

BIOCHEMISTRY @ IOWA

Fall 2018

Message from the Head

Dear Friends of Iowa Biochemistry,

These are dark days but I am going to be optimistic this year. I am predicting that we will see a re-emergence of data-driven decisions nationally and internationally this year and that we will see much better biomedical research funding success rates than we have seen in almost a decade. Here's why I am optimistic.

People make decisions based on what they experience. Shown fake news, they respond in predictable ways. That's why there is so much spin and manipulation of events. There's money in it. People also respond to scarcity and terror with

“US biomedical research investment pays off in knowledge, economic activity and important improvements to clinical care”

activity in our amygdala that does not always lead to the most rational interpretations or conclusions. Despots know and use this knowledge.

There is clearly a rise in polarized interpretations of the world but there is also a greater degree of clarity of educated people that we need to keep educating. With greater participation in elections, positive change is possible and, I think, probable.

There has also been a stealthy increase in the NIH budget to \$39 billion in the current federal fiscal year. This has the potential to double success rates from top decile to top quintile. This commitment of funds to NIH was based on bipartisan awareness that the US biomedical research investment pays off in knowledge, economic activity and important improvements to clinical care.

We're grateful for wonderful friends of the Department and hope to hear from all of you this year.

Best,



CHARLES BRENNER, PHD
ROY J. CARVER CHAIR &
HEAD OF BIOCHEMISTRY

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Biochemistry's 70th Anniversary Celebration



Over 115 faculty, graduate students, postdoctoral fellows, research staff members, undergraduates, and alumni attended the Department of Biochemistry's 70th Anniversary Celebration and 9th Annual Retreat on Saturday, August 25, 2018.

The retreat featured research talks from department alumni: Drs. **Junmin Peng** (1999 PhD, Price laboratory), **Lois Weisman** (Biochemistry Faculty, 1993-2005), and **James Kranz** (1999 BS with honors, Shea laboratory); research poster presentations; and a special session with current and former Department Heads Drs. **Charles Brenner** (2009 – present), **Arthur Spector** (1996 – 1998) and **Alan Goodridge** (1987 – 1996). A reception and dinner followed on the main stage of Hancher Auditorium.

RETREAT HIGHLIGHTS

Invited alumni research presentations included: **Junmin Peng**, Professor, Departments of Structural Biology and Developmental Neurobiology, and Director of Center for Proteomics and Metabolomics at St. Jude Children's Research Hospital, on "Omics-based systems biology of human disease;" **Lois Weisman**, Professor of Cell and Developmental Biology, Life Sciences Institute, University of Michigan, on "From yeast to humans: Insights into myosin V based transport and phosphoinositide signaling," and **James Kranz**, Director, Drug Product Development, Kiniksa Pharmaceuticals, on "Biochemistry essentials and biopharmaceutical development: Everything I need to know I first learned from Dryer & Lata 'Experimental Biochemistry'"



L to R: Junmin Peng, Lois Weisman and James Kranz.



L to R: Alan Goodridge, Charles Brenner and Arthur Spector.

The panel discussion with current and former Department Heads incorporated talks from Drs. **Charles Brenner**, **Arthur Spector** and **Alan Goodridge**, as well as a question and answer session. Drs. Goodridge and Spector discussed their recollections from the University of Iowa, as well as highlights of their time since leaving Iowa City.

The retreat featured 39 poster presentations. **Hannah Campbell** (DeMali laboratory) won first place in the Poster Competition for her poster entitled "Force-induced apoptosis and the mechanoprotective role of PAK2," **Alicia Ortiz** (DeMali laboratory) took second place for her poster entitled "Investigating Metabolic Changes in Response to Force on E-cadherin," third place went to **Christopher Ball** (Price laboratory) for his poster entitled "Human Cytomegalovirus IE2 Differentially Modulates Transcription of Select Viral Transcription Units during Late Infection," and fourth place went to **Kelli Sylvers** (Davies laboratory) for her poster entitled "Characterizing the interactions between ANGPTL3, ANGPTL8, and endothelial lipase."



L to R: Hannah Campbell, Alicia Ortiz, Christopher Ball, Charles Brenner and Kelli Sylvers.

