# INTERNATIONAL SOCIETY FOR COMPUTATIONAL BIOLOGY

## 2016 ISCB Annual Report: Accomplishments and State of Society

Dear ISCB Members and Colleagues,

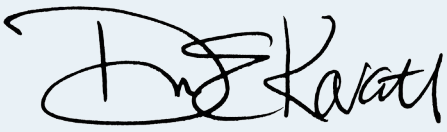
Through the dedicated efforts of hundreds of volunteers with the support of staff and contractors, ISCB once again had many reasons to celebrate in 2016. Membership continues to remain strong with over 3,100 members worldwide. we brought the community top-rated conferences, training, educational materials, journals, and opportunities to connect, network, and collaborate.

In 2016, ISCB introduced the ISCB Innovation Forum, specifically designed to support the needs of industry partners and researchers. The Affiliated Groups Committee reviewed and assessed the affiliated groups program requirements and changed to a three tiered system to reduce the barriers of entry to the program. The Board of Directors spend their in-person board meeting assessing the organization at a strategic level and are in the process of developing a new strategic map that will guide the Society into the future.

The above just highlights a few of the many accomplishments by ISCB in 2016. This report will share the many others. Again, I would like to personally thank the many volunteers that keep our Society moving forward, the leadership of ISCB for their continued dedication and service, and all ISCB members for their support. The above is just the tip of the iceberg. Enjoy this year's annual report as we celebrate the many many achievements from 2016.

As we look ahead to 2017, I am excited about what the horizon may bring. Consider continuing the journey with us by volunteering, renewing your membership, and helping to grow our community by inviting a friend. I look forward to meeting many of you at the upcoming ISCB conferences. I also welcome your feedback and suggestions anytime. Please feel free to reach out to me at executive.office@iscb.org.

Sincerely



Diane E. Kovats, CMP, CAE
Executive Director

The International Society for Computational Biology (ISCB) - www.iscb.org - is the first and only society dedicated to representing the computational biology and bioinformatics community on a global scale. ISCB's mission is to advance the understanding of living systems through computation and for communicating scientific advances worldwide.

Society membership reflects commitment toward the advancement of computational biology. ISCB is an international non-profit organization whose members come from the global bioinformatics and computational biology communities. ISCB serves its global membership by providing high-quality meetings, publications, and reports on methods and tools; by disseminating key information about bioinformatics resources and relevant news from related fields; and by actively facilitating training, education, employment, career development, and networking. We advocate and provide leadership for resources and policies in support of scientific endeavors and to benefit society at large.

Collaboration is an essential element to promoting the advancement of bioinformatics and computational biology research. To that end, ISCB has made a siginficant effort to foster and promote collaborations between researchers in these fields by organizing a greater number of meetings and providing forums to allow reserachers to connect. Beyond ISMB, these meetings include ISCB-Africa (since 2009), ISCB-Latin America (since 2010), and ISCB-Asia (since 2011), as well as focused meetings (now called ISCB-focus meeting): CSHALS (2007-2013), RECOMB/ISCB Regulatory and Systems Genomics (since 2012), and ISCB-NGS (since 2013). ISCB also supports several regional meetings in the United States including Rocky (since 2003) and GLBIO (since 2011). ISCB also affiliates with and supports many other significant meetings, associations, and interest groups through its Communities of Special Interst (COSI) and Affiliated Groups programs.

ISCB has three official journals, F1000 Research ISCB Community Journal, Bioinformatics and PLOS Computational Biology, two of which have some of the highest impact factors in the Mathematical & Computational Biology category. ISCB also has affiliations in place with several other publications for the benefit of its members.

The following report summarizes contributions and activities of the ISCB's elected leaders, committee members, volunteers, and staff during 2016. Grateful acknowledgment goes to the many members named in this report, and the many more left unnamed, whose generosity of time and selfless effort have been essential to advancing the mission of ISCB.

ISCB employs a professional staff consisting of an executive director, a marketing an member services manager, and an operations and programs manager. In addition, the organization relies heavily on long-term contractors to fulfill additional needs, including the roles of ISMB conference director, conference administrative assistant, database/web programmers, and graphic designers. Each individual provides essential support to the Society's leadership and global membership.

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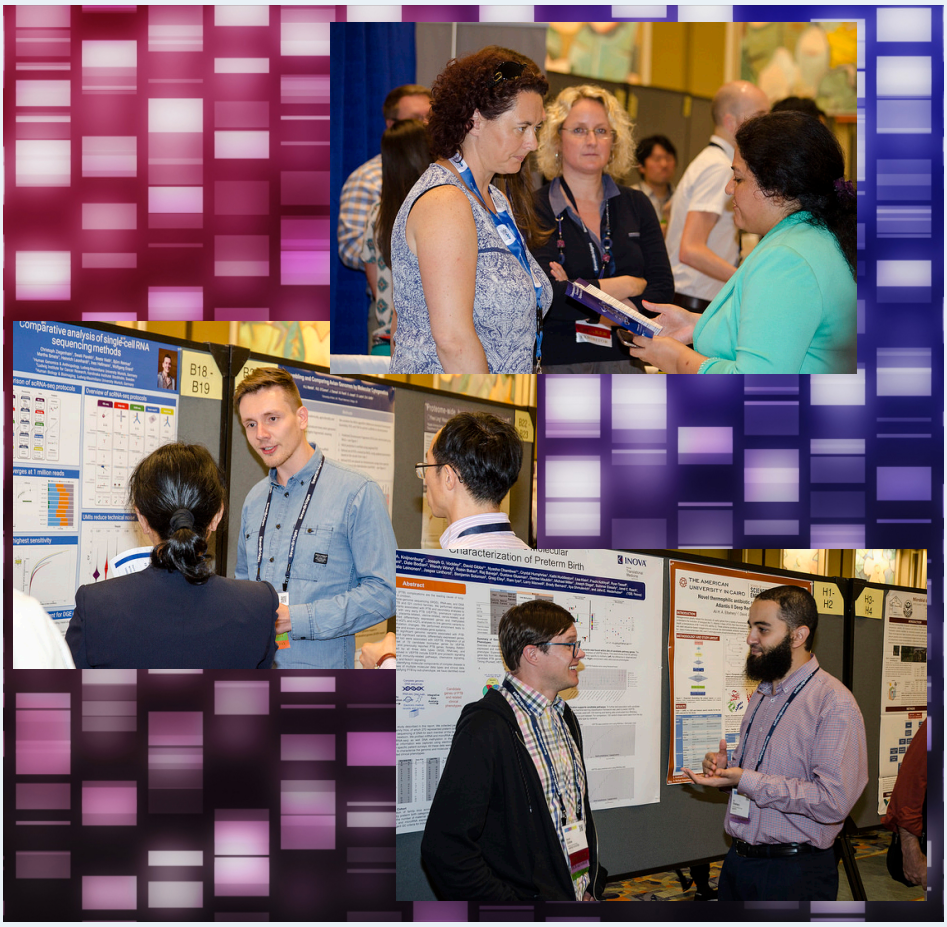


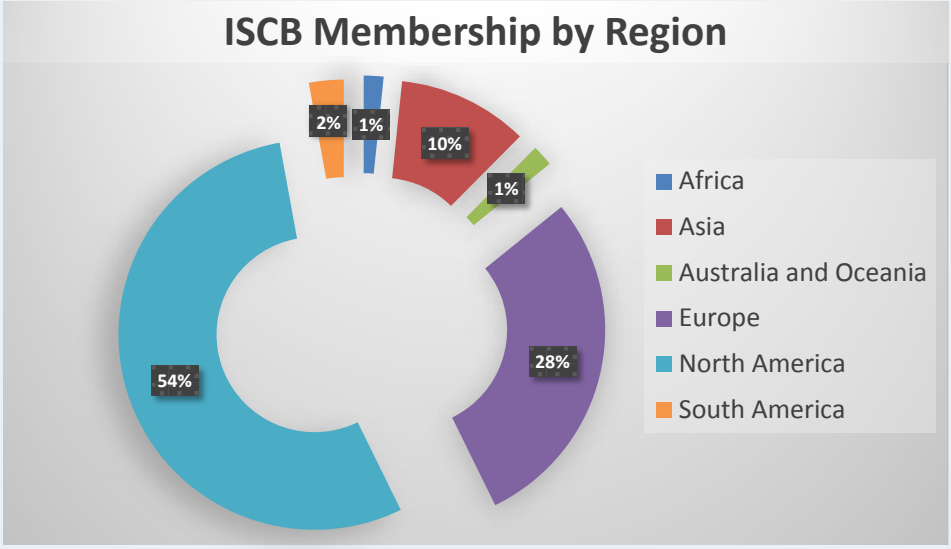
## State of ISCB

ISCB continues to remain fiscally sound with just over $2.1 millions in assets. We do, however, remain cautious. In the past two years, we invested nearly $250,000 back in the Society. Most notably, we invested in improving our web, updating our servers, and providing a new interactive online community platform which is open to all - members and nonmembers alike. ISCB largest net revenue source is membership dues, followed by conference proceeds. The collection of membership dues supports the operational management of the society, the Student Council, the awards programs, and travel fellowships. Net revenues collected from conferences support the development of thematic and regional conferences, ISCBconnect, and new programs and initiatives. Providing higher levels of funding for travel fellowships continues to be a priority for the organization. We can only do this with your help. Consider donating in the individual giving campaign or attending of the the many outstanding ISCB conferences.

## Membership

Members are the lifeblood of ISCB, and recruiting and maintaining active members is essential to the vitality of this Society. Members hailed from 77 countries. The two largest representations come from North America at 54%, primarily from the United States, and Europe at 28%. The truly global nature of the discipline and the Society is reflected in the number of members coming from countries in Africa (53), Asia (350), Australia and Oceania (57), and South America (93) (Figure 1). ISCB's worldwide presence is also shown by its support of 23 affiliate societies from around the world.

