

BIOCHEMISTRY

@ IOWA

Fall 2017

Message from the Head

Dear Friends of Iowa Biochemistry,

The second law of thermodynamics mandates that entropy cannot decrease in isolated systems. How then is life possible? How is it that living things can keep enough organization to be alive and reproduce? Two of the key concepts are that life requires energy inputs and that living things have homeostatic properties that utilize a great deal of their energy inputs to maintain order.

Life depends on many linked sets of fuel-dependent reactions that bear some resemblance to beautiful water sculptures. In order to get the water to the specific high energy places from which it flows down, there are pumps that channel the water up. Turbulence is minimized in sustainable water sculptures and resiliency is built in to allow the systems to continue to flow at a range of temperatures and wind conditions. Beautiful as they are, water sculptures are

“Each of us has been given an amazing opportunity to contribute to biochemical scholarship, education and service... Let’s give it our best while our systems are still working!”

simple compared to living organisms. Living things possess amazingly intricate mechanisms to maintain flow and order.

At one time, biologists used to refer to particular cellular functions as being carried out by the disparaging term “housekeeping enzymes.” But how would you like to work in a kitchen, an operating room, a laboratory or an office with no housekeeping? Such environments are neither efficient nor sustainable. Whether our kitchen has a housekeeper or not, creative work in the kitchen depends on housekeeping.

We know now that deficiencies in lysosomal enzymes are characterized by multi-organ dysfunction, that deficiency in superoxide dismutase can produce amyotrophic lateral sclerosis, and that enzymes that carry out housekeeping functions contribute in powerful ways to homeostasis. So, it’s best not to disparage housekeeping. Every enzyme does its part.

Sadly, there is a time in the cycle of life at which we start to lose our resiliency. At the organismal level, for example, we need skeletal muscle to dispose of postprandial glucose. Over time, we degrade skeletal muscle at a faster pace than we can rebuild it. The same sorts of decline occur in our cells. Proteins,



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

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Biochemistry's 70th Anniversary!

Save the date: August 25, 2018

Mark your calendars for the Department of Biochemistry's 70th Anniversary and 9th Annual Retreat featuring a special session with former department heads Drs. **Alan Goodridge** and **Arthur Spector**. The event will be held at the recently rebuilt Hancher Auditorium.

Continued from cover

lipids and mitochondrial genomes are damaged, repair processes slow, and housekeeping isn't what it used to be. We will each reach the end of our living days. Upon death, we no longer acquire the energy inputs to resist entropy and our bodies rapidly degenerate.

What is the moral to this story? Each of us has been given an amazing opportunity to contribute to biochemical scholarship, education and service in a physical vessel that is not a closed system and whose days are limited. Let's give it our best while our systems are still working!

Best,

Primary Biochemistry Faculty pictured below. Row 1, L to R: Todd Washington, Peter Rubenstein, Charles Brenner, Sheila Baker, Miles Pufall. Row 2: Maria Spies, Eric Taylor, Michael Schnieders, Brandon Davies, Kris DeMali, Pamela Geyer, Ernesto Fuentes. Row 3: Marc Wold, David Price, Adrian Elcock, Madeline Shea, Daniel Weeks. Not pictured: Catherine Musselman, Ashley Spies and Lori Wallrath.



FACULTY HONORS



Sheila Baker has been promoted to **Associate Professor of Biochemistry and Ophthalmology & Visual Sciences**. Dr. Baker began working in the Department of Biochemistry in July 2010 after conducting a postdoctoral fellowship at Harvard and Duke. Since joining the Department, Dr. Baker has established a vigorous program that has dissected formation

of photoreceptor synaptic ribbons and localization of hyperpolarization-activated cyclic nucleotide-gated channels in the retina.

Peter Rubenstein received the **2017 Michael J. Brody Award** for Faculty Excellence in Service which recognizes outstanding faculty who have made exceptionally effective contributions to the University of Iowa and the community. Through service, teaching and scholarship, Dr. Rubenstein has continually strived to make the University of Iowa a forerunner in education and training at the undergraduate, graduate and professional level. He has been a long-standing leader in faculty governance and played a significant role in curriculum development.



