Genomes & Diversity

As of January of 2015, Gramene hosts a total of 39 complete and 4 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 also positioned itself as a resource for genome variation data in *Arabidopsis*, maize, rice, "African rice", sorghum, wheat, barley, grape, tomato, and *Brachypodium*.

Pathways & Networks

Gramene produces and hosts or mirrors metabolic pathways databases and visualization tools in the BioCyc collection. These are now hosted at iPlant [http://pathway.iplantcollaborative.org/]

The Plant Reactome [http://plantreactome.gramene.org] is a new platform for the comparative analysis of plant metabolic and regulatory networks, produced in collaboration with the Human Reactome Project. The January release of Plant Reactome includes >200 reference rice metabolic and signaling pathways (based on RiceCyc v3.3), and homology-based projections for 33 plant species including *Arabidopsis thaliana* and maize.

Outreach & Releases

Our release cycle has moved from two to five major releases per year, ensuring timely updates to data and software. We reach our users at key scientific meetings including *Plant and Animal Genomes*, *Maize Genetics Conference*, *ICAR* and ASPB's *Plant Biology*. Gramene also participates in several Research Coordination Networks to understand community needs and to establish and promote common data exchange formats.

Web Services

- Gramene Mart for customized data dumps
- Public MySQL & DAS servers
- RESTful API

Cite Us

Monaco *et al* (2014). Gramene 2013: comparative plant genomics resources. *NAR* 42 (D1): D1193

Contact us

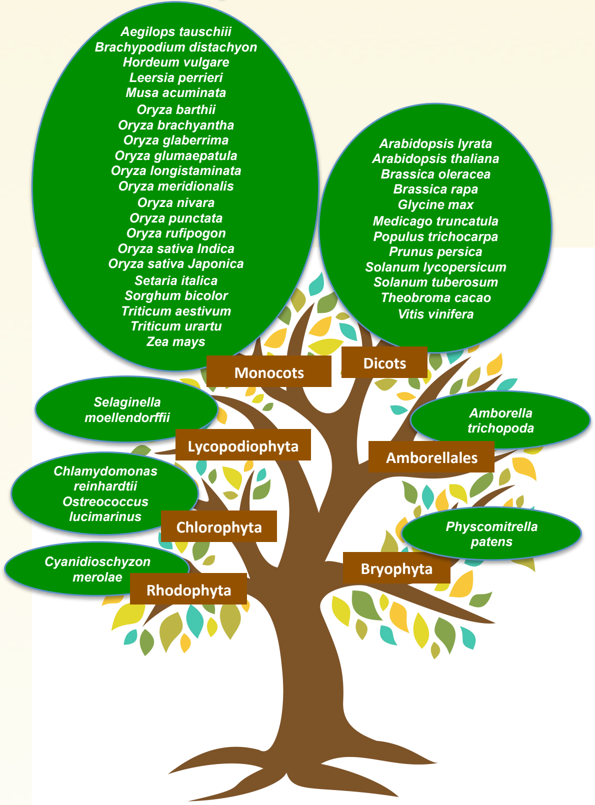
feedback@gramene.org

Visit our Facebook page!

