

Surprising findings in the acanthomorph large-scale interrelationships

Blaise Li Agnès Dettai Guillaume Lecointre

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Systématique, Adaptation, Évolution
Équipe Phylogénie

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Acanthomorphs are 'the bush at the top'

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phylogeny

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Molecular phylogenies yield
new relationships

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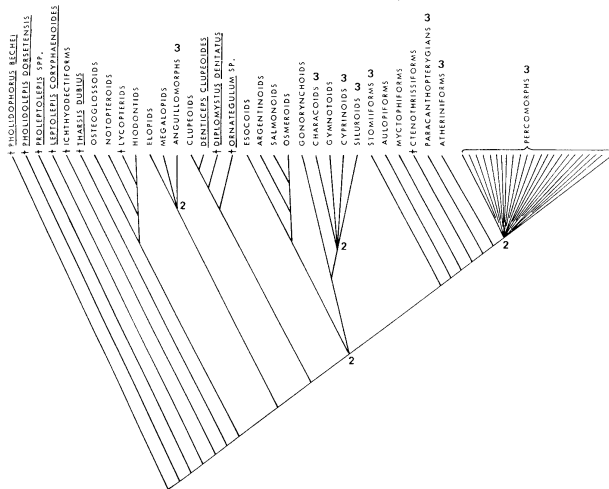


FIG. 5. Cladogram summarizing the results of the last 15 years of investigations of teleostean relationships. Number 2 indicates some major areas of unresolved relationships and, 3, some major questions about group composition.

Rosen (1982)

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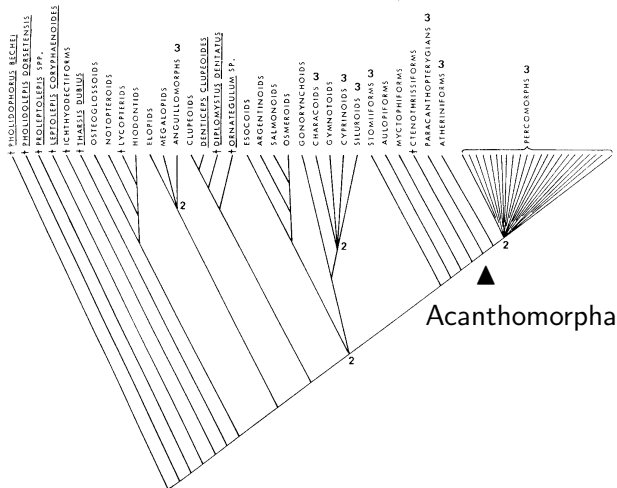


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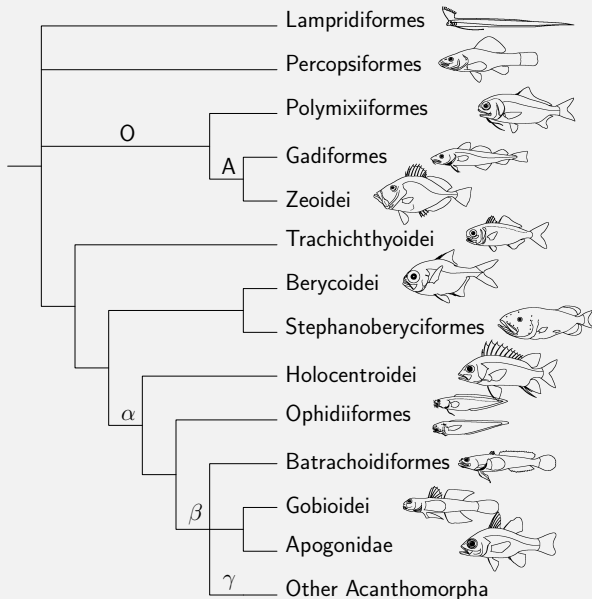
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- ▶ Miya et al. (2001, 2003), Mabuchi et al. (2007) and Kawahara et al. (2008): Mitogenomics
- ▶ Chen et al. (2003) and Dettai and Lecointre (2004, 2005, 2008): Nuclear and mitochondrial markers
- ▶ Smith and Wheeler (2004, 2006) and Smith and Craig (2007): Other nuclear and mitochondrial markers

- ▶ Using well-selected markers to generate trees: Rhodopsin, MLL4, IRBP and **RNF213** (New!)
- ▶ Finding reliable clades by comparing independent trees → repetition indices (Li and Lecointre, in press)