Kris DeMali received the **2017 Honors Thesis Mentor Award**, which acknowledges the critical and central role honors thesis or project mentors perform. Each year the University of Iowa Honors Program selects a single faculty member to recognize with this honor, which is driven by student nominations.

Dr. DeMali was also elected as the next **Vice-Chair of the 2019 Gordon Research Conference**

on Cell Contact and Adhesion to be held in Les Diablerets, Switzerland. She will Chair the meeting in 2021.



Marc Wold received the **2016 John P. Long Teaching Award** in the Basic Sciences, which recognizes outstanding career-level teaching contributions by the basic science faculty. Dr. Wold has taught tens of thousands of students at all educational levels for over 25 years at the University of Iowa.

Following in the footsteps of **Arthur Spector** (1999), **Peter Rubenstein** (2001), **Madeline Shea** (2009) and **Daniel Weeks** (2011) this was the fifth time a biochemist has received this honor.

Madeline Shea received the **2018 Emily M. Gray Award** from the **Biophysical Society** for her outstanding contributions to education in biophysics at all educational levels in local, regional, and national communities. Dr. Shea was nominated by Dr. Dorothy Beckett, former President of the Society, and Dr. Amy Lee, Assistant Dean for Research in the Carver College of Medicine. Dr. Lee noted in her nomination letter that Dr. Shea has “continuously set new standards of excellence for teaching in the classroom and the research laboratory, developed novel educational methods, promoted scientific outreach statewide and nationally, attracted new students to biophysics, and fostered an environment that is contagiously optimistic about education in biophysics.”



Eric Taylor was named **Director of the FOEDRC Metabolomics Core Facility**. This facility will expand existing metabolomics capabilities at the University. Dr. Taylor’s deep, multidisciplinary understanding of metabolism and outstanding track record of publications and extramural funding has enabled him to articulate a vision that will lead this new core facility to success.

Publication Highlights

» Adrian Elcock, PhD
“Features of genomic organization in a nucleotide-resolution molecular model of the *Escherichia coli* chromosome”
Nucleic Acid Research, July 2017
Graduate students **William Hacker** and **Shuxiang Li** were first authors of this work.
#1 tweeted NAR paper in history.

» Kris DeMali, PhD
“Linking E-cadherin mechanotransduction to cell metabolism through force-mediated activation of AMPK”
Nature Cell Biology, January 2017
Former graduate student **Jennifer Bays** was first author of this work.
News and Views review by Tadamoto Isogai, Jin Suk Park & Gaudenz Danuser.

» Charles Brenner, PhD
“Nicotinamide riboside is uniquely and orally bioavailable in mice and humans”
Nature Communications, October 2016
Former Genetics graduate student **Samuel Trammell** was first author of this work.
First clinical trial on the effects of NR in humans.

» Catherine Musselman, PhD
“DNA binding drives the association of BRG1/hBRM bromodomains with nucleosomes”
Nature Communications, July 2017
Postdoctoral fellow **Emma Morrison** was first author of this work.
Showed that BRG1 and hBRM directly bind DNA.

» Miles Pufall, PhD
“Suppression of B-cell development genes is key to glucocorticoid efficacy in treatment of acute lymphoblastic leukemia”
Blood, June 2017
Former Graduate Student **Karina Kruth** was first author of this work.
Identified PI3K as a molecular target in B-ALL.

DISTINGUISHED ALUMNI AWARD



Joseph Walder, Adjunct Professor of Biochemistry, received the **2017 Distinguished Alumni Award for Friendship**, which is granted to individuals, not necessarily alumni, for support of and dedication to the University of Iowa Carver College of Medicine and its missions of education, research and service. Dr. Walder started his independent research career as a faculty member in the Department in 1978 and launched Integrated DNA Technologies (IDT) in 1987.

A passionate researcher, visionary, entrepreneur, and philanthropist, Dr. Joseph Walder continues to make an indelible mark on the University of Iowa and the world through exciting breakthroughs in biology and medicine. IDT is the world leader in delivering genomic solutions for the life sciences market in the areas of academic research, medical diagnostics, biotechnology, agriculture, and pharmaceutical development. Dr. Walder and his company have given generously to support programs in Pediatrics and Biochemistry.

