

Institute for Systems Genomics Newsletter

December 2017

Institute for Systems Genomics 5-year Anniversary Celebration

More than 200 people gathered in the Student Union Theatre on Wednesday, November 8, 2017 for the Institute for Systems Genomics (ISG) 5-year Anniversary Celebration.

UConn President Susan Herbst and Dr. Marc Lalande (Vice President for Research Programs, Shriners Hospitals, and Founder and previous Director of the ISG) opened the conference, highlighting the significant accomplishments of the Institute, including the establishment of the Center for Genome Innovation, the Computational Biology Core, and the Single Cell Genomics Center. The ISG has held numerous workshops and symposia to promote genomics research collaborations among UConn, UConn Health, and the Jackson Laboratory for Genomic Medicine faculty.

The celebration included presentations by: Mark Gerstein (Yale); Eric Green (Director, National Human Genome Research Institute); Charles Lee (ISG, The Jackson Laboratory for Genomic Medicine); Brenton Graveley and Rachel O'Neill (ISG, UConn).

The day-long event included a poster session, with 45 posters being displayed from undergraduates and master's students, graduate students, and senior researchers (postdocs, research technicians, and junior faculty).



Geno Villafano, PhD and Gordon Carmichael, PhD

Poster Presentation Awards by category:

Undergraduate/Master's student winner: **Alyssa J. Mathiowetz**, Molecular and Cell Biology (PI: Dr. Ken Campellone); "*Actin nucleation factors that control autophagy are important for zebrafish organ development*"

Graduate student winners:

First prize: **Geno Villafano**, Molecular and Cell Biology (PI: Dr. Leighton Core); "*Divulging and Ascribing Function to Pervasive Overlapping Transcription in the Human Genome*".

Second prize: **Nathan LeClair**, Genetics and Developmental Biology AoC (PI: Dr. Olga Anczukow); "*Dissecting the control of splicing-factor regulation in breast cancer*"

Senior researcher winner: **Sandy Garrett**, Genetics and Genome Sciences (PI: Dr. Brenton Graveley); "*CRISPR loci in cultured *Pyrococcus furiosus* actively acquire new spacers*"

Message message from the new ISG Director



Rachel O'Neill, PhD

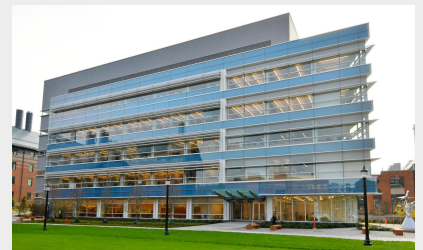
Rachel O'Neill has accepted the position as Director of the Institute for Systems Genomics. Over the last five years, the ISG has developed top-tier service and training structures in the Center for Genome Innovation, Computational Biology Core and a joint JAX-UConn Single Cell Facility. These facilities are open to all faculty and students across all campuses of UConn through support services or curricular participation. To date, we have supported over 160 different PIs and the generation of over \$100 million in grant revenues, established a new PSM in Genetic Counseling under the directorship of Maria Gyure and Judy Brown, and supported outreach, networking activities and conferences. Our goals for the ISG include broadening the genomics expertise and capacity, supporting innovative research and training initiative, and bringing international recognition to our faculty and institutions.

Brenton Graveley will continue his service as Associate Director for the ISG, serving as scientific liaison with our members at UCONN Health, the state legislators in Hartford, and our Jackson Laboratory partners.

Engineering and Science Building

The new Engineering and Science Building opened this fall with the ISG occupying the second and third floors of the building. The new building enhances UConn's genomics research and training programs. The collaborative space houses the Center for Genome Innovation, the Computational Biology Core, and the Chromosome Core, and faculty from multiple disciplines: Molecular & Cell Biology, Allied Health Sciences, and Ecology & Evolutionary Biology. Office space for researchers from UConn Health's Department of Genetics and Genome Sciences are also included in this space, emphasizing cross campus genomics collaborations.

