009790), showing conservation throughout the eukaryotic lineage



SNP diversity displayed in the context of functional protein domains. Population genotypes also available in graphical & tabular form