Feline Kidney Transplant

Of Clients and Commitment

February 5, 2007. The small animal surgery suite hums with activity. In two operations that together span more than three hours, Dr. Clare Gregory harvests a healthy kidney from “Erik,” a donor cat, and transplants it into “Teca,” a feline patient with end-stage renal disease.

The Clients

The story of the transplant begins in 2006 in Ontario, Canada, with Craig and Maera Busch. Teca, their 4-year-old Himalayan cat, is losing weight. By October, Teca’s veterinarian has diagnosed kidney failure.

The Busches immediately contact the UC Davis kidney transplant program. They know that transplant surgery is risky. Short-term complications include rejection, infection or adverse drug interactions. Surviving patients also face long-term possibilities of cancer, diabetes or chronic rejection.

The procedure is costly—about $11,000 for the hospital stay and surgery, plus diagnostics and drugs. The Busches’ decision is firm. “We have the time and means,” says Maera Busch. “You do what you can. Pets are part of your life—and Teca is Craig’s pet of a lifetime.”

The Busches work to stabilize Teca’s weight and fluid levels. His veterinarian performs more than a dozen tests to screen for disease, behavior, heart condition, blood values, urine analysis, and more—to determine whether Teca is a good candidate for a transplant and the ongoing immunosuppression required to prevent organ rejection. The program aims to be 95 percent sure that a candidate has a good chance of benefiting from a kidney transplant.

Meanwhile, Craig Busch searches 22 Toronto-area shelters for a donor cat, adopting “Erik” just after the New Year. Erik is also screened for disease, and both cats’ blood types are cross matched.

Continued on page 5

Research Scientist Leads Initiatives in Comparative and Veterinary Oncology

Canine cancers, such as sarcomas and lymphomas, are very similar to human cancers, in both genetics and manner of disease progression, and in their physiological environment, says Professor Xinbin Chen.

“Mice are extremely important,” he says, “but in certain cancer research, dog and cat models of spontaneously developing cancers are more informative than the mouse model. The size of the dog also facilitates scientific visualization as tumors and treatments progress.”

Continued on page 6
Professor Rance LeFebvre was named associate dean for Student Programs in July. Dr. LeFebvre, who joined the faculty in 1987, is a microbiologist in the Department of Pathology, Microbiology and Immunology. With research expertise in Lyme disease, leptospirosis and other zoonotic pathogens, he teaches veterinary and human medical microbiology to both undergraduates and veterinary students. As associate dean, Dr. LeFebvre administers preveterinary advising, admissions and academic advising. He also oversees scholarships, student events, career services, and the Master of Preventive Veterinary Medicine (MPVM) degree program.

The Student Programs office also handles the Summer Enrichment and CAMP-USTAR early recruitment programs. In 2004, Dr. LeFebvre received the School of Veterinary Medicine Faculty Teaching Award for his contributions to DVM, graduate, undergraduate, and—through the California State Summer School in Mathematics and Science (COSMOS) program—high school students. Dr. LeFebvre has served as wellness coordinator for the school, and graduating veterinary students have twice selected him as faculty commencement speaker.

### CURRICULUM REVIEW

#### The DVM Curriculum: Envisioning the Future


In 2005, the school began an overhaul of the entire DVM curriculum for the first time since 1990. A curriculum committee and task forces are working together with a common goal—to prepare graduates to serve the profession and meet society’s needs well into the future.

This ambitious effort by the entire faculty includes revisions of classroom courses, laboratory instruction and clinical skills training. It also includes external considerations of accreditation and licensure.

In the months ahead, task forces will tackle the following issues:

- Integration of courses dealing with cells, tissues, organs and organ systems
- Admissions requirements, early admissions and targeted admissions
- Ethics
- Doctoring
- Ecosystem health in veterinary medicine
- Clinical sciences
- Technology’s role in delivering the curriculum
- Ethnic diversity of the student population

#### Student-Centered Learning

Beyond what instructors teach lies another important question. What do students actually learn?

Experts shared new findings in how adults learn and how to measure success in the classroom or the clinic during a series of more than a dozen workshops provided as a faculty education program in 2006-07.

Other seminars familiarized instructors with innovative teaching methods, novel strategies for meeting different learning needs, and new technology that helps deliver instruction effectively.

#### The Future of Veterinary Education

In addition to specific curriculum issues, veterinary school educators across the nation are scrutinizing the bigger picture.