Gobioidei are placed with Apogonidae



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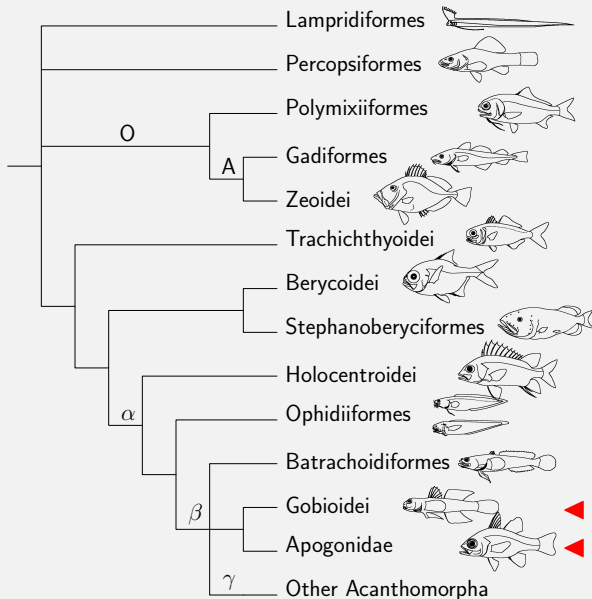
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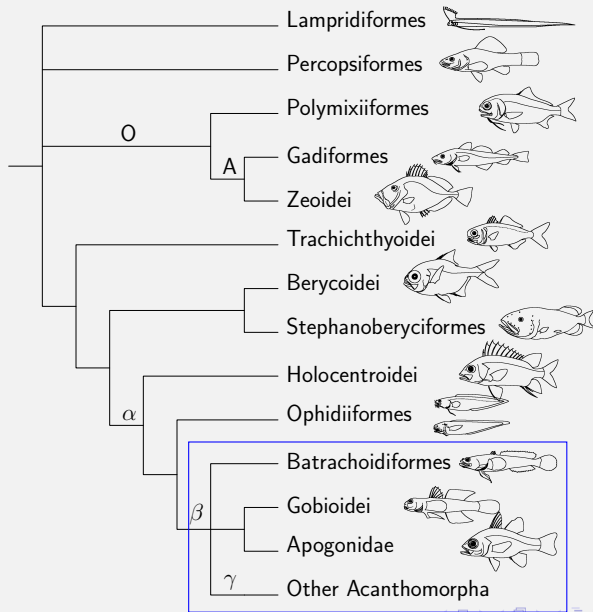
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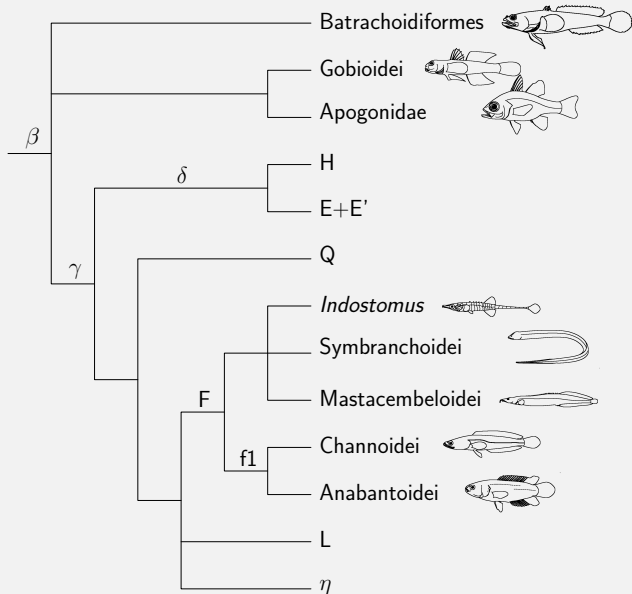
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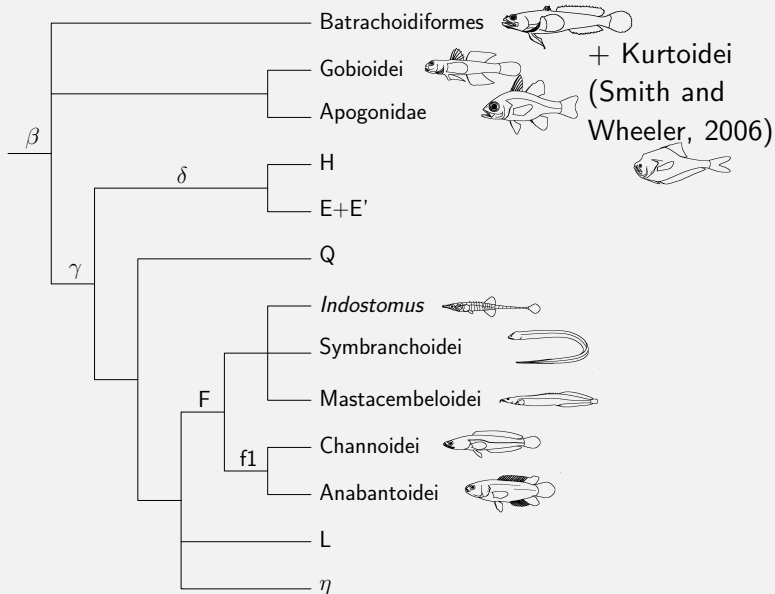
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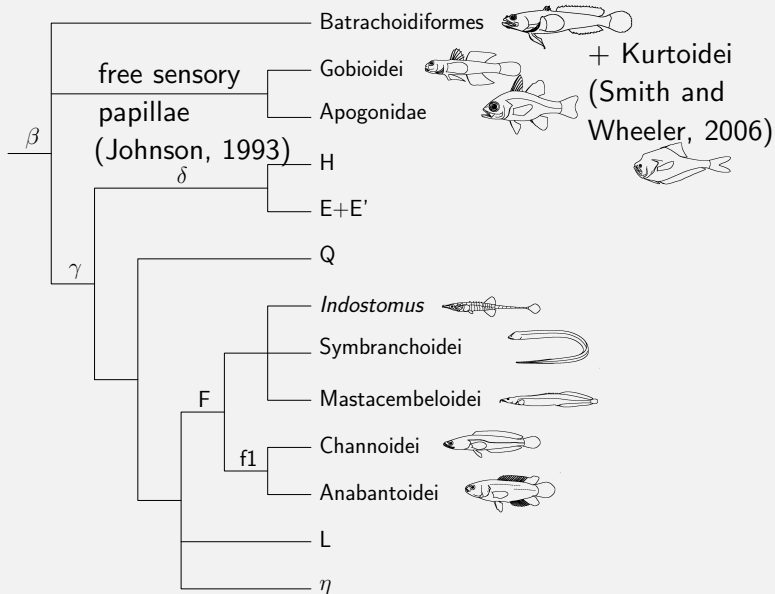
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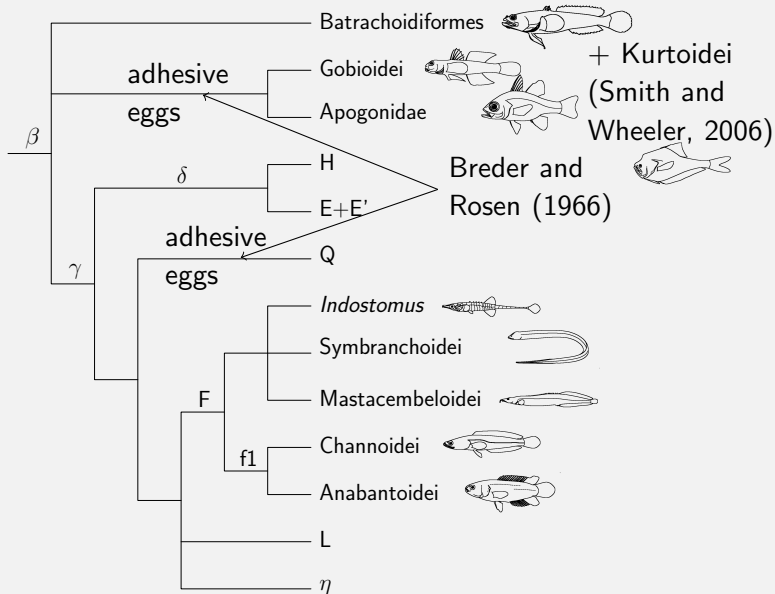
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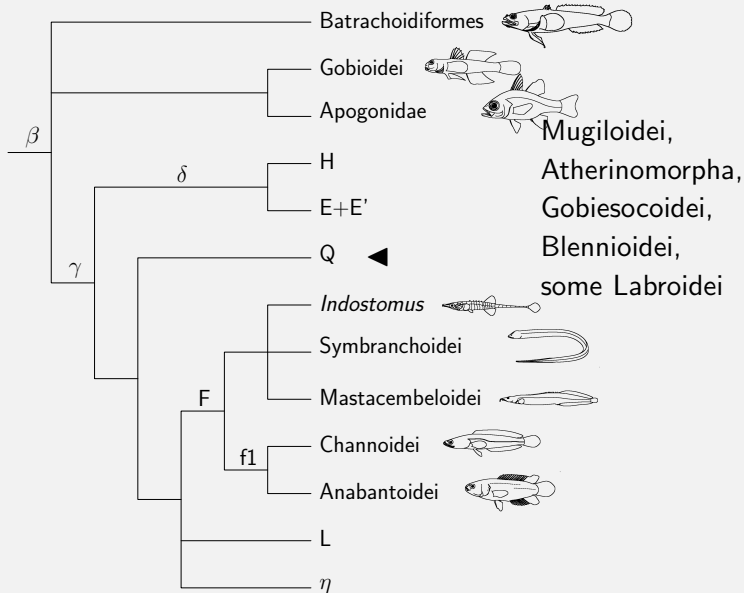
