

# Pacific Symposium on Biocomputing 2017

January 3-7, 2017

Big Island of Hawaii

## Program Book



# PACIFIC SYMPOSIUM ON BIOCOMPUTING 2017

*Big Island of Hawaii, January 3-7, 2017*

Welcome to PSB 2017!

We have prepared this program book to give you quick access to information you need for PSB 2017.

Enclosed you will find

- Logistics information
- Menus for PSB hosted meals
- Full conference schedule
- Call for Session and Workshop Proposals for PSB 2018
- Poster/abstract titles and authors
- Participant List

Conference materials are also available online at <http://psb.stanford.edu/conference-materials/>.

PSB 2017 gratefully acknowledges the support the Rxight Pharmacogenetics Program; the Penn Institute for Biomedical Informatics; the Institute for Computational Biology, a collaborative effort of Case Western Reserve University, the Cleveland Clinic Foundation, and University Hospitals; the National Institutes of Health (NIH); and the International Society for Computational Biology (ISCB). If you or your institution are interested in sponsoring, PSB, please contact Tiffany Murray at [psb.hawaii@gmail.com](mailto:psb.hawaii@gmail.com)

If you have any questions, the PSB registration staff (Tiffany Murray, Georgia Hansen, Kasey Miller, BJ Morrison-McKay, and Cindy Paulazzo) are happy to help you.

Aloha!

Russ Altman  
Keith Dunker  
Larry Hunter  
Teri Klein  
Marylyn Ritchie

The PSB 2017 Organizers

# PACIFIC SYMPOSIUM ON BIOCOMPUTING 2017

*Big Island of Hawaii, January 3-7, 2017*

## SPEAKER INFORMATION

Oral presentations of accepted proceedings papers will take place in Salon 2 & 3. ***Speakers are allotted 10 minutes for presentation and 5 minutes for questions for a total of 15 minutes. Instructions for uploading talks were sent to authors with oral presentations.*** If you need assistance with this, please see Tiffany Murray or another PSB staff member.

## POSTER INFORMATION

Please set up your poster upon arrival. Please use the easel marked with the same number that your poster abstract has been assigned in abstract book (e.g., if your abstract is on page 50 of the book, use the easel marked #50). Once your poster is displayed, please make sure that the number is still visible. ***Please remove your poster by 9:00pm, Friday, January 6.***

**The poster session is on Thursday, January 5 12:10-2:15.**

12:45-1:30: Posters on ODD numbered boards presented.

1:30-2:15: Posters on EVEN numbered boards presented.

The poster session is centered around lunch. Please eat, talk, and network.

## INTERNET CONNECTIVITY

PSB is connected to the Internet via a secure wireless network for the conference. For transferring your data/presentations or technical difficulties with the network, please see PSB IT/AV staff members Paul Murray or Ryan Whaley.

To connect to the PSB wireless network, you will need to explicitly join the "PSB" SSID, and use the passphrase "orcpsb123" with WPA2-Personal security type and AES encryption.

PSB's wireless Internet access (802.11b/g/n) is available in the Salons 1, 2, 3, the Plaza Ballroom, and the Ballroom Courtyard of the Fairmont Orchid.

Please help keep the PSB wireless network stable: Do not download large data files due to limited bandwidth.

# PACIFIC SYMPOSIUM ON BIOCOMPUTING 2017

*Big Island of Hawaii, January 3-7, 2017*

## PSB 2017 HOSTED RECEPTIONS & MEALS

### Tuesday, January 3

7:30-8:30pm 22<sup>nd</sup> Dessert Anniversary Reception, Kilohana Room (near Concierge)

*Sponsored by Case Western Reserve University, the Cleveland Clinic Foundation and University Hospitals, and, the Rxight Pharmacogenetics Program*

### Wednesday, January 4

7:30-8:30am Continental Breakfast, Ballroom Courtyard

11:45-1:00pm PSB Hosted Lunch, Ballroom Courtyard

### Thursday, January 5

7:30-8:30am Continental Breakfast, Ballroom Courtyard

12:10-2:15pm Poster Session with Lunch, Salon 1 and Ballroom Courtyard

### Friday, January 6

7:30-8:30am Continental Breakfast, Ballroom Courtyard

5:30-7:30pm Dinner Party, Coconut Grove

### Saturday, January 7

7:30-8:30am Continental Breakfast, Ballroom Courtyard

Non-participant meal tickets may be purchased at the PSB registration desk:

- All Meals: \$550 adults; \$275 children 6-12 years
- Reception Ticket Only: \$35 adults; \$15 children 6-12 years
- Banquet Ticket Only: \$150 adults; \$75 children 6-12 years
- Reception & Banquet Only: \$180 adults; \$85 children 6-12 years

**Please remember to wear your PSB nametag & lanyard at all PSB functions.**

Enjoy the conference!