Funding

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

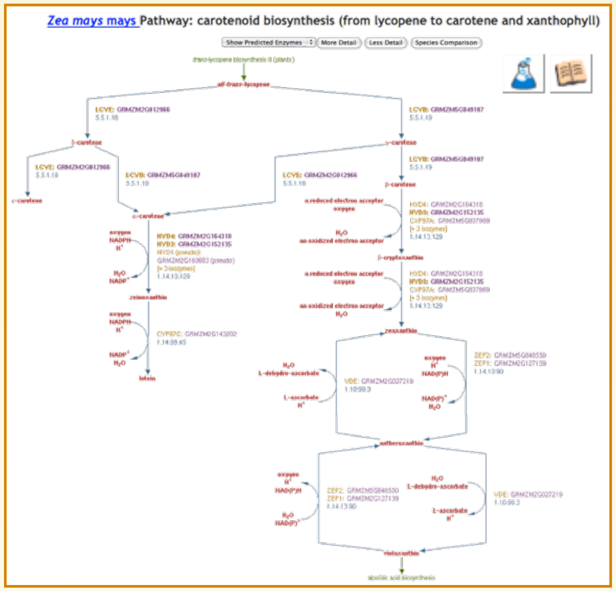
Gramene



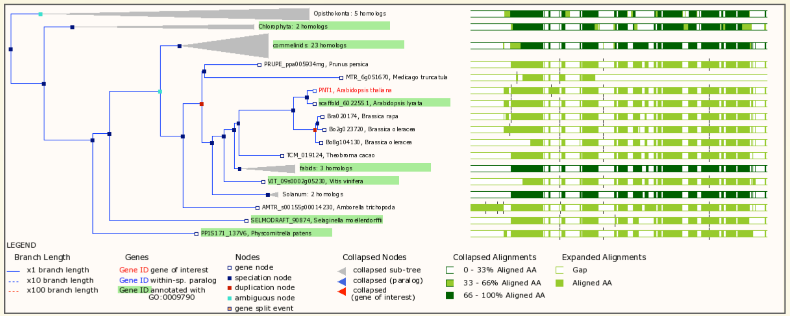
Comparative genomics across the plant kingdom

http://www.gramene.org/

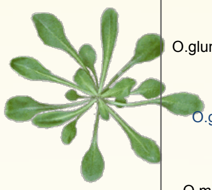
Gramene continues to grow, now at 39 complete genomes (build 43), including crops, model organisms and lower plants. Together these serve as a reference resource for comparative analyses, for the broad scientific community, in support of basic and translational research which impact societal interests in food security, energy production, and climate change.

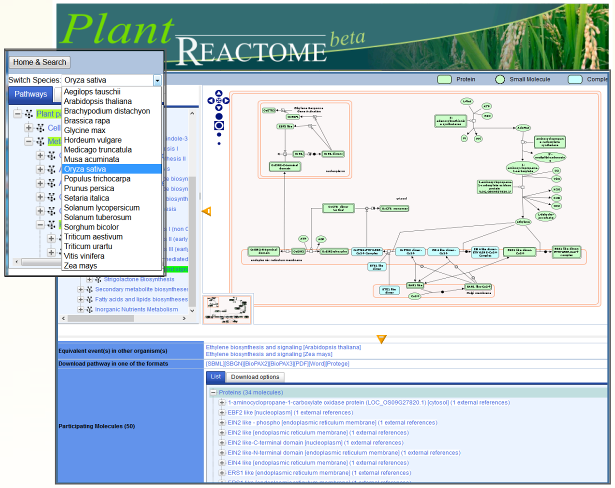


Gramene has biological pathways for various plant species, including *Oryza sativa* (RiceCyc) and *Zea mays* (MaizeCyc), and a reference plant pathway database (PlantCyc)

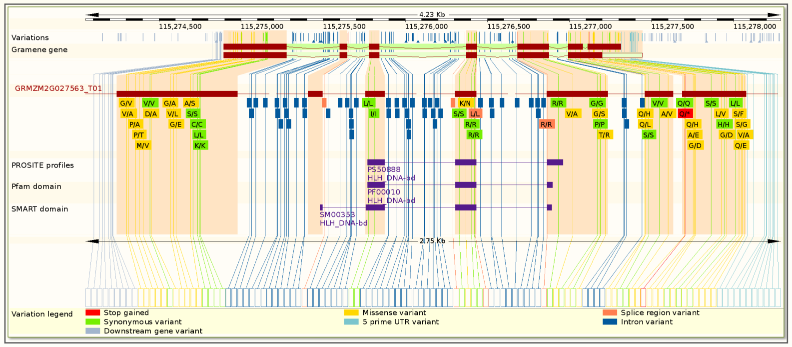


Phylogenetic tree for the Arabidopsis gene PNT1, a glycosyltransferase. Genes associated with embryo development (GO:0009790) are highlighted showing conservation throughout the eukaryotic lineage





Plant Reactome includes curated rice pathways and homology-based projections. Curated Arabidopsis pathways will be added later this year



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

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