GENOME DATABASE FOR ROSACEAE

Resources for Rosaceae Research Discovery and Crop Improvement

October 2022

Welcome to the October 2022 issue of the GDR newsletter. This newsletter is issued to inform users about **new or updated data and tools in GDR, and provide a summary from the quarterly Rosaceae Executive Committee (RosEXEC) meetings.**

New funding for GDR!

New funding support from the USDA SCRI: Enabling genomic-assisted specialty crop breeding and research through advance database resources!

Summary of RosEXEC meetings!

Our newsletter now provides a summary from the quarterly RosEXEC meetings! Check page 3!

Registration for RGC11 Open!

Registration for RGC11 is now open. RGC11 will be held in Nelson, NZ on 13-16 March 2023. See the **website** to register, submit abstracts, etc.

New tutorial videos available

How to use MegaSearch for Genetic Maps and How to go from BLAST to mRNA details to JBrowse short tutorials were made available this past quarter. See **the manual page or our YouTube channel.**

New Genome Assemblies

Data from **7 whole genome assemblies of Fragaria, Malus, Prunus, Pyrus, and Rubus** have been added to GDR this past quarter. Access data from Gene Search, MegaSearch, Synteny Viewer, JBrowse, BLAST as well as the individual genome pages linked below.

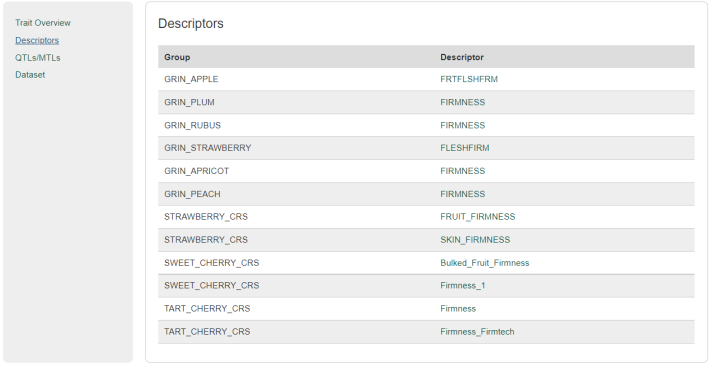
- *Fragaria x ananassa* Florida Brilliance
- *Fragaria x ananassa* FL15.89-25
- *Malus x domestica* Honeycrisp
- *Prunus dulcis* Nonpareil
- *Prunus humilis*
- Pyrus communis d'Anjou
- *Rubus idaeus* Joan J

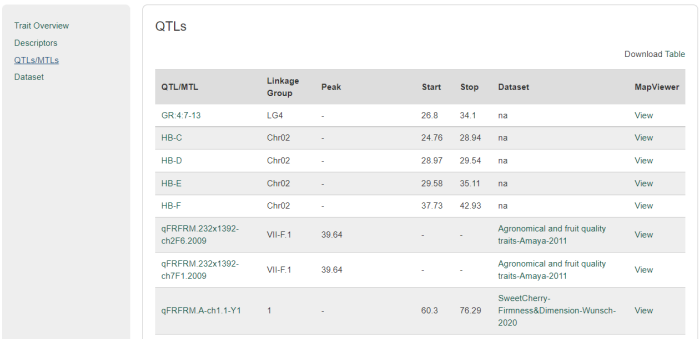
New Trait and Trait Descriptor Search

Now available: User Trait Search to find standardized trait terms using categories or keyword to access all the data associated with the trait term. Alternatively use the Trait Descriptor Search to find trait descriptors in publicly available phenotyping datasets and access associated data. BIMS also allows you to access publicly available phenotype data.

Updated Trait Page

Access all the associated data from a trait page such as QTLs, Haplotype blocks, trait descriptors, publications, and phenotyping datasets.





