## Genomes & Diversity

As of June of 2013, Gramene hosts a total of 25 complete and 9 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 & "African rice", maize, sorghum, wheat, grape, and *Brachypodium*.

## Pathways & Networks

Gramene produces and hosts or mirrors metabolic pathways databases and visualization tools in the BioCyc collection.

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 based on RiceCyc v3.3. We plan to include *Arabidopsis* pathways later this Summer, and eventually projections to maize and other plant species.

## Outreach & Releases

Our release cycle is moving from two to five major releases per year, ensuring timely updates to data and software. We reach our users at key scientific meetings including ASPB's *Plant Biology*, *Maize Genetics Conference*, *International Conference on Arabidopsis Research*, and *Plant and Animal Genomes*. Gramene 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
- 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

gramene@gramene.org
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

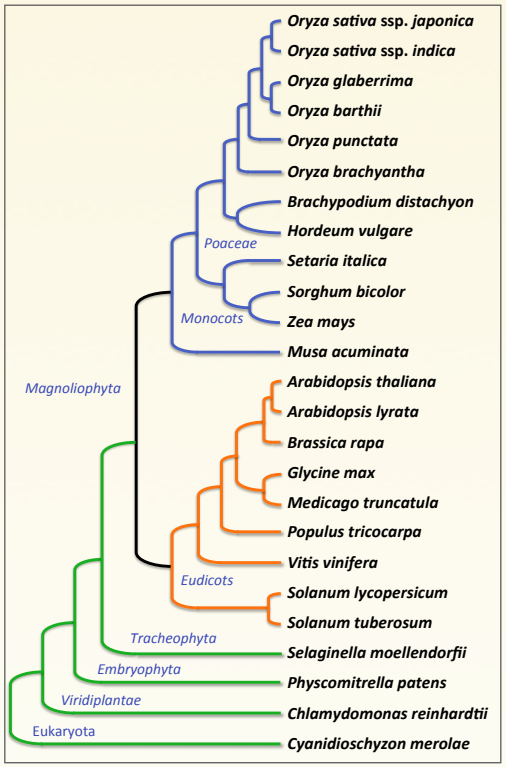
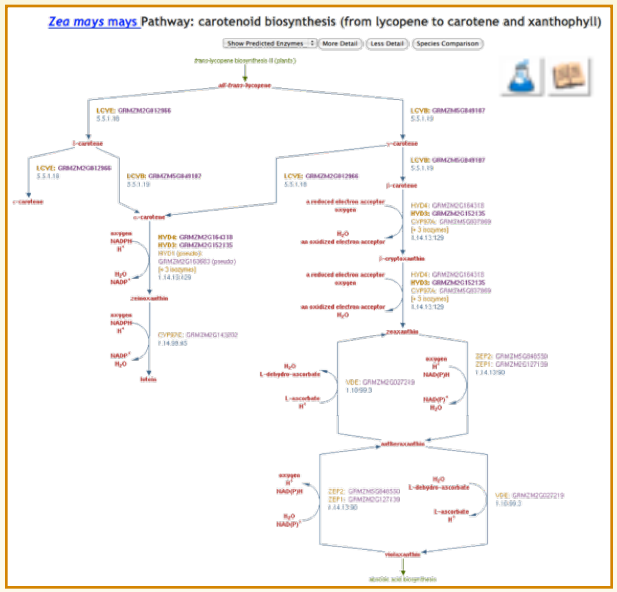



Image: Gramene 37 (June 2013). By J Stein

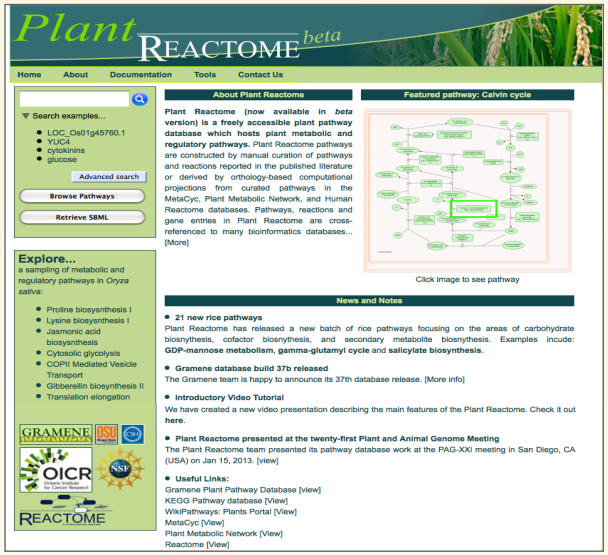
*Comparative genomics across the plant kingdom*

