

Supervisor review of Jitka Richtová

Jitka came to my lab in 2009. So, it is one of the longest Ph.D. studies I have noticed so far. However, as you will hear soon, her stay in the lab was interrupted by two consequential maternity leaves and a kind of existential escape. Jitka started to work on the localization of the heme pathway in *Chromera velia*, thus following the work of Luděk Kořený. Since we did not have a transfection system for *Chromera*, we decided to transfect two heterologous models, apicomplexan parasite *Toxoplasma gondii* and pennate diatom *Phaeodactylum tricornutum*. We selected *T. gondii* because chromerids are the closest known phototrophic relatives of apicomplexan parasites. The second model reflected the hypothesis concerning a stramenopile origin of chromerid and apicomplexan plastids and that *P. tricornutum* was almost routinely transformed in the lab. So, Jitka transformed *P. tricornutum* with selected genes encoding enzymes of the heme pathway in my lab. Then she visited the lab of Boris Striepen to perform transfections of *T. gondii* with the same *C. velia* genes. In parallel, Jitka designed oligopeptides for the generation of antibodies against the same proteins. The results from the use of antibodies were surprising, placing all tested enzymes into the mitochondrion of *C. velia*. We even created a story explaining the loss of photosynthesis in the apicomplexan ancestor, submitted the manuscript to MBE, got positive reviews, prepared doable revisions, and then the total disaster came. Jitka found out that her antibodies results are false positive due to the autofluorescence of mitochondria in *C. velia*. Our fascinating evolutionary story became a fairy tale for children overnight. The global disappointment in the lab was profound. After a few months, Jitka moved to Zdeněk Paris lab for the technician position (temporary technician is kind of fate of my Ph.D. students) and soon became pregnant and stayed on maternity leave for six years. The project fell asleep, and I almost gave up on Jitka's Ph.D.

However, during the last few years, Jitka came to the lab more and more frequently. In the end, she became employed in the lab, contributed to various studies on *Chromera*, summarized the data we had about the heme pathway, and wrote the main paper needed for her Ph.D. defense. I have to avow that Jitka surprised me, actually twice. For the first time, when she escaped to Parda's lab, and

for the second time, when she showed amazingly high attitude, patience, and courage needed to return back to the lab after six years spent with two children behind. I do not know if I would have such great power and motivation. So, I would like to honestly thank Jitka for that.

In general, Jitka is a typical lab-oriented scientist. She is excellent at doing wet-lab experiments, such as diatom genetic transformations. She is perfect in fluorescent and confocal microscopy. She is a person always full of energy and enthusiasm. She has a solid drive to finish projects. I am happy to say that Jitka saved the lost project and returned it to the light. I am convinced she has the soul, heart, and hands of a scientist, and I am happy to support her Ph.D. defense.

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Miroslav Oborník