

# An Interactive Gene Expression Atlas For Mango

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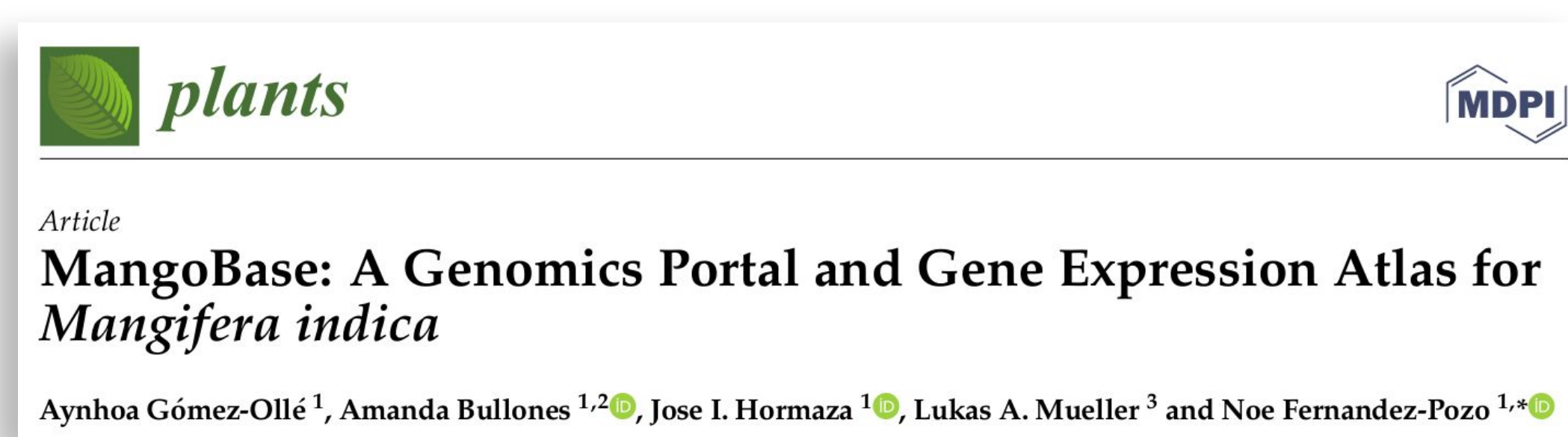
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## Abstract

- We present a gene expression atlas for mango with multiple interactive tools to visualize and download gene expression data together.
- Two tools are available in MangoBase for gene expression query: the **Expression viewer** and the **Expression comparator**. The first one is described on the right. The Expression comparator visualization is very similar and can also compare diverse samples from different datasets while implementing relative normalization to calculate fold-change or log-ratio values.
- The expression atlas is integrated into MangoBase (<https://mangobase.org>), a genomic portal dedicated to mango:



## Datasets

The expression atlas contains 12 datasets and 80 experiments from public RNA-seq studies.

Dataset Name	Experiments Number	Description
'Alphonso' multiple tissues	7	Root, bark, leaf, flower, peel, pulp and seed in control conditions used for the annotation of the 'Alphonso' genome
Fruit and peel ripening	16	Pulp and peel ripening of cv 'Hongyu', 'Guire-82' and 'Sensation', which show different coloration over maturation
'Kent' pulp ripening	2	Pulp ripening in cv. 'Kent'
'Keitt' peel ripening	2	Peel ripening in cv. 'Keitt'
'Keitt' peel storage	7	Peel response to cold conditions
'Tainong' and 'Renong' pulp ripening	8	Time series of pulp ripening of two varieties with different fruit sweetness
'Tainong' pulp ripening	8	Time series of pulp ripening
'Chokanan' pulp ripening	2	Pulp ripening in cv. 'Chokanan'
'Chokanan' and 'Golden phoenix' pulp ripening	4	Pulp ripening of varieties showing different pulp firmness
'Shelly' peel hot water treatment	8	Time series of peel response to hot water treatment
'Ataulfo' Peel Hot Water Treatment	4	Pulp ripening hot water brush post-harvest treatment
'Shelly' peel <i>Colletotrichum Gloeosporioides</i> Treatment	12	Time series of peel in response to <i>C. gloeosporioides</i>

