Letter from the Director

Tradition and change!

Two sides of science as a coin of the realm. There has been no time in my scientific life when there has been more change afoot than we are now facing. Grants are scarce, the NIH wants to change the way students and faculty are paid, and most trainees never even aspire to a professorship.

Yet, oddly enough, there never has been more interest in the STEM disciplines as training for future careers. Several alumni featured in this issue are examples of the value a PhD brings to many different careers. I think its value is rooted in the rigor (tradition) and the innovation (change) that defines our training programs.

The 11th-annual Division Student Advisory Committee Research Symposium was held on Friday, January 10, 2014 at the Woodruff Health Sciences Administration Building. You can read about this wonderful tradition in this issue. Highlights include the winners of the poster and oral awards, along with those competing for the cover image in this year’s symposium. Our keynote speaker was Adam M. Katz, a policy and advocacy specialist at Research!America, where he leads a variety of advocacy initiatives to make science and medical research a higher national priority.

Other stories highlight our efforts to make the demographics of science more closely match those of society as a whole. The 2nd-annual Emory University STEM Research and Career Symposium was held on March 26 to 28, 2014 at the Emory Conference Center. Approximately 100 undergraduate and graduate students from diverse backgrounds visited Emory, presented their research, and learned about careers in the STEM disciplines. They were accompanied by 27 of their advisers, who we hope will become advocates for Emory to subsequent generations of underrepresented students. Finally, there is an update on the undergraduate Scholars and graduate Fellows funded by the Initiative to Maximize Student Development. This grant is part of our ongoing efforts at change and relevancy.

We hope you enjoy this issue of the GDBBS newsletter. We are about ready to roll out a web portal where alumni can update their career accomplishments and trajectory. We will shortly ask you to log on and tell us more about the career you pursued.

Keith D. Wilkinson, PhD
Director, GDBBS
DSAC Symposium Shows Student Achievement

ROBIN UCHIYAMA

On January 10, 2014, the Division Student Advisory Council (DSAC) and the GDBBS hosted the 11th-annual DSAC Student Research Symposium. Hundreds of students and faculty attended the event held at the Woodruff Health Sciences Center Administration Building (WHSCAB). Keith Wilkinson, the current GDBBS director, described the yearly symposium as a “very important event for the division and our students” because it allows students “to practice talking about their science” and “to mentor by giving feedback, reassurance, and praise.”

The symposium began with breakfast in the WHSCAB lobby, followed by talks in the auditorium. The talks were separated into three sessions, which focused on microbial systems, immunity to infection, and translational models. After the first set of talks, poster sessions and lunch took place in the lobby. Nearly 60 students presented posters during the two 45-minute sessions. Attendees then gathered again for the second set of talks, including sessions on the life of a cell, receptors and signaling, and DNA and gene expression.

After the second set of talks, the keynote speaker, Adam M. Katz, policy and advocacy specialist at Research!America, discussed the importance of scientist involvement in present-day American politics. Given that a majority of research is conducted with support from the federal government and taxpayers, Katz stressed that better dialogue among scientists, politicians, and the American people is essential to bolster funding to the NIH, which acts as the gatekeeper of funding for academic research. He also asserted that individual involvement is imperative in making research a higher national priority; by taking action at the local level and contacting congresspersons, anyone can influence legislation made at our nation’s capital. Katz then urged attendees to take action and provided methods to contact congresspersons and their staff, thank them for their backing of biomedical research, and last, articulated how to address concerns clearly and concisely.

After the keynote address came the reception and awards presentation where students were recognized for their talks, poster presentations, and images. Post-doctoral students and faculty judged talks and poster presentations while the Integrated Cellular Imaging Center judged images.

Winners of the oral presentation category included Jordan Morreall (GMB), who won first place for his talk on the role of TNF-α during tumorigenesis; Chantel Cadwell (BCDB), who received second place; and Mary Bushman (PBEE), who won third place. Scott Wilkinson (CB) won first prize in the poster category for his presentation on LKB1-mediated regulation of cell polarity and motility, with Kevin Sia (IMP) and Shardule Shah (IMP) winning second place, and Brian Gaudette (IMP), Virginia (Ginny) Vachon (MMG), and Karl Schmidt (NS) securing third place.

