In 2000, School of Medicine researchers announced development of an edible vaccine in a genetically engineered potato that could deliver protection from E. coli, a common cause of fatal diarrhea in children around the world.
Summer Research Program Encourages Innovation in Students
Undergraduate and Medical Students Showcase Research Skills

It's hard not to admire the bright, young researchers who were chosen for this year's Summer Research Training Programs at the University of Maryland School of Medicine (UMSOM). The umbrella of programs ran for 10 weeks, from the end of May through the end of July. The group included 87 undergraduate and medical students conducted studies along many different lines of research, including, but not limited to cardiovascular disease, diabetes and obesity, and invasive brain cancer. The students showcased their research in an all-day Summer Research Forum, held on July 31, 2015 at the University of Maryland, Baltimore (UMB) SMC Campus Center.

The group included UMSOM medical students who had won awards for the Office of Student Research's flagship PRISM program (Proposed Research Initiated by Students and Mentors). UMSOM and national medical students who had won fellowships from the UMSOM SPORT program (Summer Program in Obesity Diabetes and Nutrition Research Training) also were part of the 2015 class.

In addition to the medical students, a number of undergraduate students participated in the summer programs. These included students enrolled in STEM tracks at UM College Park (UMCP) who won fellowships for the UM Scholars program, which is funded by the MPowering the State Initiative (a partnership between UMB and UMCP). In addition, undergraduates competed nationally and were selected for the UMSOM Mid-Atlantic Nutrition Obesity Research Center (NORC) and Greenebaum Nathan Schnaper Intern Programs (NSIP).

“We had a phenomenal group of students this year, and we believe that their work will influence scientists, researchers, and other students on our campuses as well as others,” says Greg Carey, PhD, Assistant Professor in the Department of Microbiology & Immunology, and Director of Student Summer Research and Community Outreach in the Office of Student Research at the School of Medicine.

For the PRISM program, students and mentors teamed up to win a research award, based on the format and evaluation process of an NIH grant proposal. For the other programs, students were first competitively selected to a respective program, based on the quality of the projects they proposed in their applications, curiosity about a particular topic, and their ability to communicate—in writing and orally—about their research interests. These students then went through a mutually-selective matching process with UMSOM faculty members who served as their mentors.

Benjamin Fink, an undergraduate at College Park who participated in the NORC program, cites this mentor-mentee relationship as a valuable part of the experience. His mentors this summer were Amber Beitelbshees, PharmD, MPH, Assistant Professor in the Department of Medicine, and Simion Taylor, MD, PhD, Professor in the Department of Medicine, and Director of NORC. Fink describes Dr. Taylor as “one of the godfathers of obesity and nutrition.”

He goes on to say, “meeting these scientists and forming relationships with them was the best part of the entire experience.”

Under the mentorship of Drs. Beitelbshees and Taylor, Fink studied the transport of sodium and glucose in patients receiving treatment for diabetes.

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He was among the 32 students selected to give an oral presentation about his project during the Summer Research Forum. Medical student Aimee Sutherland also worked on a project related to diabetes and obesity. She participated in SPORT under the mentorship of Michael Miller, MD, Professor in the Department of Medicine, and Director of the Center of Preventative Cardiology. Over an eight-week period, Sutherland worked with patients who have metabolic syndrome, a cluster of conditions that include high blood glucose, high blood pressure and high cholesterol. She wanted to determine the best diet for those who have or who are at risk for heart disease.

As an undergraduate, Sutherland studied dietary micronutrients. Being selected for the SPORT program allowed her to build on the skills she developed in college—something that, as a medical student, she might not have been able to do until later in her career. “It’s an accomplishment that wouldn’t have been possible without this program and my mentor,” Sutherland says. Now, she hopes to continue her research after the summer ends. Sutherland was not the only student drawn to the summer programs because they allow students to combine their interests with scientific work.

Ajun Adapa’s decision to study science was influenced largely by his lifelong love of music.

“As a kid, I was really into music, and I believe that there is a connection between music and science. Both define the human experience,” he says. “I chose science because it allows me to explore the human experience even further.”

Ajun is a jazz saxophonist and a senior in Bioengineering at College Park who was accepted into the UM Scholars Summer Research Program. He had the opportunity to work with a team of three mentors, including Anthony Kim, PhD, Assistant Professor in the Department of Neurosurgery, Graeme Woodworth, MD, Associate Professor in the Department of Neurosurgery, and Jeffrey Winkles, PhD, Professor in the Department of Surgery. Drs. Kim, Woodworth and Winkles are investigating the use of focused ultrasound and nanotechnology to treat invasive brain cancer.

To more effectively eliminate malignant cells that cannot be surgically removed, drugs need to be delivered to the tumor site. However, drug delivery is limited by the small spaces between brain cells. Focused ultrasound can enlarge these spaces, which allows clinicians to inject anti-cancer drugs, encapsulated in nanoparticles,
Building a Research Enterprise

Promote Collaboration and Fill HSF-III, both assistant Professors in the Department of Neurology, Kim things we normally wouldn’t have time to learn about, or even knew existed.”

with new people and realize their personal goals.

each other,” says Adapa. “These interactions created a diverse academic envi-

ing in discussions about research. Both undergraduate and medical students

leading-edge research, to meet the other summer students, to familiarize

scientific lectures. This gave them a chance to meet faculty conducting

directly to the diseased tissue.