The Engineering and Science Building houses systems genomics, biomedical sciences, robotics, cyberphysical systems and virtual reality technology



UConn Health/JAX joint hire, Dr. Christine Beck



Christine R. Beck, PhD

Christine Beck, Ph.D., a genomics expert in transposable elements and their impact on human disease, joined UConn Health and The Jackson Laboratory for Genomic Medicine. She comes from Baylor College of Medicine, where she completed her postdoctoral work as a research fellow in the laboratory of James R. Lupski, M.D., Ph.D. She was recently awarded a K99/R00 Pathway to Independence Award from the National Institutes of Health/National Institute of General Medical Sciences. Christine received her Ph.D. from the University of Michigan in 2012.

Genetic Counseling Master's Degree Program

UConn's new and developing Genetic Counseling Program stands to be the state of Connecticut's *first* genetic counseling program and New England's first within a public University. The ISG was awarded Academic Plan funding to start the Genetic Counseling Program and hire a Program Director. After a nationwide search, **Maria E. Gyure, MS, LCGC**, a licensed, certified genetic counselor has graciously accepted the position as of August 2017. Maria is returning to UConn as an alum of the Diagnostic Genetic Sciences Program – Go Huskies! Maria later matriculated into the Genetic Counseling Program at Virginia Commonwealth University where she earned a Masters of Science in Genetic Counseling and completed the VA Leadership Education in Neurodevelopmental and Related Disabilities in 2007. She has practiced genetic counseling in diverse clinical and research settings, has served as research coordinator for multiple NIH and IES funded studies and has mentored many students in her career. We welcome Maria and look forward to having her back at UConn.



Maria E. Gyure, MS, LCGC

Maria joins Dr. Judy Brown, Associate Program Director (Allied Health Sciences) and Medical Director Dr. Joseph Tucker (UConn Health) to complete the daunting task of compiling the application materials to seek accreditation for the Genetic Counseling Program from the Accreditation Council for Genetic Counseling (ACGC). The goal of this specialized degree is to train professionals with interdisciplinary competency in human genetics, laboratory diagnostics, health care ethics, big data interpretation, and counseling for genetics and its multiple disciplines. This competency-based, interdisciplinary and interprofessional curriculum with novel educational modalities, is designed such that upon degree completion, students will be prepared to enter the workforce as a successful genetic counselor and be well positioned to pass the national board certification examination. The

program designers also followed a model to meet the National Professional Science Master's affiliation standards, a recognition for graduate programs with a majority of coursework in the sciences and a curriculum which emphasizes professional skill training for today's workforce, interdisciplinary collaborations, and experiential learning. An application packet to the PSM organization is in preparation at this time.

Maria and Judy have also been traveling to establish collaborations with premier community partners for student clinical and research training rotations including with the UConn Health (UCH), The Jackson Laboratory for Genomic Medicine (JAXGM), Connecticut Children's Medical Center, Yale New Haven Hospital and the Center for Genome Innovation. As an ISG program, Dr. Rachel O'Neill, serves as key faculty member and has collaborated to organize faculty and clinical case evaluation space within the New Engineering and Science Building on the Storrs campus. Dr. Brenton Graveley, Interim Chair, Genetics and Genome Sciences, has been supportive of encouraging student mentorship and training by the clinical genetic counselors within his department. Other key faculty members have been recruited to represent various specialties including Ginger Nichols (Mother to Baby CT and UCH), Erin Young (Nursing), Jeanne McCaffery (Allied Health Sciences), Brittany Gancarz (UCH), Sharon Voyer-Lavigne (Mother to Baby CT and UCH), Danielle Bonadies (My Gene Counsel), and Kunal Sunghavi (JAXGM).

