

Diversity of data descriptions results in inconsistent nomenclature



The Planteome Project provides consistent terminology for all things plant biology related, from the molecular to environment levels.

Reference Ontologies for Plants

GRANULARITY	Environment Ontology (ENVO)			
	Plant Experimental Conditions Ontology (PECO)			
Plant Taxonomy	NCBI	Plant Stress Ontology	Phenotypic Quality (PATO)	Biological Process (GO)
Anatomy	Plant Anatomical Entity Plant Ontology (PO)		Plant Trait Ontology (TO)	Plant Structure Development Stage (PO)
Cell	Plant Cell (PO) Cell (CL)		Crop Ontology (CO)	
Cellular Component	Cellular Component (GO)		Molecular Function (GO)	Molecular Process (GO)
Molecule	Molecular Entity (ChEBI, PR)			

Key to Colors: Yellow & Orange: developed and maintained by Planteome. Blue: external reference ontologies

Goals of the Planteome Project:

- Develop and maintain a network of reference ontologies to link plant traits, phenotypes, gene expression, genomes and genetic diversity data across a wide range of plant species on a centralized platform
- Align reference ontologies with descriptors from species-specific vocabularies to link to breeding data (intersects on networks)
- Create mappings (links) to other ontologies and databases



Report bugs, request terms or download ontologies at <https://github.com/Planteome>



GLOBAL CORE BIODATA RESOURCE

Planteome is recognized as a Global Core Biodata Resource

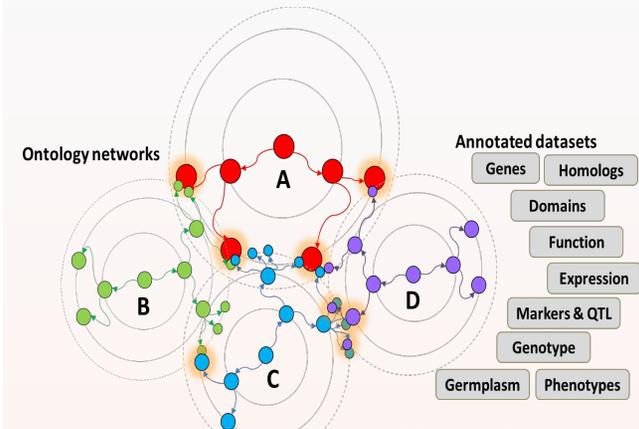


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What is the Planteome Project?

A suite of ontologies and plant genomics data from more than 85 plant taxa



A source for standard definitions reviewed by experts and links to annotations from plant genome databases



<https://planteome.org>



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Navigating the Planteome website:

Planteome Home Search ▾ Browse Tools & Resources About

Search ▾
 Annotations
 Ontology
 Bioentity

Search Planteome
 Example Searches: endosperm' or 'PO:0009089'
 CONSTANS' or 'AT5G15850'

More information on quick search ?

Forwarding to TO:0000439...

Search results can be filtered by taxon, source database, evidence type, and object type

Directly search for ontology terms, annotations or bioentities

Download annotations directly from search results

Filter results
 Total annotations: 2362

Total annotations: 2362; showing: 1-10
 Results count: 10

Object	Object name	Object Type	Direct annotation	Annotation extension	Taxon	Evidence	with/from	Reference	Assigned by
<input type="checkbox"/> Lrd33	Lesion resembling disease-33	gene	leaf blast disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:10628	Gramene
<input type="checkbox"/> RMg71	Magnaporthe grisea resistance 71	gene	leaf blast disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:7746	Gramene
<input type="checkbox"/> RMg72	Magnaporthe grisea resistance 72	gene	leaf blast disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:9915	Gramene
<input type="checkbox"/> RMg73	Magnaporthe grisea resistance-73	gene	leaf blast disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:10650	Gramene
<input type="checkbox"/> RRS4	Rhizoctonia solani (sheath blight) resistance-4	gene	sheath blight disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:8358	Gramene
<input type="checkbox"/> Osa-MIR166b	microRNA166b	miRNA	sheath blight disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:11274	Gramene
<input type="checkbox"/> Rsb1	Rhizoctonia solani (sheath blight) resistance-3	gene	sheath blight disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:6885	Gramene
<input type="checkbox"/> PItq5	Magnaporthe grisea resistance-5	gene	leaf blast disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:6885	Gramene
<input type="checkbox"/> PIQ4	PYRICULARIA STANBROOKII	gene	leaf blast disease resistance		<i>Oryza sativa</i>	IMP		GR_REF:6125	Gramene

Reference Ontologies and Annotations

- biological_process (2460054) **Gene Ontology (GO)**
- cellular_component (4390488)
- molecular_function (2887218)
- plant anatomical entity (152595) **Plant Ontology-Anatomy (PO)**
- plant anatomical space (29)
- plant structure (152583)
- portion of plant substance (20)
- plant experimental condition (32208) **Plant Experimental Conditions Ontology (PECO)**
- plant exposure (31510)
- abiotic plant exposure (12779)
- biotic plant exposure (8677)
- control exposure (0)
- ecological environment exposure (0)
- seasonal environment exposure (0)
- unknown exposure (28372)
- study type (1041)
- plant structure development stage (97456) **Plant Ontology-Growth Stages (PO)**
- collective plant organ structure development stage (50537)
- multi-tissue plant structure development stage (53796)
- plant tissue development stage (1)
- trichome development stage (114)
- whole plant development stage (84603)
- plant trait (439331) **Plant Trait Ontology (TO)**
- biochemical trait (14059)
- biological process trait (2441)
- plant growth and development trait (107223)
- plant morphology trait (129115)
- plant quality trait (99505)
- plant stress trait (11975)
- plant vigor trait (3841)
- sterility or fertility trait (491)
- yield trait (11788)

APIs
Open Data
Phenotypes
Stresses
Environment
Disease
Plants
Tools
Genomes
Genotypes
Germplasm
Plants
Cell
Molecules
Applications

Using the Planteome

Hierarchical structure allows for taxon-specific annotation and comparisons across taxa.

You can ask questions such as:

- What genes are expressed that have an effect on plant height?
- Is there rice germplasm with known plant height characteristics?
- What traits have been characterized in lentil variety **REDCHIEF**?

