PHYLOGENEOMICS METHOD COMPARISON

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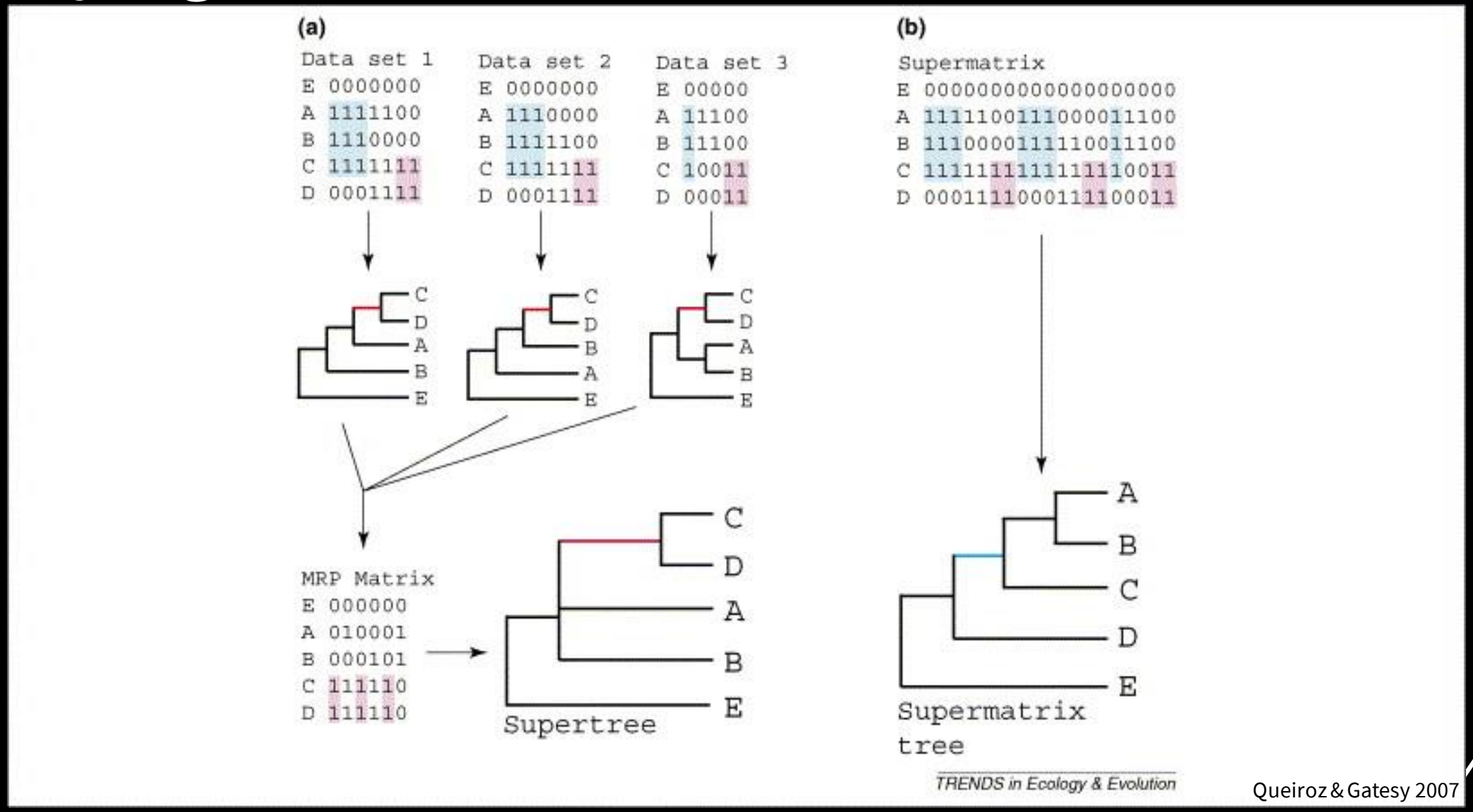
MOLECULAR PHYLOGENETICS: EEOB 563

MAY 3, 2023

Phylogenomics



Queiroz & Gatesy 2007

Data

Large dataset of octocoral mitochondrial genomes provides new insights into *mt-mutS* evolution and function