*Figure 1. Membership by Region (%)*




ISCB supports members of the computational biology community at all stages of their career, and to that end, offers three types of membership: professional, postdoctoral trainee, and student. More than half of the Society's members are professional scientists (1566) from academic, government, or industry settings (Figure 2). Trainees are also represented well in the ISCB membership, with over 500 post-doc and nearly 1000 student members (Figure 3).

*Figure 2. Membership by Type (%)*

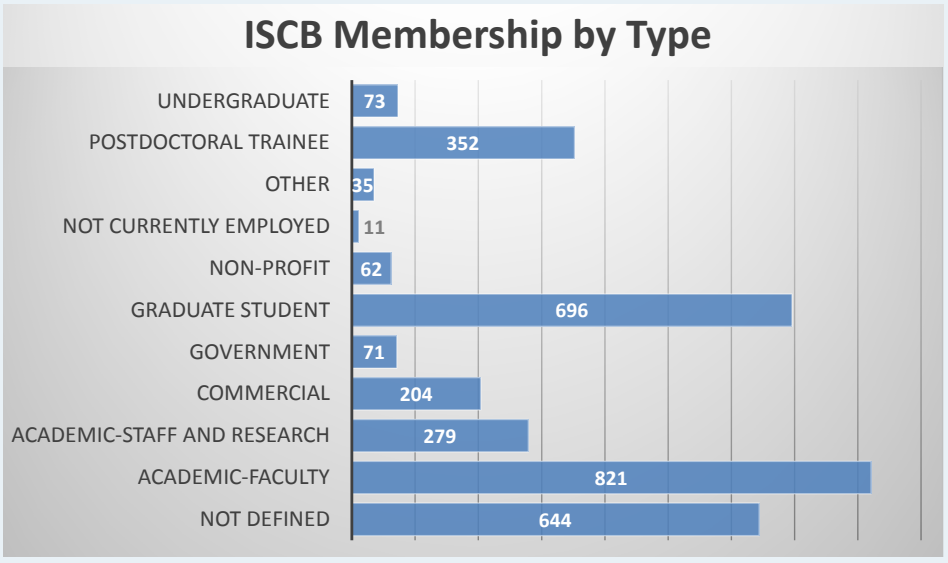
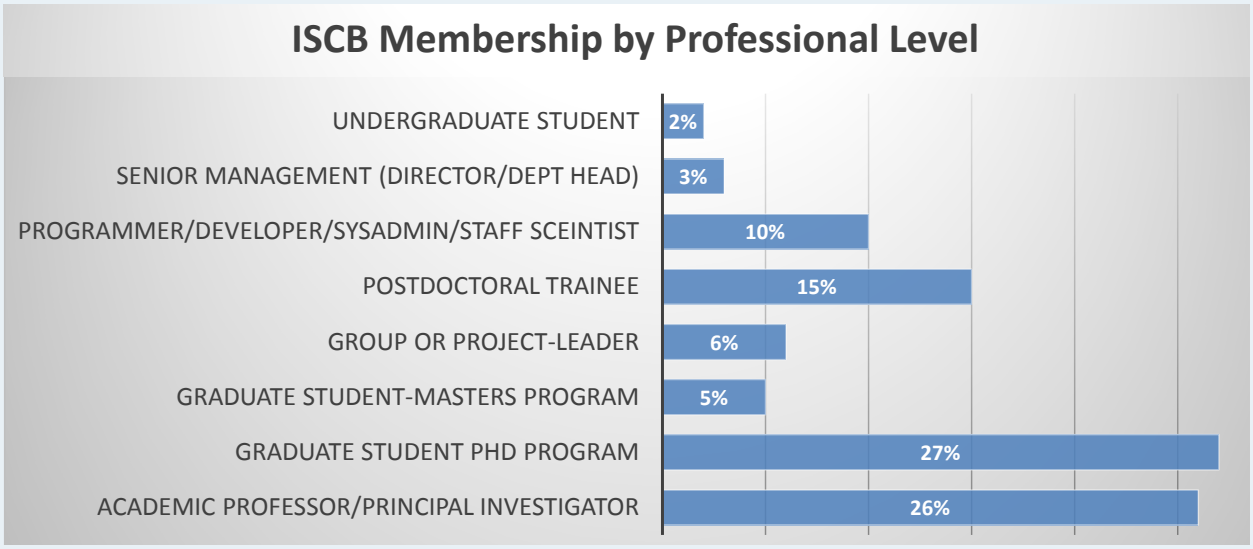


*Figure 3. Membership by Professional Level (%)*




## Society Committee and Leadership Highlights

ISCB thrives on the dedication of its volunteer members. Their passion and commitment to the ISCB mission is evident each year as the Society continues to grow and offer more programs and benefits to its members. The highlights of some of the major achievements throughout 2016 are featured below.

### ISCB Election for President-elect and Vice President; Welcomes New and Re-elected Board Members who terms will start in January 2017

The ISCB membership elected Thomas Lengauer as president-elect and Janet Kelso as vice president. Incoming members of the board of directors include Michelle Brazas, Dan DeBlasio, Nicolas Le Novere, and Hagit Shatkay. Returning board members include Burkhard Rost and Reinhard Schneider. Their terms start in January 2017 and their expertise, experience, and dedication to ISCB will be valuable to the executive committee and board.

### Incoming Officers

**President Elect – Thomas Lengauer, Ph.D.**, Director, Max Planck Institute for Informatics. Lengauer is the is a founding member of ISCB and is the current vice president, and he was named an ISCB fellow in 2015. Lengauer was trained and began his career in the field of computer science. His research focus shifted to bioinformatics as the field emerged in the 1990's, and his interests include protein structure prediction, computational drug design and drug interaction prediction.

**Vice President – Janet Kelso Ph.D.**, Bioinformatics Group Leader, Max Planck Institute for Evolutionary Anthropology. Kelso has previously served as vice president of ISCB from 2011-13 and was named an ISCB Fellow in 2016. Kelso's research is focused on comparative genomics with a particular interest in primate genome evolution, and she is currently involved with the Neandertal, bonobo, and orangutan genome projects.

## Incoming Board Members

**Michelle Brazas, Ph.D.,** Program Manager, Informatics & Biocomputing, Ontario Institute of Cancer Research. Brazas has been involved in bioinformatics training and education throughout her career, including her work on ISCB's Education Committee, as an ISMB tutorial chair and with GOBLET (Global Organization for Bioinformatics Learning, Education and Training). At the Ontario Institute of Cancer Research, Brazas manages operations and cultivates collaborations of the interdisciplinary research teams at the Institute.

**Dan DeBlasio, Ph.D.,** ISCB Student Council Representative. Department of Computational Biology, Carnegie Mellon University. DeBlasio has been a member of the ISCB Student Council and has served as web committee co-chair and on the Student Council Symposium organizing committee. DeBlasio received his Ph.D. in 2016 from the University of Arizona and is currently a Lane Fellow in the Computational Biology Department of the School of Computer Science at Carnegie Mellon University.

**Nicholas Le Novère, Ph.D.,** Group Leader, Babraham Institute. Le Novère has been an active member of ISCB and has served as an ISMB SysMod Special Interest Group organizer and Common NetBio/SysMod COSI organizer. Le Novère has research interests in both computational biology and neurobiology, and he has also developed systems biology resources, including the SMBL and SBGN standards and the BioModels database.

**Hagit Shatkay, Ph.D.,** Associate Professor, Computer & Information Sciences, University of Delaware. Shatkay has actively served ISCB in different capacities, including work on the ISMB Proceedings Papers Committee and the Conferences Advisory Council. Shatkay's research interests include biomedical literature mining, and she applies machine learning approaches to a variety of biomedical data.

## Re-elected Board Members

**Burkhard Rost, Ph.D.,** Alexander von Humboldt Professor Chair, Bioinformatics & Computational Biology Department, Technical University Munich. Rost has served ISCB tirelessly as ISCB president, past president, and vice president. Rost has research interests in protein structure and function prediction, with a focus on predicting protein-protein interactions and understanding the effects of individual amino acids.

**Reinhard Schneider, Ph.D.,** Head of Bioinformatics Core Facility, Luxemburg Center for Systems Biomedicine, University of Luxembourg. Schneider has served ISCB in multiple ways, including his tenure as treasurer and vice president. Schneider's work as head a bioinformatics core group includes handling large amounts of data generated by researchers at his institution and developing new algorithms to advance data analysis.

## ISCB Board of Directors Identifies Core Competencies of the Society

During the ISCB Board of Directors meeting in July, the Directors worked hard in a strategic planning session to assess the organization. The outcome of the conversations established five core compentencies and goals to guide the organization into the next five years.

The established core compentency are:

1. **Membership**
Strengthen ISCB's role as the natural home and the professional society for all individuals with an interest in the spectrum of computational biology research and its applications.

2. **Education**
Deliver high-quality computational biology education and training to interested communities across the world, and help drive the assimilation of computation into all life science-related educational programs.

3. **Meetings**
Provide a forum to foster fresh dialogues and perspectives, to learn about and shape the future of the discipline.

4. **Profession**
Advance computational biology as a profession, its ability to accelerate research, advocate and provide resources and policies to extend the frontiers of computational science for the benefit of society at large.

5. **Communities**
Stimulate, cultivate and promote interactions and collaborations within the diverse scientific and technical fields that collectively embody the discipline of computational biology and bioinformatics.

Over the next year, the Board of Directors will continue to build on these by forming working groups to identify programs, services, and milestones for each of the compentencies.