Maria presented the UConn Program at the October 2017 American Society of Human Genetics meeting in Florida alongside only two other selected programs. The Genetic Counseling curriculum, pre-requisites, key faculty, training sites, and other information is being updated regularly on the Program website at <https://geneticcounseling.uconn.edu/>. The popularity of the program is growing, and we are confident we can provide top-notch education with a unique niche in next-generation genetic counseling. The Program faculty are pushing for an anticipated start date of fall 2019, although this is dependent on accreditation timing. There are only 41 accredited genetic counseling training programs across the US and Canada, with applicant numbers well above the spots available. The projected enrollment for the UConn Program will be 10 students per year, with admissions decisions following a mandatory national match program. Given the projected 43% growth rate from 2012-2022 for the genetic counseling profession in CT, graduates will continue to be in high demand. Genetic counselors play an important role in the era of genetics, genomics, and personalized medicine by strengthening partnerships with physicians and other health professionals to develop a multi-disciplinary approach to comprehensive-based care. In terms of advancing UConn's reputation and prominence in genetics and genomics, since genetic counseling is the true translational interface between genomics and our clientele: the public, an ISG graduate program in genetic counseling is truly an exciting initiative. If you have questions or comments or wish to collaborate, please email Maria at maria.gyure@uconn.edu.

Center for Genome Innovation

NIH guidelines for “Authentication of Key Biological and/or Chemical Resources” - To meet the guidelines set by the NIH initiative to *Enhance Rigor and Reproducibility*, the CGI offers the following services that support the validation of cell lines:

1. STR profiling using the The AmpFLSTR™ Identifiler™ PCR Amplification Kit. Fifteen STR loci and Amelogenin for sex determination co-amplified in a single tube. Loci consistent with all major worldwide STR standards.
2. Illumina Infinium SNP arrays (CytoSNP-12, CytoSNP-850K, and Karyomap-12) to assay Chromosomal Abnormalities, Copy Number Variants (CNVs), Loss of Heterozygosity (LOH) and Single Nucleotide Polymorphisms (SNPs)
3. Manual Chromosome Karyotyping Services

New platforms and upgrades

The **Illumina NextSeq 500 (Storrs Lab)** was upgraded to the **550**, which expands the capabilities of this instrument to scan Illumina Infinium Bead Chips, including the CytoSNP-12, CytoSNP-850K, and Karyomap-12. The CytoSNP-850K bead array offers several advantages over traditional karyotyping as it assays SNPs, covers more genes, and can be used with FFPE samples. The Karyomap-12 and CytoSNP-12 offer a cheaper alternative to the CytoSNP-850K chip.

The **Bionano Irys** is a long range optical mapping platform. Using specific endonucleases that incorporate up to 2 fluorescent molecules in the genomic DNA, the Irys performs long range optical mapping at ultra-high resolution using nanochannel arrays. This platform can be used for *de novo* assembly and genome assembly correction, structural variation detection and methylation screens.

The **10X Genomics Chromium** system enables the use of short read sequencers in deriving synthetic long-read sequencing data, thereby reducing the depth of sequencing required to obtain structural, CNV and haplotype information. The 10X Chromium individually barcodes molecules prior to library preparation by capturing oligo-coated beads with long DNA fragments in a single emulsion droplet using microfluidics technology. Subsequent library preparation for Whole Genome or Whole Exome sequencing incorporates a single barcode into the DNA from each droplet, allowing the assembly of short-reads into synthetic long molecules ~100KB in length. The platform allows parallel sample processing, multiplex barcoding and pooling of multiple samples, compatible with a variety of Illumina sequencing platforms.

In addition to WGS and Exome sequencing, the 10X Chromium can capture and process single cells for mRNA-Seq. 10X Genomics is now offering a smaller Single Cell Library kit (4 samples per kit; 1,000-6,000 cells per sample), reducing the upfront cost of from previous kit configurations tremendously!

Announcing Winter Workshops:

December 11-13, 2017: *Reduced Representation Bisulfite Library Preparation and Sequencing on the Illumina NextSeq 500*

Topics covered: Genomic DNA sample QC, Illumina library preparation for RRBS, library validation techniques, NextSeq 500 instrument operation and run performance and introduction to run data QC and analysis pipelines.