**Pacific Symposium on Biocomputing 2017  
Hosted Meal Menus**

**Tuesday, January 3**

**22<sup>nd</sup> Anniversary Reception (7:30-8:30pm)**

Wine, beer, champagne, soft drinks, coffee & tea service  
Triple Chocolate Mousse Cake, Assorted Malasadas, Tropical Fruit

**Wednesday, January 4**

**Breakfast (7:30am-8:30am)**

Orange Juice, Guava Juice & Pineapple Juice  
Selection of Sliced Seasonal Fruits  
Island Breakfast Scones: Papaya Ginger, Pineapple Vanilla & Kabocha Pumpkin  
Sweet Cream Butter & Tropical Fruit Preserves  
Selection of Dry Cereals, Muesli, with Fat Free Milk, Soy Milk & Almond Milk, Raisins, Brown Sugar  
Holualoa Croissant: Scrambled Eggs, Black Forest Ham, Swiss Cheese (vegetarian option available)  
Coffee, Decaffeinated Coffee & Fairmont Signature Teas

**Lunch (11:45am-1:00pm)**

Island Romaine, Focaccia, Shaved Parmesan, Herb Grilled Chicken Breast, Croutons, Caesar Dressing  
Green Papaya Salad  
Seasonal Tropical Fruit Display  
Taro Chips & Maui Chips  
Wagyu Mini Hot Dogs (vegetarian option available), Pretzel Buns, Pickle Relish, Hot Peppers, Onions,  
Mustard, Ketchup, Salsa,  
Shredded Cheese  
Paniolo Cowboy Chili  
Cupcakes: MacNut MacNut MacNut Cupcakes, Red Velvet Cupcakes Chocolate & Pistachio Cupcakes  
Mango Ginger Crisp with Raw Sugar Streusel  
Freshly Brewed Iced Tea and Lemonade  
Beer and wine

**Thursday, January 5**

**Breakfast (7:30am-8:30am)**

Orange Juice, Guava Juice & Pineapple Juice  
Selection of Sliced Seasonal Fruits  
House Made Granola Bars: Macadamia Dark Chocolate Pineapple Bars, Hawaiian Honey Granola Oat  
Bars  
Selection of Dry Cereals, Muesli, with Fat Free Milk, Soy Milk & Almond Milk, Raisins, Brown Sugar  
South Point Vegetable Burrito: Spinach, Sweet Peppers, Onions, Cheddar Cheese, Black Beans & Brown  
Rice, served with Tomato Salsa  
Coffee, Decaffeinated Coffee & Fairmont Signature Teas

**Lunch (12:10pm-2:15pm)**

Broccoli with Sunflower, Cider Vinaigrette  
Golden Beet Salad, Goat Cheese, Macadamia Nuts  
Platter of Sliced Watermelon, Pineapple, Papaya  
Fresh Grilled Hawaiian Catch, Pineapple-Coconut Salsa  
Sweet, Spicy, Garlicky Glazed Korean Style Fried Chicken  
Kim Chee & Vegetable Fried Rice  
Assorted Haagen Dazs Ice Cream Bars and Frozen Fruit Bars  
Freshly Brewed Iced Tea & Lemonade  
Beer and wine

**Pacific Symposium on Biocomputing 2017  
Hosted Meals (con't)**

**Friday, January 6**

**Breakfast (7:30am-8:30am)**

Orange Juice, Guava Juice & Pineapple Juice  
Selection of Sliced Seasonal Fruits  
Malasadas: Guava, Coconut Cream, Chocolate  
Sweet Cream Butter & Tropical Fruit Preserves  
Selection of Dry Cereals, Muesli, with Fat Free Milk, Soy Milk & Almond Milk, Raisins, Brown Sugar  
Hilo Sunrise Wrap: Egg, Chorizo, Cheddar Cheese & Cilantro served with Mango-Pineapple Salsa  
(vegetarian option available)  
Coffee, Decaffeinated Coffee & Fairmont Signature Teas

