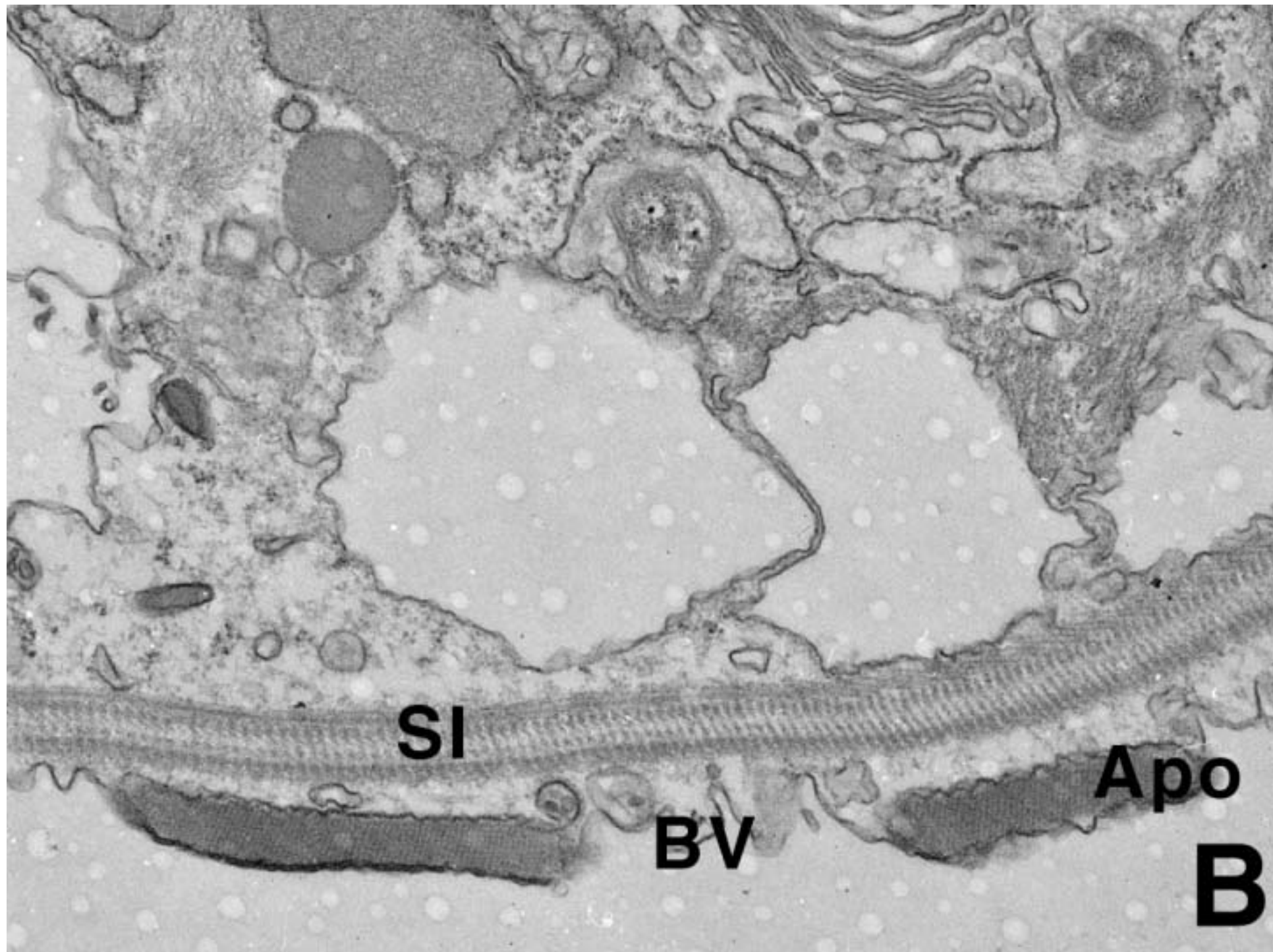


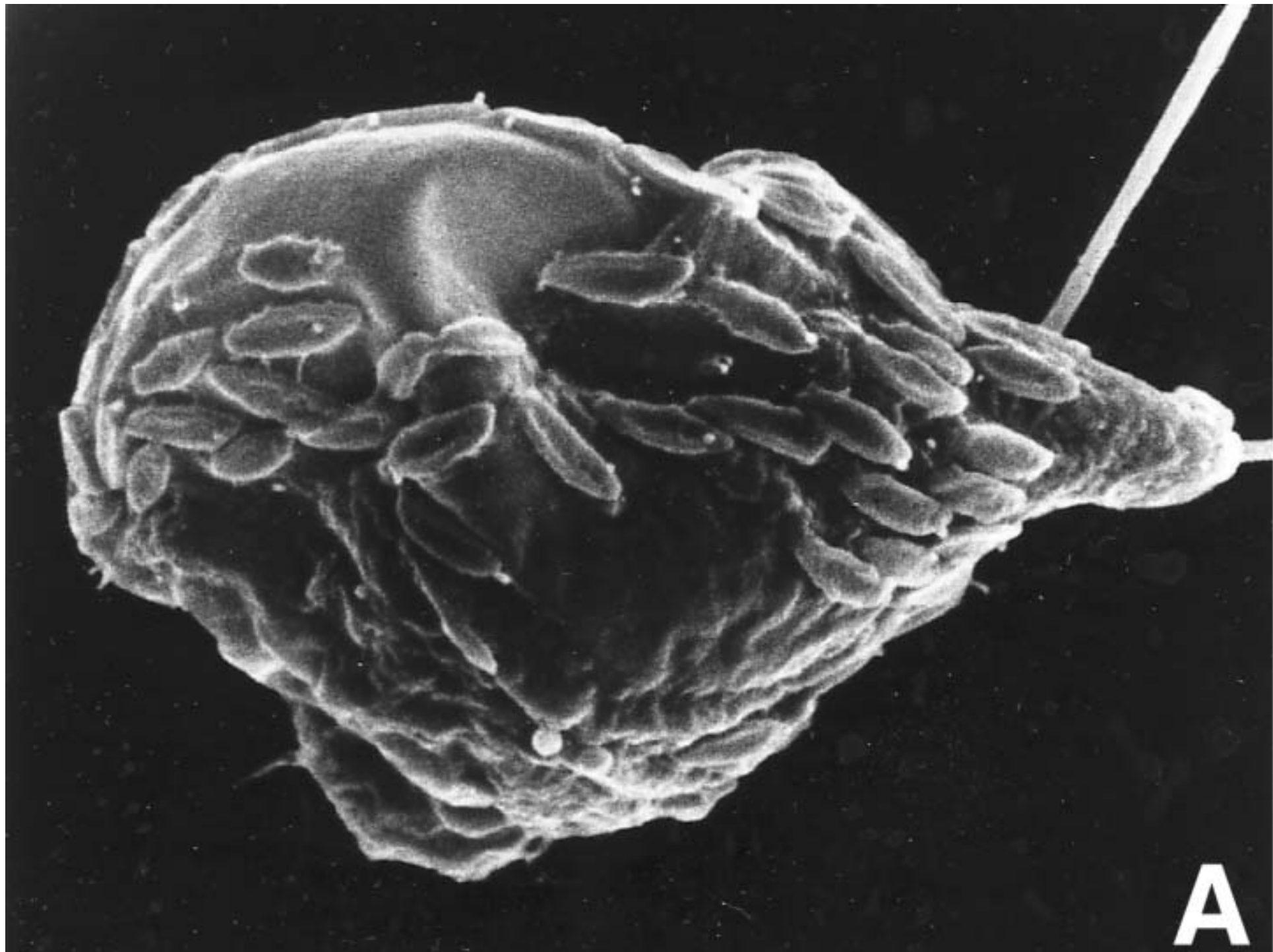
Structural identity and Bayesian inference of 18S