

Novel Roles of PRC2 in Light Acclimation during Embryo-to-Seedling Transition in *Arabidopsis*

Iva Mozgová

Laboratory of Photosynthesis, Centre Algatech, Institute of Microbiology CAS, TŘEBOŇ

Polycomb Repressive Complexes (PRCs) are histone-modifying complexes that serve as major epigenetic regulators of developmental phase transitions in plants. The histone methyltransferase PRC2 has been implicated in governing the seed-to-seedling transition by repressing embryo maturation program and preventing the reversion of the developmental phases during seedling establishment in *Arabidopsis*.

By mitigating the defects resulting from de-repression of late embryonic development in PRC2 mutants, we identify a novel function of PRC2 in modulating responses to ambient light conditions during seedling establishment in *Arabidopsis*. Here I summarize results of our research conducted in collaboration with many colleagues at Centre Algatech in the past two years. We show that an early onset of light-dependent growth and developmental defects results in conditional seedling lethality of strong PRC2 mutants. By combining transcriptomic, physiological and biochemical approaches, we aim to identify the upstream causative molecular mechanisms that trigger the observed phenotypic defects in mutant plants and establish PRC2 function during photomorphogenesis. Taken together, our results provide evidence supporting emerging roles of Polycomb Repressive Complexes in responses to environmental cues.