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and deeper appreciation for basic science research.

with feeding tube protocols for stroke

The summer research programs inspire some of the undergraduates to attend medical school or obtain an advanced degree in research, and give the medical students a new and deeper appreciation for basic science research.

The lectures just increased the number of interactions we all had with each other,” says Adapa. “These interactions created a diverse academic envi-

Other students praised the program for allowing them to form connections

and metrics.”

In addition to receiving premium space consideration in HSF-III, academic units that qualify for STRAP incentives may have the opportunity to have the Dean’s Office co-fund these new recruitments, along with contributions made from the reserves of academic units. Other STRAP bonuses include doubling the normal DRIF allocation for the first three years of the recruitment, and giving credit towards units’ individual Vision 2020 goals. Although preference will be given to proposals that include a clinical department, all are strongly encouraged to apply.

Dean Reece has appointed a committee to review the incoming STRAP proposals for eligibility and Dean’s Office support. The committee, led by Louisa Peartree, MBA, Senior Associate Dean, Finance & Resource Management, and Terry Rogers, PhD, Assistant Dean, Research Affairs and Professor, Department of Biochemistry & Molecular Biology, will accept applications on a rolling basis, with the first deadline being December 30, 2015.

Those interested in applying should submit a letter of intent to Ms. Peartree and Dr. Rogers before September 30.

“The School of Medicine is dedicated to conducting exemplary biomedical research to improve the health and well-being of the citizens of Maryland and beyond,” says Dean Reece. “Only when basic, translational and clinical researchers work together can we truly hope to achieve the ambitious goals of our strategic vision plan.”

Questions? Contact Louisa Peartree or Terry Rogers for more information, or to receive a copy of the STRAP Initiative RFP.

“Big Science” research questions using innovative and strategic approaches, each academic unit is expected to reach certain targets by the end of fiscal year 2020:

- Clinical departments should have ≥25% of faculty (assistant professor and above) NIH-funded, and an overall department funding rate of $250,000 per full-time faculty
- Basic science departments should have ≥25% of faculty (assistant professor and above) NIH-funded, and an overall department funding rate of $350,000 per full-time faculty
- Centers, programs and institutes should have ≥25% of faculty (assistant professor and above) NIH-funded and an overall funding rate of $650,000 per full-time faculty

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Historic Summit Addresses Malaria Epidemic in Myanmar

THE UNIVERSITY OF MARYLAND

School of Medicine’s Institute for Global Health (IGH), recently established under the direction of Christopher Plowe, MD, MPH, Professor of Medicine, announced in early August that it will help bring together a diverse array of opposing factions from Myanmar as part of an unprecedented unified effort to eliminate the country’s most fatal disease: malaria.

The historic summit on August 3, 2015 in Washington, DC, was convened by the IGH, the Center for Strategic and International Studies (CSIS), and the American Society of Tropical Medicine and Hygiene (ASTMH). Dr. Plowe, along with Myaing Nyunt, MD, MPH, PhD, Assistant Professor of Medicine, and Director of the IGH’s efforts in Myanmar, have been studying the disease and its impact on this fragmented country for the past two decades.

The meeting included a range of Myanmar groups: both civilian and military government officials; the main opposition party; and the Shan, Karenni, and Kayin ethnic minorities agreed to a concerted, long-term plan to eliminate malaria in Myanmar. The disease is a major problem in Myanmar, formerly known as Burma: about 300,000 people suffer from malaria every year; in some parts of the country, a quarter or more of the population suffers from malaria every year; in some parts of the country, a quarter or more of the population suffers from malaria every year. In recent years, Myanmar has seen a rise in drug-resistant malaria, rendering treatments less effective. Experts say these parasites could spread to surrounding nations and on to Africa, endangering millions. Dr. Plowe and Nyunt say that if the alliance is as effective as it could be, it has a good chance of eliminating drug-resistant disease.

The alliance is a landmark for the Institute for Global Health, which was created in July. The Institute is focusing on vaccine research and development, as well as the prevention and treatment of malaria, a disease that infects about 200 million people a year and kills more than half a million people a year and kills more than half a million, mostly children in Africa. An expert on malaria, Dr. Plowe is also currently the president of the American Society for Tropical Medicine. IGH joins two other institutes at the school, the Institute for Human Virology (IHV), and the Institute for Genome Sciences (IGS).

“Dr. Plowe and Nyunt have been doing important work for years in the battle against malaria, in Myanmar and elsewhere,” said E. Albert Reece, MD, PhD, MBA, President and Dean, University of Maryland School of Medicine. “Their work here underscores their commitment to the cause, and I am sure it will help save many lives, in Myanmar and beyond.”

New Institute for Global Health Helps Organize Historic Summit to Address Malaria Epidemic in Myanmar

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