In May, the school hosted guest speakers Dr. Keith Prasse and Dr. Norman Willis, who discussed *The Foresight Report: Envisioning the Future of Veterinary Education*, a national inquiry conducted last year by the Association of American Veterinary Medical Colleges.

For more information about the report, visit www.jvmeonline.org/cgi/content/abstract/34/1/1.
The departments of Anatomy, Physiology and Cell Biology (APC) and Molecular Biosciences (VMB), both slated for research space in Veterinary Medicine III B, are represented by faculty members (from left) Dallas Hyde, James Angelastro, Stuart Meyers, Isaac Pessah, Helen Raybould, and Dean Bennie Osburn.

INVESTING IN THE FUTURE

The Challenge to Fund Vet Med III B

Among many important school initiatives, my highest priority is to secure financial support to build Veterinary Medicine III B.

Completion of this facility is an essential step in the long-range facilities plan submitted to the American Veterinary Medical Association. We may not have another major building opportunity for several decades.

The school must provide $12 million of the $95 million needed for this project. With $7.9 million in gifts and pledges already identified, we have $4.1 million more to raise in the next 12 months. This is a huge challenge, but it is an attainable goal—with your help.

As dean, it is my job to advance the research mission of the school, which leads to creation of new knowledge and development of better vaccines, novel clinical tools and technological innovations. The researchers working in Veterinary Medicine III B will directly impact animal and human health.

Our comparative pulmonary research group, which has shown that pollution affects the earliest stages of life, is just one of the stellar programs that will benefit from a move to Veterinary Medicine III B.

“Public health experts say that learning how the virus is changing as it moves around the globe is essential to knowing its pandemic potential and how to fight it with vaccines and antiviral drugs.”

UC DAVIS WINS NEW NATIONAL CENTER

In April, UC Davis became a partner in a new $18.5 million national research center that will study influenza viruses with pandemic potential, such as avian influenza H5N1, also known as “bird flu.”

The Center for Rapid Influenza Surveillance and Research (CRISAR) is one of six new centers that were announced by the National Institute of Allergy and Infectious Diseases, an arm of the National Institutes of Health.

Professor Walter Boyce, director of the UC Davis Wildlife Health Center, will lead the UC Davis branch of CRISAR. Dr. Boyce and Scott Layne, a public health physician and professor at UCLA’s School of Public Health, have been named codirectors and coprincipal investigators of the new center. “UC Davis and UCLA have joined together to tackle one of the most important public health threats of our time,” says Dr. Boyce.

CRISAR’s objective is to expand the federal government’s early detection program for influenza and help reduce the chances of a deadly outbreak, as well as reduce the effects of common, seasonal strains of influenza. UC Davis’ chief role in the new surveillance and research center will be to coordinate the collection and testing of tens of thousands of samples from wildlife, especially wild birds, on both the United States and Asian sides of the Pacific Ocean.

“This new center is an acknowledgment that the health of people, domestic animals and wildlife is intertwined, and that veterinary medicine and human medicine really are ‘one medicine,’” says Bennie Osburn, dean of the UC Davis School of Veterinary Medicine.
Toxicology
Feed, animals tested
Following the pet food recall in early 2007, state and federal authorities began working closely with the California Animal Health and Food Safety Laboratory System (CAHFS) to test California hogs that had eaten pet food containing melamine, a compound used in fertilizers and other products. The results figured into the Food and Drug Administration’s human risk assessment and its conclusion in May that the risk to humans appears minimal.

CAHFS has analyzed dozens of feed samples collected by regulatory agencies. The melamine contamination has been tentatively traced to contaminated wheat gluten and rice protein concentrate. Laboratory personnel are developing a test to detect melamine in kidney samples from both pets and livestock. Veterinarians can contact CAHFS to arrange testing of food and urine samples from affected animals (cahfs.ucdavis.edu).

Food safety
Research center aims to protect consumers
A new produce safety center is the result of an industrywide collaborative response to E. coli outbreaks in 2006.

Leaders of the produce industry, the California Department of Food and Agriculture, and the University of California created the Center for Produce Safety in April 2007. The new center, as part of the Western Institute for Food Safety and Security, will serve as a clearinghouse for funding and research on produce safety and risk reduction. Collaborators will also improve training, quality verification and consumer education to enhance the safety of fresh produce.

Toxicology
Alumni lauded for achievement
The Alumni Achievement Award recognizes outstanding personal and professional contributions to veterinary science or one of its branches, contributions to veterinary practice in any of its forms, or service to mankind and the advancement of human welfare.