FACULTY PROMOTIONS



Kris DeMali has been promoted to **Professor of Biochemistry & Dermatology**. Dr. DeMali began working in the Department as Assistant Professor in 2006 and was promoted to Associate Professor in 2012. Dr. DeMali received her PhD in Pharmacology from the University of Colorado and completed a postdoctoral fellowship at the University of North Carolina where she was promoted to Research Assistant Professor in 2004. Dr. DeMali has achieved national and international recognition as a scholar in cell structure and mechanotransduction.



Maria Spies has been promoted to **Professor of Biochemistry & Radiation Oncology**. Dr. Spies began working in the Department in 2012 as Associate Professor after beginning her independent career as Assistant Professor of Biochemistry at the University of Illinois at Urbana-Champaign in 2005. Dr. Spies received her PhD in Biological Sciences from Osaka University in Japan and completed a postdoctoral fellowship at the University of California, Davis. Dr. Spies has achieved national and international recognition as a scholar in DNA recombination and repair.



Andrew Norris has been promoted to **Professor of Pediatrics & Biochemistry**. Dr. Norris joined the Department on a secondary appointment in 2012. He received his MD/PhD from Washington University in St. Louis, MO and trained in lipid biochemistry with Dr. **Arthur Spector** and diabetes research and pediatric endocrinology at the Joslin Diabetes Center and Boston Children's Hospital. Dr. Norris was named Associate Director of the Fraternal Order of Eagle Diabetes Research Center in 2015. He has achieved national and international recognition in fetal over- and under-nutrition and other problems in diabetes.



Miles Pufall has been promoted to **Associate Professor of Biochemistry** with tenure. Dr. Pufall began working in the Department in 2011 after completing his PhD in Oncological Sciences from the University of Utah in 2004 and a postdoctoral fellowship with Dr. Keith Yamamoto at the University of California, San Francisco. Dr. Pufall has achieved national and international recognition as a scholar in eukaryotic gene regulation.



Michael Schnieders has been promoted to **Associate Professor of Biochemistry & Biomedical Engineering** with tenure. Dr. Schnieders began working in the Department in 2012 on a joint appointment with the Department of Biomedical Engineering in the College of Engineering. Dr. Schnieders received his DSc in Biomedical Engineering from Washington University in St. Louis, MO and completed postdoctoral fellowships with Dr. Vijay Pande at Stanford University and Dr. Pengyu Ren at the University of Texas, Austin. Dr. Schnieders has achieved national and international recognition as a scholar in computational biochemistry and genome informatics.



Eric Taylor has been promoted to **Associate Professor of Biochemistry** with tenure. Dr. Taylor began working in the Department in 2012 after completing his PhD in Physiology, Biochemistry & Metabolism from Brigham Young University and postdoctoral fellowships at Harvard Medical School and the University of Utah where he was promoted to Research Instructor in 2011. Dr. Taylor was named Director of the Metabolomics Core Facility in the Fraternal Order of Eagles Diabetes Research Center in 2017. Dr. Taylor has achieved national and international recognition as a scholar in translation cellular and mitochondrial biological research.

FACULTY HONORS



Daniel Weeks has been appointed as the **Dr. Harold A. Myers Professor in the Basic Sciences**. This three year professorship, effective August 1, 2018, was established to support a PhD faculty member who exhibits exemplary skill and passion for the teaching of medical students and who is a leader in understanding and developing new methods of medical education. This well-

deserved honor is a testament to Dr. Week's outstanding commitment and dedication to the education of graduate students and postdoctoral fellows.

Dr. Weeks also received the **2017 Faculty Service Award** from the Carver College of Medicine (CCOM). Dr. Weeks has dedicated three decades of service to CCOM. Of special note is Dr. Weeks' strong dedication to curriculum development, serving on the Medical Education and Curriculum Committee from 1989-2003 and the CCOM Curriculum Review/Steering Committee from 2014 – present. CCOM's recent re-accreditation and the success of the New Horizons Curriculum are due in part to his tireless efforts.



