

Congress Executive Committee
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Monday 17/2 – Registration (10:45-15:30)

- **DAN - Lobby**

Registration

Monday 17/2 – Opening (15:30-16:00)

- **HERODS – Pavilion**

Opening ceremony

Monday 17/2 – 1st plenary lecture (16:00-16:45)

- **HERODS – Pavilion**

Plenary lecture 1. Targeting the Cell's Stress Pathways for Therapeutic Benefit

Speaker: Peter Walter

Coffee break

Monday 17/2 – 2nd plenary lecture (17:15-18:00)

- **HERODS – Pavilion**

Plenary lecture 2. The Interplay between Human Genotype and the Gut Microbiome

Speaker: Ruth Ley

Monday 17/2 – 3rd plenary lecture (18:00-18:45)

- **HERODS – Pavilion**

Plenary lecture 3. Recapitulating Human Physiology, Diseases, and Therapeutic Responses using Organ-on-Chips (*cancelled*)

Speaker: Donald Ingber

Monday 17/2 – Opening reception dinner (19:00-23:00)

- **DAN – Hotel Pool**

Opening reception dinner

Tuesday 18/2 – Registration (7:00-18:00)

- **DAN - Lobby**

Registration

Tuesday 18/2 – Early bird - Companies (7:30-8:30)

- **DAN – Big Blue Hall A**



Merck's Antibody portfolio & technologies

Speaker:

Kfir Madjar (Merck)

Merck's Oligonucleotide manufacturing capabilities

Speaker:

Pierre Potier (Merck)

- **DAN – Big Blue Hall B**



SYNTHEGO

New technologies for enhancing the efficiency of CRISPR-based cell engineering at scale

Speaker:

Kevin Holden (Synthego)

- **DAN - Tarshish A**



Multimodal hybrid-imaging in translational research

Speaker:

Jens Waldeck (BRUKER)

Optimize biologic drug development with the power of scientific informatic

Speaker:

Hugues-Olivier Bertrand (BIOVIA/Dassault)

Tuesday 18/2 – Early bird - Companies (7:30-8:30)

- **HERODS - Kings A**



Agilent Innovations for next generation sequencing

Speaker:

Justus Olijslager (Agilent Technology)

A revolution in Spatial Biomarker Discovery. Morphology-driven profiling with unlimited multiplexing of proteins and RNA by GeoMx™ DSP

Speaker:

Alex Darmoise (Nano String Technology)

Human breast cancer cell line Phosphoproteome revealed by an automated and highly selective enrichment workflow

Speaker:

Lesley Schultz (Agilent Technology)

- **HERODS - Kings B**



Progress towards standardizing metagenomics: application of metagenomic reference materials to develop a reproducible microbial lysis methodology with minimum bias

Speaker:

Michael Weinstein (Zymo)

Reproducibility Crisis in Science. The importance of choosing a validated antibody for your research

Speaker:

Maria Sahun-Roncero (Abcam)

Tuesday 18/2 – Early bird - Companies (8:00-8:30)

- **DAN - Tarshish B**



Genetic Analysis solutions for rapid molecular insights to Corona Virus outbreak

Speaker:

Karin Grimberg (Thermo Fisher Scientific & Rhenium)

- **HERODS - Queens**



AID_BGI and the MGI NGS platform - more research bases for less \$

Tuesday 18/2 – Soft skills session (7:30-8:30)

- **ROYAL BEACH – Hadar** [SOFT SKILLS SESSION DESCRIPTION LINK](#)

The Fine Art of Time Management and Balance

Speaker:

Karen Avraham (TAU)

- **ROYAL BEACH – Zeit** [SOFT SKILLS SESSION DESCRIPTION LINK](#)

How to Choose a Lab for your PostDoc

Speaker:

Maya Schuldiner (WIS)

- **ROYAL BEACH – Shita** [SOFT SKILLS SESSION DESCRIPTION LINK](#)

The Challenges and Joys of Science and Parenthood: How to Combine both Successfully

Panel moderator: Neta Erez (TAU)

Panel members: Tamar Geiger (TAU), Ruth Scherz-Shouval (WIS), Adi Barzel (TAU), Micha Berger (HUJ)

Tuesday 18/2 – Soft skills session (7:30-8:30)

- **ROYAL BEACH – Ella** [SOFT SKILLS SESSION DESCRIPTION LINK](#)

How to Write a Fellowship Proposal and CV

Speaker:

Chaim Cedar (HUJ)

Tuesday 18/2 – ScienceAbroad (7:30-8:30)

- **ROYAL BEACH – Alon**

ScienceAbroad, The Organization of Israeli Scientists Abroad - Community at your service

- About the organization: Nadav Douani (CEO)

- The move abroad (before postdoc): On moving to an area with an Israeli Kibbutz and w/o one (+ how can make your move more knowledge based and friendly)

- During the postdoc: The postdoc challenges and how can a community make dealing with them easier. Social and professional events both with Academia and industry.

- Back to the promised land: Challenges coming back to Israel, ScienceAbroad alumni (+ how can we assist with Israeli bureaucracy and more)

Speakers:

Nadav Douani (CEO); Benny Elbaz, Ph.D. (Regional Manager, Chicago), Ziv Roth, Ph.D. (Regional Manager, Toronto), Reut Shainer, Ph.D. (Regional Manager, NIH), Dorit Farfara, Ph.D. (Alumni, former Regional Manager Tri-Inst., NY); Zevik Melamed, Ph.D. (Regional Manager, San Diego)

Tuesday 18/2 – 1st session (9:00-10:45)

- **DAN - Big Blue Hall A**

Big Data in Health and Disease: Challenges and Opportunities

Israeli Society for Bioinformatics and Computational Biology

Chairs: Ora Schueler-Furman (HUJ); Ron Unger (BIU)

Speakers:

Varda Shalev (Maccabi) - Big Data in health and disease: challenges and opportunities

Anat Kreimer (Berkeley) - Massively parallel characterization of regulatory dynamics during neural induction

Shai Carmi (HUJ) - Selecting embryos for complex traits – what to expect?

Noam Shental (Open University) - Towards predicting drug effects using neural networks

Yaniv Erlich (MyHeritage) - Turning basic science into precision medicine offering with millions of people

Esti Yeger-Lotem (BGU) - Elucidating disease mechanisms via their tissue-selectivity

**Invited post docs in red*

- **DAN - Big Blue Hall B**

Cancer Immunotherapy Using Engineered T cell Receptors (TCRs) and Chimeric Antibody Receptors T Cells (CAR-T)

Israel Society of Gene and Cell Therapy, Israel Immunological Society, and Israeli Society for Cancer Research

Chairs: **Gidi Gross** (Migal); **Michal Besser** (Sheba)

Speakers:

Yaron Carmi (TAU) - Novel engineered T cell therapy for solid tumors

Eytan Herzig (UCSF) - Using convertible CAR-T cells programmed with broadly neutralizing antibodies to attack the latent HIV reservoir

Cyrille Cohen (BIU) - Enhancing the function of TCR and CAR engineered T-cells through the expression of chimeric switch receptors (CSR)

Orit Itzhaki (Sheba) - Head to head comparison of on-site produced CD19 Chimeric Antigen Receptor (CAR) T cells in ALL and NHL patients

Gal Cafri (Sheba) - Memory T cells targeting unique and shared oncogenic mutations detected in peripheral blood of epithelial cancer patients

Angel Porgador (BGU) - Restricting CAR expression to the tumor microenvironment

- **DAN – Tarshish A**

Biophysics and Morphogenesis in Development

Israeli Society for Developmental Biology

Chairs: **Peleg Hasson** (TEC); **Eli Zelzer** (WIS)

Speakers:

Michal Shoshkes Carmel (HUJ) - Subepithelial telocytes constitute the intestinal stem cell niche

Shiri Gur-Cohen (The Rockefeller University) - Stem cell-driven lymphatic remodeling coordinates tissue regeneration

Chen Luxenburg (TAU) - Increase in junctional G/F-actin ratio following Thymosin b4 depletion hinders collective cell migration during epidermal development

Shlomo Brielle (HUJ) - Resolving mesenchymal stem cells heterogeneity via single-cell analysis of matrix directed differentiation towards soft versus stiff lineages

Rotem Rubinstein (TAU) - Neuronal `barcodes` - Protocadherins *cis* and *trans* interactions generate oligomeric complexes that are neuron-specific

Talila Volk (WIS) - Mechanosensitive, phospho-dependent recruitment of BAF to the nuclear membrane inhibits nuclear entrance of E2F1 and Yap/Yorkie

- **DAN – Tarshish B**

Food Security: from Plant Protection to Molecular Breeding and Crop Biotechnology

Israeli Society of Plant Sciences

Chairs: **Aaron Fait** (BGU); **Avi Levy** (WIS)

Speakers:

Rachel Amir (Tel Hai/Migal) -Evidence of metabolic competition between methionine and glutathione biosynthetic pathways

Moshe Goldsmith (WIS) - Identification and characterization of an Oxalyl CoA-synthetase from grass pea (*Lathyrus sativus* L.)

Tzion Fahima (Haifa) - Ancient genes for modern crop improvement: the discovery of the Tandem Kinase-Pseudokinase (TKP) protein family involved in disease resistance

Hala Khamesy (TAU) - Identification and characterization of *Arabidopsis thaliana* transgenic strains expressing artificial microRNAs that are defective in response to indole-3-carbinol

Shimon Gepstein (TEC) - From survival to plant productivity mode: cytokinins allow avoiding the evolutionary-oriented avoidance strategy under environmental stress conditions

Menachem Moshelion (HUJ) - Crops drought resistance, is there such a thing?

**Invited post docs in red*

- **HERODS – Kings A**

Advances in Clinical Diagnosis

Israel Society for Clinical Laboratory Sciences

Chairs: **Avi Peretz** (Poria); **Anat Ben-Dor** (Clalit)

Speakers:

Amir Grau (TEC) - Clinical mass cytometry: A bright future lies ahead

Natalia Edison (Emek Medical Center) - Tissue MicroArray: a revolution in pathology research

Merav Strauss (Emek Medical Center) - MALDI-TOF applications in the clinical microbiology lab: saving time we save lives

Ramit Mehr (BIU) - Identifying a malignant B-cell Lymphoma clone in the peripheral blood using Immunoglobulin high-throughput sequencing and lineage tree analysis

Yogev Yuval (BGU) - Reassessment of pathogenic variants in open genetic databases highlights caveats in interpretation of actionable mutations

Amos Adler (Ichilov/TAU) - Clinical impact of the application of MALDI-TOF in clinical laboratories

- **HERODS – Kings B**

Engineering & Evolution of Proteins

Israel Society for Biochemistry and Molecular Biology

Chairs: **Gideon Schreiber** (WIS); **Ayelet Fishman** (TEC)

Speakers:

Sarel Fleishman (*Hestrin prize winner*, WIS) - Computational design of new and improved antibodies and enzymes

Frida Belinky (NCBI, NIH) Crossing fitness valleys via double substitutions within codons

Amir Aharoni (BGU) - The evolution of human SIRT1 for multi-specificity is enabled by active-site adaptation

Nir Hecht (BGU) - An evolutionary path: from hydrolase to ligase by substitution

Gil Shoham (HUJ) - Reversing glycoside hydrolases into glycosynthases for efficient enzymatic synthesis of oligosaccharides

Rachel Kolodny (Haifa) - Evolution-CSI: hunting for evidence in the protein universe

- **HERODS – Queens**

The Biomed Day - Introductory comments - Dr. Ronit Bendori (Evergreen, Ethos) - **Organizer**

BioMed 1: I did it my way: Entrepreneurial Experience

Chair: **Dr. Noga Yerushalmi** (M Ventures)

(led by Merck)

The aim of this session is exposing the audience to different entrepreneurial personal stories in the Biomed space in Israel. In Start-Up nation, we have a lot of early stage ideas, and enthusiastic entrepreneurs that can lead those projects. But what is the path, the challenges and tips that can make this process smooth and lead to a successful start-up? We will hear in this session stories from people who have done it, sometimes more than once, and can share their experience. Expect inspiring stories of bumpy roads, from people who do not give up!