January 9-11, 2018: *RNA-Seq Library Preparation and Sequencing on the Illumina NextSeq 500*

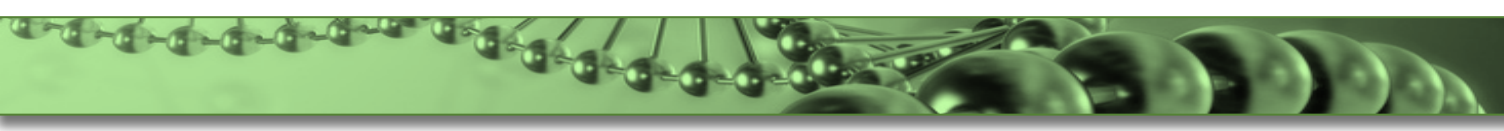
Topics covered: RNA sample QC, Illumina library preparation for RNA-Seq, library validation techniques, NextSeq 500 instrument operation and run performance and introduction to run data QC and analysis pipelines.

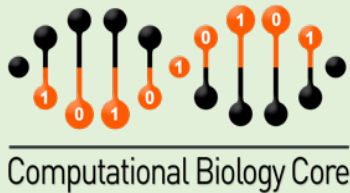
Both workshops will be held in the Engineering and Science Building on the Storrs Campus. Participants will be allowed to bring samples of their own. The cost of each workshop is \$850 and seats are open to all students, faculty and staff. For more information, please contact Bo Reese (bo.reese@uconn.edu)

Do you need individual training or group training for members of your lab? The CGI can design custom training sessions for you or your research team on a variety of next generation library preparation sequencing applications. Please contact Bo Reese for more information about this opportunity (bo.reese@uconn.edu).

Project and budget consultation available. Need information on sequencing platforms, library preparation, budget preparation or letters of support? Email Bo Reese (bo.reese@uconn.edu) with any questions you have.

Subscribe to the CGI mailing list: https://listserv.uconn.edu/scripts/wa.exe?A0=CENTER_FOR_GENOME_INNOVATION-L





- **Group Data Therapy Sessions** are scheduled **biweekly on Fridays at 10:30am** for beginners and advanced users ([schedule of events](#)). To get an idea of the group size (and your general interests) - we have a very quick [survey](#).
- **New Server/More Cores - Welcome to Xanadu:** If you are seeking more resources - memory and cores – obtain a UCH account (CAM) click [here](#) (select UCH). This will provide access to our new cluster Xanadu. Xanadu utilizes Slurm rather than SGE for job management. [Link](#) to learn how to access and interact with the Xanadu cluster.
- Please join us in welcoming **Mike Wilson**, new system administrator for Xanadu, to the UCH team! He has been active in both bioinformatics research and system administration at UConn Health as well as Yale.
- **CBC Office Hours at UConn Health: Dr. Vijender Singh** will be at UConn Health on Tuesdays from 9:30AM - 5:30PM in the Cell and Genome Sciences Building. To meet with Vijender, please email him at: vijender.singh@uconn.edu.
- **Announcing a mini ChIP-Seq Winter Workshop:** CBC Workshops are open to advanced undergraduates, graduate students, postdocs, and faculty. Each class enrolls a maximum of 10 students and provides hands-on training and background for genomics data analysis. Use the following [survey](#) to tell us about the training you or your group members need. Our next **ChIP-Seq: Experimental Design and Analysis Workshop** will be held on **December 18, 2017**, from 9:00AM-1:00PM at UConn Health in the Cell and Genome Sciences Building ([registration link](#)). The cost of the workshop is \$200.
- **Geneious:** The CBC is now hosting *five* commercial floating licenses for the Geneious software package. To access these licenses, please follow the [instructions](#). To learn more about Geneious, visit: <http://www.geneious.com>
- **Need Pathways? Access Qiagen's IPA is coming soon.** After assessing the needs of the UConn/UCH research community, it was decided that Qiagen's IPA will offer more useful features to meet current analysis goals. A limited offering of IPA will be sponsored by the CBC. Approval of the license is underway with purchasing. For those in need of more immediate access to pathway tools, a trial version of the software is accessible to researchers.
- **Need support?** Starting a new project or have one on the horizon? Need a consultation, hardware access, or a piece of software installed on the cluster? Fill out the account request/support [form](#).
- Want help from the comfort of your office? Ping us on our **Slack channel** Anyone with a [uconn.edu](#) OR a [uchc.edu](#) address can join **#bioinformatics_help** using ([uconn-cbc.slack.com](#))
- [Subscribe to the CBC mailing](#)