Dean Osburn presented the award to five distinguished alumni:
- Denny Constantine (DVM 1955), public health officer emeritus and veterinary epidemiologist, California Department of Health Services Viral and Rickettsial Disease Laboratory, in recognition of his research on aerosol transmission of the rabies virus and distinguished career in public health;
- N. James MacLachlan (PhD 1983), professor in the Department of Pathology, Microbiology and Immunology, UC Davis, in recognition of his scholarly dedication and significant accomplishments as a professor and researcher;
- Michael J. McCloskey (Residency 1981), co-owner and manager of Fair Oaks Dairy Products and Fair Oaks Dairy Adventure in Fair Oaks, Indiana, in recognition of his vision, innovation and impact on dairy cattle herd health, production medicine and food safety;
- Bradford P. Smith (DVM 1970), associate dean for clinical programs and director of the William R. Pritchard Veterinary Medical Teaching Hospital, UC Davis, in recognition of his contributions as a distinguished clinician, educator and leader in food animal medicine;
- Alice Wolf (DVM 1976, Residency 1979), chief medical consultant, Veterinary Information Network, and professor emeritus, Texas A&M University, in recognition of her dedication to improving education for veterinary students, postgraduates and practicing veterinarians.
The Clinicians

February 2. The Busches land in California with Teca and Erik for their appointment at the Small Animal Clinic. Teca sits regally on the windowsill. Erik rests in his carrier.

Veterinary student Stanislav Avezov examines Teca and completes a health history. Residents, students and the clients soon fill the exam room.

Dr. Gregory, director of the school’s Renal Transplant Program, informs the Busches, “Teca is an excellent candidate. It is time to do this procedure if you want to go ahead.” While he is positive about the outcome, he is direct about the potential complications. “You must know that he can die.” Maera and Craig Busch sign consent forms without hesitation. Mr. Busch expresses relief that, after the strain of recent months, “It’s out of our hands now.”

The Surgery

February 5. In the surgical suite, two tables, countless instruments, a Zeiss microscope and video monitor lie ready for the transplant procedure. Nearly a dozen technical staff bustle in and out of the room.

At 10:25 a.m., Dr. Gregory, scrubbed and ready, enters. At 10:30 a.m., Erik arrives; Dr. Matthew Stepnik, surgical resident, begins to harvest the donor kidney.

Teca is rolled in at 11:00 a.m. Dr. Margo Mehl, assistant professor, prepares her patient, explaining each step to Mr. Avezov as he observes.

Working over a gauze-lined metal bowl filled with a slush of ice and saline solution, Dr. Gregory readies the donor kidney and transports it to Teca’s table. Together, Drs. Gregory and Mehl attach the new kidney’s artery, vein and ureter to Teca’s body. Erik goes to the recovery room. Teca’s surgery concludes at 1:15 p.m.

The Commitment

February 12. Dr. Mehl discharges Teca early—just eight days after his kidney transplant. His new kidney is functioning well. Erik is with the Busches after his two-day hospital stay—as with all donor cats in the program, he has been adopted by the clients. The couple rents a home nearby and brings Teca for weekly checkups. This followup turns out to be important. In late February, Teca is back in the hospital with an infection. Dr. Mehl explains, “You’d like his immune system to be able to deal with an infection but not be so strong it will attack the grafted kidney.” Teca responds successfully to antibiotics.

March 29. Teca’s feeding tube develops a localized infection and is removed. Although the couple have concerns about Teca’s ability to eat on his own and take his nine required pills each day, just a week later Maera Busch notes, “He’s crossed a threshold. Teca is like his old self.”

April 24. The Busches return to Canada with their pets, but Teca’s story continues at UC Davis—the hospital will monitor Teca’s cyclosporine levels regularly. Dr. Mehl says, “Most of my research is directed at developing safer and more effective immunosuppressive drugs that will ideally improve long-term survival and quality of life in our feline patients. We are also investigating new protocols that do not require immunosuppressive drugs.”

The transplant team shares the commitment to assure that Teca and other beloved “pets of a lifetime” enjoy longer, healthier lives.
Initiatives in Oncology

Continued from page 1

Dr. Chen, who joined the UC Davis faculty in February, codirects the Comparative Oncology Program of the UC Davis Cancer Center, a collaboration between the School of Medicine and the School of Veterinary Medicine, and directs the Veterinary Oncology Laboratory at the Center for Companion Animal Health.

