

Phenote: Curation Software for Evolutionary Phenotypes

Jim Balhoff
National Evolutionary Synthesis Center

Phenote

- Developed for annotating genetic mutant phenotypes using ontologies
- NCBO & BBOP (lead developer, Mark Gibson)
- Used by curators at ZFIN, Flybase, Dictybase, Wormbase, others

Phenote features

- Simple table interface
- Loads any OBO format ontology - checks for updates
- Configure input fields for specific ontology
- Type-ahead term search in input fields
- Ontology navigation panel and term info panel
- Cross-platform Java desktop application

Phenote+

Annotation Editor

Publication: Fink and Fink 1981

Valid Taxon: **Danio de|**
 Danio deyl[syn]
 Danio devario[syn]

Publication Taxon:
 Taxon Comments:
 Character Number:
 Textual Description: adductor musculature of the cheek (Fig. 7 A-C).
 Reference image(s):

Entity: Anatomy | infraorbital | Comp

Quality: Quality | cylindrical | Comp

Additional Entity: Anatomy | | Comp

Count:
 Measurement:
 Unit:

Term Info: Devario devario

Devario devario

Basic Info

Term: **Devario devario**
 ID: TTO:1003080
 Ontology: teleost-taxonomy
 Definition: (no definition provided)

Synonyms (6)

RELATED Cyprinus devario
 Danio devario
 Devario buchanani
 Devario cyanotaenia
 Devario macclellandi
 Perilampus osteographus

Links (1)

Parents

is_a [Devario](#)

Annotation Table (Main)

Publication	Valid Taxon	Publication Taxon	Entity	Quality	Additional Entity	Count
Fink and Fink 1981				absent		
Fink and Fink 1981			infraorbital	flat		
Fink and Fink 1981			infraorbital	flat		
Fink and Fink 1981			infraorbital	cylindrical		
Fink and Fink 1981			infraorbital	flat		
Fink and Fink 1981			infraorbital	cylindrical		
Fink and Fink 1981			claustrum bone	absent		
Fink and Fink 1981			claustrum bone	present		
Fink and Fink 1981			claustrum bone	present		

Simple Filter: Exact Partial

Type-ahead can match name, synonyms, definition

Post-composition

Create more specific terms as cross-products of existing terms

The screenshot displays a software interface for ontology management. The main window shows a form for a term named "sclerotic bone" (ID: TAO:0001411) from the ontology "teleost_anatomy". The form includes fields for "Character Number" (17), "Qualification Taxon", "Publication Comments", "Qualification Description" (superostariophysans and in most primitive teleost), "Reference image(s)", "Genus" (Anatomy), "Quality" (absent), "Relationship" (part_of), "Differentialia" (ALL), and "Unit". A "Comp" button is visible next to the "Genus" field.