JAX-UConn Single Cell Biology Facility

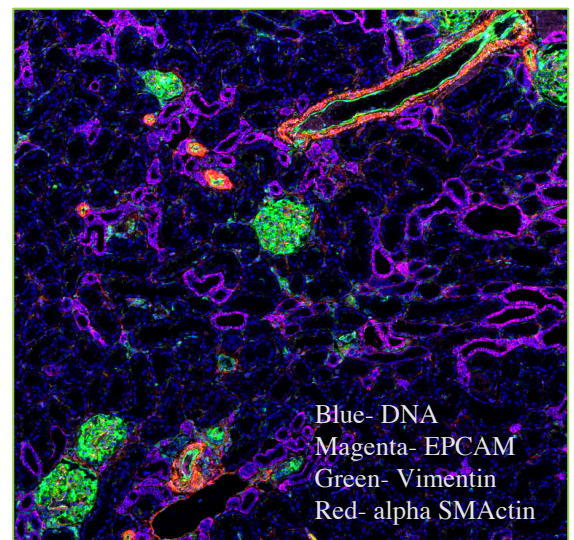


Mike Samuels

Mike Samuels recently joined the Single Cell Biology group as Associate Director. Previously, Mike served as the Scientific Director at RainDance Technologies where he developed and commercialized microdroplet technologies, and worked at several biotech startups focusing on oncogenic kinases.

The Single Cell Biology Facility, located at JAX-GM, has been testing and optimizing a recently installed Hyperion Imaging System laser ablation module upstream of the Helios CyTOF mass cytometer (Fluidigm), which together comprises the imaging mass cytometry (IMC) unit. By combining this imaging capability with high-parameter ‘mass-tagged’ antibodies, the IMC enables visualization of up to 37 protein markers in the spatial context of the tissue microenvironment, surpassing the capabilities of fluorescent immunohistochemistry and providing unprecedented resolution of cell types and features on fixed tissues. The image below shows an example where an FFPE section of normal human kidney cortex was stained with mass-tagged antibodies against the indicated markers. The tissue was then ablated on the Imaging Mass Cytometer, followed by image reconstruction and pseudo-coloring. Both standard and custom antibody panels are in development, and can be considered for use in grant application data generation.

For project and budget consultation, please contact Mike Samuels at michael.samuels@jax.org.



ISG Faculty Spotlight

Judith Blake appointed as member of NHGRI Study Section



Judith Blake, PhD

Congratulations to **Judith Blake**, Professor, JAX Bar Harbor, for being selected to serve as a permanent member of the National Human Genome Research Institute (Genome-G study section). Judy is an innovator and world leader in functional and comparative genome informatics.

Judy is one of the founders and Principal Investigators of the Gene Ontology (GO) Consortium, a cornerstone of modern computational biology. As well, she is also one of the Principal Investigators of the Mouse Genome Informatics Consortium, a comprehensive knowledgebase of genetic, genomic, and biological data that powers the translation of mouse experimental data to models for understanding human biology and disease.

Blake and team of co-PIs announce release of new website



The GO and the National Institutes of Health NHRGI-funded Model Organism Database (MOD) groups announced the release of the Alliance of Genome Resources website 1.0 which provides unified access to comparative genetics and genomics data from the Alliance data resources (www.alliancegenome.org).

ISG workshop fosters collaborations between Kevin Brown and Leslie Loew which leads to NSF Award

After attending Kevin Brown's short presentation at an ISG workshop in Storrs, **Ion Moraru** invited Dr. Brown to be a Center for Cell Analysis Modeling (CCAM) Seminar Series speaker. The seminar sparked conversations about shared research interests and a successful collaboration began!

The National Science Foundation recently awarded a collaborative research grant to **Kevin Brown**, Assistant Professor of Biomedical Engineering, and **Leslie Loew**, Professor and Director of CCAM, along with Matthew Lazzara from University of Virginia and Alexander Sorkin from University of Pittsburgh for their project entitled: "Modeling Spatiotemporal Control of EGFR-ERK Signaling in Gene-edited Cell Systems". This award also includes Boris Slepchenko, Associate Professor in CCAM, as an investigator.