Ernesto Fuentes has been named the **Director of Graduate Studies in the Department of Biochemistry**, after a remarkable 17 years of service in leading the PhD program from Dr. **Daniel Weeks**. Dr. Fuentes joined the Department as an Assistant Professor in 2006 and was promoted to Associate Professor in 2014. A terrific colleague, Dr. Fuentes has been heavily invested in the recruitment, retention, and mentorship of underrepresented minorities at the University of Iowa. He has initiated new innovative programs, served as a key participant in existing programs, and joined national organizations bringing visibility to the University of Iowa.

Dr. Fuentes also received a **2017 Carver College of Medicine Collegiate Teaching Award**. Dr. Fuentes' didactic teaching has included an unusually wide range of topics such as protein structure analysis, enzyme kinetics and molecular biology. Whether it is in a classroom, conference room, or at a laboratory bench, his primary goal is to make sure that students understand concepts of biochemistry and their research projects.



Marc Wold received the **2018 Honors Advising Award**. The University of Iowa Honors Program recognizes one advisor each year who distinguish themselves in advising honors students. Dr. Wold is a thoughtful advocate for honors education who demonstrates an authentic and intentional investment in developing scholars at the undergraduate level.



Michael Schnieders received the University of Iowa Honors Program's **2018 Scholar Advocate Award**. Dr. Schnieders is a lively advocate whose personal experience with honors education and the fellowship process fuels an authentic and intentional investment in developing scholars at both the undergraduate and graduate level.

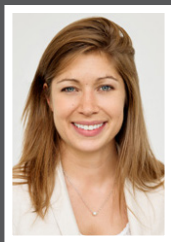


Miles Pufall received the **2017 Donald D. Dorfman Award** for his paper entitled "Suppression of B-cell development genes is key to glucocorticoid efficacy in treatment of acute lymphoblastic leukemia," published in the June 2017 issue of *Blood*. The Dorfman Award is given annually to the best research papers in leukemia and lymphoma research among members of the Holden Comprehensive Cancer Center.

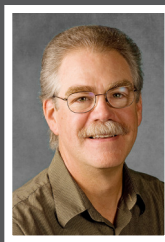


Lokesh Gakhar has been promoted to **Adjunct Associate Professor of Biochemistry**. Dr. Gakhar has been the Director of the Protein Crystallography Core Facility in the Carver College of Medicine since 2009 and joined the Department in 2012. Dr. Gakhar has achieved national and international recognition as a scholar in x-ray crystallography.

Newly Awarded Grants



Catherine Musselman
Molecular mechanisms of histone signaling in a chromatin relevant context
National Institutes of Health R35, 2018 - 2023



David Price
RNA Polymerase II Elongation Control
National Institutes of Health R35, 2018 - 2023

Transcriptional mechanisms controlling HCMV infection
National Institutes of Health R01 with Dr. Jeffrey Meier (Int. Med.), 2017 - 2019



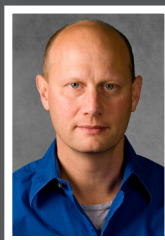
Daniel Weeks
Amyloids, aggregates and nucleolar activity in Xenopus development
National Institutes of Health R01, 2018 - 2023



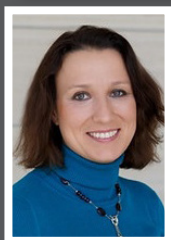
Michael Schnieders
Chemical theory for the protein crystal folding problem
National Science Foundation CAREER Award, 2018 - 2023



M. Todd Washington
Mechanisms of damaged DNA replication in eukaryotes
National Institutes of Health R01, Competitive Renewal, 2018 - 2023



Ernesto Fuentes
PAS domain and redox regulation of the S. aureus SrrB sensor histidine kinase
National Institutes of Health R21, 2018 - 2020



Maria Spies
G4-TIRFM, a platform for massively parallel analysis of non-canonical DNA structures
National Science Foundation EAGER Award, 2018 - 2020

POSTDOCTORAL ACHIEVEMENTS



Adam Rauckhorst (Taylor laboratory) received an **American Diabetes Association grant**. The goal of Dr. Rauckhorst's project entitled "Regulation of hepatic glucose metabolism by a candidate mitochondrial glutamine carrier," is to use novel genetically engineered mice harboring a liver specific deletion of the mitochondrial glutamine carrier to study its function during the progression of Type 2 Diabetes.