## Linking Industry and ISCB – Creation of Innovation Forum

The ISCB Innovation Forum is a unique and productive opportunity for industry to contribute in a sustained manner to the ISCB mission and to gain prominence in its expert and influential constituency. We look to the ISCB Innovation Forum to provide our corporate and industry partners the opportunity to influence directly and actively the future of ISCB and its growing membership.

The mission of the International Society for Computational Biology (ISCB) is to be the leading professional society for researchers, practitioners, technicians, students, and suppliers in the field of computational biology and bioinformatics. By building the networks and bridges necessary to support research developments by passionate groups of researchers from a variety of backgrounds, we believe that the ISCB enables computational biology and bioinformatics to transform and accelerate basic biological research.

The ISCB Innovation Forum recognizes corporations and industry groups with the highest level of commitment to the mission and programs of ISCB.

The activities of the Innovation Forum offer unequaled opportunities for the constituencies it represents, including the following examples:

• A Forum for dialogue on timely issues of interest to the entire field, thus affording an opportunity to maintain an open dialogue with other industry professionals and ISCB leaders on strategic priorities and timely issues in computational biology, bioinformatics, and related fields.

• The design and implementation of workshops important to the members and industry in general: Innovation Forum members will receive exclusive access to workshops and programs specifically developed by the Industry Platform that address the most relevant needs of the group.


• Opportunities for unmitigated collaboration: Through its open dialogue, the stakeholders identify areas of collaboration that can advance computational sciences, translate key research findings, and address challenges facing the global community.

• Access to and guidance of tomorrow's leaders: Forum's member contributions to ISCB will support travel fellowships for student and post-doctoral researchers to attend ISCB official conferences held worldwide.

To learn more or become a member today, visit https://www.iscb.org/iscb-innovation-forum.

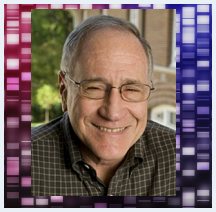
## Welcome Class of 2016 Fellows

The ISCB Fellows program recognizes members that have distinguished themselves through outstanding contributions to the fields of computational biology and bioinformatics. The program was launched in 2009 and includes recognition of the Fellows at ISMB, the flagship conference of ISCB. This year, thirteen Fellows have been elected and were honored at ISMB in Orlando, Florida.

**Helen Berman** Distinguished Professor, Board of Governors Professor of Chemistry and Chemical Biology, Department of Chemistry and Chemical Biology, Rutgers University, USA. Berman is a structural biologist and began her career as a crystallographer. She has studied the structures of protein/nucleic acid complexes, including collagen, and was an instrumental founder and leader of the Protein Data Bank (PDB) and Nucleic Acids Database. Berman's innovations in computational biology include methods, standards, and tools to make these databases more robust and searchable, and she coordinated the effort to form a partnership between global PDB entities to create and maintain a worldwide PDB.

**Steven E. Brenner** Winner of the 2010 Overton Prize. Professor, Department of Plant and Microbial Biology, University of California, Berkeley, USA. Brenner's research interests span computational biology from individual genome interpretation to understanding RNA-based gene regulation, protein structure evolutionary analysis, and developing better methods for protein function prediction. Brenner is an organizer of the Critical Assessment of Genome Interpretation (CAGI) project and has contributed to the ISCB and open-source software communities through various leadership roles.

**Dan Gusfield** Professor, Department of Computer Science, University of California, Davis, USA. Gusfield has made many seminal contributions to computational biology since the field was in its infancy. His research focuses on efficiency of algorithms, particularly for combinatorial optimization and graph theoretic problems in the context of bioinformatics data. His present research is focused on optimization problems related to population genetics and population-scale genomics. Gusfield has served the computational biology community in multiple capacities as an educator, administrator, book author and founding Editor-in-Chief of the journal IEEE/ACM Transaction on Computational Biology and Bioinformatics.



**Barry Honig** Professor, Department of Biochemistry and Molecular Biophysics, Columbia University, USA. Honig has made many foundational contributions to computational biology, especially in the fields of protein structure prediction and molecular electrostatics. His diverse research program includes fundamental theoretical work and combines biophysical and bioinformatics methods to gain insight into protein function prediction, protein-DNA recognition, and cell-cell adhesion.

**Janet Kelso** Group Leader, Department of Evolutionary Genetics, Max Planck Institute for Evolutionary Anthropology, Germany. Kelso's leads topnotch research that uses computational approaches to study the genomes of archaic and modern humans, and to gain insights into genome evolution, gene expression and gene expression regulation. Kelso has also distinguished herself through devoted scientific service through leadership roles in ISCB and bioinformatics journals, support for bioinformatics education, and involvement in the global development of bioinformatics.

**Michal Linial** Professor, Biological Chemistry / Director, Sudarsky Center for Computational Biology / Director, Institute for Advanced Studies, Hebrew University of Jerusalem, Israel. Linial has made numerous significant research contributions to the field of computational biology through her pioneering work on automatic classification of protein sequences and function prediction, by originating the use of Bayesian networks for expression data analysis, and through the application of compressed sensing to expression data. Linial has also served the ISCB and greater computational biology communities in a variety of leadership roles and has promoted the advancement of computational biology education.

**Christine Orengo** Professor, Division of Biosciences, University College London, UK. Orengo has made seminal contributions to protein structure classification through her work establishing the CATH resource, and the development of novel robust algorithms to determine structural and functional relationships between proteins. Orengo has served ISCB in a number of leadership roles and has made invaluable contributions to computational biology education and training.

**Aviv Regev** Winner of the 2008 Overton Prize. Core Member and Chair of the Faculty, Broad Institute, Professor, Department of Biology, Massachusetts Institute of Technology, USA, and Investigator, Howard Hughes Medical Institute. Regev has made significant contributions to the field through research in systems biology, particularly for her work on molecular circuitry that drives the function of mammalian cells, gene regulation, and single cell genomics.

**Lincoln Stein** Professor, Department of Molecular Genetics, University of Toronto, and Interim Scientific Director of the Ontario Institute for Cancer Research, Canada. Stein has made many fundamental contributions to the emergence of computational biology as a field through his roles in the formative consortia of computational biology, including the Human Genome Project, HapMap, Reactome, Wormbase, BioPerl and ModEncode. He has written the widely-used Perl CGI module, contributed to major portions of BioPerl, GBrowse and JBrowse, software used across the bioinformatics community, and mentored many scientists who have gone on to become successful independent researchers.

**Sarah Teichmann** Head of Cellular Genetics, Wellcome Trust Sanger Institute, UK. Teichmann has made numerous significant contributions to the field that include elucidating the domain characteristics of prokaryotic proteins, introducing graph theory to represent protein domain combinations as networks, developing predictive models for transcription factor-DNA interactions in gene regulation, and statistical methods for single-cell transcriptomics. Teichmann has mentored numerous trainees who have become scientific leaders, and she has served on numerous editorial boards and organized multiple conferences..

**Anna Tramontano** Chair Professor, Department of Physics, University of Rome "La Sapienza", Italy. Tramontano is a leader in the field of computational biology through her research to analyse and model the structure of proteins of biomedical relevance, and her work to organise the community assessment of protein structure prediction (CASP) project. Tramontano has been a major force in bringing attention to computational biology and bioinformatics to leaders of European science and policy makers and has served the community through her roles in the ISCB leadership.

**Shoshana J. Wodak** Professor, Visiting Group Leader, Vlaamse Institute of Biotechnology, Structural Biology Research Center, Free University of Brussels, Brussels, Belgium. Wodak's seminal research contributions include docking algorithms for the prediction of protein-protein interactions, protein structure prediction, molecular simulations, and automated protein design. Wodak is also well known for her work on the representation and analysis of genome-scale protein interaction networks. Wodak has been playing an active role in the management of CAPRI (Criticial Assessment of Predicted Interactions), a community-wide initiative on evaluating methods for the prediction of protein interactions and has mentored numerous students and trainees who have gone on to establish independent research programs.

**Haim Wolfson** Professor, Department of Computer Science, Tel Aviv University, Israel. Wolfson pioneered the introduction of Computer Vision motivated 3D pattern discovery algorithms into computational structural biology, co-developing the geometric hashing methodology, and developing highly efficient algorithms for protein structure alignment, protein-protein docking, binding site comparison, and integrative modeling of large multi-molecular assemblies. Wolfson has held several key leadership positions at Tel Aviv University and has served on numerous program committees for major computational biology conferences including ISMB, ECCB, and RECOMB.