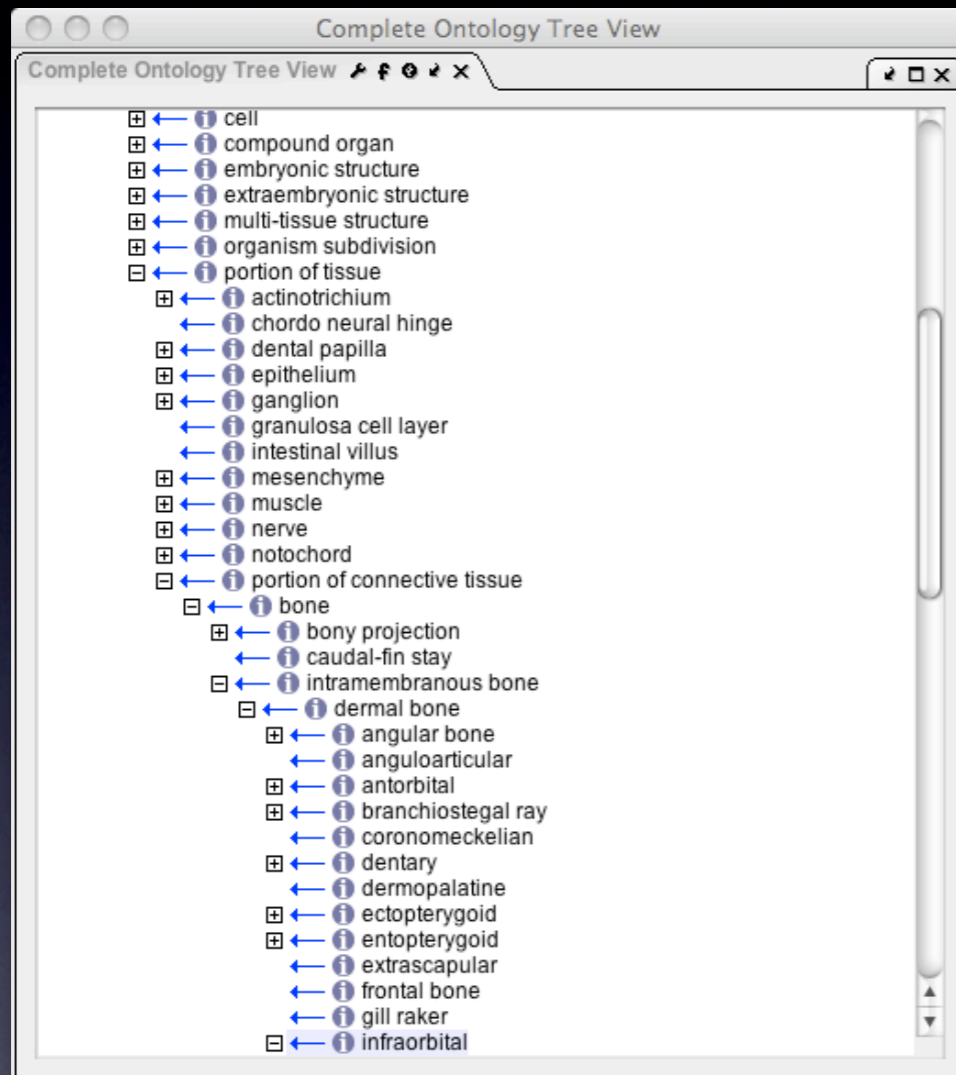
An "Entity Post Composition" dialog box is open, showing a "Genus" dropdown set to "Anatomy", a "Relationship" dropdown set to "part_of", and a "Differentialia" dropdown set to "ALL". The "Additional Entity" field is set to "sclerotic bone". The dialog has "OK" and "Cancel" buttons.

On the right side of the main window, there is a "Links (5)" section with "Parents" listed as "endochondral bone", "orbital region", and "sclerotic cartilage", and "Children" listed as "posterior sclerotic bone" and "anterior sclerotic bone".

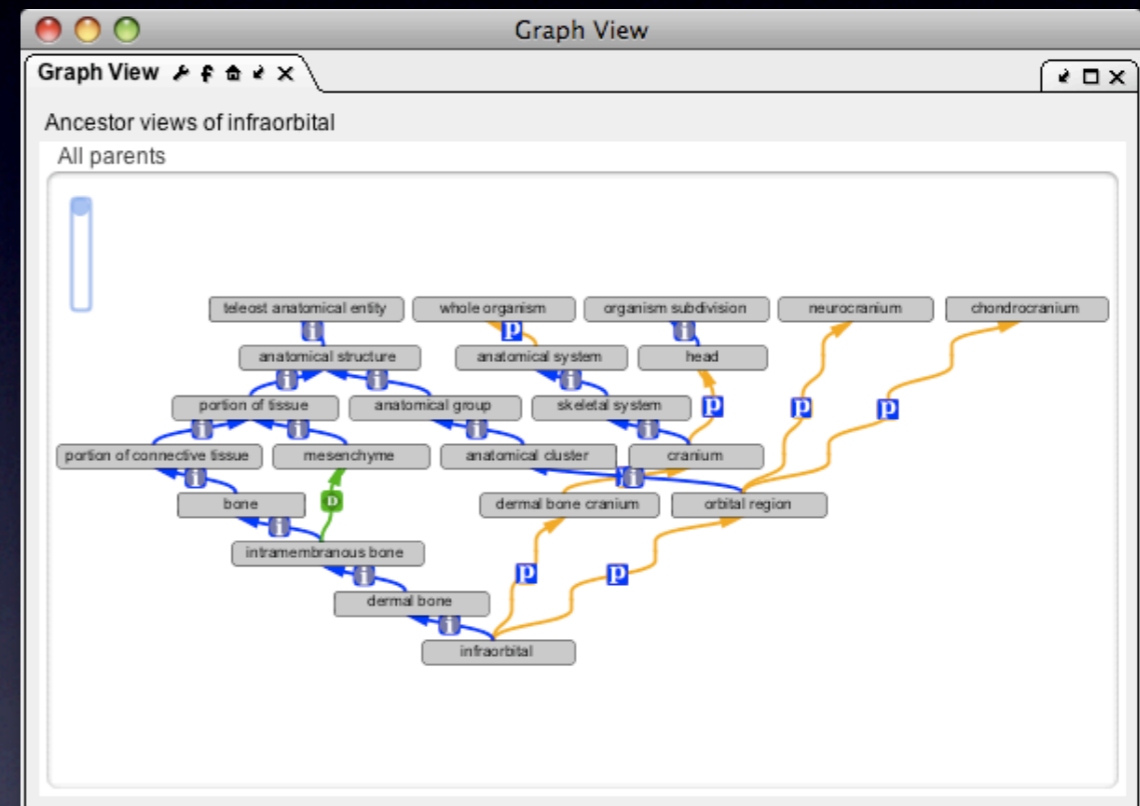
At the bottom, a table displays the following data:

