

Rhode Island INBRE

IDeA Networks for Biomedical Research Excellence

NEWS AND EVENTS

2014 Summer Undergraduate Research Fellows (SURF) Conference

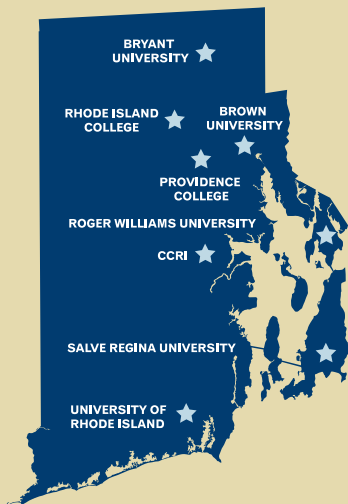
The 7th Annual SURF Conference was held in collaboration with the RI NSF EPSCoR Program on Friday, August 1, 2014 at the adjacent Pharmacy and Center for Biotechnology and Life Sciences buildings on the University of Rhode Island's Kingston Campus. More than 400 participants, consisting mostly of students, but also faculty and administrators representing the University of Rhode Island, Brown University, Bryant University, Providence College, Rhode Island College, Rhode Island School of Design, Roger Williams University, Salve Regina University, and the Community College of Rhode Island attended the conference. Welcoming remarks were given by the University of Rhode Island President Dr. David Dooley, RI-INBRE Program Director Dr. Zahir Shaikh, and RI NSF EPSCoR Principal Investigator Dr. Carol Thornber. Dr. Breea Govenar from the department of Biology at the University Rhode Island, and Kelsey Lucas a former SURF student and now a graduate student at Harvard University shared their research experiences with the audience. More than 130 scientific posters were presented, the large majority of these were by RI-INBRE undergraduate and graduate students.

In this Issue

News and Events 1, 10
 From the Director 2
 Program Updates 3
 Featured Investigators 5-8
 Featured Research Fellow 9
 Awards and Recognitions 12

OUR MISSION

The Rhode Island network, one of the 24 INBRE networks nationwide, seeks to support and develop talented scientists, especially junior investigators, and build a productive multi-site program for collaborative research in molecular toxicology, cell biology, and behavioral science.



Ricky Carragher, Salve Regina University, 2014 SURF Conference

I am very pleased to share the news that the RI-INBRE program has been renewed for five more years to April 2019 with a grant award of nearly \$19 million. This brings the total grant support for this program to more than \$60 million over 19 years. The scientific thematic areas for the current 5-year phase of the program are Molecular Toxicology, Neuroscience, and Cancer Research. While toxicology has been a reoccurring theme of the program since the beginning, the two new themes were chosen based on growing interest at the University of Rhode Island and in the state on neurodegenerative diseases and cancer.

Over the past 14 years, the RI-INBRE program has had a significant impact on the biomedical research capacity in the state. Over 100 faculty and more than 1,200 undergraduate and graduate students, and postdoctoral fellows from the seven higher education institutions that comprise the network have received support for research. During the current year, 33 faculty at the network institutions received funding for research through various types of awards offered by the RI-INBRE program. Research projects of new junior investigators Drs. Matthew Kiesewetter, Samantha Meenach, Karla Kaun, Geoff Stilwell, Seann Mulcahy, and Marla Tipping are highlighted in this issue of the Newsletter.

To enhance research capabilities of the participating institutions, grant funds also supported the purchase of additional equipment at the network institutions, as well as for the state-wide Centralized Research Core Facility located at the Kingston campus of the University of Rhode Island. Summer research opportunities were provided to 94 undergraduates through the SURF program.



We are happy to share the news that one of our investigators, Dr. Nicanor Austriaco, has received his second R15 grant from NIGMS, NIH. He is featured in this Newsletter. We look forward to continuing to build on Nic's successes at our undergraduate network institutions.



Dr. Zahir Shaikh

This year has been a year of change for the RI-INBRE Program. Dr.

Brenton Deboef joined as the new Training Core Coordinator. We said goodbyes to our Coordinator of Centralized Core Facility, Dr. Aftab Ahmed, Coordinator of Bioinformatics Core, Dr. Hany Alashwal, and Program Assistant, Jeffrey Ulricksen. We thank them for their contributions to the success of the RI-INBRE program and wish them well at their new abodes. Luckily, the Core Facility Coordinator position was filled immediately by Dr. Al Bach who transferred from another position at the University of Rhode Island. We welcome Al to team INBRE. The remaining two vacancies will be filled in the near future.

