



Veterinarian Part of Winning Big Bang! Team

Leigh Griffiths, an assistant professor of veterinary cardiology and cardiac surgeon at the school, recently teamed with three engineering students to develop an innovative approach to tissue preparation that makes heart valve replacements (in animals and humans) less likely to be rejected by the body's immune system. The group's company, ViVita Technologies, took the idea—which could give transplant patients longer, healthier lives—to the UC Davis Graduate School of Management's 13th annual Big Bang! Business Plan Competition and won first prize.

ViVita Technologies was the clear favorite in the competition, also winning the People's Choice award. ViVita was driven to create its product to address the current shortage of organs and tissues. The ViVita process removes substances that trigger patients' immune response while preserving the structural integrity and functional properties of the replacement valve tissue.

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Three biomedical engineering doctoral students and SVM faculty cardiologist Leigh Griffiths (second from left) formed ViVita Technologies and won the Big Bang! Business Plan Competition.

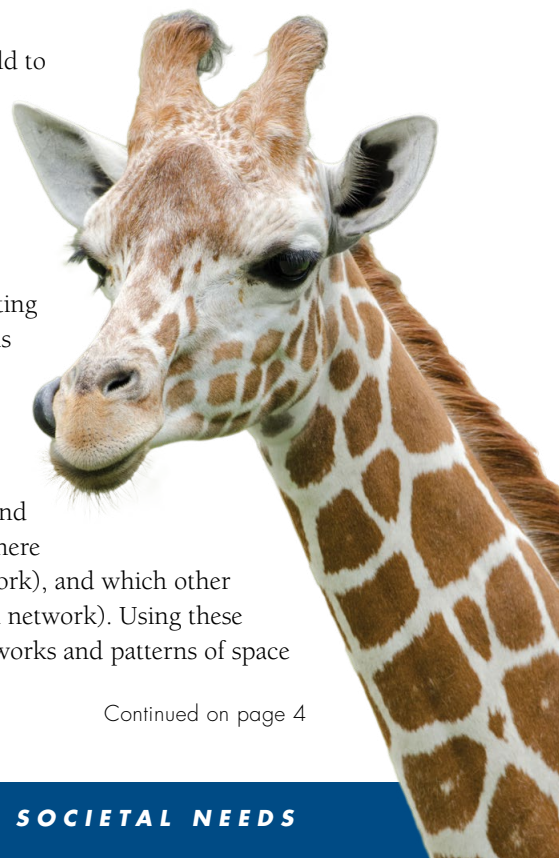
Social Networks Key to Disease Transmission in Giraffes

Tracking the spread of disease in giraffes is like guessing which sniffing kid gave their cold to your child. But the role of social networks in wildlife disease transmission isn't all that different from humans, as Kim VanderWaal discovered during her recent Ph.D. research.

As a doctoral student in the interdisciplinary Animal Behavior Graduate Group, VanderWaal focused on a tower (as groups of giraffes are called) of about 200 individuals at Ol Pejeta Conservancy in Kenya to determine how pathogens might spread from one individual to another in wild African herbivore populations.

She answered this question by focusing on *E. coli*. Researchers inferred who was transmitting *E. coli* to whom based on which giraffe shared *E. coli* with the same DNA 'fingerprint'; animals sharing *E. coli* were interlinked in a "transmission network."

By following giraffes in a Jeep, VanderWaal was able to collect fresh fecal samples. After months of observation, VanderWaal knew each individual by name and appearance (all giraffe have unique spots), where their home ranges were located (spatial network), and which other giraffe they tended to spend time with (social network). Using these behavioral data, she explored how social networks and patterns of space use predicted the transmission network.



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Welcome Class of 2017!

The school welcomed 139 new students to the Class of 2017 in an annual White Coat Ceremony held on August 16. Each student received a white coat, symbolizing their transition into the profession of veterinary medicine and acknowledging them as future leaders.

"The members of our 66th class, like so many others before them, have worked extremely hard to get to this point in their career, guided by their passion, belief in themselves, and the support of their loved ones," Dean Lairmore said. "They are an amazing group of talented individuals."

