

# Phenoscape: use cases and anatomy ontology requirements for linking evolutionary and model organism phenotypes



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*ICBO 2011 Anatomy ontology workshop*

# Phenoscape Knowledgebase

The Phenoscape Knowledgebase is currently in BETA testing - we would greatly value your feedback as we continue its development.

**PHENOSCAPE BETA**

Home Provide Feedback About Acknowledgments

**Search the Phenoscape Knowledgebase**

lateral et] Search

- lateral ethmoid
- lateral ethmoid-autopalatine ligament
- lateral ethmoid-ectopterygoid ligament
- lateral ethmoid-frontal joint
- lateral ethmoid palatine process
- lateral ethmoid ventral wing synonym for lateral ethmoid wing
- lateral ethmoid wing

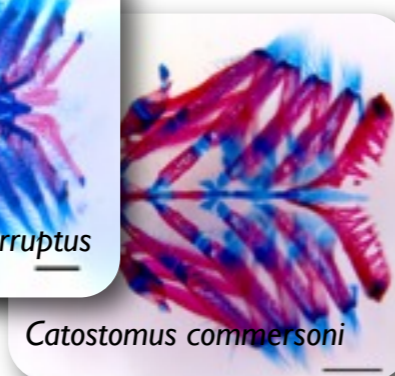
Genes Comparative publications

**Phenoscape News**

CSHALS 2011  
by Jim - Mar 09, 2011

For further information about the Phenoscape project and project partners, please see our [project wiki](#).

The Knowledgebase currently contains 501,926 phenotype statements about 2,474 taxa, sourced from 52 publications, as well as 21,850 phenotype statements about 3,894 genes, retrieved from ZFIN. The data were last loaded into the Knowledgebase on 2011-02-14.



<http://kb.phenoscape.org>

- Brings together data from two domains
- Search for candidate genes and candidate taxa



# Candidate genes



**Mola**

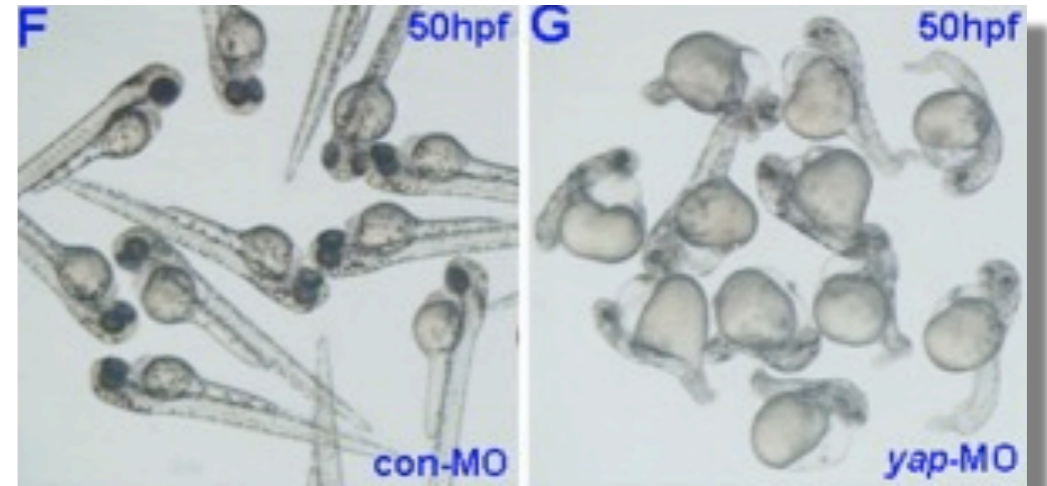
GoldenS



**Gymnotiformes**

Briantz & Johnson,

Caudal fin,  
absent



genes: *smc3*,  
*tll1*,  
*yap1* Jiang et al., 2009

Did Mola lose its caudal fin because of changes in regulation of *yap1*?