Due to the addition of two new research focus areas of Neuroscience and Cancer in the current RI-INBRE, the membership of both the External Advisory Committee (EAC) and the Scientific Executive Committee (SEC) was expanded. The new members of the EAC are: Dr. Michael Aschner, a world renown neurotoxicologist from the Albert Einstein College of Medicine, and Dr. Bruce Zetter, an eminent cancer biologist and a URI alumnus from Boston Children's Hospital and Harvard University. Sadly, we lost one of the longest serving members of this committee; Dr. George Lenz passed away on January 28, 2015. George was a man of uncompromising principles and had a great wit and candor. His absence will be missed on the committee. Two other members of the EAC who are not continuing in the new phase of RI-INBRE are Dr. Victor Laties, professor emeritus of Environmental Medicine at the University of Rochester, and Dr. Roy Okuda, professor of chemistry at San Jose State University. We thank both Vic and Roy for their many years of valuable contributions to the success of our INBRE program. The two new members of the SEC are Dr. Niall Howlett and Dr. William Renehan, both from the University of Rhode Island. Niall is an accomplished cancer biologist and a former investigator of the RI-INBRE program. Bill is an established neuroscientist and newly appointed Director of Research Development at the College of Pharmacy. So, we are off to a new start and look forward to sharing our progress in various endeavors with you next year.

PROGRAM UPDATES

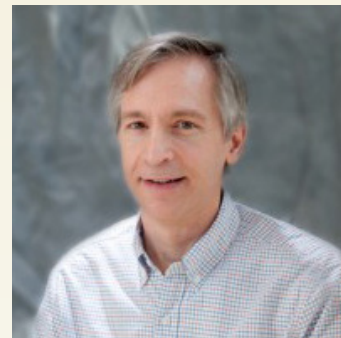
Al Bach Joins RI-INBRE's Centralized Research Core Facility

Mary Grady
Contributing Writer

Dr. Al Bach, the new coordinator of INBRE's Centralized Research Core Facility, didn't have to travel far from his last job -- he previously spent two years managing the NMR (nuclear magnetic resonance spectroscopy) Research Lab in URI's College of Pharmacy. He also has 24 years of experience in industry, most recently working for Pfizer, in Groton, Connecticut.

In his new role at the Core Facility, Dr. Bach works directly with students and researchers to help them design and execute their experiments. "It's a collaboration, really," says Dr. Bach. "We can help people learn to use the instruments, and help them interpret their data. Some of the instruments can be taught in a few minutes, others might take tens of hours to really learn to master. It depends on what each researcher wants to do and where their research takes them."

The lab is always updating its equipment, and in January took delivery of a new EVOS imaging system. A new mass spectrometer was acquired just last year, and the lab also has an RNA/DNA synthesizer, a protein sequencer, and a wide range of other instruments. "We look forward to helping everybody and anybody," says Dr. Bach. The equipment is cataloged on the lab website, and can be reserved online, at web.uri.edu/inbre-core-facility/.



Dr. Brenton DeBoef: SURF Is Ready To Grow

Mary Grady
Contributing Writer

Dr. Brenton DeBoef feels right at home in his new role as coordinator of INBRE's Summer Undergraduate Research Fellowship (SURF) program. "I was involved in similar programs as an undergraduate myself," he says. "I went off to college in Missouri thinking I might be a high-school science teacher, because that was all I knew. I didn't know I could be a researcher or a professor -- until I had the chance to work in a lab. I just loved it so much. Those opportunities really opened my eyes to what was possible in my career. So I'm a big fan of SURF."

Dr. DeBoef, an associate professor of chemistry at URI, has worked with SURF students since he came to Kingston nine years ago. "Shortly after I got here, I heard about it, and I knew I wanted to be involved right away," he recalls. "I was one of the first mentors from outside the College of Pharmacy to join the program." He's been impressed since then not only with the opportunities that SURF offers to students, but also with the quality of students taking part in the program.

Last spring, in one of his first experiences as the new SURF coordinator, Dr. DeBoef gained a new perspective on where those top-notch students come from. "We sat down and looked through the applicants for the summer," he recalls. "I was blown away. We were turning down students with 4.0 grade point averages. And it's not because we don't have mentors for them -- we have more

researchers who want to be mentors in the program than we have spots available. So I have a waiting list of amazing students who want to get in, and a waiting list of amazing researchers who would love to work with them."

The only thing limiting the number of slots available is funding, says Dr. DeBoef, so his primary goal as new SURF coordinator is to find more money to expand the program. "It's going to take a few years," he says. Grant-writing is a slow and laborious process, but he's certain it's a worthwhile investment. "It's incredible what's going on here," he says. "It's unbelievable, looking at the applicant



Continued on Page 8

NEWS AND EVENTS



FATHER NICANOR AUSTRIACO

Building a Future for Research at Providence College

Mary Grady
Contributing Writer

Father Nicanor Austriaco has followed a winding path to his career at Providence College, where he's an associate professor of biology -- but his central aim has never wavered. "I fell in love with the idea of curing cancer when I was a kid," he recalls. "I'm a Filipino, but I grew up in Thailand. I didn't really know how to go about becoming a cancer researcher. Both of my parents are engineers, so I went to the University of Pennsylvania and became a bio-engineer."

