

# **QBI/UCSF-TAU Symposium in Computational Biology and Drug Discovery**

December 4 - 5 2019, the Steinhardt Museum of Natural History, Tel Aviv University

## **Wednesday, December 4<sup>th</sup>, 2019**

09:00 – 09:15 *Gathering and coffee*

09:15 – 09:30 *Opening*

**Prof. Raanan Rein, Vice President, TAU**

**Prof. Ron Shamir, Edmond J. Safra Center for Bioinformatics, TAU**

**Prof. Nevan Krogan, QBI/UCSF**

**Prof. Ehud Gazit, Blavatnik Center for Drug Discovery, TAU**

### **Genomics and Metagenomics**

**Chair: Elhanan Borenstein, TAU**

09:30 – 09:45 **Nadav Ahituv, QBI/UCSF:** Functional characterization and therapeutic targeting of gene regulatory elements

09:45 – 10:00 **Irit Gat-Viks, TAU:** Cell composition analysis of bulk genomics using single cell data

10:00 – 10:15 **Jimmie Ye, QBI/UCSF:** Multiplexed multimodal single cell profiling

10:15 – 10:30 **Karen Avraham, TAU:** Epigenomics of the auditory system: implications for hearing and deafness

10:30 – 10:45 **Gil Ast, TAU:** How transcription direct alternative splicing?

10:45 – 11:30 *Coffee break*

**Chair: Karen Avraham, TAU**

11:30 – 11:45 **Steven Altschuler, QBI/UCSF:** Going with your gut: a HT platform for investigating perturbations to the intestine

11:45 – 12:00 **Elhanan Borenstein, TAU:** Computational model-based methods for microbiome research

12:00 – 12:15 **Martin Kupiec, TAU:** Mechanisms of telomere length maintenance

12:15 – 12:30 **Noam Shomron, TAU:** Genomics of breast cancer

12:30 – 14:00 *Lunch*

### **Computational Structural Biology**

**Chair: Haim Wolfson, TAU**

14:00 – 14:15 **James Fraser, QBI/UCSF:** Conformational change we can believe in!

14:15 – 14:30 **Andrej Sali, QBI/UCSF:** Integrative structural biology

14:30 – 14:45 **Nir Ben-Tal, TAU:** Cation/proton antiporters: phylogenetic analysis and simulations guide experiments

14:45 – 15:00 **Rada Savic, QBI/UCSF:** Translation of Tuberculosis treatment response

15:00 – 15:45 *Coffee break*

**Chair: Nir Ben-Tal, TAU**

15:45 – 16:00 **Haim Wolfson, TAU:** Algorithms for PPI modeling and inhibition

16:00 – 16:15 **Yoel Shkolnisky, TAU:** Manifold denoising for cryo-EM data sets

19:30 – *Speakers Dinner*

## Thursday, December 5th, 2019

09:15 – 09:30 *Gathering and coffee*

### Computational Drug Design

**Chair: Tamir Tuller, TAU**

09:30 – 09:45 **Roey Amir, TAU:** Designing polymeric nano-carriers with high molecular precision

09:45 – 10:00 **Lani Wu, QBI/UCSF:** Choices, choices: cell fate decisions in and out of drug

10:00 – 10:15 **Ronit Satchi-Fainaro, TAU:** Fighting melanoma brain metastasis in 3 dimensions

10:15 – 10:30 **Doron Shabat, TAU:** Unlocking the potential of Chemiluminescence in water

10:30 – 10:45 **Judith Berman, TAU:** Targeting drug tolerance

10:45 – 11:30 *Coffee break*

**Chair: Ronit Satchi-Fainaro, TAU**

11:30 – 11:45 **Tanja Kortemme, QBI/UCSF:** New structures and functions by computational protein design

11:45 – 12:00 **Tamir Tuller, TAU:** Engineering genes, viruses, and cells based on computational models of gene expression

12:00 – 12:15 **Jack Taunton, QBI/UCSF:** Biased inhibition of membrane protein biogenesis

12:15 – 14:00 *Lunch*

13:00 – 13:50 *Site visit of QBI/UCSF delegates to the Blavatnik Center for Drug Discovery*

### Systems Biology and Disease

**Chair: Adi Stern, TAU**

14:00 – 14:15 **Nevan Krogan, QBI/UCSF:** Using system approaches to understand the mechanisms of disease

14:15 – 14:30 **Saharon Rosset, TAU:** Estimating the contribution of gene-environment interactions to phenotypic variation from Biobank scale data

14:30 – 14:45 **Michelle Arkin, QBI/UCSF:** Hacking protein-protein interaction networks with small molecules

14:45 – 15:00 **Sourav Bandyopadhyay, QBI/UCSF:** Networks mediating receptor tyrosine kinase activation and drug resistance in cancer

15:00 – 15:15 **Miguel Weil, TAU:** Establishing a drug repurposing screening pipeline for personalised treatment of patients with rare diseases: STXBP1 case study

15:15 – 15:45 *Coffee break*

**Chair: Nevan Krogan, QBI/UCSF**

15:45 – 16:00 **Ran Elkon, TAU:** Enhancing functional interpretation of GWAS data

16:00 – 16:15 **Adi Stern, TAU:** Hidden genetic diversity in RNA viruses

16:15 – 16:30 **Roded Sharan, TAU:** A systematic approach to orient the human protein-protein interaction network

16:30 – 16:45 **Ron Shamir, TAU:** Computational biology in precision medicine

16:45 – *Closing remarks*