SUMMER 2013 VOL 55 NO 2



SEARCHING FOR CURES



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Searching for Cures

Specimens from the Antarctic's diverse marine community provide a rich resource for early-stage drug discovery at the USF Center for Drug Discovery and Innovation. The center's natural products library includes samples from the coastal mangroves of the Florida Keys to the sea floor deep below the Antarctic ice. COVER PHOTO

USF chemist Bill Baker examines specimens on the Antarctic sea floor. Light filters in through a thin crack in the ice above.

SUMMER 2013



14 Dancing for a Difference Students raise funds for All Children's Hospital.

16 **TEDXUSF** Inaugural event unites intelligence of USF community.

18 Community Garden

Annual plant festival ushers in the season.

28 Defeating River Blindness Thomas Unnasch sees progress in fight to end river blindness.

34 **Perfect Pitch** Student entrepreneurs compete for seed money.





High Impact

- 4 President's Letter
- 5 Fast Track to Law Degree

Spotlight

- 6 Academics
- 8 Research
- 10 Health
- 12 System

Unstoppable

38 Enhancing STEM Education

Sports 40 Highlights

Voices 42 Patrizia La Trecchia



FROM THE PRESIDENT

USF is a high-impact, global research university dedicated to student success.



There is nothing like commencement to remind each of us why we are here — to make a difference. In this issue of *USF Magazine*, you will read incredible stories about students and faculty who are making a difference throughout the world.

In our feature on the USF Center for Drug Discovery and Innovation, researchers will tell you about collaborative efforts to find cures for cancer, Parkinson's, Alzheimer's and other diseases. And you will read about a new drug heading to trial that could put an end to malaria.

Our feature on river blindness will take you to sub-Saharan Africa where researchers, including Thomas Unnasch, chair of the Department of Global Health in the College of Public Health, are making remarkable progress to combat this parasitic disease that devastates communities and is a major cause of blindness worldwide.

Closer to home you will meet entrepreneurial-minded students, like Casey Henry, whose business plan presentation earned her a \$15,000 prize to fund her startup paintball business in south Tampa. Casey was among the finalists in the annual Fintech Business Plan Competition, which has provided \$75,000 in seed money to local companies owned by USF students.

In May, the Helios Education Foundation announced a \$3.16 million gift to the College of Education as part of the *USF: Unstoppable* Campaign. Through a novel residency program, the gift will make a difference for as many as 100,000 middle school math and science students over the next 10 years.

From students dancing to raise funds to scientists searching for cures, this issue is filled with examples of how members of the USF community are working to make a better world.

As we wish our newest USF graduates success in their new beginnings, I wish all of you a safe and happy summer.

President Judy Genshaft

Fast Track to Law Degree

USF and Stetson University College of Law have joined forces to allow aspiring attorneys to reduce the time they spend earning a law degree.

Under a new agreement the two institutions will partner to create "3+3," an accelerated J.D. degree program.

Students seeking a J.D. degree typically complete a four-year undergraduate program followed by three years of law school. The new 3+3 accelerated path lets qualified students earn both their bachelor's and J.D.

8

degrees within six years, three each at USF and Stetson Law.

"Through our agreement with the USF Honors College,

students can graduate with an undergraduate degree and a law degree in six years, save a year of tuition, and attend the top-ranked advocacy program in the country — a program that blends foundational law with the legal skills necessary to succeed in today's marketplace," says Stetson Law Dean Christopher Pietruszkiewicz. "Together, Stetson and USF will help to create not only the next generation of lawyers but also the next generation of leaders."

The program also provides partial financial support for students once they begin at Stetson, and pairs each student with a student, graduate, and/ or faculty mentor.

To participate, students must be enrolled

in USF's Honors College and meet certain eligibility requirements, such as earning a minimum LSAT score at the 75th percentile of the most recent class to enter the College of Law. Once students have successfully completed three years at USF, and applied to Stetson College of Law, Stetson will determine their eligibility for admission into the J.D. program.

Once accepted students complete 31 credits in the full-time J.D. program, USF will accept those credits as the student's remaining undergraduate elec-

tive credits and award a bachelor's degree. Upon completion of the program of study at Stetson, the student also will receive a J.D. awarded by the College of Law.

"The partnership between the Universitv of South Florida and Stetson University College of Law is a great opportunity for highly-motivated and focused students to achieve their goals. Our brightest students are eager to take on the challenges of advanced degrees, and we are confident the excellent undergraduate education they receive at USF will prepare them for the rigors of Stetson's exceptional program," says USF President Judy Genshaft. "These talented students will move more quickly through their education incurring less debt — and be on their way to reaching their goals."

KEVIN BURKE | Office of the Provost

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First Oxford Cambridge Scholar

By the time she was a sophomore, Christie Campla no longer had time for marching band. Going to class and spending 30 hours or more in the lab each week as a cellular and molecular biology major, with another major in Spanish and a minor in chemistry, can have that effect.

Still, the reward for temporarily setting aside her tuba made it all worthwhile.

Just the fourth USF student to earn a Goldwater Scholarship — the nation's most prestigious award for undergraduate students in science — she is the first to be named a National Institutes of Health Oxford Cambridge Scholar. Now the May graduate will spend the next four years pursuing a fullyfunded doctoral degree at either Oxford University or Cambridge University in the United Kingdom. She hopes to extend her undergraduate research with USF Chemical and Biomedical Engineering Professor Piyush Koria in the field of recombinant biomaterials, particularly as they might improve methods for drug preservation and targeted delivery.

"It's a pretty hot area right now," says Campla, whose interests also extend to regenerative medicine or the process of replacing or regenerating human cells, tissues or organs to establish or restore normal function.

Campla was among 60 finalists vying for one of only 20 scholarships awarded nationally this year. Despite her Goldwater, USF Holcombe First Generation in College Scholarship, USF Honors College Discovery Research Scholarship, USF Scholastic Achievement Scholarship, USF Undergraduate Award for Scholarly and Creative Excellence, and a



summer training fellowship at the Spanish National Cancer Research Center in Madrid, she admits feeling "a bit intimidated" standing in the same room with the other OxCam finalists, "mostly Ivy Leaguers."

Now, however, she says the only pressure she feels is living up to the high standards exemplified by her mentors, Koria, and Professor Meera Nanjundan in the Department of Cell Biology, Microbiology and Molecular Biology, with whom she started her undergraduate research as a freshman and completed her honors thesis on the role of various signaling mediators in cell degradation and motility in ovarian cancer as a junior.

KEVIN BURKE | Office of the Provost

Leader for Learning

USF is a national leader in online education, according to the Guide to Online Schools and U.S. News & World Report.



The university ranked 25th in the guide's 2013 "best overall" list of the Top 30 nonprofit and for-profit schools offering high-quality, affordable online programs. The ranking marked USF's first appearance on the annual index compiled by the National Center for Education Statistics.

USF was the only Florida public university named among the nation's best.

U.S. News, meanwhile, ranked USF's online graduate programs in engineering and education among the best in the country for the second year in a row. The university's graduate engineering programs ranked 22nd nationally, the best showing of any eligible institution, and its graduate education offerings 47th.

from top: Autar Kaw, Lois Roma-Deeley **Christy Price, Todd Pagano**

Teaching Success

The country's top undergraduate instructors shared their insights on teaching and student success during a panel discussion at the third annual Student Success Conference in April.