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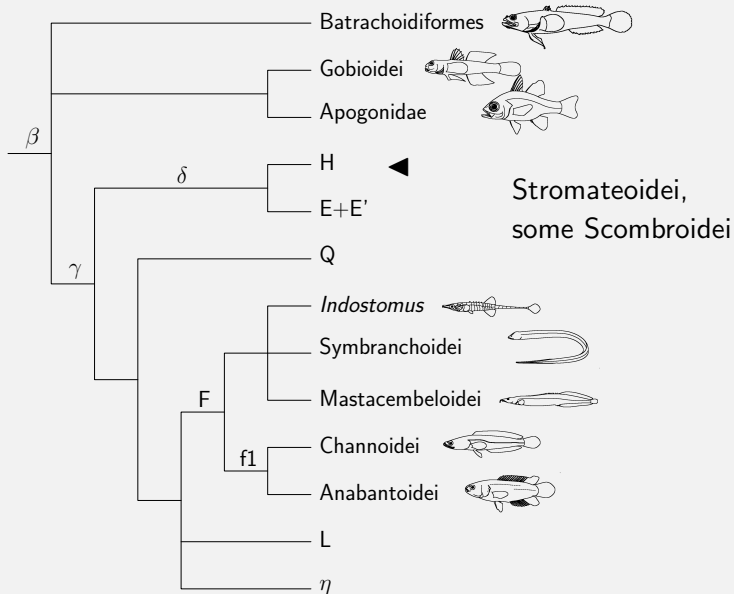
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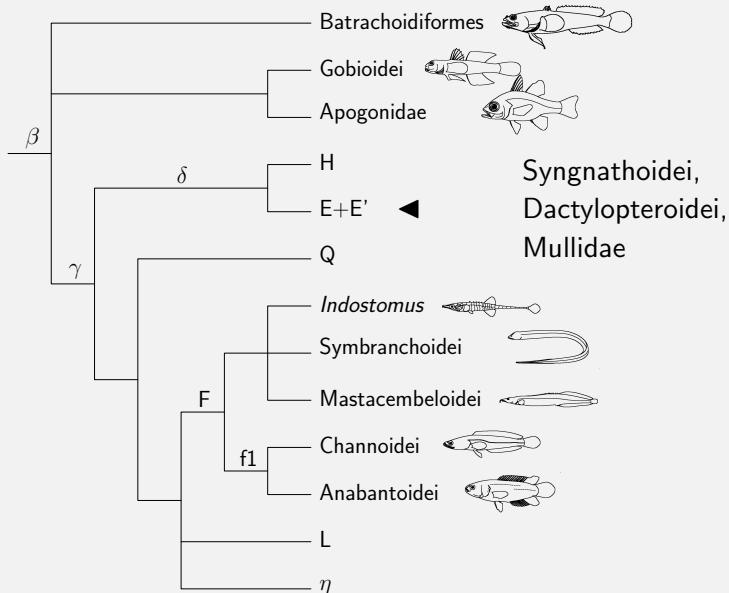
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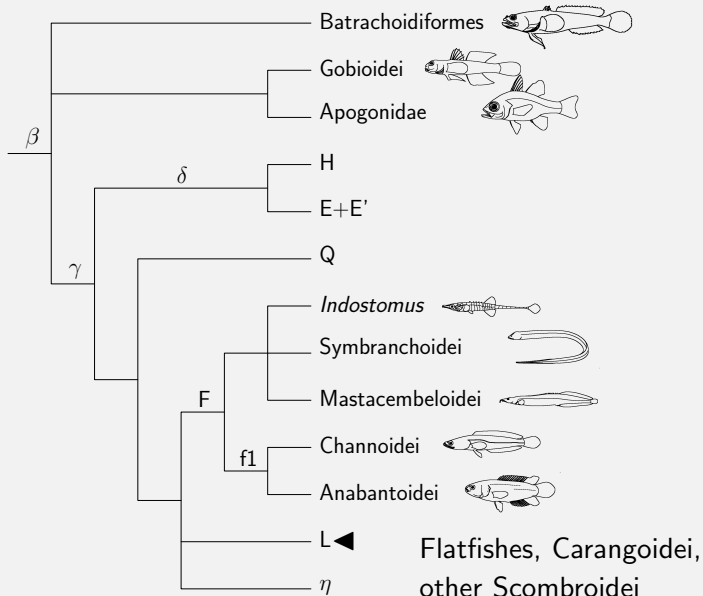
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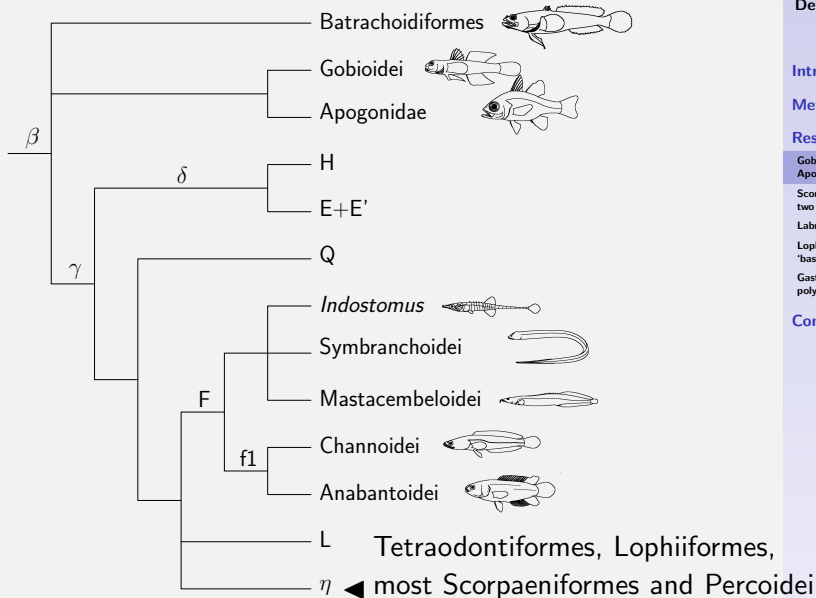
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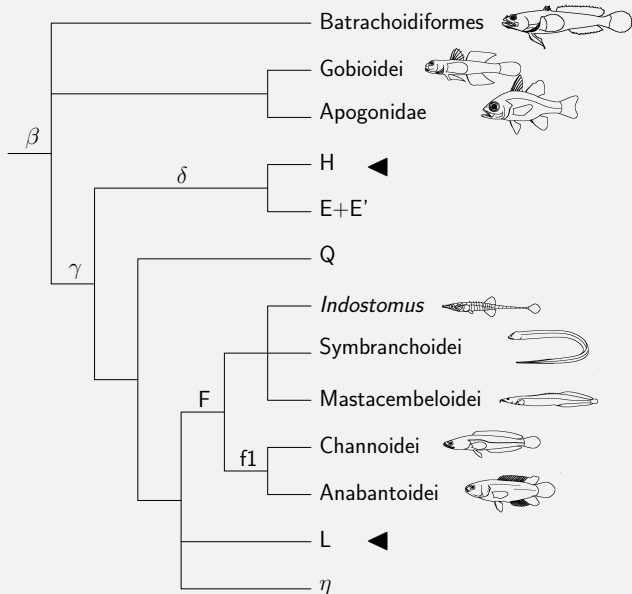
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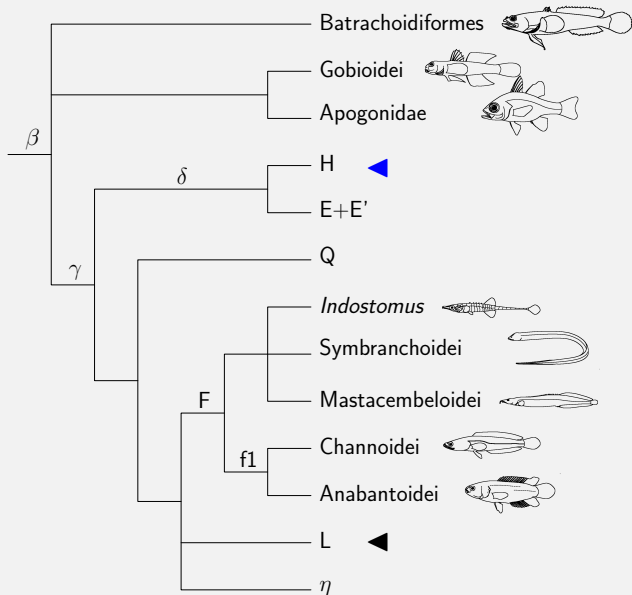
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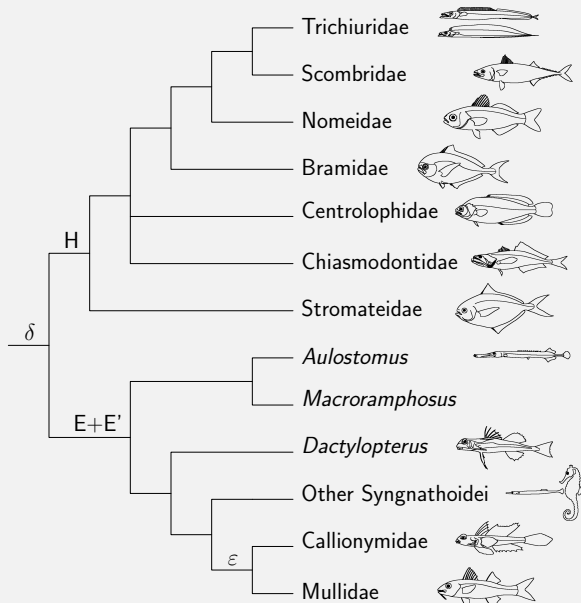