The Class of 2017 includes: lawyers, a goat breeder, a U.S. Navy logistics specialist, a first-degree black belt, a classical Indian dancer, a competitive Irish dancer, a marathon runner, a professional violinist and cellist, several scuba instructors, a figure skater medalist, a competition ping pong player and a host of actors/actresses and theater performers.

On stage to assist Dean Lairmore with the ceremony were: fourth-year student Emily Isaacs, UC Davis Vice Chancellor for Student Affairs Adela de la Torre, Associate Dean for Student Programs Sean Owens, and veterinarians Jim Clark and Cheryl Scott.



Dean Lairmore welcomes Rebeca Gomez to the Class of 2017 in the annual White Coat Ceremony.

New Curriculum Allows Students Greater Flexibility

As students enter into the third year of the new curriculum, they move from a core curriculum to one that allows them to choose a 30-week block in either large or small animal species. In addition, all students will complete a comparative medicine stream. The small animal stream will include companion exotic small mammals, with the last two weeks entirely devoted to these species. The large animal stream will cover 18 weeks of common content and then students will choose equine, livestock or zoologic species. Those students choosing zoo species will also take the two weeks devoted to companion exotic small mammals.

For students who want to focus on more than one area of emphasis to determine their career choice, the new curriculum allows them the structured flexibility of participating in another stream during their clinic rotations.

"The new curriculum is designed to be more structured in the early years but to allow structured flexibility in the later years," said Jan Ilkiw, associate dean for Academic Programs. "We're confident this approach will better prepare our students to succeed as they pursue careers in the veterinary profession."

The faculty Executive Committee recently approved plans for the clinical rotations. Students will now be able to start VMTH rotations as part of year three, once they have completed the stream or streams of emphasis. All students will be required to complete 20 weeks of core rotations; their remaining weeks of clinic rotations may then be spent in services related to their academic and career interests.

Call for Alumni Achievement Award Nominations

Honor outstanding alumni by nominating them for the school's 2014 Alumni Achievement Award to be presented at commencement in June. Eligible graduates can be from the DVM, MPVM, graduate academic (MS, PhD) programs, or who completed internship or residency training. Nominations are due by December 1, 2013. Please visit this webpage for submission instructions and more information: http://www.vetmed.ucdavis.edu/alumni_awards/index.cfm

Summer Research Offers Valuable Experience

Summer may signal a break from classes, but for second-year veterinary student Amy Lin, it was also an opportunity to conduct research that may guide her future career choice. As one of 33 participants in the Students Training in Advanced Research (STAR) program, Lin designed and conducted a study to determine the effects of exercise on Hispaniolan Amazon parrots with high cholesterol levels.

“The program has allowed me to not only conduct research, but gain clinical skills in bird handling, which gives me additional confidence if I choose to pursue avian medicine,” Lin said.

Between 30 and 35 veterinary students are accepted annually to participate in the school’s highly competitive STAR program. Over the course of 10 weeks, students learn basic research skills and prepare oral and PowerPoint™ presentations on their findings.

Some go on to present at scientific meetings while others pursue publication. Fourth-year student Jenna Winer’s 2012 STAR project (in collaboration with UC Davis senior Shannon Liong and veterinary school Professor Frank Verstraete), “*The dental pathology of the southern sea otters (Enhydra lutris nereis)*,” made the cover of the August-October 2013 issue of the *Journal of Comparative Pathology*.

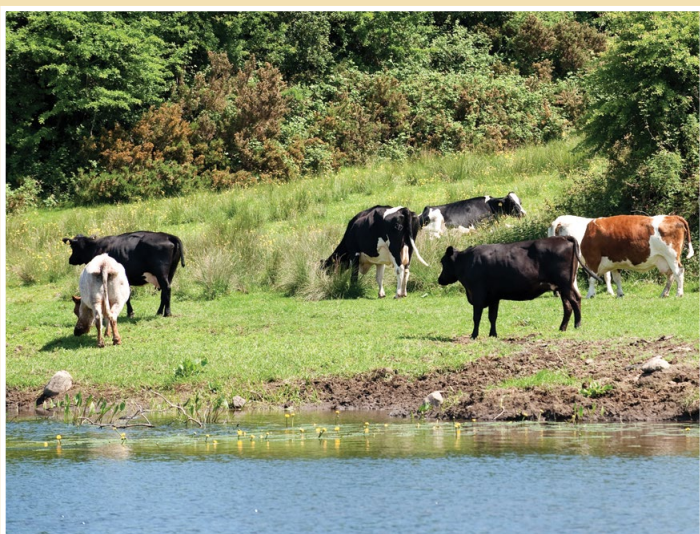
“Our goal is to identify, nurture and support veterinary students who may want to pursue academic research careers,” said Isaac Pessah, associate dean for research and graduate education. “Those who plan to pursue a traditional practice also benefit by learning to evaluate new knowledge and how it may apply to future patients.”