rRNA indicate that *Telonema antartica sp.nov.* is a common ancestor to Alveolata and Cromista

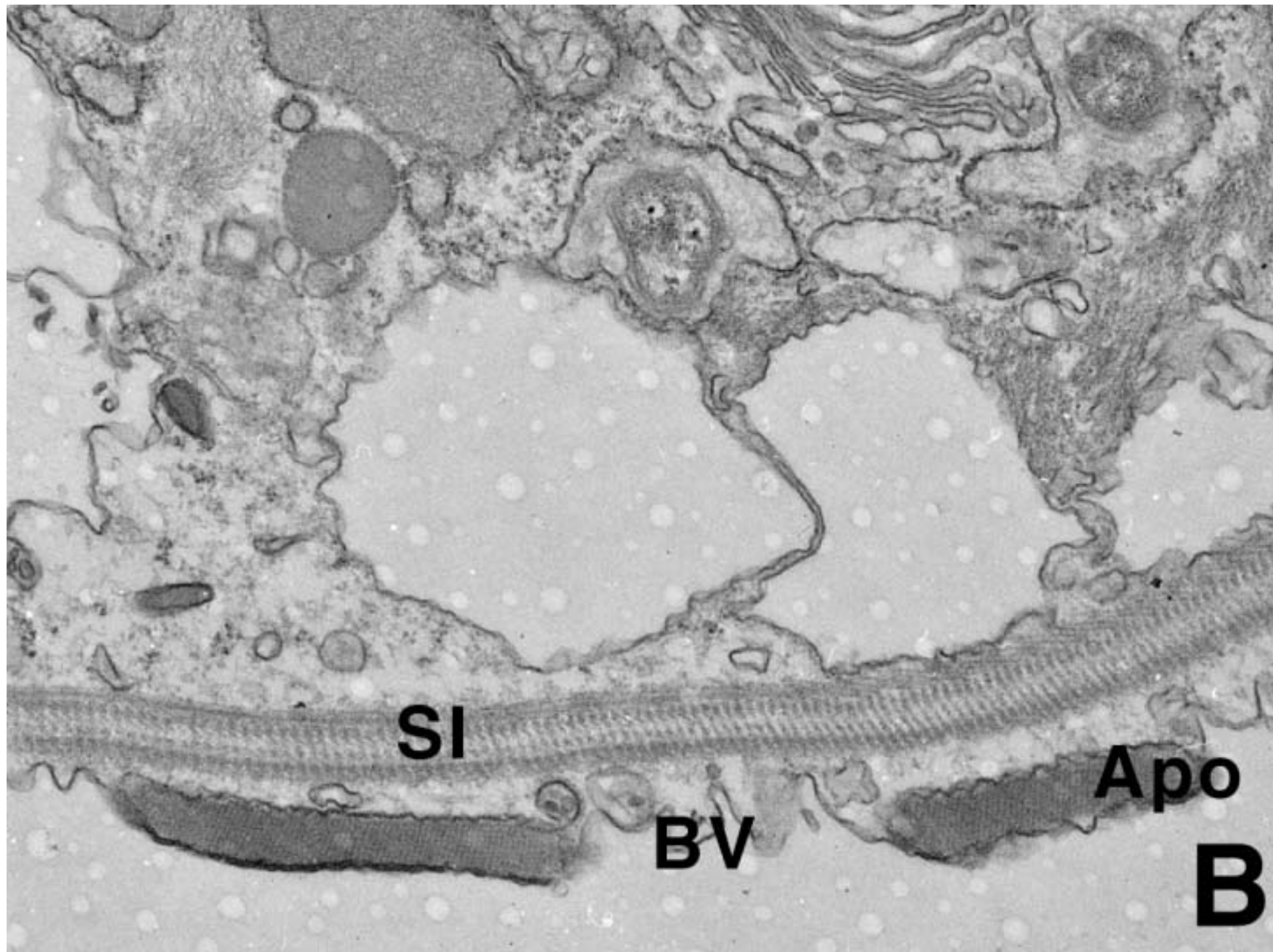