Selected by the Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education, the 2012 Professor of the Year honorees — USF's Autar Kaw; Lois Roma-Deeley of Paradise Valley Community College in Phoenix, Ariz.; Christy Price of Dalton State College in Dalton, Ga.; and Todd Pagano of the Rochester Institute of Technology's National Technical Institute for the Deaf in Rochester, N.Y. — agreed that connecting to students and having a true passion for learning are the hallmarks of a great teacher.



"Students want to be challenged. They want to learn, and I believe that you must have that real high expectation in a real positive way," Roma-Deeley said. "I assume my students want to learn even if they don't know it."

Kaw said students today want access to their teachers 24/7. He's responded by adjusting his schedule and providing social media sites to keep up with the instant communication students expect. Kaw is an enthusiastic supporter of MOOCs, or Massive Open Online Courses, and reaches students with a YouTube channel, a blog, and a Twitter feed.

"It's a great and effective use of technology for instructional purposes and a wise use at that," said USF Vice Provost for Student Success Paul Dosal. "I'm afraid too often we become in some ways captives to the technology, and we rarely adapt it as well as Dr. Kaw has done."

BRANDI HOLLIS | USF News

RESEARCH



Clean Breakthrough

Chemists at USF and King Abdullah University of Science and Technology (KAUST) have discovered a more efficient, less expensive and reusable material for carbon dioxide (CO₂) capture and separation.

The breakthrough could have implications for a new generation of clean-air technologies and offers new tools for confronting the world's challenges in controlling carbon.

The international group of scientists, whose research was published in March in the journal *Nature*, identified a previously underused material — known as SIFSIX-1-Cu — that offers a highly efficient mechanism for capturing CO₂, even in the presence of water vapor.

That property, says USF Chemistry Professor Mike Zaworotko, makes it a promising candidate for real-world applications.

"I hate to use the word 'unprecedented' but we have something unprecedented," Zaworotko says. "We sort of hit a





sweet spot in terms of properties."

The discovery further addresses the energy costs associated with the separation and purification of CO_2 before it enters the atmosphere — costs expected to triple by 2050.

SIFSIX-1-Cu is a crystal whose atoms form a three-dimensional lattice with holes that snare molecules of CO₂ but allow other molecules in air to pass. It is an adaptation of a material created more than 15 years ago, and is part of a general class of materials known as Metal-Organic Materials, or "MOMs."

The metal-organic framework material shown under a microscope; USF graduate students Patrick Nugent and Stephen Burd; Chemistry Professor Mike Zaworotko

The breakthrough began with an undergraduate research project conducted by USF student Stephen Burd under Zaworotko's supervision. Now a graduate student in chemistry, Burd's initial testing of the material and discovery of its high-selectivity for CO₂ grew to involve an international research group including USF chemists Brian Space, Shengqian Ma, Mohamed Eddaoudi (also a faculty member at KAUST) and graduate collaborator Patrick Nugent.

The research facilities at KAUST in Saudi Arabia combined with the multidisciplinary expertise in Eddaoudi's research group allowed the design of unique experiments that permitted the sorption (the physical and chemical process by which substances attach to each other) properties of this class of materials to be unveiled.

The group believes the material has three potentially significant applica-

tions: carbon-capture for coal-burning energy plants; purification of methane in natural gas wells; and the advancement of clean-coal technology. Some 20 to 30 percent of the power output at a clean-coal plant is consumed by the cleaning process. The new material could make those plants more efficient and put more power into the grid, the scientists predict.

The next step is to collaborate with engineers to determine how the materials can be manufactured and implemented for real-world uses.

VICKIE CHACHERE | USF News

Big Problem

According to USF St. Petersburg biologist Deby Cassill, it's just a matter of time before the flying, "hairy legged-

zebra" invades Florida.

"We have this huge potential with all of these eggs that were laid during **Tropical Storm** Debbie. The next storm coming in that wets that surface, we're going to have a huge population explosion of this giant mosquito," she says.

Deby Cassill; Psorophora ciliata – the American Giant **Mosquito or galinipper**

American Giant Mosquitoes, or Psorophora ciliata, lay their eggs in lowlying areas with damp soil and grassy overgrowth. When the areas flood following a dry period, large numbers of adult mosquitoes hatch.

The mosquitoes, also known as galinippers, are notorious for inflicting a painful bite. And they bite both day and night, in stark contrast to the typical dusk and dawn flights of smaller species of mosquitoes.

According to Cassill, the insect originates near the area of the Mississippi River delta. With heavy rains during previous tropical storms, it migrated to Florida.

"They've been called the hairy-legged zebra of the mosquito world. And I think that they are not as big as a quarter. But their legs are long enough and their bodies are long enough to span a dime and in the mosquito world, that's a big animal — kind of like a dinosaur or a large vampire floating around and going after us."

The bite from the giant mosquitoes feels more intense than that of the smaller types because the giants have saw-like mouthparts that inject saliva and create intense pain when extracting the jaw after the bite.

Cassill says the critters do not carry disease, but they consume the larvae of other types of disease-carrying mosquitoes. And they don't move around that fast.

"What they go after actually is they have carbon dioxide or CO₂ detectors and when they smell the breath of humans or the breath of cattle or the breath of livestock, that is one of the long distance detectors. When they are close enough, they use their vision. Then after that they have little heat detectors and they'll go for the warm spots along the throat, behind the knees, sometimes behind the neck and zero in and poke that long jaw into our bodies."

Cassill says the best protection from the American Giant Mosquito is an old technology.

"Just be aware of it; have your fly swatter or mosquito swatter."

KATY HENNIG | USF News

Scan the QR code or go to www.usf.edu to view a video and read "Invasion of the Giant Mosquitoes."





USF MAGAZINE | Summer 2013 9

EALT





Dr. Leslie Miller, director of the USF Heart Institute, confirms the exact location of the catheter tip as an injection map is drawn precisely detailing gene therapy delivery sites in the heart.

Miller (right), national principal investigator for the STOP-HF trial, is collaborating with Dr. Charles Lambert, medical director of Florida Hospital Pepin Heart Institute, on the local gene therapy study.

Novel Therapy for Heart Failure

Two Tampa-area institutions are the first in the region to enroll patients in a nationwide clinical trial of a novel gene therapy to treat heart failure. The therapy could promote tissue regeneration by encouraging the body to deploy more stem cells to the injury site.

The STOP-HF trial brings together cardiovascular specialists at USF Health and the Florida Hospital Pepin Heart Institute and Dr. Kiran C. Patel Research Institute.

Dr. Charles Lambert, medical director of Florida Hospital Pepin Heart Institute, and Dr. Leslie Miller, director of the

USF Heart Institute, are leading the way for the trial, which spans 10 sites across the United States and will enroll 90 patients. Locally, the trial is the first of several regenerative medicine clinical trials teaming the USF Heart Institute with Florida Hospital Pepin Heart Institute.

Heart failure happens when the muscles of the heart become weakened and cannot pump blood sufficiently throughout the body. The injury is most often caused by inadequate blood flow to the heart resulting from chronic or acute cardiovascular disease, including heart attacks. Considerable scientific evidence has emerged over the past decade demonstrating the high therapeutic potential of stem cell-based regenerative medicine for a host of diseases, including heart failure — a leading cause of death, disability and hospitalization.