Viraj Muthye [a 1], Cameron D. Mackereth [b], James B. Stewart [c], Dennis V. Lavrov [a]

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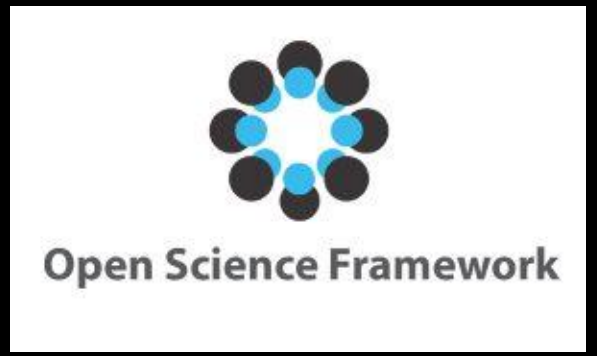


Dataset for "Large dataset of octocoral mitochondrial genomes provides new insights into mt-mutS evolution and function"

33.2MB Public 0

Contributors: Viraj Muthye, Dennis Lavrov

Date created: 2021-08-26 06:59 PM | Last Updated: 2021-12-26 04:34 PM

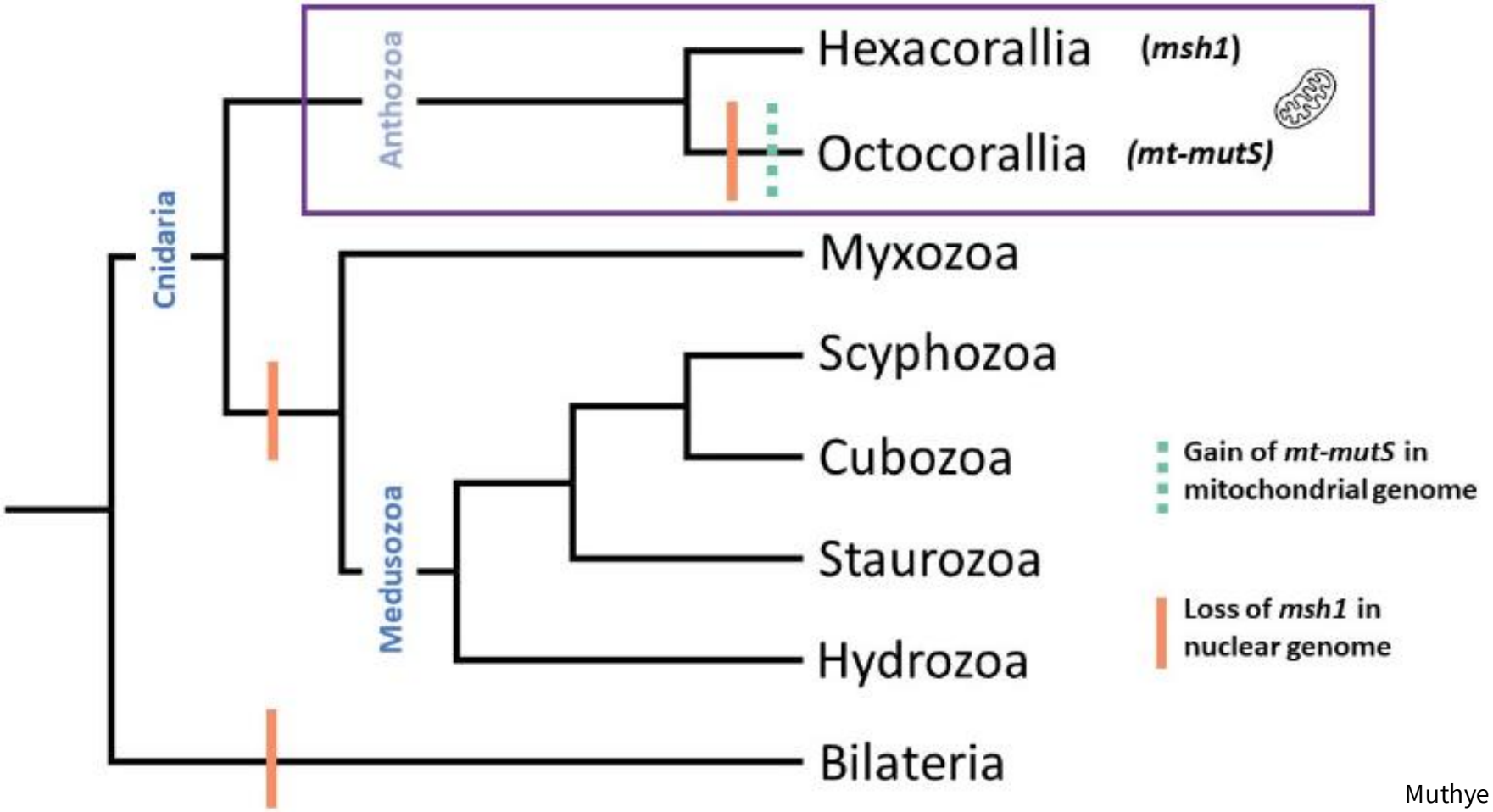
Identifier: DOI 10.17605/OSF.IO/JZT8X

Category: Project

Description: *Supplementary material for the manuscript titled "Large dataset of octocoral mitochondrial genomes provides new insights into mt-mutS evolution and function"*

Mitochondrial DNA

Assumption: Inherited as a single unit therefore all genes share the same evolutionary history