Kathryn Spitler (Davies laboratory) received the **Onsite Trainee Poster Award** at the September 2018 **American Heart Association Council on Hypertension** scientific session in Chicago, IL for her poster entitled "Adipose-Specific Deletion of Angiotensin-like 4 Protects Against High Fat Diet Induced Dyslipidemia."

Po Hien Ear, formerly in the Brenner laboratory, received a **Career Enhancement Award from the Neuroendocrine Tumor Specialized Program of Research Excellence** for her project entitled "Identification of novel therapeutic interventions for neuroendocrine." Dr. Ear is currently a Research Scientist in Dr. James Howe's laboratory in the Department of Surgery at the University of Iowa.

Emma Morrison (Musselman laboratory) was **first author on an April 2018 eLife article** entitled "The conformation of the histone H3 tail inhibits association of the BPTF PHD finger with the nucleosome," which demonstrates that the nucleosome context has a dramatic impact on signaling events at the histone tails, and highlights the importance of studying histone binding in the context of the nucleosome.



GRADUATE STUDENT NEWS

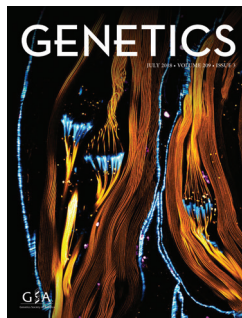


Jennifer Bays (2017 PhD, DeMali laboratory) received the **2018 Subramanian Award** for best PhD thesis in the Department of Biochemistry for her thesis entitled “Mechanisms of E-cadherin Mechanotransduction.” Jennifer is the 23rd winner of the Subramanian Award. Jennifer was also awarded the **2018 Clarence Berg Award** which is given biennially in honor

of our former Professor Clarence P. Berg to the graduate student who demonstrates “scholarship, integrity, cooperativeness, consideration and a willingness to help others.” Jennifer is currently a postdoctoral fellow in Dr. Christopher Chen’s laboratory at Boston University.

Samuel Trammell (2016 Genetics PhD, Brenner laboratory) received the **2018 Marion Dave Francis Innovator Award** which recognizes a PhD student whose research has demonstrated their singular personal initiative, creativity, and resulting continuous discovery, as exemplified by Dr. Francis. Sam’s PhD work greatly advanced methodology and our understanding of regulation and dysregulation of NAD metabolism in health and disease. Sam is currently a postdoctoral fellow in the laboratory of Dr. Matthew Gillium at the University of Copenhagen in Denmark.

Three students received **American Heart Association Predoctoral Fellowships** funded at the maximum amount for two full years: **Kelli Sylvers** (Davies laboratory) for her project entitled “Lipase inhibition by ANGPTL3 and ANGPTL8,” **Hannah Campbell** (DeMali laboratory) for her project entitled “Force-induced apoptosis and the mechanoprotective role of PAK2,” and **Brittany Ripley** (Washington laboratory) for her project entitled “RAD6-18, the master regulator of translesion synthesis.”



An image by **Tingting Duan** (Geyer laboratory) was featured on the **July 2018 cover of *Genetics***. The image was taken using a confocal microscope and shows a *Drosophila* 7-day testis. Tingting was first author of the corresponding article entitled “Spermiogenesis and Male Fertility Require the Function of Suppressor of Hairy-Wing in Somatic Cyst Cells

of *Drosophila*,” which shows that *Drosophila* Suppressor of Hairy-wing [Su(Hw)] is required in testis cyst cells for sustained male fertility. Additionally, the studies build evidence that the prominent function of Su(Hw) at non-gypsy binding sites is as a transcriptional repressor, with its loss causing cell-specific changes in gene expression.



L to R: Maria Spies, Chris Vakulskas, Colleen Caldwell, Christopher Ball, Kelli Sylvers, David Price, Brandon Davies and Mark Belke.