The gene therapy is performed by direct injection into the heart using an investigational system in the catheterization laboratories at Florida Hospital Pepin Heart Institute.

"Stem cells have the unique ability to develop into many different cell types, and in many issues they serve as an internal repair system, dividing essentially without limit to replenish other cells," Lambert explains. "This trial is unique in that it uses gene therapy to turn on a process leading to cell regeneration rather than simply administering stem cells directly."

Miller, national principal investigator for the trial, calls it the beginning of a new era in cardiovascular therapies.

"Targeted gene and cell therapies delivered directly into the heart hold promise for helping to regenerate tissue, reduce injury and restore heart function," he says. "USF Health, working with our partners, will find new ways to diagnose and treat patients, with the aim of reducing and ultimately harnessing the global impact of heart disease."

JENNIFER MCVAN | Florida Hospital Tampa

Study Delivers Good News

A national March of Dimes program to reduce unnecessary early deliveries is proving highly effective.

USF Health faculty were among the authors of a national study in which the rate of elective early-term deliveries (inductions of labor and Cesarean sections without a medical reason) in 25 participating hospitals fell from 27.8 percent to 4.8 percent during the year-long project period — an 83 percent decline.

Experts say that's good news because babies delivered before full-term (39 to 41 weeks) without a medical reason are at increased risk for health problems including severe respiratory distress, learning disabilities and death.

Florida did even better than the other four states involved in the project, says Dr. William Sappenfield, director of the Lawton and Rhea Chiles Center for

Healthy Mothers and Babies at the USF College of Public Health. Sappenfield, co-chair of the March of Dimes prematurity initiative, and Dr. John Curran, associate vice president at USF Health and executive director of the Florida Perinatal Quality Collaborative (FPQC), were among the study authors.

> "The initiative coordinated by the FPQC at USF Health and the Chiles Center reduced the early-term delivery rate in Florida's pilot hospitals to the same low national study rate of 5 percent, even though those hospitals started the initiative with a substantially higher rate of 38 percent," says Sappenfield.

The hospital-based initiative focused on the implementation of a toolkit designed to guide changes in early-term delivery practices. The toolkit was developed in California in partnership with March of Dimes.

The study was the first project of a collaborative with perinatal quality improvement advocates from the state health departments, academic health centers, public and private hospitals and March of Dimes chapters from the five most populous states in the country: California, Florida, Illinois, New York and Texas — states accounting for nearly 40 percent of all births in the United States.

For more information about the FPQC, visit health.usf.edu/publichealth/chiles/fpqc.

ANN CARNEY | USF News

YSTEM

New Regional Chancellor

Sophia T. Wisniewska has been named Regional Chancellor for USF St. Petersburg.

Wisniewska, chancellor of Penn State Brandywine since 2005, is a scholar of Russian language and literature with extensive experience in key leadership positions in the Penn State System.



Wisniewska also served six years as dean and chief executive officer at Temple University Ambler. She started as a secretary at Penn State and rose through the ranks to lead its most diverse campus.

USFSP is uniquely positioned to play a vital role in the intellectual, economic and cultural development of the region."

- SOPHIA WISNIEWSKA

"Sophia Wisniewska has the experience and vision to continue the enormous progress of USF St. Petersburg," USF System President Judy Genshaft said. "Her commitment to scholarship, teaching and community engagement will enrich both USFSP and the broader community. She will inspire all who meet her."

Wisniewska thanked Genshaft for her confidence.

"It is a rare privilege to have the opportunity to lead an institution with such strong programs and engaged faculty, and to join a community where faculty and students collaborate on research and service projects," she said. "USFSP is uniquely positioned to play a vital role in the intellectual, economic and cultural development of the region. I look forward to getting to know the students, the faculty, the staff and other members of the community, and to join with them to advance USFSP's mission."

While at Penn State and Temple University, Wisniewska created innovative academic programs and forged strong relationships with community leaders that strengthened both institutions. She believes that research and community engagement enrich the educational experience of all students and improves the broader community.

Wisniewska earned a Ph.D. and a master's in Russian from Bryn Mawr College and a bachelor's in Russian with a minor in history from Penn State. She assumes her new duties July 1.

Born in a small Polish town, Wisniewska moved to Philadelphia in 1962. The first member of her family to finish grade school and the first to graduate college, she worked as a secretary at Penn State after graduation there and was soon promoted to evening school administrator. The promotions continued during a distinguished career at both Penn State and Temple.

One of her top priorities at USFSP will be to develop a five-year strategic plan, something she accomplished while at Penn State Brandywine.

TOM SCHERBERGER | USFSP



STEM Summit

Hundreds of middle school girls from Sarasota and Manatee County schools learned about exciting career opportunities at the fourth annual Girls STEM Summit presented by USFSM in May. The free event offered a full day of hands-on activities, speakers, breakout sessions, raffle prizes and more, all geared to getting girls fired up about science, technology, engineering, math and medicine. From designing robots to figuring out the science of sound — such as how you know a dog is barking on your right side and not your left — participants had fun plunging into real-world experiences. USFSM is working to see more young women embrace the sciences and become leaders in STEM fields.

Artful Teachers

How can an artist's love of creativity and beauty make a difference in a child's life? One way is to become an elementary school teacher and infuse learning with a uniquely arts-integrated curriculum.

With the Sarasota area so celebrated for its rich arts and culture heritage, it's especially appropriate that USFSM's College of Education is helping artists make a fluid transition to teaching.

The Center of Partnerships for Arts-Integrated Teaching (PAInT) has partnered with State College of Florida and Ringling College of Art & Design on the "Artist-to-Teacher" program — paving a seamless transfer process so that students can complete their A.A. degree with an emphasis in fine arts at State College, then earn a bachelor's in Elementary Education at the College of Education, or complete a B.A. or B.F.A. at Ringling College and a Master of Arts in Teaching at USFSM. Either path leads to state licensure as a Florida public schools teacher.

"Elementary teaching is by nature integrated and can clearly benefit

from the model of arts infusion that we practice," says Dean Terry Osborn of the College of Education. "'Artistto-Teacher' enriches our partnerships with our neighboring institutions of higher learning and helps create dynamic professionals who will improve our classrooms and learning outcomes for all students."

Stories by RUTH LANDO | USFSM



More than 600 students danced the night away in March for the 10th Annual USF Dance Marathon. The 17-hour, student-run event raised more than \$16,000 for All Children's Hospital in St. Petersburg.

Each year Dance Marathons take place on college campuses across the United States. The events raise money for Children's Miracle

Network hospitals — to the tune of millions of dollars each year.

The 2013 USF Dance Marathon included live entertainment, DJs, performances by local bands and university dance groups, and an appearance by the Dance Marathon Gorilla. The night also included visits from hospital representatives and families who have experi-



enced the help of All Children's Hospital.

Dancers remain active by dancing, standing or participating in various activities for the full 17 hours. The event lasts 17 hours to represent the 17 million children helped by Children's Miracle Network hospitals each year.

Fifty-five student teams took part in the cel-

ebration. And in a first for USF Dance Marathon, USF's Greek organizations hosted Variety Hour shows throughout the night.

