COLLOQUIA IN CELLULAR SIGNALLING

Venue: Medical University Vienna, Center for Physiology and Pharmacology, Institute of Pharmacology, Waehringerstrasse 13a, 1090 Vienna, "**Leseraum**".

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Friday 11.03.2016 11:00 s.t. **Michal Cagalinec (host:** H. Kubista**)**

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"Wolfram syndrome: how an ER localized protein targets mitochondrial dynamics"

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Abstract:
Wolfram syndrome, a rare hereditary disorder characterized by diabetes mellitus, diabetes insipidus, optical atrophy and deafness is caused by mutations of the Wolframin1 and 2 genes. Wolframin1 is mainly expressed in the brain, pancreas and heart and is located in the membrane of endoplasmic reticulum. Because optical atrophy and deafness are typical symptoms for mitochondrial diseases, we were interested, if Wolframin1 affects mitochondrial dynamics in neurons. Using photoconvertible protein KikumeGR1 we have observed huge decrease in mitochondrial fusion frequency and mitochondrial dynamics when the Wolframin1 gene was silenced. How a protein located in endoplasmic reticulum can harm mitochondria so strongly? Is this associated with bioenergetic deficit in neurons? Modern methods of genetically encoded and fluorescent indicators for calcium and ATP were applied to reveal the mechanisms behind.