*C. Fogg, ISCB Summer Newsletter, July 2016*

## ISCB Congratulates its Senior Members

In 2016, ISCB bestowed the distinction of senior members on 97 members

### ISCB SENIOR MEMBER HONOR ROLL

**Russ B. Altman**
Stanford University
USA

**Pankaj Agarwal**
GlaxoSmithKline
USA

**Ivet Bahar**
University of Pittsburgh
USA

**Pierre Baldi**
University of California, Irvine
USA

**Andy Baxevanis**
National Institutes of Health
USA

**Ewan Birney**
European Molecular Biology Laboratory,European Bioinformatics Institute (EMBL-EBI)
UK

**Philip E. Bourne**
National Institutes of Health
USA

**Søren Brunak**
Technical University of Denmark
Denmark

**Ralf Bundschuh**
The Ohio State University
USA

**Guido Capitani**
Paul Scherrer Institute
Switzerland

**Dominic Clark**
EMBL-European Bioinformatics Institute
UK

**Ramana Davuluri**
Northwestern University
USA

**Rolf Apweiler**
European Bioinformatics Institute of the European Molecular Biology Laboratory
Hinxton, UK

**Michael Ashburner**
2011 ISCB Senior Scientist Award
EMBL-EBI, UK

**Amos Bairoch**
University of Geneva
Switzerland

**Alex Bateman**
European Bioinformatics Institute
UK

**Bonnie Berger**
Massachusetts Institute of Technology
USA

**Helen Berman**
Department of Chemistry and Chemical Biology
Rutgers University, USA

**Steven Brenner**
University of California, Berkeley
USA

**Janusz Bujnicki**
Intl. Institute of Molecular and Cell Biology (IIMCB
Poland

**Raffaele Calogero**
University of Torino
Italy

**Cyrus Chothia**
Cambridge University
UK

**Julio Collado-Vides**
Universidad Nacional Autonoma de Mexico (UNAM
Mexico

**Richard Durbin**
Wellcome Trust Sanger Institute
UK

**David Eisenberg**
2013 ISCB Senior Scientist Award
University of California, Los Angeles
USA

**James Foster**
University of Idaho
USA

**Iddo Friedberg**
Iowa State University
USA

**Bruno Gaeta**
University of New South Wales
Australia

**Mark Gerstein**
Yale University
USA

**Alexander Hartemink**
Duke University
USA

**Desmond Higgins**
University College Dublin
Ireland

**Lawrence Hunter**
University of Colorado School of Medicine
USA

**Victor Jongeneel**
University of Illinois
USA

**Minoru Kanehisa**
Kyoto University Japan

**Janet Kelso**
Max Planck Institute of Informatics
Anthropology
Germany

**Thomas Lengauer**
Max Planck Institute of Informatics
Germany

**Fran Lewitter**
Whitehead Institute for Biomedical Research
USA

**Ivan Erill**
University of Maryland, Baltimore County
USA

**Ernest Fraenkel**
Massachusetts Institute of Technology
USA

**Nir Friedman**
Hebrew University
Jerusalem, Israel

**Robert Gentleman**
Genentech
USA

**Dan Gusfield**
University of California, Davis
USA

**David Haussler**
2008 ISCB Senior Scientist Award
University of California, Santa Cruz, USA

**Barry Honig**
Columbia University
USA

**Anil Jegga**
Cincinnati Childrens Hospital
USA

**Antoine Kampen**
Academic Medical Center
Netherlands

**Peter Karp**
SRI International
USA

**Nicolas Le Novere**
Babraham Institute
UK

**Michael Levitt**
Stanford University
USA

**Michal Linial**
Hebrew University of Jerusalem
Israel

**David Lipman**
2004 ISCB Senior Scientist Award
National Center for Biotechnology Information (NCBI), USA

**Jill Mesirov**
University of California, San Diego
USA

**Satoru Miyano**
University of Tokyo
Japan

**Eugene Myers**
2014 ISCB Senior Scientist Award
Howard Hughes Medical Institute-Janelia Farm Research Center, Ashburn, USA

**Ruth Nussinov**
National Cancer Institute
Tel Aviv University, Israel

**Pavel Pevzner**
University of California, San Diego
USA

**PredragRadivojac**
Indiana University
USA

**ChrisRawlings**
RothamstedResearch
UK

**Martin Reese**
Omicia Inc.
USA

**Ana M. Rojas**
Institute of Biomedicine of Seville
Spain

**Hershel Safer**
Consultant
Israel

**Steven Salzberg**
Johns Hopkins University School of Medicine
USA

**David Sankoff**
2003 ISCB Senior Scientist Award
University of Ottawa Université de Montréal
Canada

**Scott Markel**
Dassault Systèmes BIOVIA
USA

**Webb Miller**
2009 ISCB Senior Scientist Award
Pennsylvania State University
USA

**T. M. Murali**
Virginia Tech
USA

**William Noble**
University of Washington
USA

**Christine Orengo**
University College London
UK

**David Posada**
Universidad de Vigo
Spain

**Stephen Ramsey**
Oregon State University
USA

**Aviv Regev**
Massachusetts Institute of Technology
USA

**David Rocke**
University of California, Davis
USA

**Burkhard Rost**
Technical University Munich
Germany

**Andrej Sali**
University of California, San Francisco
USA

**Chris Sander**
2010 ISCB Senior Scientist Award
Harvard Medical School and Dana-Farber Cancer Institute
USA

**Reinhard Schneider**
LCSB
Luxembourg

**Torsten Schwede**
SIB Swiss Institute of Bioinformatics Switzerland

**Temple Smith**
2007 ISCB Senior Scientist Award
Boston University
USA

**Andrew Su**
The Scripps Research Institute
USA

**Janet Thornton**
2005 ISCB Senior Scientist Award
European Bioinformatics Institute (EBI)
UK

**Olga Troyanskaya**
Princeton University
USA

**Martin Vingron**
Max Planck Institute for Molecular Genetics
Germany

**Li-San Wang**
University of Pennsylvania
USA

**Liping Wei**
Peking University
China

**Shoshana J. Wodak**
Free University of Brussels
Belgium

**Cathy Wu**
University of Delaware
USA

**Weichuan Yu**
The Hong Kong University of Science and Technology
China

**Ron Shamir**
Tel Aviv University
Israel

**Lincoln Stein**
University of Toronto, and Ontario Institute for Cancer Research, Canada

**Sarah Teichmann**
European Bioinformatics Institute
UK

**Anna Tramontano**
University of Rome "La Sapienza"
Italy

**Alfonso Valencia**
Spanish National Cancer Research Center and Spanish National Bioinformatics Institute
Spain

**Gunnar von Heijne**
2012 ISCB Senior Scientist Award
Stockholm University
Sweden

**Mike Waterman**
2006 ISCB Senior Scientist Award
University of Southern California
USA

**Lonnie Welch**
Ohio University
USA

**Haim Wolfson**
Tel Aviv University
Israel

**Dong Xu**
University of Missouri-Columbia USA

**Criteria for the Elevation to a Senior member Status:**

1. Five or more years of continuous professional membership in ISCB at the time of nomination.
2. Ten years of professional experience in the field.*
3. Demonstrated sustained professional performance.**

* The ten-year period begins in the year of earning doctoral degree or its equivalent. Candidates with pre-doctoral degrees can use five years of additional professional experience as a substitute for doctoral degree.

** The successful candidate for Senior ISCB Member demonstrates sustained professional performance (in a teaching, research, or development capacity in the field of computational biology) by securing three endorsements from eligible ISCB members. Eligible endorsers are professional ISCB members in good standing from the following groups: ISCB Fellows, current and past ISCB Board of Directors members, and Senior ISCB Members.

**Initiating Senior Member Status**

An ISCB professional member can self-nominate via an online form for elevation to senior member status or be nominated by any of the eligible endorsers. After the ISCB staff verifies that a candidate meets the first criteria, all endorsers are given an opportunity to endorse the candidate. Each eligible candidate securing three or more endorsements (excluding self) will be elevated to the status of senior member. As the endorsers are not required to participate in voting, senior member candidates are encouraged to contact a small number of eligible endorsers to secure their support through personal interaction.

**Maintaining and Re-establishing the Senior Member Status:**

The senior ISCB member must remain in good standing to retain his or her status. If good standing is not maintained, the senior member status becomes invalid. Senior member status is automatically re-established when the member returns to good standing. However, if a senior member has more than a one-year lapse in membership and returns to good standing, he/she will not receive the 10% registration discount to ISCB official conferences unless he/she remains in good standing for two-consecutive years.

**Benefits to Senior Member Status:**

As a Senior Member of the Society, members enjoy

- Recognition on the ISCB website featuring our Senior Members
- Special recognition ribbons at ISCB official conferences
- Opportunity to be selected for keynote speaking positions & important steering committees
- Annual 10% registration discount off the early member rate for a select ISCB official conference of choice
- Special ISCB Senior Member logo for website and CV

## Continued Growth of COSIs & ISCB*connect*

ISCBconnect has eight active ISCB Communities of Special Interest (COSI) online community groups. COSIs are member communities of shared interest that have self-organized and have multiple activities or interactions throughout the year, rather than solely meeting during the SIG program of the ISMB conference. An important goal of any COSI is to foster a topically-focused collaborative community wherein scientists communicate with one another on research problems and/or opportunities in specific areas of computational biology.

Such communication is often in the form of meetings, but can also be through other social media tools that allow for vibrant participation in a virtual environment. This virtual communication has been given a greater voice through the creation and implemention of the ISCBconnect which allows each COSI to easily communicate, engage, share and connect in an easy to use online forum. Each COSI has a customized homepage through which topical discussions are created, events are marketing, and information is easily disementiated.

Not a member of a COSI? It is easy to sign-in. Visit connect.iscb.org for more information and to get started!

Consider joining one of these dynamic groups today:

**COMPBIO CHATTER**

An open forum for researchers, practitioners, technicians, students, and suppliers in the field of computational biology and bioinformatics to have general discussions about the field, share resources, and other information.

**3D-SIG**

3Dsig focuses on structural bioinformatics and computational biophysics and has become the largest meeting in this growing field.

**AFP: AUTOMATED FUNCTION PREDICTION**

The accurate annotation of protein function is key to understanding life at the molecular level. The Automated Function Prediction COSI brings together computational biologists, experimental biologists and biocurators who are dealing with gene and gene product function prediction, to share ideas and create collaborations. The AFP-SIG holds annual meetings and conducts the multi-year Critical Assessment of protein Function Annotation, or CAFA, experiment.

**BIOINFO-CORE**

Bioinfo-core is a worldwide body of people that manage or staff bioinformatics cores within organizations of all types including academia, academic medical centers, medical schools, biotechs and pharmas.

**BIO-ONTOLOGIES**

Bio-Ontologies Special Interest Group (SIG) covers the latest and most innovative research in the application of ontologies and more generally the organisation, presentation and dissemination of knowledge in biomedicine and the life sciences.

**CAMDA: CRITICAL ASSESSMENT OF MASSIVE DATA ANALYSIS**

CAMDA presents a crowd sourcing and open-ended data analysis challenge format which focuses on big heterogeneous data sets that are increasingly produced in several fields of the life sciences.

