

NAME OF LABORATORY: Molecular Dermatology

PI and Chair of Department: Prof. Eli Sprecher MD, PhD

Laboratory Director: Dr. Ofer Sarig PhD

Research Objectives: Oscillating between bedside and the bench, our research program is substantiating a major goal of our department, the integration of research and clinical care to the benefit of our patients. Our research program's main objectives are:

- Delineation of the genetic basis of inherited skin disorders using next generation sequencing, RNA sequencing, linkage analysis and genome wide association studies.
- Systematic investigation of the function of novel genes found to be associated with inherited skin diseases using humanized models such as three-dimensional artificial skin equivalents, hair organ cultures and chimeric mice.
- Translation of this new knowledge into treatments for rare and more common diseases using engineered reporter cell lines and robotic small molecule library screening followed by *in vitro* and *in vivo* validation of relevant hits.

Main Research Topics:

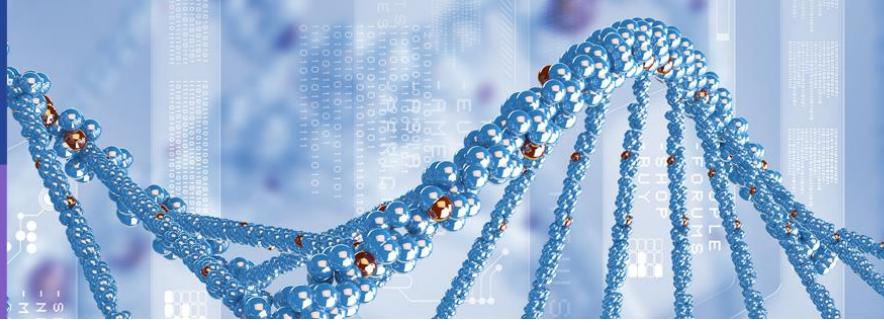
- Deciphering of the molecular basis of inherited skin disorders resulting from abnormal epidermal differentiation (Samuelov et al, Nat Genet, 2013).
- Identification of the genetic basis of pemphigus vulgaris, a life-threatening autoimmune condition particularly prevalent among Jews (Vodo et al, PLoS Genet, 2016).
- Discovery of novel anti-inflammatory agents capable of boosting up the activity of SAMD9 or down-regulating CARD14, two molecules previously found to be involved in the pathogenesis of inherited inflammatory diseases (Fuchs-Telem et al, Am J Hum Genet, 2012)
- Delineation of the mechanism of action of molecules defective in genetic hair diseases (Peled et al, PLoS Genet, 2016).

Staff:

- Senior investigators: Dr. Ron Bochner, Dr. Natalya Malchin
- MD PhD students: Dan Vodo, Alon Peled, Janan Mohamed
- MD students: Shahar Taiber, Maya Fried
- Physicians-scientists: Dr. Liat Samuelov, Dr. Marina Schwartz, Dr. Mor Pavlovski, Dr. Tomer Goldsmith, Dr. Avital Baniel

Active Grants:

- Binational Science Foundation (BSF)
- Israel Science Foundation (ISF)
- European Cooperation in Science and Technology (COST)
- Kamin program (Israel ministry of industry and economy)



Collaborations:

- King's college, United Kingdom
- Dundee university, Scotland
- Thomas Jefferson University, USA
- Northwestern University, USA
- Bonn University, Germany
- St Georges hospital, Australia
- Luebeck University, Germany
- Kirov State Medical Academy, Russia
- University of Manchester, United Kingdom
- Necker Children's hospital and Institut Imagine, France
- Anhui Medical University, China
- Stanford University, USA

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