K.Shalchian-Tabrizi, D. Klaveness, H.A. Thomsen, K. S. Jakobsen

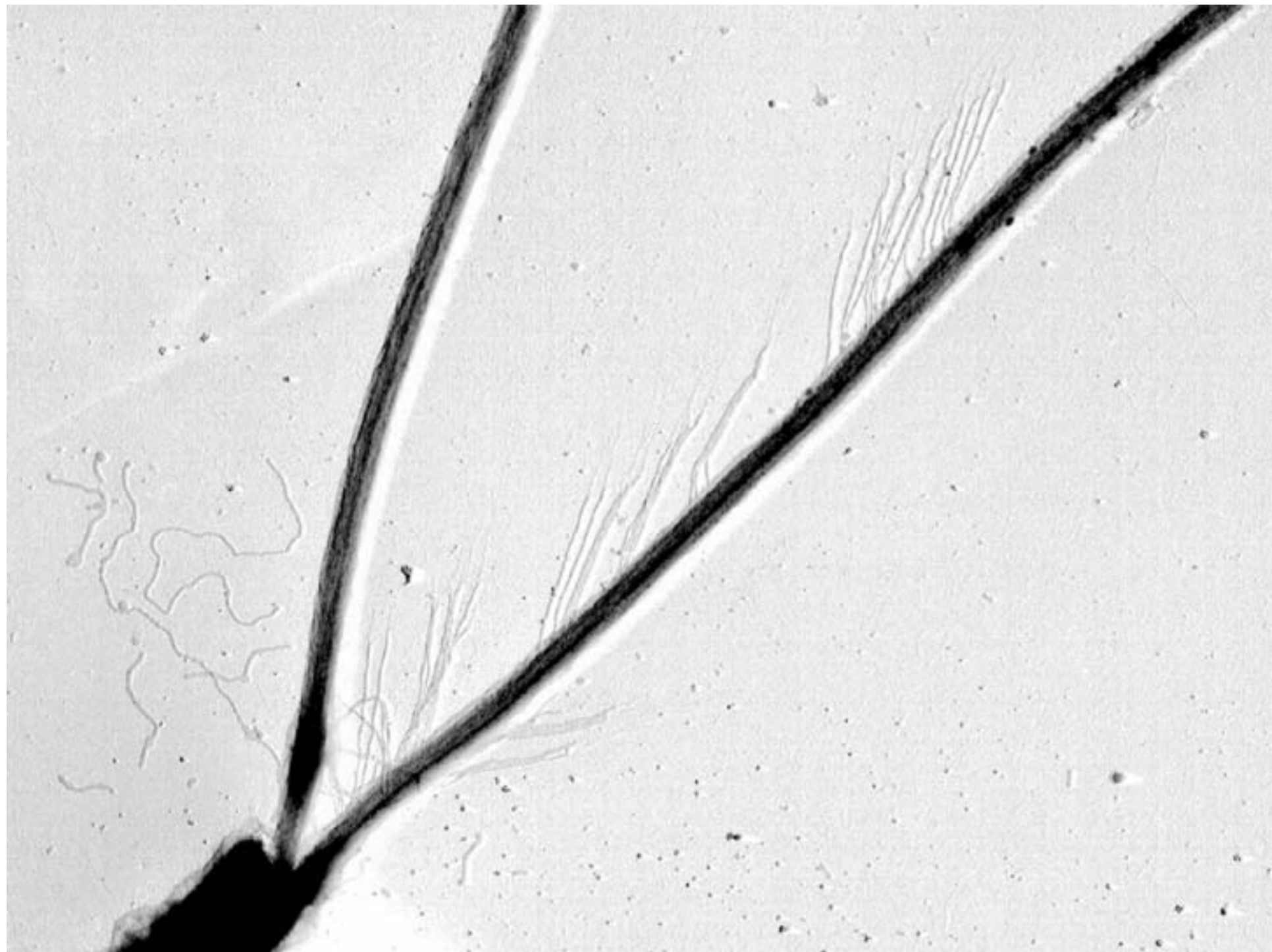
Objectives:

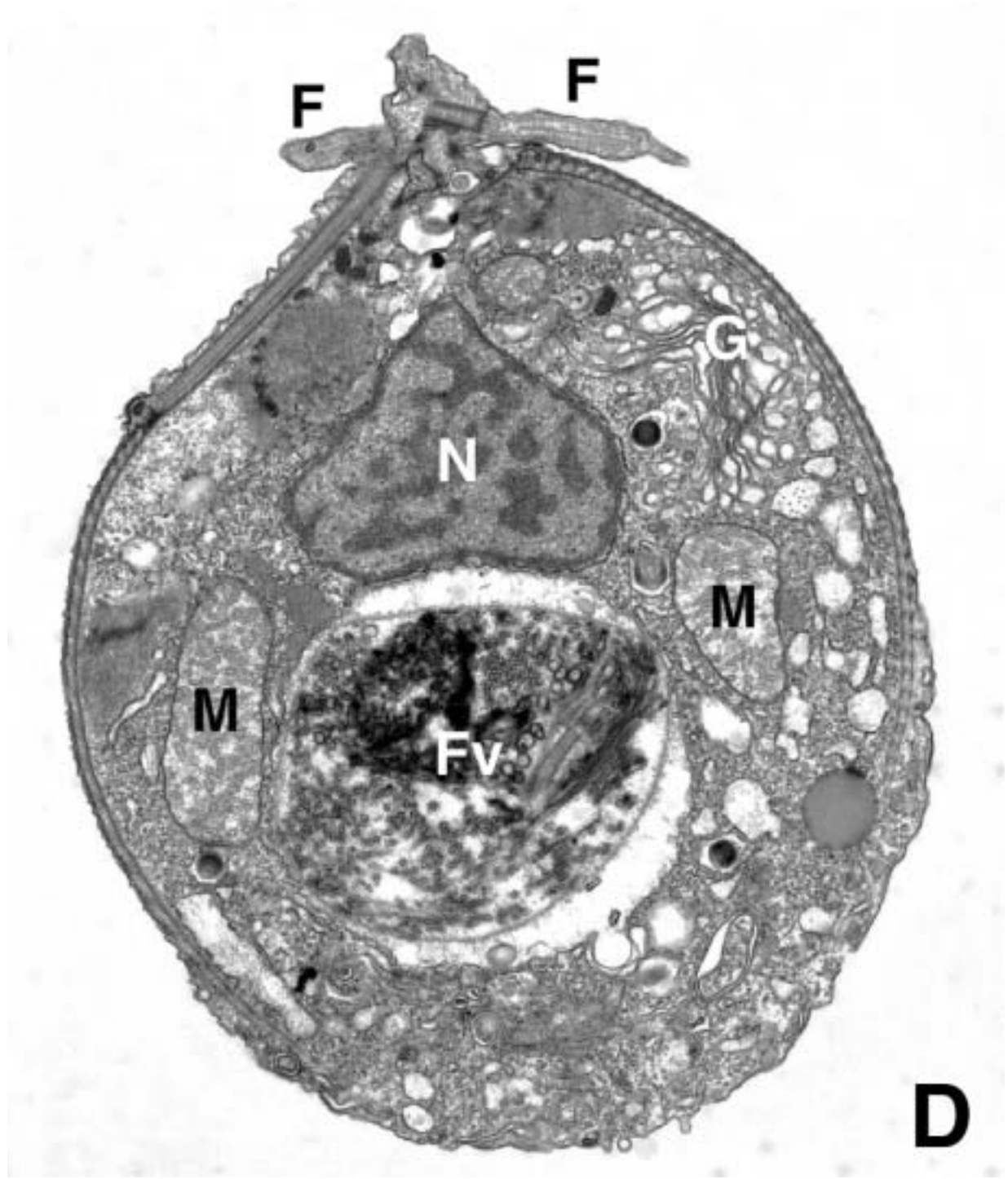
- To reveal the ultrastructure of *Telonema antartica* and the molecular phylogeny of the small subunit rRNA gene.
- To resolve the particular identity of the *Telonema* genus and its evolutionary relationship to other protist phyla.