This project will lead to new fundamental understanding of how signaling by receptor tyrosine kinases is regulated by the critically important process of endocytic trafficking. Due to the well-known role of receptor tyrosine kinase signaling in normal development and health, and the role of aberrant receptor signaling in disease, it is anticipated that this new quantitative understanding will not only improve fundamental understanding of receptor signaling dynamics but will also ultimately contribute to ongoing efforts to understand how to optimally engineer and interfere with receptor mediated signaling in disease.

John Malone participates in the 'Science for Peace' – Global Young Academy at World Science Forum 2017

John Malone, as part of membership in the Global Young Academy, was invited to participate at the World Science Forum in Jordan. The World Science Forum is focused on the social and economic relevance, influence and responsibilities of science by bringing together scientists, policymakers, and high-level government representatives. Representing the United States, John participated in several symposia, including how to increase cultural exchanges and scientific diplomacy, and how to increase opportunities for early stage career scientists that work with international partners. The importance of genomics and genome biology to human biology and healthcare delivery was highlighted as well as for improving crop yields in developing nations. More information about the conference and Global Young Academy participation can be here:

<https://globalyoungacademy.net/science-for-peace-gya-at-world-science-forum-2017/>



GYA members (John Malone is third from the right). Photo taken by: Tolu Oni

JAX-GM Researcher awarded \$10.6M NIH Grant



Derya Unutmaz, M.D

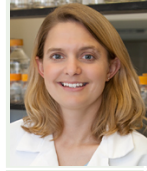
Professor **Derya Unutmaz**, M.D. of The Jackson Laboratory for Genomic Medicine, received five years of funding totaling \$10,553,732 from the National Institute for Neurological Disorders and Stroke for a research Center that will utilize systems biology approaches to determine the biological correlations of the chronic disease, myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). The research goal of the Center is to investigate the molecular mechanisms by which the ME/CFS microbiome interacts with the immune system to cause disease. Dr. Unutmaz will work with JAX researchers **Peter Robinson**, a leader in computational biology, and **Julia Oh**, Assistant Professor and microbiome expert, as well as with researchers at collaborating institutions, to generate one of the largest and most highly detailed collections of clinical and biological ME/CFS patient data that can be analyzed using novel computational technologies such as machine learning approaches. This work will also lay the foundation for rational discovery of therapeutics that target microbe-immune interactions, and development of engineered probiotics for ME/CFS treatment



ISG Faculty Awards



Jacques Banchereau, in collaboration with Nationwide Children's Hospital, received an award from the National Institutes of Health/National Institute of Allergy and Infectious Diseases to find ways to boost the immune systems of infants and young children against invasive infections.



Stormy Chamberlain, associate professor of genetics and genome sciences, received awards from the National Institutes of Health/National Institute of Child Health and Human Development and Alexion Pharmaceutical for her research on Angelman syndrome (AS). Angelman syndrome is a neurodevelopmental disorder affecting one in 15,000 live births. The goals of these projects are to develop to transformative therapy to treat AS.



Jeffrey Chuang received an award from the National Institutes of Health/National Cancer Institute for his project entitled: "Data Coordination Center for PDX Net". The goals of this PDX Commons and Coordinating Center are to establish an administrative and leadership unit to coordinate the activities in PDXNet, to establish a cloud-based PDXNet data commons, and to build standardized data analysis workflows and data sharing practices across different PDX Development and Trial Centers.



Xiaomei Cong received an National Institutes of Health/National Institute of Nursing Research award for her project entitled: "Multi-Omics Analysis of Pain/Stress Impact on Neurodevelopment in Preterm Infants". The goal of the study is to examine linkages between cumulative pain/stress experiences in the NICU and infant gut microbiome and neurodevelopment; interactions among gut microbiome, host genetic variation and early life pain/stressors that contribute to neurodevelopmental outcomes.