## Gene expression data and annotation downloading

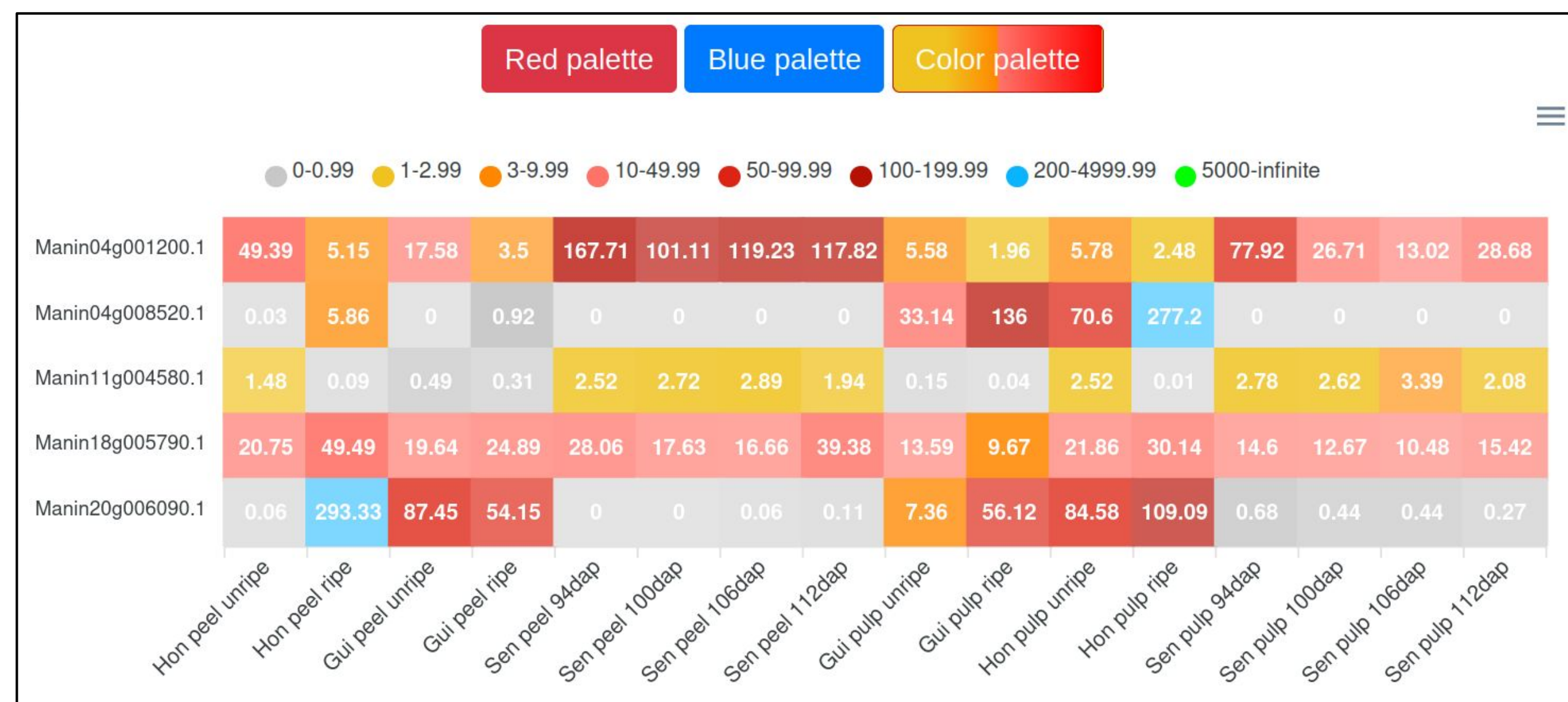
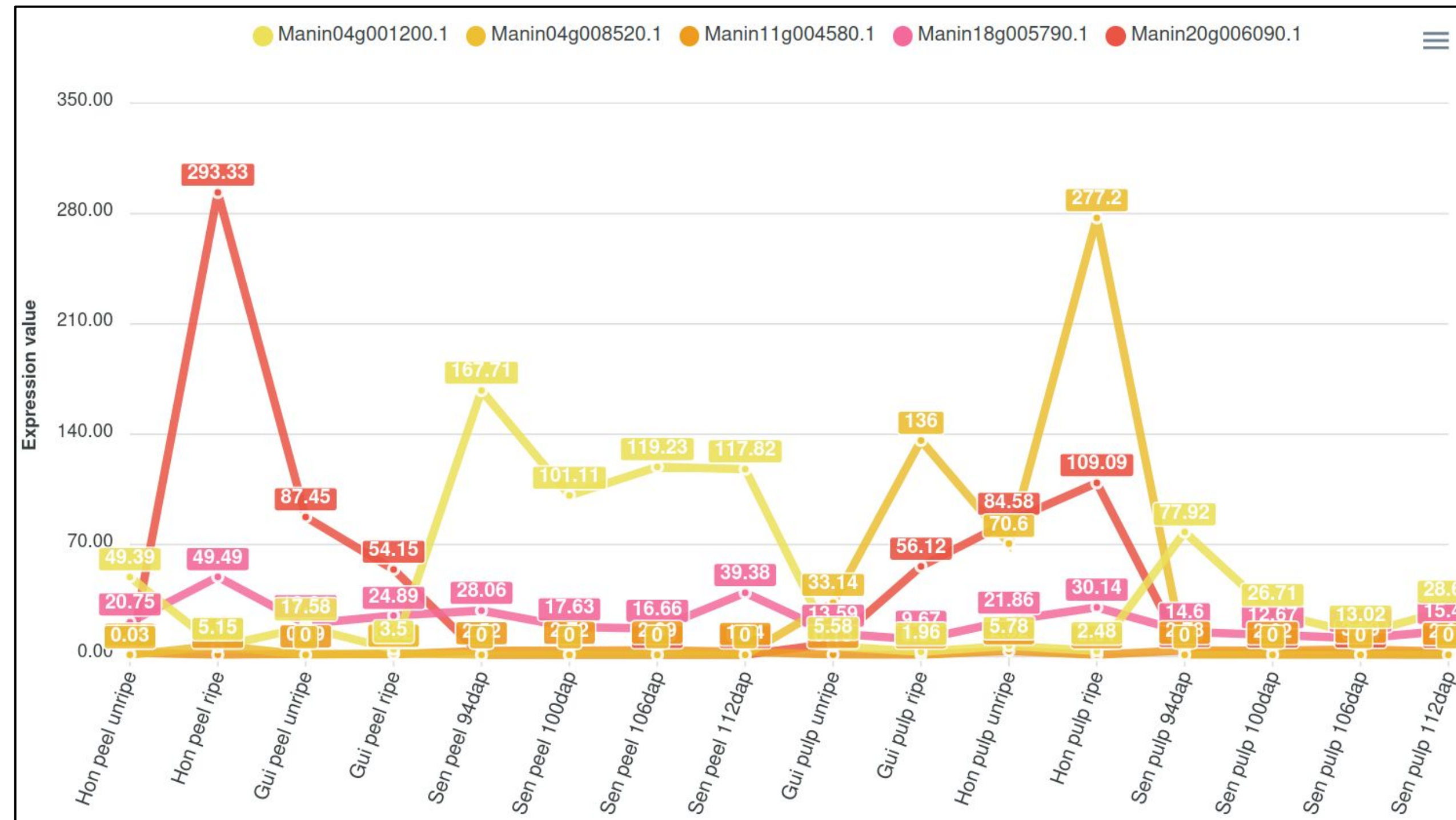
Gene expression values of the selected genes for each experimental condition can be downloaded together with the associated descriptions and identifiers in multiple databases such as Araport11, SwissProt, InterPro, TrEMBL, EC and PlantCyc.

