

Integration and Enrichment of OBO Ontologies

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OBO Ontologies

- Over 50 open-source, orthogonal ontologies represented in a common text-file format
- These ontologies are generally structurally simple, and there are no links among terms from separate ontologies

Domain
Animal natural history and life history
Arabidopsis development
Arabidopsis gross anatomy
Biological imaging methods
Biological process
BRENDA tissue / enzyme source
C. elegans development
C. elegans gross anatomy
Cell type
Cellular component
Cereal plant development
Cereal plant gross anatomy
Cereal plant trait
Chemical entities of biological interest
Context
Dictyostelium discoideum anatomy
Drosophila development
Drosophila gross anatomy
Event (INOH pathway ontology)
Evidence codes
eVOC (Expressed Sequence Annotation for Humans)
FlyBase Controlled Vocabulary

Integration and Enrichment

- We have converted GO, ChEBI, and CTO into frame-based representations in Protégé
- We have also begun to add associations among terms by mining ontological terms for pattern elements within the terms:

ornithine metabolism →

results in metabolism of ornithine



Classes Slots Forms Instances Queries

CLASS BROWSER

For Project: ● GO+ChEBI+CTO_working

Class Hierarchy

- :THING
 - :SYSTEM-CLASS
 - chemical_ontology
 - entity_developed_from_cell
 - molecular_function
 - cellular_component
 - extracellular region
 - cell
 - tripartite ATP-independent periplasmic trans
 - cell_in_vivo
 - experimentally_modified_cell
 - experimentally_modified_cell
 - cellular component unknown
 - virion
 - extracellular matrix
 - extracellular matrix (sensu Metazoa)
 - extracellular matrix (sensu Magnoliophyta)
 - organelle
 - protein complex
 - biological_process
 - part_of_biological_process
 - part_of_cellular_component
 - part_of_molecular_function
 - slot with direct allowed classes

I-xylitol metabolism

Superclasses

- extracellular matrix

CLASS EDITOR

For Class: ● extracellular matrix (sensu Metazoa) (instance of GO term)

Name: extracellular matrix (sensu Metazoa)

Documentation: [Empty]

Constraints: [Empty]

Role: Concrete

Template Slots

Name	Cardinality	Type	Other Facets
part_of	multiple	Instance of extracellular region	

Comment: [Empty]

Database References: [Empty]

Synonyms: [Empty]

Definition: A layer consisting mainly of proteins

Definition Reference: [ISBN:0198547684]

ID: GO:0005578

Is Direct Allowed: [Empty]

Has Slots With D: [Empty]

Subsets: goslim_generic, goslim_goa, goslim_plant

Symmetry of Relationships

● cuticle hydrocarbon biosynthesis
● nitric oxide biosynthesis
○ organismal biosynthesis
♀ biopolymer biosynthesis
● poly(3-hydroxyalkanoate) biosynthesis
○ polysaccharide biosynthesis
● phytochelatin biosynthesis
○ cellular biosynthesis
○ lipid biosynthesis

Template Slots

Name	Cardinality	Type	Other Facets
(*) results in biosynthesis of	multiple	Instance of polysaccharide	inverse-slot= is biosynthesized in

○ oligosaccharides
♀ polysaccharide
○ alginic acids
○ aminoglycans
○ arabinans
● chitin
○ dextrans
● feruloyl-polysaccharides
○ Levan

Template Slots

Name	Cardinality	Type	Other Facets
(*) is biosynthesized in	single	Instance of polysaccharide biosynthesis	inverse-slot= results in biosyr...