

# **The role of Polycomb Repressive Complex 2 (PRC2) in chloronema growth and chloronema-caulonema transition in *Physcomitrium patens*.**

*Helena Mondekova*

INSTITUTE OF PLANT MOLECULAR BIOLOGY, Biology Centre CAS, České  
Budějovice.

## **Abstract:**

The model moss *Physcomitrium patens* represents a seedless nonvascular plant with a haploid dominant life cycle. The evolutionarily conserved PRC2 catalyzes the trimethylation of lysine 27 on histone 3 (H3K27me3), which directly leads to the repression of thousands of genes. It is known that PRC2 is required for leafy gametophyte development and for the repression of sporophyte development in *P. patens*. In this talk, I focus on the filamentous growth of *P. patens* – on the slowly dividing chlorophyll-rich chloronema (responsible for photosynthesis and energy production) and the rapidly dividing chlorophyll-poor caulonema (responsible for expansion and colonization of new areas). I show that PRC2 is required for the correct branching of chloronema and its correct transition to caulonema. I also show that the CESA genes, which are repressed by PRC2, play a role in this transition by influencing the composition of the cell wall.