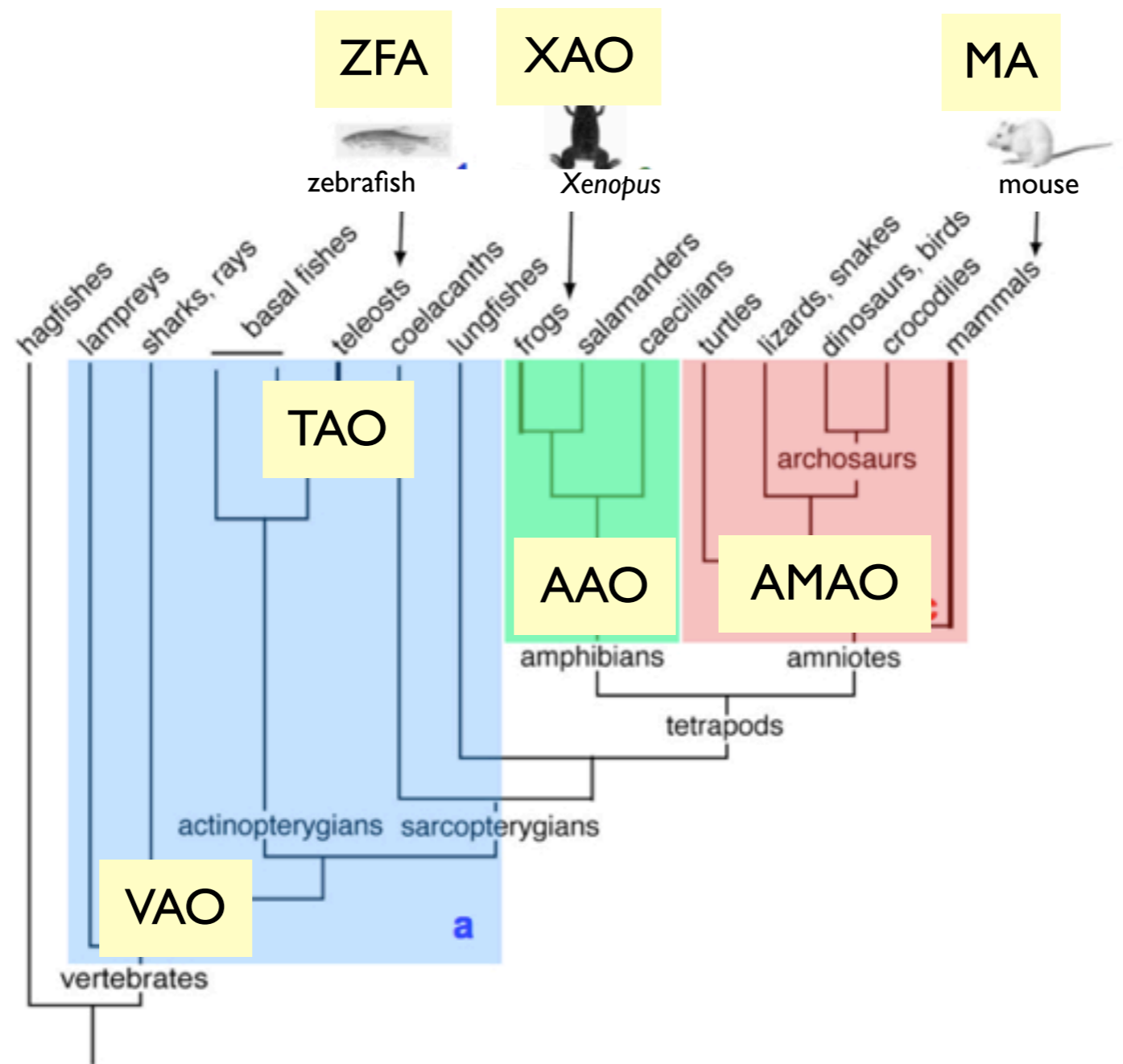
# Phenoscape



- Collaboration:
  - Mabee (lead PI, USD)
  - Westerfield (ZFIN, UO)
  - Vision and Lapp (NESCent, UNC)
  - Sereno (U Chicago)
  - Blackburn (CAS)
  - Blake (MGI)
  - Zorn (Xenbase, CCRF)
- Expanding to vertebrates
- Expanding reasoning (homology, phenoblast)
- Fin/limb use case
- Synchronization requirements

