

2016

Research Briefs

Follow this and additional works at: <https://digitalscholarship.unlv.edu/innovation>

Repository Citation

(2016) "Research Briefs," *UNLV Innovation*: Vol. 9, Article 4.

Available at: <https://digitalscholarship.unlv.edu/innovation/vol9/iss1/4>

This Research Briefs is protected by copyright and/or related rights. It has been brought to you by Digital Scholarship@UNLV with permission from the rights-holder(s). You are free to use this Research Briefs in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/or on the work itself.

This Research Briefs has been accepted for inclusion in UNLV Innovation by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact digitalscholarship@unlv.edu.



SOME LIKE IT HOT
UNLV researcher Brian Hedlund and fellow scientists identified a new bacterial phylum that lives exclusively in hot springs.

Bacterial Discovery Highlights Biology of a ‘Deep-Branching Lineage’

UNLV’S BRIAN HEDLUND IS ONE OF A group of scientists who use genomic sleuthing to discover “novel branches on the tree of life.” He and his colleagues’ latest breakthrough, published earlier this year in the journal *Nature Communications*, involves the identification of a new bacterial phylum that, when accredited, will become one of just 29 bacterial phyla identified to date.

Dubbed “Kryptonia,” the phylum consists of bacteria that live exclusively in hot springs—in this case, the Great Boiling Spring in Nevada, Dewar Creek Spring in Canada, and the Gongxiaoshe and Jinze pools in China. It was discovered through the combined examination of single-cell genomics and metagenomics data—a type of genomic analysis

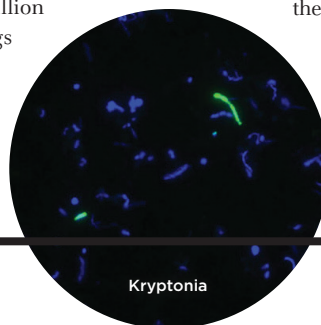
that, as described by *Nature*, “is based on microbial DNA extracted directly from communities in environmental samples.”

The research, organized by the U.S. Department of Energy’s (DOE) Joint Genome Institute, provides the first insights into the biology of this deep-branching lineage of bacteria, which likely diverged from other major lineages over a billion years ago. The team’s findings also indicated the presence within Kryptonia of a “phage-defense system,” a type of immunity to foreign bodies that can be used to trace

infection history and the specific foreign bodies that caused it.

Because Kryptonia has the ability to digest plant matter, Hedlund says further research could lead to the discovery of commercial applications of useful enzymes encoded by Kryptonia genomes. “I do believe that applications are there if people spend time and money looking for the microbes,” he said in a DOE Joint Genome Institute news release.

Hedlund’s work at UNLV focuses mostly on life in high-temperature habitats, providing unique insights into the foundations of life, the functions of major new microbial lineages, and the diversity of life on Earth. This Kryptonia publication marks Hedlund’s fifth appearance in high-impact journals published by the Nature Publishing Group since 2013.



Kryptonia

NEW 'INNOVATION CORPS' TO BOOST CAMPUS ENTREPRENEURS

AN INTERDISCIPLINARY TEAM OF UNLV business and engineering faculty members has received funding from the National Science Foundation (NSF) to develop an "entrepreneurship advancement program" aimed at enhancing ongoing commercialization efforts at UNLV.

The three-year, \$255,000 grant will create an "innovation corps" site that will nurture and support faculty members, staff, and students seeking to bring university-developed technology into the marketplace. The I-Corps sites will provide infrastructure, advice, resources, networking opportunities, training, and modest funding.

Andrew Hardin, associate dean for research in the Lee Business School, will serve as lead principal investigator. Engineering faculty members Brendan O'Toole and Pushkin Kachroo will serve as co-PIs. The project will be housed in the UNLV Center for Entrepreneurship and the Mendenhall Innovation Program in the Lee Business School, and will involve the Division of Research and Economic Development and the Nevada Small Business Development Center.