On August 28th, 2018 Integrated DNA Technologies (IDT) hosted a symposium featuring three of the Department’s previous IDT Fellows: **Colleen Caldwell** (Maria Spies laboratory), **Kelli Sylvers** (Davies laboratory) and **Christopher Ball** (Price laboratory). The symposium included a lunch with the IDT

research team, IDT Fellow research presentations, a presentation from Chris Vakulskas, PhD on “What is it like to work in industry,” and a tour of the IDT main oligo manufacturing plant.

IDT & SMITH-GEHRING FELLOWSHIPS

The IDT and Smith-Gehring Graduate Fellowships are awarded to three of the most meritorious second year Biochemistry graduate students based on academic and research achievements. The IDT Graduate Fellowships were established through a gift made by **Joseph Walder**, Adjunct Professor of Biochemistry. Dr. Walder started his independent research career as a faculty member in the Department in 1978 and launched Integrated DNA Technologies in 1987. The **2018 IDT Graduate Fellows** are **Zachary Wehrspan** and **Harrison Fuchs**.

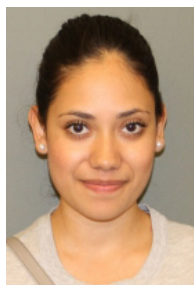


Zachary Wehrspan graduated with a BS in Biochemistry and a minor in Economics from the University of Iowa in 2017, where he engaged in research in the laboratory of Dr. **Ronald Weigel**. Following an impressive first year in the graduate program, Mr. Wehrspan entered Dr. **Adrian Elcock's** lab where he works on developing realistic 3D models of *E. coli* via computational methods. The goal of Mr. Wehrspan's research is to better understand various biological systems by modeling them on a cellular scale and hopes to productively contribute to the scientific discussion regarding the modeling of cells.

Harrison Fuchs graduated with BS in Biochemistry from the College of St. Scholastica in Duluth, MN in 2017. Mr. Fuchs had an outstanding first year in the graduate program and is now training in the laboratory of Dr. **Catherine Musselman**. Mr. Fuchs research is aimed at studying the impact of lysine acetylation on histone tail dynamics in the context of the nucleosome and the implications of this in effector domain recruitment. These studies will help us understand fundamental mechanisms of chromatin signaling and genome regulation, and provide insight into a variety of epigenetic disease mechanisms.



The Smith-Gehring Fellowship was established through a gift made in memory of Dr. **Elizabeth K. Smith**, a 1943 PhD in Biochemistry, and from the gift of Dr. **Lois Bigger Gehring**, a great friend of the Department of Biochemistry. The **2018 Smith-Gehring Graduate Fellow** is **Maria Nunez Hernandez**.



Maria Nunez Hernandez graduated with a BS in Biochemistry from the University of Iowa in 2017, where she conducted research in the laboratory of Dr. **Madeline Shea**. Her work studying the structure of calmodulin binding by nuclear magnetic resonance culminated in a publication in the Fall of 2017. Ms. Nunez Hernandez had an extremely productive first year. Her rotation work resulted in a paper under review and she was awarded a position on the Predoctoral Training Grant in the Pharmacological Sciences. She has joined the lab of Dr. **Miles Pufall** studying how the glucocorticoid receptor integrates signals to regulate transcription. The goal of Ms. Nunez Hernandez's research is to understand how phosphorylation of GR by Erk2 inhibits its function.

Recent Graduates

Shuxiang Li
(Elcock Laboratory)
Postdoctoral fellow with Dr. Wilma Olson
Rutgers University, New Brunswick, NJ

Liyang Zhang
(Pufall Laboratory)
Integrated DNA Technologies, Coralville, IA

Quinn Li
(Ashley Spies Laboratory)

Emily Malcolm Cushing
(Davies Laboratory)
Postdoctoral fellow with Dr. Brandon Davies
University of Iowa, Iowa City, IA

Mark Miller
(Elcock Laboratory)
Chemistry and Physics Teacher
Iowa Mennonite School, Kalona, IA



UNDERGRADUATE SPOTLIGHT



L to R: Tien Thuy (Jane) Nguyen and UI President J. Bruce Harreld.