But at the end of the night, it was all about the children — and making a difference in the community.

ANN CARNEY | USF News

x = independently organized TED event



Self-proclaimed TED junkie Jennifer Espinola was listening to a TED Talk on her iPad one night when she suddenly became inspired.

"Before I knew it, I'd applied for a local TEDx license," she says. "I went to my supervisor the next day and she was thrilled," recalls Espinola, director of the USF Center for Leadership & Civic Engagement.





TED, a nonprofit organization devoted to Ideas Worth Spreading, invites the world's leading thinkers and doers to give the talk of their lives in 18 minutes — speakers like Bill Gates, Jane Goodall, Elizabeth Gilbert, Sir Richard Branson and former UK Prime Minister Gordon Brown.

TEDx brings the TED experience to the local level. The independent program of self-organized events uses a mix of TED video and live speakers to offer knowledge and inspiration to a target community while sparking deep discussion and life-changing connections.

For USF that would mean nine, 18-minute live talks on a host of topics ranging from global education, water stewardship and food waste to unconventional therapies, human capital, risk and more. It would mean months of planning and spreading the word; it would mean audience selection and watch parties; a website and social media. It would mean getting the USF community to embrace TED weeks before the actual event in February.

An 18-person planning committee composed of faculty, staff and students got to work on the inaugural event last summer — creating a theme, generating awareness and issuing an open call to speakers. The response was overwhelming, according to Espinola.

"We received 64 applications from faculty leaders and students," she says. Applicants were asked to submit their ideas along with a 2-minute video.

Eventually the pool was narrowed to nine speakers, including students, faculty and alumni (see list). Their talks were streamed live during the evening event.

A live audience of 100 students, faculty and staff were selected to attend the event based on an application which included the question, "What would you bring to the TEDx experience?" The planning committee received more than 700 applications for the live audience and official watch party seats. Hundreds more attended independently organized watch party events, including the Italian Club and a group of teachers in Pinellas County.

The night was a huge success, says Espinola. She's already applied for the next TEDx event license.

"TEDx united the intelligence of our community," she says. "I see it as a way to give a platform to the amazing people at USF who are coming up with the great solutions for our future."

ANN CARNEY | USF News



Scan the QR code or visit usf.edu/tedx/speakers.html to view video of the talks.



TEDxUSF 2013 Speakers:

left to right, from top

USF Trustee and advertising mogul Jordan Zimmerman, "We Need a Little Insanity"

USF clinical faculty member and Alzheimer's caregiver Dr. Mary T. Newport, "Unconventional but Effective Therapy for Alzheimer's Treatment"

USF graduate public health student Steven Franklin, "Don't Just be a Patient Patient"

Recent USF alumna Raven Villegas, "A Global Curriculum"

USF Associate Professor and Italian Program Director Patrizia La Trecchia, "A War on Food Waste" USF Patel College of Global Sustainability Dean Kalanithy Vairavamoorthy, "The Future of Water"

USF Master of Public Health candidate Shivani Gogna, "The Power of Our Own Human Capital"

USF Professor and Coordinator for Information Analysis in the School of Information Randy Borum, "How Should We Prepare for the Future?"

USF Director of Orchestral Studies William Wiedrich, "The Gift of Live Musical Performance"



Community Garden

An estimated 4,000 visitors attended the 24th Annual Spring Plant Festival at the USF Botanical Gardens. The weekend-long event featured more than 60 vendors, plant clubs and societies offering gingers, orchids, plumeria, begonias, native plants and more. The event also included seminars on urban farming and beekeeping.

"This year's festival was one of our most successful to date," says Gardens Director Laurie Walker. "People are wanting to get back in the garden, and it was evident that weekend."

Part of the Department of Geography, Environment and Planning in the College of Arts and Sciences, the gardens are home to more than 3,000 plants, animals and natural habitats.

ANN CARNEY | USF News











Starfish in Antarctica During their long evolution, starfish have developed chemical defenses to survive the harsh Antarctic environment. The very chemical compounds which allow these and other marine organisms to thrive hundreds of feet below the Antarctic ice could be the basis for new drugs to cure cancer and other diseases. Photo: NORB WU

20 USF MAGAZINE | www.usf.edu

Searching for Clock of the Contract of the Con

Chemical compounds discovered in the farthest reaches of the natural world and optimized in the laboratory could lead to life-saving cures.

By ANN CARNEY and KATY HENNIG | USF News

In April, Bill Baker traveled to the end of the earth. It wasn't his first visit to the icy Antarctic; he's been making the annual trek for 20 years.

Baker is on a mission to bring back specimens — sponges, tunicates, sea anemones, corals and other marine invertebrates — that could hold the keys to treatments for cancer, malaria, Alzheimer's and other diseases.

The specimens will become part of the natural products library in the chemodiversity laboratory at USF's Center for Drug Discovery and Innovation (CDDI). There, a team of scientists will screen the samples against known targets for disease.

A reaction could mean the first step in the development of a life-saving drug.



For more than 25 years Baker, a natural products chemist and director of the CDDI, has been studying the chemistry of marine invertebrates, algae and microbiota. His research has taken him from the coastal mangroves of the Florida Keys to the understudied marine environments beneath the Antarctic ice.

Marine organisms, Baker explains, produce a variety of chemical defenses to ward off predators — defenses that have evolved over time. These chemicals interact with a predator's biological receptors much in the same way drug molecules interact in humans.

"Drugs interact with a person's biological receptors. So receptors in these defensive situations aren't that different than receptors in disease states," Baker says. "So the fact that a chemical defense for a sponge has activity against cancer is not all that surprising."

Finding the compounds that can alter the function of targeted cells can take thousands of samples and hundreds of tests. It can take millions of dollars and dozens of years. It's like looking for a needle in a haystack.

At the CDDI, a Florida Center of Excellence, scientists like Baker are involved in the earliest stages of drug discovery — identifying disease markers and molecular targets; isolating compounds from source organisms; screening natural and synthetic compounds against selected targets; and testing and optimizing potential new drugs for activity, selectivity, pharmacokinetic properties, reliability and cost.

It's basic research; research that used to be the exclusive domain of pharmaceutical companies but in recent years has seen a shift to academia.

USF's collaborative, interdisciplinary center brings together highly specialized equipment, an extensive natural products library, advanced analytic capabilities and the expertise of chemists, biologists, pharmacologists and other researchers to overcome some of the critical bottlenecks in the drug discovery pipeline.

"CDDI recognizes the expertise that we have across campus — the College of Medicine, the College of Public Health, the College of Engineering, the College of Marine Science, the College of Arts



and Sciences. Drug discovery is going on all over campus; it's amazing how common it is."

"The research is biological at times, it's pharmacological at times, and it's chemical at times," Baker says. "What CDDI strives to do is bring together those disparate groups to make projects."

Like finding a cure for malaria.

USF researchers played a key role in the discovery of a promising new drug with the potential to cure malaria and block its transmission (see story pg. 26). The USF researchers, led by Roman Manetsch, associate professor of chemistry, and Dennis Kyle, professor of global health in the College of Public Health, were part of an international, multidisciplinary research team.

Using advanced technology, the researchers identified a potential new drug derived from an old class of antimalarial compounds. The candidate drug is now moving toward clinical testing, the ultimate goal for early-phase drug discovery.