"This is an exciting opportunity for our campus and for the business community," Hardin says. "This funding will enable us to provide teams up to \$3,000 each for prototype refinement and customer development."

Hardin says team membership will have three components: a student, postdoctoral fellow, or staff member who will serve as an "entrepreneurial lead"; an "academic lead" from UNLV faculty to act as the principal investigator on future proposals or submissions to NSF; and a private-sector "mentor" with industry-relevant experience.

"This grant provides funding and support for the unified efforts of the Lee Business School, the Division of Research and Economic Development, and the Howard R. Hughes College of Engineering to promote UNLV commercialization opportunities and to increase engagement with the community," says Zach Miles, associate vice president for the Office of Economic Development.

Students and faculty with discoveries will be encouraged to apply to the program. A committee of UNLV faculty and staff, along with business community members, will choose the most promising ideas for funding.

GRANT FUNDS RESEARCH TO PREVENT HIV TRANSMISSION IN NIGERIA

THE NATIONAL INSTITUTES OF HEALTH (NIH) RECENTLY AWARDED A FIVE-YEAR, \$3.3 million grant to Echezona Ezeanolue, a professor of pediatrics and public health at UNLV and the director of the UNLV Global Health Initiative. The funding will allow Ezeanolue to evaluate the effectiveness of Intervention for Sustained Testing and Retention (iSTAR), an international effort aimed at reducing mother-to-child transmission of the HIV virus in Nigeria.

iSTAR is designed to test, link, engage, and sustain HIV-positive women in health care, Ezeanolue says. His current project will assess differences in linkage, engagement, retention, and viral suppression rates among patients using the "community-and-clinic-based intervention approach," a social-networking model advocated by iSTAR, versus those who use clinics alone.

Researchers will randomly assign 400 HIV-positive women from 50 churches in Nigeria's "South South Zone" to either iSTAR or a clinic-based program, then track the differences between the two groups. As part of the study, iSTAR will provide participating women with confidential, on-site integrated laboratory testing and access to a network of church-based health advisors. In addition, the project will deploy clinic-based teams trained in "motivational interviewing," a form of engagement meant to mitigate harmful human behaviors; advance quality-improvement skills that can help health care workers more fully engage and support HIV-infected women; and implement integrated case management to help clinicians better coordinate patient care and assistance.

"We are hoping to reduce HIV treatment dropout, increase retention, and reduce mother-to-child transmission," Ezeanolue says. "Fifty thousand children are infected with HIV each year. Our goal is to drop that number."

The iSTAR program is a collaboration among the University of Nigeria; the University of Southern California; the University of California, San Diego; the University of Illinois at Chicago; Nevada State College; and UNLV. Chima Onoka, a health economist and community health physician at the University of Nigeria, will serve as a co-principal investigator for the grant. The study is supported by the NIH's Eunice Kennedy Shriver National Institute of Child Health & Human Development.

PASSIONATE ABOUT PREVENTION Echezona Ezeanolue aims to reduce mother-to-child transmission of HIV.





RESEARCH THAT ROCKS Music video games may make players smarter, according to three UNLV researchers. So rock on!

MUSIC-ORIENTED VIDEO GAMES IMPROVE MUSIC LISTENING SKILLS

KIDS DRIVING YOU CRAZY BY ROCKING OUT AT ALL HOURS ON Rock Band and Guitar Hero? Relax. Research findings from three UNLV psychology researchers suggests they may be laying the groundwork for a lifetime of sophisticated music appreciation.

The study, conducted by doctoral student Amanda Pasinski with Erin Hannon and Joel Snyder (both associate professors) showed that people who often play music video games tend to outperform nonmusicians on music-related listening skills, such as the perception of melody, tuning, tempo, and rhythm.

"It's well established that 'trained musicians' outperform 'nonmusicians' on measures of sensory, cognitive, and motor functions," Pasinski explains.

The conventional wisdom, she adds, has long been that the only way to gain these cognitive benefits was to engage in formal training. "But not everyone has the time, money, or perseverance to learn a musical instrument," she says.