**Dinner Reception (5:30pm-7:30pm)**

Fresh Baby Greens, Tomato Wedges, Cucumbers, Shaved Onions, Sliced Mushrooms, White Balsamic  
Vinaigrette, Ranch Dressing  
Waimea Tomato, Marinated Artichoke Salad  
Big Island Style Ahi Poke, Crushed Kukui Nuts, Onions, Ogo, Shoyu, Sesame Oil, Sambal  
Tofu Poke  
Togarashi Seared Ono, Wasabi Aioli  
Dim Sum Station: Char Siu Bao, Island Style Chicken Pot stickers, Edamame Pot Stickers, Pork Siu Mai,  
Shrimp Siu Mai  
Micro Steam Buns & Hoisin Kalua Pork  
Butter Basted Roast Turkey with Cranberry Relish  
Sourdough & Whole Wheat Rolls, Butter  
Grilled Kalbi Ribs  
Seasonal Island Vegetables  
Crispy Fried Rice Cake, Hamakua Mushrooms & Kimchee  
Passion Fruit Cheesecake, Coconut Graham Cracker Crust  
Caramelia Chocolate Mousse Tower  
Kona Coffee Tiramisu, Macadamia Nut Biscotti  
Calamansi Tart  
Royal Kona Blend Regular & Decaffeinated Coffee & Fairmont Signature Teas  
Open bar including cocktails, blended drinks, wine, beer, non-alcoholic drinks

**Saturday, January 7**

**Breakfast (7:30am-8:30am)**

Fresh Orange Juice, Guava Juice, Pineapple Juice  
Selection of Sliced Seasonal Fruits  
Island Fruit Breads, Freshly Baked Croissants, Danishes, Muffins  
Assorted Sliced Bread, Bagels, Cream Cheese  
Tropical Fruit Preserves, Butter  
Selection of Dry Cereals, Muesli, Raisins, Brown Sugar, Skim Milk, 2% Milk, Soy Milk  
Yogurt Bar with Assorted Fruit Yogurts, Mango, Strawberries, Bananas, Macadamia Nut Granola  
Scrambled Eggs  
Waimea Vegetarian Egg Scramble  
Cherrywood Smoked Bacon  
Portuguese Sausage  
Onion, Pepper Orchid Potatoes  
Regular, Decaffeinated Coffee & Fairmont Signature Teas

# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Monday, January 2, 2017

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### Registration

4:00-5:30pm Registration

Ballroom Prefunction

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## Tuesday, January 3, 2017

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### Registration

7:30-9:30am Registration

Ballroom Prefunction

12:00-2:00pm Registration

Ballroom Prefunction

7:00-8:00pm Registration

Kilohana Room

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### Workshops

9:00-12:00 Harnessing Big Data for Precision Medicine: Infrastructure and Applications **Salon 2&3**

Organizers: Kun-Hsing Yu, Steven Hart, Rachel Goldfeder, Qiangfeng Cliff Zhang, Stephen Parker, and Michael Snyder

9:00-12:00 The Making of Next Generation Data Scientists in Biomedicine **Plaza**

Organizers: Lana Garmire, Shamim Nemat, John D. Van Horn, Jason Moore, Carole Shreffler, and Michelle Dunn

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### Break

12:00-1:30 Lunch on own

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### Workshop

1:30-4:30 Open Data for Discovery Science **Salon 2&3**  
Organizers: Philip R.O. Payne, Kun Huang, Nigam H. Shah, and Jessica Tenenbaum

1:30-4:30 No-Boundary Thinking in Bioinformatics **Plaza**  
Organizers: Xiuzhen Huang and Jason H. Moore

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### Working Group Meetings

4:30-5:30

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### Break

5:30-7:30 Dinner on own

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### Reception

7:30-8:30 22<sup>nd</sup> Anniversary Reception with Drinks and Desserts

Sponsored by the Institute for Computational Biology, a collaborative effort of Case Western Reserve University, the Cleveland Clinic, and University of Hospitals of Cleveland and the Rxight Pharmacogenetics Program

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*Please wear your PSB name tag and lanyard for admission to all events and hosted meals.*

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# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Wednesday, January 4, 2017

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### Registration

7:30-9:00	Registration	Ballroom Prefunction
10:30-11:30	Registration	Ballroom Prefunction
1:00-2:00	Registration	Ballroom Prefunction