Image category winners include Todd Deveau (NS), who took first place for his image of induced-pluripotent stem cell neural progenitors, while Ana Monteiro (BCDB) won second place and Amanda York (BCDB) received third place.

Award Winners

POSTER
1st prize: Scott Wilkinson, CB
2nd prize: Jonathan Sia, IMP; and Shardule Shah, IMP
3rd prize: Brian Gaudette, IMP; Virginia (Ginny) Vachon, MMG; and Karl Schmidt, NS

TALKS
1st prize: Jordan Morreall, GMB
2nd prize: Chantel Cadwell, BCDB
3rd prize: Mary Bushman, PBEE

IMAGE CONTEST
1st prize: Todd Deveau, NS
2nd prize: Ana Monteiro, BCDB
3rd prize: Amanda York, BCDB
Adam Katz delivers the keynote speech on the importance of scientist involvement in American politics.

Scott Wilkinson, whose poster on LKB1-mediated regulation of cell polarity and motility won first place, poses with GDBBS director Keith Wilkinson.

The audience listens to Katz’s keynote speech.

Students and faculty discuss science at the poster session.
Image Contest Winners

1st Prize
Todd Deveau, NS

2nd Prize
Ana Monteiro, BCDB

3rd Prize
Amanda York, BCDB
## Alumni Accomplishments

### KELLIE VINAL

#### Jessica Belser

Jessica Belser, who completed her PhD in the Immunology and Molecular Pathogenesis program in 2008, was recently awarded the Presidential Early-Career Award in Science and Engineering. This honor, given to only 102 researchers nationally in 2013 by the US government, recognizes outstanding achievements in groundbreaking research and exceptional leadership potential. Belser’s dissertation research during her time at Emory focused on characterizing pathogenicity and transmission of H7 influenza viruses. Upon graduating, Belser further pursued her passion for understanding H7 influenza virus transmissibility at the Centers for Disease Control and Prevention (CDC). Currently, she collaborates with health organizations to characterize strains of influenza that have caused outbreaks, elucidate the pandemic potential of new strains, and examine efficacy of new vaccines.

#### Jonathan Powell

Jonathan Powell, who received his MD/PhD from Emory University School of Medicine, pursued postgraduate clinical training at Johns Hopkins University, Brigham and Women’s Hospital, and the NIH Heart, Lung, and Blood Institute. He then became a postdoctoral fellow in the laboratory of Ronald Schwartz at the National Institutes of Health (NIH). Powell now has joined the faculty at Johns Hopkins University School of Medicine as an associate professor. His lab studies the cellular, biochemical, and molecular mechanisms surrounding T cell activation, differentiation, and tolerance. Specifically, the lab has generated a number of genetically altered mice to determine the role of the mTOR signaling pathway in directing effector and regulatory T cell differentiation. His findings have been translated to developing tolerance-inducing protocols in the setting of bone marrow transplantation. Additionally, based on the biochemical insight gained from dissecting mTOR signaling in lymphocytes, his lab has been targeting metabolic pathways as a means to inhibit mTOR signaling in order to treat cancer and has revealed novel pathways regulating glucose metabolism and the generation of brown fat.

#### Rachel Miller

A 2007 graduate from the Genetics and Molecular Biology program, Rachel Miller conducted her dissertation research in the lab of Guy Benian. Following a successful postdoctoral fellowship in Pierre McCrea’s laboratory at MD Anderson Cancer Center, she since has been appointed a tenure-track assistant professor in the Pediatric Research Center at the University of Texas–Houston. Miller utilizes the Xenopus system to study the role of noncanonical Wnt signaling in kidney development.