He then spent five years at the Massachusetts Institute of Technology, where he earned a doctorate in biology. After experiencing a religious conversion, he left the lab to enter the seminary. "I was ordained as a Dominican priest," he says. "My religious superiors asked, since you have this training in biology, why don't you go to Providence College and set up a laboratory there."

He's now been at Providence College for almost 10 years, and in March 2014 he was awarded his second grant from the National Institutes of Health's National Institute for General Medical Sciences. The first grant -- an R15, or Academic Research Enhancement Award, which was the first of its kind ever awarded to a Providence College lab -- expired in 2013. Father Austriaco took a year-long sabbatical to work on the next proposal. The time investment proved worthwhile. The new R15 grant totals \$257,000, which will cover the lab's expenses for the next three years, Father Austriaco said. The funding also has enabled him to hire a full-time lab technician for the first time.

Father Austriaco and his team plan to continue their work investigating programmed cell death in yeast. Their experiments focus on a gene associated with cancers such as lymphoma, leukemia, and prostate and breast cancer. "The goal right now is, we're just trying to figure out what this gene is doing, and how it's linked to stress," says Father Austriaco. "Then farther down the road, we can try to find drugs that will prevent it from doing what it normally does."

Another important goal of the research is to retain and encourage the next generation of young scientists. "A lot of people weren't sure if this could be done at all at Providence College -- to set up a lab with undergrads," says Father Austriaco. "But I think we've shown that it can be done." The lab is decorated with banners from schools where his students have gone on to earn advanced degrees -- Harvard, Dartmouth, Duke, Yale, Boston University, and many others. "They make me very proud. They're talented, and they go off to do great things," says Father Austriaco. Meanwhile, his lab continues to grow. "It's an adventure," he says, "but little by little, we're figuring out how to do science here at Providence College, with an emphasis on undergraduate training."

Winning an NIH Grant

Mary Grady
Contributing Writer

Generous grants from the National Institutes of Health can boost a lab's research capacity, but getting one is challenging. Father Austriaco offers some advice.

1. Diversify your research agenda

"Most science doesn't work," says Father Austriaco, "so you need to have multiple projects going simultaneously. This will increase your chances that at least one of them will produce useful results."

2. Encourage mentorship in the lab

"Set up a system so you're not constantly training new students," advises Father Austriaco. "Students will stay in the lab for three or four years, and the older ones can train the newer ones. It's an apprenticeship model." This structure, he says, means "I don't personally have to be at the bench every moment."

3. Develop a peer network

One challenge of working in a smaller institution like Providence College, says Father Austriaco, is that he's "the one doing all the thinking for my lab, all the time." It's important to develop relationships with other researchers in the region and at nearby institutions, who can listen to your ideas and offer feedback and advice.

FEATURED INVESTIGATORS



INBRE'S Newest Investigators

Mary Grady
Contributing Writer

The INBRE program provides a leg up for new faculty, helping them to start up a lab, train undergraduates, and gather results that will help support proposals for the next level of research funding. Here's a look at what our newest grantees are accomplishing.

DR. MATTHEW KIESEWETTER, URI Building Biodegradable Polymers



Dr. Matthew Kiesewetter,
University of Rhode Island

Synthetic polymers have proven effective in helping to deliver cancer drugs within the body and target the drugs to attack tumor cells -- but those polymers can have detrimental effects on patients, says Dr. Matthew Kiesewetter, an assistant professor of chemistry at the University of Rhode Island. "These polymers don't naturally biodegrade in the body," says Dr. Kiesewetter. "They can accumulate, and there can be off-target effects. The thinking is, if they are helping to defeat a life-threatening cancer, then

that's the price we have to pay." But his research aims to build better polymers that could do the drug-delivery job, then naturally biodegrade without any harm to the patient.

"INBRE has been instrumental in providing the seed money to get this project going," says Dr. Kiesewetter. "We've been able to show that it does work -- we can make the biodegradable polymers -- so step one is done. The next step is to show that we can make these polymers into transporters that will effectively deliver drugs." One challenge, says Dr. Kiesewetter, is that the biodegradable polymers tend to be fragile. His INBRE-funded undergraduate lab assistant, Samuel Spink, has been working on that aspect of the research, and so far the results are promising. "Sam's project turned out really well, and he's writing a paper now," says Dr. Kiesewetter. Two other INBRE-supported undergraduates also have been instrumental in the lab's progress.