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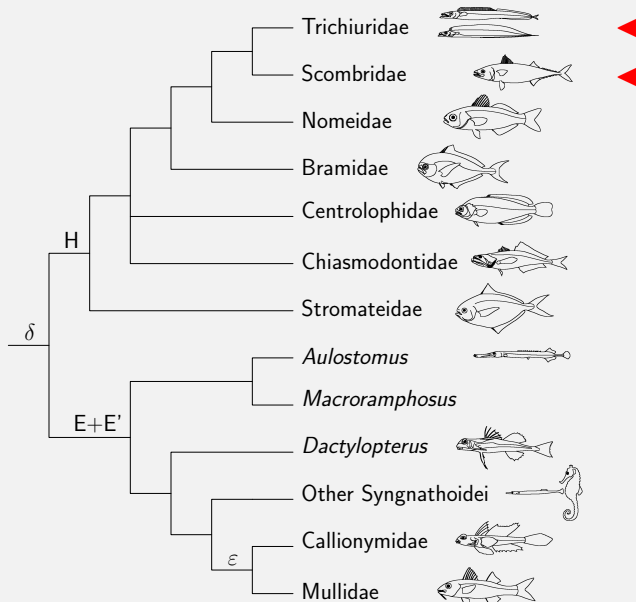
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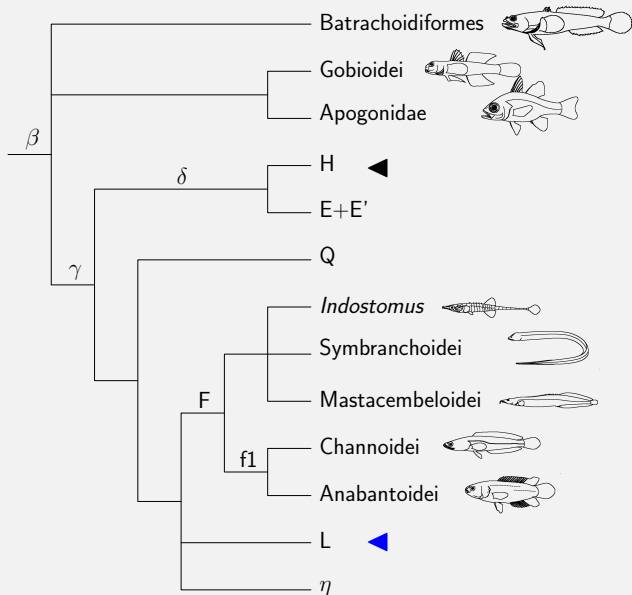
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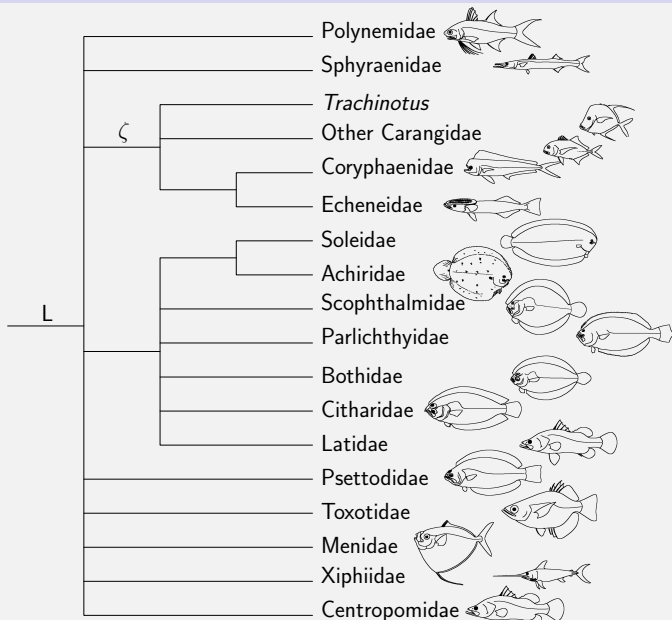
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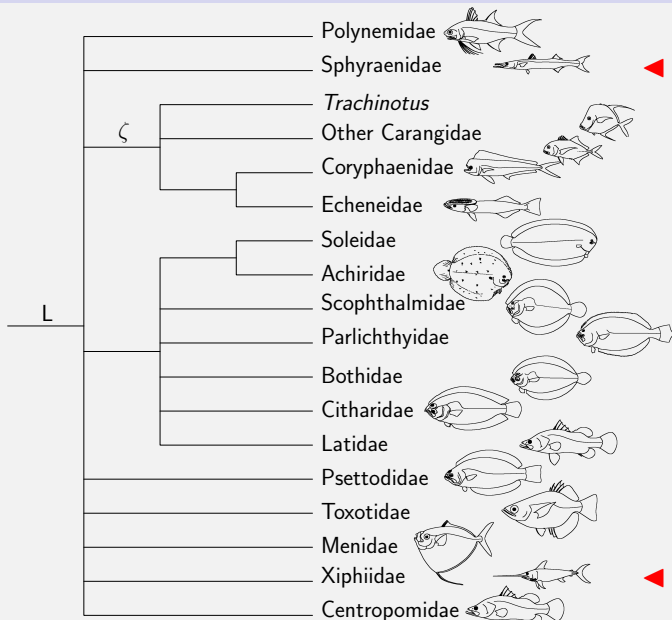
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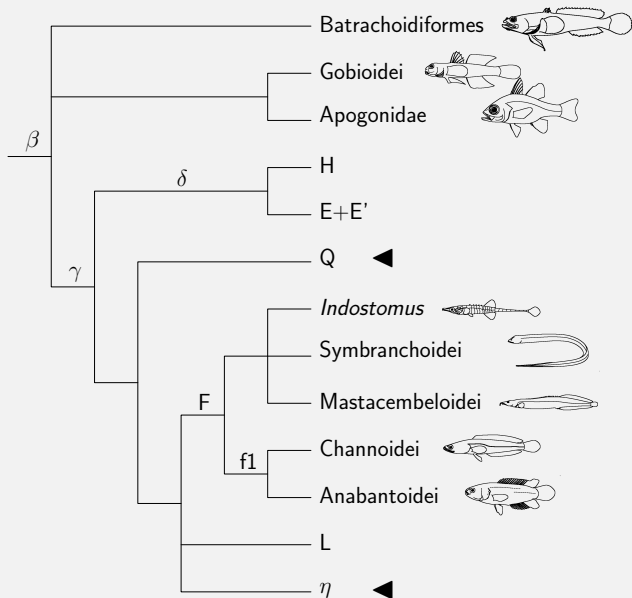
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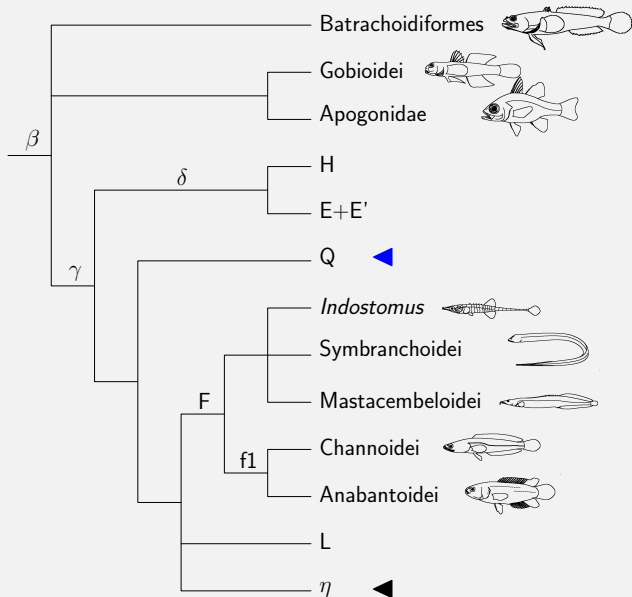
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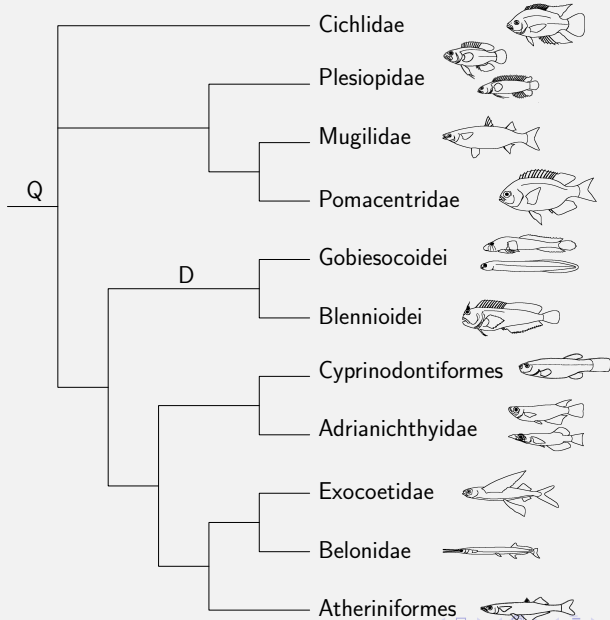
