Collective of biomedical research hubs that aim to strengthen collaborative research between scientists at TAU
Contents

About BioMed@TAU  3

Personalized Epigenomics  4
Epigenetic basis of normal development & disease

Microbes in Health & Disease  6
Microbes and host responses to them

Pain Forum  8
Pain management and treatment

Membrane Communication & Remodeling  10
Cell communication, membrane trafficking and remodeling

Rare Diseases  12
Challenges linked to the care of patients with rare diseases and their families

Immunity & Inflammation  14
Immunology, immunotherapy, inflammatory diseases, immunooncology

Developmental Biology  16
Developmental biology and stem cell research

Bioengineering Materials, Cells & Tissues  18
Engineering and development of materials, tissues and cells

Disorders of the Mind & Brain  19
Pathophysiological mechanisms of mind and brain disorders, treatment and diagnosis of disorders

Other Events  21

Biomed@TAU Research Hub
Director: Prof. Karen B. Avraham
Manager: Alana Hassan, EMPH

Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel | Website: https://en-med.tau.ac.il/biomed_tau
Biomed@TAU Research Hub activities are supported by the office of the President of Tel Aviv University
BioMed@TAU is an initiative that promotes interdisciplinary excellence in biomedical research at Tel Aviv University.

BioMed@TAU is a collective of biomedical research hubs at Tel Aviv University. The biomedical scientific community at TAU performs a vast array of research, encompassing basic to translational research spread across several faculties and hospitals. The Hubs gather together scientists from across the University and in TAU-affiliated hospitals who share overlapping research interests. These collaborative groups host conferences and events related to their subject area in order to highlight advances in the field as well as in their own research. The Hubs also provide the opportunity to strengthen collaborative research between scientists at TAU and leverage opportunities for collaborative research, joint grant applications and external funding.

Highlights 2018

9 active research hubs
3 new hubs formed
21 events held in 2018
16 international keynote speakers
Attendees from 5 TAU faculties
Personalized Epigenomics

This rapidly growing field encompasses research into such areas as **embryonic development**, **plant biology**, **neurodegenerative disease** and **cancer**.

The BioMed@TAU Research Hub in Personalized Epigenomics brings together the community of TAU researchers involved in exploring the epigenetic basis of normal development and disease. These investigators come from across the TAU faculties and affiliated hospitals and share an interest in the processes that alter gene activity without changing the DNA sequence.

**ENERGIZE RESEARCH**
With members hailing from 4 different TAU Faculties and 3 different hospitals, researchers can connect across disciplines.

**ATTRACT INTERNATIONAL SPEAKERS**
Speakers came from EMBL-EBI (UK) and Bionano Genomics, Inc. (USA).

**INCREASE VISIBILITY**
Nearly 100 people attended Single-cell RNA Analysis workshops offered over 2 days in both basic workflow and advanced concepts.

Members from
Faculty of Medicine, Faculty of Life Sciences, Faculty of Exact Sciences, Faculty of Engineering, Schneider’s Children Hospital, Sheba Medical Center, Rabin Medical Center

Dr. Yuval Ebenstein, Ph.D.
Research Hub Director
Events in 2018

**Dec 5** Bionano Genome Mapping: High-Throughput Mapping of Structural Variation in Cancer and Genetic Disease

**May 22/23** Single-Cell RNA Analysis Workshop Interface

Website: https://en-med.tau.ac.il/biomed_tau/
The Hub includes researchers from faculties across the University and TAU-affiliated hospitals, whose research involves **microbiology, the microbiome, host/pathogen interactions** and the **effects and responses to antimicrobial drugs and compounds**.

**ENERGIZE RESEARCH**
With members hailing from 2 different TAU Faculties and 4 different hospitals, researchers connected across disciplines.

**SYMPOSIA**
The Microbes Hub hosted 2 symposiums, bringing international keynote speakers from Brussels and Paris.

**INCREASED VISIBILITY**
More than 150 people attended events for the Microbes Research Hub including scientists, clinicians and students.

---

**Members from**

Faculty of Medicine, Faculty of Life Sciences, Meir Hospital, Schneider’s Children Hospital, Sheba Medical Center, Sourasky Medical Center

**Prof. Judith Berman, Ph.D.**
Research Hub Director

**Dr. Yariv Wine, Ph.D.**
Research Hub director
Events in 2018

Jan 25 Immunity at the Human Maternofetal Interface

Dec 6 From Microbiomes to Living Systems

Website: https://en-med.tau.ac.il/biomed_tau/microbes
Chronic pain is a significant public health problem and is considered as an illness in its own right. The multitude of pain conditions requires a range of research and treatment approaches. For this reason, the Pain Research Hub brings together health professionals and researchers to **increase collaborative research** and develop **innovative strategies to better measure and manage pain.**

**RESEARCH**
This research hub has the most diverse affiliation. With members hailing from 5 different TAU Faculties and 8 different hospitals, researchers connected across disciplines and locations.

