



KATEDRY BIOCHÉMIE A GENETIKY

Prírodovedeckej fakulty Univerzity Komenského

Mlynská dolina CH-1 a B-1, 842 15 Bratislava

Vás pozývajú na **32.** prednášku v rámci Kuželových seminárov:

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APOPTOSIS IN YEAST

ktorá sa uskutoční

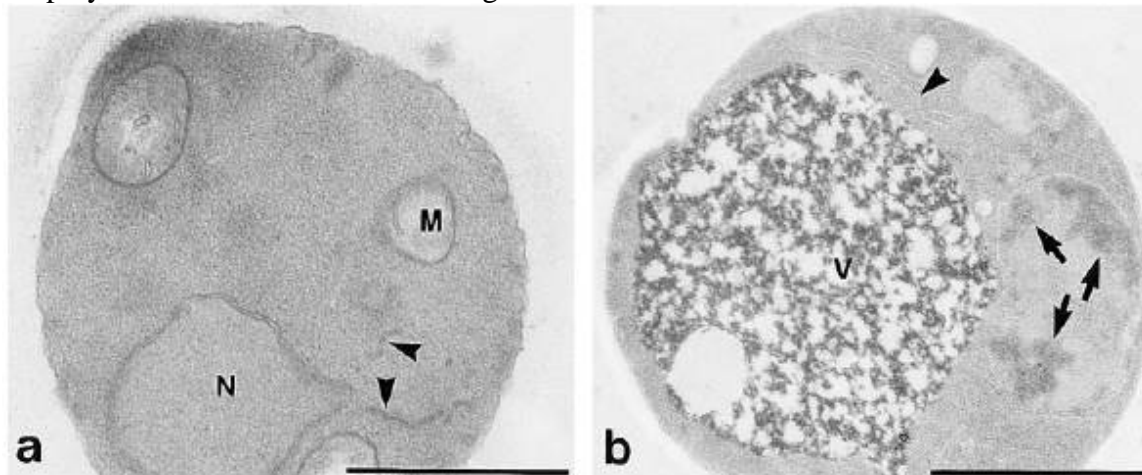
28. 5. 2002 (utorok) o 15:00 v miestnosti B1-501 PriF UK

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DR. FRANK MADEO

(*1967)

MSc. aj PhD. získal na Institute for Physiological Chemistry v Tübingene v laboratóriách prof. Probst, resp. dr. Fröhlich. Postupne sa venoval bunkovému cyklu v cicavčích bunkách a bunkovej signalizácii a apoptóze v kvasinkách. V súčasnosti je vedúcim skupiny na tom istom Ústave v Tübingene.



(a) Normálna kvasinková bunka

N, jadro; M, mitochondria; V, vakuola

(b) Apoptotická kvasinková bunka

Abstrakt prednášky: Apoptosis is a form of programmed cell death with a crucial role in development and maintenance of metazoan animals. It is responsible for the removal of autoreactive immune cells, virus-infected cells and cells with unrepairable genetic damage posing the risk of a cell transformation. The discovery of apoptosis in yeast is recent. We found that a mutation of the cell division cycle gene *CDC48* (*cdc48^{S565G}*) or heterologous expression of mammalian apoptotic inducer *bax* induces the typical markers of apoptosis in *Saccharomyces cerevisiae*: exposure of phosphatidylserine at the outside of the cytoplasmic membrane, DNA cleavage, and chromatin condensation and fragmentation. Similar to mammalian apoptosis, the process is triggered by formation of reactive oxygen species (ROS). Mutation of *CDC48* orthologue VCP has recently also been found to dominantly induce apoptosis in human cells. This is further proof that programmed cell death in yeast and animals is derived from the same evolutionary root and shares key components. We have the yeast model to search for additional genes involved in yeast apoptosis and identified regulators with well conserved homologues in the humans.

Vybrané publikácie F. Madea z oblasti kvasinkovej apoptózy:

Madeo, F., et al. (2002). A caspase-related protease regulates apoptosis in yeast. *Mol. Cell* **9**: 911-917.

Frohlich, K.U., and Madeo, F. (2001). Apoptosis in yeast: a new model for aging research. *Exp. Gerontol.* **37**: 27-31.

Frohlich, K.U., and Madeo, F. (2000). Apoptosis in yeast--a monocellular organism exhibits altruistic behaviour. *FEBS Lett.* **473**: 6-9.