Speakers:

Dr. Yair Sapir (Biond Biologics) - Building a company to last

Dr. Natalie Yivgi Ohana (Minovia Therapeutics) - Building a biotech startup: challenges and lessons from my journey with Minovia Therapeutics

Prof. Oded Shoseyov (Collplant) - The plant age

Dr. Adi Elkeles (Trobix) - Spin-offing academic discovery – hard earned lessons from forming Trobix Bio

Dr. Didi Dabush (Mybiotics) - Building a company in a complex emerging market

Prof. Kfir Oved (Canopy Biotech) - The power within me

**Invited post docs in red*

- **HERODS – Laurence**

Methodologies Round Tables - [DESCRIPTION LINK](#)

3-D Printing and Biology (Tal Dvir (TAU) and Aryeh Batt, (PreciseBio LTD))

Single Cell Genomics (Hadas Keren-Shaul (WIS) and Merav Cohen (WIS))

Measuring Behavior (Lior Bikoveski (TAU); Galit Ofir (BIU) and Michael Tsoory (WIS))

Metabolomics (Ilana Rogachev (WIS))

Meeting the Challenges of High Throughput Biology for Drug Discovery (Haim Barr (WIS) and Wissam Mansour (AnimaBiotech LTD))

Proteomics (Tamar Ziv (TEC) and David Morgenstern (WIS))

Flow Cytometry (Ziv Porat (WIS))

Protein Display Technologies (Itai Benhar (TAU))

Introduction to Microbiome Analysis (Omry Koren (BIU) and Uri Gophna (TAU))

- **ROYAL BEACH – Hadar**

Eukaryotes of the Microbial World

Suggested by SAC

Chairs: **Shay Ben Aroya** (BIU); **Martin Kupiec** (TAU)

Speakers:

Daniel Kornitzer (TEC) - Heme-iron acquisition in fungi

Omer Barda (Volcani [ARO]) - The role of pH signalling transcription factor PacC in pathogenicity and ochratoxin A biosynthesis by *Aspergillus carbonarius*

Shay Covo (HUJ) - The DNA damage response in fungal plant pathogens

Judith Berman (TAU) - Beyond resistance: insights into subpopulation responses to antifungals

Naomi Ziv (UCSF) - Single cell tracking of transcription factor dynamics in a eukaryotic bistable system

Michal Breker (HUJ) - Systems genetics in photosynthetic microbes

- **ROYAL BEACH – Zeit**

Neuronal Cell Biology in Health and Disease

Israel Society for Neuroscience: **Chair:** **Eran Perlson** (TAU)

Israeli Society for Cell Biology: **Chair:** **Ehud Cohen** (HUJ)

Speakers:

Mike Fainzilber (WIS) - Neuronal growth control mechanisms – looking within

Shirley Weiss (The Picower Institute for Learning and Memory, MIT) - Glial Ca²⁺ signaling and seizure susceptibility in drosophila

Adrian Israelson (BGU) - MIF as a potential therapeutic candidate for ALS

Edward Avezov (Cambridge) - Active endoplasmic reticulum luminal flow – mechanism of generation and reliant neuronal cell functionalities

Gerardo Lederkremer (TAU) - Helping neurons cope with ER stress in Huntington's disease

Avraham Ashkenazi (TAU) - Connections between protein degradation pathways and trinucleotide repeat disorders

- **ROYAL BEACH – Shita**

Structure Function of Proteins and Their Post Translation Modifications

Suggested by SAC

Chairs: **Oded Livnah** (HUJ); **Joel Hirsch** (TAU)

Speakers:

Rina Rosenzweig (WIS) - The true tales of the flexible tails - interaction of J-domain proteins with HSP70 chaperones

Benayahu Elbaz (University of Chicago) - Phosphorylation state of ZFP24 controls oligodendrocyte differentiation

Reuven Wiener (HUJ) - From E1 to E2: deciphering the mechanism of UFM1 conjugation

Jordan Chill (BIU) - A structural view of molecular events in the life-cycle of a Bordetella effector

Maayan Gal (Migal, TAU) - Targeting the calcineurin-NFAT system - developing novel dual-peptide as an immunosuppressant using directed-evolution optimization

Yarden Opatowsky (BIU) - Slit-Robo in the crosshairs, a structural study

**Invited post docs in red*

Tuesday 18/2 – 1st session (9:00-10:45)

• ROYAL BEACH – Ella

New Concepts in Microbial Ecology

Israel Society for Microbiology: Chair: Eddie Cytryn (ARO)

Israel Society of Ecology and Environmental Sciences: Chair: Ilana Berman-Frank (Haifa)

Speakers:

Itai Sharon (Migal) - Mapping microbiome diversity in the age of big(gish) data

Niv Antonovsky (The Rockefeller University) - Uncovering the biosynthetic potential of soil metagenomes

Edouard Jurkevitch (HUJ) - Preying through: co-existence, oscillations and specificity sustain stability in predatory interactions between bacteria

Alina Pushkarev (TEC) - "Why do viruses sense light?": A distinct abundant group of microbial rhodopsins discovered using functional metagenomics

Daniel Sher (Haifa) - A globally abundant marine primary producer relies on microbial interactions to survive long-term stress

Einat Segev (WIS) - Marine Microbial Interactions across Scales

• ROYAL BEACH – Alon

Immune Response to Viral Infection

Student organized session/ sponsored by the Sagol Network

Chairs: Yaara Finkel (WIS); Biana Bernshtein (WIS)



Speakers:

Dana Wolf (HUJ) - Human cytomegalovirus transmission and local immunity at the maternal-fetal interface

Avishay Edri (BGU) - The Ebola-glycoprotein modulates the function of natural killer cells

Orna Mor (TAU) - HIV-1 in Israel, 2010-2018

Adi Naamati (Cambridge University) - Functional proteomic atlas of HIV-infection in primary human CD4+ T cells

Alessio Nahmad (TAU) - Engineering B cells as an evolving drug to fight HIV

Meital Gal-Tanamy (BIU) - High resolution characterization of Hepatitis C virus immunity reveals unique signatures associated with infection outcome

Coffee break & Exhibition (10:45-11:30)

Tuesday 18/2 – 2nd session (11:30-13:15)

• DAN - Big Blue Hall A

Host-Pathogen Interaction

Israel Society for Microbiology

Chairs: Neta Sal-Man (BGU); Anat Herskovits (TAU)

Speakers:

Ilan Rosenshine (HUJ) - Molecular trade between bacteria and eukaryotic host mediated by membranous nanotubes

Biana Benshtein (WIS) - Deciphering cytomegalovirus reactivation in viremic patients

Yaron Vagima (Israel Institute for Biological Research) - Influenza virus infection augments susceptibility to respiratory Yersinia pestis exposure and impacts the efficacy of antiplague antibiotic treatments

Dorit Cohen-Eli (Ariel) - Genes involved in serum resistance in Klebsiella pneumoniae for the development of targeted therapy against this pathogen

Ran Taube (BGU) - The role of long noncoding (lncRNA) in HIV gene transcription and viral latency

Roi Avraham (WIS) - Adaptation of *Salmonella typhimurium* to the macrophages metabolic switch during host pathogen interaction

**Invited post docs in red*

Tuesday 18/2 – 2nd session (11:30-13:15)

• DAN - Big Blue Hall B

Recent progress in non-coding RNA and RNA modifications

Genetic Society of Israel

Chairs: **Shoshy Altuvia** (HUJ); **Igor Ulitsky** (WIS)

Speakers:

Eran Hornstein (WIS) - RNA kinetics in membraneless organelles

Sahar Melamed (NIH) - Intricate webs of small RNA-RNA interactions revealed by RIL-seq

Yehu Moran (HUJI) - Cnidarian MicroRNAs shed new light on the evolution of post-transcriptional regulation

Jonah Beenstock (Mount Sinai Hospital, Toronto) - Structure and function of a conserved tRNA modifying complex

Adi Avram-Shperling (BIU) - RNA editing by dysregulated Adenosine Deaminase Acting on RNA (ADAR) enzyme induces proteotoxic stress

Schrage Schwartz (WIS) - Widespread, dynamic RNA acetylation as a mechanism for RNA thermostabilization

• DAN – Tarshish A

Computational Immunology

Israeli Society for Bioinformatics and Computational Biology: Chair: **Milana Frenkel-Morgenstern** (BIU)

Israel Immunological Society: Chair: **Ramit Mehr** (BIU)

Speakers:

Tal Shay (BGU) - Dissecting the sex and age effects in the immune system transcriptome

Amir Erez (Princeton) - Quantifying the dynamics of hematopoiesis by *in vivo* IdU, pulse-chase, mass cytometry, and mathematical modeling

Gur Yaari (BIU) - What can naive lymphocytes tell us about our health?

Erez Greenstein (WIS) - TCR repertoires of tumor infiltrating T cells in metastatic breast cancer

Yaakov Maman (BIU) - Intra-V κ cluster recombination shapes the Ig kappa locus repertoire

Irit Gat-Viks (TAU) - The spectrum of immune cell states informs clinical outcomes

• DAN – Tarshish B

Ion Channels & Transporters

Suggested by SAC

Chairs: **Alon Korngreen** (BIU); **Israel Sekler** (BGU)

Speakers:

Shai Berlin (TEC) - A novel NMDA-receptor mutation in a neurologic disorder

Shani Stern (Salk Institute) - Precision disease modeling using patient derived neurons in bipolar disorder and Parkinsons disease

Raz Palty (TEC) - A Dual role for SARAF in regulation of Calcium-Release Activated Calcium (CRAC) channel activity

Yana Kazachkova (WIS) - The bittersweet symphony: characterization of GORKY, the novel steroidal glycoalkaloid transporter

Barak Raveh (HUJ) - Integrative multiscale modeling of transport through the nuclear pore complex

Etana Padan (HUJ) - The NhaA Na⁺/H⁺ antiporter, new insights into structural and functional dynamics

**Invited post docs in red*

- **HERODS – Kings A**

The Complexity of Animal-Plant Interactions

Zoological Society of Israel: Chair: Moshe Inbar (Haifa)

Speakers:

Ido Izhaki (Haifa) - Gut microbiome of nectarivorous birds in relation to nectar microbiome and secondary metabolites: ecological and evolutionary perspectives

Tamar Keasar (Haifa) - How bumblebees handle flowers of complex morphologies

Vered Tzin (BGU) - Being tough, being toxic, or being a salad? Understanding the dynamics of plant defense mechanisms against herbivores

Netta Dorchin (TAU) - Herbivory is associated with increased speciation rates in the mega-diverse gall midges

Tali Berman (Haifa) - There's a bug in my salad: assessing the ingestion of insects by ungulates using DNA metabarcoding

Asaf Sadeh (ARO) - Oranges and apples? Plant responses to insect herbivores of distinct feeding guilds

- **HERODS – Kings B**

Advances in Skeletal Biology and Medicine

Society of Skeletal Biology and Medicine

Chairs: **Mona Dvir-Ginzberg** (HUJ); **Galia Gat-Yablonski** (TAU)

Speakers:

Elazar Zelzer (WIS) - Piezo2 expressed in proprioceptive neurons is essential for skeletal integrity

Ari Elson (WIS) - R51Q SNX10 induces osteopetrosis and uncontrolled fusion of monocytes to form giant, non-functional osteoclasts

Dafna Benayahu (TAU) - Advances in mesenchymal cells differentiation and function

Reut Shainer (NIDCR, NIH) - Broken bones and beyond

Albert Kolomansky (TAU) - Erythropoietin and its cognate receptor on bone marrow B cells play a role in the regulation of bone mass in mice

Noam Levaot (BGU) - The zinc receptor is essential to maintain bone homeostasis and skeletal strength

- **HERODS – Queens**

BioMed 2: Show me the money: Navigating funding opportunities in Israel

Chair: **Prof. David Sidransky** - short introduction (3 min)

(led by IBF)

Our session will map out the various funding opportunities in Israel for moving promising ideas into potential products and their subsequent development. These opportunities include partnerships at incubation, support during preclinical development and larger funding for clinical development and commercialization. Attendees will better understand the main sources of private capital and how they decide to invest and move forward.

