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# prof. MUDr. Jan Trnka, Ph.D.

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Laboratory for Metabolism and Bioenergetics  
Department of Biochemistry, Cellular and Molecular Biology  
<https://www.lf3.cuni.cz/3LF-1059.html>

## Topic title

The interplay between ER-stress and mitochondrial stress in normal and cancer cells.

## Description of scientific activity

Jan completed studies in general medicine at the Third Faculty and continued to a PhD in biological sciences at the University of Cambridge under the supervision of Professor Michael P. Murphy. There he focused on the biochemistry of mitochondria-targeted antioxidants and their interactions with the protein complexes of the mitochondrial inner membrane. After returning to Prague he started building up the Laboratory for Metabolism and Bioenergetics to provide a basis for the study of cellular metabolism and mitochondrial biology. The current focus of his research team is cellular metabolism of developing and cancerous cells, impact of medications and other external chemicals on mitochondrial function and metabolic cooperation between cells.

## Selected publications

KFKOVÁ, Anežka; TRNKA, Jan. Mitochondria-targeted compounds in the treatment of cancer. *Neoplasma*. 2020, 67(3), 450-460. ISSN 0028-2685. e-ISSN 1338-4317. DOI: 10.4149/neo\_2020\_190725N671.

VERLANDE, Amandine; KRAFČÍKOVÁ, Michaela; POTĚŠIL, David; TRANTÍREK, Lukáš; ZDRÁHAL, Zbyněk; ELKALAF, Moustafa; TRNKA, Jan; SOUČEK, Karel; RAUCH, Nora; RAUCH, Jens; KOLCH, Walter; ULDRÍJAN, Stjepan. Metabolic stress regulates ERK activity by controlling KSR-RAF heterodimerization. *EMBO Reports*. 2018, 19(2), 320-336. ISSN 1469-221X. e-ISSN 1469-3178. DOI: 10.15252/embr.201744524

ELKALAF, Moustafa; TŮMA, Petr; WEISZENSTEIN, Martin; POLÁK, Jan; TRNKA, Jan. Mitochondrial Probe Methyltriphenylphosphonium (TPMP) Inhibits the Krebs Cycle Enzyme 2-Oxoglutarate Dehydrogenase. *PLoS One*. 2016, 11(8), e0161413. ISSN 1932-6203. e-ISSN 1932-6203. DOI: 10.1371/journal.pone.0161413

## PhD Students

Current PhD students: 2

Completed PhD students: 2 (2015, 2017)