Research & Services | Mitochondrial Research (Yissum)
code: 34-2010-2527
Ophry Pines, HUJI, Faculty of Medicine

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IMRIC	Institute for Medical Research Israel-Canada

Research Hub Goals and Activities

- To develop collaborations with industry bodies to further the understanding of mitochondrial metabolic diseases in humans, the mechanisms of cancer propagation and mitochondrial dysfunction, mitochondrial dysfunction in Parkinson disease, and more, in order to develop diagnostics and treatments
- Assembly of joint mitochondrial related proteomic and genomic databases and web sites specifying detailed mitochondrial experimental approaches Incorporation of new imaging based techniques such as the FRET-based imaging that enables tracking of dynamic interactions within the cellular environment
- Acquisition of shared scientific equipment for mitochondrial research
- Organization of joint conferences and workshops To extend advancements in these fields to the public sector

Scientific Background

- Mitochondria are organelles of eukaryotic organisms that are not only essential for respiration but are also essential for supplying precursors of central metabolism.
- Mitochondria also play a pivotal role of in the processes such as programmed cell death during normal development, as well as in propagation of diseases.
- Medical research has discovered numerous interfaces with mitochondrial function revealing the basis for diseases such as deafness, blindness, diabetes, cancer, premature aging, muscular dystrophy, neurological (including Parkinson and peripheral neuropathies), and multi-system disorders.
- Research areas include oxidative stress, organelle evolution, aging, apoptosis, organelle biogenesis, protein import, membrane synthesis, and the mitochondrial genetic system (translation, transcription and DNA replication).
- Studies will be conducted by physicians, molecular and cell biologists, biochemists, and physiologists.

Hub Members and Focus

- Orly Elpeleg: Genetics of mitochondrial metabolic diseases in humans
- Hovav Nechushtan: Mechanisms of cancer propagation and mitochondrial dysfunction
- Ophry Pines: Mitochondrial protein dual targeting in eukaryotes and Mitochondrial protein targeting and function in human disease
- Joseph Shlomai: Replication of human mitochondrial DNA
- Haya Lorberboum-Galski: Protein replacement therapy for mitochondrial disorders
- Ronit Sharon: Mitochondrial dysfunction in Parkinson disease models

Industry Collaboration Projects:

- Production of organic acids by yeast
- Apoptosis-inducing chimeric proteins for targeted human therapy
- Apoptosis-inducing chimeric proteins for targeted cancer therapy.
- Identification of molecules that regulate α-Synuclein oligomerization in Parkinson’s disease.

Contact for more information:

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