In the Know About GO:
A Newly Redesigned Website for the Gene Ontology

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The Gene Ontology resource (GO; http://geneontology.org) is a major bioinformatics initiative to provide a comprehensive, computational representation of our evolving knowledge of the biological functions of genes and gene products in all organisms. GO has been cited in over 148,000 published papers. In order to coordinate the efforts of the GO Consortium with thousands of users worldwide, it is necessary to keep the website current and concise. We have recently restructured the GO website in order to simplify the user interface, clarify citation and standardization practices for the various GO data products, and to make educational documentation a prominent aspect of the website. Here we present the newly overhauled GO site, which has been specifically targeted toward two groups of users: (1) novice users and (2) researchers who need a specific GO annotation or ontology file. Novice users will find training documentation and introductory material to ensure proper use and understanding of GO data products, including annotation and ontology file formats. More experienced users are still able to download GO files, but now through a more intuitive interface. Current GO release dates are prominently featured on the website and emphasis has been placed on the citation policy of GO, allowing for greater reproducibility in GO enrichment analyses and other uses of GO. Additionally, updated training documentation and guidelines are available to encourage and enable outside groups to contribute or suggest modifications to annotations and the ontology. Overall, the redesigned website is expected to enhance involvement of the research community with GO, and is a welcome improvement to an already well-known and heavily used resource.
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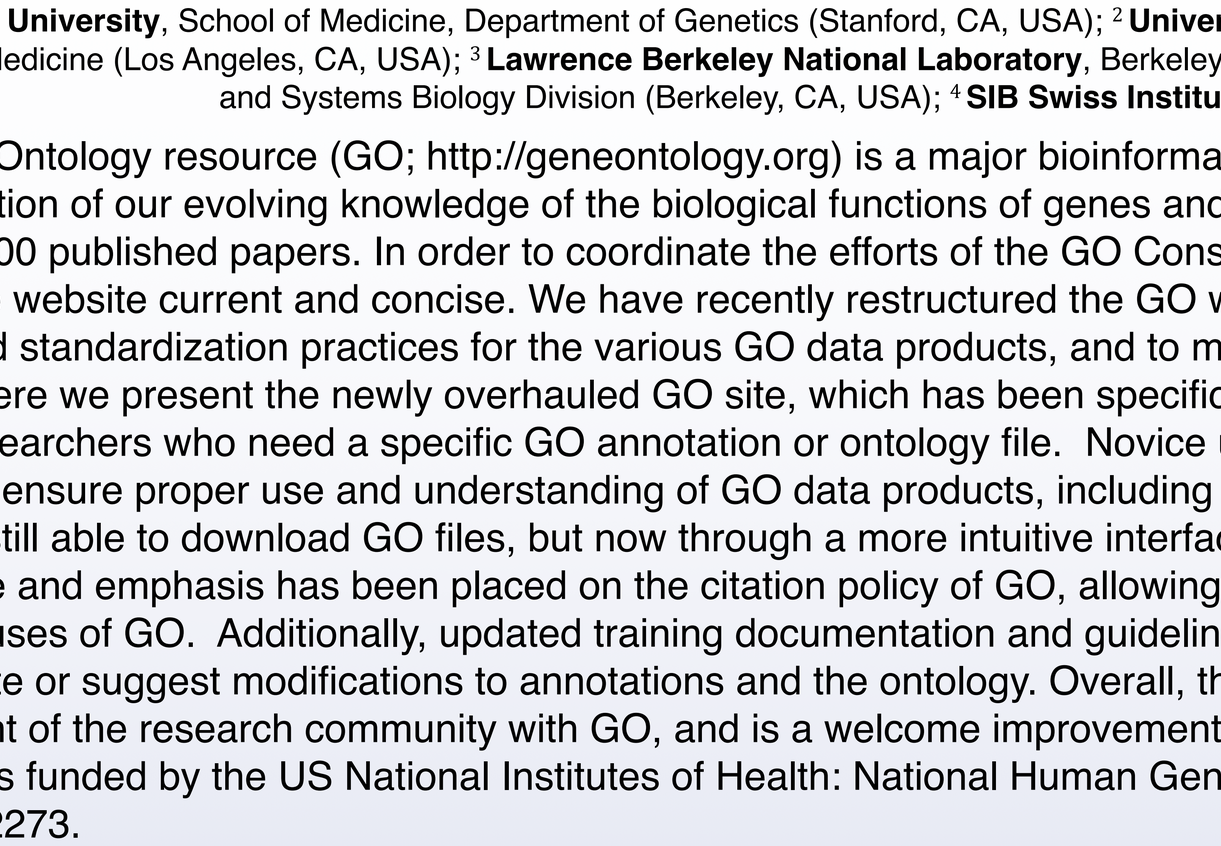
About GO