Jim Leahy, a medicinal organic chemist and professor in the CDDI, calls the malaria project a

Collecting Samples

A Extracts of natural compounds are dried and curated in the chemodiversity lab at CDDI.

B CDDI Director Bill Baker collects and explores compounds from around the world to catalog and screen against potential drug targets.

C Baker and his team dive below the ice in the Antarctic Sea to gather sponges, tunicates and corals. They've recently returned from a trip during which they gathered samples using a trolling technique.

D The samples are frozen and shipped to the chemodiversity lab where they are stored in the natural products library in a sub-zero freezer at minus 20 degrees Celcius.



perfect example of the process of taking a drug from the initial synthesis of molecules to the clinical trial phase — a process he says has taken about three years, not including the time spent looking for the target and searching for the right compound to make.

Given that the drug has not yet entered human trials, it seems likely that it is still at least seven years away from becoming an approved drug.

Identifying a target — a biomarker for disease, such as cancer, Parkinson's, Alzheimer's or malaria — is the first step in drug discovery. Once validated, researchers develop an assay, or test, to screen the target against thousands of compounds. At the CDDI, those compounds typically come from Baker's collection — one of the nation's largest and most unique collections of natural product samples. The researchers look for a "hit," or reaction, that could turn into a lead for a new drug.

But getting a hit is just the beginning.

Next, scientists must optimize the drug for activity and pharmacokinetic properties, such as solubility, absorption, metabolism and potency. They must

Seeking a Hit

E A culture from a fungus sample grows in the chemodiversity lab at CDDI.

F A crystal structure view of the protein shows a small molecule (green) binding inside a pocket in the active site of the protein. The molecule can be optimized to interact and control activity in the cell.

G The molecules go through a filtration and purification process based on their polarity.

Medicinal chemist Jim Leahy works to optimize the activity, pharmacokinetic properties, reliability and cost of developing small molecules.

Microscopic image of immunofluorescence of a cell.

ensure the drug does more than reach its target; it has to stick around long enough to do the job, but not too long. It has to be selective; it has to be safe and reliable; and it has to be affordable.

"It's definitely a balancing act; we optimize for everything," says Leahy. "A lot of times hard decisions come up because you may have a com-



pound that isn't as active, but you can make more metabollically stable or synthesize it for 1/100th of the cost. So you have to compromise in some ways to find the compound that is the most ideal version in all of these categories that can become a reasonable drug."

Optimizing potential new drugs means changing the structure of compounds to make them safer and more effective; for example, altering the design of a drug molecule to enable it to more powerfully bind to the parts of the target where it can have the greatest impact.

It's a process made possible with advanced chemistry techniques and faster technologies such as nuclear magnetic resonance, crystallography, computer modeling and mass spectrometry. The highly specialized technologies are available to researchers in the CDDI's laboratories and core facilities, including a chemodiversity laboratory, a proteomics facility, a protein production and cell biology laboratory, and a high field nuclear magnetic resonance facility.

Lindsey "Les" Shaw, a microbiologist and associate professor in USF's Department of Cell Biology, Microbiology and Molecular Biology, calls CDDI "an umbrella organization that brings the right people together."

"It can connect people like Bill Baker, Jim Leahy, Dennis Kyle, Roman Manetsch and me," he says. "We all have this collective experience of drug discovery and delivery."

Shaw is working with researchers at the CDDI to identify new antibiotics that could prove effective against the top six hospital-acquired bacterial infections in the United States today.

The bugs, or so-called ESKAPE pathogens (with each letter representing one of the different bacteria), are responsible for the majority of the 100,000 deaths from hospital-acquired infections seen in the U.S. each year.

"We'll take compounds from anyone to identify hits that we can turn into leads," Shaw says.

Right now he's focused on the CDDI's natural products library, which in addition to marine specimens from the Antarctic, includes understudied fungi from the Florida Everglades and Florida Keys.



J Researchers extract entophytes from the fungi in mangrove tissues. The endophytes have diverse characteristics, based on the harsh environments in which they grow.

In the wild, fungi coexist with bacteria in the soil. Perhaps some manipulation of the chemical defenses developed by fungi to ward off infection could be effective for humans.

"But it's not just about taking Everglades fungi and looking for something new; we have this cool epigenetic modification where we manipulate the fungi chemically and spook them into making new things," Shaw says. "The fungus makes compounds we then use to try to kill the bacteria." Shaw's research, like much of the work under way at the CDDI, is being funded by a federal grant.

"The beauty of what we do is one compound goes six ways because I have six different types of bacteria so I get six times the data," he says. "We used to just work on MRSA (Methicillinresistant *Staphylococcus aureus*) and then we decided to expand because there were so many hits that we were missing."

Finding hits and developing leads is a highly collaborative, interdisciplinary effort.

"It's a full university endeavor," Baker says, "with contributors from all over."

On the Brink of a Cure

USF researchers played a key role in the discovery of a new antimalarial drug with the potential to simultaneously cure and block transmission of the mosquito-borne disease.

Roman Manetsch, associate professor of chemistry, and Dennis Kyle, professor of global health, were co-leaders of the USF team that helped to discover and develop a series of potent compounds, known as quinolones, to combat malaria.

The researchers narrowed the most effective drug candidates in the quinolones series to one lead candidate — ELQ-300.

The drug candidate, which appears to be effective at low doses, could likely be produced more cheaply than existing antimalarial drugs — a huge advantage in treating a tropical disease that kills nearly one million people a year. In addition, in repeated animal experiments, parasites did not





Multimedia Report

The sample compounds gathered in Antarctica are cataloged and stored in the chemodiversity lab at the USF Research Park. View our multimedia report to step through the door of the sub-zero freezer and explore the intricate research under way at the Center for Drug Discovery and Innovation.



Scan the QR code or go to magazine.usf.edu to experience more.



develop resistance to ELQ-300, a major obstacle in drug development today.

"This is one of the first drugs ever to kill the malaria parasite in all three stages of its life cycle," says Kyle, a member of the Global Infectious Diseases research team at the USF College of Public Health. "If the drug can break the parasite life cycle, we may ultimately eradicate the disease."

The USF researchers were part of a larger Medicines for Malaria Venture (MMV) project team including Oregon Health & Science University in Portland, Drexel University in Philadelphia and Monash University in Australia. The newly identified drug class was derived from the first antimalarial quinolone, endochin, discovered more than 60 years ago but never pursued because it appeared not to work in humans.

Using new technology to optimize the quinolones, the project team demonstrated that the compounds were indeed highly effective against the most lethal strain of malaria, as well as the parasite responsible for the majority of cases of malaria outside of Africa.

"It was a balancing act to optimize an antimalarial drug so that it was soluble and metabolically stable, without compro-



mising its potency," Manetsch says. "We wanted a compound that within an individual would not break down too quickly, remain circulating in the blood for a long enough period to kill the parasites, and be highly active in blocking transmission in rodent models of malaria."

ELQ-300 targets a protein complex of the mitochondria, the energy household of a cell. Manetsch, with the help of Kyle's expertise in parasitology, and the resources of the CDDI, structurally modified the quinolone scaffold so that the drug candidate would hit only the malaria parasite's target while sparing the human mitochondria.

