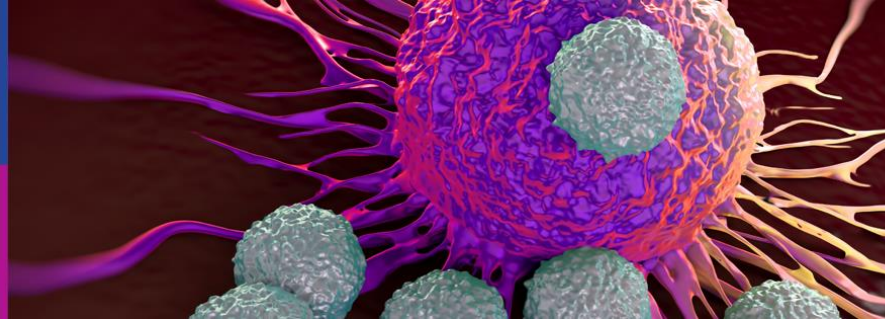
Research at Tel Aviv Sourasky Medical Center

Cancer



NAME OF LABORATORY: Laboratory of Head & Neck Cancer

PI: Dr. Nidal Muhanna MD, PhD

Director of Division: Prof. Dan Fliss MD

Research Objectives:

- Integrate modern technology platforms such as molecular imaging, novel nanoparticles and robotics with therapy.
- Elucidating the immunological tumor-host interplay for clinically relevant applications.
- Development of technologies used for diagnosis of malignancy and for monitoring response to treatment.

Main Research methods:

- Utilizing the dual ability of Porphyrin based nano-agents to be used as imaging and therapeutic mediums. Imaging modalities include Photo-acoustic ultrasound, CT and MRI and confer “near real-time” “on the table” three-dimensional images of tumors. Therapeutic modalities include photo-thermal and photo-dynamic therapy.
- Capturing, quantifying and analyzing circulating tumor cells and DNA from blood samples for deep sequencing before, during and after treatment using immune- magnetic nanoparticles analyzed by a microfluidic device.
- Developing novel targeted treatment such as patient-specific siRNA delivered by nano system.
- Cellular and molecular biology techniques.

Main Research topics:

- Nanoparticle-based sorting of circulating tumor cells by epithelial antigen expression during disease progression in an animal model.
- Multimodal Image-Guided Surgical and Photodynamic Interventions in Head and Neck Cancer: From Primary Tumor to Metastatic Drainage.
- A multimodal nano agent for image-guided cancer surgery.

Staff: Dr. Alon Pener-Tessler (MD, PhD candidate, ENT resident), Dr. Orit Gutfeld (MD, Radiation Oncology) , Prof. Dan Fliss

Active Grants:

- Tel Aviv Medical Center – Start-up Grant

Collaborations:

- Dr. Jonathan Irish, Dr. Ralph Gilbert, Dr. John D Almeida – Princes Margaret Cancer Centre, Toronto, Canada
- Dr. Gang Zheng, Dr. David Jaffery and Dr. Jinzi Zheng – University Health Network , Toronto Canada
- Dr. Shana Kelley, Dr. Scott Bratman – University Of Toronto – Canada.

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