

PSB 2010 Schedule

Sunday, January 3, 2010

5:00-7:00pm *Registration* Ballroom Prefunction

Monday, January 4, 2010

7:00-9:30am *Registration* Ballroom Prefunction

11:00-2:00 *Registration* Ballroom Prefunction

4:30-7:30pm *Registration* Ballroom Prefunction

9:00-12:00 **Workshop:** *In silico* biology Plaza Ballroom
Richard Goldstein, Phil Husbands, Chrisantha Fernando, Dov Stekel

9:00-9:50 **Tutorial:** Personal Genomics Salon 2&3

10:00-10:50 **Tutorial:** Computational studies of non-coding RNAs Salon 2&3

11:00-11:50 **Tutorial:** Multi-resolution Modeling of Biological Macromolecules Salon 2&3

12:00-1:30 **Lunch on Own**

1:30-4:30 **Workshop:** Genomic Standards Consortium: Metagenomics, Metadata and Metaanalysis (M3) Plaza Ballroom
Peter Sterk, Lynette Hirschman, Dawn Field, John Wooley

1:30-2:20 **Tutorial:** Computational Challenges in Comparative Genomics Salon 2&3

2:30-3:20 **Tutorial:** Reverse Engineering and Synthesis of Biomolecular Systems Salon 2&3

3:30-4:20 **Tutorial:** Dynamics of Biological Networks Salon 2&3

4:30 **Dinner on Own**

7:00-8:00 *PLoS Computational Biology* Conference Postcards – Phil Bourne Salon 2&3

8:00-10:00 *Ad Hoc* Genomics Standards Consortium Meeting Plaza Ballroom III

Tuesday, January 5, 2010

7:30-9:00 *Registration* Ballroom Prefunction

10:30-11:30 *Registration* Ballroom Prefunction

1:30-2:30 *Registration* Ballroom Prefunction

7:30-8:30 **Breakfast** Ballroom Courtyard

8:30-8:40 **Welcome – Teri Klein** Salon 2&3

8:40-8:50 **Personal Genomics** Salon 2&3
Can Alkan, Michael Brudno, Evan E. Eichler, Maricel G. Kann, S. Cenk Sahinalp

8:50-9:10 Invited Talk – Isaac (Zak) Kohane

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- 9:10-9:30 Improving the Prediction of Pharmacogenes Using Text-Derived Gene-Drug Relationships
Yael Garten, Nicholas P. Tatonetti, Russ B. Altman
- 9:30-9:50 Enabling Personal Genomics with an Explicit Test of Epistasis
Casey S. Greene, Daniel S. Himmelstein, Heather H. Nelson, Karl T. Kelsey, Scott M. Williams, Angeline S. Andrew, Margaret R. Karagas, Jason H. Moore
- 9:50-10:10 Detecting Genome-wide Haplotype Polymorphism by Combined Use of Mendelian Constraints and Local Population Structure
Xin Li, Yixuan Chen, Jing Li
- 10:10-10:30 ÇOKGEN: A Software for the Identification of Rare Copy Number Variation from SNP Microarrays
Gökhan Yavaş, Mehmet Koyutürk, Meral Özsoyoğlu, Meetha P. Gould, Thomas Laframboise
- 10:30-10:50 Loss of Post-Translational Modification Sites in Disease
Shuyan Li, Lilia M. Iakoucheva, Sean D. Mooney, Predrag Radivojac
- 10:50-11:30 Break**
- 11:30-12:30 Keynote Lecture – Introduction (Russ Altman) Salon 2&3**
Whole human cancer genome sequencing: issues and progress towards common application
Stanley Nelson
- 12:30-2:00 Lunch on Own**
- 2:00-2:10 Computational studies of non-coding RNAs Salon 2&3**
Rolf Backofen, Hamidreza Chitsaz, Ivo Hofacker, S. Cenk Sahinalp, Peter F. Stadler
- 2:10-2:30 Invited Talk – David Mathews
- 2:30-2:50 RNA Structural Segmentation
Ivan Dotu, William A. Lorenz, Pascal Van Henteryck, Peter Clote
- 2:50-3:10 RNAz 2.0: Improved Noncoding RNA Detection
Andreas R. Gruber, Sven Findeiß, Stefan Washietl, Ivo L. Hofacker, Peter F. Stadler
- 3:10-3:30 Identification and Classification of Small RNAs in Transcriptome Sequence Data
D. Langenberger, C.I. Bermudez-Santana, P.F. Stadler, S. Hoffmann
- 3:30-3:50 An Algorithm for the Energy Barrier Problem Without Pseudoknots and Temporary Arcs
Chris Thachuk, Jan Manuch, Arash Rafiey, Leigh-Anne Mathieson, Ladislav Stacho, Anne Condo
- 4:00-5:00 Discussion Session: Computational studies of non-coding RNAs Salon 2&3**
- 4:00-5:00 Discussion Session: Personal Genomics Plaza III**