Pasinski and her collaborators wondered whether music video games might fill the void. To find answers, the researchers tested music skills among three groups of people: traditionally trained musicians, nonmusicians, and music video game players (or "gamers," in the parlance of the Xbox crowd).

"We found that scores on the Profile of Music Perception Skills, a test of basic musical listening abilities, were equivalently high for formally trained musicians and music video game players, who both scored higher than nonmusicians," Pasinski says.

The researchers say the reasons why gamers scored so well are not entirely clear. It could be that playing music video games directly improves musical aptitude. But it's also possible that gamers (especially those who mimic real musicians in games such as Rock Band) tend to already have natural musical talent. Further research should provide answers.

According to Pasinski, this is the first study to suggest that musical aptitude may be higher among individuals who engage in informal music activities. "Our findings support the notion that such listening advantages are not limited to musicians who have the time and resources to pursue formal training," Pasinski says.

The study was published in the journal *Psychonomic Bulletin & Review*.

WALKER RECEIVES TOP NSHE RESEARCH AWARD

THE NEVADA SYSTEM OF HIGHER EDUCATION

(NSHE) bestowed its top annual research honor, the Nevada Regents' Researcher Award, to UNLV School of Life Sciences professor Lawrence "Lars" Walker.

This award is given to a faculty member who has made major advances in his/her field and has served the NSHE at least 10 years. Recipients must be nominated for this honor, which carries a \$5,000 stipend.

An acclaimed plant ecologist, Walker studies community assembly in succession, or how groups or communities of plants grow after a disturbance occurs and how they change during decades and centuries following a disturbance. He has studied succession after disturbances from volcanoes, melting glaciers, landslides, floods, mining, and abandoned roads.

Walker also studies how to restore damaged ecosystems by manipulating responses to disturbances, and he compares ecosystem responses across disturbance types and a variety of countries and climates to find generalizable patterns. His research is vital to understanding how disrupted ecosystems respond and how these responses can be modified to benefit society's interests in hazard management, clean water, soil conservation, and other advantages that intact ecosystems provide.

"Professor Walker has had an exemplary career here at UNLV as both a teacher and as a researcher," says Tim Porter, the former dean of the College of Sciences and Walker's dean when he received the award. "His work in plant ecology and how plant life responds to extreme environmental events has become increasingly important as the world faces unprecedented biological challenges owing to both natural and man-made factors."

Walker's work has earned approximately \$17 million in funding from agencies, including the U.S. National Science Foundation, U.S. Fish and Wildlife Service, National Park Service, Bureau of Reclamation, U.S. Forest Service, Bureau of Land Management, academic institutions, private corporations, and the New Zealand government.

