



Protein expression and characterization workshop

May 11-12, 2014

The David Lopatie Conference Centre, Weizmann Institute of Science

Program

Contact

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Organizers

Yoav Peleg ■ Weizmann Institute of Science
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Sunday, 11 May, 2014

- 8:15 **Coffee**
- 8:45 Greetings and opening remarks
Prof. Zvi Livneh, Dean, Faculty of Biochemistry
Prof. Gideon Schreiber, Director of I-CORE center on Integrated Structural Cell Biology
Dr. Tamar Unger, Structural Proteomics Unit

Session I: Protein expression (Chair: Ron Diskin)

- 9:00 **James D Love** (Albert Einstein College of Medicine, NY)
High throughput protein at NYSGRG
- 9:45 **Itai Benhar** (Tel-Aviv University)
Rapid production of IgGs, Fabs and fusion proteins thereof in *E. coli*
- 10:10 **Yoseph Shaaltiel** (Protalix Biotherapeutics)
Protein expression in plant cell in suspension for pharmaceutical use
- 10:35 **Coffee break**

Session II: Protein engineering (Chair: Sarel Fleishman)

- 11:00 **Yoram Reiter** (Technion)
Structure-function studies that reveal the unique binding properties of antibodies that mimic T cells specificity
- 11:25 **Tsafi Danieli** (Hebrew University)
Enhancing protein secretion
- 11:50 **Opher Gileadi** (SGC, Oxford)
Rescuing orphans by engineering: A case study
- 12:15 **Adi Goldenzweig** (Weizmann Institute of Science)
An unstable protein withholds your research? towards a fully automated protein thermostabilization algorithm for wide use
- 12:40 **Moshe Goldsmith** (Weizmann Institute of Science)
Enzyme engineering by targeted libraries
- 13:05 **Lunch**

Session III: Protein characterization (Chair: Jacob Anglister)

- 14:05 **Lewis Kay** (University of Toronto)
NMR studies of supra-molecular machines: The proteasome
- 14:50 **Gili Ben-Nissan** (Weizmann Institute of Science)
The COP9-Signalosome as a model to study the structure/ function relationship of large protein complexes
- 15:15 **Yishai Levin** (Weizmann Institute of Science)
Lessons learned from protein-protein interaction experiments by mass spectrometry
- 15:40 **Hadar Amartely** (Hebrew University)
Use of SEC-MALS (Size Exclusion Chromatography - Multi Angle Light Scattering) for protein quality and characterization
- 16:05 **Coffee break**

Session IV: Protein-protein interaction (Chair: Shira Albeck)

- 16:30 **Emmanuel Levy** (Weizmann Institute of Science)
Promiscuous protein-protein interactions: a burden for the cell and a tool for the biologist
- 16:55 **Arieh Gertler** (Hebrew University)
Development of high-affinity recombinant adipokine/cytokine antagonists: blocking of leptin, IL22 and resistin

Monday, 12 May, 2014

8:30 **Coffee**

Session V: Membrane proteins (Chair: Steve Karlsh)

- 9:00 **James D Love** (Albert Einstein College of Medicine, NY)
Production of human integral membrane proteins in mammalian cells
- 9:45 **Adriana Katz** (Weizmann Institute of Science)
Expression in *Pichia pastoris* of isoforms of Na,K-ATPase, purification and applications of the purified isoform complexes
- 10:10 **Jordan Chill** (Bar-Ilan University)
Overcoming challenges in expression, purification and NMR characterization of membrane proteins
- 10:35 **Osnat Tirosh** (Weizmann Institute of Science)
Towards crystallization of MdfA, a promiscuous secondary multidrug transporter

11:00 **Coffee break**

Session VI: Inclusion bodies and aggregates (Chair: Orly Dym)

- 11:25 **Gideon Schreiber** (Weizmann Institute of Science)
Proteins expression in inclusion bodies
- 11:50 **Mario Lebediker** (Hebrew University)
Production of prone-to-aggregate proteins

Session VII: DNA manipulation and bioinformatics (Chair: Orly Dym)

- 12:15 **Yoav Peleg** (Weizmann Institute of Science)
Molecular tools for facilitating DNA manipulation and protein expression
- 12:40 **Niv Antonovsky** (Weizmann Institute of Science)
Spanning high-dimensional expression space using ribosome-binding site combinatorics
- 13:05 **Jaime Prilusky** (Weizmann Institute of Science)
SuggesES (Suggest an Expression System)

13:30 **Lunch**

Session VIII: Protein production and analysis (Chair: Tsafi Danieli)

- 14:30 **Arie Admon** (Technion)
Analysis of the full proteome and HLA peptidome by mass spectrometry
- 14:55 **Gali Prag** (Tel-Aviv University)
Novel bacterial expression systems to genetically select and purify ubiquitylated-proteins
- 15:20 **Ram Uritski** (BiondVax Pharmaceuticals)
Process development challenges in purification and formulation of a recombinant polypeptide with limited solubility

15:45 **Coffee break**

- 16:10 **Joel Van Gelder** (InSight Biopharmaceuticals)
The development of INS-004 - a biosimilar therapeutic monoclonal antibody
- 16:35 **Tamar Auerbach-Nevo** (Omrix Biopharmaceuticals)
Purification and on-column activation of Thrombin

Session IX: Large-scale production (Chair: Mario Lebediker)

- 17:00 **Galia Yirme** (Bonus BioGroup)
Process development of cell expansion and protein production in bioreactors
- 17:25 **Ghil Jona** (Weizmann Institute of Science)
Moving protein expression from the laboratory scale to large-scale high density fermentation
- 17:50 **Tamar Unger** (Weizmann Institute of Science)
Concluding remarks and open discussion

Sponsors

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ISPC – The Dana and Yossie Hollander Center for Structural Proteomics

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