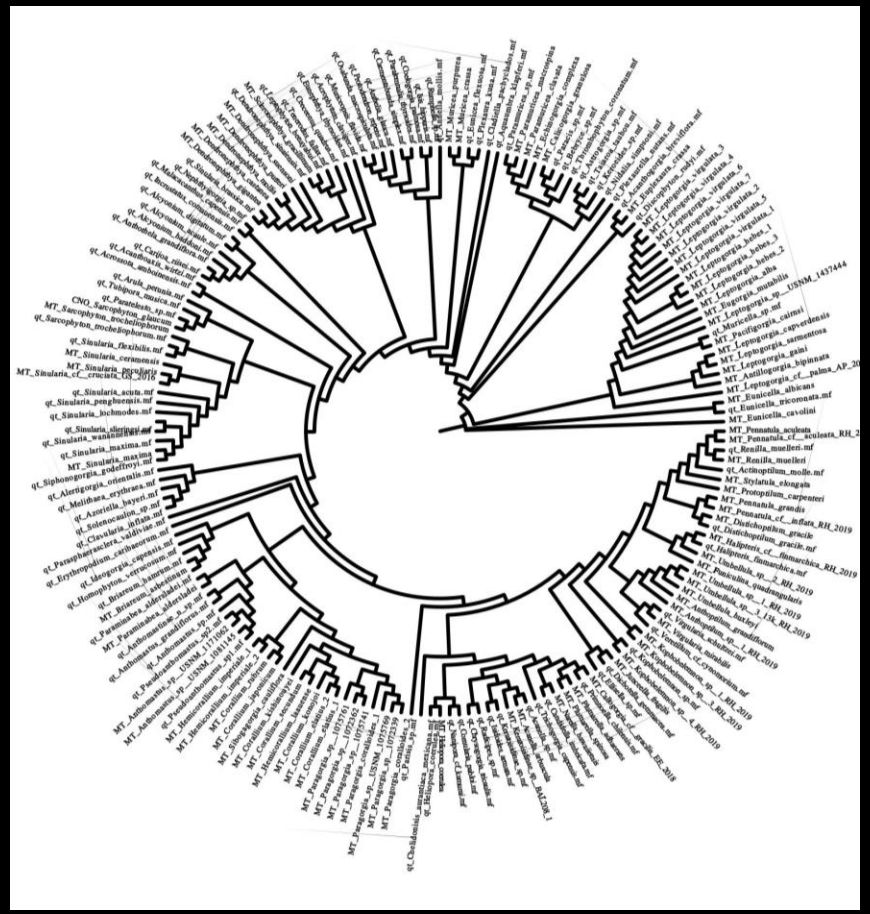


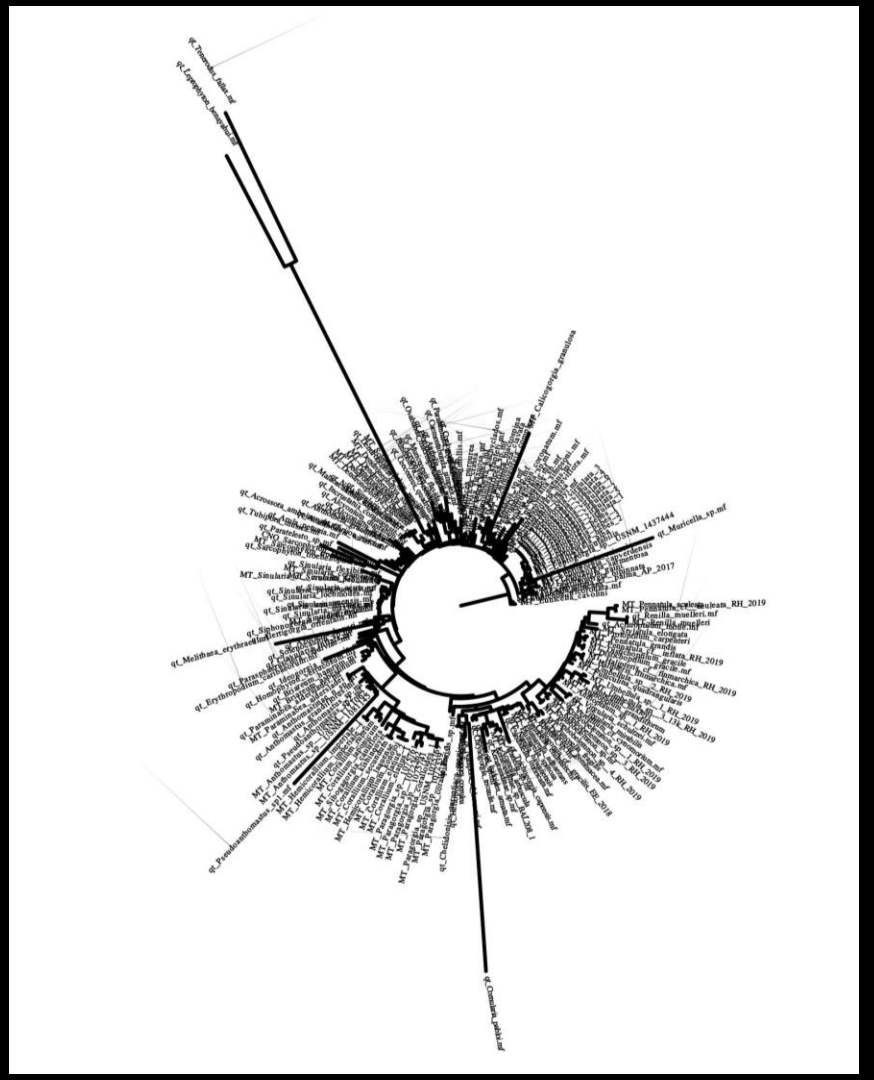
Muthye et al. 2022

Method: SuperTree