Veterinary student Amy Lin was one of 13 participants from this year’s STAR program to attend the 2013 Meriel-NIH Veterinary Scholars Symposium at Michigan State University.

Cattle and Clean Water Can Co-exist

Roughly 1.8 million livestock graze on national forest lands in the western United States each year, providing important economic benefits to rural communities. Despite the concern that cattle will pollute nearby water sources, a recent multidisciplinary study shows that grazing, public recreation and clean water supply can be compatible goals.



Nearly 40 UC Davis researchers, ranchers, USDA Forest Service staff and environmental stakeholders went out by foot and on horseback, across meadows, along campsites, and down ravines to collect 743 water samples from 155 sites across five national forests in northern California. They analyzed the water samples for microbial and nutrient pollution, including fecal coliform, *E. coli*, nitrogen and phosphorous. Overall, 83 percent of all sample sites and 95 percent of all water samples collected were within E.P.A. acceptable standards for human health.

“With over 26 million people enjoying California’s national forests for recreation, there’s a lot of concern about how public lands are used and the microbiological safety of water,” said Rob Atwill, director of the Western Institute for Food Safety and Security, and a study participant. “It will be difficult to pursue a policy of zero risk for our public lands regarding water quality and grazing, but if we can agree to an approach that balances recreational needs with the additional goals of public health, wildlife conservation, potable water, and activities such as well-managed cattle grazing, we will better maximize the overall societal benefits generated by our public lands.”

This study, funded by the USDA Forest Service, Region 5 is the most comprehensive examination of water quality on national forest public grazing lands to date.

Disease Transmission in Giraffes Continued from page 1

Results of this study, which has been accepted for publication in the *Journal of Animal Ecology*, showed that individuals who were common “hubs” (had a large number of social connections) also were hubs in the transmission network, which means that they have great potential to be “superspreaders” of pathogens. In addition, individuals who served as social “bridges” between different cliques in the social network also tended to be bridges in the transmission network.

“This study is among the first to show, through the use of microbial genetics, that the structure of transmission networks is closely correlated with social networks,” VanderWaal said.

Professor Brenda McCowan, a behavioral biologist in the school who co-mentored VanderWaal, noted that this network approach for understanding disease transmission is crucial for pursuing a One Health perspective on how disease spreads among co-mingled humans and animals.

“Such an approach permits one to go beyond simple detection and begin to address critical questions about the processes that underlie disease transmission at multiple scales, allowing for the potential for intervention at key steps,” McCowan added.

Additional UC Davis collaborators include anthropology professor Lynne Isbell who provided expertise in behavioral ecology; veterinary professor Rob Atwill who provided expertise in medical ecology and epidemiology of infectious disease; and statistics professor Fushing Hsieh who is an expert in computational mathematics.

The study was funded in part by grants from the National Science Foundation.



A multidisciplinary study of giraffes in Kenya will help researchers better understand how disease spreads, which may allow for future intervention at key steps.

Big Bang! Team Continued from page 1

“We’ve been able to successfully test the model on small animals,” Griffiths said. “Our process eliminates the need for patients to be on a drug regimen for the rest of their lives.”

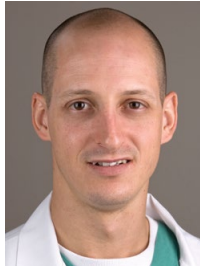
The proprietary process allows the patient’s own cells to join and grow with the transplant tissue—a process that could eventually be used for any organ transplant. Such a transplant would allow for a normal, healthy life without fear of organ rejection and the need to spend a lifetime on anti-rejection medication. It would also allow for better transplant methods for children, who often need new transplants, and additional surgeries, as their bodies grow.

