Katedry genetiky a biochémie PriF UK
a občianske združenie *NATURA*

Vás pozývajú na 118. prednášku v rámci Kuželových seminárov:

Dr. Marina Feric

National Cancer Institute,
National Institutes of Health (NIH), Bethesda, MD, USA

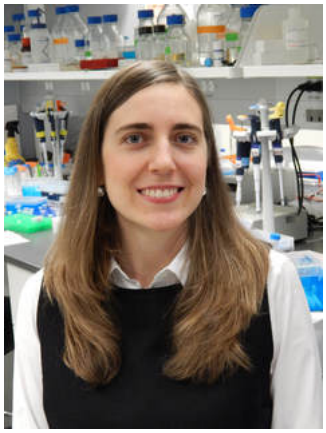
THE MITOCHONDRIAL GENOME AS A TRANSCRIPTIONAL CONDENSATE

ktorá sa uskutoční **20. apríla 2021** (utorok) o **16:00**

ako webinár: meet.google.com/pjt-tstf-vcr

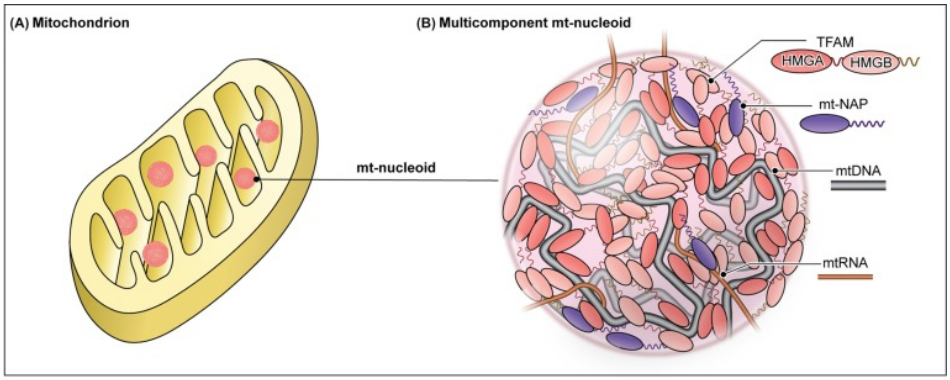
http://www.naturaoz.org/seminare.html
http://www.naturaoz.org/KuzeloveSeminare.html

Marina Feric, Ph.D.
https://marinaferic.weebly.com/



2010: BS, University of Maryland – College Park
2012: M.A., Princeton University
2016: PhD., Princeton University
2016-present: National Cancer Institute, NIH, Tom Misteli laboratory

During her graduate work, dr. Feric probed how cells grow to large length scales in the eggs of the frog *Xaenopus laevis*. She discovered that gravity becomes a dominant force as cells grow, and that these cells evolved a dedicated nuclear actin scaffold to protect their contents from sedimentation. Furthermore, she found the nucleolus, an organelle linked to cell size, behaves remarkably similarly to droplets of immiscible liquids, providing a new model for its internal organization. She is researching an analogous problem of how the cell can age at accelerated time scales. Using a premature aging disease as a model system, she is investigating the role of phase separation in the assembly of nucleoprotein complexes called mitochondrial nucleoids. Her long-term goal is to pursue a research on how the biophysical interactions across multiple scales, molecular, organellar and cellular, contribute to proper organization and how their dysregulation gives rise to disease.



Phase separation in organization of mitochondrial nucleoids.
Feric & Misteli, Trends *Cell Biol.* (2021)

Selected Publications:

Feric, M., Demarest, T.G., Tian, J., Croteau, D.L., Bohr, V.A. Misteli, T. (2021). Self-assembly of multi-component mitochondrial nucleoids via phase separation. *The EMBO Journal* 40: e107165.

Feric, M., Misteli, T. (2021). Evolutionary conservation of phase separation in genome organization. *Trends in Cell Biology* (2021), in press.

Schmit, J.D., **Feric, M.,** Dundr, M. (2021). How hierarchical interactions make membraneless organelles tick like clockwork. *Trends in Biochemical*, in press.

Zhu, L., Richardson, T.M., Wacheul, L., Wei, M.T., **Feric, M.,** Whitney, G., Lafontaine, D.L. Brangwynne, C.P. (2019). Controlling the material properties and rRNA processing function of the nucleolus using light. *Proceedings of the National Academy of Sciences USA* 116(35), 17330-17335.

Wei, M.T., Elbaum-Garfinkle, S., Holehouse, A.S., Chen, C.C.H., **Feric, M.,** Arnold, C.B., Priestley, R.D., Pappu, R.V., Brangwynne, C.P. (2017). Phase behaviour of disordered proteins underlying low density and high permeability of liquid organelles. *Nature Chemistry* 9(11), 1118.

Feric M., Vaidya N., Harmon T. S., Mitrea D. M., Zhu L., Richardson T. M., Kriwacki R. W., Pappu R. V., Brangwynne C.P. (2016). Coexisting liquid phases underlie nucleolar sub-compartments. *Cell* 165(7): 1686-1697.

Feric M., Broedersz C. P., Brangwynne C. P. (2015). Soft viscoelastic properties of nuclear actin age oocytes due to gravitational creep. *Scientific Reports* 5: 16607.

Bosse, J. B., Hogue I. B., **Feric M.,** Thiberge S. Y., Sodeik B., Brangwynne C. P., Enquist L.W. (2015). Remodeling nuclear architecture allows efficient transport of herpesvirus capsids by diffusion. *Proceedings of the National Academy of Sciences USA* 112(42): E5725-E5733.

Feric M., Brangwynne C. P. A nuclear F-actin scaffold stabilizes RNP droplets against gravity in large cells. *Nature Cell Biology* 15(10): 1253-1259 (2013).