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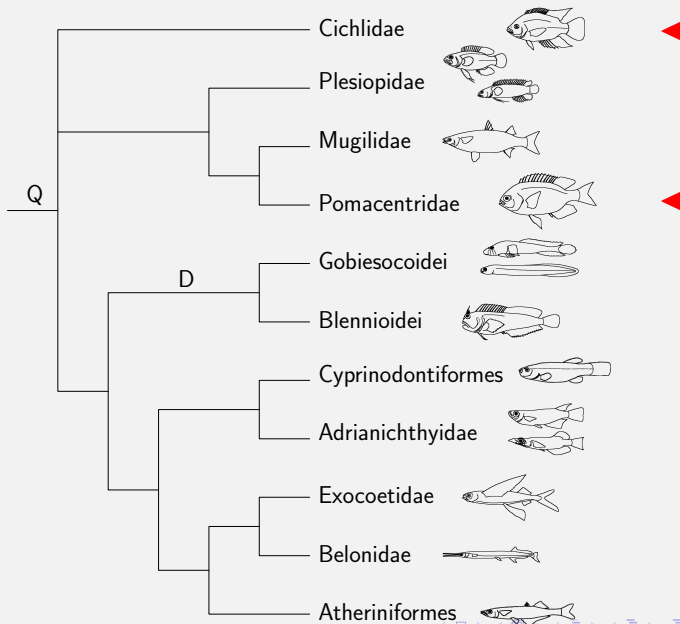
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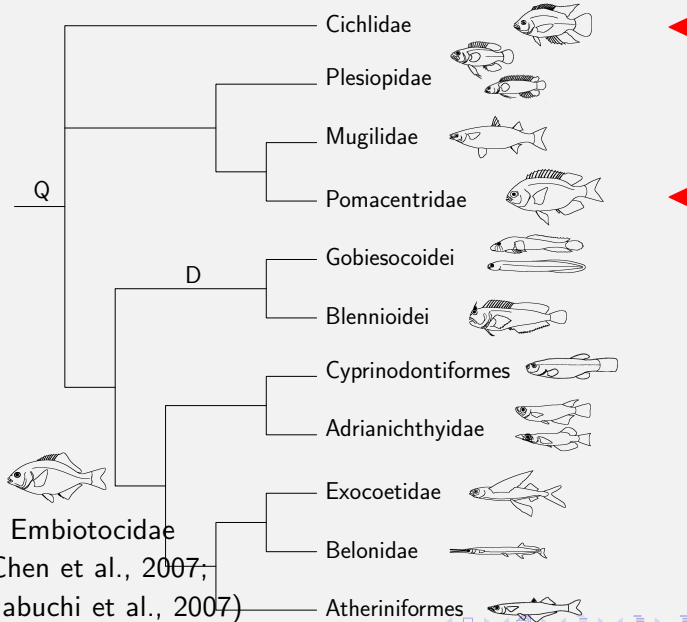
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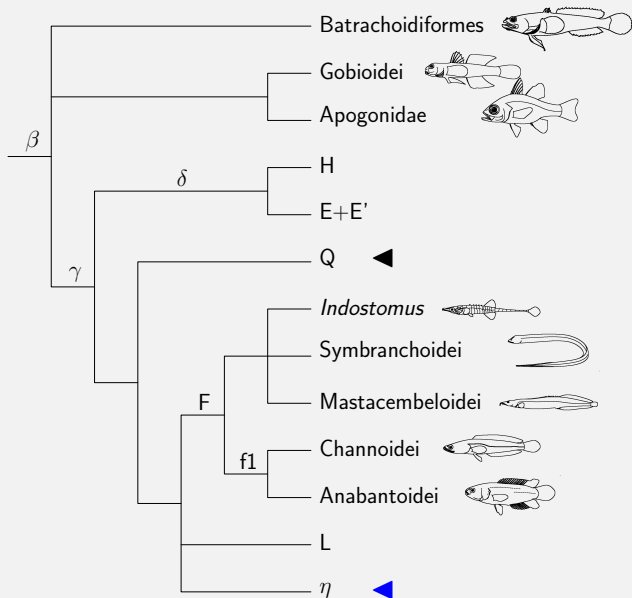
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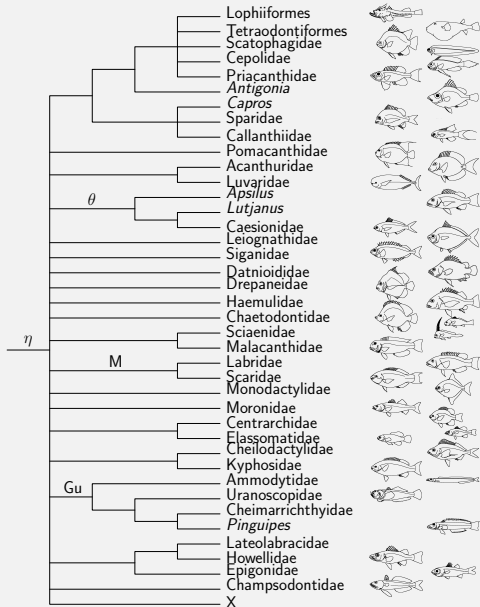
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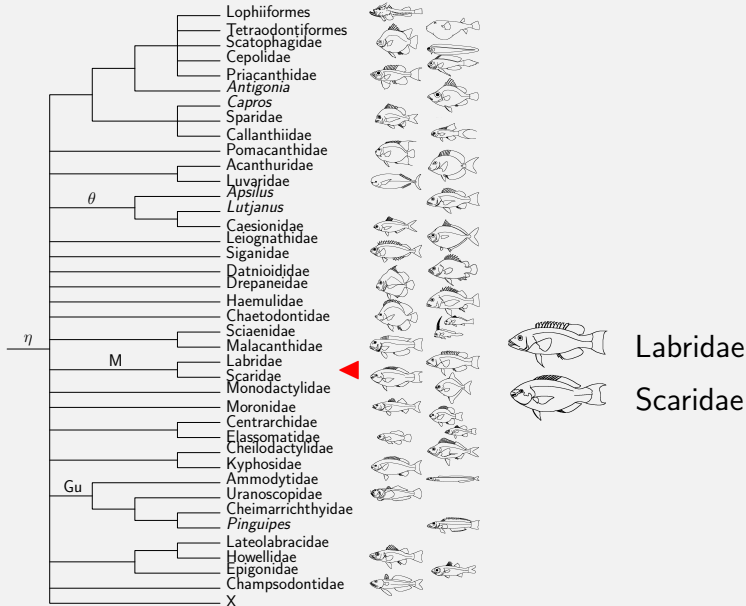
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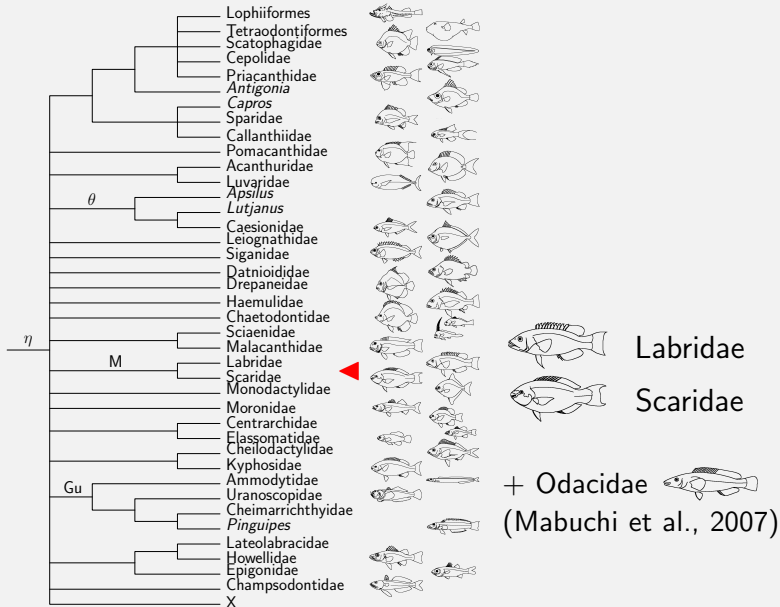
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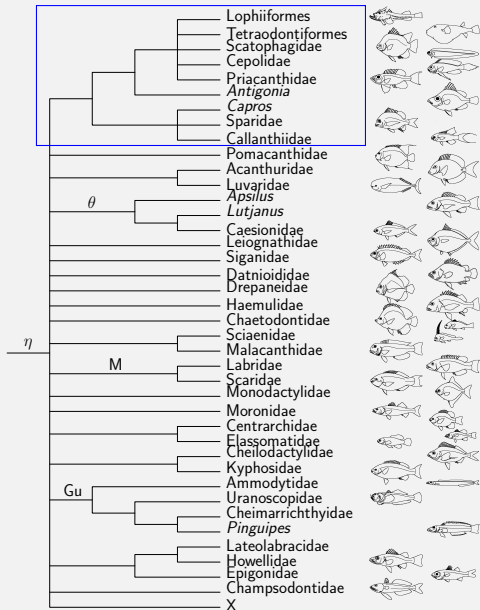
