

Advance

UC DAVIS SCHOOL OF VETERINARY MEDICINE

Spring 2016



Veterinary anesthesiologist Dr. Robert Brosnan's revolutionary research in the field of anesthetics – for human and animal patients – has helped create a startup company.



Expanding the Horizons of Anesthetics

As UC Davis professor and veterinarian Dr. Robert Brosnan headed toward the campus conference center one evening four years ago, he had one thing on his mind: knocking people out – both literally and figuratively.

Over the next several days at the Child Family Institute for Innovation and Entrepreneurship's Biomedical Engineering Academy (BMEA), Brosnan found an audience that understood the wow factor of his research, and could help him with the network, advice and connections to bring his passion and patent-pending technology to life.

His goal is nothing short of revolutionizing an area of medicine and patient care that hasn't changed markedly since before the U.S. Civil War. General anesthetics have been used in surgery for 170 years, yet how the inhaled drugs work is one of the great mysteries of neuroscience – and a pharmaceutical field with plenty of room for innovation.

Expanesthetics, a new startup company, partners a novel approach to develop safer anesthetics with the business acumen to bring that research to operating rooms.

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Leading veterinary medicine, addressing societal needs

Llama Enthusiast

Supports Unique Clinical Opportunities



When Joy Pedroni of Black Cat Llamas needs veterinary assistance with her small herd of 15, she knows exactly who to call – Dr. Julie Dechant, a specialist in the veterinary hospital's Large Animal Clinic. Pedroni is a long-time client and has been a great resource for students.

"I can't say enough about the hospital," Pedroni said. "The compassion everyone shows is paramount for me. They always make me and my animals feel like we're the most important ones there."

On several occasions, Pedroni has been the driving force behind llama and alpaca rescues, and brought dozens of camelids to the hospital. The rescued animals generally come from defunct sanctuaries, owner abandonments and hoarding situations. Brought to the hospital for wellness examinations, sterilizations, hoof trimmings and sheerings, the camelids Pedroni rescues provide great learning opportunities for students who are eager to work on animals they normally would not see on their hospital rounds.

Pedroni sometimes utilizes her llamas as pack animals on camping and hiking trips, and says that this is an increasingly popular activity among camelid enthusiasts. Llamas participate in events and shows, similar to horses and dogs, and Pedroni uses hers as goodwill ambassadors in parades and agriculture events for children. Llamas are even brought to hospitals and retirement communities as therapy animals. As these activities increase and ownership becomes more commonplace, the hospital's camelid medicine services provide a much-needed resource for the community.

Every January, the school hosts the Camelid Symposium, a hugely popular two-day event that attracts hundreds of owners from across the western United States. Pedroni serves on the planning committee for the symposium, always enthusiastic about promoting camelid health.



DVM students assist with wellness examinations for rescued camelids.

UC Davis Deans Greet Students at Ag Expo

The school highlighted its leadership role in agriculture and veterinary medicine to thousands of attendees at the 2016 World Ag Expo – the world’s largest annual agricultural exposition. The school’s Dean Michael Lairmore and College of Agriculture and Environmental Sciences Dean Helene Dillard visited with prospective students, industry partners and exhibitors. During the three-day show in February, visitors to the school’s booth learned about the Veterinary Medicine Teaching and Research Center’s important role in training veterinary students and residents in dairy production medicine, conducting research, and solving problems related to food safety, cattle welfare and ecosystem health.

About 100,000 individuals from around the world attended the expo, held at the International Agri-Center in Tulare. Roughly 1,400 exhibitors showcased innovations and trends in farm equipment and technology on 2.6-million square feet of exhibit space.



Expanding the Horizons of Anesthetics Continued from page 1

Brosnan, an expert in veterinary anesthesia, has developed a method to identify agents in several novel classes that could lead to better, safer, and more cost effective general anesthetics for use in operating rooms and surgical centers. His research focuses on cardiovascular and respiratory effects of anesthetics and on the mechanisms of anesthetic action.

“Our laboratory has identified what we think is a plausible molecular mechanism of action for these drugs,” Brosnan explained. “This has allowed us to make predictions regarding new anesthetic agents that nobody has ever studied before. These inhaled drugs have novel receptor effects that appear to cause fewer side effects and provide beneficial actions not available with current drugs.”

