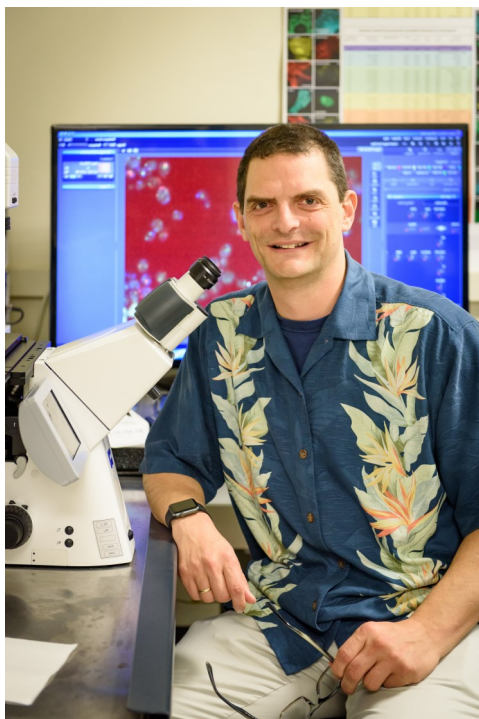


Annual Newsletter Fall 2018

INSIDE THIS

Message from the Chair	1
PhD Program Announcements	2
MS Graduate Program Announcements	3
I-Stem updates	4
Undergraduate Awards	5
Faculty Updates	6-12
Recent Publications	13-19
Noteworthy - Awards & Promotions	20
Annual Retreat	21
How to Donate	22
50th Anniversary	23

MESSAGE FROM THE CHAIR



Dr. Aaron Neiman
Professor & Department Chair

It has been a terrific year in the Department of Biochemistry and Cell Biology marked by a number of awards and honors both for departmental faculty and students. That these successes are occurring in the face of a challenging fiscal environment is a testament to the hard work of our faculty and students. In particular, we're very pleased that Ben Martin, Steve Glynn and Ed Luk were all promoted to Associate Professor with tenure and Wali Karzai received promotion to full Professor. In addition, we welcomed another strong class into

our Master's program and continue to make progress rehabilitating laboratory space and equipment within the Department.

Another exciting development this year was the successful recruitment of Dada Pisconti and Saikat Chowdhury. Dada joined the department this fall as an associate professor. Dada received her PhD from the University of Bari in Italy and completed her postdoctoral work in Milan, Italy and the University of Colorado at Boulder before being appointed to a faculty position at the University of Liverpool in 2012. Her research interests are in the development and regeneration of skeletal muscle and her current efforts cover a wide range of topics from the basic biology of muscle stem cells to translational research involving muscular dystrophies and ageing.

Dr. Saikat Chowdhury joined the department as an assistant professor. Dr. Chowdhury was recruited at the end of a national search for a structural biologist specializing in cryo-electron microscopy. His lab will be using the newly acquired cryo-electron microscope as well as other structural, biochemical and biophysical techniques to understand the structure and dynamics of cytoskeletal proteins.

(Continued on page 2)

MCB & BSB GRADUATE PROGRAM ANNOUNCEMENTS



*Dr. Stephen Smith, BSB
Graduate Program Director and
new faculty member
Dr. Saikat Chowdhury.*

TWO NEW
FACULTY JOINED
THE
DEPARTMENT.

SIX FACULTY
RECEIVED
PROMOTIONS.

The Molecular and Cellular Biology (MCB) and the Biochemistry and Structural Biology (BSB) graduate programs continue to do well. Steven Smith took over as the BSB Program Director, while Wali Karzai started his sixth year at the helm of MCB. Wali was honored by the University as the “Graduate Program Director of the Year.”

The Fall 2017 class contained 11 students entering the MCB program and four students entering the BSB program. The MCB and BSB programs held their joint annual BBQ and “meet and greet” for the incoming graduate students. This event provided an opportunity to meet with faculty, chat with senior students, and play games organized by the second-year students.

The MCB program held its annual Second Year Student Symposium in June at the Hilton Garden Inn. Second year students were given the opportunity hone their presentation skills and showcase the research work to their colleagues and MCB program faculty.

The annual MCB-BSB retreat was held in September. Several MCB and BSB faculty were invited to speak and present their work. Speakers included Drs. N. Hollingsworth (BCB), S. Glynn (BCB), C. Simmerling (Chemistry), L. Chan (Pharmacology), D. Tan (Pharmacology), P. Kumar (Microbiology),

D. McKinnon (Neuroscience), and M. Seeliger (Pharmacology). All 4th year MCB and BSB students presented posters highlighting their research, which generated much interest among the attendees. Best poster awards at the retreat were given to Ping He and Chitra Mohan. Julie Bettke and Samia Mohammed received awards for outstanding service to the graduate programs.

Both MCB and BSB students attended a Career Symposium titled “Life Science Career Choices-Beyond Tenured Track Research” at the campus Hilton Garden Inn. The speakers, several of whom are former MCB graduates, were Dr. Hsiao-Chi Lo, Dr. Tiffany Tsui, Dr. Laura Listenberger, Dr. Lindsay Nelson, and Dr. Sean Boykevich. They discussed their career paths including faculty life in a University with an emphasis on teaching, biotechnology industry, patent law and University administration. Students had an opportunity for both questions and extended discussion at a reception after the meeting.

Sincerely,

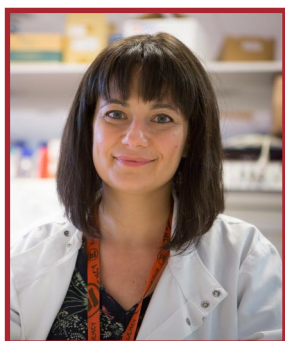
Wali Karzai, MCB Program Director &

Steven Smith, BSB Program Director

Please visit our websites:

www.stonybrook.edu/mcb/

www.stonybrook.edu/bsb/



*New faculty member
Dr. Dada Pisconti*

(Continued from page one)

Saikat’s postdoctoral training was with Dr. Gabe Lander at The Scripps Research Institute, La Jolla. He did his graduate training with Dr. Tracy Nixon at Pennsylvania State University.

We’re thrilled to welcome Dada and Saikat and look forward to the exciting work they will do.

Finally, 2018 marks the 50th anniversary of the founding of the Department of Biochemistry and Cell Biology at Stony Brook. We are planning a celebration of this milestone, to be held on Saturday, September 29, 2018.

If you haven’t yet received the registration email, please contact kristin.matthews@stonybrook.edu for details or call 631-632-6130.

Hope to see you at the celebration on September 29!

Please visit our website for additional information about our new faculty and department happenings at www.stonybrook.edu/biochem.

BIOCHEMISTRY AND CELL BIOLOGY MASTERS PROGRAM

2017 Incoming BCB MS students:

From left, Matthew DiGiovanni, Tianying Chen, Shane Ford, Shiyu Wang, Weijing Gu, Neta Dean (Program Director), Binghao Zhang, Cynthia Converso, Pranab Karki, Chase Cortez. Not shown are Amadi Gatling, Katie O'Connor, and Leonidas Pierakeas



The Biochemistry and Cell Biology MS graduate program hit its seven year mark in 2017! Our mission is to provide students with an understanding of biochemistry and cell biology that will prepare them for careers in the life sciences. Success is measured by the quality of training our students receive, by the value our students bring to the labs in which they perform research, and by our students' ability to achieve their stated long-term goals.

By those metrics, this program is a success. Thus far, 65 students graduated (out of 67 who were admitted). Of these 65, 48 students (74%) have continued in health science related careers. Twenty-eight students entered PhD programs; 10 went on to medical, dental or veterinarian schools and 12 obtained research technician jobs; 90% completed the program in three semesters. Our graduates are currently at top-notch research institutes including NYU, Johns Hopkins, Cornell, Mt. Sinai, Rockefeller, Columbia, Stony Brook, Cold Spring Harbor, Scripps, University of Utah, University of

Indiana, and UC Santa Cruz.

2018's incoming class promises to be equally successful. These students are currently performing research in areas spanning Biochemistry, Cell Biology, Biochemistry, Genetics, and Neurobiology.

The enthusiasm of our faculty to recruit these incoming students is further testament to the quality of this program. We are proud of our students, faculty, and alumni for

their efforts in making our BCB MS program a success.

Details can be found on our [website](#).

2017 Graduating BCB MS class:

From the left: Simeiyun Liu, Coryn Cange, Mian Chen, Sunjae Park, Jennifer Shapp, Dimitri Joseph, Neta Dean (Program Director), Bob Gaglione, Noele Certain, John Zinno, Esau Cruz Gutierrez, Richard Hasbrouk, Justin Dasilva



THE INSTITUTE FOR STEM EDUCATION (I-STEM)

The Institute for STEM Education

(I-STEM), which is housed in the Biochemistry Department, was founded by David Bynum in 2007, and has grown to become a national leader in STEM education research, teacher education, and community outreach. I-STEM has been an incubator of innovative, interdisciplinary STEM education collaborations with the university and its surrounding communities. I-STEM is now directed by Biochemistry and Cell Biology faculty member Keith Sheppard.

I-STEM has made notable contributions to STEM teaching, research, and policy at the university including:

- Generating more than \$30M in external grant funding, including \$8.5M in current grant funding.
- Assisting with the educational plans of 10 recent and current NSF Early CAREER awards across various departments at the University.
- Hiring four tenure-track faculty members: Keith Sheppard (Biochemistry & Cell Biology), Angela Kelly (Physics), Ross Nehm (Ecology

& Evolution), and Gregory Rushton (Chemistry) who collectively produce substantial amounts of high-impact discipline-based science education research; additionally, there are 10 affiliated faculty members in eight STEM departments, four instructors and three administrative staff.

- Creating a Ph.D. Program in Science Education in 2010, which has now graduated seven students and currently enrolls 30 students.
- Faculty are active in state and national STEM educational policy activities, serving on editorial boards, writing policy statements, serving on advisory panels and meeting with key state leadership staff.

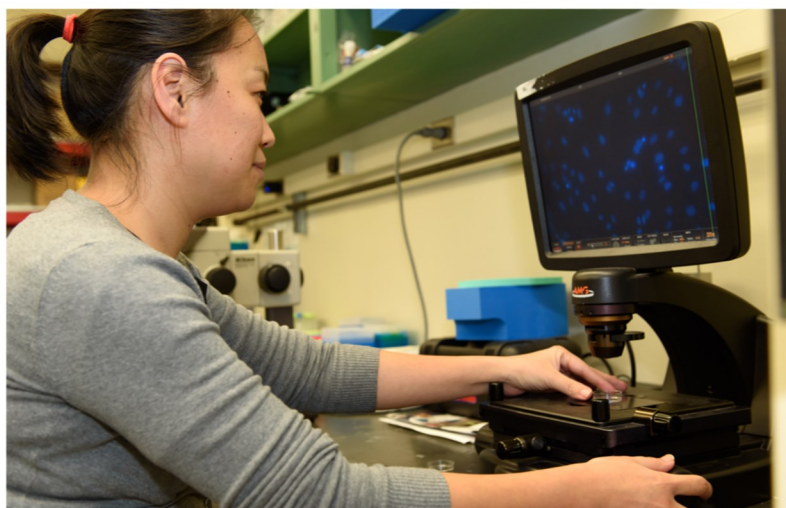
I-STEM is a major provider of high quality STEM Teacher Education:

- Offering a full complement of BS and MAT programs in all STEM education fields and is one of the major producers of STEM teachers in the state.
- I-STEM is the regional hub for the New York State Science and Mathematics Master Teacher program with more than 90 appointed master teachers.

