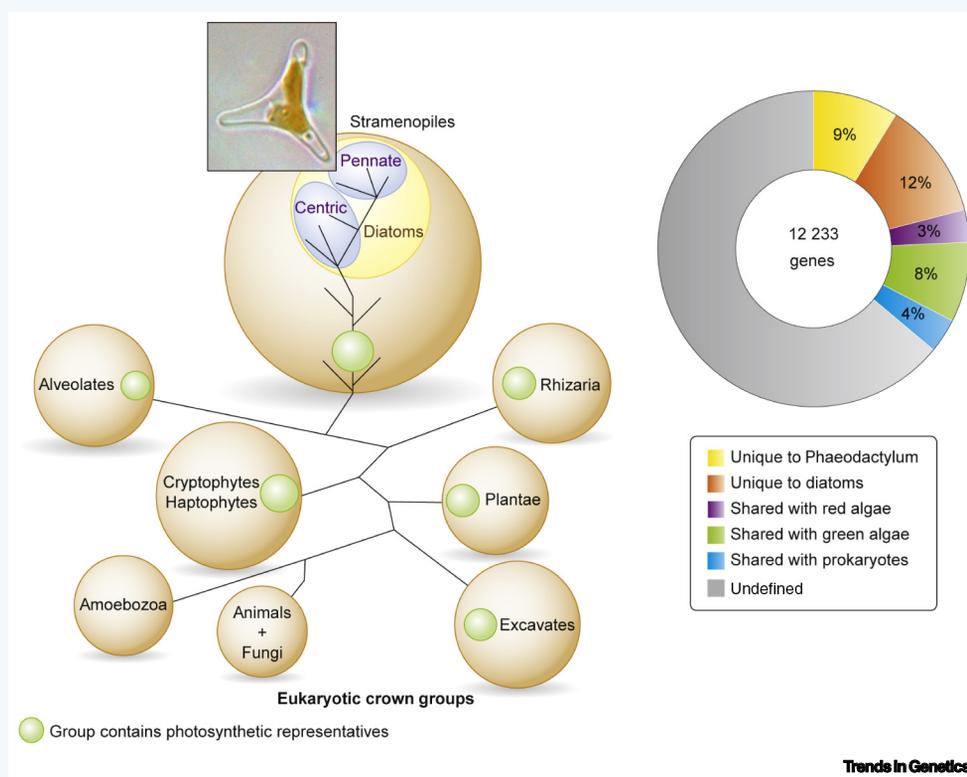


# Phaeodactylum tricornutum

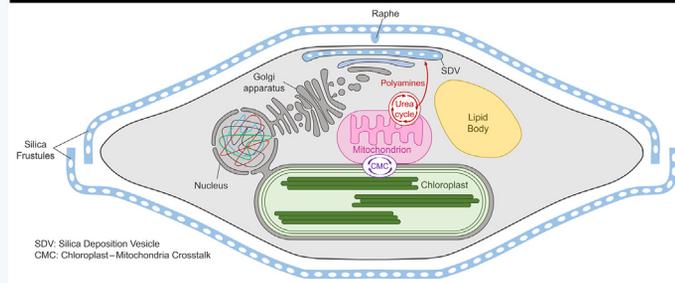
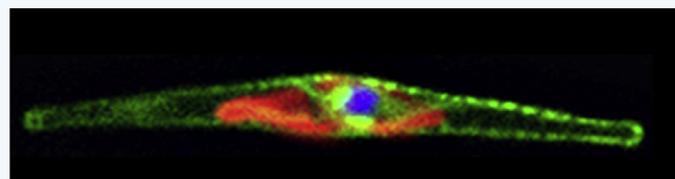
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Diatoms, key photosynthetic micro-eukaryotes, found in all aquatic ecosystems are classified based on their symmetry into pennates (elongated) and centrics (radial symmetry). *Phaeodactylum tricornutum* is a marine pennate species that has become an experimental model used to understand diatom biology. The nuclear genome is chimeric, containing genes derived from ancestral endosymbioses with red and green algae, and enriched by genes acquired laterally from bacteria. Novel combinations of genes enable novel metabolisms (e.g., related to cell wall biogenesis). Together with the genome from the centric *Thalassiosira pseudonana* (the first to be sequenced) and multiple transcriptomes from other diatoms, it provides the basis for comparative genomics studies and for interpreting the ecological success of diatoms. These studies have revealed little synteny and no major segmental duplications between centric and pennate diatoms, and transposable element mobilisation may underlie diatom genome diversification.



**TAXONOMY AND CLASSIFICATION:**

**KINGDOM:** Chromalveolata or SAR (stramenopiles, alveolates, and Rhizaria)

**SUPERPHYLUM:** Heterokonta or stramenopile

**PHYLUM:** Bacillariophyta

**CLASS:** Bacillariophyceae

**ORDER:** Naviculales

**FAMILY:** Phaeodactylaceae

**GENUS:** *Phaeodactylum*

**SPECIES:** *tricornutum*



## Fun fact about the Genome:

The genome contains extraordinarily high numbers of genes encoding cyclins and heat shock transcription factors.

## Acknowledgements

We thank Alessandra de Martino for the confocal image and Alessandro Manzotti for the schematic of *P. tricornutum* shown in the figure.

## Literature

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