UC Davis alumnus Mark Holman, a veteran entrepreneur and business owner, was serving as a mentor at the academy in 2012. He was “knocked out” by Brosnan’s description of his research, which could benefit hundreds of millions of human and animal patients.

After much research and collaboration with Brosnan, Holman formed a startup company, dubbed Expanesthetics. The company licensed the intellectual property from the university, recruited clinical and scientific advisory boards, elected a board of directors and has brought investors

aboard to pave a lab-to-market path. So far, Holman has raised over \$1 million from investors, many of whom are affiliated with UC Davis. Brosnan serves as the chair of the scientific advisory board.

The prospect for more new ventures like Expanesthetics is one reason why the School of Veterinary Medicine co-sponsors the BMEA. The next three-day BMEA will be held July 11-13.

The fact that Brosnan is a veterinary, not a human medical doctor, and that he is pushing the envelope across both fields, underscores the potential of more cross-disciplinary teamwork. The goal of the global One Health movement is to forge co-equal, inclusive collaborations between physicians, veterinarians, dentists, nurses and other scientific-health and environmentally related disciplines.

“I think the discovery would probably have died without somebody like Mark to help bring it forward,” Brosnan said. “It’s a neat opportunity to bring together academic research and business experience to hopefully make an important advance in a field that has seen very little innovation in the past few decades.”

Contributed by Tim Akin, executive director of marketing and communications for the UC Davis Graduate School of Management.

Meeting Challenges Facing the Food Animal Industry

Over the last 40 years, researchers at the school's Center for Food Animal Health (CFAH) have been working to help improve the health of food animals and solve problems impacting the state's livestock and poultry industries, and environmental health. The center provides seed funds to support new and innovative research and promotes research collaboration among school faculty.

Partnerships with agricultural leaders and stakeholders across California help identify industry and societal problems for focused research efforts. Partners represent a wide range of livestock industry and commodity groups including the California Cattlemen's Association, Dairy Cares, the California Farm Bureau Federation, Western United Dairymen, the California Department of Food and Agriculture, the USDA, and California Poultry Federation.

Researchers gather with stakeholders each year to provide project updates in food animal diseases, food safety, and environmental health related to animal agriculture. They also hear directly from the industry about the latest, most important issues and needs in food animal health and production.

Currently the center is addressing some of the industry's biggest challenges in food production, such as pinkeye and bovine respiratory disease in cattle, and food safety risks in increasingly popular cage-free pastured poultry operations. CFAH also helps guide aquaculture policy development for a safe and sustainably harvested commodity through a project in Tomales Bay that evaluates shellfish aquaculture microbial standards and pathogen occurrence.



“Being a part of the Center for Food Animal Health gives California agriculture the opportunity to contribute meaningfully to setting and funding animal health research priorities at the nation’s premier veterinary school.”

– Ria de Grassi,
California Farm
Bureau Federation

A Partnership in Nutrition

Pets, just like people, have complex nutritional needs. Helping pets to thrive now and into the future is the veterinary hospital's Nutrition Support Service—with their team of specialists to provide customized consultations and programs to train tomorrow's leaders in veterinary nutrition.



A dedicated corporate partner of the service is the Nestlé Purina PetCare Company. Their annual commitment of \$50,000 for the past 10 years currently helps to fund a nutrition technician and has been instrumental in supporting several residents.

“Nestlé Purina’s support of our service has allowed us to train specialists in veterinary nutrition who have then gone on to make important contributions to the field through teaching, research and service,” said Dr. Andrea Fascetti, chief of service of the Nutrition Support Service.

“Having support for personnel has also permitted us to develop a strong, clinical training program for our fourth-year veterinary students,” she added. “Upon completing this clinical rotation, the students are proficient in the nutritional skills they will use daily in clinical practice.”

In addition, Nestlé Purina provided essential funding for the infrastructure of the service when it was built in 2000, including the installation of a state-of-the-art diet kitchen. Since the service's inception, the longstanding partner has generously donated over \$500,000, having a far-reaching impact on the service's work to ensure the optimum health and longevity of companion animals.