Yongku Cho was awarded a grant from the National Science Foundation for his project entitled: "Genetically Engineered New Generation Multifunctional Signal Amplifiers". The goal of this project is to develop a novel mechanism for signal amplification in immunosensing of human Tau using genetically encoded affinity and detection reagents.



Brenton Graveley, along with Anna Marie Pyle from Yale and Bruce Torbett from the Scripps Research Institute were awarded a new three year, Multi-PI, R01 award from NHGRI entitled, "Monitoring Variation in Mixtures of Long RNAs with End-to-End RT Sequencing". The goal of this project will be to optimize and enhance a newly discovered, highly processive reverse transcriptase to produce a robust reagent that is widely suitable for diverse biotechnology and genomic applications.



UConn Health/JAX faculty member, **Reinhard Laubenbacher**, has been awarded a four year, \$2.7 million grant, from the National Institutes of Health for his project entitled: "Modular design of multiscale models, with an application to the innate immune response to fungal respiratory pathogens". The project aims to develop a novel modular approach to model architecture to improve the usability of multiscale mathematical models.



Se-Jin Lee, acclaimed UConn Health/JAX geneticist and UConn Health-CCMC pediatric endocrinologist Dr. Emily Germain-Lee recently received a \$1.9M grant from the National Institutes of Health for their project entitled: "TGF-beta family members and their binding proteins in aging skeletal muscle".



Senjie Lin was awarded a one-year grant from the Gordon and Betty Moore Foundation for his project entitled: "Developing a transformation tool for dinoflagellates". The goal of this project is to develop a transformation protocol for dinoflagellates to study functions of genes.



Rachel O'Neill was awarded a grant from the National Science Foundation for her collaborative project with Ann Bucklin, Marine Science, entitled: "Bloom or Bust: Molecular Dynamics of Bloom Formation of the Southern Ocean Salp, *Salpa thompsoni*". The goal of the project will be to develop a high quality genome assembly and other genomics resources for Antarctic salp, a species that serves as an indicator of the impact of climate change on the Southern Ocean food web.

ISG Faculty Awards (continued)



Julia Oh received a special New Innovator Award from the National Institutes of Health/National Institute for General Medical Sciences, High-Risk, High Reward Research program for her project entitled: “Metagenomes to Therapeutics: Defining the Rules for Engineering the Skin Microbiome”. Skin diseases, both genetic and microbial in origin, affect 30-70% of the world’s population during their lifetime and account for an estimated \$29 billion in direct costs/year and an additional \$10 billion in lost productivity in the US alone. Microbiome-based therapeutics (probiotics) have great potential to provide new avenues to prevent and treat skin disease. The ability to optimize the selection and engineering of probiotic microbes will transform the therapeutic landscape of numerous skin diseases and provide a framework to modulate any microbial community that negatively impacts human health.



Zhengqing Ouyang received a five year, R35 MIRA award from the National Institutes of Health/National Institute of General Medical Sciences for his project entitled: “RNA Structurome in Post-Transcriptional Regulation”. The goal of this research is to develop and apply advanced analytic approaches to determine the relationship between RNA structure and function at an unprecedented level, enabling a deep understanding of the functions of RNA structures in development and diseases, and identification of RNA structures representing potential novel candidate targets for disease prognosis and diagnosis.



Joel Pachter was recently awarded a grant from the National Multiple Sclerosis Society, for the purpose of identifying miRNA signatures during progression of an animal model of MS. The work will be carried out in collaboration with Dr. Rachel O’Neill.



Stefan Pinter received a five year, R35 MIRA award from the National Institutes of Health for his project entitled: “Mechanisms of escaping X chromosome inactivation and translation to X-linked disease”. This award uses X chromosome inactivation as a paradigm to learn how chromosome folding, non-coding RNAs, and chromatin modifiers enable some genes to remain active on the inactive X.



Duygu Ucar received a five year, R35 MIRA award from the National Institutes of Health/National Institute of General Medical Sciences for her project entitled: “Identification and Interpretation of Chromatin Changes Associated with the Aging of Human Immune Cells”. The goal of this project is to develop novel informatics tools and generate novel epigenomic data to investigate the regulatory mechanisms of the human immune system associated with aging.