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### Breakfast

7:30-8:30	PSB Breakfast	Ballroom Courtyard
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### Welcome

8:30-8:40	Welcome	Salon 2&3
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### Session 1: Precision medicine: from genotypes and molecular phenotypes (Part 1)

Co-chairs: Bruce Aronow, Steven Brenner, Dana Crawford, Josh Denny, Sean Mooney, Alexander Morgan

8:40-8:50	Introduction	
8:50-9:10	Invited Talk: Josh Denny	
9:10-9:25	<i>Opening the Door to the Large Scale Use of Clinical Lab Measures for Association Testing: Exploring Different Methods for Defining Phenotypes</i> Christopher R. Bauer, Daniel Lavage, John Snyder, Joseph Leader, J. Matthew Mahoney, Sarah A. Pendergrass	
9:25-9:40	<i>Identifying Genetic Associations with Variability in Metabolic Health and Blood Count Laboratory Values: Diving into the Quantitative Traits by Leveraging Longitudinal Data from an HER</i> Shefali S. Verma, Anastasia M. Lucas, Daniel R. Lavage, Joseph B. Leader, Raghu Metpally, Sarathbabu Krishnamurthy, Frederick Dewey, Ingrid Borecki, Alexander Lopez, John Overton, John Penn, Jeffrey Reid, Sarah A. Pendergrass, Gerda Breitwieser, Marylyn D. Ritchie	
9:40-9:55	<i>Temporal Order of Disease Pairs Affects Subsequent Disease Trajectories: The Case of Diabetes and Sleep Apnea</i> Mette Beck, David Westergaard, Leif Groop and Soren Brunak	
9:55-10:10	<i>Strategies for Equitable Pharmacogenomic-Guided Warfarin Dosing Among European and African American Individuals in a Clinical Population</i> Laura Wiley, Jacob VanHouten, David Samuels, Melinda Aldrich, Dan Roden, Josh Peterson, Joshua Denny	
10:10-10:25	<i>De Novo Mutations in Autism Implicate the Synaptic Elimination Network</i> Guhan Ram Venkataraman, Chloe O'Connell, Fumiko Egawa, Dorna Kashef-Haghighi, Dennis Paul Wall	

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### Break

10:25-10:45

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### Keynote

10:45-11:45	Neil Risch with introduction by Marylyn Ritchie	Salon 2&3
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### Lunch

11:45-1:00	PSB Hosted Lunch	Ballroom Courtyard
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# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Wednesday, January 4, 2017 (continued)

<b>Special Topics</b>		<b>Salon 2&amp;3</b>
1:00-1:45	Jeff Drazen, <i>Data Sharing in Clinical Trials</i>	
1:45-2:00	Research Parasite Awards	
<b>Session 2:</b>	<b>Patterns in Biomedical Data - How do we find them? (Part 1)</b>	<b>Salon 2&amp;3</b>
	Co-chairs: Anurag Verma, Anna Okula Basile, Marta Byrska-Bishop, Christian Darabos, H. Lester Kirchner, and Sarah Pendergrass	
2:05-2:15	Introduction	
2:15-2:35	Invited Talk: Geoffrey H. Siwo	
2:35-2:50	<i>Predictive Modeling of Hospital Readmission Rates Using Electronic Medical Record-Wide Machine Learning: A Case-Study Using Mount Sinai Heart Failure Cohort</i> Khader Shameer, Kipp W. Johnson, Alexandre Yahy, Riccardo Miotto, Li Li, Doran Ricks, Jebakumar Jebakaran, Patricia Kovatch, Partho P. Sengupta, Annetine Gelijns, Alan Moskovitz, Bruce Darrow, David L. Reich, Andrew Kasarskis, Nicholas P. Tatonetti, Sean Pinney, Joel T. Dudley	
2:50-3:05	<i>A New Relevance Estimator for the Compilation and Visualization of Disease Patterns and Potential Drug Targets</i> Modest von Korff, Tobias Fink, Thomas Sander	
3:05-3:20	<i>Methods for Clustering Time Series Data Acquired from Mobile Health Apps</i> Nicole Tignor, Pei Wang, Nicholas Genes, Linda Rogers, Steven G. Hershman, Erick R. Scott, Micol Zweig, Yu-Feng Yvonne Chan, Eric E. Schadt	
3:20-3:35	<i>Computer Aided Image Segmentation and Classification for Viable and Non-Viable Tumor Identification in Osteosarcoma</i> Harish Babu Arunachalam, Rashika Mishra, Bogdan Armaselu, Ovidiu Daescu, Maria Martinez, Patrick Leavey, Dinesh Rakheja, Kevin Cederberg, Anita Sengupta, Molly Ni'suilleabhain	
3:35-3:50	<i>DeMo Dashboard: Visualizing and Understanding Genomic Sequences Using Deep Neural Networks</i> Jack Lanchantin, Ritambhara Singh, Beilun Wang, Yanjun Qi	
<b>Meeting</b>		<b>Salon 2&amp;3</b>
4:00-4:30	ISCB Open Meeting	
4:30	Dinner on own	