**CoBE: COMPUTATIONAL BIOLOGY EDUCATION**

The ISCB Computational Biology Education (CoBE) COSI focuses on bioinformatics and computational biology education and training across the life sciences. A major goal of this COSI is to foster a mutually supportive, collaborative community in which bioscientists can share bioinformatics education and training resources and experiences, and facilitate the development of education programs, courses, curricula, etc., and teaching tools and methods.

**CompMS: COMPUTATIONAL MASS SPECTROMETRY**

COSI CompMS promotes the efficient, high quality analysis of mass spectrometry data through dissemination and training in existing approaches and coordination of new, innovative approaches. The CompMS initiative aims to exploit synergies between different application domains, in particular proteomics and metabolomics.

**HITSEQ: HIGH THROUGHPUT SEQUENCING ALGORITHMS & APPLICATIONS**

HiTSeq is devoted to the latest advances in computational techniques for the analysis of high-throughput sequencing data including novel algorithms, analysis methods and applications in biology where high-throughput sequencing data has been transformative. It provides a forum for in depth presentations of novel algorithms, analysis methods, and applications in multiple areas of biology that HTS is transforming.

**JPI: JUNIOR PRINCIPAL INVESTIGATORS**

Transitioning from a post-doc to a junior PI can be a challenging process requiring careful planning. Once running a group, junior PIs are faced with many new tasks, some of which are learnt on the job. The Junior Principal Investigators group (JPI) aims to provide support during this process via a community of peers.

**NetBio: NETWORK BIOLOGY**

As more research fields turn to network visualization and analysis for perspective, our Network Biology Community serves to introduce novel methods and tools, identify best practices and highlight the latest research in the growing and interconnected field of network biology.

**OBF: OPEN BIOINFORMATICS FOUNDATION**

The Open Bioinformatics Foundation (OBF) is a non-profit, volunteer-run group dedicated to promoting the practice and philosophy of Open Source software development and Open Science within the biological research community. Our primary activities are running the annual Bioinformatics Open Source Conference (BOSC, held as an ISBM SIG meeting), and managing the servers, domain names and other assets of our member projects which include BioJava, BioPerl, Biopython, and BioRuby.

**RegSys: REGULATORY AND SYSTEMS GENOMICS**

The Regulatory and Systems Genomics Community of Special Interest focuses on computational methods that are important in the study of regulation of genes and systems. The RegSys COSI organizes the following activities: (1) ISMB Regulatory Genomics SIG Meeting, (2) RECOMB/ISCB Conference on Regulatory and Systems Genomics and DREAM Challenges, and (3) Top Ten Papers in Regulatory and Systems Genomics.

**SysMod: COMPUTATIONAL MODELING OF BIOLOGICAL SYSTEMS**

The SysMod Community of Special Interests aims at bridging the gap between bioinformatics and systems biology modeling. Recently, aspects of the two fields have converged. Systems modeling has become more reliant on bioinformatic network inference to build models and has begun to use transcriptomics and proteomics data to train models. In addition, more communication between systems modellers and bioinformaticians is needed to build models of whole cells, organs and organisms. Furthermore, the promises of precision medicine lie, in part, on the interplay between bioinformatics-based analysis of patient data and model-based predictions of treatments.

**TransMed: TRANSLATIONAL MEDICINE INFORMATICS & APPLICATIONS**

Knowledge-based translational medicine is a rapidly growing discipline in biomedical research and aims to expedite the discovery of new diagnostic tools and treatments by using a multi-disciplinary, highly collaborative, "bench-to-bedside" approach. It involves the integration of multiple high dimensional datasets that capture the molecular profiles of patients, as well as detailed clinical information. Within public health, translational medicine is focused on ensuring that proven strategies for disease treatment and prevention are actually implemented within the community, and on progressing towards data-educated personalised therapy. To genuinely realise the promise of Big Data in healthcare, we must consistently collate the data, annotate it with consistent and useful ontologies, apply sophisticated statistical analysis and translate these findings to the clinic. As a community, we will explore the current status of computational biology approaches within the field of clinical and translational medicine. In this COSI we will bring scientists from both academia and industry to exchange knowledge and foster networking, to help in building up of the translational medicine community.

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**VarI: VARIANT INTERPRETATION**

The Variant Interpretation Community of Special Interest (VarI-COSI) is a community of scientists interested in “breaking” the genomic code. The main goal of our COSI is to promote the formation of a collaborative network of scientists interested in the understanding of the meaning of genomic variation as applied to a range of questions, including population studies, functional and evolutionary impacts, and disease.



## Fostering Relationships through Affiliated Groups

The Affiliates Committee continues to foster interactions between the Society and its affiliated regional and institutional groups. ISCB now has 23 active affiliated groups with more in the application and evaluation process. Once confimred their information will be listed on the website and conferences included on our conference calendar and added to our affiliate marketing schedule.

ISCB continues to strengthen its ties with affiliated groups by providing an annual review of the website content posted on ISCB to ensure organization information is accurate. Additionally, ISCB offers a bulk membership option for affiliated groups. This bulk membership drive allows these regional and institutional groups to establish a group membership for their individual organization and ISCB and simplifies the registration process with ISCB.

The Affiliates Committee also introduced a reorganization of the affiliated group structure to remove entry barriers during the application process. The new structure features different tiered levels of affiliation and removed the two-year waiting period to for application.

**Revised Tiered Structure for ISCB Regional Affiliates:**

*TIER 1 (provisional affiliate)*

- characteristics: a newly formed regional group
- benefits: all of the current benefits, except for voting rights on the Affiliates Committee

*TIER 2 (established affiliate)*

- characteristics: a regional group that has been in existence for at least two years and is in good standing
- benefits: reduced ISMB registration rate for each Affiliate's Liaison (student rate)
  - Affiliate will be required to attend the committee meeting

*TIER 3 (contributing affiliate)*

- characteristics: organizes activities that contribute to ISCB's mission and provide benefit to ISCB members, and is active in the Affiliates Committee
- benefits: opportunities to be involved in governance and oversight of the Affiliates Committee, including a seat on the Affiliates Council; an additional benefit is eligibility to be the Affiliates' representative on the ISCB Board of Directors

## ISCB Executive Committee Responds to New England Journal of Medicine (NEJM) Data Sharing and the Journal

The recent editorial by Drs. Longo and Drazen in the New England Journal of Medicine (NEJM) [1] has stirred up quite a bit of controversy. As Executive Officers of the International Society of Computational Biology, Inc. (ISCB), we express our deep concern about the restrictive and potentially damaging opinions voiced in this editorial. While some of the concerns voiced by the authors of the editorial are worth considering, large parts of the statement purport an obsolete view of hegemony over data that is neither in line with today's spirit of open access nor furthering an atmosphere where the potential of data can be fully realized.

We acknowledge that the additional comment on the editorial [2] eases some of the polemics, unfortunately without addressing some of the core issues. We still feel, however, that we need to contrast the opinion voiced in the editorial with what we consider the axioms of our scientific society, statements that lead into a fruitful future of data-driven science:

- Data produced with public money should be public in benefit of the science and society
- Restrictions to the use of public data hamper science and slow progress
- Open data is the best way to combat fraud and misinterpretations

Current large data collections proceed from many sources are continually accumulated and require a variety of analytical approaches. Data generation and data analysis overlap in time and are continually updated with new data sets produced by new techniques and new analysis methodologies. Furthermore, in many cases current science functions in consortia in which scientists collaborate toward common goals while preserving their own scientific objectives. Dividing scientists into data providers and data analysts is simplistic and gives a misleading impression of the actual state of biological and biomedical science.

We very much support collaboration between disciplines, including experimental and clinical as well as bioinformatics, as the best way forward to address complex biological problems. But this collaboration cannot be based on imposed restrictions to data access and cannot be contained in professional silos. (The use of expressions such as "research parasites" clearly does not help.)

Many bio-communities have made significant progress by endorsing open data policies and, gratefully, public funding agencies have connected to the spirit that they are distributing taxpayers' money to science and that, therefore, the data that are generated in the course belong to the public. It is, perhaps, natural that some areas of biomedical research are slow in adopting these policies. History and the confidential nature of the relevant data are surely one of the reasons. However, in our opinion data hegemony is another, a reason that has to be overcome. The sooner these barriers to progress are removed the sooner the patients will benefit from the current flourishing of biomedical research.

*1. Longo, D.L. and J.M. Drazen, Data Sharing. N Engl J Med, 2016. 374(3): p. 276-7.*
*2. Drazen, J.M., Data Sharing and the Journal. New Engl J Med.*

## 2016 Student Travel Fellowship Campaign

Student travel fellowships help propel young investigators toward important future discoveries. Join ISCB in giving students access to the principal role models within the field and help influence the paths of scientific careers. As government-funding opportunities continue to decline, ISCB is reaching out to the membership to help this important initiative. Each year, ISCB receives over 300 travel fellowship requests. With currently available funds, this can only support ~50% of these requests by providing partial funding to each recipient.

In 2016, we were able to fund travel fellowships to ECCB, RECOMB, PSB, GIW, InCoB, and ISMB, and ISCB Student Council Sympois. Congratulations again to the 55 ISCB student and postdoctoral members who received these awards. Thank you again to Simons Foundation, HitSeq, Integrative RNA Biology Group, PLOS, Akamai, BD2K, and Swan and Dolphin Hotel. We could not have funded as many without your generous support.

**Making a donation to the travel fellowship fund will enable support of even more students with higher travel awards. We continue to do all we can but there is still more to do — your contributions at any level will allow us to reach more students. By donating to ISCB student travel fellowships, you are investing in the future of our science.