DEPARTMENTAL OUTREACH

Iowa “DIY Scientist” **Jill Viles** recently visited **Lori Wallrath’s** laboratory. Jill has a rare type of muscular dystrophy and lipodystrophy due to a mutation in the LMNA gene encoding nuclear envelope proteins called lamins. The Wallrath lab studies how mutant lamins cause muscle disease. They are currently collaborating to identify genes that modulate the severity of the muscular dystrophy.

Jill was the focus of an NPR “This American Life” podcast in which her powers of observation saved the life of a Canadian Olympic medalist. She has been a driving force, connecting researchers and clinicians around the globe to make progress towards treatments for Emery-Dreifuss muscular dystrophy. A gofundme page (<https://www.gofundme.com/yyhtu45g>) collects donations to support whole genomic sequencing to identify modifier genes.



L to R: Gary Coombs, Lori Wallrath, Jill Viles, Ashley Goll and Jill's mother Mary.

NEWLY AWARDED NIH GRANTS



Adrian Elcock, PhD
Molecular Simulations of the Cell
National Institutes of Health R35
(MIRA), 2017 - 2022



M. Ashley Spies, PhD
*Exploiting Enzyme Plasticity in Drug
Discovery: application to glutamate
racemase*
National Institutes of Health R01,
2017 - 2021



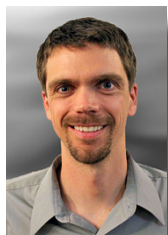
Sheila Baker, PhD
Protein Targeting in Vertebrate Photoreceptors
National Institutes of Health R01, 2017 - 2022

Calcium channels in retinal photoreceptors
National Institutes of Health R01 with Dr. Amy Lee (Physiology), 2017 - 2022



Michael Schnieders, PhD
Optimizing Genetic Testing for Deafness for Clinical Diagnostics
National Institutes of Health R01 with Dr. Richard Smith (Otolaryngology), 2016 - 2021

C3 Glomerulopathy - A Collaborative Study
National Institutes of Health R01 with Dr. Richard Smith (Otolaryngology), 2017 - 2022



Brandon Davies, PhD
An Investigation of ANGPTL8's Function, Mechanism and Therapeutic Potential
National Institutes of Health R01 with Dr. Ren Zhang (Wayne State University) , 2017 - 2022

POSTDOCTORAL ACHIEVEMENTS



Ryan Sheldon

Ryan Sheldon (Taylor laboratory) received an **F32 Postdoctoral Fellowship** awarded by the National Institute of Diabetes and Digestive and Kidney Diseases. Dr. Sheldon's project entitled "Regulation of Hepatic Lipogenesis by a Mitochondrial Pyruvate Carrier-Citrate Carrier Axis," addresses the major public health problem of hyperlipidemia during Type 2 Diabetes.

Kyle Nilson (Price laboratory) received a **most outstanding entry** for the **Carver College of Medicine Health Sciences Research Week** poster competition for his poster entitled "Oxidative stress rapidly stabilizes promoter-proximal paused RNA polymerase II across the human genome."

Po Hien Ear (Brenner laboratory) and **Adam Rauckhorst** (Taylor laboratory) were two of three **poster winners** at the **2016 FOEDRC Retreat** for their posters entitled "Nicotinamide riboside promotes maternal and neonatal health benefits" and "Novel mechanisms regulating mitochondrial glutamine metabolism," respectively.



GRADUATE STUDENT NEWS



Elizabeth Boehm

Elizabeth Boehm (2016 PhD, Washington laboratory) received the **2017 Marion Dave Francis Innovator Award** which recognizes a PhD student trained in a Biochemistry laboratory whose research has demonstrated their singular personal initiative, creativity, and resulting discontinuous discovery.

Elizabeth also received the **2017 Subramanian Award** for best PhD thesis in the Department of Biochemistry for her thesis entitled “The regulation of translesion synthesis through binding and activation of polymerases by PCNA.” Elizabeth is currently a post-doctoral research associate at Harvard Medical School working with Professor Johannes Walter, a leader in the DNA replication and repair field.