Now Kyle is working as a technical adviser to the MMV project team preparing the new drug candidate for clinical trials. If approved, ELQ-300 could mean the beginning of the end for a disease that is among the leading causes of illness and death worldwide. ■

ANNE DELOTTO BAIER | USF Health





By PETER E. HOWARD | USF News

Γ

om Unnasch sat in the Land Rover, bouncing over the deeply rutted dirt road leading to a little village of mud huts and maybe 200 people in the south of Ivory Coast, Africa.

As he stepped out of the vehicle, small children came running to see the stranger in their village. The youngsters wore tattered clothes. Food was scarce. What he saw, as he looked deeper into the community along the Bandama River, was palpable.

A small child, holding a long stick, was leading a blind man clutching the other end of the stick through the dusty paths between the huts. In another area, he saw more blind adults, unattended, stum-



SS

bling about.

The older men and women suffered from onchocerciasis, or "river blindness," a parasitic disease transmitted to humans through the bites of black flies.

The scene Unnasch witnessed in 1992 is repeated in countless other villages throughout sub-Saharan Africa, where at the time an estimated 60 percent of the adult population in rural areas, especially in areas close to rivers, was blind. It's a scene that has been constant for generations.

Thirty-eight million people are at risk. In Ivory Coast. Mali. Sierra Leone. Senegal. Democratic Republic of Congo, among others.

The affliction strikes youngsters just a few years old and incubates

Researchers are making progress in conquering a devastating parasitic disease.





Thomas Unnasch (top) in his lab on the Tampa campus, where graduate students are involved in several research projects. Below, Unnasch at an African village in the 1990s.

over years. Eventually it causes severe itching and inflamed tissues. Once it reaches the interior chamber of the eye — which can take 10 years or longer — scarring occurs that results in incurable blindness. The communities hardest hit just dissolve, the social structure crumbling from the debilitating impact of the disease on the population, both young and old.

"When I saw this, I said 'Oh my God, we've got to do something,'" recalls Unnasch, a professor in USF's College of Public Health.

"It was a life-changing experience for me."

homas Unnasch always wanted to do something "to make a difference to help people." After graduating from Rutgers University in his native New Jersey, he went on to graduate studies at MIT and Harvard. During postdoc work in Boston in 1985, he began to zero in on river blindness, conducting molecular analysis of the disease and how it attacks the body and looking at proteins that could be used to develop a vaccine.

Throughout his career, which included time at Case Western University and 19 years at the University of Alabama-Birmingham, Unnasch continued his research on molecular epidemiology in vector-borne diseases. Translated, this means he studies disease in people and animals caused by blood-sucking insects.

In 2007 Unnasch came to USF where he is currently chair of the Department of Global Health in the College of Public Health. The projects he's involved with focus on health problems that affect the global population intestinal ailments, malaria, West Nile Virus, Eastern Equine Encephalitis and emerging and infectious diseases.

During his research on river blindness — which has taken him to Central America, South America and Africa — Unnasch has worked closely with the Carter Center, from which he has received funding, along with the National Institutes of Health and the Gates Foundation.

He made his first trip to Africa in 1992 to set up a research lab in Bouake, Ivory Coast to study the disease and its transmission. It's when he made the journey south to the village along the Bandama River to witness the impact of the disease firsthand. River blindness strikes hardest in communities close to fast-moving rivers, where the black flies breed.

The infecting cycle is vicious and effective.

When the flies bite humans, infected larvae pass from the fly into the human. The larvae, over time, mature into worms and cluster under the skin. Male worms move from colony

When I saw this, I said 'Oh my God, we've got to do something.' It was a life-changing experience for me."

- THOMAS UNNASCH

to colony to mate with the females, which produce eggs that develop into larvae, called microfilaria. Thousands of microfilaria are produced daily inside the body.

If another fly bites an infected human, the microfilaria are transferred to the fly, which eventually will bite another human and infect that person. And on it goes.

The microfilaria migrate throughout the body and cluster. Areas of the skin can be so densely infected with microfilaria that 40 percent of the skin by weight is parasite.

When the microfilaria die under the skin of the host, it causes severe itching, lesions and swelling. If the microfilaria enter the eyes, lesions and scarring leave the corneas opaque, resulting in blindness. To reach this stage takes years.

If a child is infected when he is 3 or 4, Unnasch says, he'll go blind in his teens. A blind 15-year-old, in the prime of his life, can't farm the land, can't contribute to the sustainability



Unnasch has been involved in setting up seven research labs in Central and South America and Africa. Lab workers in Africa, (above) collect black flies to research the transmission of the disease, onchocerciasis.



The graphic above shows the cycle of onchocerciasis, or river blindness, one of the major causes of blindness in the world. of the village. Multiplied over and over again, the village just collapses.

But there is hope.

Back in the early 1990s, river blindness not only impacted sub-Saharan Africa, but it was found in 12 regions in Central America and the northern part of South America. Then came the development of the drug ivermectin to fight the disease, which was approved for human use in 1995.

It was widely distributed to indigenous populations at risk, and now river blindness has been eliminated in 11 of the 12 regions in Central and South America, Unnasch says. Just pockets of population are still battling the disease, but more than 99 percent of the people at risk are now free of the disease.

To conquer the disease, Unnasch says, the population needs to take ivermectin pills twice a year for 10 years. Ivermectin kills the larvae, or microfilaria, that cause the severe itching, swelling and reach the eyes. But the female worms that produce the larvae continue to live under the host's skin. The worms have a life cycle of 10 years, so treatment needs to continue until the worms die.

Once all the hosts are free of the microfilaria and worms, the disease is eradicated in the community. The black flies no longer transfer infected larvae. The drug company Merck has donated millions of doses of ivermectin under the brand name Mectizan to combat onchocerciasis, and the company is committed to the donation program until the disease is eradicated worldwide.

The fight continues, Unnasch says, but it's more difficult in Africa, where remote villages are hard to reach, and treatment to the entire population is challenging.

"Getting the drugs out to where they need to go is daunting," he says.

Unnasch returns to Africa once or twice a year, and is heading back there in August. The lab he helped start in the Ivory Coast in 1992 was relocated to Burkina Faso in 2000. He has helped establish other labs in Africa — in Nigeria, Uganda and Sudan and several others in Mexico, Ecuador, Guatemala and Brazil.

Unnasch was not involved in the development of ivermectin, and the distribution of the drug is handled by the individual communities.

The labs Unnasch helped establish continue to monitor the transmission of onchocerciasis and work to develop better monitoring tools and collecting traps. They also develop remote sensing models to predict the disease locations.

If the transmission cycle is broken, scientists know progress is being made in eradicating the disease. One





village at a time. One region at a time. Central and South America have had great success. Last year, Uganda reported the disease transmission cycle broken in several areas of the country.

"A tremendous amount of progress has been made in the past 20 years," Unnasch says.

"We've got this thing on the run."

A Carter Center lab worker displays blood samples collected from children to determine if they have been exposed to onchocerciasis.

At left a woman holds a vial filled with black flies.

A tremendous amount of progress has been made in the past 20 years."

- THOMAS UNNASCH

Perfect Pitch

Fifth annual Fintech Business Plan Competition celebrates entrepreneurial spirit at USF.