Speakers (each 15 min +5 min Q&A):

Dr. Leah Klapper (FutuRx) - Starting a company in an incubator

Dr. Noga Yerushalmi (M-Ventures, Merck) - Starting a company with a strategic partner

Dr. Nissim Darvish (Orbimed) - Presenting a company to a VC

Dr. Dorit Sokolov (aMoon) - Building company and personnel with a VC

- **HERODS – Laurence**

Ethosia: Human resources

The aim of this session is to provide students and post-docs the practical tools to find a job in BioTech companies. Senior members of the Executive Division of the Ethosia HR company will provide an overview of the current status of the BioTech employment market in Israel, and will present essential tips on writing an attractive CV and preparing for a job interview. The importance of an interactive presence on social media networks will also be discussed. This will be followed by questions and answers.

**Invited post docs in red*

- **ROYAL BEACH – Hadar**

New Horizons in Developmental Biology Studied in Model Organisms

Israeli Society for Developmental Biology

Chairs: **Eli Arama** (WIS); **Oren Schuldiner** (WIS)

Speakers:

Gil Levkowitz (WIS) - How a key interface between the brain's neuro-hormonal and vascular systems is assembled

Nelly Komarovsky Gulman (BIU) - Regulation of lung progenitor cells differentiation by the Lin28A/Let-7 pathway

Offer Gerlitz (HUJ) - A Drosophila model for human ovarian development & dysgenesis

Oded Volovelsky (Hadassah Hebrew University Medical Center) - Caloric restriction during pregnancy reduces nephron endowment and impairs adult kidney function by inactivating mTOR and the methionine salvage pathway

Tal Gordon (TAU) - Insights into the cellular and molecular mechanisms of *Polycarpa mytiligera*'s extraordinary regenerative abilities

Sigal Savaldi-Goldstein (TEC) - Growth plasticity from a steroid hormone signaling perspective

- **ROYAL BEACH – Zeit**

Regulation of Biological Processes by Ubiquitin and Ubiquitin-like Molecules

Suggested by SAC

Chairs: **Michael Glickman** (TEC); **Yosef Shaul** (WIS)

Speakers:

Limor Broday (TAU) - The role of the sumo protease ULP-2 in germline development

Michael Blank (BIU) - Emerging roles of E3 Ubiquitin ligase Smurf2 in cancer and beyond

Elah Pick (Haifa) - New insights into the role of the small ubiquitin-like modifier NEDD8/Rub1

Amit Shraga (WIS) - How important is reversible binding for efficient degradation using PROTACs?

Gali Prag (TAU) - The crosstalk between the Ubiquitin and the Calcium regulatory pathways

Tommer Ravid (HUJ) - Degron discovery: The hunt for the elusive dark matter of protein quality control

- **ROYAL BEACH – Shita**

Modes of Intracellular and Extracellular Communication

Israeli Society for Cell Biology

Chairs: **Yoav Henis** (TAU); **Hagai Abeliovich** (HUJI)

Speakers:

Ronit Sagi-Eisenberg (TAU) - The social life of a mast cell: inter and extracellular networking shape mast cell responses

Yaron Antebi (WIS) - Specificity from promiscuity in the BMP signaling pathway

Maya Schuldiner (WIS) - Contact sites and their role in organelle communication

Panagiota Kolistida (HUJI) - Phosphorylation of mitochondrial matrix proteins regulates their selective mitophagic degradation

Menachem Rotenberg (University of Chicago) - Silicon membranes and nanowires for bio-electric interface at the whole organ, intercellular, and subcellular level

Ehud Cohen (HUJ) - Neuronal regulation of proteostasis; a new target for the development of neurodegeneration therapies

**Invited post docs in red*

Tuesday 18/2 – 2nd session (11:30-13:15)

• ROYAL BEACH – Ella

Redox Signaling and Aging

Israel Society for Oxygen and Free Radicals Research

Chairs: Moran Benhar (TEC); Anat Ben-Zvi (BGU)

Speakers:

Dana Reichmann (HUJ) - Cross talk between redox regulation and protein quality control

Tsilil Ast (Harvard Medical School) - Friedreich's ataxia: Pulling a therapy out of thin air

Haim Cohen (BIU) - The age dependent metabolome

Einav Gross (HUJ) - Development of novel oral drug aiming at disease-free aging

Mika Rotem (TAU) - The importance of translation inhibition for the combat against oxidative stress

Sivan Henis-Korenblit (BIU) - Endogenous siRNAs promote proteostasis and longevity in germline-less *C. elegans*

• ROYAL BEACH – Alon

Synthetic Biology

Suggested by SAC

Chairs: Lior Nissim (HUJ); Ehud Gazit (TAU)

Speakers:

Ramez Daniel (TEC) - Synthetic genetic networks based on neural models

Sharon Gilead (TAU) - Self-assembled peptide nano-materials for optic and electronic applications

Tamir Tuller (TAU) - Engineering gene expression based on the design of RNA folding and RNA-RNA interactions

Shirley Daube (WIS) - Autonomous biogenesis of a ribosomal subunit on a chip

Noga Gal (iNano) - Nanoreactors with intracellular catalytic activity

Eyal Arbely (BGU) - Genetic encoding of lysine posttranslational modifications

Lunch break & Exhibition (13:15-14:30)

Tuesday 18/2 – 3rd session (14:30-16:15)

• DAN - Big Blue Hall A

The Power of Single Cell Analysis

Israeli Society for Bioinformatics and Computational Biology: Chair: Ido Amit (WIS)

Israel Society for Microscopy: Chair: Yaron Shav-Tal (BIU)

Speakers:

Amos Tanay (WIS) - Epigenetics and differentiation of early embryonic lineages

Natali Kravchenko-Balasha (HUJ) - Mapping cellular subpopulations within triple negative breast tumors provides a tool for cancer sensitization to radiotherapy

Naomi Habib (HUJ) - Dissecting the cellular landscape of the Alzheimer's brain: disease associated astrocytes

Merav Cohen (WIS) - Molecular insight into cellular crosstalk during lung development and disease

Naama Brener (TEC) - Dynamics underlying phenotypic variability in cell populations

Yuval Garini (BIU) - Single cell analysis - the ultimate tool for finding the organization of chromatin in the nucleus

• DAN - Big Blue Hall B

Innate and Adaptive Immunity in Health and Disease

Israel Immunological Society

Chairs: Steffen Jung (WIS); Michal Baniyash (HUJ)

Speakers:

Michael Berger (HUJ) - Water metabolism in T cells

Itai Benhar (TAU) - Antagonistic antibodies used to establish the key role for IL-13 signaling via the type 2 IL-4 receptor in experimental atopic dermatitis

Ariel Munitz (TAU) - Eosinophils display anti-tumorigenic activities in mucosal sites

Orna Ernst Rabinovich (NIAID, NIH) - A Genome-wide screen identifies a critical role for mitochondrial NDP kinases in inflammasome activation

Rebecca Kotzur (HUJ) - Pregnancy trained decidual NK cells fight bacterial infections more effectively

Amiram Ariel (Haifa) - IFN β is a novel effector cytokine in resolving inflammation and skin fibrosis

**Invited post docs in red*

- **DAN – Tarshish A**



Moross

Integrated Cancer Center (MICC)
המרכז הבין-תחומי לחקר סרטן על-שם מורוס



Cancer Metabolism

Israeli Society for Cancer Research / sponsored by MICC and TICC

Chairs: **Tamar Geiger** (TAU); **Eyal Gottlieb** (TEC)

Speakers:

Ayelet Erez (WIS) - Regulating nucleotides synthesis can promote response to immunotherapy

Yaara Oren (Harvard University) - Using watermelons the uncover metabolic adaptations of cancer persister cells

Tomer Shlomi (TEC) - Targeting one-carbon metabolism in cancer

Rami Massri (TEC) - Metabolic adaptation to oxidative stress is mediated through P5CS oxidation

Rinat Livne (Sheba) - The adipokine fatty acid binding protein 4 – linking obesity and cancer

Yoav Shaul (HUJ) - Glutathione peroxidase 8 (GPX8)-IL-6 axis as a regulator of cancer stemness

- **DAN – Tarshish B**

Terrestrial Ecosystems in a Changing Climate

The Israel Society of ecology and Environmental Sciences

Chair: **Neta Lipman** (TAU)

Speakers:

Tamir Klein (WIS) - Forests under changing CO2 levels: The expected increase and the unexpected tree responses

Efrat Sheffer (HUJ) - Slow drying effects on woody vegetation cover along the Mediterranean rainfall gradient

Ofir Katz (Dead Sea and Arava Center) - Adverse effects of *Tamarix aphylla* afforestation in a sand dune environment on vegetation structure and plant biodiversity

Yinon Bar-On (WIS) - The biomass distribution on Earth

Dan Yakir (WIS) - Distinctive aspects of carbon, water and energy partitioning in a semi-arid forest

- **HERODS – Kings A**

Advances in Integrative Structural Biology

Israeli Society for Mass Spectrometry: Chair: **Michal Sharon** (WIS)

Israeli Crystallographic Association: Chair: **Sharon Ruthstein** (BIU)

Speakers:

Phil Selenko (WIS) - Looking at proteins in live cells with atomic resolution: from science fiction to science reality

Hila Toporik (Arizona State University) - The structure of the stress induced photosystem I IsiA antenna supercomplex

Amir Goldbourn (TAU) - Structure and dynamics of intact and premature filamentous bacteriophage viruses

Rosi Fassler (HUJ) - Insights into (un)structure-function relationships of intrinsically disordered chaperone Hsp33

Moshe Dessau (BIU) - Structural investigation of RNA silencing suppression by plant viruses

Raz Zarivach (BGU) - Understanding cation discrimination and transport regulation in magnetotactic bacteria

**Invited post docs in red*

Tuesday 18/2 – 3rd session (14:30-16:15)

• HERODS – Kings B

Genetic Basis of Human Disorders

Genetic Society of Israel

Chairs: **Karen Avraham** (TAU); **Ohad Birk** (BGU)