Entity	Quality	Additional Entity	Publication Taxon
sclerotic bone	absent		
sclerotic bone	absent		
sclerotic bone	present		
sclerotic bone	present		
sclerotic bone	present		
sclerotic bone	present		
scale	absent		
scale	absent		
supraorbital bone	absent		
supraorbital bone	absent		

Panels from OBO-Edit



Browse entire ontology
(can drag and drop onto
input fields)



Quickly see inheritance
neighborhood of selected
term

Phenoscape interface

- Modeled on components of character matrix file (instead of flat table interface)
- Panels for Taxa & Specimens, Characters, Character states
- Attach EQ phenotype annotations to character states
- Attach taxonomy ontology IDs to taxa

Phenote

Taxa

Valid Taxon	Publication Tax
Polypterus senegalus	Polypterus sene
Amia calva	Amia calva
Hiodon alosoides	Hiodon alosoides
Osteoglossum bicirrhosum	Osteoglossum b
Scleropages formosus	Scleropages for
Elops saurus	Elops saurus
Megalops atlanticus	Megalops atlanti
Alosa pseudoharengus	Alosa pseudo
Harengula jaguana	Harengula pens
Barbus callensis	Barbus setiviner

Characters

...	Character Description
1	supraorbital ventral margin
2	supraorbital orientation along longitudinal ...
3	Infraorbital series
4	Infraorbital 1 shape
5	Anteromedial mesethmoid process

States

Sym...	State Description
0	rectangular, thickened bone
1	enlarged, thin bone with wide posterior ma...

Term Info: infraorbital 1

infraorbital 1

Basic Info

Term: **infraorbital 1**

ID: TAO:0000223

Ontology: teleost_anatomy

Definition: Dermal bone that covers the region between the anterior margin of the eye and the upper jaw. Infraorbital 1 (the lachrymal)

Synonyms (3)

RELATED lachrymal bone
lacrima bone
lacrymal bone

Links (1)

Parents

is_a [infraorbital](#)

Children

DBxrefs (2)

TAO:0000223

Specimens

Collection	Catalog ID
MCZ	12424
CAS	5678

Phenotypes

Entity	Quality	Related Entity	Count	Measurement	Unit	Notes
infraorbital 1	rectangular					
infraorbital 1	increased thickness					

Phenote

Taxa

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infraorbital 1

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Synonyms (3)

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Links (1)

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Phenote + NeXML

- NeXML - next generation XML form of NEXUS (led by Rutger Vos)
- EQ annotations can be embedded in State elements as PhenoXML
- Attach taxonomy ontology identifiers to Taxon elements
- Free-text data and character matrix can be edited in Mesquite - without destroying attached ontology info
- In progress for both Phenote & Mesquite

Acknowledgments

- Phenote/BBOP: Mark Gibson, Nicole Washington, Chris Mungall
- NeXML: Rutger Vos
- Phenoscape: Wasila Dahdul and everyone else
- NESCent & NSF