By HILARY LEHMAN | College of Business

hen Casey Henry walked before the panel of judges in the Fintech Business Plan Competition in April, she was unsure about her chances of getting funding for her startup business: a paintball field.

The finance major was sure of herself and the numbers behind her budding business, but she knew she was the only solo undergraduate student among the student-owned companies vying for the \$15,000 prize. And she knew she was up against others who were hawking trendy concepts.

As the finale to nearly four hours of presentations, Henry needed to make a big impression on the judges. She had presented her 25-page business plan to banks in the past, and while they all complimented her plan, none had come through with funding.

"Paintball. I know what you're thinking," the petite, 21-year-old confidently told the USF judging panel. "So what? Who cares?"

By the end of her rapid-fire 10-minute presentation, Henry had convinced the judging panel to care about South Tampa Paintball.

"The best presentation of anybody

today," said Scott Riley, CEO of sponsor company Fintech and a serial entrepreneur himself, acknowledging that he originally was skeptical of Henry's concept. "You're right on, you've got everything buttoned down."

Now in its fifth year, the Fintech Business Plan Competition has provided \$75,000 in seed money to local companies owned by USF students from all disciplines. The cash prize is just one perk of competing: the judges and cosponsors offer in-kind services, such as accounting and legal advice, that are invaluable to a company trying to find its footing. The judges, local business leaders who have built their own companies brick by brick, grill presenting students on the mechanics of their planned startups and point out strengths and pitfalls.

Henry was competing against six other student-owned companies looking to the Fintech competition to fuel their dreams of owning a viable business. And whether the idea was a curvy solar panel, a grocery catering to low-income families, or a company selling biomedical supplies to third-world countries, many of the presenters captured the panel's attention.

"It was a very hard choice, and it took us a while to figure it out," Riley says.





"There were three to four definitely strong, viable concepts that I think are going to be successful businesses. I think they'll definitely get off the ground, which is a big step from just entering a contest."

The annual contest is hosted by USF's nationally-ranked, interdisciplinary Center for Entrepreneurship, part of the USF College of Business, in collaboration with the College of Engineering, the Morsani College of Medicine and the Patel College of Global Sustainability. Center Director Michael Fountain says the competition exemplifies the way USF goes about entrepreneurship education: bringing students to the intersection of education and practice, and providing opportunities for engineers, doctors and business people alike.

By this summer, 17 companies that have competed in the Fintech Competition will have launched, Fountain says.

"I want to be able to look across the Tampa Bay region, the state and even the nation and see our students creating successful businesses," he says.

Riley started sponsoring the contest to help entrepreneurs like himself. "I've just been impressed by the quality of the students that were involved in the program," he says. "The Center for Entrepreneurship teaches them to think like an owner, not an employee." to sell their ideas, whether they aspire to advance to the corporate boardroom or launch their own companies."

Engineering masters student Joe Arthur came up with a concept for a solar panel that co-generates energy and heat several years ago, and has been competing in entrepreneurial funding competitions since then. Arthur explains that his concept is unique because the panel is made up of parts that are already commercially available. The competition, he says, helped him understand he needs to clearly convey that to a layperson seeking to invest.

"Every time you go in front of a group of investors, they have a different set of questions to make you prove your business idea," says Arthur, who works in the energy industry. "The group of Fintech judges was very diverse and very schooled in the different aspects of running a business."

For some contestants, the business plan competition was about more than making a living. Abdoulie Jammeh, a native of Gambia and an Executive MBA student, hopes to help developing countries with his business, MedAlign, a company that would sell overstock biomedical supplies at a deeply discounted rate.

The Fintech Business Plan Competition has provided \$75,000 in seed money to local companies owned by USF students.

"This competition helps prepare students for success as entrepreneurs who create companies and jobs," says College of Business Dean Moez Limayem. "It also helps foster the kind of thinking that intrapreneurs — people who think like entrepreneurs but work for more traditional businesses — need to be successful," he adds. "We want students to think creatively and be able The company's launch is scheduled for next year.

While MedAlign would operate on a forprofit basis — Jammeh's business plan estimated \$3 million in profit from selling to Gambia alone — it would meet a need African nations face: a lack of necessary medical supplies to perform basic surgeries and medical proce-

dures. And, it would also reduce waste from the American side.

Jammeh's passion stems from a deeper, personal source. In 2009, his sister died at age 30 in Africa because there were not sufficient tools to diagnose her illness.

"At many hospitals, these basic supplies are not there," Jammeh says. "When these things happen in your family, you never quite move on, but the way you can turn it around is to use it in a positive venue."

Closer to home, third year USF medical student Andrea Little and information technology student Hector Angus started 1 Apple Grocery in Tampa's Sulphur Springs neighborhood to help provide healthy choices for a neighborhood with few big box grocery stores. The store contracts with the WIC (Women, Infants, and Children) office that provides federal grant money to help low-income families eat a nutritionally balanced diet. WIC recipients are provided with a voucher for food items, but it can be challenging to find WIC-approved items in typical grocery stores.

Everything at 1 Apple is already WICapproved, and can be purchased with a voucher. The store's location across the street from the WIC office means that customers can walk straight from getting their voucher at the WIC office to the grocery store, important because many lack reliable transportation.

Launched in 2012, 1 Apple Grocery turned a profit by its seventh month, but Angus and Little hope to open other stores by 2014. Though 1 Apple was named as a runner-up in the Fintech competition, Angus says the process gave them business insights and helped them hone their presentation skills.

"Sometimes you win and sometimes you learn," Angus says. "We gained a lot of knowledge from interacting with the array of business people who were there that day. You can't put a dollar value on the experience we had."

With the \$15,000 in hand, Henry aims to open her paintball field in July. The business will cater specifically to teams playing competitive tournament paintball, as well as group recreational paintball, to avoid dips that come with turns in the economy. Henry estimates a 22 to 27 percent profit margin of \$39,000 to \$50,000 within the first year.

Henry, who transferred to USF in her second year, says part of what drew her to the university was its location in the midst of a thriving business community where she could pursue her ambitions in the real world as well as the classroom.

The Fintech competition, she says, solidified her identification as a USF Bull — tying her business dreams to her student status. ■

Campaign

Enhancing STEM Education

A program designed to deliver 80 science, technology, engineering and math (STEM) teachers to Hillsborough County public middle schools by 2017 is taking shape at USF and it's being made possible by a \$3.16 million gift from Helios Education Foundation.

The gift to the USF College of Education, part of the *USF: Unstoppable* Campaign, is the foundation's largest single investment in USF, and it builds on the rich history of collaboration between the two organizations.

The new Helios STEM Middle School Residency Program aims to develop highly qualified and effective math and science teachers in response to numerous calls to enhance STEM education in the United States. Research shows U.S. students under-perform their peers from other nations, including many less developed countries, in math and science literacy.

Experts say one of the biggest factors responsible for the decline is the fact that up to 93 percent of middle grade students in the U.S. are taught math or science by teachers without a degree or certificate in the appropriate field.

"In order to ensure that our students are prepared for the 21st century's globalized economy, we must first ensure that our teachers are prepared by providing them with the necessary training and professional development they need," says Paul Luna, president and CEO of Helios Education Foundation.

"This innovative, new residency-based program will not only help prepare future math and science teachers but it will provide them with the skills needed to increase student performance in STEM."