http://www.gramene.org/

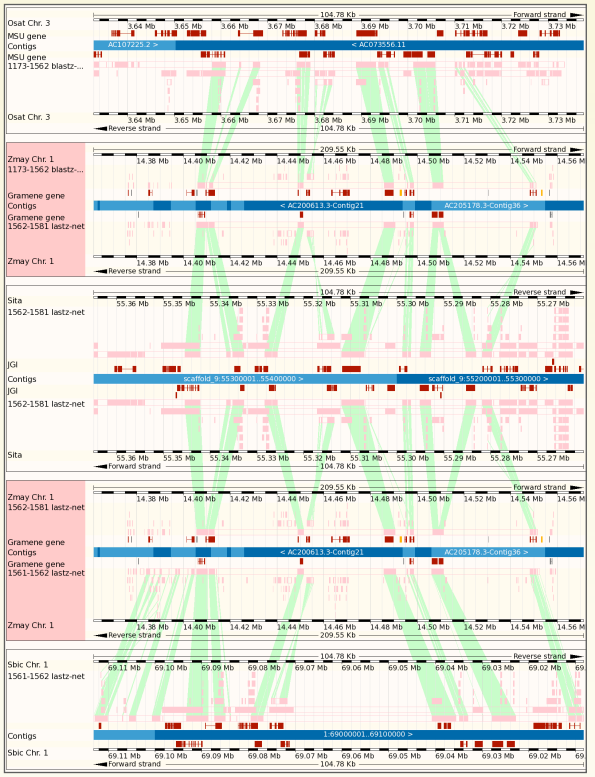
*Gramene continues to grow, now at 25 complete genomes (build 37), including crops, model organisms and lower plants. Together these serve as a reference resource for comparative analyses, for the broad scientific community, in support of basic and translational research which impact societal interests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



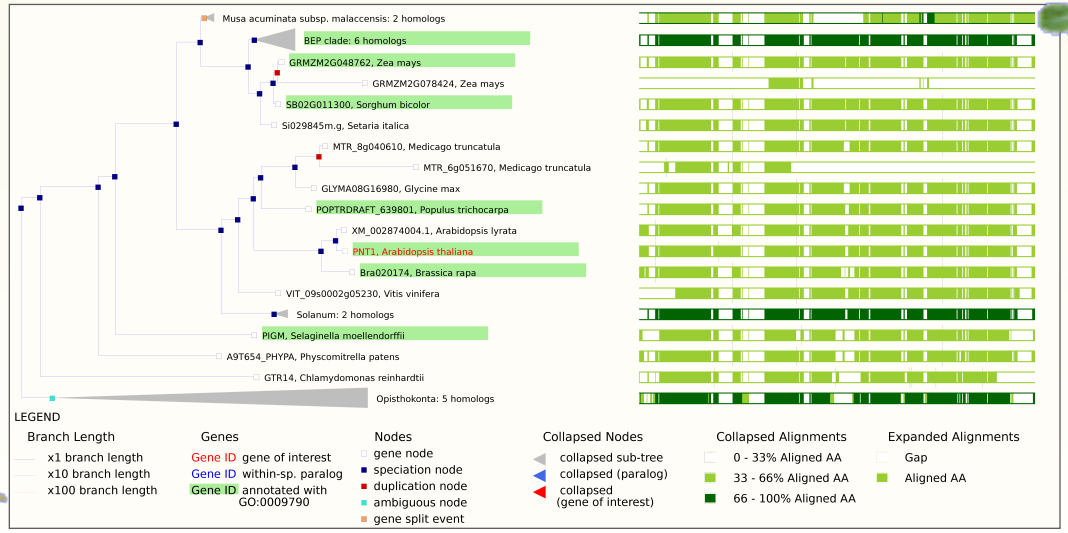

Gramene has biological pathways for various plant species, including *Zea mays* (MaizeCyc), *Oryza sativa* (RiceCyc), and a reference plant pathway database (PlantCyc)



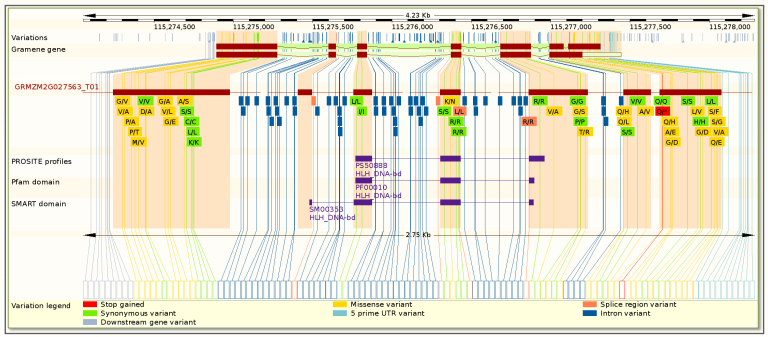

The beta version of the Plant Reactome includes 121 curated rice pathways (Source: RiceCyc v 3.3)



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