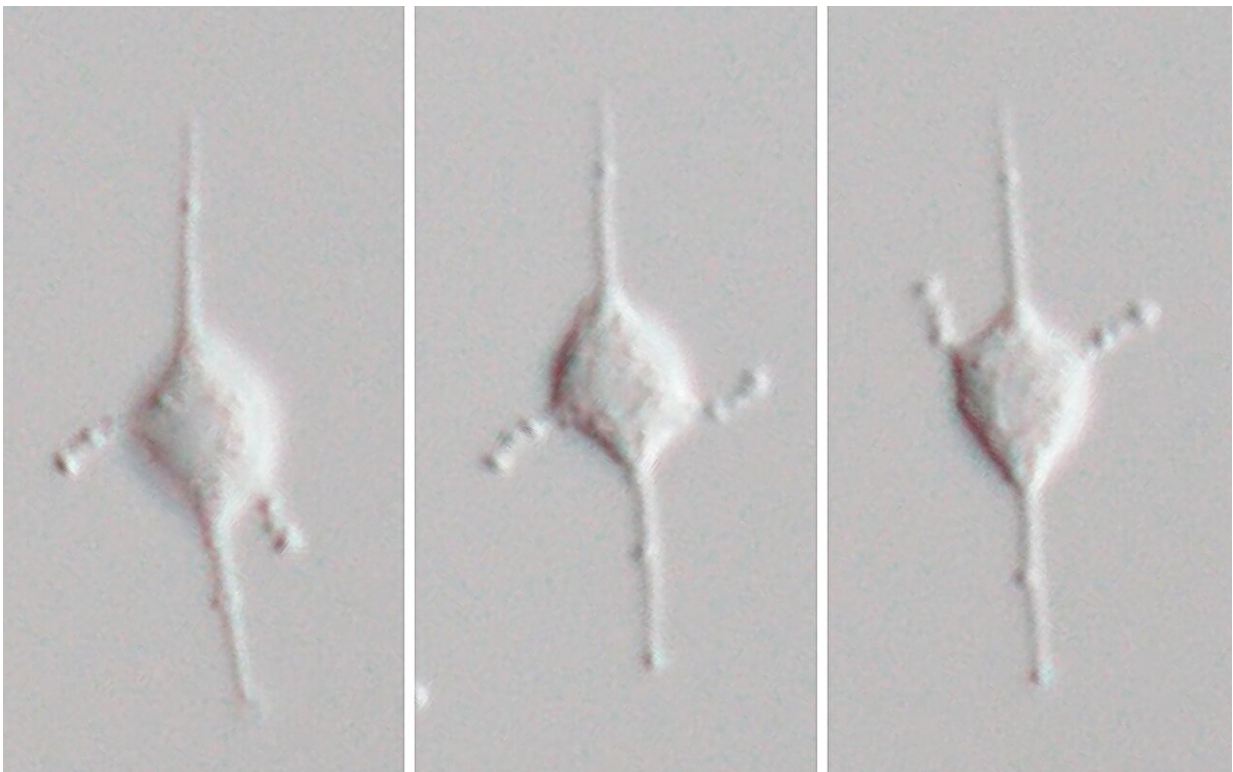


Researchers reveal cellular architecture, phylogenetic position of protist *Meteora sporadica*