Speakers:

David Zangen (Hadassah) – BRCA2 is essential for ovarian development - novel genes and pathways in gonadal differentiation

Einat Zalckvar (WIS) - Peroxisystem - using systematic tools to identify new peroxisomal proteins

Eli Sprecher (Ichilov) - Untangling the complexities of inherited hair disorders

Max Drabkin (BGU) - Hyperuricemia and gout caused by missense mutation in D-lactate dehydrogenase

Ruth Barshir (WIS) - Disease interpretation of non-coding RNA genes

Tamar Harel (Hadassah) - Recessive and dominant inheritance due to variants at a single locus

• HERODS – Queens

Epigenetics and Re-differentiation in Plant and Animal Development

Israeli Society of Plant Sciences: Chair: **Nir Ohad** (TAU)

Israeli Society for Developmental Biology: Chair: **Ofir Hakim** (BIU)

Speakers:

Leor Eshed Williams (HUJ) - PRC2 and TrxG interactions required for the acquisition of new cell identity during regeneration in Arabidopsis

Michal Maes (University of Washington) - Phospho-regulation of the plant leucine-rich receptor kinase ERECTA in controlling organ growth and stomatal patterning

Naomi Ori (HUJ) - Control of plant maturation and differentiation by VIL genes in tomato

Miriam Tannenbaum (BIU) - Regulatory chromatin landscape in Arabidopsis thaliana roots uncovered by coupling INTACT and ATAC-seq

Guy Teichman (TAU) - Stress resets transgenerational small RNA inheritance

Ruth Ashery-Padan (TAU) - Roles of LIM homeodomain 2 (Lhx2) in the differentiation of mammalian retinal pigmented epithelium

• HERODS – Laurence

BioMed 3: Translating your Ideas to Commercial Opportunities

Led by 8400 - The Health Network and Israel Innovation Authority

[LINK TO THE SESSION INFORMATION](#)

Chairs: **Adv. Daphna Murvitz** (8400), **Dr. Ronit Bendori** (Evergreen, Ethos)

Opening - introducing the topic and speaker

Keynote speaker: **Prof. Don Ingber** - the WYSS Model

Panel – 5 points of view, with participation of Prof. Ingber and:

- **Prof. Rotem Sorek** (Weizmann Institute) - Researcher's view – 5+2 mins
- **Dr. Tamar Raz** (Hadasit and an 8400 Network member) - TTO Researcher's view - 5+2 mins
- **Dr. Merav Bassan** (BiomX and an 8400 Network member) - The corporate view - 5+2 mins
- **Dr. Arik Orbach** (Teva) - Multinational Perspective - 5+2 mins
- **Dr. Nissim Darvish** (Orbimed) - The Investor view - 5+2 mins

Discussion tables. Each table led by a local industry leader (see below). Participants share their own stories and experiences and discuss how these are related to the learning of speaker and panelists

Share top 7-10 challenges with plenary and speaker

Closing remarks: **Dr. Itai Kela** (Israel Innovation Authority, IIA, and an 8400 Network member) - Bio Convergence in Israel

Discussion tables' leaders:

Mr. Didi Daboush (MyBiotics Pharma and an 8400 Network member)

Dr. Kfir Oved (Canopy Biotech), **Dr. Leah Klapper** (FutuRx), **Dr. Natalie Yivgi Ohana** (Minovia Therapeutics and an 8400 Network member), **Dr. Nissim Darvish** (OrbiMed), **Dr. Noga Yerushalmi** (M Ventures), **Dr. Yair Sapir** (Biond Biologics), **Dr. Aric Orbach** (Teva) and others.

**Invited post docs in red*

• **ROYAL BEACH – Hadar**

Stem Cell Pluripotency, Differentiation and Reprogramming

Israel Stem Cell Society

Chairs: **Nissim Benvenisty** (HUJ); **Dalit Ben Yosef** (Ichilov)

Speakers:

Yossi Buganim (HUJ) - In-depth parallel meta-analysis of cells undergoing reprogramming into pluripotency and trophectoderm states

Atilgan Yilmaz (HUJ) - Essential genes for differentiation into all three germ layers defined by CRISPR/Cas9 screening in haploid human embryonic stem cells

Yonatan Stelzer (WIS) - Spatiotemporal dissection of cell-fate decisions during gastrulation, at single cell resolution

Elad Sintov (Harvard University) - A human pluripotent stem cell based in vitro model for autoimmune Type-1 diabetes

Shlomit Edri (TEC) - Three-dimensional culture of pancreas progenitors differentiated from mouse embryonic stem cells

Gad Vatine (BGU) - Human iPSC-based isogenic blood brain barrier-on-chip platform enables predictive personalized medicine applications

• **ROYAL BEACH – Zeit**

New Challenges in Cell Death Biology

The Israeli Cell Death Society (IsCDS)

Chairs: **Sarit Larisch** (Haifa); **Hanna Engelberg-Kulka** (HUJ)

Speakers:

Eli Arama (WIS) - Parthanatos steps out of the shadows of cell death and into the developmental spotlight

Michael Telias (UC Berkeley) - Retinoic Acid causes degeneration-dependent electrophysiological remodeling of retinal ganglion cells and blocking its receptor augments vision in partially-blind mice

Motti Gerlic (TAU) - Immunological consequences of necrotic cell death

Aya Shkedy (WIS) - Discovering the intracellular mechanisms of the APOL1 protein-induced cell death

Atan Gross (WIS) - The role of mitochondria in cell fate regulation

Yaron Fuchs (TEC) - Beyond death: novel functions of Caspase-3 in tissue regeneration

• **ROYAL BEACH – Shita**

Neural Circuits and Behavior

Israel Society for Neuroscience

Chairs: **Yoram Gutfreund** (TEC); **Lior Appelbaum** (BIU)

Speakers:

Adi Mizrahi (HUJ) - Plasticity in the auditory cortex of mothers

Mor Ben-Tov (Duke University) - A midbrain-cortical dopamine circuit drives sexually-motivated singing

Shay Stern (TEC) - Uncovering the basis of behavioral variation across developmental timescales

Menachem Katz (Rockefeller University) - Glia-dependent glutamate spillover triggers repetitive behavior in *C. elegans*

David Zada (BIU) - The cellular function of sleep

Inna Slutsky (TAU) - Plasticity and stability of hippocampal circuits: From basic principles to malfunctions

• **ROYAL BEACH – Ella**

Precision Cancer Medicine



Moross

Integrated Cancer Center (MICC)

המרכז הבין-תחומי לחקר סרטן על-שם מורוס



Technion Integrated Cancer Center

Israeli Society for Cancer Research /sponsored by MICC and TICC

Chairs: **Angel Porgador** (BGU); **Shai Izraeli** (Schneider Children's Medical Center)

Speakers:

Ravid Straussman (WIS) - Tumor-microenvironment based precision anti-cancer therapy

Gilad Bachrach (Hadassah School of Dental Medicine, Hebrew University) - Tumor acceleration by

Fusobacterium nucleatum

Amir Onn (Sheba) - Precision medicine in the lung cancer clinic

Itai Moshe (TAU) - Characterization and pre-clinical modeling of genetic aberrations in pediatric gliomas

Polina Weitzenfeld (Rockefeller University) - Enhancing antibody-mediated immune response against tumor-associated carbohydrate antigens

Uri Ben-David (TAU) - Genomic evolution of cancer models: Perils and opportunities

**Invited post docs in red*

Tuesday 18/2 – 3rd session (14:30-16:15)

- **ROYAL BEACH – Alon**

Microbial Simplicity for Understanding Life Complexity

Israel Biophysical Society: Chair: **Nathalie Balaban** (HUJ)

Israel Society for Microbiology: Chair: **Roy Kishony** (TEC)

Speakers:

Sigal Ben-Yehuda (HUJ) - Bacterial nanotubes: conduits for intercellular molecular trafficking

Yonatan Chemla (BGU) - mRNA secondary-structure-stability regulates bacterial translation insulation and reinitiation

Avigdor Eldar (TAU) - Bacterial quorum-sensing in spatially complex communities

Tamar Szoke (HUJ) - Phase separation of TmaR - a novel polar protein that controls cell metabolism by spatial sequestration of a major sugar regulator

Shay Tal (IOLR) - Plasmids - from single cell dynamics to overall marine population

Roe Amit (TEC) - Live dynamical tracking of slncRNA speckles in single *E. coli* cells reveals bursts of fluorescence degradation

Coffee break & Exhibition (16:15-17:00)

Tuesday 18/2 - E-poster session 1 (17:00-20:30)

- **HERODS – Pavilion**

Tuesday 18/2 – Post-docs meeting with Deans (17:00-19:00)

- **HERODS – Laurence**

Dinner (18:30-21:00)

- **HERODS – Pavilion Terrace**

Music (21:00) - Rock for Your Lab Daniel Biotech Science Truck

- **Outdoors – between Hotels DAN and HERODS**

Wednesday 19/2 - Run for your Lab – 5K Race (7:00-8:00)

- **Outdoors**

Wednesday 19/2 - Registration (7:15-18:00)

- **DAN – Lobby**

Wednesday 19/2 – 1st session - special short sessions (8:00-9:00)

- **DAN - Big Blue Hall A**

Cancer Cell Signaling and Tumor Microenvironment



Moross

Integrated Cancer Center (MICC)

המרכז הבין-תחומי לחקר סרטן על-שם מורוס



Technion Integrated Cancer Center

Organized by students /sponsored by MICC and TICC

Chair: **Yael Aylon** (WIS)

Speakers:

Yosef Shaul (WIS) - Regulation of the Hippo pathway by the non-receptor tyrosine kinases (nRTKs); how PTMs switch oncogenic to tumor suppressive function

Neta Erez (TAU) - Shaping the inflammatory niche: cancer-associated fibroblasts facilitate breast cancer metastasis

Rami Aqeilan (HUJ) - Mapping the breakome of cancer cells

Itay Tirosh (WIS) - Intra-tumoral heterogeneity in head and neck cancer

**Invited post docs in red*

- **DAN - Big Blue Hall B**

Adult Stem Cells: Can We Generalize?