• I-STEM has been awarded the American Physical Society 5+ Award for the last four years for its high production of Physics Teachers.

I-STEM is a leading provider of high quality STEM outreach and student support:

- I-STEM has awarded \$6.4M in fellowships and scholarships to post-doctoral, graduate, undergraduate, and high school students who have been actively involved in research or teaching in STEM disciplines.
- More than 4,500 students attend our Teaching Labs annually; 85% of Long Island school districts have participated. Labs are offered in biology, geoscience, chemistry, sustainable chemistry and physics. Summer camps are offered in all disciplines of sciences, mathematics, and engineering.
- I-STEM has established research and professional development partnerships with the wider scientific community at Cold Spring Harbor Laboratories, Brookhaven National Laboratories, STEM Hub, American Museum of Natural History New York Botanical Garden, as well as NYS schools and community colleges.



UNDERGRADUATE AWARDS FOR BCB MAJOR CLASS 2018

The Biochemistry and Cell Biology Undergraduate program had 96 graduates: 11 Magna Cum Laude, 18 Summa Cum Laude, and 16 Cum Laude

Fulbright Awards: Ann Lin & Alessandra Riccio

Chancellor's Award for Student Excellence:

Alessandra Riccio, Biochemistry

Provost's Award for Student Excellence: Kathryn

Eckardt, Biochemistry & Ann Lin, Biochemistry

University Undergraduate Recognition Awards for Outstanding Achievement: Mustufa Babar,

Academic Excellence; Kathryn Eckardt, Academic Excellence; Ryan Linzer, Academic Excellence; Kasmika Maharjan, Academic Excellence; Alessandra Riccio, Leadership; Elizabeth Varghese, Academic Excellence; Ann Lin, Academic Excellence

Biochemistry Department Outstanding

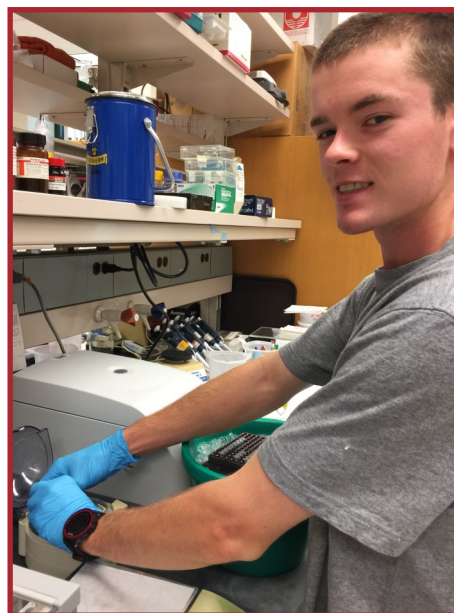
Achievement Awards: Nina Alcasid, Mustufa Babar, Mark Berenshteyn, Bryan Chan, Alison Chang, Matthew Chapman, Yogeeta Persaud, Alessandra Riccio, Kevin Shan, Kristoffer Walsh, & June Yang

Erwin Oster Award for Outstanding Research in

Genetics: Ann Lin

Raymond Jones Award for Outstanding Research in Cell Biology: Tai Li

Goldwater Scholarship: Ann Lin



HONORS IN BIOCHEMISTRY

Nina Alcasid (Dr. Deborah Brown, Biochemistry and Cell Biology) The Effect of FBAR Domain Proteins on Clustered PLAP Endocytosis

Taili Li (Dr. Ed Luk, Biochemistry and Cell Biology) Development of Novel Biochemical approaches to Understand How H2A.Z is Inserted into Chromatin

Yee Man Lee (Dr. David Matus, Biochemistry and Cell Biology) Identification of Cbp-1 and Cbp-2 as Regulators of Anchor Cell Invasion in *Caenorhabditis elegans*

Ann Lin (Dr. Jason Sheltzer, Cold Spring Harbor Laboratory) CRISPR/Cas9 Mutagenesis Invalidates a Putative Cancer Dependency Targeted in On-Going Clinical Trials

Senuri Pathirana (Dr. Iwao Ojima, Chemistry) Design and Synthesis of Novel Acylhydrazones as Next-Generation Antifungal Agents

Kristoffer Walsh (Dr. Maurice Kernan, Neurobiology and Behavior) Exploration of Femoral Neuroanatomy in *Drosophila* Using Molecular Markers

June Yang (Dr. Feng-Qian Li, Pharmacological Sciences) The effect of Palmitic Acid and Linoleic Acid on Exosomal MicroRNAs Released from Mouse Placental Explants

Leon Yang (Dr. Maricedes Acosta-Martinez, Physiology and Biophysics) The effect of Palmitic Acid and Linoleic Acid on Exosomal MicroRNAs Released from Mouse Placental Explants



FACULTY UPDATES

MICHAEL AIROLA



2017/2018 has been an exciting time for the Airola lab! We opened our doors in January 2017 and have welcomed four PhD students (Forrest Bowling, Valerie Khayyo, Yong Mi Choi, and Amie Welsh), one master's student (Weijing Gu), and four undergraduates (Justin Bell, Nimi Patel, Tahrima Huq, and Daniel Aldarondo). Mike received funding from an American Heart Association Scientist Development Grant, a NIGMS Maximizing Investigators Research Award, and a TRO Fusion Award. He gave seminars at Brookhaven National Lab, the Northport VA hospital, several at Stony Brook, and spoke at the ASBMB meeting in San Diego. Lab members have also won several awards. Forrest received a NIH Chem Bio training grant, Weijing was the employee of the year, Justin (who will attend Stony Brook Medical School this fall) was the undergraduate researcher of the month, Nimi received a URECA fellowship, and Daniel received an Explorations in STEM fellowship. Research progress has been excellent and we hope to report the lab's first results soon. Mike published his final postdoc paper in PNAS, contributed to a study in the Journal of Lipid Research, and helped write a review on triglyceride metabolism and lipid droplets. To read or listen about our work, check out these highlights:

- airolalab.wordpress.com/
- asbmb.org/lipidcorner/Home/tabid/123/Default.aspx
- <http://tbrnewsmedia.com/sbus-michael-airola-links-structure-and-function-in-cancer/>

MARK BOWEN

The Bowen Lab focuses on the membrane-associated guanylate kinase (MAGuK) family of scaffold proteins, which are key organizers of excitatory neurotransmission and have been implicated in diseases such as neurodegeneration following stroke, autism, epilepsy and schizophrenia. Scaffolds determine the outcome of signal transduction by controlling the location of receptors and connecting them to downstream effectors. Our approach is to reconstitute these cellular complexes on

membranes to uncover how protein structure and posttranslational modifications, such as phosphorylation and palmitoylation, shape their scaffolding activity. The proteins we study contain intrinsic disorder meaning they lack the fixed structures that give rise to activity in enzymes yet they mediate critical synaptic functions. This challenges conventional approaches to structural biology so we use single molecule fluorescence microscopy to follow their transient interactions and refine molecular models for their dynamic structures. In 2017, Brié Levesque (MCB student) published her collaborative work with the Department of Drug Design and Pharmacology at the University of Copenhagen on phosphorylation of PDZ domains in ACS Chemical Biology. She was also part of a worldwide collaborative effort involving 20 labs to validate FRET-based structural refinement that appeared online in Arxiv, and she presented her work at the Biophysical Society Meeting in New Orleans. Frank Mindlin (BSB student) successfully defended his thesis proposal to study phosphorylation of MAGuKs and submitted a co-first author paper as part of a collaboration with Clemson University comparing simulations of protein structure with experiments. Our NIH grant to study structure and ligand binding of MAGuKs (MH081923) was renewed for the third time so we will be adding personnel and making upgrades to improve the time resolution and throughput the single molecule TIRF systems.

VITALY CITOVSKY

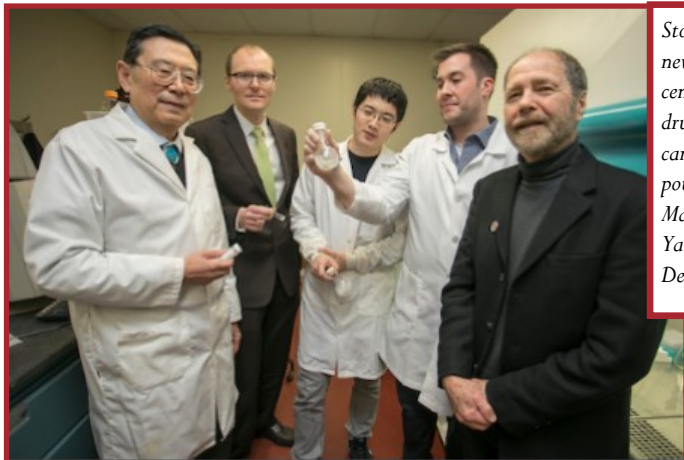
Vitaly Citovsky received the *F1000 Outstanding Faculty Member of the Year Award* for 2017, and became a member of the National Academy of Inventors. Vitaly was a recipient of a competitive renewal grants from NIH/NIGMS in 2017 and from NSF/USDA in 2018. Vitaly serves on Editorial Boards of *PLOS ONE*, *Scientific Reports* (Nature Publishing Group), *Biochemical and Biophysical Research Communications (BBRC)*, *F1000 Research*, *Frontiers in Plant-Microbe Interactions*, *Frontiers in Plant Physiology*, *Plant Signaling & Behavior*, *Communicative and Integrative Biology*, and *Gene Regulation and Systems Biology*, and is a member of the Cell Biology section of *Faculty 1000 Biology*. Vitaly also serves on the Science and Technology Steering Committee for the BNL Board of Directors, the Departmental Awards Committee, the Undergraduate Biology Curriculum Committee, the Departmental Executive Committee, and the CAS Senior Promotion and Tenure committee (PTC-S). In 2017, Vitaly was an invited speaker at the 5th International Conference on Biotic Plant Interactions, Xiamen, the 4th Beijing International Symposium on Molecular Plant Pathology, Beijing, and the Plant Biotic Interactions Symposium, Shanghai, China.

FACULTY UPDATES

NETA DEAN

2017 was a busy time for several Dean lab members, who graduated and moved on to new chapters. Congratulations to Henry Ng who graduated in 2017 with many honors. In addition to receiving a URECA summer fellowship, Henry was the recipient of the Irwin Oster prize, and an NSF Graduate Research Fellowship. In Fall 2017 he moved to the west coast to begin his Ph. D. studies at the UC San Francisco Tetrad Graduate Program. Congratulations are also in order to Justin DaSilva, a graduate student in the BCB MS program. Justin has moved on to take a Research Assistant position at the Rockefeller Institute in the Bieniasz Laboratory of Retrovirology. We also congratulate Greg Chionchio, who graduated and will begin his studies at the Zucker School of Medicine at Hofstra/Northwell in Fall 2018. Congratulations are also in order to Janie Ou Yang who graduated Fall 2017 and is busy preparing for medical school applications. We also welcomed two new lab members, Binghao Zhang and Shiyu Wang, both graduate students in the BCB MS program.

DALE DEUTSCH



Stony Brook researchers have developed new chemical compounds that are licensed to Artelo Biosciences as potential drugs to treat pain, inflammation and cancer. Assembled with some of the compounds are, from left: Iwao Ojima, Martin Kaczocha, graduate students Su Yan and Matthew Elmes, and Dale Deutsch.