Welcome New Faculty

Dr. Derek Cissell

Assistant Professor
in the Department
of Surgical and
Radiological Sciences
Special Interests:
cartilage imaging,
biomechanics, tissue
engineering, equine and
cross-sectional imaging



Dr. Michelle Giuffrida

Assistant Professor
in the Department
of Surgical and
Radiological Sciences
Special Interests:
surgical oncology,
quality of life, and
clinical research
methods



Dr. Jennine Ochoa

Assistant Professor
of Clinical Diagnostic
Pathology, California
Animal Health and
Food Safety Laboratory
Special Interests:
livestock and avian
pathology, particularly
poultry



Resident has Longstanding Passion for

Shelter Medicine

When Chumkee Aziz's family adopted their first pet, they named the small terrier/Chihuahua mix Peechee, which is Bengali for "tiny." Her family didn't really know how to care for Peechee at first, as having a pet was a rarity in their culture.

"I had never even imagined asking my parents for a pet because I understood it to be nearly taboo in our cultural community," said Aziz, a teenager at the time, living in Texas. "I quickly found a natural desire to care for Peechee, and having him in our home brought so much unexpected happiness to the family. The puppy opened all our eyes to a different kind of joy and love that only a pet can offer."

While attending the University of Texas at Austin, Aziz majored in ecology and worked as a park ranger during summer breaks. But then Peechee got sick with cancer. That forever changed Aziz's life, compelling her to attend Cummings School of Veterinary Medicine at Tufts University. While there, she grew passionate about shelter medicine and anti-cruelty work, and traveled to Nepal and Bhutan to do humane stray-dog control. She earned her DVM in 2012 and then completed an internship at the ASPCA's Animal Hospital in New York City.

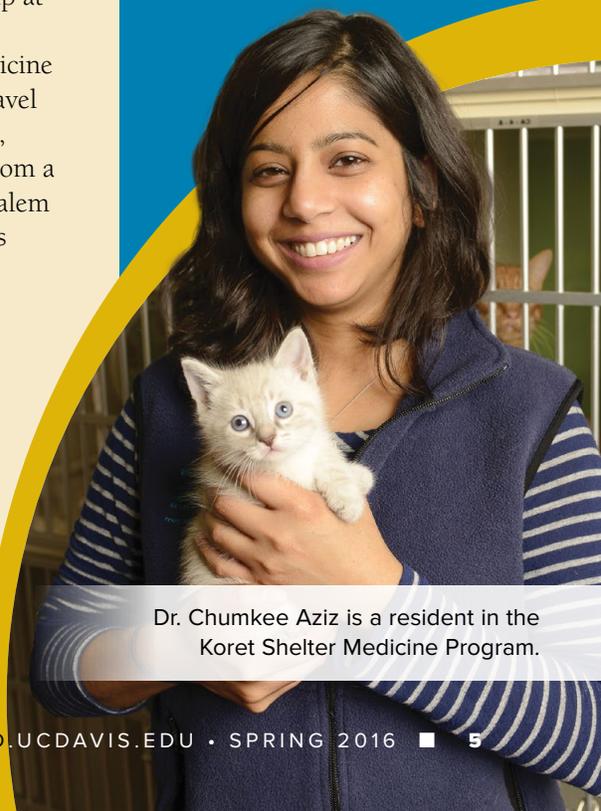
In August 2013, Aziz began her three-year residency in the Koret Shelter Medicine Program at the UC Davis School of Veterinary Medicine. Her position involves travel to animal shelters across the United States to consult on population management, operations and flow, and disease outbreak management. Aziz recently returned from a trip to the Koret School of Veterinary Medicine at the Hebrew University of Jerusalem in Israel, where she conducted lectures and participated in informal consultations about the Koret School's plans to create a shelter medicine course and rotation.

"Our training prepares residents to take a leading role in advancing the quality of life of animals in shelters through preventative medicine and disease management," said Director Dr. Kate Hurley. "Our faculty, staff and residents have also helped guide similar shelter medicine programs at other schools across the country – making a national impact."