ID	Renong pulp 30dap	Renong pulp 95dap	Renong pulp 130dap	Renong pulp ripe	Araport11 ID	Araport11 Description	TrEMBL ID	TrEMBL Description
Manin09g014730.1	5.63	0.01	0.01	0.00	AT5G13170	senescence-associated gene 29	V4TK97	Bidirectional sugar transporter SWEET
Manin15g007950.1	4.27	20.52	2.11	0.38	AT1G21460	Nodulin MtN3 family protein	V4T7Y4	Uncharacterized protein
Manin16g006960.1	2.99	0.07	0.68	16.04	AT5G13170	senescence-associated gene 29	V4TK97	Bidirectional sugar transporter SWEET

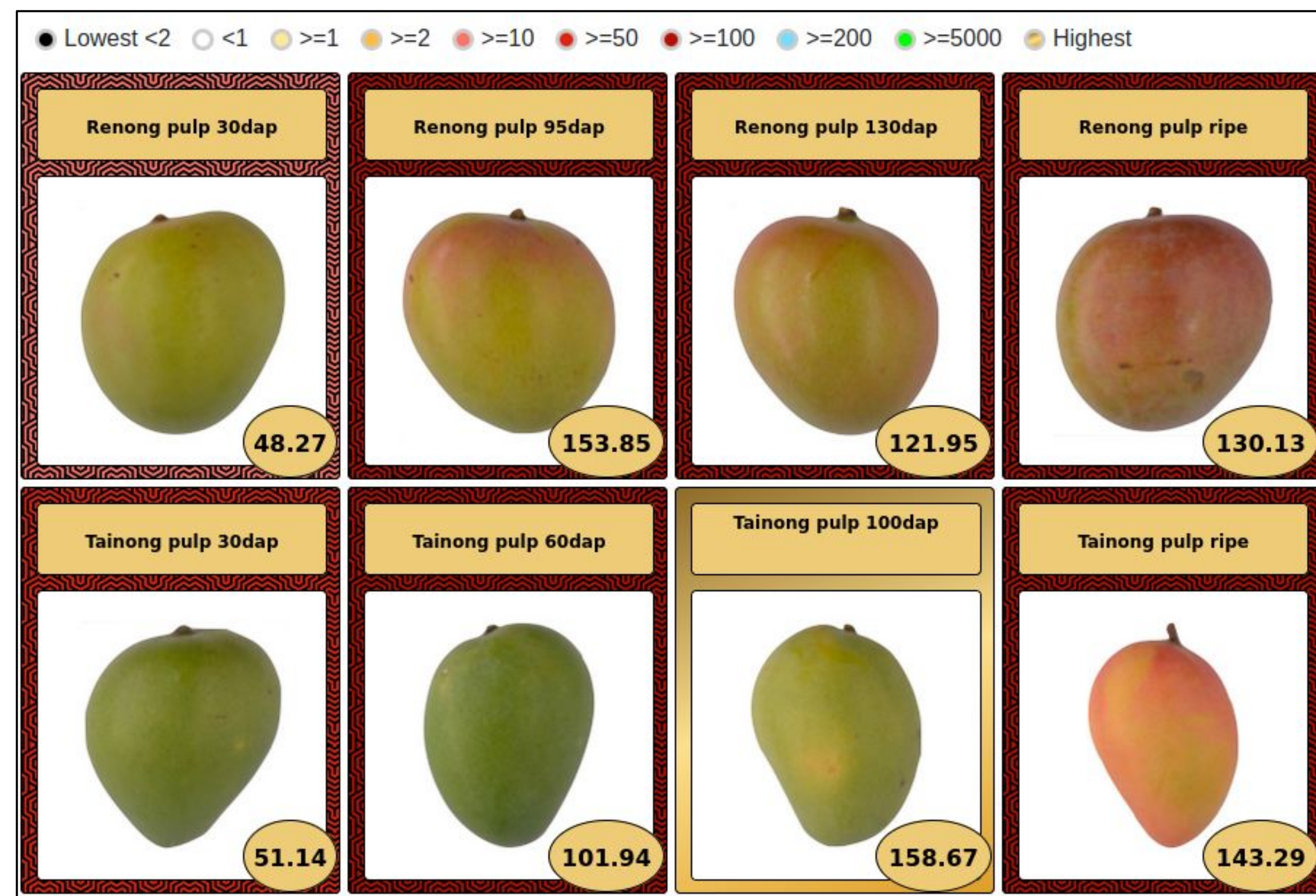
## Expression Viewer

Five tools allow visualization of gene expression values of all samples of the selected dataset: Lines, Heatmap, Expression cards, Replicates and Average values.

**Lines** and **Heatmap**: allows a simultaneous comparison of all genes and experimental conditions.



**Expression Cards** show experiment phenotypes of the selected gene.



**Replicates** plot displays replicate expression values for each experiment.