Joining the INBRE community has provided support in unexpected ways, Dr. Kiesewetter says, besides the financial boost. "I've only been at URI about a year, so the INBRE network really helped me to connect with other people doing research on campus. And INBRE introduced me to Sam -- he's in engineering,

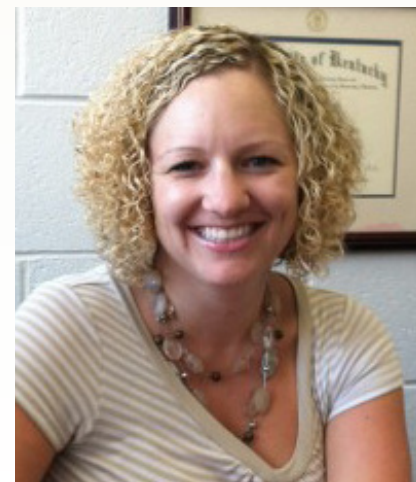
not chemistry, so I never would have met him on my own, and he's been phenomenal. It's certainly worked out for me."

DR. SAMANTHA MEENACH, URI Using Nanotechnology to Improve Cancer Treatment

In her first two years at URI, Dr. Samantha Meenach already has made progress toward creating better ways to deliver cancer-fighting drugs, and she's eager to move on to the next phase of research. "We're developing an aerosol dry-powder spray that can be administered nasally, for lung-cancer patients," says Dr. Meenach. The aerosol method delivers the drug directly where it's needed, bypassing the usual intravenous chemotherapy and all its unpleasant side effects. "Patients wouldn't have to lose their hair, and could avoid the other systemic side effects, like anemia and nausea," says Dr. Meenach. "It's safer because it's not going everywhere in your bloodstream, it's just going straight to the lungs to treat the tumors."

Dr. Meenach's approach works by combining aerosol chemotherapy with nanotechnology. "We know that nanoparticles deliver drugs better, but we can't just breathe them into our lungs, they're too small, and we'd just breathe them back out," says Dr. Meenach. "So we entrap the nanoparticles into larger microparticles, which are big and heavy enough to deliver them to the lungs. It's so much better than intravenous methods."

The delivery method is not only safer, it's more effective. The particles degrade slowly, allowing for a sustained release of the drugs over a longer time period, while drugs delivered intravenously tend to be flushed out of the body very quickly, often within a day. The microparticles also are easy to store and transport.



Dr. Samantha Meenach,
University of Rhode Island

continued on next page

FEATURED INVESTIGATORS *continued*

The research is slow and exacting, and requires a lot of trial and error. "I thought it would be easier than it's turning out to be," says Dr. Meenach. She employs several students in the lab, with INBRE funding, to help carry out the work. "We've made steady forward progress," she says. "The next step will be to try experimental trials in rats." The data she's generated with her INBRE-funded research will help support the bigger grant proposals she needs to pursue those next steps.

DR. KARLA KAUN, BROWN UNIVERSITY Untangling Our Complex Relationship with Alcohol

Humans are not the only creatures that develop a self-destructive craving for alcohol -- fruit flies (*Drosophila melanogaster*) share that attraction, and Dr. Karla Kaun, an assistant professor in Brown University's department of neuroscience, is using them as a stand-in to study the molecular mechanisms of addiction. "Imagine sitting in a bar," says Dr. Kaun, "and while you're drinking, you're forming memories of the context around you. It might be the smell of the wine, the feel of the glass in your hand, the low lighting. All of these are learned associations, and these associations potentially lead to cravings. These are the kinds of memories we're looking at in fruit flies."



Dr. Karla Kaun, Brown University

Dr. Kaun has found that the flies' response to an intoxicating alcohol experience in many ways mirrors the human experience. For a short time after they've sobered up, the flies will have an adverse reaction when exposed to an odor they associate with alcohol. "It's kind of like they're in a hangover phase," says Dr. Kaun. "But if you test them a day later, they find the odor attractive. They have a really interesting memory switch that humans share, from aversive to repetitive." The odor triggers such a powerfully attractive memory that flies will walk across a 120-volt electric shock to get more of it. Humans who are attracted to addictive drugs and alcohol exhibit similar irresistible cravings, Dr. Kaun says.