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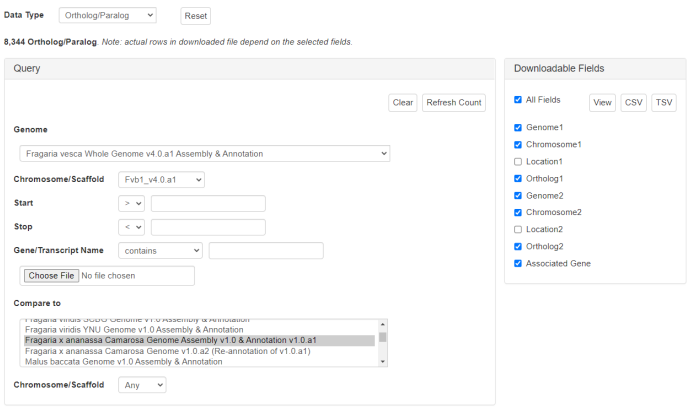
Featured Data and Tools

Ortholog/Paralog Search

Did you know?
You can retrieve customized information on Orthologs/paralogs in MegaSearch. So now you can choose data fields to view and download.



Did you know?
Now checkbox is available in the result table so that you can choose the results to download.

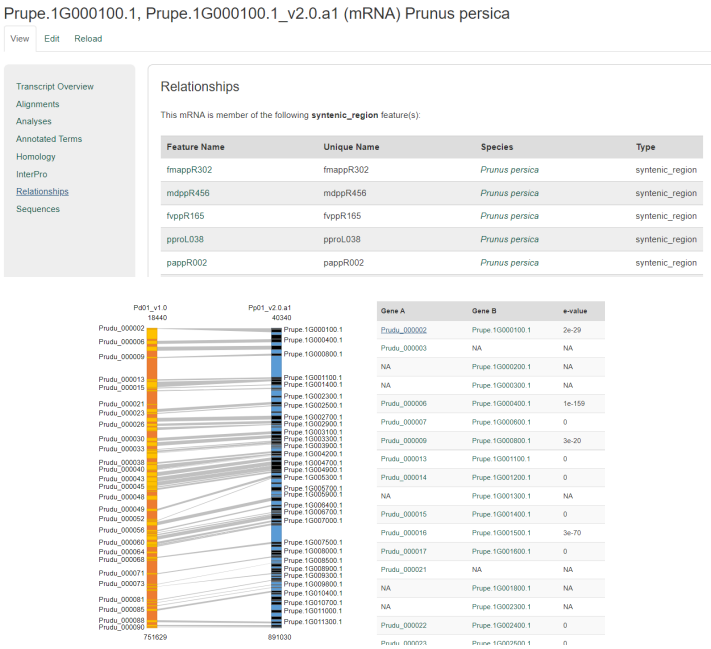
#		Genome1	Chromosome1	Ortholog1	Genome2	Chromosome2	Ortholog2	Associated Gene
1	☑	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00010.t1	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-1	maker-Fvb1-1-augustus-gene-274.109-mRNA-1	maker-Fvb1-1-augustus-gene-274.109
2	☑	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00020.t1	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-1	maker-Fvb1-1-snap-gene-274.162-mRNA-1	maker-Fvb1-1-snap-gene-274.162
3	☑	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00020.t1	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-3	maker-Fvb1-3-augustus-gene-2.40-mRNA-1	maker-Fvb1-3-augustus-gene-2.40
4	☑	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00030.t2	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-1	maker-Fvb1-1-augustus-gene-274.124-mRNA-1	maker-Fvb1-1-augustus-gene-274.124
5	☑	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00030.t2	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-3	maker-Fvb1-3-augustus-gene-2.41-mRNA-1	maker-Fvb1-3-augustus-gene-2.41
6	☑	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00040.t1	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-1	maker-Fvb1-1-augustus-gene-274.108-mRNA-1	maker-Fvb1-1-augustus-gene-274.108
7	☑	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00040.t1	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-3	maker-Fvb1-3-augustus-gene-2.47-mRNA-1	maker-Fvb1-3-augustus-gene-2.47
8	☐	Fragaria vesca Whole Genome v4.0.a1 Assembly & Annotation	Fvb1_v4.0.a1	FvH4_1g00050.t1	Fragaria x ananassa Camarosa Genome Assembly v1.0 & Annotation v1.0.a1	Fvb1-1	maker-Fvb1-1-augustus-gene-274.107-mRNA-1	maker-Fvb1-1-augustus-gene-274.107

Did you know?
You can also use this tool to generate a list of matching genes (and true paralogs) between two genome assemblies of the same species.