## The International Society for Computational Biology (ISCB) Fight Against Ebola Award:

In response to the immediate need for solutions in the field of computational biology against Ebola, The International Society for Computational Biology (ISCB announces the Fight Against Ebola Award. ISCB gave out the Fight Against Ebola Award, along with a prize of $2000, at its July 2016 annual meeting (ISCB ISMB 2016, Orlando, Florida. Fifteen submissions were receieved and reviewed by a committee. The winners of the 2016 Fight Against Ebloa were:

***Using Computational Biology to Investigate Ebolavirus Pathogenicity***
Morena Pappalardo1, Miguel Julia1, Diego Cantoni1, Francesca Collu2, James Macpherson2, Mark J Howard1, Franca Fraternali2, Jeremy S. Rossman1, Martin Michaelis1, Mark N. Wass1*
1. School of Biosciences, University of Kent, UK. 2. Randall Division, King's College London, UK.

Honorable Mentions:

***From conserved protein residues to therapeutic targets for Ebola Virus Disease***
Ahmed Arslan and Vera van Noort
KU Leuven, Centre of Microbial and Plant Genetics (CMPG), Leuven, Belgium.

***Computational large scale exploration of functional regions in Ebola for therapy and vaccination***
Eli Goz1, Kiril Lomakin1, Leslie Lobel2,3, Tamir Tuller1,4,*
1Department of Biomedical Engineering, Tel-Aviv University, Ramat Aviv 69978, Israel. 2Department of Microbiology, Immunology and Genetics, Faculty of Health Sciences, Ben Gurion University of the Negev, Beer Sheva, Israel. 3Department of Emerging and Re-emerging Diseases and Special Pathogens Uganda Virus Research Institute (UVRI) Entebbe, Uganda 4Sagol School of Neuroscience, Tel-Aviv University,

The ISCB Fight Against Ebola Award the society offered for the first time an award for a specific scientific objective thereby acknowledging the urgency of action to fight a rising challenge. The challenge will be continued in 2017 with the ISCB Emerging Global Threats Challenge.

## ISCB Education Committee Ciriculumn Development Task Force Publishes Applying, Evaluating and Refining Bioinformatics Core Competencies

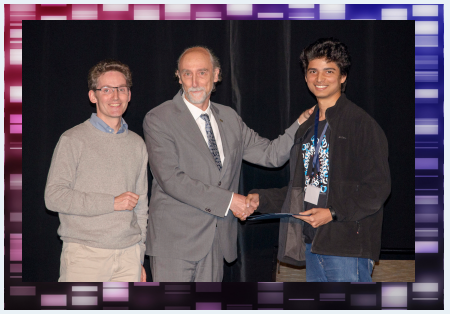
The Curriculum Task Force (CTF) of ISCB's Education Committee seeks to define curricular guidelines for those who educate or train bioinformatics professionals at all career stages. A recent report of the CTF [1] presented a draft set of bioinformatics core competencies, derived from the results of surveys of (1) core facility directors, (2) career opportunities, and (3) existing curricula.

Since the publication of its 2014 report, the CTF has focused on the application of the guidelines in varied contexts to identify areas where refinement is needed. As a first step, the task force held an open meeting at the ISMB conference in July 2014. The ideas discussed at the meeting spawned four working groups (WGs), which focus on (i) defining core competencies for specific types and levels of bioinformatics training, (ii) mapping the curriculum guidelines and competencies to existing materials in order to identify the need for development of new materials, and (iii) identifying where revision of the guidelines may be valuable. The CTF is engaging the ISCB community through open WG meetings at ISCB's official conferences. Thus far, the WGs have convened at the ISCB Great Lakes Bioinformatics Conference (Purdue University, May 2015) and at the ISMB/ECCB Conference (Dublin, Ireland, July 2015). Additionally, the CTF held a workshop at the Annual General Meeting of the Global Organization of Bioinformatics Learning, Education and Training (Cape Town, South Africa, November 2015). Specifically, the draft competencies have been employed in a wide range of activities and contexts including the development of new curricula, the analysis of existing curricula, and the creation of new roles involving bioinformatics2.

To read the full article visit http://dx.doi.org/10.1371/journal.pcbi.1004943

1. Welch L, Lewitter F, Schwartz R, Brooksbank C, Radivojac P, et al. (2014) Bioinformatics curriculum guidelines: toward a definition of core competencies. PLoS Computational Biology 10: e1003496. doi: 10.1371/journal.pcbi.1003496. pmid:24603430
2. Welch L, Brooksbank C, Schwartz R, Morgan SL, et al (2016) Applying, Evaluating and Refining Bioinformatics Core Competencies (An Update from the Curriculum Task Force of ISCB's Education Committee). PLOS Computational Biology 10.1371/journal.pcbi.1004943

## ISCB Wikipedia Competition Winners



ISCB held its third international competition to improve the coverage on Wikipedia of any aspect of computational biology. A key component of the ISCB's mission to further the scientific understanding of living systems through computation is to communicate this knowledge to the public at large. Wikipedia has become an important way to communicate all types of science to the public and Wikidata plays an increasingly growing role in that. ISCB aims to further its mission by increasing the quality of Wikipedia and Wikidata coverage of Computational biology, and by improving accessibility to this information via Wikipedia and its sister sites. The competition is open to students and trainees at any level either as individuals or as groups.

In 2016, there will be two different competitions that you can enter. These are for (1) Wikipedia articles in any language, (2) Wikidata contributions.

**2016 Winners**:

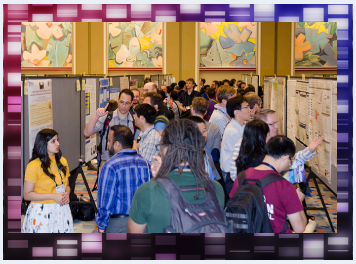
Award for *Wikipedia article in any language*:

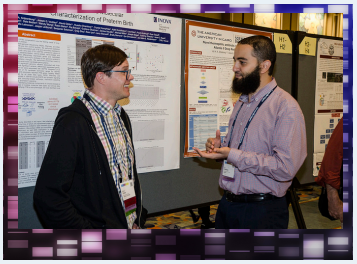
1st Prize - Alexander Hausser & Leonie Jahn for Docking (molecular) (English)
2nd Prize - Leandro Poli for BioJava (Spanish)
3rd Prize - Vivek Rai for Vienna RNA package (English)

*Wikidata award*:

1st Prize - Vivek Rai for Vienna RNA package
2nd Prize - Alexander Hausser for Docking

Congratulations to the winners and thank you to the dedicated volunteers that keep the competition going!





## ISCB Thanks the 2016 FASEB Representative

Bonnie Berger, PhD, FASEB Excellence in Science Committee
Dr. Berger is the Simons Professor of Mathematics at MIT, holds a joint appointment in Electrical Engineering and Computer Science, and serves as head of the Computation and Biology group at MIT's Computer Science and AI Lab. She also lead the ISCB Fellows Selection Committee and Awards Committee.

David M. Rocke, PhD, FASEB Treasurer
Dr. Rocke is Distinguished Professor in the Division of Biostatistics, Department of Public Health Sciences and the Department of Biomedical Engineering at the University of California, Davis, where he has been on the faculty since 1980. He is a former Treasurer of ISCB.

Harel Weinstein, DSc, FASEB Board Representative
Dr. Weinstein is the Maxwell Upson Professor of Physiology and Biophysics and Chairman of the Department of Physiology and Biophysics, and the Founder and Director of the Institute for Computational Biomedicine at Weill Cornell Medical College of Cornell University.

Scott Markel, PhD, FASEB Publications and Communications Committee
Dr. Markel is the Principal Bioinformatics Architect at Dassault Systemes BIOVIA. He is also the secretary of ISCB and the Chair of the ISCB Publications and Communications Committee.

Fran Lewitter, PhD, FASEB Science Research Conferences Advisory Committee
Dr. Lewitter is the Director of Bioinformatics and Research Computing at Whitehead Institute. She also is the ISCB Education Committee Chair and leads the ISCB GOBLET collaboration.

## ISCB Member-get-a-Member Campaign

Personal testimony and endorsement is the highest compliment an organization could receive. In 2016, ISCB introduced it first member-get-member campaign. Over the course of six months, ISCB member were encouraged to recruit new members to the Society. Members participating in the program were rewarded with additional incentives which included discounted registrations to ISMB, the flagship meeting of ISCB, and even a chance to win a ISMB conference package which will include a complimentary registration, 4-night hotel stay, and invitation to a special reception..

Recruit 10 professional members (15 students or postdocs) – receive **20% off ISMB registration**

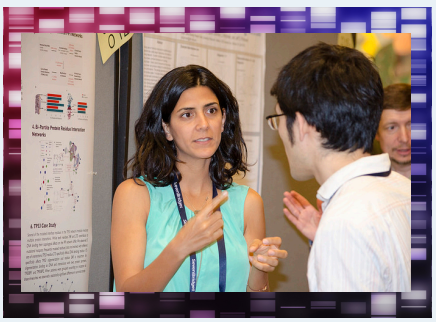
Recruit 15 professional members (20 students or postdocs) - receive **25% off ISMB registration**

Recruit 25 professional members (30 students or postdocs) – receive **50% off ISMB registration**

The 2016 winner of the member-get-a-member campaign was:

Winner: Catherine Putonti, Loyola University Chicago, 9 recruited members
Honorable Mention: Lonnie Welch, Ohio University, 7 recruited members

The 2017 campaign is now underway!



## Society Conferences Highlights

Highlights and recaps for each conference are featured below.

**ISMB 2016 – ISCB Flagship Conference**

The 24th annual Intelligent Systems for Molecular Biology (ISMB) meeting kicked off on Sunday July 10th, 2016 at the Swan and Dolphin Hotel in Orlando, Florida. As in years past, the flagship ISCB meeting was preceded by two days of well-attended smaller meetings organized around specific topics, including special interest group (SIG) and satellite meetings and applied knowledge exchange sessions (AKEs). ISMB 2016 conference co-chair Pierre Baldi officially opened the conference and welcomed delegates, and he acknowledged the tireless work of his co-chair Teresa Przytycka, the steering committee, the scientific organizing committee and theme chairs in shaping this year's conference program.