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# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Thursday, January 5, 2017

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### Registration

7:30-8:30 Registration Ballroom Prefunction

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### Breakfast

7:30-8:30 PSB Breakfast Ballroom Courtyard

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### Announcements

8:30-8:40 Morning Announcements Salon 2&3

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### Session 2: Patterns in Biomedical Data - How do we find them? (Part 2) Salon 2&3

8:40-8:45 Introduction

8:45-9:00 *Learning Attributes of Disease Progression from Trajectories of Sparse Lab Values*

Vibhu Agarwal, Nigam H. Shah

9:00-9:15 *Discovery of Functional and Disease Pathways by Community Detection in Protein-Protein Interaction Networks*

Stephen J. Wilson, Angela D. Wilkins, Chih-Hsu Lin, Rhonald C. Lua, Olivier Lichtarge

9:15-9:30 *Missing Data Imputation in the Electronic Health Record Using Deeply Learned Autoencoders*

Brett K. Beaulieu-Jones, Jason H. Moore, The Pooled Resource Open-Access ALS Clinical Trials Consortium

9:30-9:45 *Development and Performance of Text-Mining Algorithms to Extract Socioeconomic Status from De-Identified Electronic Health Records*

Brittany M. Hollister, Nicole A. Restrepo, Eric Farber-Eger, Dana C. Crawford, Melinda C. Aldrich, Amy Non

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### Break

9:45-10:00

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### Session 1: Precision medicine: from genotypes and molecular phenotypes (Part 2) Salon 2&3

10:00-10:05 Introduction

10:05-10:20 *MUSE: A Multi-locus Sampling-based Epistasis Algorithm for Quantitative Genetic Trait Prediction*

Dan He, Laxmi Parida

10:20-10:35 *Human Kinases Display Mutational Hotspots at Cognate Positions Within Cancer*

Jonathan Gallion, Angela D. Wilkins, Olivier Lichtarge

10:35-10:50 *A Methylation-to-Expression Feature Model for Generating Accurate Prognostic Risk Scores and Identifying Disease Targets in Clear Cell Kidney Cancer*

Jeffrey A. Thompson, Carmen J. Marsit

10:50-11:05 *Differential Pathway Dependency Discovery Associated with Drug Response across Cancer Cell Lines*

Gil Speyer, Divya Mahendra, Hai J. Tran, Jeff Kiefer, Stuart L. Schreiber, Paul A. Clemons, Harshil Dhruv, Michael Berens, Seungchan Kim

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# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Thursday, January 5, 2017 (continued)

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### Discussion Session

11:10-12:10 Precision medicine: from genotypes and molecular phenotypes [Salon 2&3](#)

11:10-12:10 Patterns in Biomedical Data - How do we find them? [Plaza](#)

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### Poster Session Lunch

[Salon 1 and Ballroom Courtyard](#)

12:10-2:15 Poster Session with Lunch

(Posters on ODD numbered boards presented from 12:45-1:30)

(Posters on EVEN numbered boards presented from 1:30-2:15)

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### Working Group Meetings

2:30-5:30

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### Break

2:30- Afternoon, Dinner & Evening on own

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# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Friday, January 6, 2017