PSB 2010 Schedule

5:00-5:30 **ISCB Open Business Meeting** Plaza III

5:30 *Dinner on Own*

8:00-10:00 **Open Forum: Building a Comprehensive Protein Ontology** Salon 2&3

Structured and intrinsically disordered proteins carry out complementary functions. Biologists need an ontology that covers both of these protein classes. The purpose of this gathering will be to form a working group to build such a comprehensive protein ontology over the next several PSB meetings.

Contact: Keith Dunker, email: kedunker @ iupui.edu

Wednesday, January 6, 2010

7:30-9:00 *Registration* Ballroom Prefunction
12:00-2:00 *Registration* Ballroom Prefunction

7:30-8:30 **Breakfast** Ballroom Courtyard

8:30-8:40 **Morning Announcements – Russ Altman** Salon 2&3

8:40-8:50 **Multi-resolution Modeling of Biological Macromolecules** Salon 2&3
Julie Bernauer, Samuel Flores, Xuhui Huang, Seokmin Shin, Ruhong Zhou

8:50-9:10 Invited Talk – Michael Levitt
9:10-9:30 Multi-Resolution Approach for Interactively Locating Functionally Linked Ion Binding Sites by Steering Small Molecules into Electrostatic Potential Maps Using a Haptic Device
Olivier Delalande, Nicolas Férey, Benoist Laurent, Marc Guérault, Brigitte Hartmann, Marc Baaden

9:30-9:50 Constructing Multi-Resolution Markov State Models (MSMs) to Elucidate RNA Hairpin Folding Mechanisms
Xuhui Huang, Yuan Yao, Gregory R. Bowman, Jian Sun, Leonidas J. Guibas, Gunnar Carlsson, Vijay S. Pande

9:50-10:10 Multiscale Dynamics of Macromolecules Using Normal Mode Langevin
Jesus A Izaguirre, Christopher R. Sweet, Vijay S. Pande

10:10-10:30 “Cross-Graining:” Efficient Multi-Scale Simulation via Markov State Models
Peter Kasson, Vijay Pande

10:30-11:00 **Break**

11:00-11:20 Toward Understanding Allosteric Signaling Mechanisms in the ATPase Domain of Molecular Chaperones
Ying Liu, Ivet Bahar

11:20-11:40 3D-Blast: 3D Protein Structure Alignment, Comparison, and Classification

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- Using Spherical Polar Fourier Correlations
Lazaros Mavridis, David W. Ritchie
- 11:40-12:00 Structural Prediction of Protein-RNA Interaction by Computational Docking with Propensity-Based Statistical Potentials
Laura Pérez-Cano, Albert Solernou, Carles Pons, Juan Fernández-Recio
- 12:00-1:00 **Discussion Session:** Multi-resolution Modeling of Biological Macromolecules Salon 2&3
- 1:00-2:30 **Poster Session #1 with Finger Food Lunch** Salon 1 & Ballroom Courtyard
(A-L, last name of the first author presents)
- 2:30-2:40 **Computational Challenges in Comparative Genomics** Salon 2&3
Bernard Moret, Webb Miller, Pavel Pevzner, and David Sankoff
- 2:40-3:00 Benchmarking BLAST Accuracy of Genus/Phyla Classification of Metagenomic Reads
Steven D. Essinger, Gail L. Rosen
- 3:00-3:20 Guided Genome Halving: Provably Optimal Solutions Provide Good Insights into the Preduplication Ancestral Genome of *Saccharomyces cerevisia*
Haris Gavranovic, Eric Tannier
- 3:20-3:40 A Practical Algorithm for Estimation of the Maximum Likelihood Ancestral Reconstruction Error
Glenn Hickey, Mathieu Blanchette
- 3:40-4:00 Optimization Methods for Selecting Founder Populations for Captive Breeding of Endangered Species
Webb Miller, Stephen J. Wright, Yu Zhang, Stephan C. Schuster, Vanessa M. Hayes
- 4:00-5:00 **Discussion Session:** Computational Challenges in Comparative Genomics Salon 2&3
- 5:30-7:30 **Dinner Beach Party** Coconut Grove
- 7:30-9:00 **Dessert & Keynote Lecture** Salon 2&3 and Ballroom Courtyard
Introduction (Larry Hunter)
Preventing the Incidentalome and Practicing a Responsible Personalized Medicine
Isaac (Zak) Kohane

