

## **A comparative genomic study on metabolism and cell biology of Preaxostyla flagellates.**

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The least studied of the three major lineages of metamonads, evolutionary and parasitologically important group of anaerobic protists, is Preaxostyla, a taxon which has recently attracted attention of the protistological community when *Monocercomonoides exilis* was identified as the first known completely amitochondriate eukaryote. We have sequenced, assembled, and annotated genomes of two other members of Preaxostyla. *Blattamonas nauphoetae* (66 MB, GC content: 45%) is morphologically almost indistinguishable from *M. exilis* but represents a phylogenetically distinct lineage. It also differs in the lifestyle as *M. exilis* inhabits guts of rodents, while *B. nauphoetae* is a symbiont of cockroaches. *Paratrimastix pyriformis* (41.03 MB, GC content: 62.1%), a bacteriovorous flagellate with typical excavate morphology, is one of the closest free-living relatives of *M. exilis* and *B. nauphoetae*. Unlike them, it still retains a reduced mitochondrion. Comparisons of multiple cellular systems, with emphasis on energy, amino acid, and mitochondrial metabolism, between *M. exilis*, *B. nauphoetae*, and *P. pyriformis* will be presented.