B	C	D	E	F	G	H
Genome1	Chromosome1	Ortholog1	Genome2	Chromosome2	Ortholog2	Associated Gene
Malus x domestica GDDH13 v1.1	Chr01	MD01G1011600	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_017337349.1	LOC103454238
Malus x domestica GDDH13 v1.1	Chr01	MD01G1011700	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_008393789.2	LOC103454197
Malus x domestica GDDH13 v1.1	Chr01	MD01G1011800	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_008393790.2	LOC103454198
Malus x domestica GDDH13 v1.1	Chr01	MD01G1012000	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_008393791.2	LOC103454199
Malus x domestica GDDH13 v1.1	Chr01	MD01G1012100	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_008393793.2	LOC103454200
Malus x domestica GDDH13 v1.1	Chr01	MD01G1012300	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_017322456.1	LOC103454201
Malus x domestica GDDH13 v1.1	Chr01	MD01G1013400	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_017322453.1	LOC103454241
Malus x domestica GDDH13 v1.1	Chr01	MD01G1013500	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_008393795.2	LOC103454203
Malus x domestica GDDH13 v1.1	Chr01	MD01G1014200	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_008393796.2	LOC103454204
Malus x domestica GDDH13 v1.1	Chr01	MD01G1014700	Malus x domestica Genome v1.0 NCBI annotation	NC_024252.1	XM_008393797.2	LOC103454205
Malus x domestica GDDH13 v1.1	Chr01	MD01G1016500	Malus x domestica Genome v1.0 NCBI annotation	NC_024255.1	XM_008344733.2	LOC103405706

Downloaded file of GDDH13 genes and corresponding NCBI annotated M. x domestica v1.0 gene names

Did you know? Orthologs/paralogs in GDR are detected using MCScanX. Visit gene pages to see orthologs/paralogs and syntenic blocks in all other genomes.



Join the GDR Mailing List and follow us on Twitter

Funded by:
USDA SCRI and NRSP10 (National Research Project)

RosEXEC: Rosaceae Genomics, Genetics, and Breeding Executive Committee

www.rosaceae.org/community/us_rosexec

Very interesting information was shared at the U.S. RosEXEC meeting in October. Here's a quick overview!

Administrative

- As a way to quickly inform our community of the happenings in RosEXEC, these summarized updates will be added to the GDR quarterly newsletter. So, here we go!
- Per McCord from WSU was elected Secretary of RosEXEC, and he joined us in June. Welcome!
- New elections for RosEXEC membership will be held in Fall 2023, are you running?
- The next RosEXEC quarterly meeting will be during PAG in January 2023! Stay tuned for more information in the GDR mailing list!
- Talking about the GDR mailing list, please join so you receive fresh information on all the developments in GDR and RosEXEC! To do so, click here. We will stay in touch!

GDR insights

- Several new resources including tutorials, updated interfaces, and 7 genomes(!) have recently been posted in GDR. Take a look and enjoy the bounty!

Future plans

- RosEXEC will facilitate the coordination of taskforces and subcommittees to encourage community participation, collaboration, and improved access to resources. We will provide information about these opportunities through these communications and GDR. Stay tuned!

Announcements for specific crops: choose your favorite!

- Genome databases received support from SCRI, including GDR! Dorrie Main & Sook Jung can provide you with the latest info on it!
- Saving roses! New SCRI funded project on diseases in rose. Learn more about it here.
- Strawberries gained some love too! SCRI has funded a project (PI: Steve Knapp) tackling disease resistance, breeding, and management.
- Interested in the genomic composition of NPGS apples representing wild species? This paper is going to be of interest to you. Gayle will look forward to telling you more about it!
- Not only the nuclear genome, but plastids also have a say on the origin of apples.
- Looking for some pear? The d'Anjou pear genome is in GDR! Contact Loren Honaas if you need more information.

Engagement with the Rosaceae community (What you can do? / How to get involved?)

- Interested in visualizing large/complex gene expression datasets in JBrowse and other visualization tools on GDR? Loren Honaas, Chris Gottschalk and Sook Jung too! Do not hesitate to contact them if you want to be part of this task force!
- Do you have ideas or interests that benefit the Rosaceae community? Do not hesitate to get involved with RosEXEC and GDR and form a task force. You can contact Gayle Volk, current Chair of RosEXEC, Jonathan Fresnedo Ramirez, current vice-chair, or Per McCord, current secretary. We are looking forward to hearing from you!