Dale Deutsch is winding down his effort in the research laboratory over the next year. He leaves the projects in good hands with his collaborator, Assistant Professor Martin Kaczocha in Anesthesiology taking the work to new and imaginative areas. In addition, an outside company, Artelo Biosciences, invested in the intellectual property developed by Dale and co-workers. They licensed Stony Brook patents and will support Matt Elmes, PhD (August) to carry on the research of identifying inhibitors for endocannabinoid transport. Dr. Deutsch, will not fade away, yet, since he has an appointment as a Toll Professor for the next three years. He will turn to more pedagogical pursuits. His goal will be to develop an online course on the cannabinoids covering

everything from history, sociology, pharmacology, medicinal use, biology, physiology, abuse and marijuana laws.

JARROD FRENCH

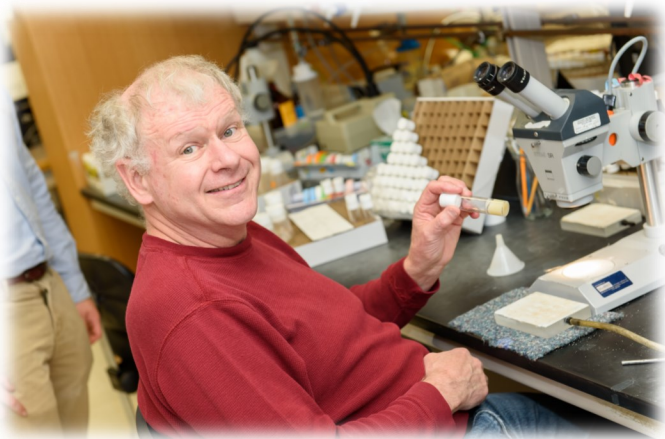
The French lab continues to work on multiple collaborative projects at the chemistry/biology interface. 2017 was another great year in the lab with a lot of exciting news and breakthroughs. We published five papers this year, including two that resulted from our collaborative project with Pete Tonge in Chemistry (J. Phys. Chem. B. 121(5):1010 and JACS 139(41):14638), one from our work with Nick Carpino in the Department of Molecular Genetics and Microbiology (Biochemistry 56(35):4637) and one from our collaboration with Katherine Hicks at SUNY Cortland (Biochemistry 56(51):6734). We were also very fortunate to obtain funding from the NIH for our core project on the structure, function and cellular dynamics of macromolecular metabolic machines (R35GM124898), funding from NIH for our collaborative work with the Carpino lab (R21AI130859), and funding from NSF for our continued collaboration with the Tonge lab (NSF MCB-1750637). This past year Jarrod was recognized by the

NSF with a CAREER award and was also selected as a 2018 Cottrell Scholar. One of our graduate students, Weijie Zhou (Sally), was recognized by the Chemistry department for her fantastic PhD work and was given the Chemistry Award for Outstanding Doctoral student. Three of our undergraduate researchers graduated this year:

Andrew Tsai was awarded an Undergraduate Recognition Award for Academic Excellence at graduation while Tylene Hilaire is off to the Chemistry PhD program at Penn State and Michael Yan started a job at Enzo Biosciences. Our team continues to work on several projects, including: the characterization of the structure, function and assembly dynamics of purine metabolic protein complexes; drug discovery work aimed at identifying lead compounds to inhibit the Sts proteins (with Nick Carpino); investigations of signal transduction in flavin-containing photoreceptors (with Pete Tonge); the development of tools for X-ray crystallography; and structure/function studies of viral proteins that share homology with purine metabolic enzymes. For more information about our work and the latest updates, please see our lab webpage: <https://sbuffrenchlab.wordpress.com>.

FACULTY UPDATES

J. PETER GERGEN



The research emphasis in the Gergen lab stays true to using tools available in the *Drosophila* system to investigate in vivo mechanisms of transcription regulation. Our efforts to understand the multi-faceted roles of the Runt transcription factor in the early embryo have led to studies on the regulation of enhancer-promoter interactions, and in particular the context-dependent ability of Runt-responsive enhancers to dominantly interfere with the activity of other enhancers that have the ability to interact with the same promoter. Although we are just beginning to emerge from the cloud in these studies this work resulted in two publications within the last year (Hang and Gergen, 2017; Mendoza-Garcia et al., 2017). Current lab members comprise Postdoctoral Associate Yasuno Iwasaki and undergraduates Kevin Catalan, Kelsey Hackett and Christopher Lau.

Peter Gergen continues for an 8th year to serve as the Director of the Undergraduate Biology Program. Under his leadership the Biology Program has been active in efforts to transform undergraduate education. This has included extensive involvement in the National Academies Summer Institutes on Undergraduate Education. Notably, Stony Brook was one of only 8 institutions selected nationally to participate in a pilot certification program administered by PULSE, a Partnership for Life Sciences Undergraduate Education supported by HHIM, the NIH and NSF. The Biology Program has put significant effort in promoting undergraduate research participation. This has resulted in more than a doubling of the number of students that do independent research for academic credit, corresponding now to approximately one third of all Biology and Biochemistry graduates. These efforts have also including expanding the resources available to support undergraduate research in the summer. Fifty-six undergraduates are being supported to do research in the life sciences in the summer of 2018. This is a significant increase over the nine students who earned URECA support for life sciences research in 2011.

Recent career moves of Gergen lab alumni include: Michael Stebbins (BIO BS 1994) left his position as VP for Science and Technology at the Laura and John Arnold Foundation to become President of Science Advisors, LLC in Washington, DC; Dan Tracey (PhD Genetics 1999) was promoted to the rank of Professor at the University of Indiana, Bloomington; John Wheeler (Postdoctoral Associate 1998-2000) moved to become a Principal Scientist with Cogen Therapeutics in Cambridge, MA; Liujing Zing (BIO BS 2011) completed her PhD in Developmental Biology at Stanford and started a career as a Scientific Analyst for the law firm of Morrison & Foerster LLP in San Francisco, CA; Seema Sawh (BIO BS 2011) was promoted to the position of Account Manager for Stem Cell Technologies in NYC; Tianyu Zhan (BIO BS 2013) completed his PhD degree in Biostatistics at the University of Michigan and took a position as a Senior Research Statistician with AbbVie, Inc. in Chicago, IL; Rohan Ramakrishna (MS Biochemistry and Cell Biology 2015) was promoted to Quality Engineer at Medtronics, Minneapolis, MN; Kim Bell (PhD Genetics 2015) started a position as a STEM Postdoctoral Associate in the Center for Excellence in Learning and Teaching at Stony Brook; Jennifer Shapp (MS Biochemistry and Cell Biology 2017) started a position as a Research Technician in Bruce Stillman's lab at Cold Spring Harbor Laboratory; and finally Peter Gergen was both honored and humbled by a promotion to the rank of SUNY Distinguished Service Professor.

STEVEN GLYNN

The Glynn lab has had a busy year working on lots of exciting research, welcoming new members and saying farewell to departing colleagues. Anthony Rampello (MCB) successfully defended his Ph. D thesis and left to begin a postdoctoral position at Yale University. Chris Giuliano graduated with double majors in Chemistry and Applied Mathematics. Chris was awarded the Emerson award and Lap Chan scholarship for the outstanding Chemistry undergraduate, the Goldwater Scholarship, and an NSF graduate fellowship that will support his future research in the MIT Biology graduate program. Jasper Cantrell joined the lab as a research lab worker and Will Podolsky joined as a Master's student (BCB). The lab published papers identifying signals used by mitochondrial proteases to identify substrates. In collaboration with Dr. Gabriel Lander at The Scripps Research Institute, we released the first atomic resolution structure of an ATP-dependent protease in the act of translocating a protein substrate that was published in *Science*. Bojian Ding presented her research at the Protein Homeostasis in Health and Disease meeting at Cold Spring Harbor. After a rewarding six years at Stony Brook, Steve Glynn was delighted to be promoted to Associate Professor with tenure.

FACULTY UPDATES

YUSUF HANNUN

The past year was a busy one for Dr. Hannun's lab group. Undergraduate Aaron Zhong was awarded the "Undergraduate Recognition Award for Academic Excellence" in April 2018 for his work with Dr. Jihui Ren on developing innovative mass spectrometry methods to detect and characterize non-canonical sphingolipids. Graduate student Prajna Shanbhogue, BSB program, received two travel awards: one from the American Society for Biochemistry and Molecular Biology (ASBMB) for presenting her work on the role of inter-domain interactions in activating the catalytic domain of nSMase2 at the meeting held in April 2017; and the other Biochimica et Biophysica Acta Molecular and Cell Biology of Lipids Award, sponsored by Elsevier, for presenting her work on the allosteric activation mechanism of neutral sphingomyelinase-2 (nSMase2) by anionic phospholipids at the Eicosanoid Research Foundation meeting held in Oct 2017.

Benjamin Newcomb, MD/PhD student, MCB program, graduated in May and matched at Washington Univ., St Louis MO. Justin Snyder, PhD student, also in the MCB program, graduated in May and joined the SBU proteomics core. Dr. Chris Clarke, Assistant Professor of Research, was recipient of research funds from the 2017 Walk for Beauty organized by the Ward Melville Heritage Organization for his studies of sphingolipid metabolism in breast cancer metastasis. Dr. Daniel Canals, Assistant Professor of Research, as Co P.I., was co-awarded an R01 on Activation of Protein Phosphatases by Ceramide. We also welcomed our newest member, Allen Henry Lee, who has just confirmed he will be joining us as part of the Pharmacology Program.

BERNADETTE HOLDENER

Bernadette Holdener, in collaboration with Dr. Robert Haltiwanger at University of Georgia, is investigating the role of a unique disaccharide modification during embryonic development. Mutations in enzymes that add the sugars to target proteins interfere with the tissue organization and organ formation during embryonic development of mice and humans. Understanding the molecular basis for the developmental defects in the mouse mutants will provide a better understanding of what causes common human congenital abnormalities including craniofacial abnormalities, hydrocephalus and chondrodysplasia. These studies were recently partially funded by an NIH R01 grant to Drs. Haltiwanger and Holdener entitled: Characterization of POFUT2-mediated O-fucosylation as a Novel, Non-Canonical ER Quality Control System for Thrombospondin Type 1 Repeats. The Holdener lab traveled to the Complex Carbohydrate Research Center at the University of Georgia for a one-day retreat with the Haltiwanger lab to share progress on

projects investigating the role of O-linked fucosylation on Epidermal Growth Factor and Thrombospondin Type 1 Repeats. Bernadette presented the results of these studies at the 2017 Craniofacial Genetics and Developmental Biology Meeting and 2017 Glycobiology Gordon Conference. Diana Rubel, an undergraduate in the lab, also gave a presentation at the 2017 North East Regional Society for Developmental Biology meeting. Bernadette continues to co-teach the core Developmental Biology course for the Biology Major Developmental Genetics Biology track with Dr. Thomsen. She serves as the Director of Undergraduate Biochemistry Majors, and also serves on the Biochemistry and Cell Biology Executive, Biology Executive, Stem Cell Advisory, and IACUC committees.

