
Regular Wednesday IMG seminar



Zdeněk Lánský, Ph.D.

**The Institute of Biotechnology of the Czech Academy of Sciences
Head of group Structural proteins and their complexes**

“Tau regulates access to microtubules”

Tau is an axon specific microtubule-associated protein implicated in a number of pathologies, collectively termed tauopathies. Tau contains multitude of phosphorylation sites and its (hyper)phosphorylation plays an important role in tauopathies. On the microtubule surface tau can cooperatively assemble into a cohesive layer termed envelope. Tau envelopes regulate the action of other microtubule-associated proteins, such as the motility of molecular motors, and protect the microtubule against degradation by microtubule-severing enzymes. How is the formation and dynamics of tau envelopes regulated is, however, unknown. Here we show that tau phosphorylation impedes the formation and functioning of protective tau envelopes. Using a combination of reconstitution experiments and live cell imaging, we found that phosphorylated tau can be involved in the formation of tau envelopes. It slows down the envelope growth and can destabilize existing envelopes leading to their disassembly. Envelopes formed by phosphorylated tau have altered functionality, which leads to a decrease of their protective function. Combined, our results provide a link between pathology-related tau phosphorylation and decreased functioning of protective tau envelopes.

The seminar will be held

on Wednesday 15th February 2023 at 15:00

in the Milan Hašek Auditorium at IMG

(Institute of Molecular Genetics of the Czech Academy of Sciences, Vídeňská 1083, Prague 4)
