

Using the Plant Ontology

PO data can be used to answer questions such as:

- What mutants in other species have phenotypes similar to my mutant?
- What genes are annotated to the same tissue, organ, or development stage as my gene of interest?
- What genes are annotated to both monocot and dicot flowers?
- When and where are homologous genes expressed in different species?
- Or simply, what is a fruit?

The PO facilitates data exploration by linking resources from multiple databases:

- Suppose you wanted to identify genes involved in low temperature response in a non-model species. A search of PO annotations for “low temperature” returns a list of genes, such as *Lti6B* in *Oryza sativa*.
- From the PO annotation detail page for *Lti6B*, there is a direct link to the Gramene database, which provides more details on *Lti6B*, including the fact that *RC12A* is an ortholog in *Arabidopsis thaliana*.
- A new search of PO annotations leads to the PO page for *RC12A*.
- From the *RC12A* page, users can link to the locus page from The Arabidopsis Information Resource (TAIR) or the Gene Ontology (GO), which show that *RC12A* is associated with various GO stress response terms, including *response to cold* (GO:0009409).
- This evidence suggests that *Lti6B* and its orthologs are important for a response to low temperature in both monocots and dicots and provides a candidate for genetic analysis in the non-model species.

Useful links

PO home page:

<http://plantontology.org>

The Plant Anatomy Glossary:

<http://plantontology.org/db/glossary/glossary>

Online AmiGO Users Guide, for help with the PO web browser:

http://plantontology.org/amigo_user_guide/index.html

The PO's SourceForge tracker site, to request new or revised terms:

http://sourceforge.net/tracker/?atid=835555&group_id=76834&func=browse

Online contact form, to send email to the PO curators:

http://plantontology.org/db/feedback/send_feedback

Guide to PO web services:

http://www.plantontology.org/docs/otherdocs/web_services_guide.html

PO wiki (behind the scenes information on ontology development)

http://wiki.plantontology.org/index.php/Main_Page

The Plant Ontology in the classroom

- The **Plant Anatomy Glossary** provides definitions for anatomical and morphological entities that can be applied across all green plants.
- The **PO graphical view** for any term allows students to visualize relationships among terms.
- Students can **build their own ontology**, and compare their results to the PO.
- Advanced students can use PO annotation data to generate or test hypotheses.

Quick start guide to the Plant Ontology



<http://plantontology.org>

What is the Plant Ontology?

A structured vocabulary for all plants that covers:

- plant anatomy and morphology
- plant growth and development stages

A source for:

- standardized vocabulary for annotation of phenotypes and gene expression data
- definitions reviewed by experts
- annotation data from multiple genome databases

A web-based interface that allows users to:

- browse the ontology
- search for ontology terms and associated annotation data

A teaching tool for plant anatomy, development, and genomics



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Navigating the Plant Ontology website

From the **PO homepage** (right), you can **search** or **browse** the PO, **download** the latest version of the ontology, **request PO terms**, read background **documentation**, view **tutorials** on how to use the PO, or send **feedback** to PO curators.



Search or Browse the Plant Ontology Database

Example Searches:

type: endosperm or PO:0009089 and select 'PO terms'
type: CONSTANS or AT5G15850 and select 'Annotations'

PO terms Annotations exact match

Submit

More options: [Browse PO](#), [Advanced Search](#) and [Help](#).

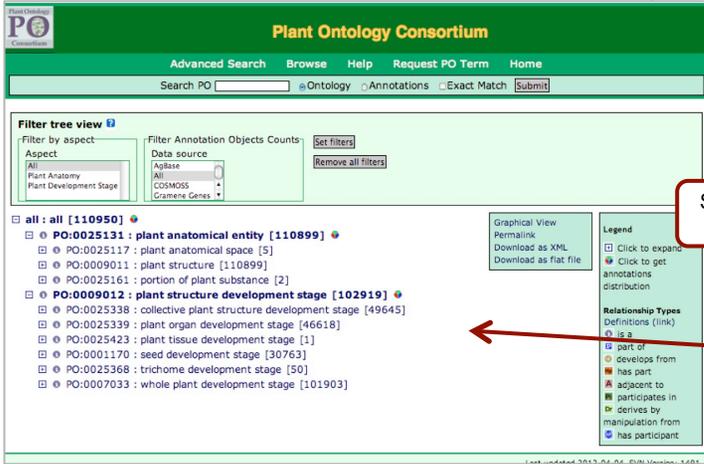
What's New...!