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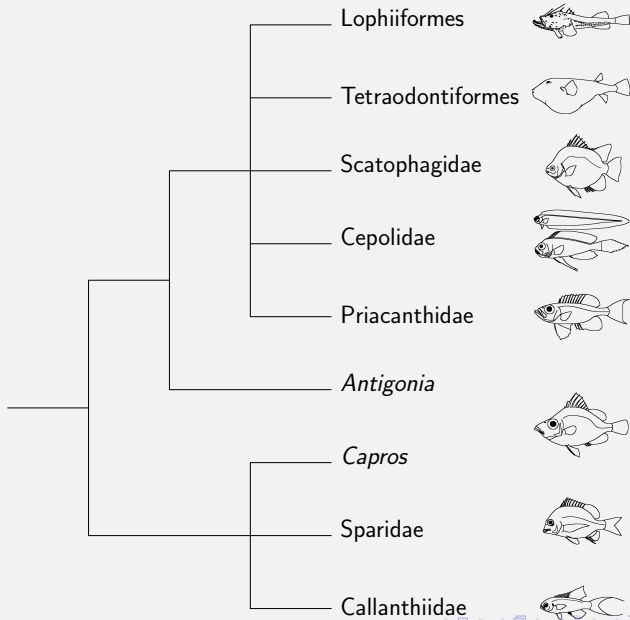
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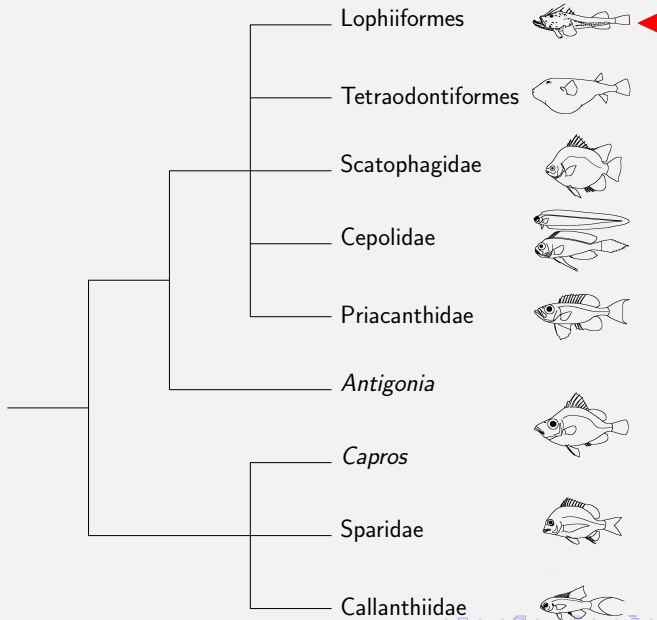
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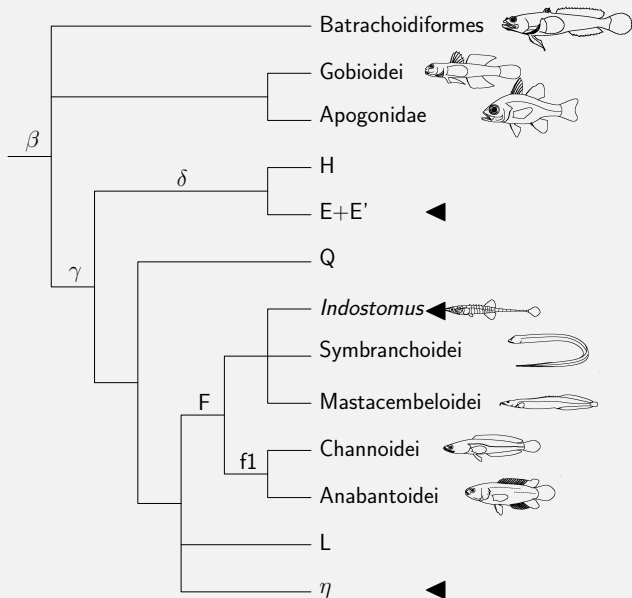
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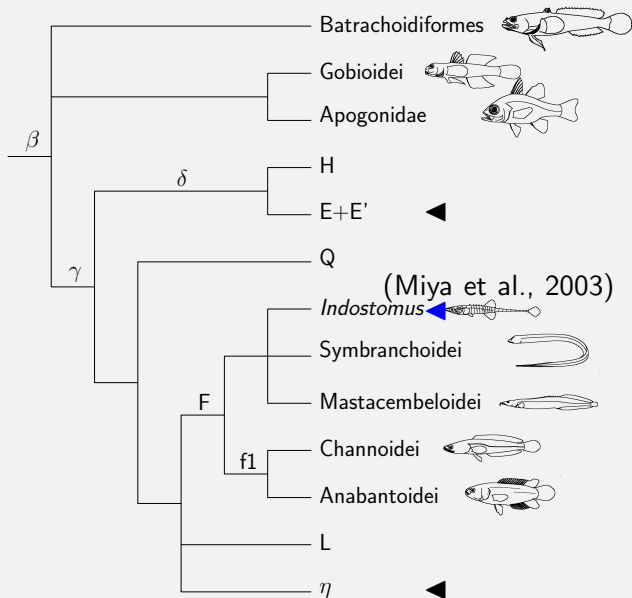
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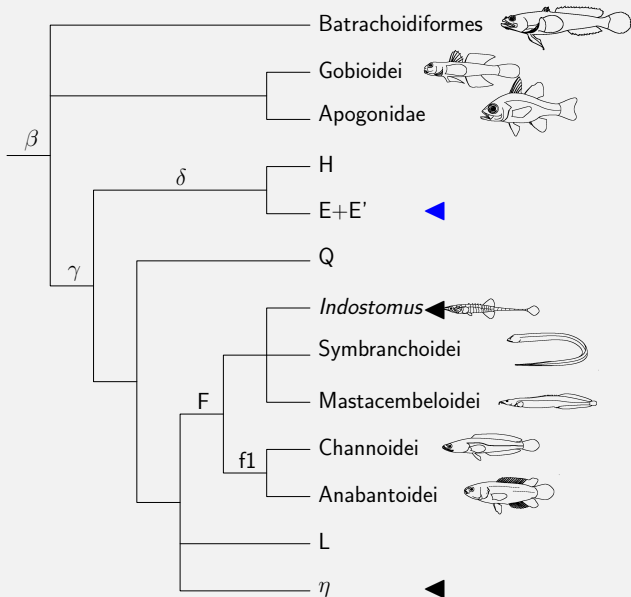
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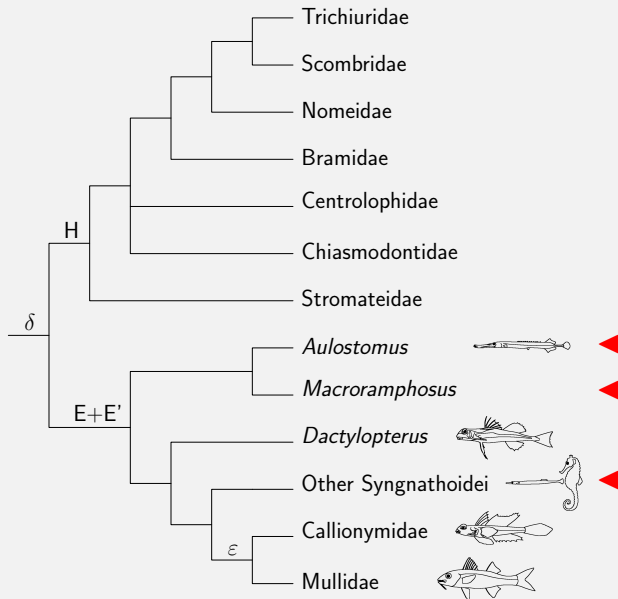
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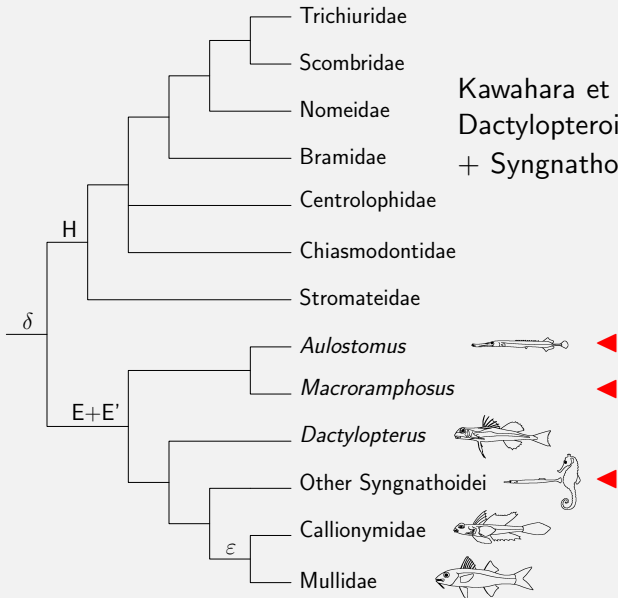
Scombroidei are split in
two