ViVita Technologies consists of Griffiths and UC Davis biomedical engineering doctoral students Jeni Lee, Gina MacBarb and Maelene Wong. Last summer, they honed their business development skills to create ViVita through the Biomedical Engineering Entrepreneur Academy at the UC Davis Child Family Institute for Innovation and Entrepreneurship. The institute serves as a springboard for entrepreneurial initiatives on the UC Davis campus by bringing science, engineering and business students and faculty together with experienced entrepreneurs, investors and corporate leaders. This highly collaborative environment blends effective theory with hands-on participation and solution-driven innovation.

Welcome NEW FACULTY

Boaz Arzi

Assistant Professor,
Dentistry and Oral
Surgery; Surgical and
Radiological Sciences



Education

- Diplomate, American Veterinary Dental College, 2012
- DVM, Szent István University, Hungary, 2002

Experience

- Fellow, Department of Biomedical Engineering, UC Davis, 2010-2012
- Resident, Dentistry and Oral Surgery, UC Davis 2010

Special Interests

- Tissue engineering and regenerative medicine for oral and maxillofacial applications
- Temporomandibular joint disorders in mammals
- Translational aspects of integrating regenerative medicine

Katherine Hansen

Assistant Professor,
Radiation Oncology;
Surgical and
Radiological Sciences



Education

- DVM, UC Davis, 2008

Experience

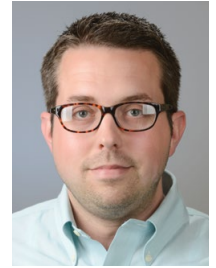
- Resident, Radiation Oncology, UC Davis, 2011-2013
- Intern and post-doc associate, University of Pennsylvania, 2009-2011

Special Interests

- Clinical radiation oncology with an emphasis on advanced radiation therapy and patient positioning

Joshua Stern

Assistant Professor,
Cardiology;
Department of
Medicine and
Epidemiology



Education

- PhD, Washington State University, 2013
- Diplomate, American College of Veterinary Internal Medicine (Cardiology), 2012
- DVM, The Ohio State University, 2008

Experience

- Resident, Washington State University and North Carolina State University, 2009-2012
- Intern, Ohio State, 2008-2009

Special Interests

- Inherited heart disease
- Individualized medicine and pharmacogenetics

Leading the Way

Paul Allen,

adjunct professor of molecular biosciences, now serves as faculty research mentorship coordinator. Allen joins UC Davis having recently completed a distinguished career at Harvard as a practicing anesthesiologist. He assists faculty, particularly junior faculty, in successful grant preparation and helps further develop solid foundations in extramural funding to support the school's research programs. Allen will also contribute to resident and graduate student instruction in anesthesiology and physiology in both the medical and veterinary schools.



Dori Borjesson,

professor of clinical pathology, now serves as the department chair for Pathology, Microbiology and Immunology. Since joining the faculty in 2006, Borjesson has served as chief of the Clinical Pathology service, chair of the Graduate Group in Comparative Pathology, and on several occasions as acting department chair. She has been instrumental in developing the new curriculum and has served as block leader for Clinical Foundations.



Isaac Pessah,

professor of molecular biosciences known for his work in autism, was appointed associate dean for Research and Graduate Education. As a member of the senior leadership team of the school, Pessah creates and nurtures a culture of training veterinary students, residents, graduate students, and postdoctoral scientists in academic veterinary medicine. He also provides administrative leadership to increase training grants, program projects, and center grants within the school.



Who You Callin' Bald?

There's a new bird in town at the California Raptor Center (CRC). Stella, the bald eagle, came to the center in late May after being cared for at the Rocky Mountain Raptor Program in Colorado for more than a year. She was originally found in Wyoming, unable to use her legs and suffering from an impact injury that caused head and/or spinal damage.

"Stella was suffering from profound lead intoxication—the top environmental and medical concern for these birds in the U.S.," said Michelle Hawkins, director of the CRC.