**HUB EVENTS**
The Pain Forum hosted a breakfast meeting and a symposium on pain research in Israel in collaboration with The Center for Research on Pain, Hebrew University.

**VISIBILITY**
Pain Forum events attracted more than 100 students, researchers and clinicians from across Israel.

---

**Members from**
Faculty of Medicine, Faculty of Life Sciences, Faculty of Exact Sciences, Faculty of Engineering, Schneider’s Children Hospital, Sheba Medical Center, Rabin Medical Center

Prof. Ruti Defrin, Ph.D.
Research Hub Co-Director

Dr. Silviu Brill, M.D.
Research Hub Co-Director
Events in 2018

Jan 15 Breakfast Meeting
Feb 26 Pain Research in Israel, in collaboration with The Center for Research on Pain, Hebrew University

Website: https://en-med.tau.ac.il/biomed_tau/pain
Intra and intercellular communication mediated by protein transport and membrane remodeling are essential processes for normal physiology, whose malfunctioning is linked with pathological pathways and disease.

Our goal is to bring together researchers from all over TAU campus, including TAU-affiliated hospitals, who share research in the broad area of cell communication and membrane trafficking and remodeling.

**ENERGIZE RESEARCH**
With members hailing from 4 different TAU Faculties and Sheba Medical Center, researchers connected across disciplines.

**STUDENT ENGAGEMENT**
Two symposiums took place, bringing international keynote speakers from France and Germany.

**INCREASED VISIBILITY**
Nearly 100 people attended hub events in 2018.

**Members from**
Faculty of Medicine, Faculty of Life Sciences, Faculty of Exact Sciences, Faculty of Engineering, Schneider’s Children Hospital, Sheba Medical Center, Rabin Medical Center

Prof. Ronit Sagi-Eisenberg, Ph.D.
Research Hub Director
Events in 2018

March 26 Membrane Trafficking and Immune Cell Functions

April 30 Endocytic Machineries, Lipid Conversion and Neuron Function

Website: https://en-med.tau.ac.il/biomed_tau/membrane
An estimated 6% of the population is afflicted with a rare disease, a number comprised of predominately children (80%). This means that in Israel alone, rare diseases may affect around half a million people and impact the lives of many more, including parents and siblings. For this reason, we formed the Research Hub in Rare Diseases at Tel Aviv University in collaboration with the Sheba Medical Center’s Institute of Rare Diseases to address the challenges linked to the care of these patients and their families.

**EMPOWER PATIENTS**
With a strong network of researchers, clinicians and other partners, the Research Hub in Rare Diseases has the potential to target user communities (including industry partners) and policy makers and thus better empower patients and parents.

**ENERGIZE RESEARCH**
The health of these individuals and their families is a major societal challenge for Israel, and it requires the development of personalized adapted medicines and treatment strategies.

**INCREASED VISIBILITY**
More than 100 people attended 2 events in 2018 with international speakers from France and USA.

---

**Members from**
Faculty of Medicine, Faculty of Life Sciences, Faculty of Engineering, Sheba Medical Center, Dana’s Children’s Hospital, Rabin Medical Center, Assaf Harofeh Medical Center

Prof. Miguel Weil, Ph.D.
Research Hub Co-Director

Prof. Annick Raas-Rothschild, M.D.
Research Hub Co-Director
Events in 2018

BioMed@TAU Rare Diseases Hub

Rare Diseases: From patients to bench and back
Tuesday May 29, 2018 | 9:00-14:30
Tel Aviv University, Sackler School of Medicine, room 927