<b>Breakfast</b>		<b>Ballroom Courtyard</b>
7:30-8:30	PSB Breakfast	
<b>Announcements</b>		<b>Salon 2&amp;3</b>
8:30-8:40	Morning Announcements	
<b>Session 3:</b>	<b>Methods to Ensure the Reproducibility of Biomedical Research</b>	<b>Salon 2&amp;3</b>
	Co-chairs: Konrad J. Karczewski, Nicholas Tatonetti, Chirag Patel, Arjun Manrai, C. Titus Brown, and John Ioannidis	
8:40-8:50	Introduction	
8:50-9:05	<i>Exploring the Reproducibility of Probabilistic Causal Molecular Network Models</i>	
	Ariella Cohain, Aparna A. Divaraniya, Kuixi Zhu, Joseph R. Scarpa, Andrew Kasarskis, Jun Zhu, Rui Chang, Joel T. Dudley, Eric E. Schadt	
9:05-9:20	<i>Reproducible Drug Repurposing: When Similarity Does Not Suffice</i>	
	Emre Guney	
9:20-9:35	<i>Empowering Multi-Cohort Gene Expression Analysis to Increase Reproducibility</i>	
	Winston A. Haynes, Francesco Vallania, Charles Liu, Erika Bongen, Aurelie Tomczak, Marta Andres-Terrè, Shane Lofgren, Andrew Tam, Cole A. Deisseroth, Matthew D. Li, Timothy E. Sweeney, Purvesh Khatri	
9:35-9:50	<i>Rabix: An Open-Source Workflow Executor Supporting Recomputability and Interoperability of Workflow Descriptions</i>	
	Gaurav Kaushik, Sinisa Ivkovic, Janko Simonovic, Nebojsa Tijanic, Brandi Davis-Dusenbery, Deniz Kural	
9:50-10:05	<i>Data sharing and clinical genetic testing: Successes and Challenges</i>	
	Shan Yang, Melissa Cline, Can Zhang, Benedict Paten, Stephen E. Lincoln	
<b>Session 4:</b>	<b>Imaging Genomics</b>	<b>Salon 2&amp;3</b>
	Co-chairs: Li Shen and Lee Cooper	
10:10-10:20	Introduction	
10:20-10:40	Invited Speaker: Paul Thompson	
10:40-10:55	<i>Integrative Analysis for Lung Adenocarcinoma Predicts Morphological Features Associated with Genetic Variations</i>	
	Chao Wang, Hai Su, Lin Yang, Kun Huang	
10:55-11:10	<i>Identification of Discriminative Imaging Proteomics Associations in Alzheimer's Disease via a Novel Sparse Correlation Model</i>	
	Jingwen Yan, Shannon L. Risacher, Kwangsik Nho, Andrew J. Saykin, Li Shen	
11:10-11:25	<i>Enforcing Co-expression in Multimodal Regression Framework</i>	
	Pascal Zille, Vince D. Calhoun, Yu-Ping Wang	
<b>Discussion Sessions</b>		
11:30-12:30	Methods to Ensure the Reproducibility of Biomedical Research	<b>Salon 2&amp;3</b>
11:30-12:30	Imaging Genomics	<b>Plaza</b>

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# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Friday, January 6, 2017 (continued)

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### Break

12:30-2:00 Lunch on Own

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### Working Group Meetings

2:00-5:00

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### Dinner

5:30-7:30 Dinner Party

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Coconut Grove

### Keynote

7:30-8:45 *David Magnus with introduction by Russ Altman*

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Salon 2&3

***Please wear your PSB name tag and lanyard for admission to all events and hosted meals.***

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# Pacific Symposium on Biocomputing (PSB) 2017 Schedule