News Archive...

New Release

Request new terms using our tracker

The latest release of the Plant Ontology version #17, is on our [Ontology Browser](#)



Search terms using names or IDs

Search annotations using gene names

Browse the ontology in tree view

Advanced search lets you use multiple criteria

The **annotation detail page** (below) shows the **type** of object, **synonyms**, **species**, and contributing **database** for each annotation object. A list of PO terms associated to that object is also available.

The **Term detail page** (below) shows the **definition**, **synonyms**, relationships to other terms, and any **external references**.

Annotations to septum ; PO:0000030 and its children

Get this data as [RDF-XML](#).

septum ; PO:0000030 [\[show def\]](#)

Qualifier	Name / Symbol	Information	Evidence	Reference	Assigned by	Associated to
	CEL2 AT1G02800	protein from <i>Arabidopsis thaliana</i>	IDA	PMID:10074717	TAIR	GO
	HEC1 AT5G67060	protein from <i>Arabidopsis thaliana</i>	IEP	PMID:17855426	TAIR	GO
	HEC2 AT3G50330	protein from <i>Arabidopsis thaliana</i>	IEP	PMID:17855426	TAIR	GO
	HEC3 AT5G09750	protein from <i>Arabidopsis thaliana</i>	IEP	PMID:17855426	TAIR	GO
	SCR micro RNA 812e	gene from <i>Oryza sativa</i>	IMP	PMID:15247409	Gramene	Gramene (via Gramene Genes)
	SK4 AT1G20140	protein from <i>Arabidopsis thaliana</i>	IDA	PMID:12970487	TAIR	GO
fruit septum ; PO:0025268 [show def]						
	AT1G58120.1 AT1G58120	protein from <i>Arabidopsis thaliana</i>	IDA	PMID:20687964	TAIR	GO
	NTT AT3G57670	protein from <i>Arabidopsis thaliana</i>	IDA	PMID:17600712	TAIR	GO

You can view **a list of annotations associated with a term** and its children (above).

CEL2

Information

Name(s) AT1G02800

Type protein

Species *Arabidopsis thaliana*

Synonyms AT1G02800
CEL2
cellulase 2
ENDO-1,4-BETA GLUCANASE
F2ZD16.21
F2ZD16_21

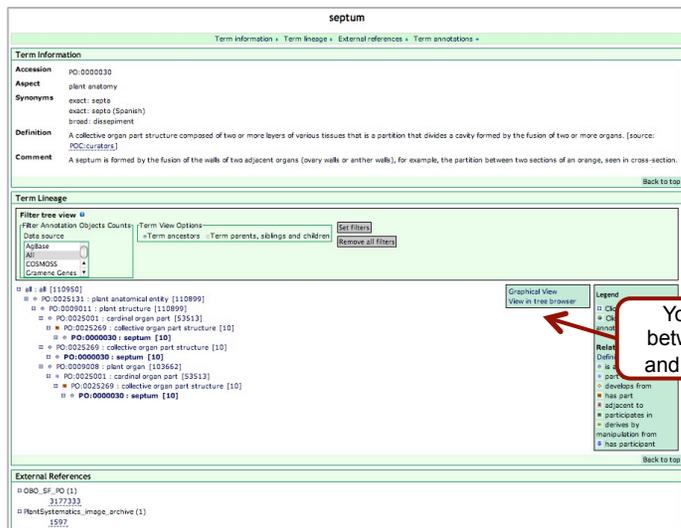
Database TAIR, TAIR:locus:2024670

Associated GO

Sequence No peptide sequence available

[Back to top](#)

You can use **filters** (below) to limit the types of data shown in your search results.



You can toggle between tree view and graphical view