Updates on former Holdener lab members: Brian Benz, MS, (former SBU Biochemistry Major) and MS student in the lab, will be starting the Cancer Biology PhD program at University of Pennsylvania in Fall 2018. **Charles DeRossi, PhD**, a former MS student and technician in the lab, is currently a post doc at Mount Sinai in the Sandler/Chu lab, working on fatty liver disease, and expanding his research to include liver fibrosis and cancer. Charlie continues to collaborate with Dr. Hudson Freeze at the Sanford Burnham Prebys Medical Discovery Institute, and maintains an affiliation at the same institute. **Michael Feldman, MD, PhD**, a former high school student in the lab, is currently a clinical and research fellow at Harvard/BGH/Beth Israel Deaconess in Boston in Pulmonary and Critical Care Medicine. **Lance Lee, PhD**, a former PhD student in the lab, was promoted to Associate Professor in the Department of Pediatrics at the Stanford School of Medicine of the University of South Dakota. **Janet Lighthouse, PhD**, a former PhD student in the lab, is currently a Staff Scientist in the Small lab at the University of Rochester. She will present the results of her research studying the protective effect of metallothioneins on cardiac remodeling and fibrosis at the 2018 Gordon Research Conference for Cardiac Regulatory Mechanisms, where she will also be a discussion leader. **Andrew Taibi, MS**, a former MS student in the BCB program, is working on his PhD at the University of Utah. His project in Jason Sheperd's lab is focused on developing novel tools to study the cell biology of synaptic plasticity across neural networks in cultured neurons and in vivo. He received a two semester fellowship at the Lassonde Institute to work with BMAs, medical students, and law students on developing a faculty member's invention or discovery into a biotech startup.

FACULTY UPDATES

NANCY HOLLINGSWORTH



In 2016, Nancy gave a seminar at the Institute of Molecular Biology at the Academia Sinica in Taiwan and was an invited speaker at the Meiosis Gordon Conference. In addition, Nancy was a participant in the 2016 Woods Hole Workshop on the Molecular and Physical Biology of Chromosomes. In 2017, Nancy was an invited speaker at the New York Genome Integrity Meeting. She has continued her service as member of a March of Dimes study section and also participated in the review of an NIH P41-supported research center at the University of Washington, as well NIH study sections for doctoral and postdoctoral fellowships and K99 awards. Two graduate students from the Hollingsworth lab completed their Ph.D.s in 2016: Evelyn Prugar is currently teaching biology at Suffolk Community College and Ray Suhandynata is a postdoctoral scientist in Huilin Zhou's lab at the University of California, San Diego. In 2016 and 2017, Madeeha Rahan, Dimitri Joseph and Bob Gaglione completed their Master's Degrees in Biochemistry and Cell Biology based on their research in the Hollingsworth lab. Madeeha is working at a local biotech company and Dimitri is a Research Technician in Dr. Ellen Li's lab at SBU. Bob took over as the research technician in the Hollingsworth lab when Cameron Burnett moved to San Diego to work on a Master's degree in Biochemistry. In 2017, Nancy's NIH R01 grant was renewed for another four years. In addition, Nancy's lab was lucky to receive two generous donations (one from Bob and Jackie Leong and the other from an anonymous donor) to support the research in her lab. On a personal note, Nancy's twins, Ben and Emma, graduated from Carnegie Mellon and Stanford University, respectively and her youngest child, Leah graduated from Emory University in May 2018. Nancy's lab currently consists of Xiangyu Chen (Research Scientist), Lihong Wan (Research Scientist), Bob Gaglione (Research Technician), Andrew Ziesel (a new graduate student) and Lauren Bednor and Jason Weng (Undergraduate).

ERWIN LONDON

Erwin presented seminars at the Keystone Symposia on Lipidomics and Bioactive Lipids in Metabolism and Disease.

Tahoe City, CA February 2017; Worcester Polytechnic

Institute, Worcester MA, March 2017; International Seminar on Membranes, Osaka University, Osaka, Japan, Oct. 2017; and Cornell University, Dept. of Molecular Biology and Genetics, Dec. 2017, U. of Texas Health Science Center at Houston, Houston, Feb. 2018, University of South Florida, March 2018, and the WE Heraeus Seminar on

Physical Approaches to Membrane Asymmetry, Bad Honnef, Germany, March 2018. He also was Session Chair and gave an introductory talk at the Gordon Research Conference on Glycolipid and Sphingolipid Biology, Galveston, TX Feb. 2018. Erwin is Principal Investigator on an NIH MIRA award "Transformative Lipid Exchange Approaches to Study Membrane Organization" and an NSF grant "Cyclodextrin-Catalyzed Exchange to Control Lipid Composition and Lipid Asymmetry: From Liposomes to Cells.". A 2017 article with former Ph.D. student JiHyun Kim "The effect of sterol structure upon clathrin-mediated and clathrin-independent endocytosis" was a featured article in the "in this issue" section of the Journal of Cell Science. JiHyun is now a postdoctoral associate at the N.I.H. Erwin continues to serve as a member of the Postdoctoral Fellowship Award Committee for the Life Sciences Research Foundation. Lab members in late 2018 included research assistant professor Guangtao Li, postdoctoral associate, Shinako Kakuda, and Ph.D. students Johnna St. Clair Wellman, Qing Wang, Pavana Suresh, and Bingchen Li. Ph.D. student Zhen Huang and M.S. student Sunjae Park graduated in 2018.

David Matus (below), PhD, Assistant Professor in the Department of Biochemistry and Cell Biology. The Matus lab uses high-resolution in vivo live cell imaging to understand how cells become invasive, during development and disease states such as metastatic cancer. We are currently exploring the biology of how cell cycle state impinges upon cell behavior and have identified that cells must stop dividing in order to become invasive, which has broad implications for how we think about future cancer therapeutics.

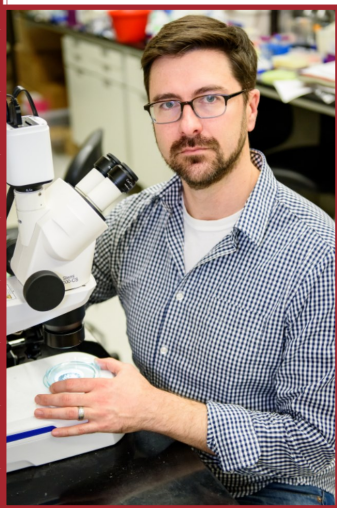


FACULTY UPDATES

ED LUK

Ed Luk and his team have made excellent progress in 2017-18. **Lu Sun**, an MCB student, defended her thesis in May 2018 with flying colors. Her thesis work has uncovered new insights into how yeast cells install a conserved histone mark at promoters in preparation for transcription. She published part of this work in a 2017 *Nucleic Acids Research* paper. She is finishing up a second paper and will be moving on to the biotech industry. **Chitra Mohan** is entering into her 5th year in the MCB program. She has developed a new disulfide crosslinking approach for probing protein-protein interactions inside yeast and human cells. She presented the work at a Gordon Research Conference in Maine and won the best poster award. The story was later published in *eLIFE* in August 2018 and was selected as the cover article. The undergraduate students in the Luk lab are equally productive. **Tai Li** and **Emily Richters** worked in the Luk lab as URECA fellows. Tai is one of the co-authors on Chitra's paper. He graduated in May 2018 and received the Raymond Jones Cell Biology Award. In 2017, students at Texas A&M University invited Ed for a seminar after reading a paper by **Mike Tramantano**, a former Luk lab member, who is now an adjunct professor at LIU. More recently, Ed was invited to give seminars at Johns Hopkins (his alma mater) and the Van Andel Institute in Michigan. In May 2018, Ed was promoted to associate professor with tenure. Last but not least, the Luk lab welcomes two new members, **Leonidas (Louie) Pierrakeas** from the BCB program and **Nam Nguyen**, a Stony Brook senior.

BENJAMIN MARTIN



The Martin Lab had an exciting year expanding its research focus, welcoming new lab members, and saying goodbye to two exiting graduate students. The lab continues to work on the basic biology of neuromesodermal progenitor cells, which can give rise to spinal cord, skeletal muscle, and blood vessels, in order to understand vertebrate embryonic development and to model in vivo stem cell biology. This area of research is currently funded by the NSF and the NIH.

The lab has also initiated new projects to better understand how cancer cells metastasize, using a xenograft model where human cancer cells are injected into zebrafish embryos. Funding for the cancer work currently comes from a Damon Runyon-Rachleff Innovation Award given to Ben Martin and collaborator Dave

Matus, a Pershing Square Sohn Prize for young investigators in Cancer Research awarded to Ben Martin, and a pilot grant from the Stony Brook University and Mt. Sinai Alliance for work with collaborators Dave Matus (Stony Brook) and J. Javier Bravo-Cordero (Mt. Sinai).

Hana Goto became the first Ph.D. student to graduate from the lab after defending her thesis in the spring semester of 2018. Mian Chen also graduated from the lab after completing her master's degree in the BCB program. Several new graduate students joined the lab including Tianying Chen (BCB Master's Program), Arwa Al Anber (Pharmacology), Alex Larkin (MSTP/Pharmacology), and Zheng Sun (MCB), as well as postdoctoral fellow Nick Palmisano (co-mentored with Dave Matus). Continuing in the lab are Brian Kinney (Genetics), Eric Paulissen (MCB), Rob Morabito (MCB, co-mentored by Dave Matus), Neal Bhattacharji (Technician), and Katherine Lo (undergraduate). Brian won a poster award at the 2017 Biochemistry and Cell Biology retreat, and Eric Paulissen won poster awards at the 2017 Northeast Regional Society for Developmental Biology Meeting and the 2018 Biochemistry and Cell Biology Retreat. Ella Feiner, a 2017 Simon's summer research student co-mentored by the Martin and Matus labs, was a Regeneron Science Talent Search Finalist, a Siemens Science Competition Regional Finalist, and the best in category winner at the International Science and Engineering Fair for her work on cell cycle regulated cell behavior in the zebrafish tailbud.

DAVID MATUS

The Matus lab has continued to expand upon a fantastic collaboration with Ben Martin's lab, examining cell cycle state during invasion in worms, fish and cancer cells. Our work was featured as part of a recent *Science* paper with Nobel laureate Eric Betzig and many others, on a new type of advanced microscopy, light sheet microscopy with adaptive optics, where we visualized cancer cell behavior in vivo in zebrafish blood vessels. We also were awarded a Mt. Sinai - Stony Brook pilot award to examine cancer cell behaviors in collaboration with Jose Javier Bravo-Cordero's lab at Mt. Sinai, and had our kick-off meeting in New York city at the beginning of the summer. a prestigious NIH NRSA fellowship to finish his PhD studies in the lab, and 3rd year PhD student Jay Smith is attending the Woods Hole Marine Biological Laboratory Embryology Course this summer. We're looking forward to a fun and productive 2019!

FACULTY UPDATES

AARON NEIMAN

The Neiman Lab currently consists of Jae-Sook Park (research scientist), Leo Bemena (postdoctoral scholar), Kai Zhang (technician), Greisly Nunez (Ph.D. student) and Chase Cortez (Master's student). Reuben Hoffman and Sai Zhou recently finished their Ph.D. dissertations (both Reuben and Sai were in the Genetics graduate program) and John Zinno finished his Master's thesis. Sai is now a postdoc in Jamie Konopka's lab at Stony Brook and John is working as a technician at NYU.

The lab continues to focus on the process of spore formation in *S. cerevisiae* but has also developed a second area of research in the functions of the Vps13 protein and the different neurodegenerative disorders that result from Vps13 dysfunction in humans. In March, Aaron presented their recent work in this area at the 9th International Conference on Neuroanthocytosis Syndromes in Dresden.