9:00 - 9:30 Coffee
9:30 - 9:40 Introduction
Annick Raas-Rot Ischild, Institute of Rare Diseases, Institute of Genetics, Sheba Medical Center, Tel Hashomer
9:40 - 10:25 Keynote speaker
Pathophysiology and Therapeutic Developments in Progeroid Syndromes
Nicolas Levy, Département de Génétique Médicale et Biologie Cellulaire, Hôpital d’Enfants La Timone; Inserm UMR_S 1251, Marseille Medical Genetics Center, Faculty of Medicine, Marseille, France
10:25-10:55 Mutation-Specific Computational Drug Recovery Initiative for Cystic Fibrosis Patients
Ori Inbar, Director, Cystic Fibrosis Foundation of Israel
10:55-11:25 Artificial Intelligence in Medical Genetics
Ben Pode Shakked, *OTUJUVUFPG(FOFUJDT
4IFCB.FEJDJOF
5FM
BTIPNFS%FQBSUNFOUPG1FEJBUSJDT
4BDLMFS4DIPPMPG.FEJDJOF
5"
11:25-11:45 Teach for Life- From a Personal Story to an Educational Philosophy
Claudia Koby, Founder, “Krembo Wings”
11:45-12:10 The Usherhub
Vered Manny-Aframian, Usherhub
12:10-12:45 Lunch
12:45-13:15 Repurposing of Existing Drugs- A New Therapeutic Door Opens, Advantages and Challenges
Ronen Shemesh, Lephtin Bio and Fertiprot Ltd.
Dana Laor, Gazit Laboratory, Faculty of Life Sciences, TAU
13:45-14:15 Fighting Neurodegeneration Starts from Your Skin: Lessons for Familial Dysautonomia
Miguel Weil, Laboratory for Neurodegenerative Diseases and Personalized Medicine, Faculty of Life Sciences, TAU
14:15-14:30 Patience and Creativity- A Journey from Drug Discovery to a New Therapeutic Application
Erik M. Glentzer, COO, BioMarin Pharma

Pre-registration is requested HERE | For more information, contact alanarhassan@tauex.tau.ac.il

May 29 Rare Diseases: From Patients to Bench and Back
Dec 2 A New Age for Treating Rare Diseases

Website: https://en-med.tau.ac.il/biomed_tau/rare_diseases

2018 Year in Review
The BioMed @ TAU Research Hub in Immunity and Inflammation brings together the community of people at TAU working with immunity and inflammation. The Hub includes researchers from faculties across the University and TAU-affiliated hospitals, whose research encompasses areas such as immunology, immuno-therapy, inflammatory diseases, immuno-oncology, immuno-metabolism and neuro-immunology.

MEMBERS
With members hailing from 4 different TAU Faculties and hospitals, researchers connected across disciplines.

EVENTS
Two symposiums took place in 2018. One was held in honor of Prof. Nechama Kosower’s 90th birthday and the other symposium offered selected students and post doc scholars the opportunity to present lightening talks on their research.

SPEAKERS
Keynote speakers came from Germany and USA.

Members from
Faculty of Medicine, Faculty of Life Sciences, Ichilov Hospital, Schneider’s Children Hospital, Sheba Medical Center, Bellinson Medical Center

Dr. Lior Mayo, Ph.D.
Research Hub Director
Events in 2018

BioMed@TAU 2018 Year in Review

April 26 Symposium in honor of Prof. Nechama Kosower

Dec 23 Reciprocal Regulation of the Neuro-Immune Axis in Health and Disease

Website: https://en-med.tau.ac.il/biomed_tau/inflammation
Developmental Biology

Developmental Biology and Stem Cell Research – Molecular and cellular processes controlling tissue differentiation and organ development during embryo development and the relevance of diseases.

HUB EVENTS
The Developmental Biology Research Hub, launched in 2018 with an introductory breakfast meeting and 2 other events, brought together a range of attendees from across TAU campus.

ATTRACT INTERNATIONAL SPEAKERS
Three guest speakers came from the USA and China.

THE FUTURE
Plans are already underway for the next symposium in Summer 2019.

Prof. Ruth Ashery-Padan Ph.D.
Dr. Chen Luxenberg
Dr. Limor Landsman
Hub co-directors
Events in 2018

Nov 25 Developmental Biology Seminar Series
Dec 9 Non-visual Photoreceptors, Circadian Clock and Embryonic Development

Oct 29 Initiating the Developmental Biology Research Hub

Website: https://en-med.tau.ac.il/biomed_tau_developmentalbiology
This hub brings together the community of people at TAU and TAU-affiliated hospitals working within the field of developing and engineering materials, cells and tissues. The aim is to build an interactive community and to energize research of those working with these components.

**EVENTS**
The Bioengineering Materials, Cells & Tissues Research Hub launched in 2018 and hosted an introductory breakfast meeting

**INCREASE VISIBILITY**
The hub is planning its first symposium in the spring of 2019

**Events in 2018**

**Oct 22** Introductory Breakfast Meeting

**Website:** [https://en-med.tau.ac.il/biomed_tau/engineering](https://en-med.tau.ac.il/biomed_tau/engineering)
Disorders of the Mind & Brain is focused on understanding the pathophysiological mechanisms of disorders involved in the brain and mind and ways to better diagnose and treat such disorders.

