

## PSB 2010 Schedule

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### Sunday, January 3, 2010

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

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### Monday, January 4, 2010

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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, Plaza Ballroom  
Metadata and Metaanalysis (M3)  
*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 Computation Biology Conference Currents – Phil Bourne Salon 2&3

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

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### Tuesday, January 5, 2010

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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

## PSB 2010 Schedule

- 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

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### Wednesday, January 6, 2010

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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

## PSB 2010 Schedule

- 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**

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Thursday, January 7, 2010

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

## PSB 2010 Schedule

- 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)
- 2:00-5:00 Special Workshop: GPD-Rxn Workshop: Genotype-Phenotype-Drug Relationship Extraction from Text** Plaza III  
*Adrien Coulet, Nigam Shah, Larry Hunter, Chitta Baral, Russ Altman*
- 5:00 Dinner on Own**

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### Friday, January 8, 2010

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- 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*

## **PSB 2010 Schedule**

- 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!***