# Joint Project

Pattern Recognition and Image Processing Group -TU
& Core Facility Multimodal Imaging -Faculty of Chemistry UNIVIE

Profiling mitochondrial morphology in health and disease

Mitochondria are fascinating cellular organelles: they have a distinctive morphology defined by multiple membrane systems and they are crucial in supporting cell functions with ATP/energy production by hosting OXPHOS metabolism. Most importantly, is becoming clear how **shape and subcellular distribution are coupled with functional status** [1, 2] and this is opening new intriguing perspective in the comprehension of their behavior in health and disease. This includes, among others, their emerging role in chronic **inflammation**, **cancer** and **aging.**
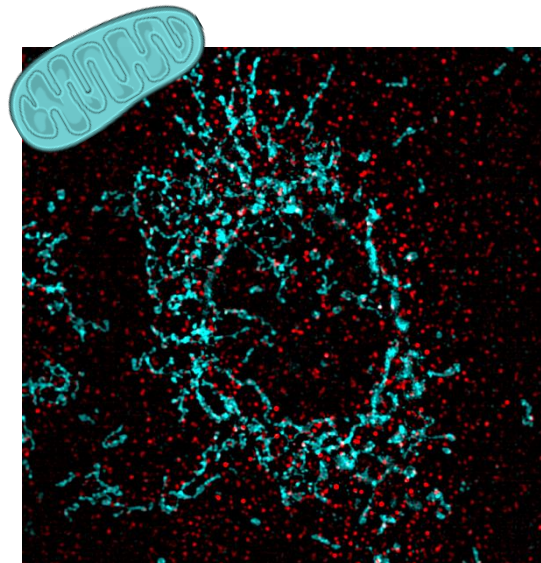
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AIM of the Project. Fingerprint the morphometric adaptation potential of the mitochondria according to cell functional status in bladder cancer cells. Develop tools for the investigation of the bi-directional relationship between mitochondria and cytoskeletal elements.

Requirements:

- ✓ Interest for cell structural biology & Pattern Recognition Processing
- ✓ Creative thinking and team spirit

START: as soon as possible

1. "*Morpho-metabotyping the oxidative stress response*" M. Rusz, G. Del Favero, Y. El Abiead, C. Gerner, B.K. Keppler, M.A. Jakupec and G. Koellensperger (**2021**) Scientific Reports 11(1), 15471; 10.1038/s41598-021-94585-8.
2. "*Bioenergetic role of mitochondrial fusion and fission*" B. Westermann (**2012**) Biochimica et Biophysica Acta (BBA) - Bioenergetics 1817(10), 1833-1838; https://doi.org/10.1016/j.bbabio.2012.02.033.

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