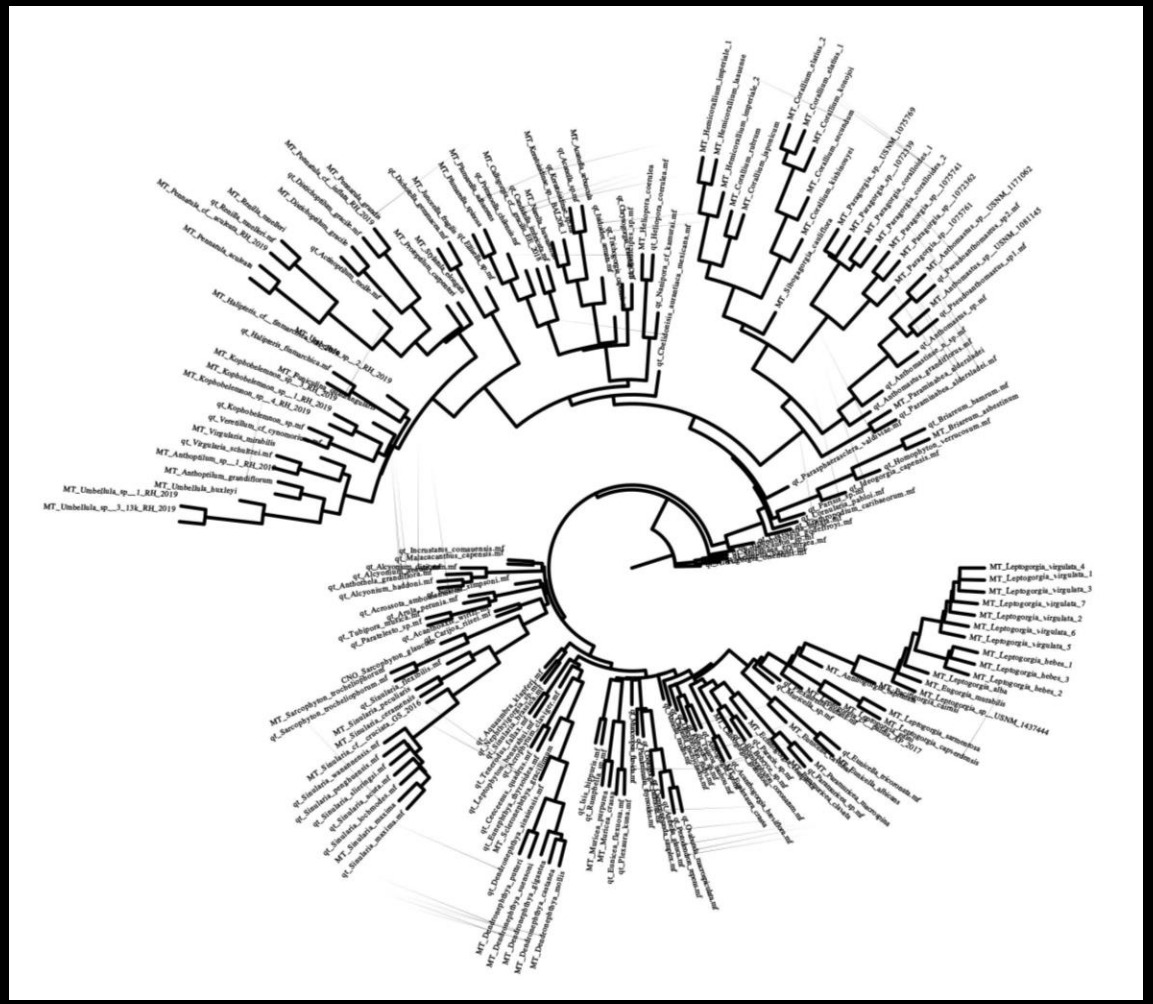
- 14 Genes
- APT6, ATP8, COB, COX1, COX2, COX3, mutS, NAD1, NAD2, NAD3, NAD4, NAD4L, NAD5, NAD6
- Aligned using MAFFT --auto
- RaxML -- model GTR+G
- Astral to create SuperTree