Lacy Barton (2014 PhD, Geyer laboratory) was awarded the **2016 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.” Lacy is currently a postdoctoral fellow in Ruth Lehmann’s laboratory at New York University School of Medicine in New York, NY.

Samuel Trammell (2016 Genetics PhD, Brenner laboratory) received a **Graduate Deans’ Distinguished Dissertation Award**, which is made only occasionally and recognizes exceptionally meritorious scholarship, for his thesis entitled “Novel NAD⁺ Metabolomics Technologies and Their Applications to Nicotinamide Riboside Interventions.” Sam is currently a postdoctoral fellow at the University of Copenhagen with Dr. Matthew Gillium working on lipid metabolism in diabetes.

Melissa Gildenberg (MSTP Student, Washington laboratory) received an **F30 Predoctoral Fellowship**

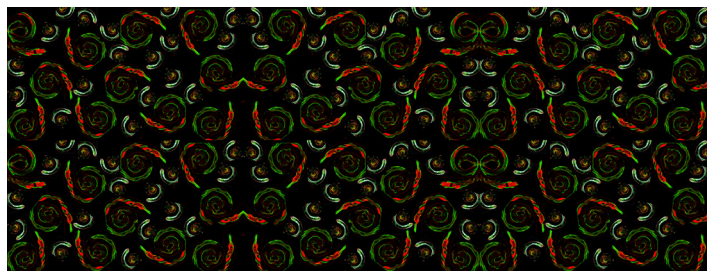
awarded by the National Institutes of Health for her project entitled “Investigation of Rad5 Structure and Function in Error-Free Template Switching.”

Arpit Sharma (Taylor laboratory) won **best poster** in the pre-doctoral category at the **FOEDRC Research Day** for his poster entitled “Loss of Skeletal Muscle Mpc1 in Mice Stimulates Fatty Acid Oxidation, Nitrogen Retention, and Leanness.”

Colten Lankford (Molecular Medicine Student, Baker laboratory) received **travel awards** from both FASEB and the Molecular Medicine program to attend the **FASEB summer conference on the Biology and Chemistry of Vision**. Colten presented a Data Blitz and poster titled “Identification of HCN1 as a novel 14-3-3 client protein.”

Mark Miller (Elcock laboratory) **interned** as a member of the force field development team for the **computational drug design company, Schrödinger**, in New York, NY, over the summer. His research project was to test how well their simulation force field could accurately predict the low-energy conformations of small, drug-like molecules, and implement modifications when the conformations were found to be incorrect.

Tingting Duan (Geyer laboratory) won **second place** in the **Art in Science Competition** at the **Iowa Microscopy Society Fall Symposium** for her image of a tetis carpet “[drew] out beauty on an extremely small scale.”



Duan image.

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 **2017 IDT Graduate Fellows** are **Kelli Sylvers** and **Christopher Ball**:



Kelli Sylvers had an extremely productive first year in the graduate program and made significant scientific progress. Her rotation work has already contributed to one research paper. Ms. Sylvers grew up in Coon Rapids, Minnesota and graduated with a BS in Biochemistry and a BA in Biology from The College of St. Scholastica in Duluth, MN in May 2016. Ms. Sylvers is training in the laboratory of Dr. **Brandon Davies**. The goals of Ms. Sylvers research are to understand the interactions between ANGPTL3 and ANGPTL8, characterize the mechanisms by which they inhibit lipoprotein lipase and endothelial lipase, and to identify small molecules that can disrupt the action of ANGPTL3 and ANGPTL8 complexes.



Christopher Ball had an outstanding first year. During his rotations, he got up to speed quickly in each of the three very different research environments and was able to contribute intellectually to each project. Mr. Ball graduated with a BS in Chemistry from the University of North Carolina in Chapel Hill, NC in May 2013. Mr. Ball entered Dr. **David Price**'s lab in the Spring and has begun several projects aimed at understanding the regulation of transcription by human RNA polymerase II. Mr. Ball attended the Cold Spring Harbor Lab meeting on Transcriptional Mechanisms where he presented some of his first results demonstrating a rapid increase in transcribing RNA polymerase II in cells under oxidative stress.

