



NAME OF LABORATORY: The Cancer Immunotherapy lab

PI: Dr. Ilan Volovitz PhD

Director of Division: Prof. Zvi Ram MD

Research Objectives: Our lab studies the unique immunology of brain tumors by combining basic-science with clinically-applied investigation. Utilizing the discrepancy between the relatively weak immune surveillance inside the brain and the potent one outside it, the lab has developed a novel method to treat brain tumors utilizing a concept we termed 'Split Immunity'. The concept was recently translated from rats to human glioblastoma (GBM) patients. To monitor the post-therapy changes in the anti-tumor immune response, the lab has developed a unique set of high resolution immune assays that follow the peripheral (outside the tumor) and the intratumoral immune response.

Main Research topics:

- Development of scientific and clinical insights into the concept of 'Split Immunity' and how it affects the treated patients.
- Mapping of the entire adaptive and innate cellular immune milieu found inside human brain tumors using advanced multicolor (up to 12-color) flow cytometry.
- Using a cell-centered approach called "Immune Cytomics" to study the network of interactions formed between the different intra-tumoral immune cells, and between immune and tumor cells.
- Evaluating how novel, non-immune-based, treatments for brain tumors affect the anti-tumoral immune responses.

Staff: Nati Shapira, Gil Diamant, PhD, Barak Ben-Simhon, Anatoly Shenkar, Roni Hagai, DMD, Oren Iny, Idan Ben-Horin, MD

Active Grants:

- Joint Project-Barrow Neurological Institute-Immunotherapy of recurrent GBM patients using 'Split immunity'.
- ABC2-Accelerate brain cancer cure – Immunotherapy of recurrent GBM patients using 'Split immunity'.
- Novocure - Evaluating the effects of tumor treating fields (TTFields) on immune responses.

Collaborations:

- Barrow Neurological Institute, Phoenix, Arizona, USA
- University of Leipzig, Leipzig, Germany

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