Suggested by scientists

Chair: **Shalev Itzkovitz** (WIS)

Speakers:

Roi Gazit (BGU) - Stress and distress of hematopoietic stem cells

Sarah Ferber (Sheba Medical Center) - The role of the vascular niche on transdifferentiated insulin producing cells'

Dorit Omer (Sheba/TAU) - Ex vivo expanded human 3D Nephrospheres engraft long term and repair chronic renal injury in mice

Mor Grinstein (Harvard Medical School) - Identification of a latent resident progenitor population in the adult tendon

- **DAN – Tarshish A**

State of the Art Techniques in Study of Cytoskeletal Dynamics

Israeli Forum for Cytoskeleton and Motility

Chair: **Natalie Elia** (BGU)

Speakers:

Uri Raviv (HUJ) - Structure, assembly, and disassembly of tubulin single rings and microtubules

Leah Gheber (BGU) - Single molecule approaches in studying biological nano-motors

Hava Gil-Henn (BIU) - The Yin and Yang of cancer metastasis

Orly Reiner (WIS) - On-chip human brain organoids to model development and disease

- **DAN – Tarshish B**

The Impact of Climate Change on the Marine Ecosystem

Suggested by the Organizing Committee

Chairs: **Dan Tchernov** (Haifa); **Oren Levy** (BIU)

Speakers:

Hagit Kvitt (Haifa) - Molecular mechanisms underlying corals' response to global climate change: the apoptotic pathway

Ilana Berman-Frank (Haifa) - Fe and P limitation induce sociality in the marine *Cyanobacterium Trichodesmium*

Yaeli Rosenberg (BIU) - Sustainability of coral reefs are affected by ecological light pollution in the Gulf of Aqaba/Eilat

Or Ben-Zvi (TAU) - Temperature induced bleaching in the mesophotic coral *Alveopora ocellata*

- **HERODS – Kings A**

Forest Bio-Eco

Organized by students

Chair: **Yaara Oppenheimer-Shaanan** (WIS)

Speakers:

Ofar Ovdia (BGU) - Consequences of seasonal fires on the structure and function of eastern Mediterranean woodlands

José M. Grünzweig (HUJ) - Climate change-induced tree mortality in dryland forests and its consequences for ecosystem functioning

Rakefet David-Schwartz (ARO) - Molecular response of forest trees facing climate change

Daphna Uni (HUJ) - Acacia trees in the Arava desert: higher activity of photosynthesis during noon and summer times

**Invited post docs in red*

- **HERODS – Kings B**

Drug Design and Development

Suggested by scientists

Chair: **Hagit Eldar-Finkelman** (TAU)

Speakers:

Hanoach Senderowitz (BIU) - Computational methods in drug discovery: theory and applications

Nir London (WIS) - Rapid covalent inhibitor discovery by fragment screening

Masha Niv (HUJ) - Taste, drugs and toxicity

Nir Qvit (BIU) - Rational development of selective regulators of protein-protein interactions and their therapeutic applications

- **HERODS – Queens**

Cell-cell Communication: From Theoretical Modeling to Experiments

Organized by students

Chairs: **Sari Natan** (TAU); **Maria Jubran** (HUJ)

Speakers:

Ayelet Lesman (TAU) - May the force be with us: Mechanical cell-cell communication in fibrous environments

Nataly Kravchenko-Balasha (HUJ) - Dissecting the role of cross-talk between glioblastoma subpopulations in tumor cell spreading

Assaf Zemel (HUJ) - Elastic interactions of cells and their role in cellular self-association

Assaf Zaritsky (BGU) - Emergence of multicellular synchronization by information-transfer between individual cells

- **HERODS – Laurence**

Cell Therapy

Suggested by scientists

Chair: **Raphael Gorodetsky** (Hadassah)

Speakers:

Lior Gepstein (Rappaport Institute) - Pluripotent stem cells and related technologies for the treatment of cardiac disorders

Daniel Offen (Beilinson Medical Center) - Intranasal administration of exosomes derived from mesenchymal stem cells ameliorates autistic-like behaviors in mice

Raphael Gorodetsky (Hadassah) - Pro-regenerative and anti-inflammatory cell therapy with selected and expanded potent human stromal placental cells

Benjamin Reubinoff (Hadassah) - Human embryonic stem cells - from the bench to a clinical transplantation trial in retinal degeneration

- **ROYAL BEACH – Hadar**

Microbiology Adaptation & Evolution: Past, Present and Future

Suggested by the organizing committee

Chair: **Karutha Pandian** (Alagappa University)

Speakers:

Avihai Zolti (HUJI- Agriculture) - Can microbiome functional profile elucidate hidden stress in its host?

Hanna Engelberg-Kulka (HUJI) - A stress-induced hidden secret of the genetic code in *Escherichia coli*

Shmuel Gleizer (WIS) - Conversion of *Escherichia coli* to generate all biomass carbon from CO₂

Michael Klutstein (HUJI) - A seep from the past: Isolation and characterization of live yeast cells from ancient beer vessels and analysis of the beverages they produce

**Invited post docs in red*

Wednesday 19/2 – 1st session - special short sessions (8:00-9:00)

• ROYAL BEACH – Zeit

3D Chromatin Structure, Organization & Disease

Organized by students

Chairs: **Mahua Roopam Bhattacharya** (BIU); **Vikrant Palande** (BIU)

Speakers:

Noam Kaplan (TEC) - Models of the 3D genome

Ofir Hakim (BIU) - Redistribution of chromatin binding of tumor suppressors drive transcriptional reprogramming in HRas-induced transformation

Itay Onn (BIU) - The mechanism of 3-D chromatin organization by Cohesin revealed by single molecule spectroscopy in live cells

Milana Frenkel-Morgenstern (BIU) - Inter-chromosomal 3D contacts highlight cancer breakpoints

• ROYAL BEACH – Shita

New Insights in Heart Failure and Arrhythmia Research

Israel Society of Heart Research (ISHR)

Chair: **Yoram Etzion** (BGU)

Speakers:

Jonathan Leor (TAU) - In-situ myocardial tissue engineering inspired by matricellular protein

Oren Caspi (TEC) - Targeted genome editing in human induced pluripotent stem cells from arrhythmogenic cardiomyopathy using CRISPR-Cas9

Yoram Etzion (BGU) - Assessment of atrial fibrillation substrate in freely moving rats exposed to underlying pathological conditions

Izhak Kehat (TEC) - Localized translation in the sarcomere

• ROYAL BEACH – Ella

How do Cells Marshal Their Content? – The Characterization and Function of Membrane-Less Organelles in Cells

Organized by students

Chair: **Yehuda M. Danino** (WIS)

Speakers:

Yaron Shav-Tal (BIU) - Nuclear speckles can buffer the availability of splicing factors in the nucleoplasm to regulate rates of gene expression

Michal Shapira (BGU) - Unexpected role for RNA storage granules in Leishmania

Dan Bracha (Princeton) - Mapping and moving through intracellular phase space using optogenetic protein droplets

Igor Ulitsky (WIS) - Long noncoding RNAs in membrane-less organelles

• ROYAL BEACH – Alon

BioMaterials

Suggested by the Organizing Committee

Chair: **Ehud Gazit** (TAU)

Speakers:

Aharon Azagury (Brown University) - Enhancing the mass transport across biological membranes

Dvir Gur (Janelia Research Campus, NIH) - How do zebrafish stripes disappear?

Galit Fichman (NCI, NIH) - Bioinspired design of peptide-based antibacterial adhesive hydrogels to prevent implant-related infections

Moran Frenkel (Georgia Institute of Technology) - Mutually stabilizing interactions between proto-peptides and RNA

Wednesday 19/2 - E-poster session 2 (9:00-12:00)

• HERODS – Pavilion

**Invited post docs in red*

- **DAN - Big Blue Hall A**

Therapeutic Gene Therapy & Genome Editing

Israel Society of Gene and Cell Therapy

Chairs: **Adi Barzel** (TAU); **Daniel Offen** (TAU)

Speakers:

Ayal Hendel (BIU) - CRISPR genome editing for severe combined immunodeficiency

Ze'ev Melamed (UCSD) - RNA processing alteration and the link to neurodegeneration

Rotem Sorek (WIS) - Beyond CRISPR: The immune system of bacteria

Nina Reuven (WIS) - Recruitment of DNA repair MRN complex by fusion of intrinsically disordered protein domain to Cas9 improves genome editing

Lior Zangi (ICAHN) - Altering sphingolipid metabolism attenuates cell death and inflammatory response after myocardial infarction

Oren Parnas (HUJ) - Profiling cellular heterogeneity of pancreatic cancer

- **DAN - Big Blue Hall B**

Cancer Genomics and Data Mining

Israeli Society for Cancer Research: Chair: **Itay Tirosh** (WIS)

Israeli Society for Bioinformatics and Computational Biology: Chair: **Ron Shamir** (TAU)

Speakers:

Eitan Rubin (BGU) - Predicting drug response in oncology: the WIN approach

Keren Yizhak (TEC) - RNA sequence analysis reveals macroscopic somatic clonal expansion across normal tissues

Tommy Kaplan (HUJ) - Analysis of cell-free DNA using a Human Methylation Atlas

Yuval Tabach (HUJI) - Comparative genomics of 1600 species reveals new insights regarding “superpowers”, breast cancer, and genetic diseases

Ofir Cohen (Broad Institute) - Oncogenic and drug-resistant transcriptional programs - a joint analysis of single-cell and bulk Exome/RNA-seq in metastatic breast cancer

Sol Efroni (BIU) - The T-cell repertoire as a biomarker for response to anti PD-1 immunotherapy in a GBM mouse model

- **DAN – Tarshish A**

Symbiosis in a Changing Climate: The Role of Microbiome in Resistance and Tolerance of Plants

Israeli Society of Plant Sciences: Chair: **Yael Helman** (HUJ)

Israel Society for Microbiology: Chair: **Dror Minz** (ARO)

Speakers:

Maya Kleiman (ARO) - The role of plant microstructure in plant-microorganism interaction - a biomimetic approach

Omri Finkel (North Carolina University) - Bacterial community maintenance of plant root development

Asaph Aharoni (WIS) - The root, the microbiome and the secreted metabolome in-between

Yaara Oppenheimer-Shaanan (WIS) - A rhizosphere interplay between cypress trees and root-associated bacteria during drought

Segula Masaphy (Migal) - Alteration of soil mycobiome in Israeli pine forest affected by forest thinning

Asaf Levy (HUJ) - Systematic identification of antimicrobial proteins secreted by the plant microbiome

**Invited post docs in red*

• **DAN – Tarshish B**

MD/PHD Session

Chair: Eithan Galun (HUJ)

Speakers (3min +1min each):

Olga Yajuk (HUJ) - PD-L1/PD-1 axis inhibits neutrophil cytotoxicity in cancer

Max Drabkin (BGU) - Nocturnal atrial fibrillation caused by *kcnj2* gain of function variant affecting the circadian rhythm-controlled cardiac Kv4.2 potassium channel

Ehud Knebel (HUJI) - Impaired RNA editing in β -cells: A potential link to Type 1 diabetes

Irene Unterman (HUJ) - Mapping homologous recombination repair genes through omics data integration

Inbal Kol (HUJ) - Anti-RhD antibody therapy modulates human natural killer cell function

Natan Stein (HUJ) - Selectively enhanced NK-92 cells: a safer form of cellular immunotherapy

Hadar Golan (HUJ) - Involvement of histone acetyl transferases in nucleotide excision repair

Sapir Labes (HUJ) - Predicting the pathogenicity of variants of uncertain significance in BRCA1 and BRCA2 by cross-species evolutionary patterns using machine learning

Omer Berner (BGU) - The glucocorticoid receptor regulates epileptic activity and neuroinflammation via blood-brain barrier endothelial signaling in a mouse model of epilepsy

Pierre Majdalani (BGU) - A novel human mutation associates with increased pain threshold and impaired thermoregulation

Noam Hadar (BGU) - Novel homozygous DSTYK mutation causes late onset spastic paraparesis and cerebellar atrophy

Idan Hekselman (BGU) - Aging promotes reorganization of the CD4 T cell landscape toward extreme regulatory and effector phenotypes

Daniel Halperin (BGU) - SEC31A mutation affects ER homeostasis, causing neurological syndrome

Inbal Greenberg (TAU) - Adaptation of colon cancer cells to the brain microenvironment: the role of IRS2

Topaz Altman (TAU) - TDP-43 mis-localization alters synaptic mitochondria local protein synthesis and facilitates NMJ disruption in ALS

Nitzan Maixner (BGU) - A TRAIL-TL1A paracrine network involving adipocytes, macrophages and lymphocytes induces adipose tissue dysfunction downstream of E2F1 in human obesity