STEVEN SMITH

Steven Smith returned in August after a 13 year hiatus to serve as the BSB graduate program director and continues as the Director of the Center for Structural Biology. In the past year, the new cryo-EM facility has come on-line and a new faculty member (Saikat Chowdhury) will be joining the CSB this summer. These two events provide a big boost for structural biology at Stony Brook. In the lab, two senior graduate students (Andreyah Pope and Omar Sanchez-Reyes) are working on G protein-coupled receptors, while a new graduate student (Brandon Irizarry) is taking over studies on amyloid proteins from Elliot Crooks, who will complete his MS degree later this year.

LONNIE WOLLMUTH *(pictured right)*

Research in the Wollmuth group continues to address molecular and biophysical mechanisms underlying fast synaptic transmission in the nervous system. We have numerous on-going collaborations: Our core collaboration is with Dr. Helen Hsieh, a pediatric surgeon at SBU (www.wollmuthhsieh.com), studying how clinically used drugs impact brain development. For our efforts to understand the molecular operation of ionotropic glutamate receptors, we continue to collaborate with Dr. Huan-Xiang Zhou (Univ. of Illinois at Chicago), a computational biologist. With Dr. David Zenisek (Yale University), we study molecular mechanisms controlling synaptic release at ribbon synapses in sensory systems. We have initiated efforts, in collaboration with Dr. Howard Sirotkin (SBU) to study disease-causing missense mutations in NMDA receptors in zebrafish, with the goal of developing drug screens. We are studying, in collaboration with Dr. Betty Diamond (Feinstein Institute), the role of auto-immune antibodies that target

glutamate receptors and are believed to underlie Neuropsychiatric lupus. Finally, with Pierre Paoletti (Ecole Normale Supérieure, CNRS, Paris, France), we are studying interdomain signaling in NMDA receptors.

Over the past year, Gabrielle Moody and Noele Certain (graduate students) and Donna Schmidt (technician) joined our group. Alexander Baez will be entering the MSTP program at SBU this fall. Undergraduates Aaron Gochman (Spring, 2017) and Sana Fujimura (Spring, 2018) completed honors thesis. Undergraduates Ayman Haider (2017) and Michael Liu (2018) were awarded URECA summer fellowship.

Graduate students/post-docs in the group presented posters at the Society for Neuroscience meeting in Washington, D.C. (Johansen Amin, Kelvin Chan, Camillo Ferrer, Aaron Gochman), Biophysical Society meeting in San Francisco, CA (Johansen Amin), Conference on Ionotropic Glutamate Receptors at Yale University (Johansen Amin, Kelvin Chan), Neuroimmunology meeting in Australia (Kelvin Chan) and FASEB research conference in New York (Thiru Vaithianathan). I gave invited seminars at the Ionotropic Glutamate Receptor Conference at Yale University, Meeting of the Minds, Stony Brook University, and at the Winter Conference on Brain Research, Vancouver, BC.



PUBLICATIONS 2017—2018

- MICHAEL AIROLA** - Ren J., Snider J., **Airola M.V.**, Zhong A., Rana N.A., Obeid L.M., and Hannun Y.A. (2018) Quantification of 3-ketodihydrospingosine using HPLC-ESI-MS/MS to study SPT activity in yeast *Saccharomyces cerevisiae*. *J Lipid Res.* 1:162-170
- Wang, H., **Airola, M.V.**, and Reue, K. (2017) How lipid droplets ‘TAG’ along: Glycerolipid synthetic enzymes and lipid storage. *Biochim Biophys Acta.* 1862:1131-1145
- Airola M.V.**, Shanbhogue P., Shamseddine A.A., Guja K.E., Senkal, C.E., Maini R., Bartke, N., Wu, B.X., Obeid, L.M., Garcia-Diaz M., and Hannun Y.A. (2017) Structure of human nSMase2 reveals an inter-domain allosteric activation mechanism for ceramide generation. *Proc Natl Acad Sci USA.* 114:E5549-E5558.
- MARK BOWEN**—Pedersen, S. W., Albertsen, L., Moran, G. E., Levesque, B., Pedersen, S. B., Bartels, L., Wapenaar, H., Ye, F., Zhang, M., **Bowen, M. E.**, and Strømgaard, K. (2017) Site-Specific Phosphorylation of PSD-95 PDZ Domains Reveals Fine-Tuned Regulation of Protein–Protein Interactions. *ACS Chemical Biology* 12:2313-2323.
- Amin, J. B., Salussolia, C. L., Chan, K., Regan, M. C., Dai, J., Zhou, H. X., Furukawa, H., **Bowen, M. E.**, and Wollmuth, L. P. (2017) Divergent roles of a peripheral transmembrane segment in AMPA and NMDA receptors. *J. Gen. Physiology* 149:661-680.
- Hellenkamp, B., Schmid, S., Doroshenko, O., Opanasyuk, O., Kühnemuth, R., Adariani, S.R., Barth, A., Birkedal, V., **Bowen, M. E.**, Chen, H., Cordes, T., Eilert, T., Fijen, C., Götz, M., Gouridis, G., Gratton, E., Ha, T., Hanke, C.A., Hartmann, A., Hendrix, J., Hildebrandt, L.L., Hohlbein, J., Hübner, C., G., Kallis, E., Kapanidis, A.N., Kim, J., Krainer, G., Lamb, D. C., Lee, N.K., Lemke, E.A., Levesque B., Levitus, M, McCann, J.J., Naredi-Rainer, N., Daniel Nettels, Ngo, T., Qiu, R., Röcker, C., Sanabria, H., Schlierf, M, Schuler B., Seidel, H., Streit, L., Tinnefeld, P., Tyagi, S., Vandenberk, N., Weninger, K.R., Wünsch B., Yanez-Orozco, I.S., Michaelis, J., Seidel, C.A.M., Craggs, T.D., Hugel, T. (2017) “Precision and accuracy of single-molecule FRET measurements - a worldwide benchmark study.” arXiv:1710.03807v2 .
- VITALY CITOVSKY**—Yuan, C., Lazarowitz, S.G., and **Citovsky, V.** (2017) Identification of plasmodesmal localization sequences in proteins in planta. *J. Vis. Exp.* 126:e55301.
- Wu, R. and **Citovsky, V.** (2017). Adaptor proteins GIR1 and GIR2. I. Interaction with the repressor GLABRA2 and regulation of root hair development. *Biochem. Biophys. Res. Comm.* 488:547-553.
- Wu, R. and **Citovsky, V.** (2017). Adaptor proteins GIR1 and GIR2. II. Interaction with the co-repressor TOPLESS and promotion of histone deacetylation of target chromatin. *Biochem. Biophys. Res. Comm.* 488: 609-613.
- Wang, L., Lacroix, B., Guo, J., and **Citovsky, V.** (2017) Transcriptional activation of virulence genes of *Rhizobium etli*. *J. Bacteriol.* 199,:e00841-16.
- Citovsky, V.** and Liu, B. (2017) Myosin-driven transport network in plants is functionally robust and distinctive. *Proc. Natl. Acad. Sci. USA* 114:1756-1758.
- Keren, I. and **Citovsky, V.** (2017) Activation of gene expression by histone deubiquitinase OTLD1. *Epigenetics* 12:584-590.
- Wang, L., Lacroix, B., Guo, J., and **Citovsky, V.** (2018) Agrobacterium VirE2 effector is recognized by multiple members of the Arabidopsis VIP1 gene family. *Mol. Plant Pathol.* 19:1172-1183.
- García-Cano, E., Hak, H. Magori, S., Lazarowitz, S.G., and **Citovsky, V.** (2018) The Agrobacterium F-box protein effector VirF destabilizes the Arabidopsis GLABROUS1 enhancer/binding protein-like transcription factor VFP4, a transcriptional activator of defense response genes. *Mol. Plant-Microbe Interact.* 31:576-586.
- Yuan, C., Lazarowitz, S.G., and **Citovsky, V.** (2018) The plasmodesmal localization signal of TMV MP is recognized by plant synaptotagmin SYTA. *MBio* 9:e01314-18.
- Lacroix, B. and **Citovsky, V.** (2018) Beyond Agrobacterium-mediated transformation: horizontal gene transfer from bacteria to eukaryotes. *Curr. Top. Microbiol. Immunol.*, in press.

PUBLICATIONS 2017—2018

- NETA DEAN - Dean, N** and Ng, H. (2018). Method for CRISPR/Cas9 Mutagenesis in *Candida albicans*. *Bio-protocol* 8: e2814.
- Ng, H. and **Dean, N.** (2017) Dramatic improvement of CRISPR/Cas9 editing in *Candida albicans* by increased sgRNA expression. *mSphere* 2: e00385-16.
- Li, S.T., Wang, N., Xu, X. X., Fujita, M., Nakanishi, H., Kitajima, T., **Dean, N.** and Gao, X.D. (2017) Alternative routes for synthesis of *N* linked glycans by the Alg2 mannosyltransferase. *FASEB J.* 32:2492-2506.
- Li, S.T., Wang, N, Xu, S, Yin, J. Nakanishi, H., **Dean, N.** and Gao, X.D. **2017.** Quantitative study of yeast Alg1 beta-1, 4 mannosyltransferase activity, a key enzyme involved in protein N-glycosylation. *Biochimica et Biophysica Acta* 1861:2934–2941.
- JARROD B. FRENCH -** Van Skike, N., Minkah N. K., Hogan C.H., Wu, G., Benziger, P T., Kara, M., Tibetts, S. A., Kim-Hozapfel, D. **French, J. B.**, Oldenburg, D. G., White, D. W., and Krug, L. T. (2018) Viral FGARAT ORF75A promotes the specific infectivity of virus particles and gammaherpesvirus pathogenesis in mice. *PLoS Pathogens.* 14: e1006843.
- Iuliano, J. N., Gil, A. A., Laptanok, S. P., Hall, C. R., Jinnette Tolentino Collado, J. T., Lukacs, A., S. A. H., Abyad, J., Daryaei, T., Greetham, G. M. Igor B. Sazanovich, I. B., Boris Illarionov, B., Bacher, A., Fischer, M., Towrie, M., **French J. B.**, Meech, S. R., and Tonge, P. J. (2018) Variation in LOV photoreceptor activation dynamics probed by time resolved infrared spectroscopy. *Biochemistry.* 57: 620-630.
- Shek, R., Dattmore, D. A., Stives, D. P., Jackson, A. L., Chatfield, C. H., Hicks, K. A., and **French, J. B.** (2017) Structural and functional basis for targeting *Campylobacter jejuni* agmatine deiminase to overcome antibiotic resistance. *Biochemistry.* 56: 6734-6742.
- Gil, A., Laptanok, S.P., Iuliano, J. N., Lukacs, A., Verma, A., Hall, C. R., Yoon, E., Brust, R., Greetham, G., Towrie, M., **French, J. B.**, Meech, S. R., and Tonge P. J. (2017) Photoactivation of the BLUF protein PixD Probed by the Site-Specific Incorporation of Fluorotyrosine Residues. *J. Am. Chem. Soc.* 139:14638-14648.
- Zhou, W., Yin, Y., Weinheimer, A., Kaur, N., Carpino, N. and **French, J. B.** (2017) Structural and functional characterization of the histidine phosphatase domains of human Sts-1 and Sts-2. *Biochemistry,* 56: 4637-4645.
- Chitrakar, I., Kim-Holzapfel, D., Zhou, W. and **French, J. B.** (2017) Higher Order Structures in Purine and Pyrimidine Metabolism. *J. Struct. Biol.,* 197:354-364.
- PETER GERGEN -**Hang, S. and **Gergen, J.P.** (2017) Different modes of enhancer-specific regulation by Runt and Eve-skipped during *Drosophila* segmentation. *Mol. Biol. Cell.* 28:681-691.
- Mendoza-García, P., Hugosson, F., Fallah, M., Higgins, M.L., Iwasaki, Y., Pfeifer, K., Wolfstetter, G., Varshney, G., Popichenko, D., **Gergen, J.P.**, Hens, K., Deplancke, B. and Palmer, R.H. (2017) The Zic family homolog Odd-paired regulate *alk* expression in *Drosophila*, *PLoS Genetics* 13:e1006617.
- STEVEN GLYNN -** Rampello, A.J. and **Glynn, S.E.** (2017). Identification of a degradation signal within substrates of the mitochondrial i-AAA protease. *J. Mol. Biol.* 429:873-885.
- Baytshok, V., Chen, J. **Glynn, S.E.**, Nager, A.R., Grant, R.A., Baker, T.A. and Sauer, R.T. (2017). Covalently linked HslU hexamers support a probabilistic mechanism that links ATP hydrolysis to protein unfolding and translocation. *J. Biol. Chem.* 292:5695-5704.
- Glynn, S.E.** (2017). Multifunctional mitochondrial proteases. *Front. Mol. Biosci.* 4:34.
- Puchades, C., Rampello, A.J., Shin, M., Giuliano, C.J., Wiseman, R.L., **Glynn, S.E.** and Lander, G.C. (2017). Structure of the mitochondrial inner membrane AAA+ protease YME1 gives insight into substrate processing. *Science:*358, 6363.