Beginning this summer, instructors in the College of Education will tailor coursework to focus on the middlelevel education needs of both students and STEM teachers. The first of two planned cohorts of 40 prospective

math and science teachers will begin classes in fall 2013, and complete two semester-long practicums by the end of spring semester 2014.

The following fall, as the second cohort of teachers begins classes, the first group will begin year-long residencies co-teaching alongside credentialed teachers in high-needs schools.

By the time both cohorts finish the program, officials estimate 20,000 middle school students will have benefited from classrooms with the additional support — and as many as 100,000 students over a 10-year period.

But the program won't stop there, says Gladis Kersaint, associate dean for research in the USF College of Education and the project's principal investigator.

"We intend to make this program a permanent offering for our students in the College of Education."

Kersaint initially conceived the idea for a STEM middle school residency

program in 2010, with then-Dean Colleen Kennedy. They presented their idea to Helios Education Foundation and began developing a detailed proposal after receiving interest from the foundation. The novel program is a collaborative effort between Helios Education Foundation, the USF College of Education, the College of Arts and Sciences, the College of Engineering and the Hillsborough County Public School System.

In order to ensure that our students are prepared for the 21st century's globalized economy, we must first ensure that our teachers are prepared ..."

- PAUL LUNA

USF President Judy Genshaft says the institution is "immensely grateful to our friends and partners at Helios Education Foundation for their continued confidence in our education programs, and for yet another opportunity to contribute to the quality of instruction in local schools."

Helios Education Foundation is focused on creating opportunities for individuals to succeed in postsecondary education by advancing the academic preparedness of all students and fostering a high-expectations, college-going culture in Arizona and Florida. Since its inception in 2004, the Foundation has invested over \$125 million in education-related programs and initiatives across both states.

ANN CARNEY | USF News

USF: UNSTOPPABLE

To date, the *USF: Unstoppable* Campaign has raised more than \$591 million of its \$600 million goal. To learn more about the campaign and opportunities for giving, visit www.unstoppable.usf.edu.

SoftBall

The Bulls left nothing to chance on the way to securing the program's first Big East tournament championship on May 11 in Tampa.

USF posted three straight shutouts in a tournament that was highlighted by Big East Pitcher of the Year Sara Nevins. The junior left-hander pitched 9 2/3 scoreless innings in the Bulls' 1-0 win over Notre Dame in the championship game and earned most outstanding player honors by totaling 22 2/3 innings of shutout work.

Ashli Goff provided the goahead run in the top of the 10th frame to help the Bulls earn an automatic bid into the NCAA tournament. USF started its run in the Gainesville Regional for the second consecutive season.

"We all just pulled together at the end. We've been waiting so long for a Big East championship," Goff says. "We just wanted to get the game over with."

The softball team's triumph over the Irish brought the school's Big East tournament title count up to six. Head Coach Ken Eriksen's squad joins the 2007 USF women's tennis team, the 2008 men's soccer team, the 2009 men's tennis team, the 2012 women's golf team and the 2013 men's golf team as Big East tournament champions.

TRACK & FIELD

The USF track and field team won six individual titles at the Big East Outdoor Championships while the women's team finished third and the men's squad took fourth place May 5 at Rutgers University.

Grad student Aireonna Bailey earned the women's most outstanding performer of the meet award after winning the 100-meter and 200-meter titles.

Two-sport star Derrick Hopkins captured the men's 100-meter title while Monique Williams and Matthew O'Neal completed the USF sweep in the triple jump. Neamen Wise repeated as the Big East's long jump champion.

Taking Home the Titles

MEN'S GOLF

The Bulls pulled away from the pack down the stretch to win their first-ever Big East Men's Golf Championship on April 30 in Kissimmee.

USF combined to go 7 under on the back nine and finished at 6 under, four shots ahead of St. John's. The Bulls were tied for the lead through 15 holes before seizing the conference's automatic bid to NCAA Regionals. The win also marks the USF men's golf team's 12th conference championship after finishing tops in the Sun Belt from 1979-1989.

The recognition flowed in after the big win as Chase Koepka became the first player in conference history to be named both Big East Player and Freshman of the Year. Chris Malloy was named Big East Coach of the Year for the first time while Trey Valentine and Richard James joined Koepka on the All-Big East Team.

Stories by TOM ZEBOLD | USF Athletics

Golf team's Big East title win featured in New York City's Times Square.

Patrizia La Trecchia

A Passion for Food

Ever since Patrizia La Trecchia was a child growing up in Tuscany, food has played a central role in her life.

From the early memories of her grandmother's thick-crusted pane e pomodoro to the ethnic cuisines she has experienced as an adult, La Trecchia defines her identity in terms of the culinary narratives that have shaped her life.

Today, La Trecchia is associate professor and director of the Italian Program in the USF Department of World Languages. Her research focuses on Italian and European film, culture, migration, food and identity, globalization, and food waste.

She has been a member of the advisory board of the Gasparilla International Film Festival since 2007, and is a member of the Habitat Partner University Initiative Committee on Food Security representing USF at UN-Habitat. In February, as one of nine presenters at the inaugural TEDxUSF, La Trecchia shared her deep connection to food and publicly urged a war on food waste. Next year she will

QuickTakes

You in a word: Passionate

Pasta or pizza: Neapolitan-style pizza

Food or film: That's cruel!

Favorite local dessert: Donatello's la torta millefoglie

Pet peeve: Self-centered, narrow-minded people

travel to Rome where she will spend her sabbatical semester as an associate researcher at the Food and Agriculture Organization of the United Nations.

What brought you to the United States?

I am an intellectual migrant. I have some Italian-American heritage, so there always was this 'U.S. thing' in my house. I came to the United States for graduate school; I wanted to be in academia, which is very hard in Italy.

When did you discover your passion for food?

It's not one of those things you discover all of a sudden. As a child, I relocated often and had to develop creative ways to adapt. I developed a passion for thinking, observing and reading. I remember this idea of watching people cook. I remember observing and smelling. Food for me is a great connector — it brings people together.

How does food encourage learning?

At the end of each class I teach we have a class over dinner. I notice when you bring food in the classroom, something changes. People open up over food.

Why is food waste such an important issue?

Food waste is huge; it is a tragedy. It is impairing the sustainability of our planet. I am also very concerned about global hunger. High quality food is not available to everyone in a democratic way.

What can we do to reduce food waste?

We need to rethink our relationship with food at the consumer level, the

provider level and the producer level. The media needs to rethink how food is portrayed.

What do you want your students to leave knowing?

I would like them to be well-rounded individuals. I would like them to be curious — like children, like little renaissance people. To be a great human being you have to have the passion to learn all the best that humans have done in all fields of inquiry.

What would people be surprised to know about you?

I am shy. But I tell people, just like learning how to act, you can learn how to socialize. Describe the perfect meal. I am preparing it for a friend tonight: We'll start with a glass of prosecco; some minestrone; baked cod Livorno style; orange and fennel salad with sweet balsamic vinegar; my personal variation on crema di riso, a Tuscan recipe for rice pudding; and of course, some limoncello.

ANN CARNEY | USF News

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Looking forward to changing the world."

BRYCE MOSELEY
B.S. in Environmental Sciences
May 3, 2013, Sun Dome, Tampa, Fla.
2:22 p.m.

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