Labroidei are split in two

Lophiiformes are not
'basal'

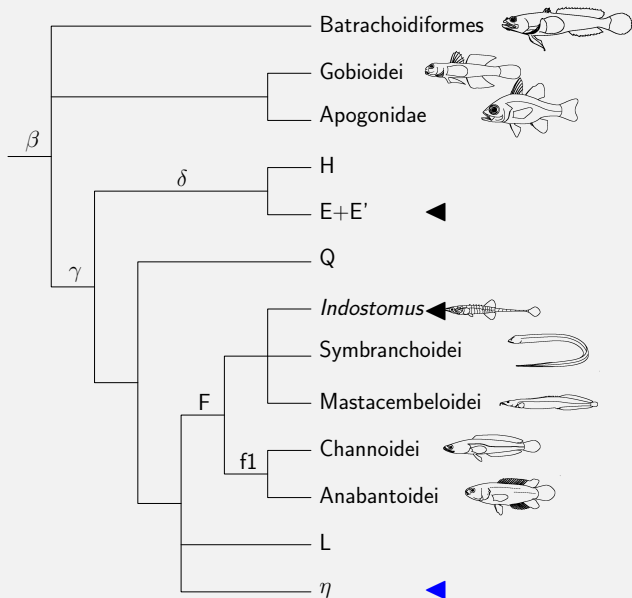
Gasterosteiformes are
polyphyletic

Conclusion



Kawahara et al. (2008):
Dactylopteroidei
+ Syngnathoidae

Gasterosteiformes are polyphyletic



Acanthomorph
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Gobioidei are placed with
Apogonidae

Scombroidei are split in
two

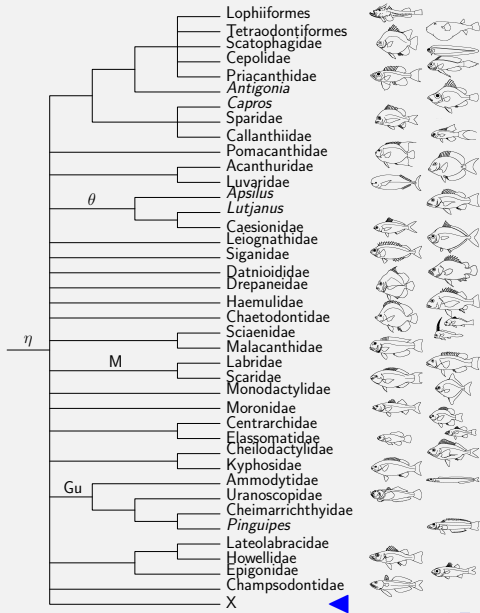
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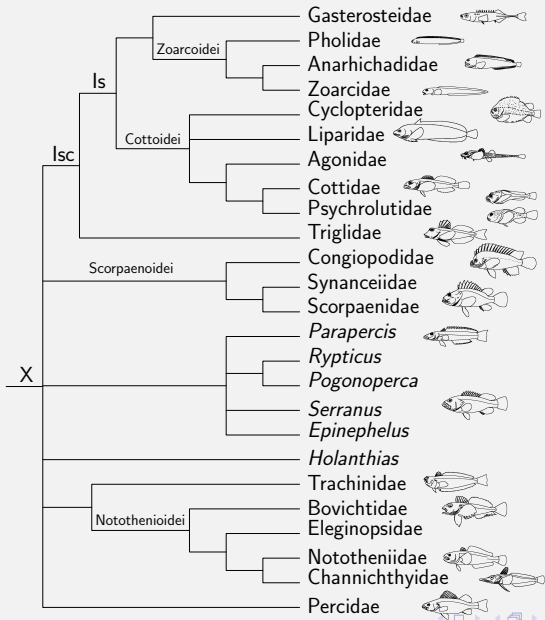
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Scombroidei are split in
two

