

### **NAME OF LABORATORY:** Wolfe PGD Stem cell Lab IVF unit

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**PI:** Prof. Dalit Ben Yosef PhD

**Chair of Department:** Prof. Foad Azem MD

**Research Objectives:** Our lab focuses on research of human embryonic stem cells (hESCs) harboring mutations for heritable genetic diseases. These unique cell lines are derived in our lab from embryos that were identified following IVF and Preimplantation Genetic Diagnosis (PGD) to carry the disease causing mutation. Differentiation of these hESCs to various cell types (neurons, trophoblasts, endothelial cells) allows us to study the molecular bases of disease development, differentiation potential, and developmentally regulated disease phenotypes.

#### **Main Research topics:**

- Differentiation of hESCs harboring FMR1 mutation into neurons in order to study the development and mental retardation phenotypes of Fragile X disease.
- hESCs harboring mutation in the APC gene as a model for the development of colon cancer. Cells that harbor a single mutation in the tumor suppressor gene APC are then induced with the second mutation with the CRISPR/Cas9 method to study the initial events leading to cancer.
- hESCs carrying translocations as a model for implantation failure.
- Genomic stability of hESCs for evaluation of transplantation therapy safety.

#### **Staff:**

##### **PGD Lab Personnel –**

Head of lab: Dr. Mira Malcov, PhD

Staff: Tzvia Frumkin, Dr. Sagit Peled PhD, Veronika Gold, Dr. Sandra Kleinman PhD

##### **Stem Cell Lab Personnel –**

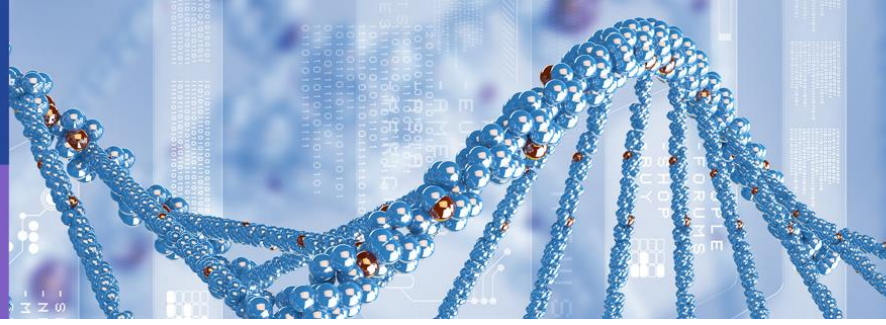
Senior investigator: Dr. Yoav Mayshar, PhD

Gynecologist/Researcher: Dr. Hadar Amir MD/PhD

PhD students: Liron Yanovsky-Kuznitsov, Lital Ovdia, Livia Preisler, Chen Dekel

#### **Active Grants:**

- Orr Shapira Fund
- WIS-TASMC research award
- Ministry of Health
- Dhalia Greidinger anti-cancer fund
- Israel Cancer Research Fund (ICRF)
- Israel Science Foundation (ISF)



**Collaborations:**

- Prof. Menahem Segal, Weizmann Institute – Electrophysiological properties of FX-hESC derived neurons.
- Dr. Ayelet Erez, Weizmann Institute – Metabolism in a stem cell model for familial colon cancer.
- Prof. Eli Sprecher – Study of the hereditary skin disorder ichthyosis.
- Prof. Efrat Eliyahu, Mount Sinai Hospital NYC – Genetic Institute.
- Dr. Yaqub Hanna, Weizmann Institute – Characterization of genomic stability in embryonic stem cells.
- Dr. Louis Laurent, UCSD – Omics of stem cell stability

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