

Ondřej Prášil's group:

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Project name: Algae - who forms an internal carbon pool?

Chromera velia is an unicellular microalga, living either as a symbiont in stony corals, which build tropical marine reefs and form unique ecosystems, or free and independent of its host in the water column. In our aquariums, *C. velia* uses inorganic carbon from the medium to perform photosynthesis ($6 \text{ CO}_2 + 12 \text{ H}_2\text{O} = 6 \text{ O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{ H}_2\text{O}$). Interestingly, cells which are growing in a sinusoidal day:night rhythm are producing O_2 when we transfer them into carbon-free medium. This is remarkable because we don't expect O_2 production without an external carbon source. Our data shows that *C. velia* forms an internal carbon pool by accumulating carbon in the night and consuming it during the day. This metabolic pathway is known as biochemical carbon concentrating mechanism (CCM) and very common in higher plants but rare in microalgae. Hence, we would like to know if we can trigger a biochemical CCM in other microalgae as well.

The task of the Summer School student will be:

- to cultivate different species of microalgae
- to perform growth curve experiments and
- to measure O_2 evolution of the cells in carbon-free medium in order to identify the presence of an internal carbon pool.

The student should be comfortable in speaking and writing English.

I'm looking forward to meeting you!