January 3-7, 2017, Big Island of Hawaii

## Saturday, January 7, 2017

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Breakfast		Ballroom Courtyard
7:30-8:30	Breakfast	
Closing		Salon 2&3
8:30-8:40	Closing Announcements	
Session 5:	Single-cell analysis and modelling of cell population heterogeneity	Salon 2&3
	Co-chairs: Nikolay Samusik, Sean Bendall, and Nima Aghaeepour	
8:40-8:50	Introduction	
8:50-9:10	Invited Speaker: Nikesh Kotecha	
9:10-9:25	<i>Production of a Preliminary Quality Control Pipeline for Single Nuclei RNA-Seq and Its Application in the Analysis of Cell Type Diversity of Post-Mortem Human Brain Neocortex</i>	
	Brian Aevertmann, Jamison Mccorrison, Pratap Venepally, Rebecca Hodge, Trygve Bakken, Jeremy Miller, Mark Novotny, Danny N. Tran, Francisco Diez-Fuertes, Lena Christiansen, Fan Zhang, Frank Steemers, Roger S. Lasken, Ed Lein, Nicholas Schork, <u>Richard H. Scheuermann</u>	
9:25-9:40	<i>An Updated Debarcoding Tool for Mass Cytometry with Cell Type-Specific and Cell Sample-Specific Stringency Adjustment</i>	
	Kristin I. Fread, William D. Strickland, Garry P. Nolan, <u>Eli R. Zunder</u>	
9:40-9:55	<i>Tracing Co-Regulatory Network Dynamics in Noisy, Single-Cell Transcriptome Trajectories</i>	
	Pablo Cordero, Joshua M. Stuart	
Session 6:	Computational approaches to understanding the evolution of molecular function	Salon 2&3
	Co-chairs: Yana Bromberg, Matthew Hahn, and Predrag Radivojac	
10:00-10:10	Introduction	
10:10-10:30	Invited Speaker: Joe Thornton	
10:30-10:45	<i>Identification and Analysis of Bacterial Genomic Metabolic Signatures</i>	
	Nathan Bowerman, Nathan Tintle, Matthew DeJongh, <u>Aaron A. Best</u>	
10:45-11:00	<i>When should we NOT transfer functional annotation between sequence paralogs?</i>	
	Mengfei Cao, <u>Lenore J. Cowen</u>	
11:00-11:10	<i>ProSNet: integrating homology with molecular networks for protein function prediction</i>	
	<u>Sheng Wang</u> , Meng Qu, Jian Peng	
11:10-11:25	<i>On the power and limits of sequence similarity based clustering of proteins into families</i>	
	Christian Wiwie, Richard Röttger	
Discussion Sessions		
11:30-12:30	Single-cell analysis and modelling of cell population heterogeneity	Plaza
11:30-12:30	Computational approaches to understanding the evolution of molecular function	Salon 2&3

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**PSB over--see you next year!**

Please wear your PSB name tag and lanyard for admission to all events and hosted meals.

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## Call for Session Proposals Pacific Symposium on Biocomputing

The Big Island of Hawaii, January 3-7, 2018

This is an invitation to submit proposals for sessions in the 23<sup>rd</sup> Pacific Symposium on Biocomputing (PSB), to be held January 3-7, 2018 on the Kohala Coast, the Big Island of Hawaii. PSB will bring together top researchers from the US, the Asian Pacific nations and around the world to exchange research for the presentation of work in databases, algorithms, interfaces, natural language processing, modeling and other computational methods, as applied to biological problems, with emphasis on applications in data-rich areas of molecular biology.

PSB has been designed to be responsive to the need for critical mass in sub-disciplines within biocomputing. For that reason, it is the only meeting whose sessions are defined dynamically each year in response to specific proposals. PSB sessions are organized by leaders in the emerging areas, and targeted to provide a forum for publication and discussion of research in biocomputing's "hot topics." In this way, PSB provides an early forum for serious examination of emerging methods and approaches in this rapidly changing field.

Proposals for such sessions are hereby solicited. A proposal should identify a coherent topic that can be addressed by 3 to 12 papers. For example, a session might bring together papers on alternative approaches to a particular biological question or it might examine the applications of a particular technology in a variety of biological areas. A sample of more than 20 different decisions at previous PSB meetings have included:

- Discovery of Molecularly Targeted Therapies
- Innovative Approaches to Combining Genotype, Phenotype, Epigenetic, and Exposure Data for Precision Diagnostics
- Methods to Enhance the Reproducibility of Precision Medicine
- Precision Medicine: Data and Discovery for Improved Health and Therapy
- Regulatory RNA
- Social Media Mining for Public Health Monitoring and Surveillance

A major goal of PSB is to create productive interaction among the rather different research cultures of computer science and biology. Recognizing that many in the computational community believe the value of a meeting depends on the quality of its review process, every full manuscript submitted to PSB is reviewed by at least two anonymous reviewers, as well as the session organizers and meeting chairs. Accepted papers are distributed in a proceedings volume at the meeting, and are indexed in Medline and other bibliographic databases. However, we also recognize that many potential participants, particularly from the biological community, do not choose to submit full papers to conferences, even with assurance of availability and broad indexing. Therefore, PSB also includes a separate open submission abstract book and open poster presentations in which any registrant can present research.