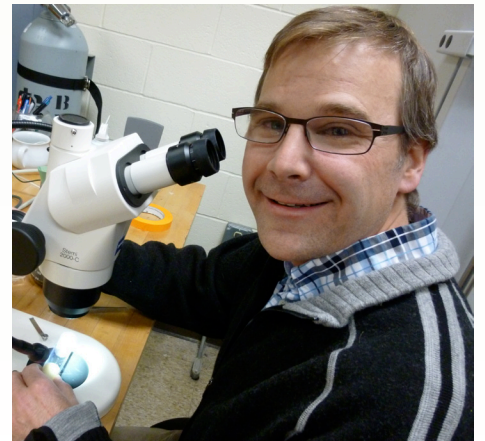
Dr. Kaun's INBRE-funded work, assisted by two undergraduates in the lab, utilizes the Scabrous fruit-fly mutant, which has an adverse reaction to alcohol and never forms a reward memory. "We're looking at how a particular memory pathway, known as notch-signaling, is important for making memories of intoxication, and also how being intoxicated messes with this important pathway," says Dr. Kaun. The ultimate goal of her work is to help find effective pharmacological treatments for alcoholism.

DR. GEOFF STILWELL, RHODE ISLAND COLLEGE In Search Of an Elusive Cure for a Deadly Disease

Neuro-degenerative diseases, such as Parkinson's, Alzheimer's, and ALS (amyotrophic lateral sclerosis, also known as Lou Gehrig's disease), are widespread, progressive and fatal, and no effective treatments have been found, says Dr. Geoff Stilwell, assistant professor of biology at Rhode Island College. "The incidence of all of these diseases is increasing," he says, "and the cost of care is astronomical." There's a lot of interest in finding treatments that will prolong life, improve quality of life, or ultimately, find a cure.

These diseases are not only difficult to treat, they also are notoriously challenging to study. "In most cases, it's not clear what causes the disease, or why one person might get it and not another," says Dr. Stilwell. Symptoms occur late in life in most cases, which makes it hard to determine what environmental exposures might be implicated, with so many variables over so many years. "It's a very difficult question to try to address and resolve," says Dr. Stilwell.

Since the environmental triggers are so elusive, Dr. Stilwell's research is focused on trying to help understand the genetic component of these diseases, especially ALS. Working together with Dr. Robert Reenan's lab, at Brown University, he and his students are developing genetically identical mutant fruit flies (*Drosophila melanogaster*), which provide a more uniform, accurate, and tractable method to study the disease than laboratory mice. "We're hoping to create a suite of mutants that produce certain features of the disease," says Dr.



Dr. Geoff Stilwell, Rhode Island College

Stilwell. "We've already had a couple that do."

The lab researchers then can compare one mutant to another mutant to ask the question, "Do these different mutations produce toxicity by the same pathways and processes, or are there differences?" says Dr. Stilwell. "Once we have that data, that gives us a wonderful tool, we can apply to so many different areas of research." The ultimate goal of the project, he added, is to use the mutant fruit flies to test compounds that might one day prove to help ALS patients. "That," he says, "would be really cool."

DR. SEANN MULCAHY, PROVIDENCE COLLEGE

Exploring the Chemical Frontier

For Dr. Seann Mulcahy, assistant professor of chemistry at Providence College, the work he and his students do every day in the lab is all about expanding the boundaries of knowledge. "We're trying to make slow progress toward understanding chemistry on the molecular level," he says. "If we have a molecule in nature that has certain properties, we want to make that molecule and figure out why it has those properties."

The lab has been working with the marine metabolite eudistomin U. "We make molecules that closely resemble the naturally occurring species and test their biochemical properties -- for example, to see how the molecule binds with DNA, and to look for anti-cancer properties," says Dr. Mulcahy. "And the students also create new molecules that have structures not found in nature."

Methods developed in his lab enable students to make molecules in a different way than in other labs, says Dr. Mulcahy. "We can create multiple bonds and multiple rings all at the same time, all in the same flask," he says. "It's greener, with less waste of materials, and fewer steps. It's more efficient chemistry." Lab materials are expensive, and disposing of organic waste also is costly, so these new methodologies have important practical applications.

Last year, Dr. Mulcahy brought students to the annual meeting of The American Chemical Society, which is the world's largest scientific society. "My undergrads are presenting at this meeting, so that's really important for them," Dr. Mulcahy says. "Sharing our ideas with the public and developing these new methods, and understanding the biology of these types of systems, I think is important for the field. Somebody might pick up our idea and run with it." Dr. Mulcahy's INBRE-funded research also helped him to win a 2015 Undergraduate New Investigator Award from the ACS Petroleum Research Fund. The \$55,000 grant will help support his research for the next two years.