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 **2017 Smith-Gehring Graduate Fellow** is **Alicia Ortiz**:



Alicia Ortiz excelled as a first year student in the Biochemistry graduate program, accumulating impressive academic and research credentials. She was awarded a position on the Predoctoral Training Grant in the Pharmacological Sciences. Ms. Ortiz graduated with a BS in Biochemistry from the University of Nebraska in Lincoln, NE in May 2015. Upon her recruitment to the University of Iowa, Alicia was named an Alfred P. Sloan Scholar, a fellowship awarded to promote the doctoral training of deserving US citizens from minority backgrounds. Ms. Ortiz will carry out her dissertation work in the laboratory of Dr. **Kris DeMali** and will focus her research efforts on understanding how epithelial cells sense and transmit forces in normal and cancer cells.

Recent Graduates

Jennifer Bays

(DeMali Laboratory)

Postdoctoral fellow with Dr. Chris Chen at Boston University
Boston, MA

Sarah Hengel

(Maria Spies Laboratory)

Postdoctoral fellow with Dr. Kara Bernstein at the University of Pittsburgh in the Hillman Cancer Center
Pittsburgh, PA

John Brogie

(Price Laboratory)

Postdoctoral fellow with Dr. Dipa Sashital at Iowa State University
Ames, IA

Xun (Allison) Chi

(Davies Laboratory)

Postdoctoral fellow with Dr. Steve Bensinger at the University of California Los Angeles
Los Angeles, CA



UNDERGRADUATE SPOTLIGHT



Nicholas McCarty

Nicholas McCarty (Dale Abel laboratory) was awarded a **nationally competitive Fulbright U.S. Student Program Grant**. The Fulbright Program is the flagship international educational exchange program sponsored by the U.S. government designed to increase understanding between the people of the USA and other countries by providing participants opportunities to study, teach, conduct research, and contribute to finding solutions to shared international concerns. Nicholas graduated with a BS in Biochemistry, Clinical Science, and Chemistry in May 2017. With his Fulbright Award, Nicholas will pursue a one-year Master of Research in Systems and Synthetic Biology at the Imperial College London in the United Kingdom. His project will focus on engineering *E. coli* and yeast to produce a variety of therapeutic molecules, including antibiotics, antioxidants, antitumor agents, and appetite-suppression hormones.

Nicholas was also awarded the **2017 Montgomery Biochemistry Scholar's Prize Award** for his outstanding research accomplishments and excellent presentation at the 2017 Lata Symposium.

Laura Fischer (Wold laboratory), **Titus Hou** (Fuentes laboratory), **Sophia Vogeler** (Brenner laboratory) and **Peter Addo** (Weigel laboratory) were awarded **2017 Rex Montgomery Scholarship Awards** for their outstanding academic record and commitment to research.

Nicholas Mullen (Price laboratory) was presented with the **H.G. Wittmann Scholar Award** and **Emily Britt** was presented with the **H.G. Khorana Scholar Award** at the 2017 Lata Symposium, recognizing their exceptional understanding of biochemistry and its value to society.

Lance Heady (Pieper laboratory) and **Laura Fischer** (Wold laboratory) received **OVPRED Excellence in Undergraduate Research Awards**, which recognizes outstanding accomplishments in scholarly investigation, artistic creation, or performance by University of Iowa undergraduates.

Rachel Harder received the **J. Lynn Stoll Scholarship** for the 2017-2018 academic year. This scholarship is awarded annually by Women in Science and Engineering, a UI program that focuses on helping females in all the STEM majors.

Vijay Kamalumpundi (Taylor laboratory) was awarded an **ICRU summer fellowship** for his project entitled, "Metabolic Gradients in Mouse Liver Metabolism."

Lance Heady (Pieper laboratory) and **Steven Huang** (Fuentes Laboratory) presented **Scientific Outreach Projects** at the **Latham Science Engagement Initiative** Project Engage Showcase at the Iowa Memorial Union. Lance's project was on the impact of governmental funding on disease research. Steven's project was on developing virtual laboratory tours to make research more accessible to the general public.