### **Responsibilities of a session chair**

As a proposer of an accepted session, you will become the session chair. The chair's primary responsibility is to solicit high quality papers for the session, oversee the review, and write a tutorial introduction to your session. You are to solicit manuscripts, have them refereed, collaborate with the conference chairs in determining which manuscripts are to be accepted and structure presentation time in your session. Please contact us at the address below if you have any questions about the obligations entailed in becoming a session organizer.

**Call for Session Proposals  
Pacific Symposium on Biocomputing**

The Big Island of Hawaii, January 3-7, 2018

**Procedure for submitting proposals**

Session proposals can be as short as a single page and should in no case be more than 6 pages. The proposal should:

- Define a specific technical area to be covered.
- Justify why the proposed area is appropriate for PSB. Discuss why the topic is timely and important, and how the topic has been addressed in other conferences or recent publications.
- Argue that there is likely to be sufficient high quality, unpublished material to fill the session, e.g., a list of researchers you intend to solicit for papers. If there are unlikely to be adequate paper submissions, consider applying for a [PSB workshop](#) instead.
- Provide a short autobiographical sketch and an explicit statement that your organization endorses your involvement.
- Proposals must be submitted online at <http://psb.wufoo.com/forms/psb-session-proposal-submission-form/>.

**Important Dates**

February, 10, 2017	Proposals Due
March 10, 2017	Notification Regarding the Proposals

Each proposal will be evaluated by the organizing committee. We look forward to your submissions.

**Questions? Please send email to**

**Lawrence Hunter, Ph.D.**

Director, Center for Computational Pharmacology & Computational Bioscience Program  
Professor of Pharmacology (Denver) & Computer Science (Boulder)  
E-mail: [larry.hunter@ucdenver.edu](mailto:larry.hunter@ucdenver.edu)



**Call for Workshop Proposals**  
**Pacific Symposium on Biocomputing**

The Big Island of Hawaii, January 3-7, 2018

This is an invitation to submit proposals for workshops at the 23<sup>rd</sup> Pacific Symposium on Biocomputing (PSB), to be held January 3-7, 2018 on the Kohala Coast, the Big Island of Hawaii. PSB will bring together top researchers from the US, the Asian Pacific nations and around the world to exchange research for the presentation of work in databases, algorithms, interfaces, natural language processing, modeling and other computational methods, as applied to biological problems, with emphasis on applications in data-rich areas of molecular biology.

We are soliciting proposals for three hour workshops appropriate to the diverse PSB conference community. Workshops can include: panels of experts on emerging areas of computational biology that are not likely to attract the number of paper submissions required for a session; open discussions of topics important to the computational biology community; or other topics and formats. Workshops at previous PSB meetings have included:

- Computational Biology in the Cloud: Methods and New Insights from Computing at Scale
- Computational Challenges of Mass Phenotyping
- Computational Identification and Functional Analysis of Non-Coding RNAs
- The Future of Genome-Based Medicine
- Modeling Cell Heterogeneity: from Single-Cell Variations to Mixed Cells Populations
- Training the Next Generation of Quantitative Biologists
- Uncovering the Etiology of Autism Spectrum Disorders: Genomics, Bioinformatics, Environment, Data Collection and Exploration, and Future Possibilities

**Responsibilities of a workshop chair**

As a proposer of an accepted workshop, you will become the workshop chair. The chair's primary responsibility is to organize and preside over the presentations related to your workshop.

**Procedure for submitting proposals**

Proposals can be as short as a single page and should in no case be more than 6 pages. The proposal should:

- Define a specific technical area to be covered, and a format for the workshop.
- Justify why the proposed area is appropriate for PSB. Discuss why the topic is timely and important, and how the topic has been addressed in other conferences or recent publications. Describe why the proposed format is appropriate for the workshop.

**Call for Workshop Proposals  
Pacific Symposium on Biocomputing**

The Big Island of Hawaii, January 3-7, 2018

**Procedure for submitting proposals (continued)**

- If the workshop proposes invited experts, provide evidence that the experts will attend the workshop. Participants are required to register for the conference, and, unlike sessions, no financial support from the conference is offered to workshop organizers. Emails from potential participants are sufficient.
- Provide a short autobiographical sketch and an explicit statement that your organization endorses your involvement.
- Proposals must be submitted online at <https://psb.wufoo.com/forms/psb-workshop-proposal-submission-form/>.

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# PACIFIC SYMPOSIUM ON BIOCOMPUTING 2017

## ABSTRACT BOOK

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