Tien Thuy (Jane) Nguyen (Wold laboratory) was awarded a **Hancher-Finkbine Undergraduate Student Medallion** which recognizes leadership, learning and loyalty. Ms. Nguyen is an active leader, participant, and co-founder of the Conversation Center, an integrated learning platform designed to provide non-confident English speakers the opportunity to explore and better understand the English language. Ms. Nguyen has participated in more than 800 hours of undergraduate independent research focusing on ‘Replication Protein A and its effect on DNA repair.’ She exemplifies leadership not only in the classroom but also in her extracurricular activities. As president and co-founder of Alpha Kappa Delta Phi, Ms. Nguyen has played an integral part in the organization’s accomplishments, including achieving active status in the Multicultural Greek Council, establishing the Chapter Alumnae Association, and hosting campus-wide workshops aimed at increasing mental health awareness within the Asian community. In 2017, Ms. Nguyen was awarded the **T. Anne Cleary Scholarship** and the **Helen Reich Scholarship** for her scholarship, leadership, and service.

Jesse Cochran (Dale Abel laboratory), **Abinav Jyotis** (Parker laboratory), **Ariel Kopel** (Baker laboratory), **Brianna Lupo** (Musselman laboratory) and **Johnathan Melvin** were awarded **2018 Rex Montgomery Scholarship Awards** for their outstanding academic record and commitment to research.

Titus Hou (Fuentes laboratory) was awarded the **2018 Montgomery Scholars Prize** for his outstanding research, accomplishments and outstanding presentation at the 2018 Lata Symposium.

Steven Huang (Fuentes laboratory) was presented with the **H.G. Wittmann Scholar Award** and **Laura Fischer** (Wold laboratory) was presented with the **H.G. Khorana Scholar Award** at the 2018 Lata Symposium, recognizing their exceptional understanding of biochemistry and its value to society.

Lance Heady (Pieper laboratory) and **Alora Kraus** (Taylor laboratory) were recognized by the Honors program as **Honors at Iowa Scholars**. This high recognition acclaims student work in and beyond the classroom, with an emphasis on the applicant’s knowledge, skill, and experience as well as outstanding academic performance, excellence within their chosen discipline(s), and any contributions made to the Honors Program and the University of Iowa community through performance, research, organizational leadership, volunteer service and intellectual or creative engagement.

Amy Evans (Baker laboratory) was awarded a **Fight for Sight 2018 Summer Student Fellowship**, a competitive award given to junior students so that they can engage in 2-3 months of full time research. Ms. Evans conducts research in the Baker Lab where she is learning a suite of molecular biology approaches to investigate the subcellular trafficking of HCN1, an ion channel important for regulating neuronal activity.

LATA RESEARCH SYMPOSIUM

Ten Biochemistry Honors students presented research at the 14th Annual **Gene F. Lata** Undergraduate Research Symposium.

Preston Anderson (Engelhardt laboratory) presented on “Submucosal Gland Myoepithelial Cells Are Reserve Stem Cells That Can Regenerate Mouse Tracheal Epithelium.” After graduation Preston plans to attend Duke University’s Medical Scientist Training Program.

Alexandra Bess (Fiegel laboratory) presented on “Protein Effects of BALF on Various Polystyrene Nanoparticles.” After graduation Alexandra plans to seek employment and hopes to attend graduate school in a few years.

Laura Fischer (Wold laboratory) presented on “A Potential Role of Alternative Replication Protein A in Huntington’s Disease Progression.” After graduation Laura plans to attend graduate school at Washington University in St. Louis, MO to pursue a PhD in Developmental, Regenerative and Stem Cell Biology.

Gabriel Fortunato (Kohen laboratory) presented on “Uncovering the Evolutionary Mechanism of Enzyme Catalysis.” After graduation Gabriel plans to continue doing research in the Kohen laboratory before applying to medical school.

Lance Heady (Pieper laboratory) presented on “A Neuron and it’s Survival: A Tale of Drug Discovery.” After graduation Lance plans to attend graduate school at the University of Texas Southwestern to pursue a PhD in Neuroscience.

Titus Hou (Fuentes laboratory) presented on “A Newly Identified Sub-Pocket That Plays a Unique Role in Scribble PDZ1–SGEF iPBM Interaction.” After graduation Titus plans to attend medical school at University of Illinois College of Medicine at Rockford, IL.