PUBLICATIONS 2017—2018

YUSUF HANNUN

- Ren, J. and **Hannun, Y. A.** (2017) Metabolism and roles of sphingolipids in yeast *Saccharomyces cerevisiae*. Chapter in Handbook of Hydrocarbon and Lipid Microbiology Series. *Biogenesis of Fatty Acids, Lipids and Membranes* (in press)
- Bettiga, A., Aureli, M., Colciago, G., Murdica, V., Moschini, M., Luciano, R., Canals, D., **Hannun, Y.**, Heldund, P., Colombo, R., Bassi, R., Samarini, M., Montorsi, F., Salonia, A., and Benigni, F. (2017) Bladder cancer cell growth and motility implicate cannabinoid 2 receptor-mediated modifications of sphingolipids metabolism. *Scientific Reports* 7: 42157.
- Chen, J. Y., Newcomb, B., Zhou, C., Pondick, J. V., Ghoshal, S., York, S., Motola, D., Coant, N., Yi, J-K, Mao, C., Tanabe, K. K., Bronova, I., Berdyshev, E. V., Fuchs, B. C., **Hannun, Y. A.**, Chung, R. T., Mullen, A. C. (2017) Tricyclic Antidepressants Promote Ceramide Accumulation to Regulate Collagen Production in Human Hepatic Stellate Cells. *Scientific Reports* 7: 44867.
- Senkal, C.E., Salama, M. F., Snider, A. J., Allopenna, J. J., Rana, N. A., Koller, A., **Hannun, Y. A.**, Obeid, L. M. (2017). Ceramide is metabolized to acylceramide and stored in lipid droplets. *Cell Metabolism* 25: 686-697. Pulkoski-Gross, M. J., Uys, J. D., Orr-Gandy, A., Coant, N., Bialkowska, A. B., Szulc, Z. M., Bai, A., Bielawska, A., Townsend, D. M., **Hannun, Y. A.**, Obeid, L. M., Snider, A. J. (2017) Novel sphingosine kinase-1 inhibitor, LCL351, reduces immune responses in murine DSS-induced colitis. *Prostaglandins and Other Lipid Mediators* 130: 47-56.
- Bai, A., Mao, C., Jenkins, R. W., Sulz, Z. M. Bielawska, A., and **Hannun, Y. A.** (2017) Anticancer Actions of Lysosomally Targeted Inhibitor, LCL521, of Acid Ceramidase. *PLOS ONE* 12(6):e0177805.
- Wu, S., Zhu, W., and **Hannun, Y. A.** (2017) Response to “Roles of Stem Cell Divisions in Cancer Risk” *Nature* 548:E15.
- Dupre, T. V., Doll, M. A., Shah, P. P. Sharp, C. N., Siow, D. Megyesi, J., Shayman, J., Bielawska, A., Bielawski, J., Beverly, L. J., Hernandez-Corbacho, M., Clarke, C. J., Snider, A. J., Schnellmann, R. G., Obeid, L. M., **Hannun, Y. A.**, and Siskind, L. J. (2017) Inhibiting glucosylceramide synthase exacerbates cisplatin-induced acute kidney injury. *J. Lipid Res* 58:1439-1452.
- Airola, M. V., Shanbhogue, P., Shamseddine, A. A., Guja, K. E., Senkal, C. E., Maini, R., Bartke, N., Wu, B. X., Obeid, L. M., Garia-Diaz, M., and **Hannun, Y. A.** (2017) Structure of human nSMase2 reveals an inter-domain allosteric activation mechanism for ceramide generation. *Proc. Nat. Acad Sci USA* 114:E5549-E5558.
- Wada, M., Canals, D., Adada, M., Coant, M., Salama, M. F., Helke, K. L., Arthur, S. C., Shroyer, K. R., Kitatani, K., Obeid, L. M., and **Hannun, Y. A.** (2017) P38 delta MAPK promotes breast cancer progression and lung metastasis by enhancing cell proliferation and cell detachment. *Oncogene* 36:6649-6657.
- Lin, CL., Xu, R., Yi, JK., Li, F., Chen, J, Jones, E.C., Slutsky, J. B., Huang, L, Rigas, B., Cao, J., Zhong, X., Snider, A. J., Obeid, L. M., **Hannun, Y. A.**, and Mao, C. (2017) Alkaline ceramidase 1 protects mice from premature hair loss by maintaining the homeostasis of hair follicle stem cells. *Stem Cell Reports* 9:1488-1500.
- Liu, M., Clarke, C. J., Salama, M. F., Choi, Y. J., Obeid, L.M., and **Hannun, Y. A.** (2017) Co-ordinated activation of classical and novel PKC isoforms is required for PMA-induced mTORC1 activation. *PLOS One* 2:e0184818.
- Furuya, H., Tamashiro, P.M., Shimizu, Y. Iino, K., Peres, R., Chen, R., Sun, Y., **Hannun, Y. A.**, Obeid, L.M., and Kawamori, T. (2017) Sphingosine Kinase 1 expression in Peritoneal Macrophages is required for Colon Carcinogenesis. *Carcinogenesis* 38:1218-1227.
- Zhu, W., Wu, S., and **Hannun, Y. A.** (2017) Contributions of the Intrinsic Mutation Process to Cancer Mutation and Risk Burdens. *EBioMedicine* 24:5-6.
- Hannun, Y. A.** and Obeid, L. M. (2018) Sphingolipids and their metabolism in physiology and disease. *Nature Reviews Molecular Cell Biology* 19: 175-191.
- Vilaca, R., Barros, I., Matmati, N., Silva, E., Martins, T., Teixeira, V, **Hannun, Y. A.**, and Costa, V. (2017) The ceramide activated protein phosphatase Sit4 impairs sphingolipid dynamics, mitochondrial function and lifespan in a yeast model of Niemann-Pick type C1. *BBA - Molecular Basis of Disease* 1864:79-88.
- Carroll, B. L., Bonica, J., Shamseddine, A. A., **Hannun, Y. A.**, Obeid, L. M. (2018) A Role for Caspase 2 in Sphingosine Kinase 1 Proteolysis in Response to Doxorubicin in Breast Cancer Cells: Implications for the CHK1-Suppressed Pathway. *FEBS*

PUBLICATIONS 2017—2018

Open Bio 8: 27-40.

Xu, R., Garcia-Barros, M., Wen, S., Li, F., Lin, C-L., **Hannun, Y. A.**, Obeid, L. M., and Mao, C. (2017) Tumor suppressor p53 links ceramide metabolism to DNA damage response through alkaline ceramidase 2. *Cell Death and Differentiation* 25:841-856.

Ren, J., Snider, j., Airola, M. V., Zhong, A., Rana, N. A., Obeid, L. M. and **Hannun, Y. A.** (2018) Quantification of 3-ketodihydrosphingosine using HPLC-ESI-MS/MS to study SPT activity in yeast *Saccharomyces cerevisiae*. *J Lipid Research* 59: 162-170.

Schwartz, N. U., Linzer, R. W., Truman, J-P., Gurevich, M., **Hannun, Y. A.**, Senkal, C. E., Obeid, L. M. (2017) Decreased Ceramide Underlies Mitochondrial Dysfunction in Charcot-Marie-Tooth 2F6. *FASEB J* 32:1716-1728.

Li, F., Xu, R., Low, B., E., Lin, C-L, Garcia-Barros, M., Schrandt, J., Mileva, I., Snider, A., Luo, C. K., Jiang, X.C., Li, M.S., **Hannun, Y. A.**, Obeid, L. M., Wiles, M. V., and Mao, C. (2017) Alkaline ceramidase 2 (ACER2) is essential for the homeostasis of plasma sphingoid bases and their phosphates. *FASEB J* (in press).

Morris, T. G., Borland, S. J., Clarke, C. J., Wilson, C., **Hannun, Y. A.**, Ohanian, V., Canfield, A. E., and Ohanian, J. (2017) Sphingosine 1-phosphate activation of ERM contributes to vascular calcification. *J Lipid Research* 59:69-78.

Espaillet, MP., Snider, A. J., Qiu, Z., Channer, B., Ahmad, R., Schuchman, E., Kew, R. R., Sheridan, B., **Hannun, Y. A.**, and Obeid, L. M. (2017) Loss of acid ceramidase in myeloid cells suppresses intestinal neutrophil recruitment. *FASEB J* 32:2339-2353.

Coant, N., Garcia-Barros, M., Zhang, Q., Obeid, L. M., and **Hannun, Y. A.** (2018) AKT as a key target for growth promoting functions of neutral ceramidase in colon cancer cells. *Oncogene* (in press).

Pulkoski-Gross, M. J. Jenkins, M. L., Truman, J-P., Salama, M. F., Clarke C. J., Burke, J. E., **Hannun, Y. A.**, and Obeid, L. M. (2018) An intrinsic lipid-binding interface controls sphingosine kinase 1 function *J Lipid Research* 59:462-474.

Rego, A. Cooper, K. F., Snider, J., **Hannun, Y. A.**, Costa, V., Côté-Real, M., and Chaves, S. R. (2018) Acetic acid induces Sch9-dependent translocation of Isc1p from the endoplasmic reticulum into mitochondria. *BBA Molecular and Cell Biology of Lipids* 1863:576-583.

BERNADETTE HOLDENER— Siller, S. S, Sharma, H., Li, S., Yang, J., Zhang, Y., Holtzman, M. J., Winuthayanon, W., Colognato, H., **Holdener, B. C.**, Li, F. Q., Takemaru, K. I. (2017) Conditional knockout mice for the distal appendage protein CEP164 reveal its essential roles in airway multiciliated cell differentiation. *PLoS Genet.* 13:e1007128.

NANCY HOLLINGSWORTH - Kniewel, R., Murakami, H., Liu, Y., Ito, M., Ohta, K., **Hollingsworth, N. M.** and Keeney, S. (2017) Histone H3 threonine 11 phosphorylation is catalyzed directly by the meiosis-specific kinase Mek1 and provides a molecular readout of Mek1 activity *in vivo*. *Genetics* 207:1313-1333.