#### Lance Wells

Lance Wells received his PhD in Biochemistry and Molecular Biology from Emory School of Medicine in 1998. He is now associate professor and adjunct assistant professor of chemistry, as well as director of graduate studies at the University of Georgia in the Biochemistry and Molecular Biology Department. In addition to his achievement as a Georgia Cancer Coalition Scholar, he is currently a member of the board of directors for the Society for Glycobiology, an editorial board member of *Glycobiology*, an organizer and chair of the American Society for Biochemistry and Molecular Biology (ASBMB) Workshop on post-translational modifications, consultant for Abeome, and permanent study section member of NIH Intracellular Interactions. Wells was also a guest editor for the glycomic/glycoproteomic special issue of *Molecular and Cell Proteomics*, as well as a session chair and speaker at the ASBMB/Experimental Biology annual meeting.
On March 26, 2014, Emory welcomed the second-annual STEM Research and Career Symposium. Convened by the Laney Graduate School, the STEM Symposium hosted undergraduate and graduate students from under-represented or diverse backgrounds to engage in conversations about research, graduate school, and professional development. While visiting the campus, students and mentors were introduced to the immense opportunities available in Emory’s top graduate programs in the science, technology, engineering, and math (STEM) fields. Accompanied by 27 mentors, Of the 97 student attendees, 17 were graduate students seeking postdoctoral opportunities in STEM fields.

This year’s symposium followed the success of the inaugural STEM Symposium in 2013. Of 120 applications submitted, 98 applications were accepted and 97 students attended the symposium, accompanied by 27 mentors. Of the 97 student attendees, 17 were graduate students seeking postdoctoral opportunities in STEM fields.

The Emory Biochemistry and Molecular Biology Program. Grant is currently chief of the Epidemiology and Surveillance Branch in the Division of Blood Disorders of the National Center on Birth Defects and Developmental Disabilities at the CDC. Grant offered invaluable advice on succeeding in science and encouraged students to pursue their passions.

Following the keynote, students participated in oral and poster presentation sessions that provided opportunities to present findings and engage in thoughtful conversations about research. This year’s symposium featured oral presentations from 10 students, an increase from last year’s eight. Midday, students were invited to a networking lunch with current Emory graduate students, postdocs, and faculty. Tables were arranged by program to allow attendees to engage with students and faculty with similar academic interests in order to gain insight into all the opportunities available at Emory.

That evening, attendees were treated to dinner and a lecture by special guest George H. Jones, Goodrich C. White Professor of Biology at Emory. Jones joined the faculty in 1989 and offered key insight into the career of an academic scientist. Following dinner, attendees relaxed with games of bowling and pool.

On March 28, students partook in several professional development breakout sessions at Cox Hall. Topics included “Research Opportunities for Undergraduates at Emory and Beyond,” “Succeeding in a Graduate Program,” and “PhD, MD/PhD, or MD?” The lecture and panel breakout sessions were designed...
Oral Presentations
1st prize: Cacey Stevens, University of Chicago
2nd prize: Paola Ramos, University of Texas–El Paso

Undergraduate Posters
1st prize: Paran Davari, University of Florida
2nd prize: Nonye Okonkwo, San Francisco State University
2nd prize: Jacky Ho Wa Cheng, Princeton University
3rd prize: Jennifer Hernandez, Georgia State University
3rd prize: Jan Frankowski, University of Florida
3rd prize: Sadra Hamedzadeh, University of Florida

Graduate Posters
1st prize: Patrice D. Cagle, North Carolina A&T State University
2nd prize: Brittany Butler, University of Florida
3rd prize: Diondra C. Harris, University of Texas–El Paso

STEM SYMPOSIUM WINNERS

The audience listens to Grant.
to address common questions for students and mentors. The symposium culminated in a tour of the Emory campus and facilities for undergraduate and mentor attendees. Attendees were able to observe impressive facilities and departmental resources available in their area or program of interest.

The STEM Symposium aimed to achieve two goals. First, organizers sought to provide an environment for students from diverse backgrounds to present their research and learn about careers in science. Second, the symposium sought to recruit outstanding candidates to Emory’s graduate and postdoctoral research programs by showcasing the abundant opportunities at Emory. The second goal could not have been achieved without continuing support from the Emory community.

“I think the biggest success was the participation of the Emory students, postdocs, and faculty that led to outstanding and lasting interactions with the attending students and their mentors,” said Edward T. Morgan, who co-chaired the symposium along with James Kindt. Sixteen different departments and programs participated in the symposium, including all nine GDBBS programs, Biomedical Engineering, Chemistry, Physics, Mathematics and Computer Science, Psychology, and the Medical Scientist Training Program. Support also was provided by the Office of Postdoctoral Education, the Rollins School of Public Health, and the Center for Science Education. The broad support highlights Emory’s continuing commitment to diversity in the STEM fields.