While lead contamination—even in small quantities—poses a risk to birds and other animals, raptors are at particular risk from spent lead ammunition. Whether the ammunition affects the carcass of an animal the raptor feeds upon or is otherwise expelled into the environment of these birds, lead carries a potent toxicity. Symptoms include neurological deficits such as depression, weight loss, weakness, lethargy, blindness, seizures and egg mortality.

"It's not uncommon for raptors suffering neurological deficits of lead poisoning to suffer secondary traumatic injuries by flying into things or being hit by vehicles," Hawkins said.

Stella was fortunate to be found and transported to a facility for care. The Colorado State Veterinary School assisted in her

treatment. While she's lucky to be alive (50 to 70 percent of eagles with lead intoxication do not survive), unfortunately the long-term effects of her condition make it difficult for her to perch well. She still stumbles and limps a bit when she walks or changes perches.

She was initially cared for at the Teton Raptor Center in WY where she couldn't use her legs at all for the first six months. Rehabilitators at the Rocky Mountain program worked with her until she got to a point where her use of legs and feet seemed good enough to consider release into the wild. Unfortunately, she was not able to adjust her feet to the changing perching situation found in the wild (branches) and rehabilitators were concerned she would not be able to hunt well enough to maintain her health. So Stella was recaptured and returned to the facility where she was deemed non-releasable. The California Raptor Center answered the call for a permanent home for Stella and after a few months of adjusting to her new home, she went on display in late July.

"She's doing great and eating like a champ," Hawkins said. "She's proving to be a wonderful ambassador for her species."



Strategic Planning: Collaborations Routine for Veterinarians

Multi-disciplinary collaborations come naturally to the school's team of faculty, staff and students to solve clinical health problems, investigate research theories and provide course instruction.

Clinical Collaborations – Clinical faculty routinely work with colleagues in other VMTH services to care for patients with multiple health issues. They also work with physicians, biomedical engineers, and even entomologists to bring forward new treatment options to help critically sick or injured animals. Recently, veterinarians worked with:

- A biomedical engineer to help regrow a dog's jawbone after cancer surgery.
- A human physician to treat a dog with a near-fatal swallowing disorder.
- An entomologist to save a horse with an extreme case of laminitis.

The Seven Strategic Goals

- Educate world leaders in academic veterinary medicine
- Perform high-impact transdisciplinary research
- Develop cutting-edge clinical programs
- Promote animal and human well-being
- Maintain school infrastructure and sustainable resources
- Retain excellent faculty and staff
- Promote academic, government, industry collaboration

Research Collaborations – Faculty partner across departments and with colleagues across campus in engineering, medicine, agriculture, and many others to develop solutions for autism, cancer, seizures, genetics, food safety, infectious diseases, air pollution and more. These collaborations further demonstrate the power of a One Health approach to issues that impact animals, people and the environment.

Teaching Collaborations – Faculty from different departments join together to implement the new curriculum in the integrated block format. This approach highlights innovative cases and materials that

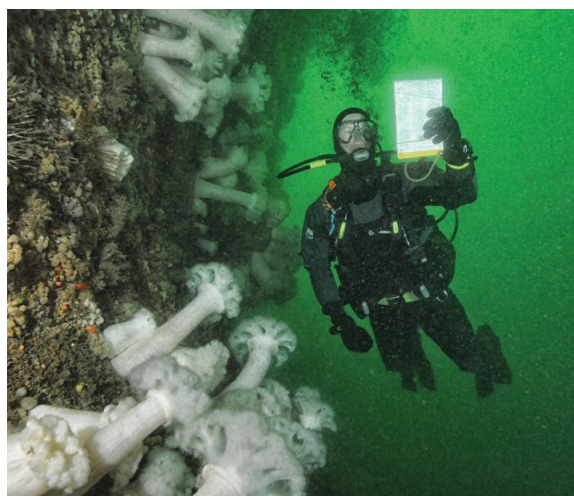
stimulate student interest and understanding of basic and clinical instructional foundations. The school is also a partner in the Consortium of Western Regional Colleges of Veterinary Medicine, which is designing a teaching academy to promote best practices in veterinary medical and biomedical education.

Protecting the Salish Sea

The Salish Sea is one of the world's most productive marine ecosystems and one of the largest inland seas. Located in Washington State, the region is home to 37 mammal species, 172 bird species, 247 fish species, more than 3,000 invertebrate species and nearly six million people.