EVENTS
The Disorders of the Mind & Brain Research Hub launched in 2018 with a seminar

INTERNATIONAL SPEAKERS
The hub hosted an international guest from China

THE FUTURE
Two events are planned for 2019

Events in 2018
Dec 10 The Promise of Pluripotent Stem Cells in the Therapy of Alzheimer’s Disease

Dr. Avi Ashkenazi          Dr. Boaz Barak
Hub directors

Website: https://en-med.tau.ac.il/biomed_tau/minddisorders
Hubs coming in 2019

Microbiomes in Health & Disease

Prof. Elhanan Borenstein
Research Hub Director

Gene Therapy and Genome Editing

Dr. Adi Barzel
Research Hub Director
Other events

January 30 and February 27 Interdisciplinary Colloquium in Medicine & Humanities

April 25 PrePost-Doctoral PhD Meetup

November 20 International Graduate Student Meet Up
**Meet the New TAU Faculty**

**Thursday, November 22, 2018 from 9:00-13:00**

**Porter School of Environmental Studies, Auditorium 013B**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>Coffee</td>
</tr>
<tr>
<td>9:30</td>
<td>Introductions by Prof. Klafter, President of TAU, and Prof. Henis, VP for Research &amp; Development, TAU</td>
</tr>
<tr>
<td>9:45</td>
<td>10 minute presentations by new faculty members of Medicine, Life Sciences, Exact Sciences</td>
</tr>
<tr>
<td>12:30</td>
<td>Light lunch</td>
</tr>
</tbody>
</table>

**Program**

- **Liad Mudrik**
  - School of Psychological Sciences, Faculty of Sciences
  - Sagol School of Neuroscience
  - "The empirical study of consciousness: what we study and what we want to study"

- **Isaac Sasson**
  - Dept. of Sociology and Anthropology, Faculty of Humanities
  - Website
  - "The social reshaping of uncertainty in length of life"

- **Boaz Barak**
  - Dept. of Pathology, Faculty of Medicine
  - Website
  - "Elucidating neurobiological mechanisms responsible for behavioral alterations in neurogenic syndromes"

- **Yaron Carmi**
  - Dept. of Pathology, Faculty of Medicine
  - Website
  - "Why our immune system does not generate an effective response against cancer?"

- **Shlomi Reuveni**
  - School of Chemistry, Faculty of Exact Sciences
  - Website
  - "In search of universality"

- **Amit Birenboim**
  - School of Geography and Human Environment, Faculty of Exact Sciences
  - Website
  - "Towards a personalized health geography"

- **Eran Levin**
  - Dept. of Sociology and Anthropology, Faculty of Humanities
  - Website
  - "Nutritional ecology—the truth is out there"

- **Meroz Yasmine**
  - School of Plant Science and Food Security, Faculty of Life Sciences
  - Website
  - "Physics of plant behavior"

- **Mark Shein-Idelson**
  - Dept. of Neurobiology, Faculty of Life Sciences
  - Website
  - "A dragon’s view on the evolution of brain states"

- **Ronen Zaidel-Bar**
  - Dept. Of Cell & Developmental Biology, Faculty of Medicine
  - Website
  - "What can a worm teach us about human development and disease"

- **Natalia Freund**
  - Dept. of Biochemistry & Molecular Biology, Faculty of Life Sciences
  - Website
  - "The magic bullet for combating infectious diseases: isolation of monoclonal antibodies directly from patients"

- **Ido Tavor**
  - Sagol School of Neuroscience
  - Dept. of Anatomy and Anthropology, Faculty of Medicine
  - Website
  - "Relating brain function and structure: from brain connectivity to brain activity"

- **Ben Maoz**
  - Dept. of Biomedical Engineering, Faculty of Engineering
  - Website
  - "Organs-on-a-chip: a new tool for the study of human physiology"

- **Dor Salomon**
  - Dept. of Human Microbiology & Immunology, Faculty of Medicine
  - Website
  - "World war VI: bacterial warfare and deadly arsenals"

- **Idaac Barzel**
  - Sagol School of Neuroscience
  - Dept. of Anatomy and Anthropology, Faculty of Medicine
  - Website
  - "Organs-on-a-chip: a new tool for the study of human physiology"

- **Liad Mudrik**
  - Sagol School of Neuroscience
  - Website
  - "The empirical study of consciousness: what we study and what we want to study"

- **Isaac Sasson**
  - Dept. of Sociology and Anthropology, Faculty of Humanities
  - Website
  - "The social reshaping of uncertainty in length of life"

- **Boaz Barak**
  - Dept. of Pathology, Faculty of Medicine
  - Website
  - "Elucidating neurobiological mechanisms responsible for behavioral alterations in neurogenic syndromes"

- **Yaron Carmi**
  - Dept. of Pathology, Faculty of Medicine
  - Website
  - "Why our immune system does not generate an effective response against cancer?"