DR. MARLA TIPPING, PROVIDENCE COLLEGE

Finding New Ways to Target Cancer Cells

Beating cancer is the ultimate goal of many researchers, but until that elusive cure can be found, much work is focused on finding better treatments with fewer damaging side effects than the options available today. Marla Tipping, an assistant professor of molecular and cell biology at Providence College, is working toward that end in her study of gliomas, the most



Dr. Seann Mulcahy, Providence College



CCRI Lab Supports URI Research

Mary Grady
Contributing Writer

From chance encounters, new ventures grow, and that's how Dr. DeBoef launched a new joint research project with the Community College of Rhode Island (CCRI). "I was working with a doctor at Rhode Island Hospital who's conducting research on a potential Alzheimer's drug," Dr. DeBoef says. "He needed a supply of a certain molecule to be synthesized, so I put a summer student to work on it." The student presented a poster about her work at last summer's SURF conference, where it was noticed by CCRI Prof. Wayne Suits.

"Wayne contacted me after the conference, and said CCRI students could help make that molecule as part of his lab course. He's always looking for projects for them to work on that are real research, with real applications. So he was really excited about it." The CCRI students now are working on the synthesis, and Dr. DeBoef plans to visit the lab as a visiting lecturer and help with the analysis. "So there are eight students right now working on a research program at CCRI, and it's all thanks to the connections we made through INBRE," says Dr. DeBoef. "This is real workforce development."

continued on next page

FEATURED INVESTIGATORS *continued*



Dr. Marla Tipping, Providence College

common form of fatal brain tumor.

Her approach is focused on helping to develop metabolic treatments that could destroy tumor cells but leave healthy cells alone, unlike chemotherapies that affect all the cells. "It's a different technology for targeting," says Dr. Tipping. She is currently working with IDH, a metabolic enzyme associated with gliomal tumors. "We're trying to mutate it in the same way it's mutated in the human tumors, so we can create tumors in fruit flies," she says. "Then we can study the genetics and metabolism of what's going on in the fly."

Dr. Tipping says simply introducing this one mutation may not be enough to create tumors in the flies. "Cancer is complex, and it takes many different mutations to make a tumor," she says. But it's still a

necessary step in the process. None of this painstaking work would be possible, she says, without the help of undergraduates in the lab. "If I didn't have the INBRE funding, it would be really difficult to do productive research," she says. "We're working on a paper now about the protocol for how to penetrate the surface of the brain with chemicals -- we're hoping that will be our first publication, and that will help us to be more competitive for NIH grants."

While the undergraduates are essential to the productivity of the lab, the mentoring process also magnifies the rewards of the work. "I like training, it's fun and it's satisfying," says Dr. Tipping. "We're doing real science and finding new things. And even if the work doesn't pan out the way you want, you know you've still done something -- you taught someone."

Dr. Brenton DeBoef: SURF Is Ready To Grow *continued*

pool -- we know they're good, we just don't have room. Absolutely, my number-one goal is to grow the program so we can provide more opportunities for more students."

Another priority, Dr. DeBoef said, is to find a way to continue expanding the annual summer SURF Conference. The seventh annual event, held in August 2014, filled to overflowing the space available in the College of Pharmacy and the Center for Biotechnology & Life Sciences. "It's grown so big that we can't really contain it in these two buildings anymore," he says. "We're at capacity. So where do we go next? We're trying to figure that out now, taking into account all the logistics and the finances." It's a lot of work, but Dr. DeBoef is undaunted. "This is a program I really love," he says, "so this is something I really wanted to do."

FEATURED STUDENT

For Salve Student, an Unexpected Detour Opens Doors

Mary Grady
Contributing Writer

When Craig Irving left his hometown in Coventry, Rhode Island, and started out as a freshman at Salve Regina University in Newport, he had a plan -- to major in nursing -- but that plan didn't last long. "In my first semester, I took a course with Dr. Steven Symington, and he invited me to visit his lab," Craig recalls. "I ended up switching to biology in my second term, and that first summer, after freshman year, I worked in the lab on an INBRE fellowship. So I got involved in research right away."

Craig continued in Dr. Symington's lab until he graduated from Salve in 2014. "It was really important to have that INBRE funding during the summers, so you didn't have to worry about finances and could keep working in the lab," he says. The experience led him to apply to graduate school at URI. "I graduated from Salve on a Sunday, and on Wednesday, I started working in a lab at URI," he says. His summer job was funded by a Bridges to Graduate School fellowship from INBRE.

Craig is now on a Ph.D. track, majoring in the interdisciplinary neuroscience program at URI. He's balancing his time between studying dopamine receptors in the lab with Dr. Abraham Koor, working as a teaching assistant in chemistry, and taking classes. "I'm kind of used to dealing with that kind of work load," he says, from his undergraduate days. Now that he's teaching, he's found that he likes it, and might continue on to an academic career. And maybe one day, he'll invite an uncertain freshman to visit his lab, change someone's life, and pay it forward.