Moreover, Morgan went on to say, “The enthusiastic participation by Emory students, postdocs, and faculty gave them a great impression of us, as did our facilities, resources, and collaborative environment. I think that the STEM symposium, our graduate programs, and our postdoctoral office can look forward to applications from the best, the brightest, and the most diverse body of students in the coming years.”

The third-annual STEM Research and Career Symposium is scheduled for March 25 to 27, 2015.
Presumably, the research science workforce is ethnically diverse. In the lab where I work, we have Chinese, Hindi, Brazilian, and Korean researchers. This sounds reasonably diverse; however, there are no African Americans, Hispanics, Native Americans... or physically disabled persons.

African Americans and Hispanics make up 12.6 percent and 16.3 percent of the US population but only 5 percent and 6 percent of the science and engineering workforce. Data like these are troubling, so institutions like the NIH have been working to ameliorate the problem and improve the diversity of students in the sciences. There is some good news to report: the percentage of minority groups graduating with degrees has been steadily increasing since 2001. There is still a long way to go, though, to raise the numbers of African American and Hispanic participants in the science, technology, engineering, and mathematics (STEM) fields.

The NIH developed the Initiative for Maximizing Student Development (IMSD), a program meant to improve the quality of education and increase the diversity of undergraduate and graduate students in the biosciences. Emory recently was awarded $2.5 million to provide this program to incoming underrepresented (UR) students starting in fall 2014. Each year there will be spots for eight UR graduate students, with funding available for the first two years. If any additional spots are available, they will be offered to already enrolled students who qualify. Currently, enrolled UR students from the nine programs within GDBBS—biostatistics, chemistry, environmental health sciences, epidemiology, and psychology—may be eligible. The curriculum includes courses in quantitative research and communicating science, group activities like a journal club, seminars in professional development, and workshops on mentoring and teaching. Program Director Keith Wilkinson notes, “We want to create a community where students can find the support and encouragement we all need to get through the PhD training. This will involve multilevel mentoring from the undergraduate level up and creating a safe place to vent, question, challenge, and learn.”

Currently, about 15 percent of students that enroll in GDBBS are from UR populations, and these students are 12 percent less likely to get an offer and accept enrollment into our programs. Laney Graduate School is hopeful that IMSD will allow Emory to double the UR student enrollment in the bioscience programs in future years.
News from the Laney Graduate School
Office of Development and Alumni Relations

Calling all alumni who have taken a career path outside of academia. In partnership with Georgia Tech, Emory is now running an NIH-funded program called Broadening Experiences in Scientific Training (BEST). The Atlanta BEST program is developing programming to assist PhD students and postdocs in scientific fields at both Emory and Georgia Tech to explore careers beyond tenure-track faculty positions in the biomedical workforce. Career paths include science writing, law, business, consulting, industrial and governmental research, STEM education, policy, and many more. See the Atlanta BEST website for more information. Share your career journey and the lessons learned along the way to help the next generation of scientists find the right career path. Contact best@emory.edu.

In addition to BEST, professionalization for students is a top funding priority. This summer we will roll out a “Mentors on Call” website that features a searchable database for students to reach out to alumni. Students can use their Emory login to access alumni based on interests, locations, professions, and other criteria. Alumni who would like to be a part of this database to volunteer their time and expertise as students reach out can fill out this survey. We will continue to offer a variety of other professionalization opportunities via professional development support funds, networking events, the Program for Scholarly Integrity, “Pathways beyond the Professoriate,” and more. We have many ways to utilize alumni in these programs; contact Robin Harpak (robin.harpak@emory.edu) for more information.

Biology alumni create a new fund for students in GDBBS. The Graduate Program in Biology Academic and Professional Achievement Award was created to honor the graduate students, faculty, and staff of the biology program between approximately 1960 and 1991, the year the program joined the GDBBS. Investing in this new student award is a meaningful way to honor classmates, revered professors, and staff members, as well as celebrate the ongoing excellence of graduate education in the biological and biomedical sciences at Laney Graduate School. In addition, many of you heard the sad news about Bill Murdy’s passing. He was a treasured mentor to many graduate students. Gifts to this fund would be a wonderful way to honor him. Please consider supporting this new award.

A special thank you to Wells Fargo for its ongoing support and sponsorship of Laney Graduate School’s new student orientation and the Annual Graduate Students with Families event.