Thursday, January 7, 2010

- 7:30-8:30 **Breakfast** Ballroom Courtyard
- 8:30-8:40 **Morning Announcements – Keith Dunker** Salon 2&3

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- 8:40-8:50 Reverse Engineering and Synthesis of Biomolecular Systems**
Gil Alterovitz, Silvio Cavalcanti, Taro M. Muso, Marco F. Ramoni, May Wang
- 8:50-9:10 Co-Design in Synthetic Biology: A System-Level Analysis of the Development of an Environmental Sensing Device
David A. Ball, Matthew W. Lux, Russell R. Graef, Matthew W. Peterson, Jane D. Valenti, John Dileo, Jean Peccoud
- 9:10-9:30 Critical Analysis of Transcriptional and Post-Transcriptional Regulatory Networks in Multiple Myeloma
Marta Biasiolo, Mattia Forcato, Lino Possamai, Francesco Ferrari, Luca Agnelli, Marta Lionetti, Katia Todoerti, Antonino Neri, Massimo Marchiori, Stefania Bortoluzzi, Silvio Bicciato
- 9:30-9:50 A Computational Model of Gene Expression in an Inducible Synthetic Circuit
Francesca Ceroni, Simone Furini, Silvio Cavalcanti
- 9:50-10:10 Emulsion Based Selection of T7 Promoters of Varying Activity
Eric A. Davidson, Thomas Van Blarcom, Matthew Levy, Andrew D. Ellington
- 10:10-10:30 Writing and Compiling Code into Biochemistry
Adam Shea, Brian Fett, Marc D. Riedel and Keshab Parhi
- 10:30-10:50 Synthesis of Pharmacokinetic Pathways Through Knowledge Acquisition and Automated Reasoning
Luis Tari, Saadat Anwar, Shanshan Liang, Jörg Hakenberg, Chitta Baral
- 10:50-11:15 Break**
- 11:15-12:15 Discussion Session: Reverse Engineering and Synthesis of Biomolecular Systems** Salon 2&3
- 12:15-2:00 Poster Session #2 with Finger Food Lunch** Salon 1 & Ballroom Courtyard
(M-Z, last name of the first author presents)
- 2:00-5:30 Special Workshop: GPD-Rxn Workshop: Genotype-Phenotype-Drug Relationship Extraction from Text** Plaza III
Adrien Coulet, Nigam Shah, Larry Hunter, Chitta Baral, Russ Altman
- 5:30 Dinner on Own**

Friday, January 8, 2010

- 7:30-8:30 Breakfast** Ballroom Courtyard
- 8:30-8:40 Closing – Larry Hunter** Salon 2&3
- 8:40-8:50 Dynamics of Biological Networks** Salon 2&3
Tanya Y. Berger-Wolf, Teresa M. Przytycka, Mona Singh, Donna Slonim

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- 8:50-9:10 Invited Talk – Edward Marcotte
9:10-9:30 Local Optimization for Global Alignment of Protein Interaction Networks
S Leonid Chindelevitch, Chung-Shou Liao, Bonnie Berger
9:30-9:50 Identification of Coordinately Dysregulated Subnetworks in Complex Phenotypes
Salim A. Chowdhury, Mehmet Koyuturk
9:50-10:10 Subspace Differential Coexpression Analysis: Problem Definition and a General Approach
Gang Fang, Rui Kuang, Gaurav Pandey, Michael Steinbach, Chad L. Myers, Vipin Kumar

10:10-10:30 Break

- 10:30-10:50 Estimation of Protein and Domain Interactions in the Switching Motility System of *Myxococcus xanthus*
Faruck Morcos, Marcin Sikora, Mark Alber, Dale Kaiser, Jesus A. Izaguirre
10:50-11:10 Exploring Biological Network Dynamics with Ensembles of Graph Partitions
Saket Navlakha, Carl Kingsford
11:10-11:30 The Steady States and Dynamics of Urokinase-mediated Plasmin Activation
Lakshmi Venkatraman, Hanry Yu, Sourav S. Bhowmick, Forbes Dewey Jr., Lisa Tucker-Kellogg

11:30-12:30 Discussion Session: Dynamics of Biological Networks

Salon 2&3

PSB over--see you next year!