L to R: Steven Huang, Devin Reusch, Gabriel Fortunato, Alexandra Bass, Preston Anderson, Tien Thuy (Jane) Nguyen, Benjamin Spector, Laura Fischer, Titus Hou and Lance Heady.

Steven Huang (Fuentes laboratory) presented on “The Structural Characterization and Ligand Identification of the SrrB Cache Domain.” After graduation Steven plans to attend a research fellowship at the National Institute of Health before applying for medical school.

Tien Thuy (Jane) Nguyen (Wold laboratory) presented on “Diverse Interactions of the Multifunctional, Regulatory Domain of Replication Protein A.” After graduation Jane plans to continue working at Mercy Hospital in Iowa City and applying to medical school.

Devin Reusch (Washington laboratory) presented on “Polymerase Switching During Translesion Synthesis: A Tale of the Tail.” After graduation Devin will continue towards a PhD in Biochemistry at the University of Iowa.

Benjamin Spector (Price laboratory) presented on “Association of the Pol II CTD Phosphatase Ssu72 with Transcription Complexes.” After graduation Benjamin will continue doing research while deciding between graduate or medical school in the future.

BSURF

[Biochemistry Summer Undergraduate Research Fellowship]



Front row L to R: Nina Jovic, Alexis Neyman, Ashley Simpson. Back row L to R: Bintou Doumbia, Krista Bergquist, Anna Greenwood

BSURF, directed by **Peter Rubenstein**, is an opportunity for undergraduate students outside the University of Iowa to gain hands-on experience in an active research laboratory under the direction of an established scientist. Four BSURF students conducted research in Biochemistry labs this summer and presented their research at the Summer Undergraduate Research Conference, sponsored by the Graduate College. Krista Burgquist from Wartburg College worked with **Eric Taylor**, Ashley Simpson from Bay Path College worked with **Ernesto Fuentes**, Nina Jovic from University of Northern Iowa worked with **Maria Spies**, and Anna Greenwood from Saint Louis University worked with **Daniel Weeks**. Also joining in the BSURF activities were two students from Butler University, Alexis Neyman and Bintou Doumbia, who were summer research interns with **Miles Pufall**’s NSF CAREER grant.

FUTURE in Biomedicine

[Fostering Undergraduate Talent - Uniting Research and Education]

The FUTURE in BiomedicineSM program, directed by **Madeline Shea**, develops research and learning partnerships with professors from Iowa colleges that do not offer doctoral programs. Fostering Undergraduate Talent - Uniting Research and Education in Biomedicine: FUTURE opens University of Iowa laboratories to Iowa college professors and their undergraduates.

The 10th annual FUTURE program brought seven Faculty Fellows and nine student research assistants from primarily undergraduate institutions in Iowa to conduct research and pursue collaborations with UI faculty. Two Faculty Fellows and their students worked with Biochemistry hosts: Laura Hecker from Clarke University worked with **Lori Wallrath** and Bonnie Hall from Grand View University worked with **Miles Pufall**.



2018 FUTURE program participants.

ALUMNI ACCOMPLISHMENTS



Tristram Parslow, a 1983 MD/PhD with Dr. **Daryl Granner**, received a **2018 Carver College of Medicine Distinguished Alumni Award for Achievement**. Dr. Parslow has excelled in every aspect of his career—as a researcher, teacher, and department leader. His early work at the University of Iowa on immunoglobulin gene expression

addressed issues that stumped Nobel laureates and National Academy of Sciences members. In 2004 Dr. Parslow joined Emory University as Chair of the Department of Pathology. Today he continues to lead and mentor others in the field, both at Emory and as president of the Association of Pathology Chairs.



Liskin Swint-Kruse, a 1995 PhD with Dr. **Andrew Robertson**, has been named the **Interim Chair of Biochemistry and Molecular Biology** at the **University of Kansas Medical Center (KUMC)**. Dr. Swint-Kruse was recruited to the KUMC in 2004 after completing postdoctoral fellowships at Rice University and the University of Houston. She has developed a

successful and well-funded research program at KUMC that focuses on ways to improve genomics-based diagnoses for personalized medicine. These studies of protein structure-function also have applications in protein engineering for biotechnology and in transcriptional control of metabolism in pathogenic bacteria.