- **Shlomi Reuveni**
  - School of Chemistry, Faculty of Exact Sciences
  - Website
  - "In search of universality"

- **Amit Birenboim**
  - School of Geography and Human Environment, Faculty of Exact Sciences
  - Website
  - "Towards a personalized health geography"

- **Eran Levin**
  - Dept. of Sociology and Anthropology, Faculty of Humanities
  - Website
  - "Nutritional ecology—the truth is out there"

- **Meroz Yasmine**
  - School of Plant Science and Food Security, Faculty of Life Sciences
  - Website
  - "Physics of plant behavior"

- **Mark Shein-Idelson**
  - Dept. of Neurobiology, Faculty of Life Sciences
  - Website
  - "A dragon’s view on the evolution of brain states"

- **Ronen Zaidel-Bar**
  - Dept. Of Cell & Developmental Biology, Faculty of Medicine
  - Website
  - "What can a worm teach us about human development and disease"

- **Natalia Freund**
  - Dept. of Biochemistry & Molecular Biology, Faculty of Life Sciences
  - Website
  - "The magic bullet for combating infectious diseases: isolation of monoclonal antibodies directly from patients"

- **Ido Tavor**
  - Sagol School of Neuroscience
  - Dept. of Anatomy and Anthropology, Faculty of Medicine
  - Website
  - "Relating brain function and structure: from brain connectivity to brain activity"

- **Ben Maoz**
  - Dept. of Biomedical Engineering, Faculty of Engineering
  - Website
  - "Organs-on-a-chip: a new tool for the study of human physiology"

- **Dor Salomon**
  - Dept. of Human Microbiology & Immunology, Faculty of Medicine
  - Website
  - "World war VI: bacterial warfare and deadly arsenals"

- **Idaac Barzel**
  - Sagol School of Neuroscience
  - Dept. of Anatomy and Anthropology, Faculty of Medicine
  - Website
  - "Organs-on-a-chip: a new tool for the study of human physiology"

- **Liad Mudrik**
  - Sagol School of Neuroscience
  - Website
  - "The empirical study of consciousness: what we study and what we want to study"

- **Isaac Sasson**
  - Dept. of Sociology and Anthropology, Faculty of Humanities
  - Website
  - "The social reshaping of uncertainty in length of life"

- **Boaz Barak**
  - Dept. of Pathology, Faculty of Medicine
  - Website
  - "Elucidating neurobiological mechanisms responsible for behavioral alterations in neurogenic syndromes"

- **Yaron Carmi**
  - Dept. of Pathology, Faculty of Medicine
  - Website
  - "Why our immune system does not generate an effective response against cancer?"

- **Shlomi Reuveni**
  - School of Chemistry, Faculty of Exact Sciences
  - Website
  - "In search of universality"

- **Amit Birenboim**
  - School of Geography and Human Environment, Faculty of Exact Sciences
  - Website
  - "Towards a personalized health geography"

- **Eran Levin**
  - Dept. of Sociology and Anthropology, Faculty of Humanities
  - Website
  - "Nutritional ecology—the truth is out there"

- **Meroz Yasmine**
  - School of Plant Science and Food Security, Faculty of Life Sciences
  - Website
  - "Physics of plant behavior"

- **Mark Shein-Idelson**
  - Dept. of Neurobiology, Faculty of Life Sciences
  - Website
  - "A dragon’s view on the evolution of brain states"

- **Ronen Zaidel-Bar**
  - Dept. Of Cell & Developmental Biology, Faculty of Medicine
  - Website
  - "What can a worm teach us about human development and disease"

- **Natalia Freund**
  - Dept. of Biochemistry & Molecular Biology, Faculty of Life Sciences
  - Website
  - "The magic bullet for combating infectious diseases: isolation of monoclonal antibodies directly from patients"

- **Ido Tavor**
  - Sagol School of Neuroscience
  - Dept. of Anatomy and Anthropology, Faculty of Medicine
  - Website
  - "Relating brain function and structure: from brain connectivity to brain activity"

- **Ben Maoz**
  - Dept. of Biomedical Engineering, Faculty of Engineering
  - Website
  - "Organs-on-a-chip: a new tool for the study of human physiology"

- **Dor Salomon**
  - Dept. of Human Microbiology & Immunology, Faculty of Medicine
  - Website
  - "World war VI: bacterial warfare and deadly arsenals"