Prugar, E.*, Burnett, C.*, Chen, X., and **Hollingsworth, N. M.** (2017) Coordination of double strand break repair and meiotic progression in yeast by a Mek1-Ndt80 negative feedback loop. *Genetics* 206:497-512 *co-first authors.

Callender, T. L., Laureau, R., Wan, L., Chen, X., Sandhu, R., Laljee, S., Zhou, S., Suhandynata, R. T., Prugar, E., Gaines, W. A., Kwon, Y., Börner, G. V., Nicolas, A., Neiman, A. M., and **Hollingsworth, N. M.** (2016) Mek1 down regulates Rad51 activity during yeast meiosis by phosphorylation of Hed1. *PLoS Genet* 12: e1006226.

Park, J-S., Thorsness, M. K., Policastro, R., McGoldrick, L., **Hollingsworth, N. M.**, Thorsness, P. E., and Neiman, A. M. (2016) Vps13 promotes mitochondrial function and is localized at membrane contact sites. *Mol. Biol. Cell* 27:2435-2449.

Suhandynata, R. T., Wan, L., Zhou, H., and **Hollingsworth, N. M.** (2016) Identification of putative Mek1 substrates during meiosis in *Saccharomyces cerevisiae* using quantitative phosphoproteomics *PLoS ONE.* 11:e0155931.

PUBLICATIONS 2017—2018

ERWIN LONDON

- Zhang, X., St Clair, J.R., **London, E.***, and Raleigh, D.P.* (2017) Islet Amyloid Polypeptide Membrane Interactions: Effects of Membrane Composition. *Biochemistry*, 56:376-390. *co-corresponding authors.
- Marquardt, D., Heberle, F.A., Miti, T., Eicher, B., **London, E.**, Katsaras, J., and Pabst, G. (2017) ¹H NMR Shows Phospholipid Flip-Flop in Vesicles is Extremely Slow in Both Gel and Fluid States. *Langmuir* 33, 3731–3741.
- Kim, J., Singh, A., DelPoeta, M., Brown, D.A.*, and **London, E.*** (2017) “The effect of sterol structure upon clathrin-mediated and clathrin-independent endocytosis” *J. Cell Sci.* 130:2682-2695. *co-corresponding authors.
- St. Clair, J.R., Wang, Q., Li, G., and **London, E.** (2017) “Preparation and Physical Properties of Asymmetric Model Membrane Vesicles” in *Springer Series in Biophysics: The Role of the Physical Properties of Membranes in Influencing Biological Phenomena* (Eds. R.M. Epand and J.M. Ruyschaert), Springer Nature Singapore, 1-27.
- Farnoud, A.M., Raj, S., Kim J., Joffe, L., Zhang, X., Singh, A., Mor, V., Desmarini, D., Djordjevic, J., Raleigh, D.P., Rodrigues, M.L., **London, E.**, and Del Poeta, M. (2017) Changes in Glucosylceramide Structure Affect Virulence and Membrane Biophysical Properties of *Cryptococcus neoformans*. *Biochim Biophys. Acta* 1859:2224-2233.
- Toledo, A.M., Huang, Z., Benach J.L., and **London, E.** (2018) Analysis of Lipids and Lipid Rafts in *Borrelia*. *Methods in Molecular Biology* 1690:69-82.
- Kim, J., Fukuto, H.S., Bliska, J.B., Brown, D.A., and **London, E.** (2018) Effects of host cell sterol composition upon internalization of *Yersinia pseudotuberculosis* and clustered beta-1 integrin. *J. Biol. Chem.* 293:1466-1479.
- Toledo, A., Huang, Z., Coleman, J.L., **London, E.**, and Benach, J.L. (2018) Lipid rafts can form in both the inner and outer membranes of *Borrelia burgdorferi* and have different properties and associated proteins. *Mol. Microbiol.* 108:63-76.
- Zhang, X., **London, E.**, and Raleigh, D.P. (2018) Sterol Structure Strongly Modulates Membrane-IAPP Interactions. *Biochemistry*, 57:1868-1879.
- Wang, Q. and **London, E.** (2018), Lipid Structure and Composition Control Consequences of Interleaflet Coupling in Asymmetric Vesicles. *Biophys. J.* 115:664-678.
- Doktorova, M., Heberle, F.A., Eicher, B., Standaert, R.F., Katsaras, J., **London, E.**, Pabst, G., and Marquardt, D. (2018) Preparation of asymmetric phospholipid vesicles: The next generation of cell membrane models. *Nature Protocols*, 13:2086-2101.
- ED LUK** - Mohan, C., Kim, L., Hollar M., Li, T., Paulissen, E., Leung C. T., and **Luk, E.** (2018) VivosX, a disulfide crosslinking method to capture protein-protein interactions in yeast and human cells. *eLIFE*. e36654.
- Sun, L. and **Luk, E.** (2017) Dual function of Swc5 in SWR remodeling ATPase activation and histone H2A eviction. *Nucleic Acids Research*. 45:9931-9946.

DAVID MATUS - Kohrman, A. Q. and **Matus, D. Q.** (2017) Divide or Conquer: Cell Cycle Regulation of Invasive Behavior. *Trends Cell Biol* 27:12-25.

Medwig, T. N., and **Matus, D. Q.** (2017) Breaking down barriers: the evolution of cell invasion. *Current opinion in genetics and development* 47:33-40.

Goto, H., Kimmey, S. C., Row, R. H., **Matus, D. Q.**, and Martin, B. L. (2017) FGF and canonical Wnt signaling cooperate to induce paraxial mesoderm from tailbud neuromesodermal progenitors through regulation of a two-step epithelial to mesenchymal transition. *Development* 144:1412-1424.

Liu, T. L., Upadhyayula, S., Milkie, D. E., Singh, V., Wang, K., Swinburne, I. A., Mosaliganti, K. R., Collins, Z. M., Hiscock, T. W., Shea, J., Kohrman, A. Q., Medwig, T. N., Dambournet, D., Forster, R., Cunniff, B., Ruan, Y., Yashiro, H., Scholpp, S., Meyerowitz, E. M., Hockemeyer, D., Drubin, D. G., Martin, B. L., **Matus, D. Q.**, Koyama, M., Megason, S. G., Kirchhausen, T. and Betzig, E. (2018) Observing the cell in its native state: Imaging subcellular dynamics in multicellular organisms. *Science* 360.

PUBLICATIONS 2017—2018

- BENJAMIN MARTIN** - D'Amico, S., Shi, J., **Martin, B.L.**, Crawford, H.C., Petrenko, O., Reich, N.C. (2018) STAT3 is a master regulator of epithelial identity and KRAS driven tumorigenesis. *Genes Dev.* (in press).
- Row, R. H., Pegg, A., Kinney, B.A., Farr, G. H., Maves, L., Lowell, S., Wilson, V., **Martin, B. L.** (2018) BMP and FGF signaling interact to pattern mesoderm by controlling bHLH transcription factor activity. *eLife.* Jun 7;7.
- So, J., Khaliq, M., Evason, K., Ninov, N., **Martin, B.L.**, Stainier, D.Y.R, Shin, D. (2018) Wnt/ β -catenin signaling controls intrahepatic biliary network formation via regulating Notch activity in zebrafish. *Hepatology.* 67:2352-2366.
- Liu, T. L., Upadhyayula, S., Milkie, D. E., Singh, V., Wang, K., Swinburne, I. A., Mosaliganti, K. R., Collins, Z. M., Hiscock, T. W., Shea, J., Kohrman, A. Q., Medwig, T. N., Dambournet, D., Forster, R., Cunniff, B., Ruan, Y., Yashiro, H., Scholpp, S., Meyerowitz, E. M., Hockemeyer, D., Drubin, D. G., **Martin, B. L.**, Matus, D. Q., Koyama, M., Megason, S. G., Kirchhausen, T. and Betzig, E. (2018) Observing the cell in its native state: Imaging subcellular dynamics in multicellular organisms. *Science* 360.
- Row, R.H., **Martin, B.L.** (2017) itFISH: Enhanced staining by iterative fluorescent *in situ* hybridization. *Zebrafish.* 14:578-580.
- Moravec, C.E., Yousef, H., Kinney, B.A., Salerno-Eichenholz, R., Monestime, C., **Martin, B.L.**, Sirotkin, H.I. (2017) Zebrafish *sin3b* mutants are viable but have size, skeletal and locomotor defects. *Dev Dyn.* 246:946-955.
- Goto, H., Kimmey, S.C., Row, R.H., Matus, D.Q., **Martin, B.L.** (2017) FGF and canonical Wnt signaling cooperate to induce paraxial mesoderm from tailbud neuromesodermal progenitors through regulation of a two-step EMT. *Development.* 2017 144:1412-1424.
- AARON NEIMAN**- Zhou, S., Sternglanz, R., and **Neiman, A. M.** (2017) Developmentally regulated internal transcription initiation during meiosis in budding yeast. *PLoS One*, 12: e0188001.
- Omerza, G., Tio, C.-W., Philips, T., Diamond, A., **Neiman, A. M.**, and Winter, E. (2017) The meiosis-specific Cdc20 family member Ama1 promotes binding of the Ssp2 activator to the Smk1 MAP kinase. *Mol Biol Cell.* 29:66-74.
- Nakamura, T. S., Numajiri, Y., Okumura, Y., Hidaka, J., Tanaka, T., Inoue, I., Suda, Y., Takahashi, T., Nakanishi, H., Gao, X.-D., **Neiman, A. M.**, and Tachikawa, H. (2017) Dynamic localization of a yeast development-specific PP1 complex during prospore membrane formation is dependent on multiple localization signals and complex formation. *Mol. Biol. Cell* 28:3881-3895.
- Zhang, K., Needleman, L., Zhou, S., and **Neiman, A. M.** (2017) A novel assay reveals a maturation process during ascospore wall formation. *J Fungi*, 3(4), 54.
- Hoffman, R. Grabinska, K., Qian, Z., Sessa, W., and **Neiman, A. M.** (2017) Long-chain polyprenols promote spore wall formation in *Saccharomyces cerevisiae*. *GENETICS*, 207:1371-1386.
- Bemena, L. D., Mukama, O., **Neiman, A. M.**, Li, Z., Gao, X. D., and Nakanishi, H. (2017). *In vitro* reconstitution of the yeast spore wall dihydroxytyrosine layer discloses the mechanism of its assembly. *J Biol Chem.* 292:15880-15891.
- Pappas, S.S., Bonifacino, J., Danek, A., Dauer, W.T., De, M., De Franceschi, L., DiPaolo, G., Fuller, R., Haucke, V., Hermann, A., Kornmann, B., Landwehrmeyer, B., Levin, J., **Neiman, A.M.**, Rudnicki, D. D., Sibon, O., Velayos-Baeza, A., Vonk, J. J., Walker, R. H., Weisman, L. S., and Albin, R. L. (2017) Eighth International Chorea-Acanthocytosis Symposium: Summary of Workshop Discussion and Action Points. *Tremor Other Hyperkinet Mov.* 7:428.
- Jin, L., Zhang, K., Sternglanz, R., and **Neiman, A. M.** (2017) Predicted RNA binding proteins Pes4 and Mip6 regulate mRNA levels, translation, and localization during sporulation in budding yeast. *Mol Cell Biol.* 37:408-416.
- Ta-Shma, A., Zhang, K., Salimova, E., Zerneck, A., Sieiro-Mosti, D., Stegner, D., Furtado, M., Shaag, A., Perles, Z., Nieswandt, B., Rein, A. J., Rosenthal, N., **Neiman, A. M.**, and Elpeleg, O. (2017) Congenital valvular defects associated with deleterious mutations in the PLD1 gene. *J Med Genet.* 54:278-286.
- KEITH SHEPPARD**-Heal, K., Kelly, A. M., Bugallo, M. F., and **Sheppard, K.** (2018) University-based training of high school science teachers to implement the Next Generation Science Standards. *Proceedings of the 2018 American Society of Engineering*

PUBLICATIONS 2017—2018

Education Annual Conference and Exposition. Salt Lake City, UT.