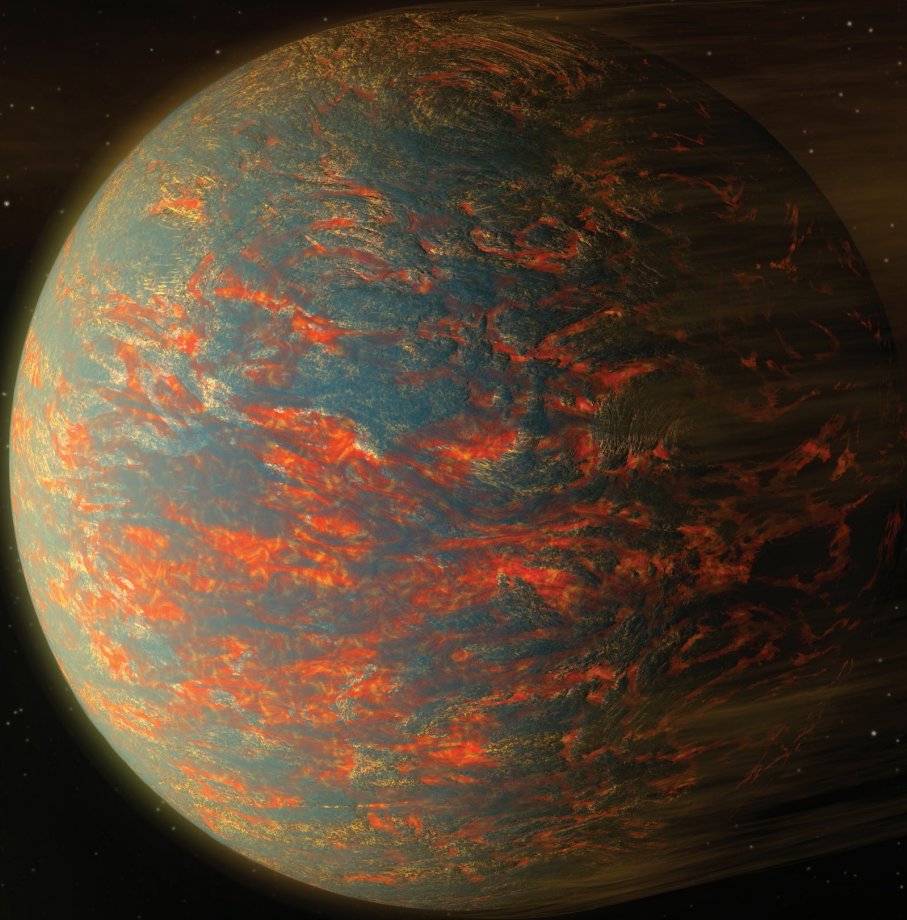
Walker's 133 peer-reviewed publications have been cited more than 11,000 times, making him one of the top three scholars at UNLV in citation strength. Walker has received other prestigious research awards as well, including

the Barrick Scholar, the Barrick Distinguished Scholar, and the College of Sciences' Distinguished Researcher Award.

He is the second consecutive UNLV researcher to win the Nevada Regents' Researcher Award. Engineering professor Kwang Kim won the award in 2015. Prior to Kim, the honor was bestowed on philosophy professor Maurice Finocchiaro in 1993 and former life sciences professor Warren Burggren in 1997.



Walker



ALTER EGO Did another version of Earth exist before ours? Yes, according to UNLV astrophysicists Rebecca Martin and Mario Livio.

SCIENTISTS POSTULATE THE RISE AND FALL OF AN ANCIENT 'SUPER-EARTH'

A STUDY BY TWO UNLV ASTROPHYSICISTS SUGGESTS that a super-Earth—a planet larger than Earth but smaller than icy giants such as Neptune and Uranus—may have formed in the early days of our solar system before falling into the sun and being destroyed.

Rebecca Martin and Mario Livio, both professors in the physics and astronomy department at UNLV, infer the previous existence of a super-Earth based on the presence of similar bodies in so-called “exoplanetary systems,” solar systems that orbit a star other than our Sun.

“The lack of super-Earths in our solar system is somewhat surprising, given that more than half of observed exoplanetary systems contain one,” Martin says, adding that “there is no planet in the intermediate mass range between the Earth and giant planets such as Neptune and Uranus.”

Our solar system is also unusual in that there are no planets in the region inside Mercury’s orbit, the researchers say. Other exoplanetary systems can have several planets in that region, but we don’t have any.

There are two theories as to how super-Earths form, Martin says. One is that super-Earths form in situ (where they are

currently observed), which would have to be close to the sun.

Forming in situ requires the presence of a massive “disk” around a star, one with lots of material. Stars are born from the collapse of a massive cloud of gas. When that collapse involves angular momentum or spin, a “protoplanetary” disk of dust and debris continues to circle the newly formed star. These protoplanetary disks are thought to have cold “dead zones” that allow solids to settle and form into a super-Earth-size planet.

The second theory is that super-Earths form further out, where there is more solid material, and then migrate inward through the disk to where they reside.

Martin and Livio’s work combines these two ideas, speculating that both processes could be occurring around different stars. If the dead zone is large, a super-Earth could form close to the sun. But if the dead zone is too small, the super-Earths form further out, where there is more solid material, and then move inward.