Comparative Oncology Program

Investigators in the Comparative Oncology Program, most of whom are veterinarians, are working with animals to find the genes involved in cancers and apply that knowledge to human disease research.

They are also supporting clinical trials of some new human cancer drugs on naturally occurring canine tumors. “The dog is the best model, at the moment, for drug trials in human medicine,” says Dr. Chen.

One area of study is genetic regulation of melanoma. “The mechanisms of melanoma in humans are a ‘black box,’” says Dr. Chen. “We are hoping to find the genetic factors involved by studying a species of horse that is prone to melanoma.”

In his own cancer research laboratory in Surgical and Radiological Sciences, Dr. Chen is investigating how the gene P53 suppresses cancer formation in both humans and animals, using the Li-Fraumani model.

Fifty percent of human cancers are accompanied by a P53 mutation, and the rare Li-Fraumani syndrome results when P53 is missing, he says.

Veterinary Oncology Laboratory

The goal of the Veterinary Oncology Laboratory is twofold—to investigate the molecular and genetic forces that lead to development of certain cancers, and to enhance veterinary oncology treatment options by evaluating drugs (developed for humans or animals) for their ability to treat animal cancers.

“Little is known as yet about the genetics related to canine or feline cancers,” says Dr. Chen. “Quite a few cancers—such as non-Hodgkin’s lymphoma, melanoma and soft-tissue sarcoma—are prevalent in the dog, and melanoma is common in the cat. These and other emerging cancers in companion animals are being studied. Equine melanoma may also be a model for the human form of the disease.”

Once the genes are identified, researchers hope to learn why certain cancers occur more frequently. Study of the genetic mechanisms may allow genes to be targeted for therapy, which is the program’s ultimate goal.

There are many human cancer drugs that may work for animals as well as newer drugs specifically developed for dogs and cats that need to be systematically analyzed and tested—a major objective in the next few years, says Dr. Chen.

A number of faculty members, including Katherine Skorupski, Alain Théon, Carlos Rodriguez and Michael Kent, have phase I or phase II clinical trials under way to study the efficacy of various human or veterinary cancer drugs in dogs and cats.

WILLIAM R. PRITCHARD VETERINARY MEDICAL TEACHING HOSPITAL
NEW HOSPITAL NAME RECOGNIZES VISION AND ACHIEVEMENT

The school’s teaching hospital was rededicated April 25 to honor the leadership, achievement and enduring influence of a former dean of the School of Veterinary Medicine.

The name William R. Pritchard Veterinary Medical Teaching Hospital reflects Dr. Pritchard’s impact on the school’s teaching programs, research accomplishments and patient care.

Dean Pritchard’s vision of a discipline-oriented referral hospital led to the creation in 1970 of the Veterinary Medical Teaching Hospital, which not only initiated veterinary medical specialty training, but also became the model for nearly every veterinary school in the United States and Canada. The UC Davis clinical program now has 100 residents and offers residency training in 32 specialties.

William R. Pritchard led the school as dean from 1962 to 1982.

Professor Xinbin Chen (left) directs the school’s Veterinary Oncology Laboratory and is codirector of the UC Davis Comparative Oncology Program. In his laboratory, with four grants from the National Cancer Institute of the National Institutes of Health, scientists are engaged in several basic research studies in genetics, molecular biology and cell biology.
The Center for Companion Animal Health (CCAH) hosted a garden celebration April 13 for more than 90 guests. The celebration recognized friends and donors who have contributed to the CCAH vision by commissioning nearly 150 tributes or memorials.

The dedications, etched on brick pavers in Edna’s Park or laser-etched on metal wall plaques in Angel’s Courtyard, demonstrate the deep affection and bond between humans and animals. Some of the displays are lighthearted and whimsical, while others move guests to tears.

For more information on how to invest in the future of animal health by inscribing a brick or plaque in honor of a special friend, family member or companion animal, contact the development office, (530) 752-7024.

School Promotes Food Animal Practice

Society faces a national shortage of food animal veterinarians to protect food safety and animal health. To entice incoming students to consider food animal careers, the school hosts tours and presentations at the Veterinary Medicine Teaching and Research Center in Tulare, which serves the largest milk-producing county in the nation. Besides offering intensive training opportunities in Davis and Tulare for students and residents, the school provides financial incentives for students to consider the food animal track.

Early Veterinary Student Bovine Experience Program

The Early Veterinary Student Bovine Experience Program sends students—with or without large animal experience—to dairy farms, beef operations and food animal practices. First, students spend five weeks during the summer at dairy or beef operations to learn to care for cows and calves. The second summer, returning participants shadow a veterinarian, gaining experience and professional insights along the way.