As part of her residency, Aziz is studying ways communities can collaborate to end pet homelessness and prevent infectious diseases in shelters, and how shelters can assist owners to keep their pets through outreach, innovative programs and by reuniting lost pets. "I think of how my family acquired our pet, our initial naivety and our eventual love for the puppy, and how this undeniably shaped my path to becoming a veterinarian, specifically a shelter medicine vet," Aziz said.

Resident Research

Dr. Aziz, along with dozens of other residents, interns, and fellows, presented their research findings at the 38th Annual Gerald V. Ling House Officer Seminar Day this past March. She presented her epidemiology-based study on predictors of the length of stay for dogs in shelters. With the largest advanced training program of any veterinary hospital, UC Davis is able to offer unique research opportunities to its house officers. The hospital offers 1- to 4-year advanced training programs for veterinarians in 34 specialty disciplines, including various small animal, large animal, diagnostic imaging and laboratory services.



Dr. Chumkee Aziz is a resident in the Koret Shelter Medicine Program.

Livestock Field Calls Increase in Popularity, Help Better Prepare Students

Associate Professor Dr. Richard Pereira recently joined the veterinary hospital's Livestock Herd Health and Reproduction Service (LHHR), allowing for additional caseload. With the workforce to nearly double its capacity, the service has set out to build on client satisfaction and engage more ranchers and producers. The increase brings more opportunities for students to “get their feet wet” with real-life field settings that they will encounter in their careers.

As expressed in a recent livestock client survey, LHHR services are in increasing demand, especially in the areas of field service, reproduction and general herd health. Other items on the survey also clearly indicated additional field visits would attract more clients. With additional visits come additional teaching opportunities for fourth-year students completing their clinical rotations. Even students focused on small animal careers enjoy and benefit from experiences with livestock, as they look to achieve the most well-rounded education possible. Some even decide on livestock careers after the field experience, which benefits the industry, as the world seeks new ways to feed a growing population projected to reach 10 billion by 2050.

With the majority of current clients located in a 40-mile radius, the increasing activity for LHHR will allow for added exposure into newer markets beyond the immediate Sacramento Valley, such as large ranches in Nevada, and beef and dairy production facilities throughout California.



The veterinary hospital's livestock services hope to increase their client base.

Strategic Planning:

Advanced Training for Veterinary Scientists

The school's advanced training programs encourage veterinarians to follow career paths in specialized clinical fields, higher education, public health, research, disease control, food safety, environmental protection and biotechnology. Advanced post-DVM training opportunities include:

M.S./Ph.D./MPVM – More than 190 graduate students representing a full spectrum of basic and applied dissertation projects train in areas such as comparative pathology, epidemiology, immunology, pharmacology, neurosciences, genetics, preventive veterinary medicine and much more. Graduates excel worldwide in leadership, academic, and research positions.

VSTP – The Veterinary Scientist Training Program offers dual DVM/Ph.D. degrees to students interested in careers in academic veterinary medicine, biomedical research and government service. UC Davis combines rich pre-clinical and clinical training with a strong commitment to basic and translational research. Recent graduate Roxann Motroni, who completed her DVM and a Ph.D. in Comparative Pathology, now serves as an American Association for the Advancement of Science – Science and Technology Policy Fellow with the U.S. Department of Homeland Security, Agriculture Defense Branch.

Residents – Advanced clinical training for veterinarians is offered in 34 specialty areas. As veterinary specialists, residents also engage in research to learn best practices to conduct a clinical study including experimental design and methodology, manuscript writing, and techniques to present research results.

School's 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

Doubling the Impact

Fellowship Invests in Future Veterinary Scientists

Veterinary scientists serve at the front line of safeguarding public health in a broad range of areas – including fighting cancer, protecting against emerging infectious diseases and securing food safety. Critical to ensuring preparedness is the Veterinary Scientist Training Program (VSTP), designed to train students seeking dual DVM/Ph.D. degrees to become the next generation of veterinary scientists.

Sharing in the school's commitment to address societal needs is Jerry Rosenthal, member of the Dean's Leadership Council and former president and CEO of the Monmouth County SPCA in New Jersey. He generously established an endowed fellowship to support students in the VSTP.