“We think that the reason we don’t have any super-Earths is that they formed in this inner part of our solar system where there is now nothing, clearing out all of the solid material before falling into the sun,” Martin says.

Martin and Livio’s research was performed using computer modeling and numerical simulations with information from the Kepler telescope. The results were published in the *Astrophysical Journal*.

NATIONAL ARCHIVES GRANT FUNDS PRESERVATION OF GAMING COLLECTIONS

UNLV UNIVERSITY LIBRARIES SPECIAL COLLECTIONS' CENTER FOR GAMING

Research was awarded a \$129,000 grant from the federal National Historical Publications and Records Commission, an agency of the National Archives. The funding will support a two-year project aimed at preserving and making more accessible three important archival collections on gaming and gambling.

Archivists say the collections—consisting of the Katherine Spilde Papers on Tribal Gaming (1974-2012), the Eugene Christiansen Papers on Gaming (1970-2008), and the Gary Royer Papers on Gaming (1955-1996)—will provide new insights and historical contexts related to the rapid expansion of casinos and legalized gambling in the United States between 1970 and 2010.

"Making these collections more widely available will add to the University Libraries' already strong reputation in documenting the gaming industry and help us continue to attract interdisciplinary scholars from around the world to study gambling and gaming at UNLV," says Michelle Light, director of the University Libraries Special Collections and the project's principal investigator.

The grant, Light says, will fund two temporary archivist staff members who will organize, preserve, describe, and publicize the collections. The University Libraries will then generate online finding aids and catalog records to help researchers discover the collections and use them.

The project, titled "America's Great Gamble: A Project to Promote the Discovery of Sources About the Expansion of Legalized Gambling Across the United States," launched on April 1, 2016.



A BOOMING BUSINESS

Left: Construction workers build a resort property. Right: William F. Harrah (right), founder of Harrah's Hotels and Casinos, personally contributed to the expansion of gambling from the 1930s through his death in 1978, and his legacy lives on in the gaming community as well as at UNLV, as he is the namesake of UNLV's William F. Harrah College of Hotel Administration.



BY THE NUMBERS

SEED FUNDING SUCCESS

UNLV's Faculty Opportunity Awards (FOAs) were created in 2012 with the goals of supporting faculty research with potential for continued external funding and providing financial support needed to complete significant scholarly/creative works. Awarded annually, the FOAs have produced the following success metrics:

11 million

Number of dollars generated through external agency funding from 2012 to 2014

35

Percentage of FOA-related proposals' approximate success rate with external agencies

8.2:1

Ratio of funding dollars received to dollars invested since the FOAs were established

24

Number of FOAs funded out of 68 submitted in 2016

597,408

FOA dollars funded in 2016

8

Number of UNLV colleges represented in 2016 FOA funding

RISING STAR

Elisabeth Hausrath received an award for researching Mars' soil, which may someday provide insight into life on the planet.



GEOSCIENTIST AWARDED NEVADA REGENTS' RISING RESEARCHER AWARD

UNLV GEOSCIENCE PROFESSOR ELISABETH (Libby) Hausrath was honored with the Nevada Regents' Rising Researcher Award during the Nevada System of Higher Education Board of Regents' March 4 meeting.

Hausrath, who joined the UNLV faculty in 2009, conducts research on soil-forming processes, water-rock interaction, chemical weathering, and the geochemistry of the planet Mars. Her work was previously featured in the Winter 2014 issue of *Innovation*.

One of her most high-profile projects involves working to interpret data from NASA's Mars Exploration Program, an investigation that will determine how soil and water might have once interacted on the surface of our solar system's most Earthlike neighbor.

"My research program aims to better understand chemical weathering and soil

formation on Earth and on Mars," Hausrath says. "The Mars Exploration Program results in increasing amounts of fascinating data from Mars. Our goal is to help interpret and understand these data and their implications for Mars as a potentially habitable planet."

