

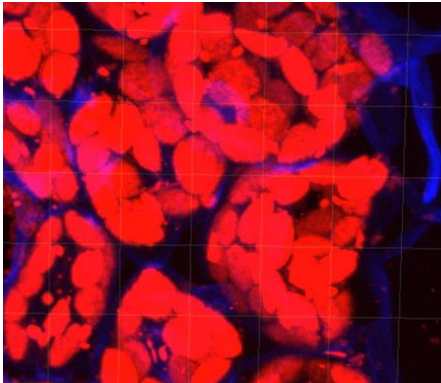


Wide Hybridization Group, Centre of Plant Structural and Functional Genomics, Institute of Experimental Botany in Olomouc, Czech Republic **seeks for a candidate of PhD study**. Our group focus to interspecific hybridization and polyploidy in plant genomes (for details, see our webpage <https://olomouc.ueb.cas.cz/en/research-groups/kopecky-group>).

Title: Cytonuclear interactions in plant auto- and allo-polyploids

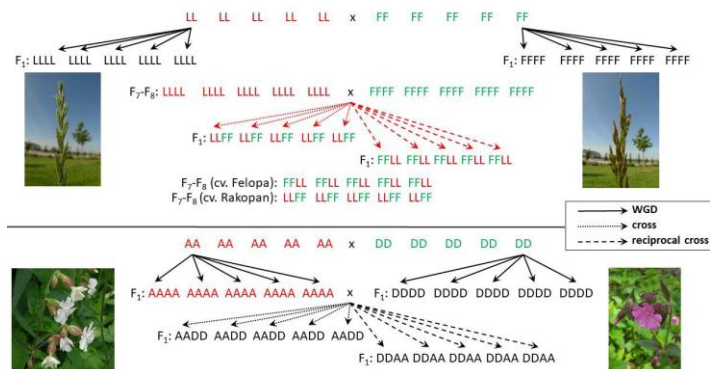
Supervisor: Assoc. Prof. David Kopecký

Abstract: Key metabolic processes catalyzed by multi-subunit enzyme complexes which comprise nuclear- and organelle-encoded proteins are dependent on maintaining the



stoichiometric ratios among the subunits. As polyploidization increases the number of nuclear genes without directly altering the dosage of the cytosolic genomes, cytonuclear interactions forming these chimeric protein complexes may be disrupted. In our project, we will analyze the mechanisms leading to the restoration of the stoichiometry in newly established polyploids of two angiosperm lineages (*Festuca-Lolium* complex and *Silene* sp.). Besides the maintenance of the well-tuned cytonuclear interactions, another challenge

for allopolyploids originating from hybridization of two distinct species is the coordination of biparentally inherited nuclear genome and genomes of plastids and mitochondria often inherited uniparentally (maternally). Investigating these processes will be the main aim of the PhD study. A PhD student will conduct wet-lab experiments and basic bioinformatic analyses to investigate changes in cytonuclear interactions associated with polyploidization. The work requires at least basic molecular biology skills and an interest to learn new techniques and approaches. MSc. from biological sciences is required.



In case of interest or detailed information, contact us at kopecky@ueb.cas.cz

Financing: The student will be supported from the project of Czech Science Foundation GACR 22-03731S.

Starting any time from May 1, 2022