Lynne Dieckman, a 2013 Molecular and Cell Biology PhD with Dr. **M. Todd Washington** and Postdoctoral Fellow with Dr. **Catherine Musselman**, received a **Nebraska EPSCoR FIRST Award**. This one year NSF funded award is meant to help early career faculty compete for an NSF CAREER grant. Dr. Dieckman is currently an Assistant Professor in the Department of Chemistry at Creighton University.

Lacy Barton, a 2014 PhD with Dr. **Pamela Geyer**, was featured in a Genetics Society of America Genes to Genomes **“Early Career Leadership Spotlight”** blog post. Dr. Barton is currently a Damon Runyon Postdoctoral Fellow at New York University, Skirball Institute of Biomolecular Medicine. She is a member of the Genetics Society of America’s Early Career Scientist Leadership Program where she focuses on science policy and emphasizes the importance of foundational research and strives to bolster public support for government-sponsored funding.

Sarah Hengel, 2017 PhD with Dr. **Maria Spies**, was awarded a two-year Diversity Supplement as part of NIH R01 entitled “Replication Fork Dynamics and Repair by RAD51 paralogues after DNA Alkylation.” Dr. Hengel is currently a postdoctoral fellow at the University of Pittsburgh School of Medicine studying DNA repair and cancer with Dr. Kara Bernstein. In this study, Dr. Hengel aims to prevent cancer for people harboring mutations in the DNA repair genes called the RAD51 paralogues by determining what environmental factors contribute to who may develop cancer.

ALUMNI CONTINUED

Rainbo Hultman, a 2002 BS with Dr. **Madeline Shea**, will begin her independent career as an **Assistant Professor in the Department of Molecular Physiology & Biophysics** and the **Iowa Neurosciences Institute** at the **University of Iowa** in January 2019. Dr. Hultman received her PhD in Biochemistry from Duke University in 2011 where she continued until 2018 as a postdoctoral associate in the laboratories of Drs. Herb Covington and Kafui Dzirasa. Dr. Hultman plans to develop a research program aimed at identifying molecular drivers of specific depression-related neural circuit activities with the goal of paving a way for precision medicine for depressive disorders.



Juanita Limas, a 1999 BS with Dr. **Lori Wallrath**, was awarded the prestigious **2018 Howard Hughes Medical Institute Gilliam Fellowship** which provides \$50,000 to support biomedical research. Juanita is currently performing research on cell cycle control in cancer in the laboratory of Dr. Jean Cook at the University of North Carolina.

Joseph Lechner, a 1977 PhD with Dr. **George Kalnitsky**, retired in May 2018 as Professor of Chemistry and Chair of the Department of Chemistry and Physical Science at Mount Vernon Nazarene University in Mount Vernon, OH where he has taught since 1979.

GIFT GIVING

Biochemistry's representative at the University of Iowa Center for Advancement is **Madelynn Krall**. Madelynn is an Iowa City native and an alumna of the University of Iowa.

Private support, which has always been important for the Department, is critical today as state and national funding become increasingly difficult to secure. With help from private supporters, we can provide scholarships to graduate students and postdocs; invest in new, state-of-the-art equipment; fund seminar series and lectureships; and attract and retain outstanding faculty members. These generous gifts are the lifeline for our advancement and have never been more important.

Madelynn is available as a resource for friends of the department who are considering an outright or estate gift to Biochemistry. Madelynn travels extensively, and would be happy to talk with alumni and friends of the department by phone (800-648-6973) or by email (madelynn.krall@foriowa.org) about contributions to existing funds or initiatives, such as our campaign to endow graduate education.



Department of Biochemistry

BIOCHEMISTRY FACULTY

Charles Brenner, Head
Lori Wallrath, Vice Chair
E. Dale Abel
Ted Abel
Sheila Baker
John Dagle
Brandon Davies
Kris DeMali
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Pamela Geyer
Catherine Musselman
Andrew Norris
David Price
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Michael Schnieders
Madeline Shea
Maria Spies
M. Ashley Spies
Eric Taylor
M. Todd Washington
Daniel Weeks
Ronald Weigel
Marc Wold

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