Her research team also conducts analyses of clay minerals and clay-mineral precursors. Because these form in the presence of water, they are of intense interest to scientists studying habitability.

"Our research on transitions in clay-mineral chemistry is yielding fascinating results that may help us better interpret the potential habitability of clay-mineral-containing Martian environments," Hausrath says. "This project is providing new insights that could lead to further studies conducted at UNLV or other institutions."

Her work has implications closer to home as well; she has received external funding from agencies supporting her work.

"I am part of a group that recently received funding to look at snow dynamics," Hausrath

says. "We are examining interactions between snow algae, microorganisms, and minerals in the nutrient-poor environment present in snow, which may also be an analog to Mars. I am also interested in impacts of minerals, particularly phosphate minerals, on prebiotic chemistry."

Hausrath received her bachelor's degree in geology-chemistry from Brown University. She earned a doctorate in geoscience and astrobiology from Penn State University and worked as a National Science Foundation graduate fellow there. She received a NASA postdoctoral fellowship to work at the NASA Johnson Space Center, where she began to study phosphate mobility on Mars.

She was also recently selected by NASA to be one of 14 scientists to serve on the Returned Sample Science Board to help provide scientific input into the design and implementation of the upcoming Mars 2020 rover mission. Her publication record includes articles in *Nature Geoscience*, *Geobiology*, *American Journal of Science*, *Astrobiology*, and *American Mineralogist*.

RACING AHEAD Interdisciplinary research led to game-changing technology that could help health-conscious people (like the one shown here, in UNLV's Student Recreation and Wellness Center) track their activity and nutritional data.



RESEARCHERS' HEALTH-TRACKER TECHNOLOGY LICENSED BY STARTUP

SMARTWATCHES THAT HELP YOU TRACK DAILY STEPS and heart rate? That's old hat, according to UNLV researchers who have recently licensed their latest patent for a fitness tracker that makes calorie-counting as easy as taking a picture.

Professors in engineering and nursing set out to up the ante in the wearable-technology industry by creating a device that combines and exceeds the best of existing activity-tracking devices such as Fitbit. UNLV's version will merge current fitness-assessment functions with camera and scanning technology that allows users to photograph their food and find out its nutritional content, including the caloric value, based on the type of food, portion sizes and fat content.

"The missing piece within the fitness tracking space is nutrition monitoring," says Jason Pottinger, director of business strategy at MealCheck Technologies, Inc.—the startup that, per a recently signed licensing agreement, will commercially

develop, manufacture and sell UNLV's device. "What can't be accomplished through self-reporting and apps will be possible through this technology we're producing."

MealCheck—an offshoot of Academic Technology Ventures, Inc., which specializes in sponsoring and commercializing academic research—was founded specifically to bring this invention to market.

The device is the brainchild of UNLV's Jillian Inouye, professor and associate dean for research in the Schools of Nursing and Allied Health Sciences; Mohamed B. Trabia, mechanical engineering professor and associate dean for research, graduate studies and computing in the Howard R. Hughes College of Engineering; and Venkatesan Muthukumar, associate professor of electrical and computer engineering.

"This technology highlights the impactful nature of interdisciplinary research taking place at UNLV," says Tom Piechota, UNLV's former vice president for research and economic development. "What our researchers achieve together on campus today can end up in the hands of consumers tomorrow."

R. MARSH STARKS

UNLV AND UNIVERSITY OF SYDNEY ANNOUNCE GAMING RESEARCH MOU

BO BERNHARD, EXECUTIVE DIRECTOR

of the UNLV International Gaming Institute (IGI), recently joined Nevada Governor Brian Sandoval on his trade mission to Australia to sign a memorandum of understanding with the University of Sydney. This historic, multidisciplinary MOU formalizes a new research collaboration between the IGI and the University of Sydney's Gambling Treatment Clinic & Research Unit centered around the issue of sports-wagering integrity.

