

PACIFIC SYMPOSIUM ON BIOCOMPUTING 2026

2026 marks the 31st Pacific Symposium on Biocomputing (PSB)! As always, we gather on the Big Island to share the latest progress and challenges in biocomputing. It has been a challenging year for science in the United States, with cancelled federal grants, major cuts to important health and science agencies, public health recommendations with unclear evidence, and continued erosion in public trust of experts with actual, hard-won and documented expertise. With this backdrop, the mission of PSB to publish the most exciting emerging work in biocomputation is as important as ever. The continued emergence and dominance of AI in science is one bright spot that receives support from most corners, and those of us in the field are aware of the amazing capabilities (of course, not perfect and still needing refinement) of AI to augment discovery in science. In addition, AI still shows amazing promise to improve the delivery of healthcare—but with much work to be done to guarantee accuracy, fairness and workflow compatibility. Even when AI is not the headline, it is often serving a supporting role in application areas of great importance. As usual, the sessions and workshops in this year's PSB are at the frontiers of the ways in which computing technologies are revolutionizing the biosciences. We hope that these scientifically magical few days will restore and refresh your enthusiasm for and faith in the important work we all do.

In addition to being published by World Scientific and indexed in PubMed, the proceedings from all PSB meetings are available online at <http://psb.stanford.edu/psb-online/>. Since 1996, all PSB papers are indexed in PubMed. These papers are routinely cited in archival journal articles and routinely represent important early contributions in new subfields—many times before there is an established literature in more traditional journals; for this reason, many papers have garnered hundreds of citations.

The social media handle for PSB is @PacSymBiocomp and the hashtag for PSB 2026 is #PSB26.

The efforts of a dedicated group of session organizers have produced an outstanding program. The sessions of PSB 2026 and their hard-working organizers are as follows:

AI and Machine Learning in Clinical Medicine: Bridging or Separating Model Intelligence and Human Expertise?

Organizers: Jonathan Chen, Roxana Daneshjou, Fateme Nateghi Haredasht, Joseph D. Romano, Dokyoon Kim, Alexander Ioannidis, Brett K Beaulieu-Jones, Geoffrey H. Tison

Biological Molecular Function: Methods and Benchmarks for Finding Function in Biological Dark Matter

Organizers: Jason McDermott, Yana Bromberg, Hannah Carter, Travis Wheeler

Fairness and Bias in Biomedical AI/ML: Defining Goals and Putting Them into Practice

Organizers: Nicole Martinez-Martin, Mildred Cho, Abdoul Jalil Djiberou Mahamadou, Madalena Ng

Precision Medicine: Integrating Large Scale Data and Intermediate Phenotypes for Understanding Health and Treating Disease

Organizers: Nilah Ioannidis, Tayo Obafemi-Ajayi, Anne O'Donnell-Luria, Steven Brenner

Systems Biology and Network Analysis: From Multi-omics Integration to Biological Mechanisms

Organizers: Gurkan Bebek, Onur Mutlu, Iman Hajirasouliha, Joshua Welch, Serguei Pakhomov

We are excited to present five workshops in which investigators with a common interest come together to exchange results and new ideas in a format that is more informal than the peer-reviewed sessions. For this year, the workshops and their organizers are:

Advances of AI methods in Single Cell Spatial Omics

Organizers: Lana Garmire, Xiuwei Zhang, Joshua Levy

AI for Health: Leveraging Artificial Intelligence to Revolutionize Healthcare

Organizers: Ruowang Li, Tiffani Bright, Brian D. Davison, Lifang He

Applications of AI & ML in Biomanufacturing of Cell and Gene Therapies

Organizers: Eric Neumann, Karen Weisinger, Tom Londo

The Evolving Cyberinfrastructure at the National Institutes of Health to Support Data and AI in Biomedical Research

Organizers: Ojas A. Ramwala, Nick Weber, Sean D. Mooney

Trust, Reproducibility, and Progress: The Roles of Independent Blind Prediction and Assessment and Benchmarking in Computational Biology

Organizers: Gaia Andreoletti, Serghei Mangul, Mark Robinson, Predrag Radivojac, Steven E. Brenner

The PSB 2026 keynote speakers are Eric Green (Science keynote) and Luis Campos (Ethical, Legal and Social Implications keynote).

Tiffany Murray has managed the peer review process and assembly of the proceedings since 2001 and plays a key role in many aspects of the meeting. We are grateful for the long-time support of the National Institutes of Health¹, ISCB, and the National Science Foundation². The Research Parasite Awards benefit from support from GigaScience, Jeff Stibel, Mr. and Mrs. Stephen Canon, and Drs. Casey and Anna Greene. The Research Symbiont Awards benefit from support from the Wellcome Trust and the DragonMaster Foundation.

We are particularly grateful to the PSB staff Tiffany Murray, Al Conde, Ryan Whaley, Mark Woon, Clarissa Klein, Randy Soares, Nicholas Murray, BJ Morrison McKay, Cynthia Paulazzo, Jackson Miller, and Heather Miller for their assistance. We also acknowledge the many busy

researchers who reviewed the submitted manuscripts on a very tight schedule. The partial list following this preface does not include many who wished to remain anonymous, and of course we apologize to any who may have been left out by mistake.

We look forward to a great meeting and to seeing you on the Big Island. Aloha!

Pacific Symposium on Biocomputing Co-Chairs,
October 13, 2025

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Thanks to the reviewers...

Finally, we wish to thank the scores of reviewers. PSB aims for every paper in this volume to be reviewed by three independent referees. Since there is a large volume of submitted papers, paper reviews require a great deal of work from many people. We are grateful to all of you listed below and to anyone whose name we may have accidentally omitted or who wished to remain anonymous.

Vanessa Aguiar-Pulido	John Hanna	Cerag Oguztuzun
Rishita Anubhai	Dominik Heider	Daniel Olson
Vikas Bansal	Gonzalo Ruz Heredia	Oluwatosin Oluwadare
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Michael Beer	Fereydown Hormozdiari	Daniele Papetti
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Kelly Brock	Connah Johnson	William Phu
Doug Brubaker	Clara Kaluza	Dom Pimenta
Douglas Brubaker	Dukka KC	Weizhou Qian
Emidio Capriotti	Eileen Kim	John Martin Rajamony
Hannah Carter	Hoshin Kim	Suraj Rajendran
Christine Chang	Hyun Jo Kim	Prabakaran Ramakrishnan
Irene Chen	Adam Klie	Rashika Ramola
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Kritika Chugh	Yariv Levinson	Nicolae Sapoval
Ercument Cicek	Joshua Levy	Zhecheng Sheng
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Pallavi Gupta	Sean Mooney	Paraskevi V. Tsakmaki
Melissa Gymrek	Harun Mustafa	Eliezer van Allen
Iman Hajirasouliha	Madalena Ng	Kathan Vyas

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Travis Wheeler
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