Ruth Nussinov of Leidos Biomedical Research, Inc., National Cancer Institute/NIH, United States and the Sackler School of Medicine, Tel Aviv University, Israel was the ISCB Fellows keynote speaker and delivered the first major talk of the conference titled "Ras signaling: a challenge to the biological sciences." Activating Ras mutations have been found in numerous cancers, including pancreatic, colorectal, and lung cancer and melanoma, but no drugs or therapies exist that target Ras. Nussinov discussed her work examining structural and mechanistic characteristics of different Ras isoforms, which can guide the development of drugs that target Ras without inducing drug resistance.

The second keynote talk was delivered by Debora Marks of the Department of Systems Biology, Harvard Medical School, United States, winner of the 2016 Overton Prize for early career scientists. Marks's talk, "Molecular structure and organism fitness from genomic sequences," highlighted her recent work on de novo 3D structure prediction using a global probability model of a sequence, for which several structures have been validated by 3D structural studies published by other groups. Marks also discussed her most recent work using couplings and context information to predict epistatic interactions and understand impact of mutations.

Sandrine Dudoit of the Division of Biostatistics and Department of Statistics, University of California, Berkeley, United States delivered the third keynote address on Monday, July 11 titled, "Identification of Novel Cell Types in the Brain Using Single-Cell Transcriptome Sequencing." She described her work showing that olfactory stem cells help replace sensory neurons and non-neural support cells, and presented her "SCONE" software package for single cell transcriptome normalization that was instrumental to this work. She also discussed the importance of computational reproducibility and how it differs from biological reproducibility, an issue that is at the heart of much of the work presented at ISMB.


Sarah Teichmann of EMBL-EBI and Head of Cellular Genetics at Wellcome Trust Sanger Institute, Hinxton, United Kingdom gave the fourth keynote talk on Monday afternoon on "Understanding Cellular Heterogeneity." Dudoit and Teichmann's talks both highlighted the emerging field of single-cell

transcriptomics (RNAseq), which was seen throughout ISMB 2016. She discussed her work using high throughput single cell RNA sequencing to quantify cell-to-cell variation at the transcriptome level. Her research combines bioinformatics and wet lab work, which has come together recently in many of her findings, including her observation that T helper 1 cells and T follicular helper cells originate from a single cell.

Serafim Batzoglou of the Department of Computer Science, Stanford University, United States is the inaugural winner of the ISCB Innovator Award, and delivered the fifth keynote talk on the morning of July 12th. His talk was titled "Computational Challenges in Personalized Genomics." He discussed the radical transformation of sequencing technology and algorithms that have contributed to the current state of rapid and low cost sequencing. LIke Dudoit and Teichmann, he highlighted his work using technologies that enable single cell RNA expression analysis, and he ended his talk pointing out the current challenges facing the field, particularly where to store data, and how to share, analyze, and learn from it.

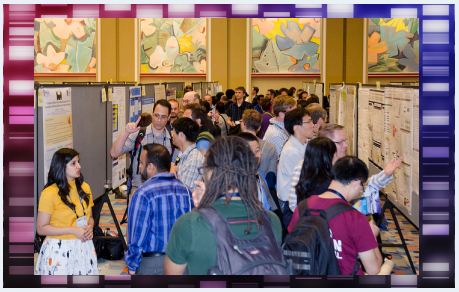
The final keynote speaker was Søren Brunak of the Novo Nordisk Foundation Center for Protein Research, University of Copenhagen, Denmark, winner of the 2016 Accomplishments by a Senior Scientist Award. Brunak gave a talk titled, "Creating disease trajectories of time-ordered comorbidities from big biomedical data covering millions of patients," during which he described his research using genomic and electronic health record data from a large portion of the Danish population to predict chronic disease trajectories. Brunak's project highlighted the potential power of population-wide genome studies, especially when coupled with health-related data.

Other highlights of ISCB 2016 included the bustling poster sessions and the annual ISCB Town Hall meeting, during which ISCB President Alfonso Valencia and other members of the executive board presented "The State of the ISCB," and members of the audience were invited to ask questions and provide feedback toward shaping the future of the Society.

The enduring work of former ISCB President Burkhard Rost was also recognized during the meeting when he was awarded the 2016 Outstanding Contributions to ISCB. Other awards were also presented on the closing day, including presentation of the Wikipedia competition winners and awards for outstanding presentations and posters.

The science presented was exceptional.  Visit ISCBtv to access all of the recordings from the confernece and the ISMB channel on The ISCB Community Journal to view the poster repository.

ISCB expresses its deepest gratitude to all those who participated in the organization of this exceptional conference.



See you next year at ISMB/ECCB 2017 in Prague, Czech Republic!

**Next Generation Sequancing Conference (NGS) - Genome Annotation**
Hosted by the International Society for Computational Biology (ISCB) and the Centre for Genomic Regulation (CRG), the 2016 edition of NGS was dedicated to Genome Annotation.

Nearly 200 delegates from 33 countries gather together for this dedicated meeting on cutting-edge approaches to the processing and analysis of Genome Annotation methods. It will bring together bioinformatics researchers involved in the development of genome annotation methods, along with biologists interested in the establishment and annotation of new reference genomes. The conference addressed a wide range of issues including RNASeq-based genome annotation, non-coding RNA analysis, proteomics data integration and data visualization. Sizeable space will also be dedicated to emerging and future trends in genomics including eco-system analysis and novel reference genomes.

**Topics include:**

- State of the art technologies, and technologies under development
- Novel software and algorithms
- Novel applications of NGS technologies in genomics and biology
- Post genome sequencing analysis, including RNA analysis, transcription factor binding sites profiling, histone modifications, nucleosome positioning, copy number variation, genotyping, RNA structure, dynamics of transcription and translation, etc.
- Research breakthroughs based on exhaustive applications of NGS
- Clinical and translational applications
- Applications to agriculture and biotechnology
- Novel Reference genomes

**Great Lakes Bioinformatic Conference (GLBIO) 2016**

The conference is organized by the Great Lakes Bioinformatics Consortium to provide an interdisciplinary forum for the discussion of research findings and methods. An important goal for the conference is to foster long term collaborative relationships and networking opportunities within the domain of computational approaches to biology within the Great Lakes region. In 2016, the conference was held in Toronto, Canada, in partnership with the ingaural Canadian Computation Biology Conference.

The program attracted over 360 delegates from 21 countries. Over the course of the meeting, delegates had the opportunity to participate in tutorials, hear from renown keynote speakers, get the latest updates in research sessions, explore nearly 200 posters, and be treated to a truly specatular conference dinner in Windsor Hall on the campus of Victoria College.


**Regulatory and System Genomics Conference with DREAM Challenges 2016**

In its ninth year, the RECOMB ISCB Conference on Regulatory and Systems Genomics with Dream Challenges (RegSyGen DREAM) is one of the premier annual meetings in the fields of regulatory genomics, systems biology, and network visualization.

The conference presented the latest findings about regulatory and systems genomics, fostered discussion about current research directions, and established new collaborations that will advance the development of a systems-level understanding of gene regulation. It featured keynote presentations, oral presentations, and poster presentations.

RegSyGen Dream 2016 was attended by nealy 200 from 21 counties.

Talks from the conference are available at **ISCB*tv***.

**A2B2C ISCB-Latin America Conference**

The fourth International Society for Computational Biology Latin America Bioinformatics Conference (ISCB-LA), jointly organized with A2B2C, which took place in Buenos Aires, Argentina.

The major aim of the ISCB-LA A2B2C Bioinformatics Conference was to inspire and foster collaborations between regional scientists and students to advance research in the areas of Bioinformatics and Computational Biology. The scientific program showcases exceptional keynote speakers, including an EMBO lecture by Soren Burnak, original research scientific talks, and nearly 200 poster presentations.

ISCB-LA A2B2C attracted the top regional and international scientists in the life sciences and offered a strong scientific program focused on scientific discovery in diverse subject areas. The scientific program was developed through abstract submissions with orginal research being invited to submit to the ISCB Community Journal.

ISCB would like to thank our partner organizers A2B2C for this support and assistance in developing this phemonial conference!

**Rocky 2016**

The Rocky Conference series began fourteen years ago as a regional conference, and has grown into an international program with keynote presentations, posters and the very popular 10 minute flash talks. The presenters of the Rocky conference are scientists representing a broad spectrum of universities, industrial enterprises, government laboratories, and medical libraries from around the world. One of the features of the Rocky conference is that the organizers select many early career scientist/student abstracts for presentation, giving students an opportunity to present in front of the entire conference attendees.

The 2016 conference was attended by 121 people with a split demographic of 49% students/postdocs and 51% senior scientists from government, academia and industry. The program afforded plenty of opportunities for the attendees to hear about the latest research through eight keynote talks, forty flash talks and seventy-one posters. The ROCKY 2017 conference will be held December 7-9, 2017 at the Westin Hotel Snowmass. See you next year!

## Meeting and Conference Sponsors

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# INTERNATIONAL SOCIETY FOR COMPUTATIONAL BIOLOGY

## Student Council

## 2016 Annual Report

# ISCB Student Council: Annual Report 2016

## ORGANISATION

The elected leadership of the ISCB Student Council for 2016, referred to as "**Executive Team**", consists of the following members: Pieter Meysman (**Chair**), Alexander Junge (**Vice Chair**), Farzana Rahman (**Secretary**), Jakob Jespersen (**Finance Committee Chair**) Anupama Jigisha (**BoD Representative**), and Sayane Shome (**RSG Committee Chair**).