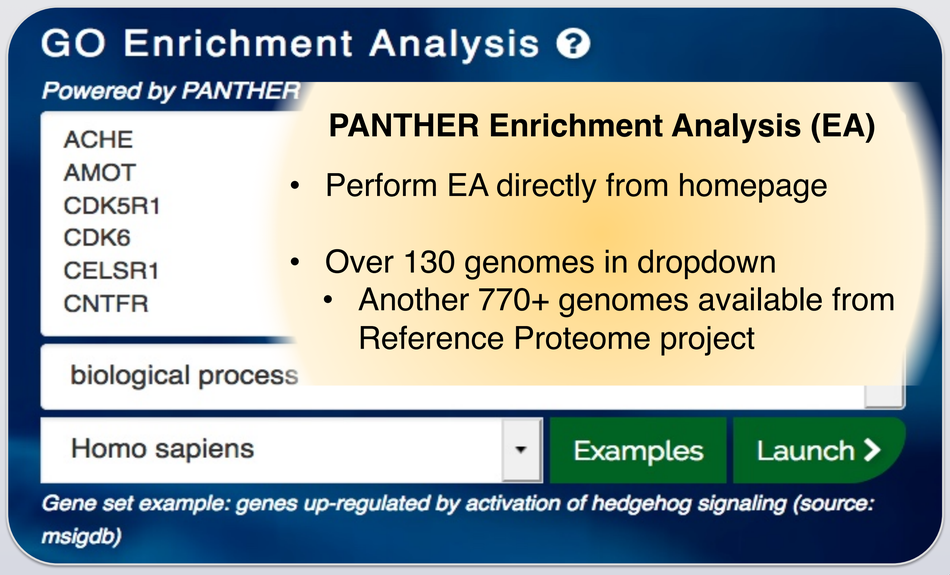
GO Terms

- Controlled vocabulary
  - Computer-readable ID number
  - Human-readable name & definition
  - Structured relationships between terms

GO Annotations

- Statements tying a GO Term to a gene product
  - Different types of evidence (e.g. direct assay, high throughput genetic interaction, or sequence alignment)
  - Relationships and additional information when possible

Quick Enrichment Analysis



PANTHER Enrichment Analysis (EA)

- Perform EA directly from homepage
- Over 130 genomes in dropdown
  - Another 770+ genomes available from Reference Proteome project

Accessing the GO Resource

Citation Information:

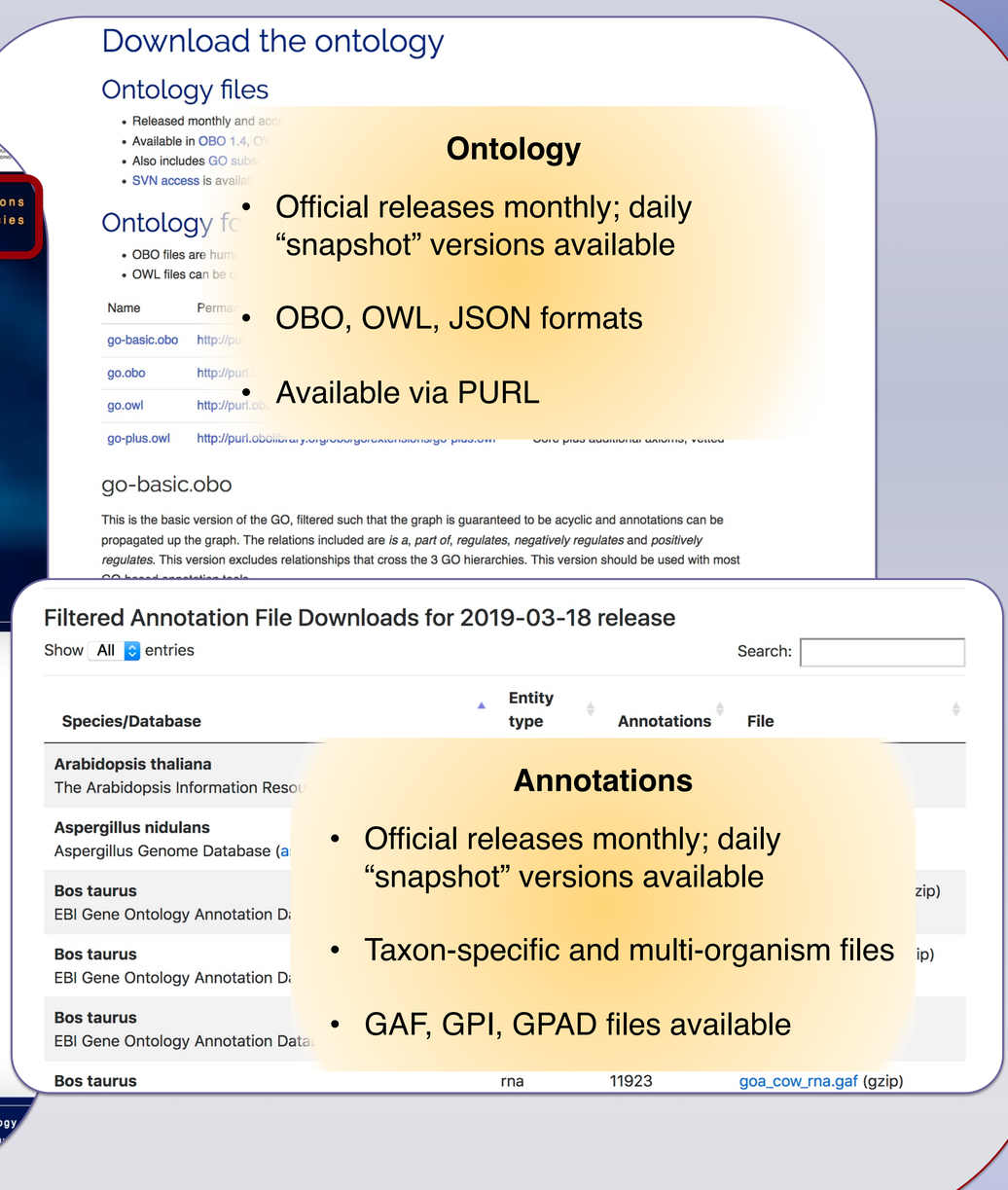
- Current release date at-a-glance
  - Unique DOI for each release:

DOI 10.5281/zenodo.2598351

- Statistics: GO terms, annotations, gene products, species

Quick Access

- Ontology, Annotations, and Guides for GO Tools



Ontology

- Official releases monthly; daily "snapshot" versions available
- OBO, OWL, JSON formats
- Available via PURL

Annotations

- Official releases monthly; daily "snapshot" versions available
- Taxon-specific and multi-organism files
- GAF, GPI, GPAD files available

GENEONTOLOGY Unifying Biology

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