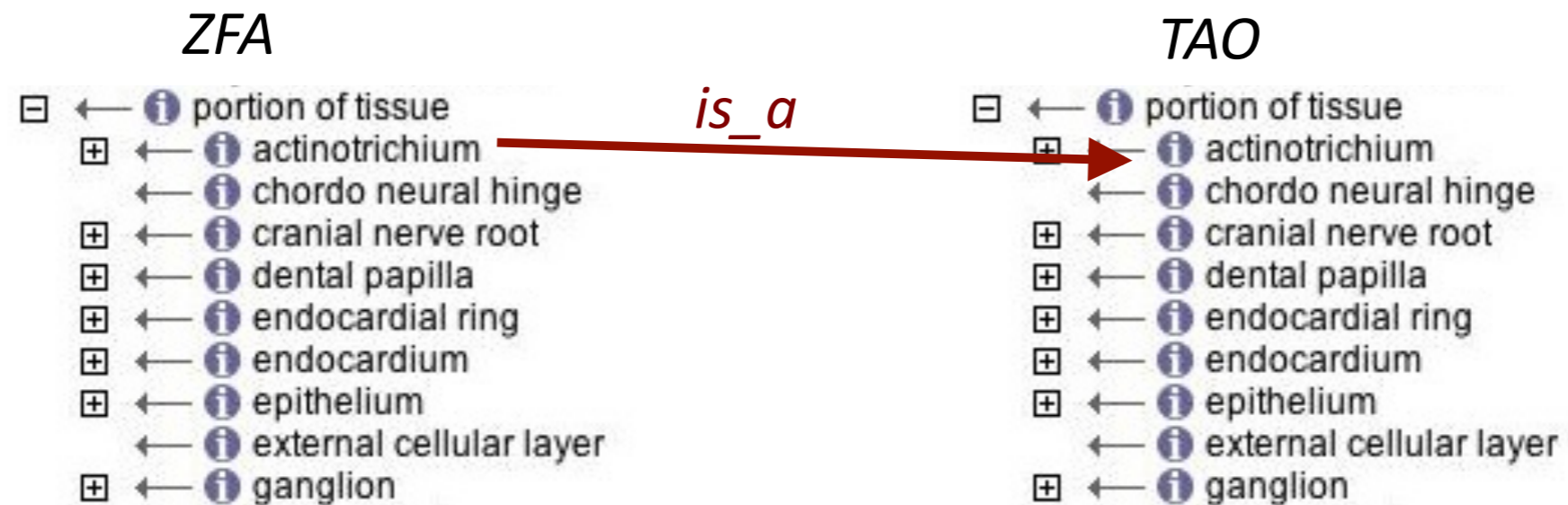


# Vertebrate ontologies



Different strategies for referencing external terms

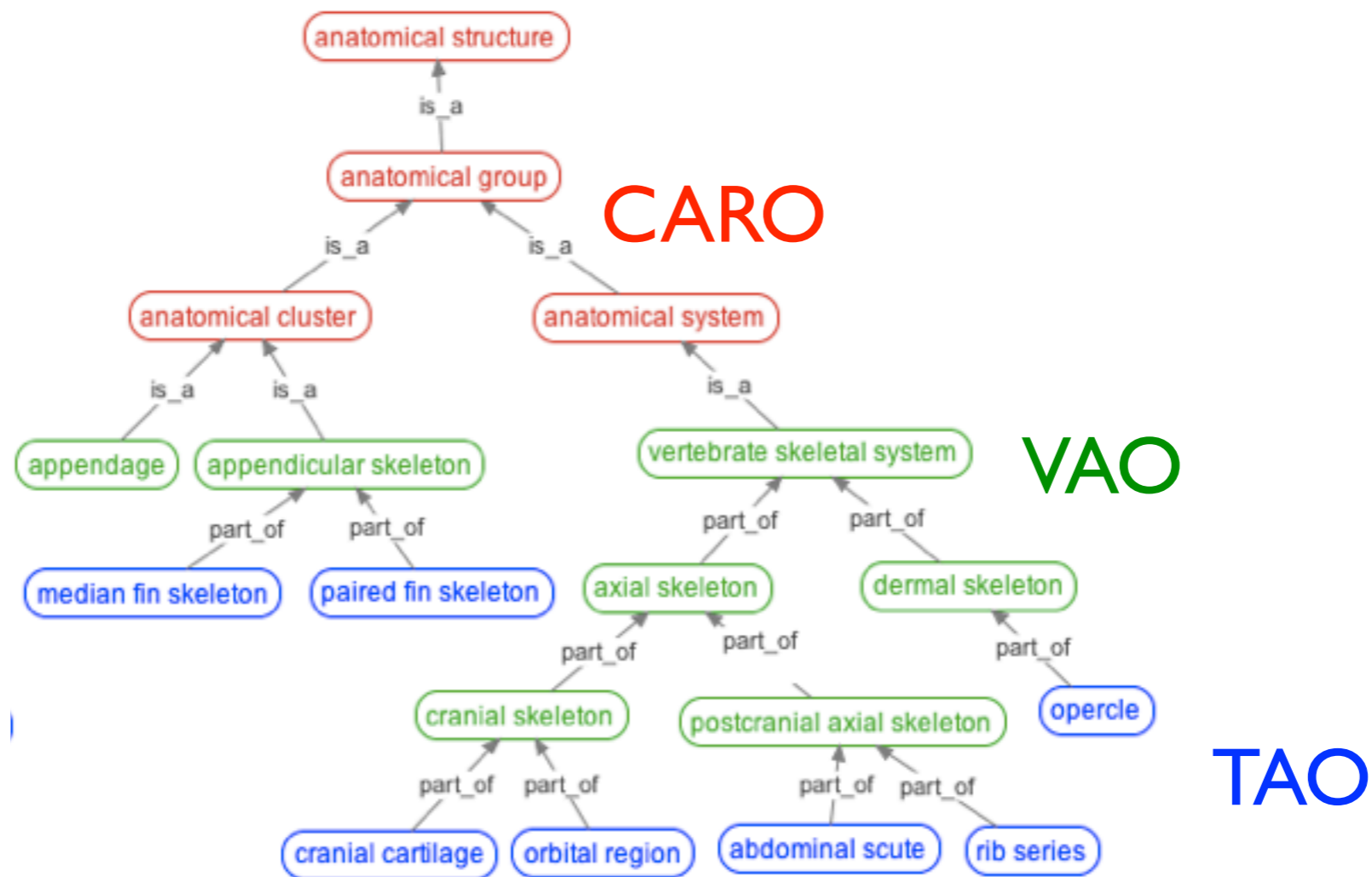
# Synchronization by cross referencing terms



## Synchronization Tool

- Plugin for Obo-Edit
- Further development planned

# Synchronization by importing terms



- Strategy used by multispecies ontologies
- Better support needed in Obo-Edit

# Improved tools for synchronization needed

- Synchronization Tool
- Imports/MIREOT in Obo-edit
  - roundtripping file with import statement
  - color code terms from different ontologies
  - saving to separate ontologies
- Reasoning to assist in synchronization
- Communication of ontology changes
  - GO diff tool
- Community development of shared tools
  - PhenotypeRCN travel support (<http://phenotypercn.org>)

# Acknowledgements

- Phenoscape team
- Chris Mungall
- Many contributors to data, character curation, ontology development and ideas (see: <http://kb.phenoscape.org/contributors/>)
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- National Evolutionary Synthesis Center (NSF EF-0423641)