"I have seen the impact made by prior VSTP students and wanted to encourage future students pursuing this tract to do so without the added burden of taking on additional financial obligations," Rosenthal said. "Their focus should be on their research and the advancements they will undoubtedly make to veterinary medicine and beyond."

The impact of the Rosenthal Fellowship is doubled by the campus's Graduate Student Matching Initiative, which provides matching funds for fellowship awards. Financial support is essential to high-achieving students in pursuing their dreams, such as fellowship recipients Katti Horng and Devan Murphy.

Horng's long-term research goal centers around the role of gut microbiota in chronic disease, ranging from dogs with atopic dermatitis to human patients with HIV infection. She is interested in the impacts of the microbial world and its potential for targeted medical therapy.

"The Rosenthal Fellowship has been an incredible blessing. It's given me new eyes to look not only at science, but also at myself," Horng said. "This opportunity has encouraged me to dive headfirst into the arduous, very humbling and even more rewarding journey as a clinician scientist."

Murphy is participating in research on glioblastoma in dogs and plans to study pharmacology and develop techniques for better, more precise drug delivery systems. She hopes to pursue a research career to better

understand cancer and the cell biology of how tumors develop and metastasize.

"Katti and I are very grateful for the interest that Mr. Rosenthal has taken in supporting our education," Murphy added. "It feels great knowing that he believes in us and sees that we both have ambitions in veterinary research that will hopefully contribute to better veterinary care."

Last fall, Horng and Murphy enjoyed meeting Rosenthal, who took special interest in learning about their career aspirations.

VSTP students are able to gain valuable training from the school's world-class faculty and experts in other disciplines across campus, including biomedical engineering, agricultural and environmental sciences. This transdisciplinary collaboration offers a unique advantage to developing innovations.

"We have a group of outstanding students," said Dr. Xinbin Chen, director of the VSTP. "Graduates of the program have gone on to leadership careers in academic veterinary medicine, biomedical research and government service."

For information about making a gift to establish a fellowship, please contact the Office of Development at 530-752-7024.



Devan Murphy (left) and Katti Horng, students in the Veterinary Scientist Training Program, are award recipients of the prestigious Rosenthal Fellowship.

www.vetmed.ucdavis.edu

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SAVE THE DATES

Veterinary Continuing Education

Calendar

530-752-3905 • Fax: 530-752-6728
tweddale@ucdavis.edu

The school is committed to lifelong learning through its Veterinary Continuing Education by providing nearly 20 annual offerings.

For a complete listing of events, visit:
www.vetmed.ucdavis.edu/CE/

May 21 - 22

Beginning Practical Ultrasound,
UC Davis

June 4 - 5

Biomedicine Symposium,
UC Davis

July 23 - 24

Back to School Seminar,
UC Davis

September 24 - 25

Fall Festival, UC Davis

October 23 - 27

Explorer Series, Milan, Italy

November 6

Feline Forum, UC Davis

Career & Networking Night

Friday, September 23
4:30 - 7:00 p.m.
Gladys Valley Hall, UC Davis
School of Veterinary Medicine

Practitioners are invited to promote work experience opportunities (externships, internships and employment) at the 2016 SVM Career Night. This will be a significant networking opportunity, with more than 150 students expected in attendance along with many company, practice and governmental agency representatives. The event is hosted by the Career, Leadership and Wellness Center in conjunction with the Student Chapter of the American Veterinary Medical Association (SCAVMA). For more information: www.vetmed.ucdavis.edu/students/clw/career/career_night.cfm.



Alumni Reunion Weekend • Friday - Sunday, October 7 - 9

Reconnect with classmates and reminisce about special times as a student at the 2016 Alumni Reunion Weekend. The School of Veterinary Medicine is honoring the classes of 1952, 1953, 1954, 1955, 1956, 1966, 1976, 1986, 1991, 1996, and 2006 as they return to Davis for a weekend of celebration. For more information, call 530-752-7024 or visit: www.vetmed.ucdavis.edu/alumni/reunions.

L-R: Neil Gribskov, '65 and Carl Lind, '65, 2015 Alumni Reunion.



www.vetmed.ucdavis.edu