Andrea Diaz (Maria Spies laboratory) was offered a **full-time position with Clorox Company** as a scientist in the company's research and development department after interning with the company in the summer of 2016. Andrea credits her campus involvement and work experience with giving her the opportunities and skills she needed to make the most of her internship at Clorox.

LATA RESEARCH SYMPOSIUM

Eight Biochemistry Honors students presented research at the 13th Annual **Gene F. Lata** Undergraduate Research Symposium.

Emily Britt (Davies laboratory) presented on “Investigating the Interactions Between ANGPTL3, ANGPTL8, and Lipoprotein Lipase.” After graduation Emily plans to attend graduate school at the University of Wisconsin-Madison to pursue a PhD in Nutritional Biochemistry.

Sarah Gardner (Baker laboratory) presented on “Post-Synaptic Development of the First Visual Synapse.” After graduation Sarah plans to attend graduate school at the University of Illinois-Urbana-Champaign, College of Molecular and Cellular Biology.

Maria Núñez Hernandez (Shea laboratory) presented on “Calcium-Dependent Regulation of Calcineurin Activity.” After graduation Maria will continue towards a PhD in Biochemistry at the University of Iowa.

Nicholas McCarty (Dale Abel laboratory) presented on “Exploring Mechanisms by which the Insulin Responsive Glucose Transporter GLUT4 is Regulated in High-Fat Fed Hearts.” After graduation Nicholas plans to pursue a one-year MRes in Systems and Synthetic Biology at Imperial College London, followed by a PhD in Biological Engineering at a US institution.

Nicholas Mullen (Price laboratory) presented on “Oxidative Stress Reveals Mechanistic Insight into Human 5' mRNA Capping.” After graduation Nicholas plans to attend the MD/PhD program at the University of Nebraska Medical Center.



L to R: Emily Britt, Sarah Gardner, Zachary Wehrspan, Maria Núñez Hernandez, Maureen O'Connor, Sarah Van Dorin, Nicholas McCarty, Nicholas Mullen.

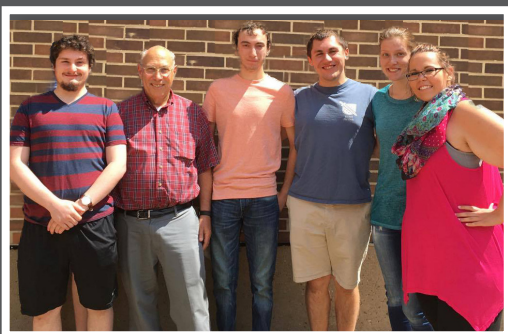
Maureen O'Connor (Wallrath laboratory) presented on “Lamin localization and genome integrity in rare types of muscular dystrophy.” After graduation Maureen plans to return home to Chicago, IL and apply to graduate schools for Fall 2018.

Sarah Van Dorin (Weigel laboratory) presented on “Role of TFAP2A in Transcriptional Regulation of Melanoma.” After graduation Sarah plans to attend medical school at the University of Iowa, Carver College of Medicine

Zachary Wehrspan (Weigel laboratory) presented on “TFAP2C orchestrates pH regulation in breast tumors, and its loss leads to EMT, facilitating the Warburg Effect.” After graduation Zachary will continue towards a PhD in Biochemistry at the University of Iowa.

BSURF

[Biochemistry Summer Undergraduate Research Fellowship]



L to R: Jacob Antony, Peter Rubenstein, Austin Moore, Matthew Moore, Ashley Anderson and Cassandra Johnson.

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. Ashley Anderson from Wartburg College worked with **Ashley Spies**, Jacob Antony from Whitworth University worked with **David Price**, Cassandra Johnson from Upper Iowa University worked with **Madeline Shea**, and Christian Jung from Vanderbilt University worked with **Catherine Musselman**.

Also joining in the BSURF activities were two students from Butler University, Austin Moore and Matthew Moore, who were summer research interns with **Miles Pufall's** NSF CAREER grant.

FUTURE in Biomedicine

[Fostering Undergraduate Talent - Uniting Research and Education]



L to R: 2017 FUTURE program participants.