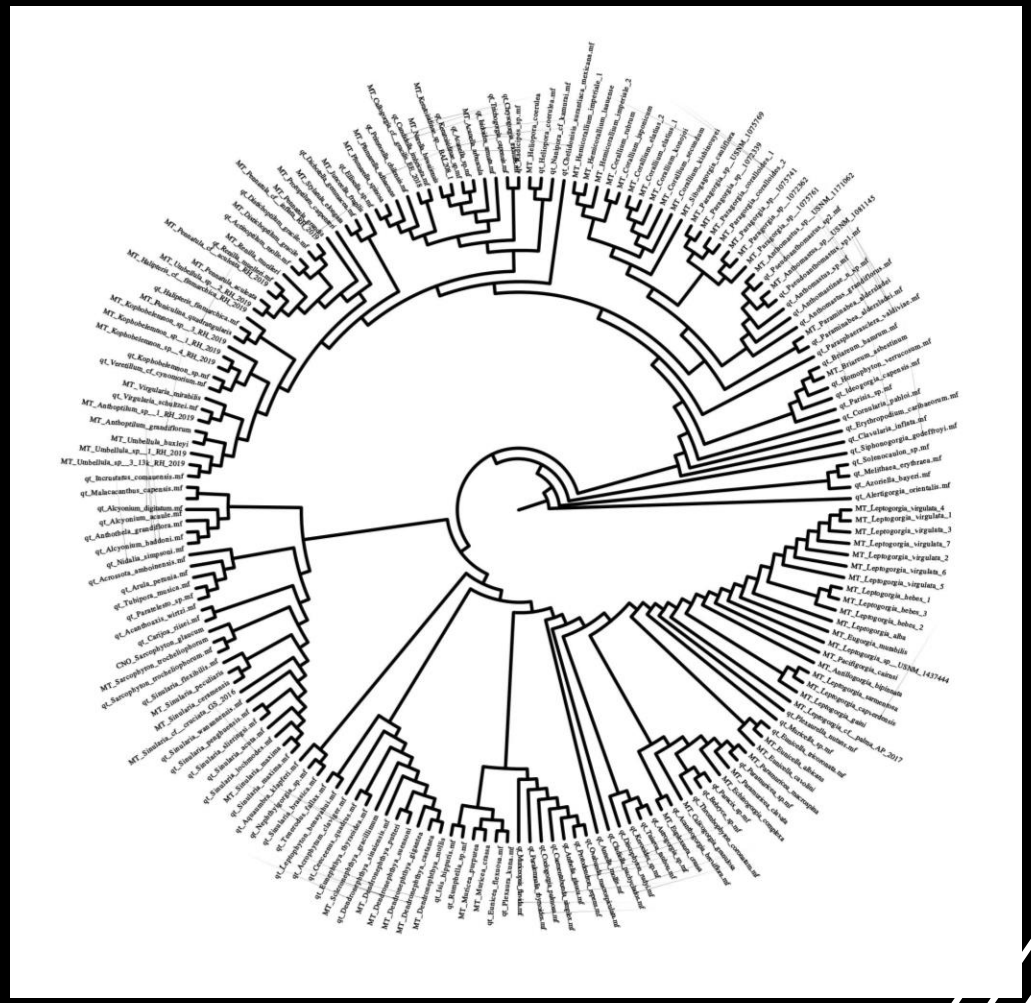
Results: SuperTree: Gene Trees





Results: SuperTree: SuperTree

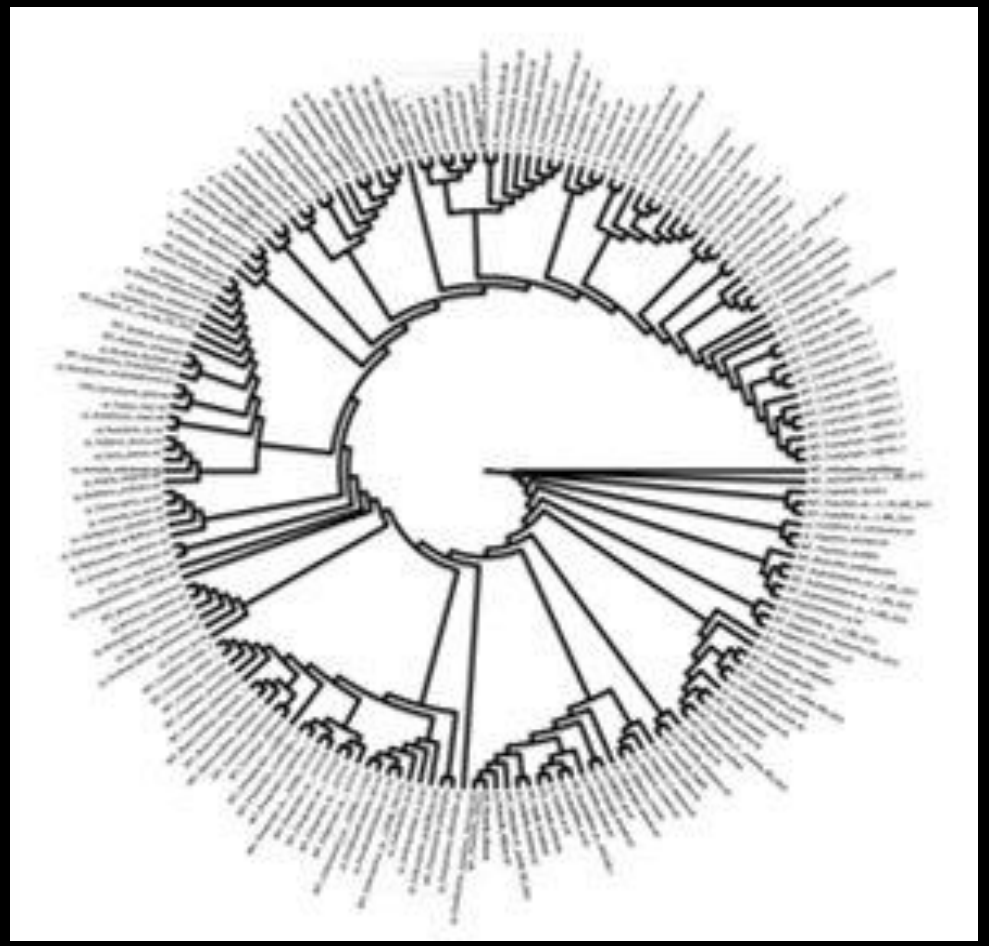


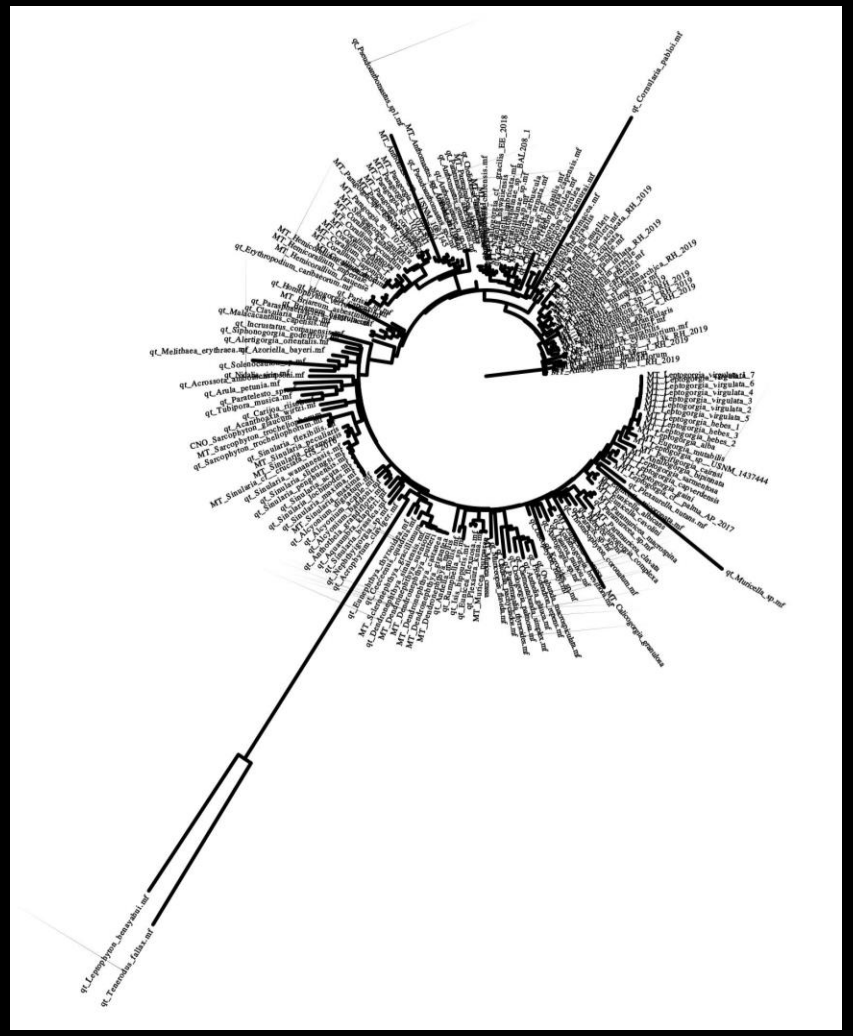


Method: SuperMatrix

- 14 genes concatenated into one matrix "cat"
- APT6, ATP8, COB, COX1, COX2, COX3, mutS, NAD1, NAD2, NAD3, NAD4, NAD4L, NAD5, NAD6
- Aligned using MAFFT --auto
- RaxML -- model GTR+G

Results: SuperMatrix





Conclusion

- The SuperTree did not match either the Gene Trees or the SuperMatrix
- The Gene Trees matched the SuperMaxtrix
- Next Steps: Protein trees