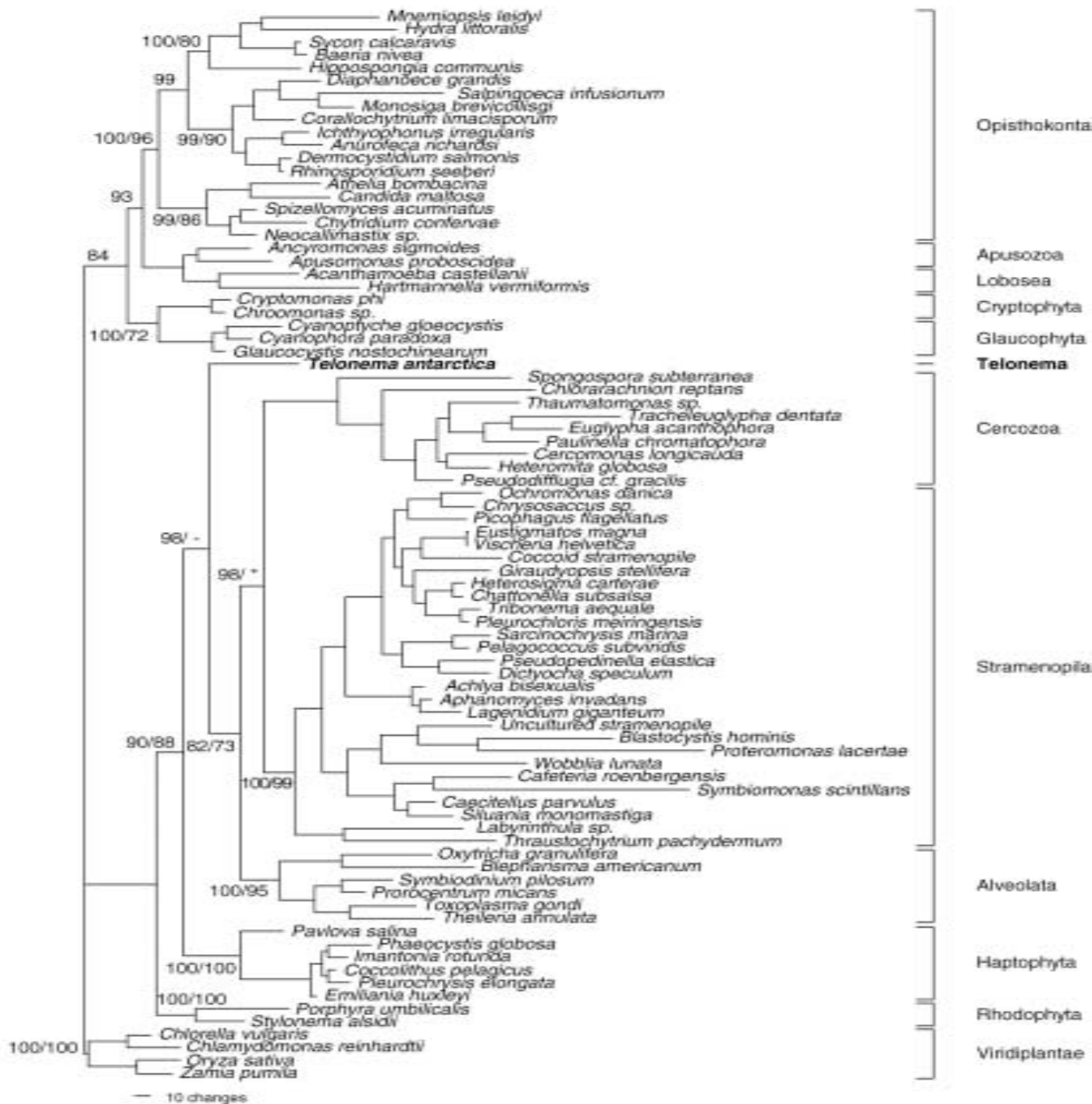


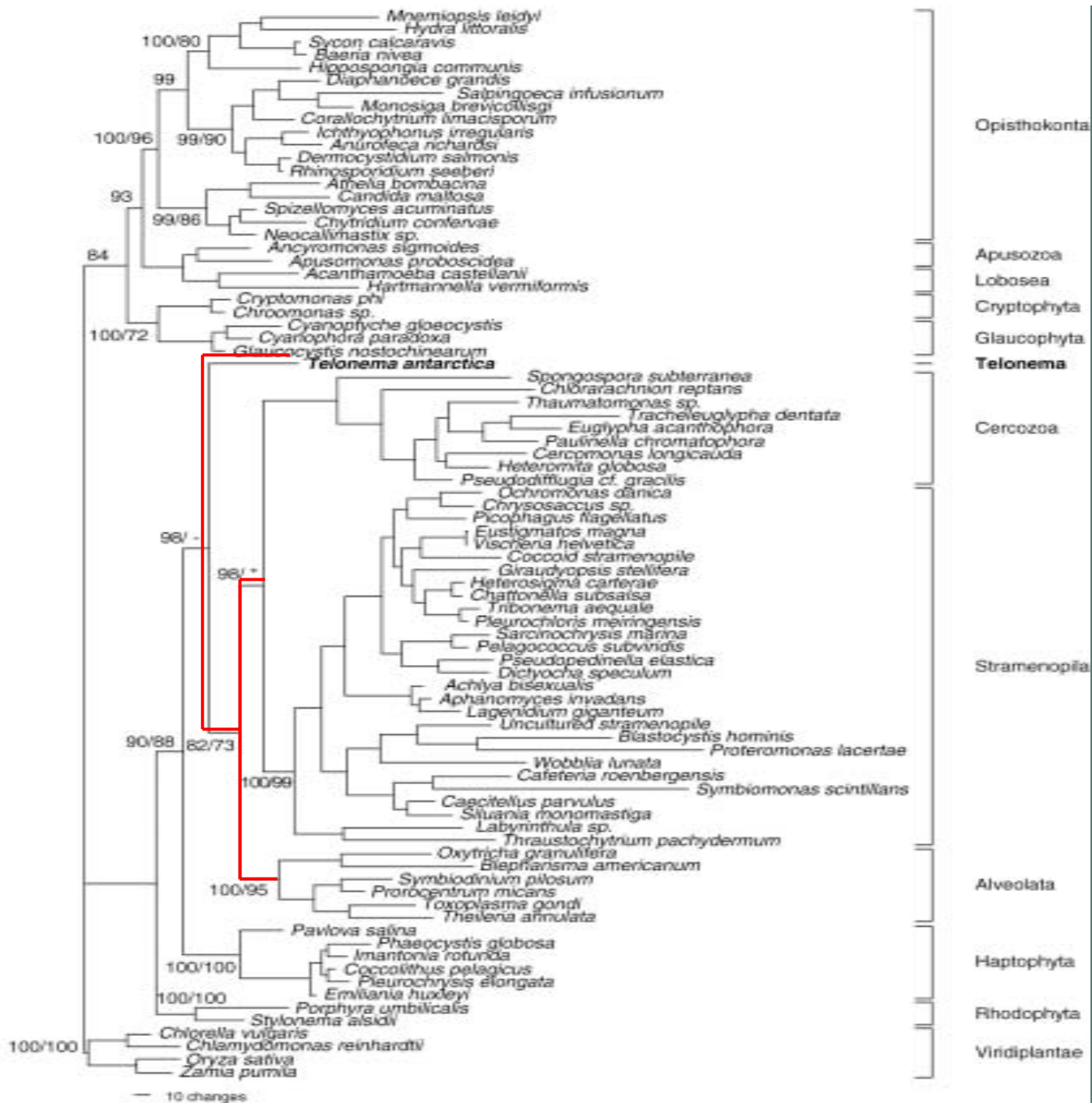












Conclusions

- The subcortical lamina represented here constitutes a synapomorphy for the *Telonema* genus. There are no known truly homologous intracellular structures known among other protists.
- Among all traits identified in *T. antarctica* three structural characters can be directly related to other protists:
 - Tubular mitochondrion crista structure identified in *T. antarctica*, strongly suggest that the genus is closely related to the Chromista (except the Cryptophytes) or Alveolate groups.
 - Cortical vesicles beneath the outer cell membrane, is likely to represent homologous structures to those observed among the Alveolata.
 - The tripartite hairs found on one of the flagella strongly suggest that *T. antarctica* is belonging to the Stramenophiles.

Conclusions

- By combining the structural characters, which strongly relates *T.antartic* to both Stramenophiles and Alveolates, with the molecular phylogeny, we suggest that *T.antartica* is belonging to the base of the Cromist/Alveolates bifurcation.
- Thus this genus is probably representing one of the ancestral groups that have given rise to the both Cromista and Alveolata.
- To our knowledge *Telonema* is the only genus which has the potential of addressing the question about the common ancestor to the major protist lineages with tubular mitochondria crista.