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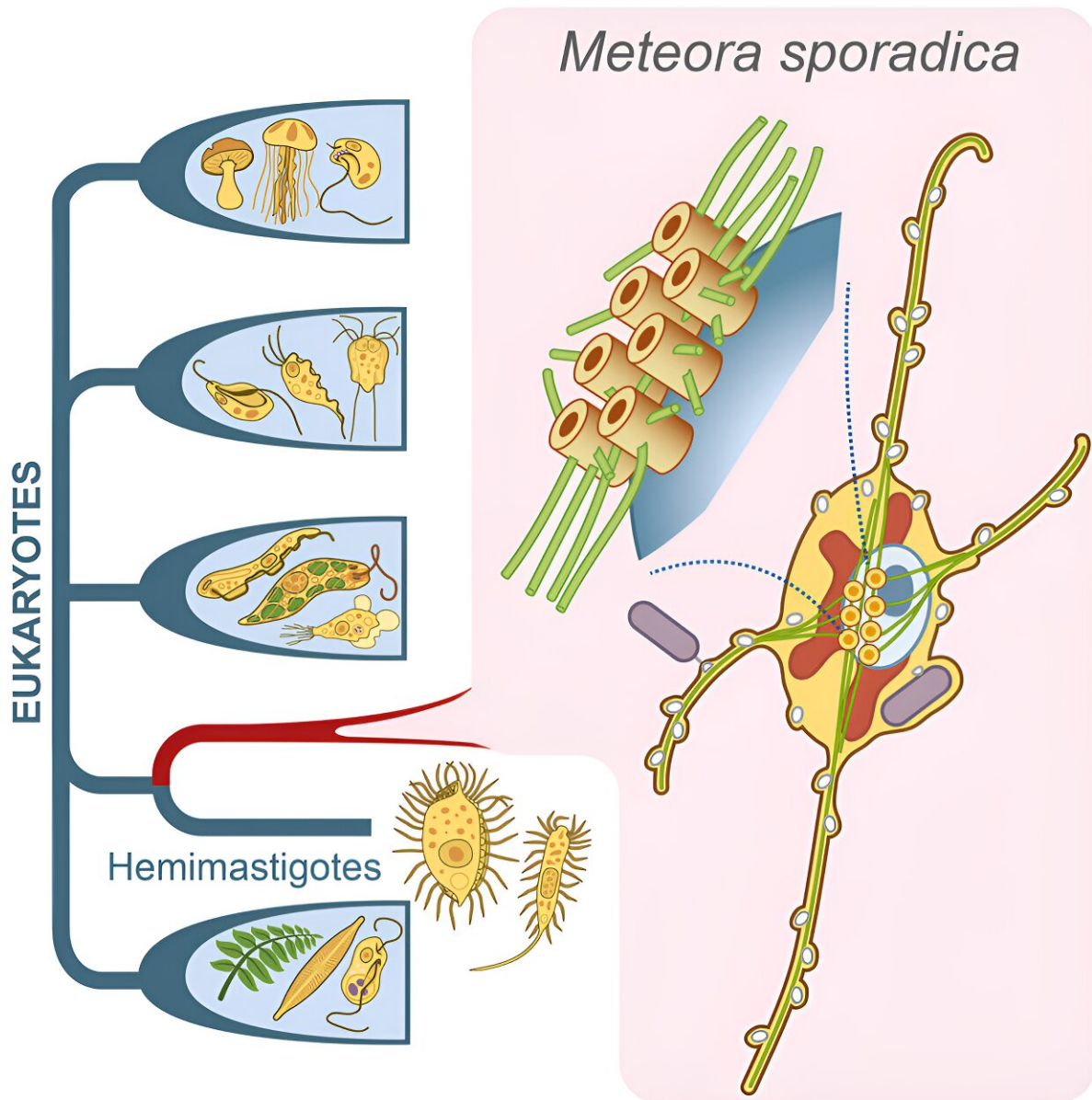
Researchers from University of Tsukuba studied in detail the strange protist *Meteora sporadica*, which swings its two lateral arms back and forth. The results of the study indicated that *M. sporadica* has a complex cytoskeleton that is closely related to Hemimastigophora, a group of organisms considered to be one of the deepest branches of eukaryotes. Credit: University of Tsukuba

Meteora sporadica is a small, unicellular eukaryote (protist) that was discovered in deep Mediterranean sea sediments in 2002. It differs from known protists by the presence of two lateral arms that swing back and forth. However, the ultrastructure and phylogenetic position of *M. sporadica* remain unknown.

In a new study, [published](#) in *Current Biology*, researchers successfully cultured and analyzed two strains of *M. sporadica* from [marine sediments](#) in detail. Ultrastructural observations revealed that *M. sporadica* has a complex cytoskeleton, with lateral arms that are supported by [microtubules](#) extending from multiple microtubule-organizing centers (MTOCs) located in the center of the cell.

A large-scale molecular phylogenetic analysis using [amino acid sequences](#) of 254 genes revealed that *M. sporadica* is not associated with any of the major eukaryotic lineages (supergroups) identified to date, but is closely related to Hemimastigophora, a group of protists considered to be one of the most deep-branching eukaryotes.

Interestingly, Hemimastigophora is composed of large protists with numerous flagella and no arms or MTOCs. This study demonstrates that *Meteora* and Hemimastigophora represent a morphological diversity that is comparable to other supergroups. Identifying and analyzing poorly studied protists, such as *M. sporadica*, is essential for elucidating the [phylogeny](#) and diversity of eukaryotes.



Credit: *Current Biology* (2024). DOI: 10.1016/j.cub.2023.12.032

More information: Yana Eglit et al, *Meteora sporadica*, a protist with incredible cell architecture, is related to Hemimastigophora, *Current Biology* (2024). [DOI: 10.1016/j.cub.2023.12.032](https://doi.org/10.1016/j.cub.2023.12.032)

Provided by University of Tsukuba

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