"We are about to 'invent the field' of scientific study of these phenomena, alongside our colleagues in Australia," says Bernhard, who was recently appointed the Philip G. Satre Chair in Gaming Studies at the University of Nevada, Reno, as well—a dual appointment that advances a collaborative effort between these two institutions. "As a leader in gaming scholarship and gaming regulation, the IGI and our new International Center for Gaming Regulation (ICGR) are well-equipped to collaborate with a world-class scholar in the University of Sydney's Alex Blaszczyński on issues that matter deeply to both of our communities."

Under the MOU, the IGI, the IGI's new ICGR, and University of Sydney's Gambling Treatment Clinic & Research Unit will collaborate on a series of studies and literature reviews related to the evaluation of sports integrity and regulation in professional and amateur sports. The institutions will review current international regulatory approaches, with the aim of proposing guidelines designed to minimize the potential for gambling-related sports-match fixing. They will also research the psychological and personality factors that might increase the potential for elite sports athletes, officials, team employees, and referees to engage in behaviors that compromise the integrity of sports.



Bernhard

BREAKING THE CYCLE

Criminal justice professor Alexis Kennedy received funding for her research on underage trafficking prevention. She also worked with film professor Brett Levner (Page 35) to inform the movie *The Track*, which raises awareness about this exploitation.



RESEARCHER TO EXPLORE STRUGGLES OF UNDERAGE TRAFFICKING VICTIMS

LAST YEAR, THE NEVADA ATTORNEY GENERAL'S OFFICE RELEASED STATISTICS indicating that Las Vegas police recovered 2,229 victims of human trafficking since 1994. All of these victims were children forced into prostitution—young people who, because of the psychological scars they've incurred, will likely struggle to avoid future sexual exploitation, says Alexis Kennedy, an associate professor of criminal justice at UNLV.

Kennedy is investigating ways to help these and other victims end the cycle of abuse, work that was recently funded as part of a \$44 million U.S. Department of Justice grant to combat traffickers and support survivors. Kennedy, a forensic psychologist and former attorney with an extensive research history interviewing exploited adults and children, received more than \$623,000.

The funding, she says, will allow her to further explore the physical and psychological barriers that hinder young people's attempts to exit prostitution. Sexually exploited children, she indicates, often run away from services offered—placements, treatment programs, etc.—in part because of their strong psychological attachments to traffickers and pimps. Very little is known about the mental barriers associated with leaving commercial sexual exploitation, including victims' readiness to change.

Kennedy will be joined on the project by two prominent colleagues from Johns Hopkins University in Baltimore. Michele Decker is an associate professor of population, family, and reproductive health at Johns Hopkins' Bloomberg School of Public Health. A social epidemiologist with expertise on the health effects of trafficking for sexual exploitation, Decker also directs the Women's Health and Rights Program of the Center for Public Health and Human Rights. Andrea Cimino, a postdoctoral fellow who works with Johns Hopkins' Interdisciplinary Violence Research Project, is also a co-investigator.



Research Is OURs

The Office of Undergraduate Research (OUR) helps UNLV students learn, grow, and shine.

BY RAEEN PIETRUCHA

Since the Office of Undergraduate Research opened its doors in January 2015, hundreds of UNLV students have teamed up with some of the university's most prominent scientists and scholars on projects of discovery, innovation, and creativity—projects that change for the better the way both faculty and students think about higher education.

"We are truly championing a culture that is open to new ideas and collaboration while valuing our diversity and unique academic strengths," says UNLV President Len Jessup. "I am consistently impressed by the innovation and creativity of our undergraduate students, and even more amazed at how well UNLV's research community fosters and promotes

their contributions."

One of the newest units within the Division of Research and Economic Development and the Office of the Executive Vice President and Provost, the Office of Undergraduate Research, or OUR, provides students with faculty mentors, professional development opportunities, and project funding. In the spring of 2016 alone, more than 600 undergraduates worked alongside UNLV faculty research mentors. Students have contributed to investigations seeking HIV/AIDS therapies, solutions to Nevada's water crisis, methods for tissue regeneration, and other high-profile undertakings.