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 9th annual FUTURE program brought 8 Faculty Fellows and 4 undergraduate students from primarily undergraduate institutions in Iowa to conduct research and pursue collaborations with UI faculty. Three Faculty Fellows worked with Biochemistry hosts: Adina Kilpatrick from Drake University worked with **Madeline Shea**; Gary Coombs from Waldorf University worked with **Lori Wallrath**; and Ali Tabei from Northern Iowa University worked with **Maria Spies**.

ALUMNI ACCOMPLISHMENTS



Billy G. Hudson, a 1966 PhD with Drs. **Rex Montgomery** and **Robert Barker**, is the recipient of the Protein Society's 2017 Carl Brändén Award which honors an outstanding protein scientist who has also made exceptional contributions in the areas of education and/or service to the field. Dr. Hudson is currently the Elliot V. Newman Professor of Medicine, Professor of Biochemistry, Cell and Developmental Biology, & Pathology, Microbiology and Immunology, as well as Director of the Center for Matrix Biology at Vanderbilt University.

Dr. Hudson has worked tirelessly to develop the Aspirnaut K-20 STEM Pipeline for Diversity Program that provides internships to an untapped pool of talented high-school students to encourage them to work in the STEM fields and go on to college. Dr. Hudson's outstanding research accomplishments include seminal discoveries about the structure and chemistry of collagen IV scaffolds in extracellular basement membranes and have led to a potential treatment of diabetic kidney disease.



Linda Sealy, a 1980 PhD with **Roger Chalkley**, has been named Associate Dean for Diversity, Equity and Inclusion for Basic Sciences at Vanderbilt University School of Medicine. Dr. Sealy is currently Associate Professor of Molecular Physiology and Biophysics, Cell and Developmental Biology and Cancer Biology, as well as Director of the Initiative for Maximizing Student Diversity (IMSD), a National Institutes of Health-sponsored grant for the graduate training of underrepresented minorities. Under her leadership, the IMSD program has propelled Vanderbilt to the top echelon of institutions training minority PhDs.

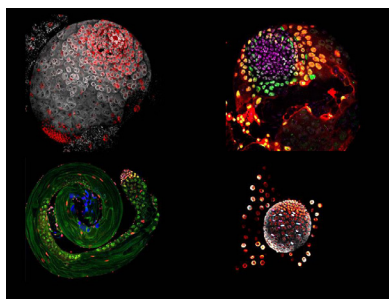
Dr. Sealy has won numerous awards for her contributions to diversity in graduate education, including the Levi Watkins Jr. Faculty Award for Promoting Diversity and the inaugural Bishop Joseph A. Johnson Jr. Distinguished Leadership Professor Award, named for the first African-American to be admitted and graduate from Vanderbilt University.

RETREAT HIGHLIGHTS

The Department of Biochemistry held its 8th Annual Retreat on August 26, 2017, in the Pomerantz Center on the University of Iowa Campus. The retreat's theme was "The Art of Science," featuring guest speaker, Deanne Wortman, Director of the Virginia A. Meyers NEXUS of Engineering and the Arts Program. The retreat also included talks by **Brittany Ripley** (Washington laboratory), **Pamela Geyer**, **Adam Rauckhorst** (Taylor laboratory), **Maria Spies** and 32 poster presentations.

There was a three way tie for first place in the Graduate Student/Postdoctoral Poster Competition: **Lalita Oonthonpan's** (Taylor laboratory) poster entitled "A conserved role for the MPC1 C-terminus in MPC complex assembly and function," **Emily Malcolm's** (Davies laboratory) poster entitled "GPIHBP1-independent mechanisms of triglyceride clearance," and **Arpit Sharma's** (Taylor laboratory) poster entitled "Loss of skeletal muscle MPC1 in mice stimulates fatty acid oxidation, leanness, and nitrogen retention."

Myles Young (Taylor laboratory) won the Undergraduate Poster Competition for his poster entitled "Nutritional-metabolic regulation of mitochondrial morphology." **Tingting Duan** (Geyer laboratory) won the Art Show Competition with her image "The Beauty of Drosophila."



Duan image.

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

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Catherine Musselman

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