The SeaDoc Society, a renowned program of the school's Wildlife Health Center, is dedicated to ensuring the health of this region's ecosystem. Wildlife veterinarian Joe Gaydos is leading a research project that will analyze change happening below the surface of the sea over the next 10 years.

With the help of volunteer citizen scientists, the SeaDoc Society will monitor fish and invertebrate presence and abundance—measures of health of the ecosystem, just as a complete blood count measures the health of an animal. These volunteers are recreational SCUBA divers who have received



A volunteer citizen scientist SCUBA diver monitors an underwater wall filled with giant plumose anemones.

special training under the Reef Environmental Education Foundation's (REEF) Fish Survey Project. Over the last decade, REEF-trained divers have completed nearly 15,000 surveys in Washington and British Columbia.

This project was made possible through generous philanthropic support from Steve and Nancy Alboucq, Loren Ceder, Chuck Curry and Molly M. Davenport, Jeanne Luce, and through an anonymous gift.

"The Salish Sea is one of the most amazing places on Earth, and people who live here want to pass on a healthy ecosystem to future generations," Gaydos said. "Thanks to our supporters, the SeaDoc Society can help restore

health to this region so that there will still be amazing wildlife, abundant fish and shellfish, and clean water far into the future."

To make a gift to the SeaDoc Society, visit www.seadocsociety.org/donate. For more information, please contact the Development Office at (530) 752-7024.

Making a Difference in the Future Health of Animals

Meaghan Gilbert and Andrea Wasko had talked about getting two cats when their lives slowed down. That all changed when they saw a photo posted at their neighborhood grocery store.

Three Siamese Lynx Point kittens needed homes. Gilbert and Wasko could not think of separating the littermates, so they decided to adopt all three. "Biscuits, Olive and Simon have totally changed our lives for the better. We cannot imagine life without them," Gilbert said.

During a veterinary check up, Biscuits was found to have a heart murmur. "When we asked our friends and our local veterinarian who they thought was the best in California to further evaluate Biscuits' condition, they recommended the UC Davis veterinary hospital," Wasko said. The hospital's Cardiology Service carefully examined Biscuits and diagnosed



Simon, Olive and Biscuits, littermates who were once homeless, now enjoy life in the loving home of their devoted owners, Meaghan Gilbert and Andrea Wasko.

her as having two congenital heart defects. She is now symptom free and has a great zest for life.

Impressed with the excellent care at the hospital, Gilbert and Wasko decided to include a gift through their estate plans to the school. By making a planned gift to the school, they are honored through the Heritage Society for Animals. The society recognizes the thoughtful generosity of donors who create a lasting legacy and make a significant impact on the health of animals for

many generations to come.

"We want to ensure that quality education and financial support is available in the future to veterinary students, such as those who cared for Biscuits," the couple expressed.

For more information about making an estate gift, please contact the Development Office at (530) 752-7024.

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CE Calendar

Veterinary Continuing Education

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sjwais@ucdavis.edu

January 11, 2014

3rd Annual Beef Improvement & Low Stress
Cattle Handling Seminar, UC Davis

January 11, 2014

Food Animal Practitioner Seminar, UC Davis

January 12, 2014

Dangerous Dogs Conference, UC Davis

January 18-19, 2014

9th Annual UC Davis Camelid Symposium

January 24-26, 2014

Multi-disciplinary Advanced Therapies Symposium: Nephrology
Tenaya Lodge, Fish Camp, CA (Near Yosemite)

February 1, 2014

Charles Heumhreus Memorial Lecture, UC Davis

February 1-2, 2014

UC Davis Winter Conference

*For information on these and other 2014 events,
please visit www.vetmed.ucdavis.edu/ce.*



SAVE THE DATE

Career Night

Friday, March 7, 2014
4:30 - 8:30 p.m.
UC Davis Conference Center

Showcase your practice among future veterinarians. Find your next associate, intern, extern, or resident.

To reserve your booth and receive details: (530) 752-7024 or development@vetmed.ucdavis.edu

*Presented by the UC Davis Chapter
of the AVMA*

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