"My mentor, Dr. (Ai-Sun) Tseng, always encouraged me," says Diana Peña, a UNLV Honors

College double major in biology and psychology. Peña's work in Tseng's biology lab earned Peña one of UNLV's Outstanding Graduates titles, the 2016 OUR Undergraduate Scholar Award, and two rounds of funding from the National Science Foundation. "Having Dr. Tseng as a principal investigator," she adds, "helped me feel a lot more comfortable approaching faculty because the relationship that we formed was so supportive."

Liam Frink, anthropology professor and OUR's founding director, says it's not at all unusual for students such as Peña to report positive experiences, both academically and professionally. "Research is fun, but it's also essential for students' professional development," Frink says. "That's really what we're dedicated to in this office."

Professional development involves acquiring hands-on, practical skills alongside dedicated faculty, a process that prepares students to make real contributions. Just ask Corby Hovis, program director at the National

“Research is great because you get to learn something you never really thought about. At UNLV, you have a mentor guiding you, and you learn a bunch of new information that hopefully, in the future, has an impact on the community.”

—Wynona Dizon, UNLV undergraduate



“Undergraduate research fits right in with our college’s mission statement: ‘Educate, Engage, Inspire, Innovate.’ Undergraduate research first of all educates the students. Undergraduate researchers are engaged in research work. Undergraduate researchers get inspired by graduate and postgraduate researchers and professors. The undergraduate research experience provides an opportunity to innovate and come up with new ideas, concepts, processes, and products.”

—Rama Venkat, dean of the Howard R. Hughes College of Engineering

Science Foundation and a guest speaker at a previous UNLV Undergraduate Research Forum.

“If you look at many of the pioneering papers that result from NSF research, you’ll find undergraduate authors on those papers, and some of those have been great discoveries that have won Nobel Prizes,” Hovis says.

Research administrators such as Tom Piechota, former vice president for research and economic development at UNLV, say this potential is why supporting undergraduate researchers with adequate funding is a priority.

“I’ve worked time and again with UNLV undergrads, I know all they are capable of, and their talent never ceases to amaze me,” Piechota says, “so we’ve made it top priority through OUR to ensure these gifted students receive the funding they need to succeed.”

Frink says OUR is seeking external grants—including one from the W. M. Keck Foundation, one of the nation’s largest philanthropic grant-making organizations—and growing internal funds. A partnership, for example, between OUR

and the university’s undergraduate student government, CSUN, recently yielded a stipend for student researchers (who might not otherwise be able to engage in a research project without additional employment), funding for two scholarships, and a travel-grant match program that provides funds to match OUR’s travel support for undergraduate researchers seeking to participate in academic conferences.

“A strong research program at the university trickles down to every part of our campus, and that is why I am so passionate about investing in it,” says Fabian Donate, chair of the CSUN’s scholarships and grants committee. “Investing in research at the undergraduate level in particular leads to job creation. Students gain valuable experience from it, can apply to graduate schools, and often develop new concepts. Funding from CSUN, OUR, and others make all that possible. What better way to showcase our capabilities than by recognizing the very same individuals who make up who we are as an institution?”

New OUR initiatives include developing an Undergraduate Research Registry that will enable student researchers to complete required training online in matters such as lab safety and human subjects protocol. OUR is also working to more effectively integrate students with disabilities into research activities, part of its ongoing effort to attract a diverse cross-section of students into UNLV’s research endeavor. The office is collecting data on the impacts of UNLV’s undergraduate research as well.

“Our undergraduates have access to deep, broad, and highly compelling educational experiences because we focus on both research and student success at UNLV,” says Executive Vice President and Provost Diane Chase. “Both components are equally important in our Top Tier initiative, and the Office of Undergraduate Research not only drives both, but also embodies the vision and spirit of these ideals. I’m impressed by what this office has accomplished thus far and look forward to seeing all it accomplishes in the future.”