Tomer Meirson (BIU) - κ -helix and the helical lock and key model: A pivotal way of looking at polyproline II

Essam Assali (BGU) - They take up calcium, depolarize and fragment, yet they do not lead to apoptosis - the survival story of brown adipocyte mitochondria

Short presentations will be followed by:

A panel discussion moderated by:

Jonathan Leor (TAU), Yoram Etzion (BGU), Gidi Rechavi (Sheba) and Eithan Galun (HUJ)

on: MD-PhD program at all academic institutions - questions from the students

• **HERODS – Kings A**

Can We Read (and Write) Proteins? Computational and Experimental Approaches to Protein Folding and Design

Israel Biophysical Society: **Chair: Jordan Chill (BIU)**

Israeli Society for Bioinformatics and Computational Biology: **Chair: Michal Linial (HUJ)**

Speakers:

Emmanuel Levy (WIS) - Designer protein assemblies with tunable phase diagrams in living cells

Rosalie Lipsh-Sokolik (WIS) - Computational design of enzyme repertoires

Dina Schneidman (HUJ) - Protein structure and dynamics using cross-linking mass spectrometry

Ora Schueler-Furman (HUJ) - WWOX-substrate communication and functionality: Tracking the cooperation between an unstable binding and a stable non-binding WW

Julia Shifman (HUJ) - Climbing up and down binding landscapes: a high-throughput study of mutational effects in protein-protein complexes domain

Yanay Ofra (BIU) - Designing antibodies that bind specific epitopes and epitopes that avoid specific antibodies

**Invited post docs in red*

• **HERODS – Kings B**

Cellular Motility and Interaction Dynamics in the Immune System and Beyond

Israeli Forum for Cytoskeleton and Motility: Chair: **Ronen Alon** (WIS)

Israel Immunological Society: Chair: **Mira Barda-Saad** (BIU)

Speakers:

Ziv Shulman (WIS) - Germinal centers: a game of clones in immunological niches

Shlomo Finkin (Rockefeller University) - Protein amounts of the MYC transcription factor determine germinal center B cell division capacity

Mark Schwartzman (BGU) - Nanoscale mechanosensing of natural killer cells is revealed by antigen-functionalized nanowires

Stav Kozlovski (WIS) - Lung ICAMs and VCAM-1 in innate and adaptive immunity to influenza infections: unexpected findings and implications for vaccination strategies

Benyamin Rosental (BGU) - Evolutionary foundation of the mammalian hematopoietic stem cells and immune systems found in a colonial chordate

Amit Tzur (BIU) - SISENIKOTYC

• **HERODS – Queens**

Special Editorial Session: The Future of Scientific Publications

Moderator: **Prof. Naama Barkai**, Senior Editor, *eLife*

Speakers:

Dr. Catherine Potenski, Editor-in-Chief, *Nature Genetics*

Dr. Peter Stern, Senior Editor, *Science*

Prof. Christophe Bernard, Institut de Neurosciences des Systèmes, Editor-in-Chief, *eNeuro*

• **HERODS – Laurence**

Computation in Microbial Communities

Israeli Society for Bioinformatics and Computational Biology: Chair: **Yitzhak Pilpel** (WIS)

Israel Society for Microbiology: Chair: **Uri Gophna** (TAU)

Speakers:

Jonathan Friedman (HUJ) - High-throughput screening of microbial communities using nanodroplets

Orna Dahan (WIS) - Evolutionary effects of horizontal gene transfer in bacteria, revealed through experimental adaptation

Elhanan Borenstein (TAU) - Systems biology of the human microbiome: From big data to models

Kira Kondratyeva (Ariel University) - Meta-analysis of Multidrug Resistant Plasmids Circulating in Pandemic *Escherichia coli* Sequence Type 131

Eddie Cytryn (ARO) - Elucidating the scope and dynamics of microbiomes and resistomes in earth, wind and water

Itzhak Mizrahi (BGU) - Potential drivers of plasticity and persistence in the animal gut microbiome

• **ROYAL BEACH – Hadar**

RNA Localization and Translation

Suggested by the organizing committee

Chairs: **Rivka Dikstein** (WIS); **Mordechai Choder** (TEC)

Speakers:

Yoav Arava (TEC) - Mitochondria-assisted transport of mRNAs along axons

Maya David (WIS) - Selective suppression of mRNA translation by DAP5 controls cell fate decisions in human Embryonic Stem Cells

Orna Amster-Choder (HUJ) - Spatiotemporal organization of the *E. coli* transcriptome: novel insights into regulation

Daniel Benhalevy (NIH) - Why RNA binding proteins should be studied in the context of their subcellular location; the case of Myotonic Dystrophy type 2 associated gene CNBP/ZNF9

Alon Appleboim (HUJ) - Rapid depletion of chromatin and RNA processing factors reveals the limits of mRNA homeostasis

Jeffrey Gerst (WIS) - Specialized ribosomes: Ribosome heterogeneity and the translational control of mitochondrial and peroxisomal proteins

**Invited post docs in red*

• **ROYAL BEACH – Zeit**

Therapeutic Potential of Plant-derived Compounds

Student organized session / sponsored by the Sagol Network

Chairs: **Anat Elmann** (ARO); **Talya Barak** (ARO)

Speakers:

Avigdor Scherz (WIS) - VTP with bacteriochlorophyll derivatives - The evolution of a new platform for solid cancers therapy

Ruth Belostotsky (Shaare Zedek) Tubulin inhibitors stimulate peroxisomal import: A new perspective for primary hyperoxaluria treatment

Hinanit Koltai (ARO) - Molecular research in medical cannabis for new drug development

Tziona Ben-Gedalya (Ariel) Screening for neurodegenerative aggregation modulating herbal extracts

Orli Binyamin (HUJ) Brain targeting of 9, 11-Conjugated Linoleic Acid, a natural Calpain inhibitor, preserves memory and reduces A-beta and P25 accumulation in 5xFAD mice

Hinanit Koltai (ARO) - Molecular research in medical cannabis for new drug development



• **ROYAL BEACH – Shita**

Neuronal Basis of Learning and Memory

Israel Society for Neuroscience

Chairs: **Naomi Habib** (HUJ); **Uri Ashery** (TAU)

Speakers:

Alon Rubin (WIS) - Revealing neural correlates of behavior without behavioral measurements

Avner Wallach (Columbia University) - Internal models for active sensing in freely swimming electric fish

Shira Knafo (BGU) - A new assay for detection of changes in the synaptic expression of receptors relevant to learning and memory

Shaul Lerner (WIS) - ASL metabolically regulates tyrosine hydroxylase activity in the locus coeruleus

Shachar Maidenbaum (Columbia University) - Representations of directions and spatial memory in human neural oscillations and behavior

Mouna Maroun (Haifa) - Distinctive mechanisms underlie memory in adult and juvenile animals

• **ROYAL BEACH – Ella**

New Regulators of Obesity and Adipose Tissue Metabolism

Israel Endocrine Society

Chairs: **Haim Cohen** (BIU); **Hannah Kanety** (Sheba)

Speakers:

Sigal Fishman (TAU/Ichilov) - GIP receptor regulates adipose tissue inflammation and whole body metabolism through direct regulation of S100A8 in immune cells

Nitzan Maixner (BGU) - A TRAIL-TL1A paracrine network involving adipocytes, macrophages and lymphocytes induces adipose tissue dysfunction downstream of E2F1 in human obesity

Danny Ben-Zvi (HUJ) - Weight-loss independent effects of bariatric surgery: changing the anatomy changes physiology

Amir Tirosh (Sheba) - Inter-cellular transmission of hepatic ER stress in obesity disrupts systemic metabolism

Ayala Tovy (Baylor College of Medicine) - DNMT3A mutations contribute to obesity through inflammation and adipogenesis

Aron Weller (BIU) - Parental diet induced obesity programs the offspring's epigenetic susceptibility to an obesogenic environment

**Invited post docs in red*

Wednesday 19/2 – 2nd session (12:00-13:45)

• ROYAL BEACH – Alon

Organoids in Development and Disease Modeling

Israeli Society for Developmental Biology: Chair: **Orly Reiner** (WIS)

Israel Stem Cell Society: Chair: **Ruth Ashery-Padan** (TAU)

Speakers:

Yaakov Nahmias (HUJ) - Automated assembly and high throughput screening of vascularized human organoids from normal or tumorigenic tissues

Mohammad Jabar (HUJ) - Direct Induction of the three pre-implantation blastocyst cell types from fibroblast

Rina Rosin-Arbesfeld (TAU) - Human adenoma-originating organoids as a model for colorectal cancer development

Sarit Larisch (University of Haifa) - ARTS mimetic small molecules restore the normal-like phenotype in breast pre-malignant 3D organoids

Aharon Helman (Harvard University) - Nutrient integration by mTOR signaling regulates neonatal beta cell function

Ben Maoz (TAU) - Organs-On-a-Chip: A new tool for the study of human physiology

Coffee break & Exhibition (13:45-15:00)

Wednesday 19/2 – 3rd session (15:00-16:45)

• DAN - Big Blue Hall A

Cancer Therapy with Immune Checkpoint Inhibitors - Opportunities and Challenges

Israel Immunological Society / Israeli Society for Cancer Research

Chairs: **Gilad Vainer** (Ichilov); **Cyrille Cohen** (BIU)

Speakers:

Michal Lotem (Hadassah) - Cancer therapy with immune checkpoint inhibitors – the hidden targets

Naama Margolis (Sheba/TAU) - Adaptive counter strike mechanism of the immune system

Mira Barda-Saad (BIU) - Suppressing the suppressors: Regulating the inhibitory immune checkpoint in natural killer cells

Ron Apte (BGU) - The use of anti-IL-1 β together with anti-PD-1 to treat a minimal residual disease of breast cancer

Moshe Elkabets (BGU) - Exhaustion of CD 8+ T cells determines Trametinib efficacy in RAS-mutated head and neck cancers

Gal Markel (Sheba) - Overcoming resistance to immune checkpoint inhibitors

• DAN - Big Blue Hall B

Chromatin & Epigenetics

Genetic Society of Israel

Chairs: **Chaim Cedar** (HUJ); **Moshe Oren** (WIS)

Speakers:

Yehudit Bergman (HUJ) - Inflammation- induced epigenetic priming

Ori Fridlich (HUJ) - Methylation analysis of cell-free circulating DNA in physical exercise

Ido Goldstein (HUJ) - Fasting massively reorganizes liver chromatin to facilitate dynamic transcription factor crosstalk and synergistic gene expression

Noa Furth (WIS) - The combinatorial epigenetic landscape of high grade pediatric gliomas in single molecule resolution

Daniel Bar (TAU) - Detecting protein-DNA binding in single molecules using antibody guided methylation

Philippa Melamed (TEC) - The epigenome and transcriptional enhancers in the central control of reproduction

**Invited post docs in red*

- **DAN – Tarshish A**

Cytoskeletal Remodeling and Cellular Movement in Morphogenesis

Israeli Forum for Cytoskeleton and Motility

Chairs: **Uri Abdu** (BGU); **Talila Volk** (WIS)

Speakers:

Ronen Zaidel-Bar (TAU) - Principles of actomyosin contractility regulation in *C. elegans*

Eyal Schejter (WIS) - Balanced Rho activation and inhibition regulates exocytosis by large secretory vesicles

Kinneret Keren (TEC) - Morphogenesis in regenerating *Hydra*: actin dynamics and the influence of mechanical constraints

Ziv Roth (Hospital for Sick Children, Toronto) - The differential effect of M-CSF vs. GM-CSF on macrophage polarization

Yaniv M. Elkouby (HUJ) - A centrosome organizing center couples oocyte polarization with meiosis and coordinates cellular mechanisms of early oogenesis

Ronen Alon (WIS) - A-type Lamins restrict cancer cell migration and cell proliferation

- **DAN – Tarshish B**

The Ins and Outs of Gametogenesis

Israel Fertility Association

Chairs: **Talia Eldar-Geva** (Shaare Zedek); **Nava Dekel** (WIS)

Speakers:

Nitzan Gonen (BIU) - The battle of sexes: studying the regulation of mammalian sex determination

Amnon Buxboim (HUJ) - Evaluating the developmental potential of oocytes and embryos via in situ viscoelastic characterization

Michael Klutstein (HUJ) - Do old eggs really stink? On oocyte epigenetic aging and its connection to chromosomal aging

Yonatan Tzur (HUJ) - Systematic analysis reveals surprising roles for lincRNAs during meiosis and beyond

Dafna Ketter (WIS) - Vasorin involvement in ovarian angiogenesis

Shmuel Pietrokovski (WIS) - The seemingly paradox of inherited infertility- theory, computational population genetics, and case studies

- **HERODS – Kings A**

Movement Ecology

Zoological Society of Israel

Chairs: **David Saltz** (BGU); **Anat Barnea** (OPEN U.)