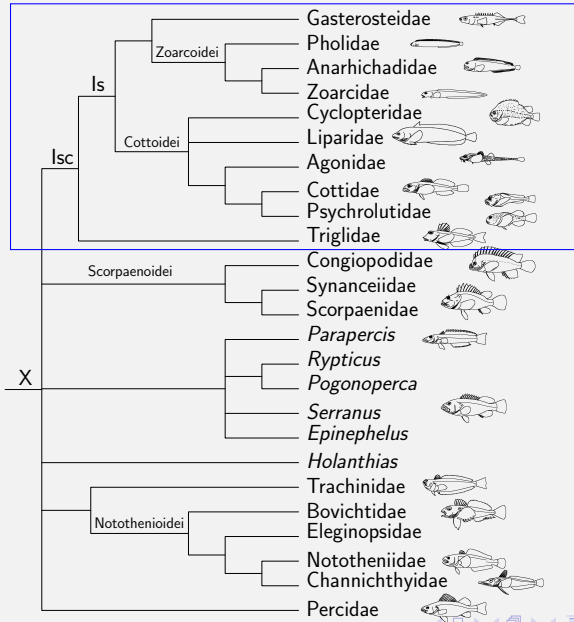
Labroidei are split in two

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two

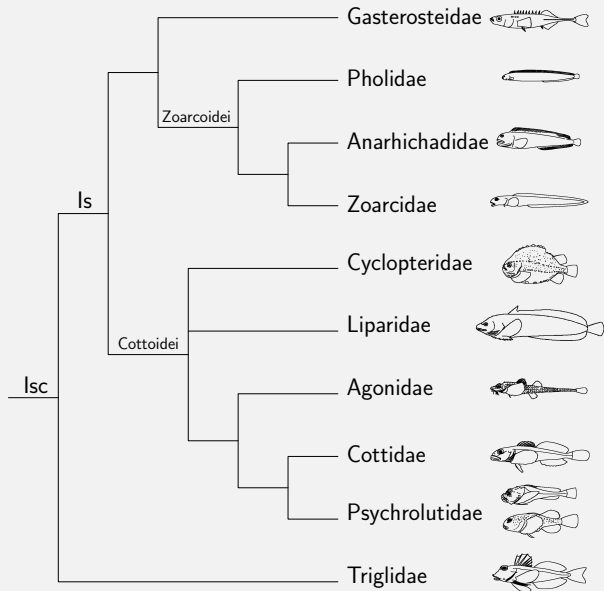
Labroidei are split in two

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'basal'

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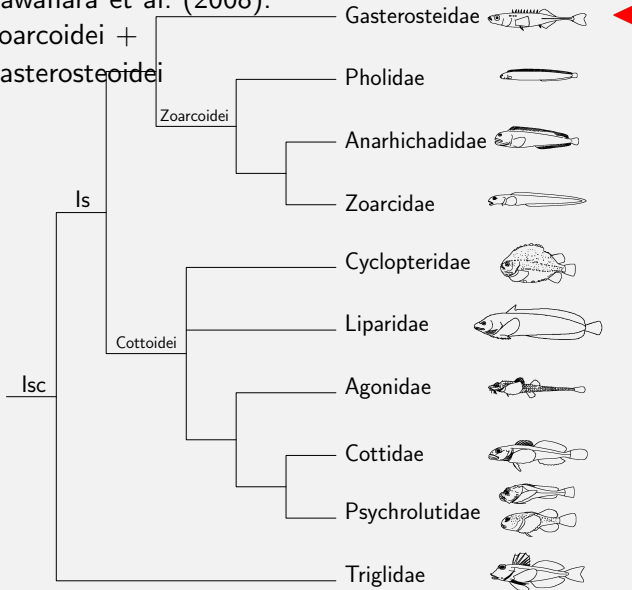
Gasterosteiformes are
polyphyletic

Conclusion

Kawahara et al. (2008):

Zoarcoidei +

Gasterosteoidaei



Conclusion

- ▶ Many morphologically unexpected relationships are now well corroborated.
- ▶ Comparing between independent sources is essential to distinguish reliable and doubtful results: it's a good thing that several teams work on the same group with diverse markers.

Thank you!

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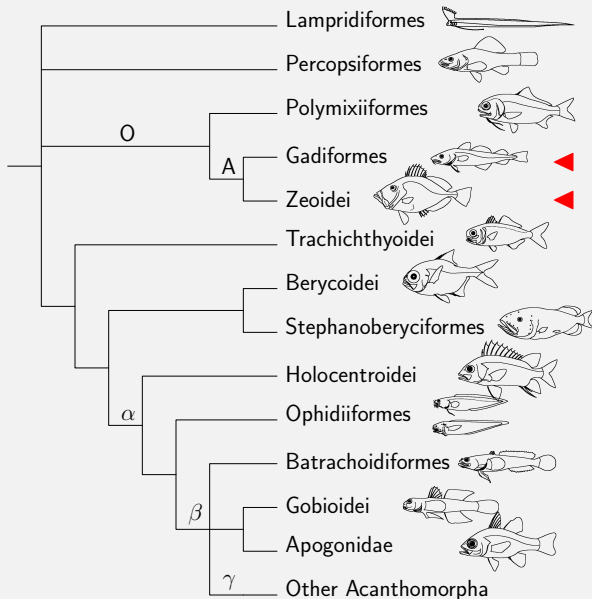
Conclusion

For more information (methodology, big summary tree):
bli@mnhn.fr

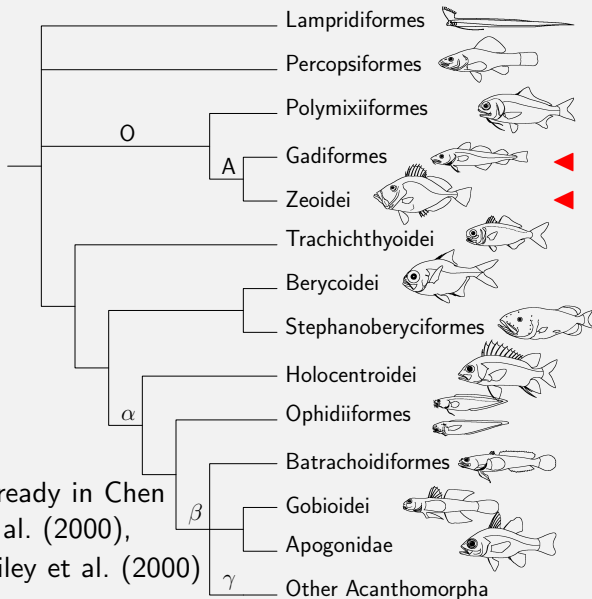
Zeoidei are grouped with Gadiformes

Appendix

Zeoidei are grouped with
Gadiformes



Zeoidei are grouped with Gadiformes



Already in Chen et al. (2000), Wiley et al. (2000)