Univerzita Karlova

Přírodovědecká fakulta

KATEDRA BIOCHEMIE

ZVE NA PŘEDNÁŠKU

Moonlighting proteins at the cell surface of *Candida* pathogenic fungi – their transport to the cell surface and interactions with human proteins

Justyna Karkowska-Kuleta, PhD

(Jagellonian University in Krakow, Poland)

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V posluchárně CH2 chemické sekce PřF UK, Hlavova 8, Praha 2.

Hosté jsou srdečně zváni!

Annotation:

Pathogenic fungi of the genus Candida produce a wide variety of molecules recognized as virulence factors that allow them to penetrate host organism, evade the human immune system, and facilitate further spread of fungal infection. Among the major virulence factors of pathogenic fungi are adhesive proteins exposed at their cell surface, which are involved in binding of host proteins, including those related to defense mechanisms, such as components of plasma proteolytic cascades, antimicrobial peptides or proteins associated with neutrophil extracellular traps. Therefore, pathogens can hijack and affect host systems responsible for homeostasis and possess the ability to evade host immune response. These important fungal surface-exposed proteins include not only typical adhesins covalently bound to the cell wall, but also atypical cell wall proteins so-called moonlighting proteins.

These are primarily cytoplasmic proteins from basic biochemical pathways, which in an unauthorized way were transported to the surface of the cell and play there a completely different role. An interesting example of a moonlighting protein is enolase, which binds different human proteins, including kininogen, plasminogen, vitronectin, or fibronectin. One of the mechanisms of moonlighting protein transport to the surface is the secretion inside fungal extracellular vesicles (EVs) – nano-sized structures with a lipid bilayer and plentiful and differentiated cargo

Curriculum Vitae

Justyna Karkowska-Kuleta received her Ph.D. degree in the field of biochemistry from the Faculty of Biochemistry, Biophysics and Biotechnology of Jagiellonian University in Krakow, Poland, in 2013. Currently, she is an associate professor at the Department of Comparative Biochemistry and Bioanalytics of the same faculty. She is the author of more than 40 original and review publications and chapters in monographs on the subject of the virulence mechanisms of fungi pathogenic to humans. She participated in several FEBS and EMBO courses and international biochemical and microbiological conferences.

Currently, she is the principal investigator of the research project of the National Science Centre of Poland on microbial extracellular vesicles.