Yufeng Wu was awarded a grant from the National Science Foundation for his project entitled: “AF: Small: Computational Methods for Large-scale Inference of Population History”. The goal of this project is developing computational methods for population genomics.

Accomplishments, Services, and Presentations

- **Andrew Arnold** was awarded the International Medallist by the Society for Endocrinology and presented at the 2017 Annual Meeting of the Society for Endocrinology / British Endocrine Society, Harrogate, United Kingdom.
- **Michael Blinov** served as a reviewer on the National Institutes of Health Multi Scale Modeling Program study section
- **Jeff Chuang** grant review:
 - Reviewer for National Cancer Institute Special Emphasis Panel: U01 Cancer Target Discovery and Development Network
 - Ad-hoc reviewer for Genome Quebec -- Large-Scale Applied Research Project Competition: Genomics and Precision Health
 - Reviewer for National Cancer Institute Moonshot Initiative Panel: R33 Integration and Validation of Emerging Technologies for Cancer Research
- **Marja Hurley** was elected Chair of the 2018 Fibroblast Growth Factors in Development and Disease Gordon Conference
- **Stephen King** was an invited speaker at the at the Dynein 2017 International Workshop, Awaji Island, Japan, and the Cilia Meeting, Shimoda Marine Research Center, University of Tsukuba, Shimoda, Shizuoka, Japan. He also served as Co-Chair for the “Structure and Function of Axonemes” session at the Dynein 2017 International Workshop.
- **Reinhard Laubenbacher** was elected to serve as the Secretary of the American Association for the Advancement of Science.
- **Ion Mandoiu** serving as committee member at the Asia Pacific Bioinformatics Conference in Yokohama, Japan, January 2018
- **Linda Pescatello** along with her graduate students, Burak Cilhoroz and Yin Wu, were selected Accelerate UCONN Connecticut Center for Entrepreneurship and Innovation and Office of the Vice President for Research. A Targeted Genomic Precision Approach to Exercise Prescription for Hypertension.

Publications

- Aladelokun O, Manautou J, Wang L. [The Role Of Cyclic Nucleotides In Compensatory Hepatocyte Proliferation](#). *Curr Drug Metab*. 2017 Nov 1. doi: 10.2174/1389200218666171101125520
- Bais P, Namburi S, Gatti DM, Zhang X, **Chuang JH**. [CloudNeo: A cloud pipeline for identifying patient-specific tumor neoantigens](#). *Bioinformatics*. 2017; 33(19):3110-3112.
- Bermek O, **Weller SK**, Griffith JD. [The UL8 subunit of the helicase-primase complex of herpes simplex virus promotes DNA annealing and has a high affinity for replication forks](#). *J Biol Chem*. 2017 Sep 22;292(38):15611-15621. doi: 10.1074/jbc.M117.799064. Epub 2017 Jul 25. PMID: 28743747
- **Blinov, M. L.**, Schaff, J. C., Vasilescu, D., **Moraru, I. I.**, Bloom, J. E., & **Loew, L. M.** (2017). [Compartmental and Spatial Rule-Based Modeling with Virtual Cell](#). *Biophysical Journal*, 113(7), 1365-1372.
- Bruneau Jr. MB, T Angelopoulos, P Gordon, N Moyna, P Visich, R Zoeller, R Seip, S Bilbie, PD Thompson, J Devaney, H Gordish-Dressman, E Hoffman and **LS Pescatello**. [The angiotensin converting enzyme insertion/deletion polymorphism rs4340 associates with habitual physical activity among European American adults](#). *Mol Genetics & Genomic Med* 2017 May 22 doi: 10.1002/mgg3.308.
- Brunson J C, **Laubenbacher R** [Applications of network analysis to routinely collected health care data: a systematic review](#); *Journal of the American Medical Informatics Association*
- Duda, Z. Trusiak, S. and **R.J. O'Neill**. 2017. [Centromere Transcription: means and motive](#). in *Centromere and Kintochores*, ed B. Black, Springer publishing.
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