



Mendel Centre Seminar



High-throughput approaches to study pollen development and function

08/12/2015

TUESDAY

start 16:00

delivered by

Seminar room 252, building A29
University Campus Bohunice
Kamenice 5, Brno

Assoc. Prof. David Honys, Ph.D.

Laboratory of Pollen Biology, Institute of Experimental Botany ASCR, Prague

Hosted by doc. RNDr. Zbyněk Zdráhal, Dr.

Abstract:

The male gametophyte, an highly organized haploid flower organ, offers an unique opportunity to analyze development and differentiation of single haploid cells, cell-cell interactions and recognition, cellular polarity and pollen tube tip growth. Posttranscriptional control of gene expression plays a vital role during tobacco pollen maturation and tube growth. The need for a high rate of translation during pollen tube growth suggests a demand for a robust storage system that could withstand a long-term storage and transport, ongoing cellular morphogenesis, and yet deliver the message efficiently accompanied with instant translation. A number of pollen genes showed apparent expression discrepancy at mRNA and protein levels and their respective transcripts were shown to be associated with long-term stored ribonucleoprotein particles annotated as EPP complexes. Similarly to the role played in growing mammalian neurons, EPP particles represent pre-loaded complex machinery devoted to mRNA processing, transport, subcellular localization and protein synthesis. We performed a detailed functional, transcriptomic and proteomic characterisation of pollen storage RNP particles in *Nicotiana tabacum* L. In particular, we aimed to integrate our knowledge on the categorization of translationally regulated transcripts in developing pollen and to identify the mode of action of the translational repression and derepression of mRNAs stored in developing pollen and which have gradually activated during the progamic phase.