CZ.1.07/2.3.00/20.0148 NANOLABSYS
Mezinárodní spolupráce v oblasti „*in vivo*“ zobrazovacích technik
Laboratoř Metalomiky a Nanotechnologií

Vás zve na seminář ID 275:

Metallothionein complexes with superoxide dismutase

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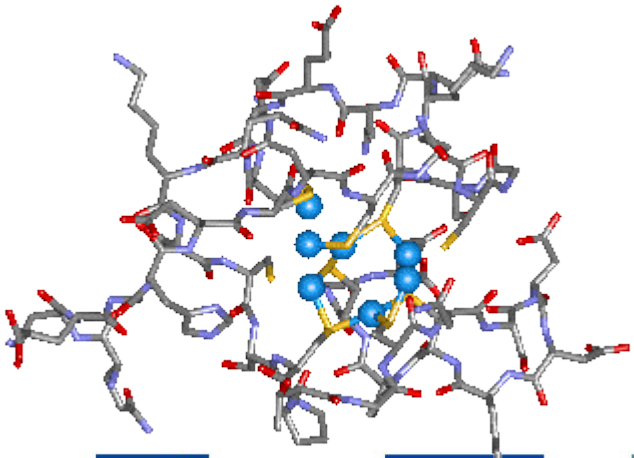
Abstrakt

The formation and disintegration of metallothionein (MT)-proteins complexes can be crucial in the transfer and release of metal ions, what is necessary in the formation of metalloenzymes and transcription factors. MT is considered as one of metallochaperones involved in the homeostasis of essential metals Zn(II) and Cu(I) by maintaining the free intracellular concentration of them at a low level and on supplying them to various protein targets, e.g. Zn(II)-dependent enzymes, Zn(II)-finger-dependent transcription factors. That is thought to proceed through ligand-exchange processes involving direct molecular contact between the reactants. Metal release appears to be controlled by protein–protein interaction. Studies with As-MT showed, that the transfer of As(III) between the full-MT protein and its domain occurs by protein-protein interactions, and not spontaneously by the dissociation-association.



MT and Cu/Zn superoxide dismutase (SOD) are proteins engaged in an essential manner in the pro-antioxidative balance of organism. MT

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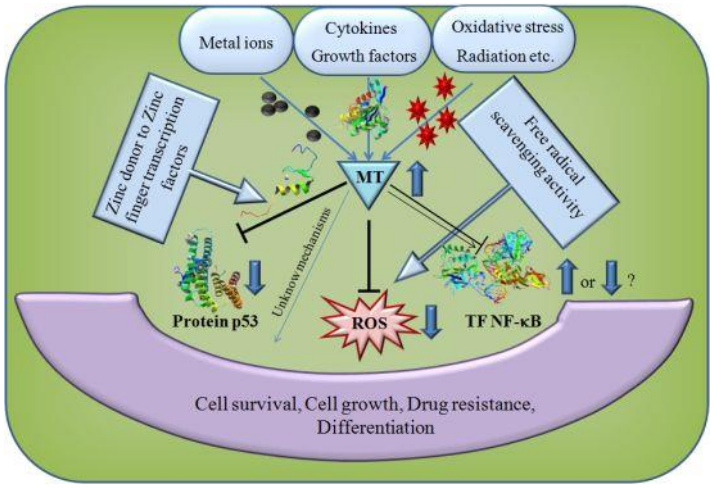
scavenges a wide range of ROS, including superoxide, hydrogen peroxide, hydroxyl radical, and nitric oxide and SOD catalyzes the decomposition of superoxide to hydrogen peroxide.

In this context, it is interesting to study how Cu, Zn - metals essential for homeostasis are transported by MT to other proteins, as well as to know which proteins take part in it. Interaction of Zn-MT with Cu/Zn-SOD will be analyzed. Studies will be carried out both with apo and holo forms of MT and SOD and influence of Zn association with proteins on their interaction will be verified.
The explanation of how MT transmits and thus regulates the availability of Zn may be crucial to understand the mechanism of regulation of life processes at the molecular level by Zn-dependent enzymes or transcription factors.



pátek 18. 07. 2014, od 14:00

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