In addition to the Executive Team, the Student Council is made up of a number of volunteer sub-committees responsible for different aspects of the Student Council. Each committee has a Chair and Executive Team advisor (listed below).

| Sub-committee | Chair | Executive Team Advisor |
|---|---|---|
| Education/Internship | Emre Guney | Anupama Jigisha |
| Fundraising | Jakob Jespersen | Jakob Jespersen |
| Outreach & Volunteer | Nazeefa Fatima, Alexander Junge | Alexander Junge |
| Web | Dan De Blasio, Mehedi Hassan | Pieter Meysman |
| Regional Student Group | Sayane Shome | Sayane Shome |

## MISSION

The mission of the Student Council is to promote the development of the future generation of computational biologists. We achieve our goal through provision of scientific events, networking opportunities, soft-skills development, education resources and career advice, while attempting to influence policy processes affecting science and education.

***Summary of SC Activities: January 2016 - December 2016***

- **Student Council Symposia**

  **12th Student Council Symposium, Orlando, USA (8 July 2016)**
  - Chairs: Bart Cuypers and Ben Siranosian
  - Keynote Speakers: Prof. John Quackenbush (Harvard School of Public Health) and Prof. Janet Thornton (European Bioinformatics Institute).

- Speakers for Career Central Event: Prof. Amoolya Singh (Amyris), Prof. Sarah Teichmann (Sanger Institute) and Prof. Judith Blake (Jackson Laboratories)
- The meeting featured 15 student talks, and 27 poster presentations.

**4th European Student Council Symposium, The Hague, The Netherlands (3 September 2016)**

- Chairs: Annika Jacobsen and Kevin Schwahn
- Keynote Speakers: Dr. Kris Laukens (University of Antwerp), Professor Roeland Merks (Centrum Wiskunde & Informatica), and Dr. Núria López-Bigas (Pompeu Fabra University)
- The meeting featured 12 student talks, and 36 poster presentations.

**2nd Latin America Student Council Symposium, Buenos Aires, Argentina (November 2016)**

- Chairs: Alexander Monzón and Javier Cáceres-Molina
- Keynote Speakers: Seán O'Donoghue (Garvan Institute of Medical Research) and Ruth Nussinov (Tel Aviv University)
- The meeting featured 13 student talks, and had 65 attendees.

- **Education Committee**

*Chair: Emre Guney*

The education committee strives to bring internship opportunities to students from developing nations through its internship program. As a student managed body, we understand it is important to get the right guidance and a good mentor during the early years of training. With the aim to facilitate scientific and cultural exchange between students from developing nations and host labs the program provides short-term (3 to 6 months) fellowships to receive training in the leading international research groups and institutions working in the field of computational biology.

In 2016, The Schneider group of The Luxembourg Centre for Systems Biomedicine (LCSB) at the University of Luxembourg generously offered another internship. The committee coordinated the call for applications and forwarded received applications to the lab. The results are awaited.

Outreach and funding remain key challenges for the committee. It is often through the SC network or through interactions during ISMB and ECCB that the committee is able to acquire offers from group leaders, and there is a strong need to bring awareness to the program beyond the current network. This year, the committee has put together a brief abstract outlining the internship program to distribute it to the Board of Directors at ISCB to attract more Group Leaders to the initiative.

In an effort to provide further educational support to students, the committee is putting together a web portal that would contain articles, tutorials, courses on various topics in

the field of Bioinformatics and Computational Biology. The committee intends that this will be a resource built by the community for the community. It is yet to become public.

- **Regional Student Group (RSG) Committee**
- *Chair: Sayane Shome*
  *Co-Chair, Vice-Chair Asia: Ashwani Kumar*
  *Vice-chair Europe: Farzana Rahman*
  *Vice-chair Africa: Yassine Soulimi*
  *Vice-chair LA: Gonzalo Parra*
  *Vice-chair USA : Benjamin Siranosian*

  In February 2016, the Committee welcomed a leadership transition with a new Chair, Co -chair and Vice chairs for the Asia, and Europe region joining the committee. The yearly recognition renewal of RSGs was carried out smoothly, with the recognition of 26 active RSGs. Further, via the three calls of RSG-funding program,20 proposals have been submitted out of which 16 proposals have been funded totaling up to 5000 USD for the entire year.

  Similar to previous year, two RSGs i.e. RSG-Argentina and RSG-UK were selected as “Spotlight RSG of the year 2015-16” in June. The leaders of these RSGs will be rewarded with a complimentary ISCB membership for a one-year period and they will also receive certificates of appreciation from the ISCB.

  In addition, an extensive feedback survey named “Are you a happy RSG?” was created to invite feedback from our RSGs, in order to improve the working between the committee and the RSGs we are undertaking. RSG-Colombia and RSG-California+Nevada (USA) have joined the RSG umbrella in December 2017. In January 2017, the Committee witnessed a leadership transition with new Vice chairs for Europe, Africa, United States, and LA region joining the committee.

  While we will continue to expand, we plan to revisit the RSG structure and make it a formidable network of young Bioinformatics students. Furthermore, we plan to continue having regional meetings with RSGs to promote virtual collaborations and networking among RSGs. Continuing our efforts with the previous year initiatives, we plan to encourage RSGs to utilize the web space offered to them and make their web presence stronger. We will continue to promote the SC community board designed by the SC web team and in the near future, we expect RSGs would permanently move their regional discussions to the community forums which are currently operational as part of several social networking sites.

- **Web Committee**
  *Chairs: Dan DeBlasio and Mehedi Hassan*

The Web Committee is in charge of developing and maintaining the online infrastructure for the Student Council. The main tasks of the past year consisted of continued development of the committee's ongoing projects as well as maintenance of the Student Council's infrastructure.

During 2016 the committee has completed the migration of all RSGs to have their own self-maintained web presence rather than relying on the main web committee for updates. Each RSG now has their own domain name (http://rsg-*.iscbsc.org) which they can use for organizational purposes and promotional materials.

In addition, the new symposium management system was successfully used for both the Student Council Symposium at ISMB in Orlando as well as the European Student Council Symposium at ECCB in The Hague. While the system was well received by the organizers of both events, upgrades are being made to ease the migration from one event to the next. A team will be working on adding new features throughout 2017. The goal it to eventually allow the system to be used for all symposia run by the Student Council as well as any events that are run by the RSGs.

Finally, the Web Committee collaborated with the Outreach Committee to set up a newsletter management system. The current newsletter can be found at iscbsc.org/newsletter with subscription ocurring at newsletter.iscbsc.org.

- **Outreach Committee**

  *Chairs: Nazeefa Fatima, Alexander Junge*

The Outreach and Volunteer Committee of the Student Council is committed to keeping the members of the ISCB and the Student Council up-to-date on our work. It is responsible for answering queries concerning Student Council activities and for disseminating information on the Student Council's social media profiles on Facebook, LinkedIn, and Twitter. It is, furthermore, responsible for membership recruitment and extensively involved in planning and implementation of all activities related to the promotion of the Student Council.

Over the past year, the Outreach and Volunteer Committee has been focusing on increasing user engagement on our social media profiles and our community board (community.iscbsc.org). Furthermore, the committee has published the first two issues of a new Student Council newsletter which reached more than 1000 subscribers. Besides providing updates about Student Council activities, the newsletters also highlight productive events organized by our RSGs. Receive our future newsletter by subscribing at newsletter.iscbsc.org.

Our efforts have not only focused on building a community, but also on attracting participants for our symposiums, RSG events, and ISCB conferences, therefore providing networking opportunities. Our main goal, at the Student Council, is to make

the field of bioinformatics more inclusive and accessible for all, and the Outreach and Volunteer Committee will continue to work hard to achieve it.

- **Finance Committee**

  *Chair: Jakob Berg Jespersen*

  We have grown the finance committee from just a single person to a little team with biweekly meetings. This distributes workload in years with multiple symposia.

  The committee aims to make a comprehensive and realistic budget for the activities carried out by the student council. This includes events such as the Student Council Symposium, funding opportunities for ISCB Regional Student Groups, and general operations. The committee also maintains a synergistic relationship with our recurrent sponsors, to keep them interested. Joined efforts has resulted in raising the following from external sources:

  - E-SCS 2016 received 2 000 EUR from 4 sponsors
  - LA-SCS 2016 received 3 315 USD from 3 sponsors
  - SCS 2016 received 4 950 USD from 6 sponsors
  - Upcoming SCS 2017 has so far raised 3400 USD from 3 sponsors

  The Finance Committee has put a great effort on optimizing the passing along of knowledge for future committee chairs and members, i.e. by an internal knowledge base in a wiki, and in shared Google drive. This includes indexing all former symposium sponsors, and other relevant information on how certain tasks has been dealt with in the past.

- **Future Plans**

The Student Council will continue to work on increasing the outreach and visibility of the community. Our team plans to accomplish this by maintaining our past successful initiatives such as the ISCB Student Council Symposium, internship programs, and RSG events.

Over the last years, the number of Student Council's RSGs has increased with new groups being introduced in regions such as RSG-California+Nevada, and RSG-Colombia. The global presence for our organization requires us to increase our efforts in order to integrate our community in an homogeneous way. We will work on this by strengthening different Symposia associated to the Student Council as well as strategically funding RSG initiatives that promote regional and intercontinental integration. Currently, most of our ET members are based in Europe and the US. Therefore, one of our objectives, for the next years, will be to invest time into recruiting leaders from other regions in the world - we hope our efforts will help to increase

and promote the diversity of the Student Council leadership and, hence, improve our understanding about needs and strengths of the different RSGs.

Further efforts will also be placed on fundraising, acquiring collaborations for our internship initiative and resources, and welcoming more RSGs.

**Website:** iscbsc.org | **Facebook:** facebook.com/iscbsc | **Twitter:** @iscbsc