In 2007, the program supported these efforts with 24 scholarships of $2,500 each, underwritten in part by Pfizer Animal Health.

Dr. John Angelos, program director, says, “Veterinary students gain exposure early in their education to food animal practice. We hope this experience encourages them to seriously consider food animal practice as they choose career pathways.”

Directed Scholarships

The Brooks Ford Memorial Scholarship, awarded to students with demonstrated interest in dairy medicine, is one of several scholarships awarded to students with specific career interests.

Alana McQuarry (DVM, 2004) says, “I found that having trained with food animal clinicians who encourage a hands-on experience, I was more prepared and willing to jump into any situation with some confidence while I worked on a species with which I was less familiar. Not only did I have a strong interest in food animal medicine, but I was always in need of financial aid. The Brooks Ford Memorial Scholarship provided great assistance.”

After working with livestock or a mentor who practices food animal medicine, it is not uncommon for two to three previously uncommitted students to embrace food animal medicine as a career choice and complete the food animal curriculum.

HERITAGE SOCIETY WELCOMES NEW MEMBERS

The Heritage Society for Animals honors the commitment and generosity of donors who have made estate plans to benefit School of Veterinary Medicine programs and activities.

Twenty-five new members enrolled in the Heritage Society for Animals this year. Individuals and couples were introduced at the annual luncheon held outdoors at Gladys Valley Hall April 24. More than 420 friends of the school already have been recognized and welcomed into the society.

As master of ceremonies, Dr. Harriet Benson of Palo Alto, California, joined Dean Bennie Osburn in greeting 70 members and guests.

John Madigan, professor in the Department of Medicine and Epidemiology, gave a poignant presentation on the impact of disasters on animals and how to be prepared for animal care in the event of a catastrophe.

For more information about the Heritage Society for Animals or planning an estate gift, contact the development office, (530) 752-7024.

Guests enjoy the Heritage Society for Animals luncheon with the dean, 2007.
EMERGING DISEASE
VIRUS (EHV-1) AFFECTS CALIFORNIA HORSES

Equine herpesvirus-1 (or EHV-1) is one of many herpesviruses in horses, says Professor David Wilson, interim director of the school’s William R. Pritchard Veterinary Medical Teaching Hospital.

“All strains of EHV-1 can cause respiratory signs and other manifestations of illness, but one strain is more likely to cause neurologic disease.” The neuropathogenic EHV-1 strain particularly worries horse owners.

The California Animal Health and Food Safety Laboratory System and the Lucy Whittier Molecular Diagnostic Laboratory provide diagnostic testing services for EHV-1. Faculty clinicians have diagnosed and treated several affected horses. California reported at least four cases of EHV-1 in 2006 and confirmed several more by mid-2007.

EHV-1 infection spreads by horse-to-horse contact and by contaminated hands, equipment or tack. The virus may move through the air in enclosed areas. Preventive measures are important to protect equine herds as no vaccine is known to protect against the neurological form of EHV-1.


---

2007 DVM PROGRAMS

20th Annual Fall Symposium on Recent Advances in Clinical Veterinary Medicine
September 16, 2007
UC Davis

Public Policy: A Short Course on Politics, Facts, Beliefs & Animal Health
September 27–29, 2007
UC Davis

Practical Ultrasonography: Intermediate
October 6–7, 2007
UC Davis

23rd Annual George H. Muller Veterinary Dermatology Seminar in Hawaii
October 31–November 7, 2007
Maui, Hawaii

Practical Ultrasonography: Intermediate
November 17–18, 2007
UC Davis

Ninth Annual Veterinary Endocrinology & Internal Medicine Seminar
November 27–December 4, 2007
Kauai, Hawaii

RVT/TECH PROGRAMS

Diagnostic Radiology Simplified
September 30, 2007
UC Irvine

Introduction to Small Animal Physical Rehabilitation
October 28, 2007
UC Irvine

Optimizing the Family-Pet Bond by Incorporating Behavior into Your Practice
November 4, 2007
UC Irvine

Diagnostic Parasitology
November 18, 2007
UC Irvine

Join your classmates for
Alumni Day September 15!
Enjoy brunch with the dean, campus and school tours, class photos and dinner.
Call (530) 752-3819.

The Fall Symposium on Recent Advances in Clinical Veterinary Medicine is September 16.