Craig Irving

NEWS AND EVENTS *continued*

2014 SURF Conference

RI-INBRE has been awarded \$18.8 million in federal funding to expand the program over the next five years. "Through this important funding from the NIH, the University of Rhode Island will continue to strengthen the 'meds and eds' in our state," Governor Lincoln D. Chafee said. "I am pleased that the NIH continues to recognize the outstanding work of URI and I believe that we are well on our way to becoming a leader in the biomedical research field." Senator Sheldon Whitehouse said, "Congratulations to URI and all the talented researchers who have made this program so successful through the years. Rhode Island is home to some of the best minds in medical research, and providing them with additional resources is an investment for our state – one that will help grow our crucial health care industry and create jobs." URI President Dooley said, "I offer my congratulations to everyone at the University of Rhode Island and all of our partners for establishing such a groundbreaking statewide network. This sustained commitment to collaboration among all the partners has resulted in \$61 million in grants to build biomedical research activity and capacity across the state, and we are clearly seeing the success of their efforts. The NIH renewal of this transformational effort will continue to advance the health of our people while continuing to stimulate significant growth within a sector of our state's economy that holds tremendous potential for both scientific discoveries and job creation". Since 2001, RI-INBRE has supported and mentored more than 100 faculty members and more than 1,000 students have gained research training in faculty laboratories.

2014 Winter Faculty Retreat

The 10th Annual Winter Retreat took place on Friday, January 31, 2014 at the Bello Center on Bryant University's Smithfield Campus. Welcoming remarks were provided by Jose-Marie Griffiths, Bryant University's Vice President for Academic Affairs. The introduction was given by Gaytha Langlois, RI-INBRE Steering Committee Member and Chair of the Department of Science and Technology at Bryant University. David Rowley, RI-INBRE Program Coordinator, followed with opening remarks. Next, Sunshine Menezes from the Metcalf Institute for Marine & Environmental Reporting spoke about "Communicating Science, Risk, & Uncertainty in the Age of Soundbites". This presentation provided some context for general public learning gaps and recommendations for how to improve the clarity of RI-INBRE researchers' communication with a variety of non-scientific audiences. Additionally, Platform Presentations were given by Christopher Reid from Bryant University, Jennifer Van Reet and Brett Pellock from Providence College, and Samantha Meenach from the University of Rhode Island. Zahir Shaikh, RI-INBRE Program Director, closed out the retreat with Program Updates.

5th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE)

The NIH, NIGMS 5th Biennial National IDeA Symposium of Biomedical Research Excellence took place on June 16-18, 2014 at the Omni Shoreham Hotel in Washington, DC. The program contained a high level of scientific presentations, enthusiastic participants and a friendly atmosphere with open discussions and exchanges of ideas on science and training.

RI IDeA Symposium

The RI COBRE and INBRE programs and the RI Science and Technology Advisory Council the INBRE program organized the RI IDeA Symposium on April 2, 2015 at the Alpert Medical School building of Brown University. Keynote speech was delivered by Dr. Jeffrey Drazen, editor-in-chief of the New England Journal of Medicine. This was followed by platform and poster presentations by junior and senior investigators representing the RI IDeA programs. The executive luncheon was attended by the new Governor of Rhode Island, Gina Raimondo, as well as by Senator Sheldon Whitehouse, Congressman James Langevin and Vice Presidents for Research from Brown University and the University of Rhode Island.

Seminar Series

The fall 2014 seminar series featured Dr. Daniel DiMaio from Yale University and Dr. Cathy Wu from the University of Delaware. In addition, Drs. Matthew Kiesewetter and Samantha Meenach of the University of Rhode Island presented seminars about their RI-INBRE-supported research projects.

Cores RI

Brown University, Bryant University, Care New England – Women and Infants Hospital the Community College of Rhode Island, Lifespan – Rhode Island Hospital, Providence College, the Providence VA Medical Center, Rhode Island College, Rhode Island School of Design, Roger Williams University, Salve Regina University, and the University of Rhode Island have partnered to create an online directory of core research facilities, services, and instrumentation available to researchers throughout Rhode Island. Both the RI-INBRE Centralized Research Core Facility and Bioinformatics Core are included in this new directory along with shared resources at many of our Network institutions. The directory is available at <http://coresri.org/> or look for the CoresRI logo at www.uri.edu/inbre/.



Important Dates & Announcements

9/24–26/2015 - The Sixth Northeast Regional Institutional Development Award (IDeA) Conference

Abstract Submission Deadline:
June 5, 2015

Registration Deadline:
August 15, 2015

5/26/2015 - SURF Program Orientation, University of Rhode Island, Kingston, RI

7/31/2015 - RI SURF Conference, University of Rhode Island, Kingston, RI

eRA Commons - NIH now requires all Undergraduate, Graduate, and Postdoctoral Fellows to obtain an eRA Commons User ID.

