

# Gene Functional Annotation

This section provides information on the functional annotation of the *Arabidopsis thaliana* genome, ontologies used in the annotation effort, and sites for data retrieval.

- [Ontologies](#)
  - [Gene Ontology](#)
  - [Plant Ontology](#)
  - [Other Ontology Resources](#)
- [TAIR Gene Search](#)
- [Search TAIR Keywords](#)
- [Search/Browse Gene Ontology Database](#)
- [Search/Browse Plant Ontology at Planteome](#)
- [Submit Functional Annotation to TAIR](#)
- [Downloads](#)

## Ontologies

Information about the ontologies available for describing biological data, with emphasis on those used at TAIR for describing genes.

### Gene Ontology

TAIR is a member of the Gene Ontology Consortium and actively contributes to the development of the three ontologies aimed at describing genes: biological process, molecular function, and cellular component.

TAIR annotates Arabidopsis genes using GO terms. To learn about Gene Ontology development and gene annotation at TAIR see [Gene Ontology Annotations \(TO DO\)](#).

To learn how to find genes using GO terms and how to functionally classify gene sets, read the [TAIR GO Tutorial](#).(TO DO)

### Plant Ontology

TAIR contributed heavily to the initial development of ontologies for plant structures and plant growth and developmental stages. TAIR annotates Arabidopsis genes and microarray experiment data using PO terms.

### Other Ontology Resources

[Open Biomedical Ontologies](#)

[National Center for Biomedical Ontologies BioPortal](#)

## TAIR Gene Search

Find Arabidopsis genes using Gene Ontology and Plant Ontology terms. One can also upload a list of genes and download their associated GO or PO annotations.

## Search TAIR Keywords

A TAIR tool useful for searching all types of gene annotations done at TAIR, including gene ontology and plant ontology annotations.

## Search/Browse Gene Ontology Database

The Gene Ontology website, providing tools for searching and browsing gene functional annotation for several organisms.

## Search/Browse Plant Ontology at Planteome

The Plant Ontology website, providing tools for searching and browsing plant structure and developmental stages terms.

## Submit Functional Annotation to TAIR

Information on how to submit functional information about your genes to TAIR.

## Downloads

Links to directories in TAIR containing downloadable files with gene functional annotation data done at TAIR.