Speakers:

Ran Nathan (HUJ) - What movement ecology can tell us about animal cognition and reproductive strategies

Aya Goldshtein (TAU) - Reinforced learning under competition enables partitioning of resources in foraging bats

Tsevi Beatus (HUJ) - Flight control in insects

Yoni Vortman (Tel Hai) - Symbiotic magnetic-sensing hypothesis: do magnetotactic bacteria underlie the magnetic sensing capability of animals?

Nir Sapir (Haifa) - Quantitative analysis of bird migration over Israel

Oded Berger-Tal (BGU) - Using movement ecology to improve conservation success

**Invited post docs in red*

- **HERODS – Kings B**

State of the Art Microscopy Techniques in the Study of Intracellular Processes

Israel Society for Microscopy

Chair: **Yuval Garini** (BIU)

Speakers:

Moran Shalev-Benami (WIS) - Deadly spiders & scary zombies - NOT a Halloween story - a near atomic resolution glance into the CNS

Guy Nir (Harvard University) - Probing the principles of genome organization with single-cell technologies

Yoav Shechtman (TEC) - Volumetric multi-particle tracking and dense 3D single molecule localization microscopy

Shiri Avivi Kela (TAU) - The role of the cytoskeleton in regulating contractile tubes, using the *C. elegans* spermatheca as an in vivo model

Fady Gbara (TAU) - A structural approach for unraveling the mechanism of function of the human mitochondrial Hsp60-Hsp10 complex

Eilon Sherman (HUJ) - Resolving mechanisms of T cell activation at the single molecule level

- **HERODS – Queens**

Pitching in: Scientists' Involvement in High-School Biology

Chairs: **Anat Yarden** (WIS); **Irit Sadeh** (Ministry of Education)

Speakers:

Yossi Yovel (TAU) - Should we Teach Children about the Origin of Man? The Evolution of the High-School Biology Program in Israel

Yaron Ziv (BGU) - Teaching High-school Students Philosophy of Science and Conservation Biology Using an Ecological Workshop in The Classroom and in The Field

Shoshy Herman and **Pirchia Waxman** (BIU) - Teachers and scientists collaboration-Molecular biology from science to learning in class

Eran Tauber (Haifa) - LiveGene: Bringing Genetics Education to Life in the Classroom

Tomer Cohen (ALPHA Program Director) - The ALPHA Research Program for Gifted and Talented High School Students

Orna Dahan and **Bat-Shahar Dorfman** (WIS) - Harnessing Remote Robotic Automation for the Study of Evolution in High Schools

- **HERODS – Laurence**

Tissue Engineering and Regenerative Medicine

Israel Stem Cell Society

Chairs: **Benjamin Dekel** (Sheba); **Shulamit Levenberg** (TEC)

Speakers:

Lihi Adler-Abramovich (TAU) Designing new bioinspired 3D-hydrogels for bone-tissue regeneration

Shani Cohen (TEC) - Controlled delivery of antisense oligonucleotides based on peg-fibrinogen hydrogel in the treatment of Duchenne Muscular Dystrophy

Dror Seliktar (TEC) - A gel-based model of selective cell motility involving chemotaxis, haptotaxis and durotaxis: implications for cell sorting, diagnostics and screening

Idan Redenski (TEC) - Vascularized ECM based composite grafts for complex reconstructions

Aharon Baskin (HUJ) - Optimizing a dynamic three dimensional *in vitro* model for investigation of ovarian carcinoma progression

Tal Dvir (TAU) - Engineering personalized tissue implants: From 3D printing to bionic organs

**Invited post docs in red*

• **ROYAL BEACH – Hadar**

Recent Advances in Parasitology

Israel Society for Parasitology, Protozoology and Tropical Diseases

Chairs: **Michal Shapira** (BGU); **Neta Regev-Rudzki** (WIS)

Speakers:

Ron Dzikowski (HUJ) - Interaction of PfEMP1 and Neutrophil ICAM-1 drives strong selection against Plasmodium falciparum subpopulation that causes severe malaria

Yifat Ofir Birin (WIS) - Malaria parasites modulate the Type-1 interferon response by inhibiting CXCL10 translation

Dan Zilberstein (TEC) - Arginine sensing is essential for virulence of the human pathogen *Leishmania*

Ankri Serge (TEC) - A new perspective on the relationship between *Entamoeba histolytica* and enteropathogenic bacteria: the role of quinine as a nutritional regulator of *Entamoeba histolytica* virulence

Roy Faiman (NIAID, NIH) - Tracking mosquitoes over time: testing the role of aestivation in dry season persistence of a malaria vector

Shulamit Michaeli (BIU) - EpiRNomics in trypanosomatids impact on cycling of the parasites between the hosts

• **ROYAL BEACH – Zeit**

From a Reductionist to a Systems Biology View of the Proteostasis Network

Student organized session / sponsored by the Sagol Network

Chairs: **Avital Eisenberg-Lerner** (WIS); **Merav Shmueli** (WIS)

Speakers:

Itay Koren (BIU) - The end of the end: Terminal Degrons discovery using a synthetic human peptidome

Tomer Shpilka (UMass) - UPR^m scales mitochondrial biomass with protein synthesis via mitochondrial import flux

Reut Shalgi (TEC) - Cellular proteostasis decline in mammalian senescence

Meytal Radzinski (HUJ) - A molecular switch for Cdc48 activity and localization during oxidative stress and aging

Ayala Shiber (TEC) - Co-translational folding and assembly of protein complexes in health and disease

Ruth Scherz-Shouval (WIS) - Stress networks underlying phenotypic plasticity and tumor fitness in the tumor microenvironment



• **ROYAL BEACH – Shita**

Physiology of Sensation

Israel Society for Physiology and Pharmacology

Chairs: **Adi Mizrahi** (HUJ); **Inna Slutsky** (TAU)

Speakers:

Moshe Parnas (TAU) - The roles of muscarinic receptors in Drosophila olfaction

Sagi Levy (Rockefeller) - An adaptive-threshold mechanism for odor sensation and animal navigation

Michal Rivlin (WIS) - Histaminergic projections from the brain shape retinal output

Helen Motanis (UCLA) - Hypoactivity and increased variability of neural dynamics in Fragile X circuits

Adi Marom-Katz (Stanford) - Individual patterns of abnormality in resting-state functional connectivity reveal two data-driven PTSD subgroups

Yoram Gutfreund (TEC) - The neurobiology of pop-out perception: a comparative study in owls

• **ROYAL BEACH – Ella**

Structure Function Relationships in Microbial Cells

Israel Society for Microbiology: Chair: **Eitan Bibi** (WIS)

Israel Society for Biochemistry and Molecular Biology: Chair: **Michael Meijler** (BGU)

Speakers:

Eyal Gur (BGU) - An evolutionary path: from hydrolase to ligase by substitution

Livnat Afriat (Migal) - Using directed enzyme evolution towards a stable and specific Quorum Quenching lactonases to disrupt the signaling of pathogenic bacteria

Ilana Kolodkin-Gal (WIS) - Functional amyloids regulate microbial cell fate

David Chetrit (Yale) - A unique cytoplasmic ATPase complex defines the type IV secretion system channel

Dalit Roth Rosenberg (Haifa) - Dynamic macromolecular composition and high exudation rates in Prochlorococcus

Rakefet Schwarz (BIU) - Elucidation of biofilm self-suppression mechanisms uncovers components of cyanobacterial secretion complexes

**Invited post docs in red*

Wednesday 19/2 – 3rd session (15:00-16:45)

- **ROYAL BEACH – Alon**

Virus and Phage Biology

Israel Society for Microbiology

Chairs: Eran Bacharach (TAU); Rotem Sorek (WIS)

Speakers:

Noam Stern-Ginossar (WIS) - RNA modifications sculpt the innate immune response to infection

Meir Shamay (BIU) - Viruses manipulate cellular CpG DNA methylation and transposable elements

Adi Stern (TAU) - The dynamics, mechanism, and interactions of defective RNA cheater viruses

Ranen Aviner (Stanford) - The ribosome strikes back: monitoring and perturbing co-translational processes to combat viral infection

Adi Millman (WIS) - A widespread novel ncRNA-dependent family of anti-phage defense systems

Anat Herskovits (TAU) - Bacteria phage cooperation during mammalian infection

Coffee break & Exhibition (16:45-17:30)

Wednesday 19/2 – Katzir Award (17:30-18:00)

- **HERODS - Pavilion**

ILANIT Katzir award 2020: Nissim Benvenisty (HUJ) - Human Pluripotent Stem Cells: From Developmental Biology to Biomedical Research

Wednesday 19/2 – 4th plenary lecture (18:00-18:45)

- **HERODS - Pavilion**

Plenary lecture 4. Toward Global Cooperation

Speaker: Martin Nowak

**Invited post docs in red*

Registration (7:45-14:00)

- **DAN - Lobby**

Registration

Thursday 20/2 – 1st session (8:30-10:15)

- **DAN - Big Blue Hall A**

The Microbiome and Immunity

Israel Immunological Society: Chair: **Eran Elinav** (WIS)

Israel Society for Microbiology: Chair: **Omry Koren** (BIU)

Speakers:

Shai Bel (BIU) - Novel defense mechanisms in the intestine

Liraz Galia (UMass) - Molecular and cellular dissection of STING-associated vasculopathy with onset in infancy (SAVI) mediated intestinal inflammation

Naama Geva-Zatorsky (TEC) - The cogwheels of gut microbiota-host interactions

Ronit Suissa (WIS) - Probiotic bacteria deliver novel glucose-dependent broad spectrum effectors in membrane vesicles

Muneef Ayyash (HUJ) - Microbiome conjugated fatty acids drive postnatal liver development

Moran Yassour (HUJ) - The establishment of the infant gut microbiome in the first months of life

- **DAN - Big Blue Hall B**

Gene Regulation across the Tree of Life

Student organized session / sponsored by the Sagol Network

Chairs: **Offir Lupo** (WIS); **Gat Krieger** (WIS)