NIH Public Access Policy

The NIH Public Access Policy ensures that the public has access to the published results of NIH funded research. It requires scientists to submit final peer-reviewed journal manuscripts that arise from NIH funds to the digital archive PubMed Central upon acceptance for publication. To help advance science and improve human health, the Policy requires that these papers are accessible to the public on PubMed Central no later than 12 months after publication. For more information about NIH's Public Access Policy, please visit <http://publicaccess.nih.gov/>.

AWARDS and RECOGNITIONS

Total Extramural Grant Awards (2001 – 2014)

Our investigators have received 15 R01, 2 R21, 2 R03, 7 R15, and 3 K awards from NIH. An additional 28 awards were received from NSF and other external funding agencies. The total extramural funding received by the RI-INBRE investigators is ~ \$50 million thus far.

University of Rhode Island

Alexandra Tsoras, Summer Undergraduate Research Fellow from University of Kentucky in the laboratory of **Dr. Samantha Meenach** received 1st place at the 2014 AIChE Undergraduate Poster Competition in Pharmaceutics in November 2014 for her work on "Evaluation of the Cancer-Preventative Effect of Resveratrol-Loaded Nanoparticles on the Formation of Tumor Spheroids".

Qihua Sun, Graduate Research Fellow (graduated with her M.S. in chemical engineering in December 2014), received 1st place at the URI Chemical Engineering Graduate Student Poster Symposium in April 2014 for her work on "Tumor-Penetrating Nanoparticles used in the Treatment of Lung Cancer".

Bryant University

Dr. Christopher Reid published an article entitled "Identification of an N-acetyl glucosamine derivative with bacteriostatic activity against Bacillus" in Medical Chemistry Communications.

Providence College

Rev. Dr. Nicanor Austriaco was awarded a NIH R15 grant for General Medical Sciences to study the behavior of genes linked to human cancers such as lymphoma, leukemia, and prostate and breast cancer.

Dr. Seann Mulcahy received an Undergraduate New Investigator Award from the American Chemical Society Petroleum Research Fund for 2 years to support his proposal entitled "Synthesis of Heterocycles Palladium-Catalyzed [2+2+2] Cyclizations".

Dr. Brett Pellock and his students published an article entitled "Reduced Heme Levels Underlie the Exponential Growth Defect of the Shewanella oneidensis hfq Mutant" in PLoS ONE.

Rhode Island College

Emely Bueno, Stephanie Chauvin, and Saadet Alparslan, Summer Undergraduate Research Fellows in the laboratory of **Dr. Beverly Goldfield** presented a poster entitled "Assessing Word Comprehension across Word Class" at the Eastern Psychology Association Meeting in Boston, MA and the 42nd Annual Hunter College Psychology Convention at Hunter College.

Undergraduate Research Fellow, **Nathan Felkel** and **Dr. Emily Cook** presented "Maternal depression and the impact on adolescent autonomy" at New England Psychological Association Annual Meeting in Lewiston, ME.

Roger Williams University

Dr. David Taylor published an article entitled "Mercury bioaccumulation in cartilaginous fishes from Southern New England coastal waters: contamination from a trophic ecology and human health perspective" in Marine Environment Research.

Dr. Avelina Espinosa published an article entitled "Evidence of Taxa-, Clone-, and Kin-discrimination in Protists: Ecological and Evolutionary Implications" in Evolutionary Ecology.

Salve Regina University

Summer Undergraduate Research Fellow **Gwen Beauman** in Dr. JD Swanson's lab, received a poster award for her poster entitled "Gallic acid nutraceutical cancer treatment with MKN28 cell line" at the BioNES Meeting, Roger Williams University.

Rhiannon Morrissey, Summer Undergraduate Research Fellow in Dr. Swanson's lab, won an undergraduate oral presentation award for her presentation entitled "Gallic Acid Induced Gastric Adenocarcinoma Cell Cycle Arrest" at the 7th Annual Northeast Undergraduate Research and Development Symposium at the University of New England.

Heather Axen, Teaching Post Doctoral Fellow, was successful in securing a tenure-track faculty position in the Department of Biology and Biomedical Sciences at Salve Regina University.



Rhode Island INBRE, Center for Molecular Toxicology, College of Pharmacy
University of Rhode Island, 7 Greenhouse Road, Kingston, RI 02881



The RI INBRE Program is supported by a grant from the National Institute for General Medical Sciences, National Institutes of Health