Rushton, G., Dewar, A., Ray, H., Shah, L., Rosengrant, D., **Sheppard, K.** and Wanatabe, L. (2017) Towards A High Quality School Workforce: A Longitudinal, Demographic Analysis Of U.S. Public School Physics Teachers, *Physical Review: Physics Educational Research*. 13: 1-11.

Sheppard, K., McCarthy, R., Kelly, A. M. and Drees, A. (2017) Stony Brook University Physics Teacher Preparation Program – The 6 ‘C’ s. *American Physical Society: Forum on Education*. Summer 2017. 12-13.

STEVEN SMITH- Kimata, N., Pope, A., Eilers, M., Opefi, C. A., Ziliox, M., Hirshfeld, A., Zaitseva, E., Vogel, R., Sheves, M., Reeves, P. J., and **Smith S. O.** (2016) Retinal orientation and interactions in rhodopsin reveal a two stage trigger mechanism for activation. *Nature Communications* 7:12683.

Kimata, N., Pope, A., Sanchez-Reyes, O. B., Eilers, M., Opefi, C. A., Ziliox, M., Reeves, P. J., and **Smith S. O.** (2016) Free backbone carbonyls mediate rhodopsin activation. *Nature Struct Mol Biol*. 23:738-43.

Xu, F., Fu, Z., Dass, S., Kotarba, A. E., Davis, J., **Smith, S. O.** and Van Nostrand, W. E. (2016) Cerebral vascular amyloid seeds drive amyloid β -protein fibril assembly with a distinct anti-parallel structure. *Nature Communications* 7, 13527.

Hu, Y., Kienlen-Campard, P., Tang, T. C., Perrin, F., Opsomer, R., Decock, M., Pan, X., Octave, J. N., Constantinescu, S. N., and **Smith, S. O.** (2017) β -Sheet structure within the extracellular domain of C99 regulates amyloidogenic processing. *Scientific Reports*. 7:17159.

Sanchez-Reyes, O. B., Cooke, A. L. G., Tranter, D. B., Rashid, D., Eilers, M., Reeves, P. J., and **Smith, S. O.** (2017) G protein-coupled receptors contain two conserved packing clusters. *Biophys J*. 112:2315-2326.

Chung, H., Crooks, E. J., Ziliox, M., **Smith, S. O.** (2018) Disaggregation of A β 42 for structural and biochemical studies. *Methods Mol Biol*. 1777:321-330.

ROLF STERNGLANZ- Zhou, S., **Sternglanz, R.**, and Neiman, A. M. (2017) Developmentally regulated internal transcription initiation during meiosis in budding yeast. *PLoS One*, 12: e0188001.

Jin, L., Zhang, K., **Sternglanz, R.**, and Neiman, A. M. (2017) Predicted RNA binding proteins Pes4 and Mip6 regulate mRNA levels, translation, and localization during sporulation in budding yeast. *Mol Cell Biol*. 37:408-416.

LONNIE WOLLMUTH - Amin, J. B., Salussolia, C. L., Chan, K., Regan, M. C., Dai, J., Zhou, H. X., Furukawa, H., Bowen, M. E., and **Wollmuth, L. P.** (2017) Divergent roles of a peripheral transmembrane segment in AMPA and NMDA receptors. *J. Gen. Physiology* 149:661-680.

Amin, J, Leng, X., Gochman, A., Zhou, H-X., and **Wollmuth, L. P.** (2018) A conserved glycine harboring disease-associated mutations permits NMDA receptor slow deactivation and high Ca²⁺ permeability. bioRxiv: BIORXIV/2018/313452.

Zhou, H-X. and **Wollmuth L. P.** (2017) Advancing NMDA receptor physiology by integrating multiple approaches. *Trends in Neuroscience*. 40:129-137.

Wollmuth, L. P. (2018) Ion permeation in ionotropic glutamate receptors: Still dynamic after all these years. *Current Opinion Physiology*. 2:36-41.

Wollmuth, L. P. (2018) What fun it is to study ion channels: A review of ‘Ion Channels: A Laboratory Manual’ edited by Paul J. Kammermeier, Ian Duguid, and Stephan Brenowitz. *The Quarterly Review of Biology*.

Amin, J. B. and **Wollmuth, L. P.** (2018) A swiss army knife for targeting receptors. Insight article. *eLife*. 24:7

Hansen, K. B., Yi, F., Perzyk, R. E., Furukawa, H, **Wollmuth, L. P.**, Gibb, A. J., and Traynelis, S. F. (2018) Structure, function, and allosteric modulation of NMDA receptors. *Journal of General Physiology* (in press).

NOTEWORTHY

RECIPIENTS OF AWARDS 2016 -2018

Vitaly Citovsky, Distinguished Professor

2017 Faculty Member Award for Plant Biology by F1000 Prime

Joann DeLucia Conlon, Senior Staff Assistant

2016 Dean's Award for Excellence in Service by a Graduate Program Coordinator

Dale Deutsch, Professor

2016 International Cannabinoids Research Society Lifetime Achievement Award

Jarrold French, Assistant Professor

2018 Cottrell Scholar for Innovative Research and Teaching

Martin Kaczocha, Assistant Professor Joint Appointment with Anesthesiology

2017 NAI-National Academy of Young Inventors Award

Wali Karzai, Professor: 2018 Dean's Award for Excellence in Service by a Graduate Program Director

Benjamin Martin, Associate Professor

2018 Pershing Square Sohn Prize for Young Investigators in Cancer Research &

2017 Damon Runyon Innovation Award

David Matus, Assistant Professor

2017 Damon Runyon Innovation Award & 2018 CAS Dean's Godfrey Teaching Excellence Award

Aaron Neiman, Chair & Professor

2016 Elected to Fellowship in the American Academy of Microbiology

PROMOTIONS

Benjamin Martin, 2018 Promotion to Associate Professor

Steve Glynn, 2018 Promotion to Associate Professor

Susan Erster, 2016 Promotion to Senior Lecturer

Peter Gergen, 2017 Promotion to Distinguished Service Professor

Wali Karzai, 2018 Promotion to Full Professor

Ed Luk, 2018 Promotion to Associate Professor

NEWLY FUNDED GRANTS 2016 to 2018

Michael Airola, Assistant Professor: American Heart Association Grant, January 2017 & National Institutes of Health, July 2018

Vitaly Citovsky, Distinguished Professor: US Israel Bi-national Research & Development Fund, September 2016, & National Science Foundation, November 2018 & National Institutes of Health, January 2017

Dale Deutsch, Professor: National Institutes of Health, August 2016

Jarrold French, Assistant Professor: National Institutes of Health, September 2017; National Science Foundation, April 2018; National Institutes of Health, December 2017 & Research Corporation for Science Advancement, July 2018

Yusuf Hannun, Director of Cancer Center : National Institutes of Health, July 2016

Bernadette Holdener, Associate Professor: National Institutes of Health, July 2017

Nancy Hollingsworth, Distinguished Teaching Professor: National Institutes of Health, August 2017

Wali Karzai, Associate Professor: National Institutes of Health, July 2017

Erwin London, Distinguished Professor & Deborah Brown, Professor : National Science Foundation, September 2017

Benjamin Martin, Associate Professor: Pershing Square Sohn for Young Investigators in Cancer Research, May 2018; National Institutes of Health, July 2018; & Damon Runyon Innovation Grant, January 2017

David Matus, Assistant Professor : Damon Runyon Innovation Grant, January 2017; National Institutes of Health, July 2018; & Gettysburg College Grant, September 2017

Aaron Neiman, Chair & Professor : National Institutes of Health, September 2018

Sanford Simon, Professor: BioCogent Ltd Grant, July 2016

Steve Smith, Professor: National Institutes of Health, August 2016

ANNUAL RETREAT



Thank you!

The Department of Biochemistry and Cell Biology thanks the following faculty, alumni and friends for their generous gift commitments in the last and current fiscal year (as of October 5, 2018):

Sandipan Bagchi	Gary and Carol Juliano	Lisa Prazak-Stockwell '09
Mary Bernero '72 & Harvey Lyman	Shahriar Khalili '84	Nadia Rana '04 '11
Anthony Bianchini '13	Chien Lam '12	Maryanne Reinhardt
Gerard Bourguignon '72	Brian Leibowitz '81	Michael Rosenbloom '77
Steve Brill '88 and Jan Mullen '89	Bob and Jackie Leong	Frank L. Ross, MD, FACS '81
Deborah Brown	Yee Man Li '18	Robert Scannevin '97
Ying Cai '13	Erwin H. London & Colleen M. Kenefick	Keith Schiesser
Joseph Catanzaro '97	Qiao Lu '11	Sanford Simon
Eugene Cheng '97 &	Christopher Magnifico '93	Justin Tai '17
Carol H. Cheng '96, '97	Lou Manganas '94, '04	Conrad Tenenbaum '09
Jin Won Cho	Eugene Marrero '18	Karen Voelkel-Meiman '80
Neta Dean	Michael Miller	Anthony P. Winiski '78, '86
Dale and Lou Deutsch	Alain Nepveu	Lonnie P. Wollmuth
J. Peter Gergen	Emmanuel Nketiah, MD '04	Perry Woo '13
Lisa Gillard '02, '04	David Ott '87	Jian z. Yang '07
Bob and Kim Haltiwanger	Fredrick A. Paola MD '80	Mingming Zhao '03
Bernadette and Charlie Holdener	Helio F. Pedro '91	Jizu Zhi '97, '99
Nancy Hollingsworth		
Lin Huang'91		

Their contributions support the research and teaching missions of the Department of Biochemistry and Cell Biology in many ways. The Excellence Fund is used to support the research and teaching mission of the department. Uses of this fund include: assisting faculty with the acquisition of new, key pieces of equipment; providing funds for graduate student travel to scientific meetings; and providing funds for undergraduate and Masters student research. We also host a weekly outside seminar program that brings outstanding scientists from other institutions to exchange ideas with our faculty and students. Finally, the fund supports the annual Departmental retreat where students and faculty can describe their research and foster interactions within the department.

Please consider support of the Department of Biochemistry and Cell Biology.

How To Donate

Online: <https://alumniandfriends.stonybrook.edu/online-giving> and search Biochemistry in the "Search for a Fund" box.

You may also send your gift along with this form to the address below:

Name and Year of Graduation (if applicable): _____

Address: _____

Phone Number: _____

E-Mail Address: _____

YES, I WISH TO CONTRIBUTE TO THE BIOCHEMISTRY & CELL BIOLOGY FUND for EXCELLENCE

\$1,000 \$500 \$250 \$100 Other: _____

Check enclosed (payable to: **Stony Brook Foundation #296690**)

Stony Brook University
Department of
**BIOCHEMISTRY
& CELL BIOLOGY**

50
1968-2018

Let's Celebrate 50 Years!

Saturday, September 29, 2019
11:30 am to 8:30 pm
Stony Brook University

*Join us in celebrating the
Department of Biochemistry
and Cell Biology's 50th
Anniversary.*