Speakers:

Erez Levanon (BIU) - A-to-I RNA editing, immune protector and transcriptome diversifier

Irene Unterman (HUJ) - Using phylogenetic profiling to guide drug repurposing for Rett Syndrome

Naama Barkai (WIS) - Evolution of gene regulation between related species

David Lukatsky (BGU) - Design principles of protein-DNA interactions in embryonic stem cells

David Gokhman (Stanford) - Human-chimp hybrid cells reveal gene regulatory evolution underlying skeletal divergence

Oded Rechavi (TAU) - Re-thinking inheritance



- **DAN – Tarshish A**

The Next Top Model: Emerging Model Organisms in Molecular Biology

Student organized session / sponsored by the Sagol Network

Chairs: **Yael Dagan** (TAU); **Idit Aviram** (TAU)

Speakers:

Omri Bronstein (TAU) - Finding new NEMOs – Novel Echinoderm Model Organisms

Agur Wiskott (TAU) - Towards establishment of transgenic methods for the study of planarian regeneration

Itamar Harel (HUJ) - Identification of protein aggregates with prion-like and phase separation properties in the aging vertebrate brain

Asaf Gal (The Rockefeller University) - The underlying dynamics of the collective response to external cues in colonies of clonal raider ants

Tamar Hashimshony (TEC) - Bottom-up' evolution in the gene regulatory pathways of the *C. elegans* embryo

Yossi Yovel (TAU) - Studying a winged-mammal - on the extremes of mammalian physiology



**Invited post docs in red*

- **DAN – Tarshish B**

Sexual Dimorphism in the Nervous System - from Molecular Mechanisms to Social Behaviors

Student organized session / sponsored by the Sagol Network

Chairs: **Yehuda Salzberg** (WIS); **Noga Zilkha** (WIS)

Speakers:

Galit Shohat-Ophir (BIU) - Social challenge or opportunity result in unique cell type specific transcriptome and modulate reproductive related behaviors and physiology

Meital Oren-Suissa (WIS) - Insights into the mechanism of sexually dimorphic synaptic connectivity

Tali Kimchi (WIS) - A neuroethological approach for studying mammalian social behavior and sexual dimorphism in the brain

Anat Kahan (CalTech) - VIP neurons in the suprachiasmatic nucleus of female mice underlie the bidirectional influence between estrus cycle and circadian rhythm

Evan Elliott (BIU) - Mouse model and human studies of the role of microbiome in Autism Spectrum Disorders

Shlomo Wagner (Haifa) - Maternal transmission of social behavior in mice



- **HERODS – Kings A**

Proteomics and Mass Spectrometry in Biomedical Research

Israeli Society for Mass Spectrometry

Chairs: **Yishai Levin** (INCPM/WIS); **Arie Admon** (TEC)

Speakers:

Yifat Merbl (WIS) - Proteasome footprinting: global views of degradation in cancer

Haitham Amal (HUJI) - The role of nitric oxide in autism spectrum disorder: Towards novel strategies for treatment

Nir Kalisman (HUJI) - Mass spectrometry reveals the chemistry of formaldehyde cross-linking in structured proteins

Yitzhak Pilpel (WIS) - Towards a code that governs translation fidelity

Sara Isabel Fernandes (TEC) - Stearoyl-CoA Desaturase (SCD) promotes leukemic metastasis in the central nervous system

Tamar Geiger (TAU) - Understanding internal tumor heterogeneity by topological proteomic profiling

- **HERODS – Kings B**

Cellular Trafficking in Health and Disease

Israeli Society for Cell Biology

Chairs: **Koret Hirschberg** (TAU); **Benjamin Aroeti** (HUJ)

Speakers:

Ori Avinoam (WIS) - A novel membrane remodeling pathway maintains membrane homeostasis during giant vesicle secretion

Tal Keren Kaplan (NICHD, NIH) - ARL8 dependent autoinhibition of SKIP regulates its association with kinesin-1

Natalie Elia (BGU) - Cytokinetic abscission mediated by the ESCRT complex

Avital Eisenberg-Lerner (WIS) - Fine-tuning regulation of Golgi organization is mediated by proteasomal degradation

Amnon Harel (BIU) - Nuclear envelopathies and dysregulation of the cellular stress response

Ella Hava Sklan (TAU) - New roles for TBC1D20 a Rab-GAP modulating ER-to-Golgi trafficking

**Invited post docs in red*

- **HERODS – Queens**

Extracellular Vesicles: from Basic Research to Clinical Development

Suggested by Israel Society for Parasitology, Protozoology and Tropical Diseases

Chairs: **Carmit Levy** (TAU); **Shulamit Michaeli** (BIU)

Speakers:

Assaf Vardi (WIS) - Message in a bubble – communication via extracellular vesicles shapes algal-virus dynamics in the ocean

Mattia Morandi (WIS) - How do extracellular vesicles deliver their content into target cells

Neta Regev-Rudzki (WIS) - Malaria parasites modulate the Type-1 interferon response by inhibiting CXCL10 secretion

Noa Sher (Minovia) - Mitochondrial augmentation therapy: from preclinical studies to first in man treatment of patients with mitochondrial disease

Tomer Cooks (BGU) - Mutant p53 governs microenvironmental dynamics via exosomes and outer membrane vesicles

Ziv Gil (TEC) - Metabolic reprogramming of cancer cells by tumor microenvironment

- **HERODS – Laurence**

The Power of Single Molecule Detection

Israel Biophysical Society

Chairs: **Elisha Haas** (BIU); **Ariel Kaplan** (TEC)

Speakers:

Efrat Shema (WIS) - Single-molecule epigenomics: decoding the histone code in health and disease

Hadeel Khamis (TEC) - Single molecule study of a transcription factor binding

Eitan Lerner (HUJ) - A paused-backtracked intermediate in bacterial transcription initiation - lessons from single-molecule fluorescence spectroscopy

Inbal Riven (WIS) - Microsecond dynamics of a tunable-allosteric switch regulate the activity of a disaggregation machine

Alina Goldstein (BGU) - A mitotic motor protein undergoes complex phospho-regulation pathways as revealed by single molecule motility and live imaging microscopy analysis

Oleg Krichevsky (BGU) - Probing DNA structure with optical super-resolution: from plasmids to bacterial chromosome

- **ROYAL BEACH – Hadar**

Dynamics in Plant Responses

Israeli Society of Plant Sciences

Chairs: **Sigal Savaldi-Goldstein** (TEC); **Eilon Shani** (TAU)

Speakers:

Yasmine Meroz (TAU) - Towards an understanding of how plants integrate sensory information in space and time

Yogev Burko (Salk Institute) - Plant growth regulation in a changing climate

Tamar Avin-Wittenberg (HUJ) - The interplay between plant autophagy and carbon availability

Hagai Cohen (WIS) - The Arabidopsis SUBERMAN is a component of the regulatory network establishing root endodermis suberization

Eyal Fridman (Volcani) - Thermal stability of barley circadian clock and growth: a tango of two genomes

Lilach Hadany (TAU) - Plant rapid responses to airborne sounds: can plants hear their pollinators?

- **ROYAL BEACH – Zeit**

The Brain Immune-Axis: from Basic Science to Clinical Translation

Israel Society of Neuroimmunology

Chair: **Ron Apte** (BGU)

Speakers:

Lior Mayo (TAU) - Astrocyte control of tumor progression and tumor-associated macrophages in glioblastoma

Ayal Ben-Zvi (HUJ) - The blood-cerebrospinal fluid barrier is a major neuro-auto-immune hub: lessons from neuropsychiatric lupus

Alon Monsonego (BGU) - Immune mechanisms in the progression and treatment of Alzheimer`s disease

Inbar Arman (TEC) - Immunomodulation of EAE using CAR-T Cells that Target Autoreactive Epitopes

Katarzyna Winek (HUJ) - Cholinergic-targeted transfer RNA fragments regulate the post-stroke immune response

Asya Rolls (TEC) - Brain-regulated immunity

**Invited post docs in red*

Thursday 20/2 – 1st session (8:30-10:15)

• ROYAL BEACH – Shita

Organogenesis and Regeneration

Israeli Society for Developmental Biology

Chairs: **Yaakov Nahmias** (HUJ); **Tom Schultheiss** (TEC)

Speakers:

Shalev Itzkovitz (WIS) - Single cell spatial transcriptomics of the small intestine

Yoav Mayshar (WIS) - Epigenetic regulation of cell fate decisions in mouse gastrulation embryo at single-cell resolution

Omri Wurtzel (TAU) - Post-transcriptional regulation of planarian stem cells drives whole-body regeneration

Ron Piran (BIU) - PAR2, a master regulator of regeneration in the adult mammal

Yulia Shwartz (Harvard University) - Sympathetic nerves and arrector pili muscles form a dual component niche to regulate hair follicle stem cells

Eli Keshet (HUJ) - A vascular-centered approach for promoting healthy aging

• ROYAL BEACH – Ella

Genome Stability, DNA Repair and Chromosome Dynamics

Genetic Society of Israel

Chairs: **Judith Berman** (TAU); **Batsheva Kerem** (HUJ)

Speakers:

Martin Kupiec (TAU) - Elg1, a master guardian of genomic and epigenomic stability

Noa Lamm (University of Sydney) - Nuclear filamentous actin functions in the replication stress response

Shay Ben Aroya (BIU) - Regulation of the anaphase promoting complex/cyclosome by the degradation of its unassembled catalytic subunit, Apc1

Ariel Afek (Duke University) - Non-complementary mismatched base pairs locally distort DNA structure, leading to increased DNA-binding by transcription factor proteins

Yoav Ram (IDC Herzliya) - The role of aneuploidy in adaptive evolution

Debra Toiber (BGU) - SIRT6 is a DNA double-strand break sensor

• ROYAL BEACH – Alon

Stem Cells and Cancer

Israel Stem Cell Society

Chairs: **Varda Rotter** (WIS); **Ittai Ben-Porath** (HUJ)

Speakers:

Michael Milyavsky (TAU) - Integrated genomic and functional analysis of leukemia stemness

Narmen Azazmeh (HUJ) - Chronic expression of the tumor-suppressor p16 INK4a promotes early epidermal tumorigenesis through Wnt-pathway activation

Liran Shlush (WIS) - Early diagnosis and prevention of AML

Achia Urbach (BIU) - The unexpected interplay between the stem cell factor Lin28 and inflammation response

Chen Atzmon (HUJ) - Identification of culture adaptation-related pathways in human pluripotent stem cells using genome-wide screening

Benjamin Dekel (Sheba) - *In vivo* expansion and propagation of malignant progenitor lineages for target discovery

Coffee break & Exhibition (10:15-11:00)

Thursday 20/2 – 5th plenary lecture (11:00-11:45)

• HERODS - Pavilion

Plenary lecture 5. Exploring the Evolution of Sleep

Speaker: Gilles Laurent

Thursday 20/2 – 6th plenary lecture (11:45-12:30)

• HERODS - Pavilion

Plenary lecture 6. Protein Synthesis at Neuronal Synapses

Speaker: Erin Schuman

**Invited post docs in red*

Thursday 20/2 – Ilanit Trivia; Poster & Trivia winners; Closing (12:30-13:15)

- **HERODS - Pavilion**

Ilanit Trivia Competition

Announcing poster and Trivia winners

Closing Remarks

Pizza and Beer (13:15-14:00)