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Veterinary Treatment for Brain Tumors May Help Humans

In the canine ward of the William R. Pritchard Veterinary Medical Teaching Hospital early one day in April, Devon erupts from his kennel into the arms of faculty member Peter Dickinson. The French bulldog has an anaplastic oligodendrogloma, a brain tumor that lies too deep within his skull to be removed by surgery. Dickinson, a veterinary neurologist, has taken extraordinary steps to save the dog.

Dickinson and colleague Richard LeCouteur, through the Paul C. and Borghild T. Petersen Foundation Brain Tumor Research Laboratory and the hospital, have joined medical researchers at UC San Francisco who are developing new ways to deliver chemotherapy drugs directly into brain tumors.

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Budget Update

To meet a \$3 million target for permanent funding reductions, several programs felt their budgets tighten again as the fiscal year began in July.

School officials have further streamlined administrative tasks and consolidated administrative units for the upcoming year. State funding support has been reduced or eliminated from the Office of Public Programs, Center for Comparative Medicine, California Raptor Center, UC Veterinary Medical Center – San Diego, Wildlife Health Center and Bodega Marine Laboratory.

Faculty positions lost through moves or retirements will be held open and replaced only strategically in the future to maintain core teaching programs. Some units may face additional staff layoffs.

Faculty and administrators continue to assess teaching methods, materials and animal use for potential savings.

VMTH Impacts

W. David Wilson, director of the William R. Pritchard Veterinary Medical Teaching Hospital, informed staff in May that the hospital would lay off nine employees, some with more than 20 years of service. “In order to maintain clinical programs, we are forced to lose valued, loyal employees,” he said. “We remain committed to providing the best possible care for our patients and the best clinical learning environment for students and residents.”

Residency positions were eliminated in Small Animal Behavior, Clinical Pathology, and Medicine; and in Equine Emergency/Critical Care (fellowship), Medicine, Reproduction, Surgery and Ultrasound. Current residents will complete their programs.

Veterinary Medicine III B Funded

Not all budget news was grim. In May, UC President Mark Yudof secured financing for construction of Veterinary

Medicine III B through lease-revenue bonds. This funding cannot be redirected to meet budget targets. Plans for this facility began more than 10 years ago; construction was set to begin in July, with completion expected in late 2012.

“This news is especially welcome,” said Dean Bennie Osburn. “Our Haring Hall faculty, staff and graduate students will at last have modern facilities and be able to maximize teaching and research activities through closer interactions with colleagues already co-located in the Health Sciences District.”

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Kevin Kwak, class of 2010, holds his son after commencement June 11

Commencement 2010

UC Davis Provost Enrique Lavernia conferred 128 Doctor of Veterinary Medicine degrees and congratulated the class of 2010 at the School of Veterinary Medicine commencement June 11.

The school honored 22 candidates of the Master of Preventive Veterinary Medicine degree program and recognized 34 residents of the William R. Pritchard Veterinary Medical Teaching Hospital.

The School of Veterinary Medicine Medal went to Kenneth Tomo Wiggans for demonstrating the highest level of academic achievement and clinical performance throughout veterinary school.

Graduates Kendon Kuo and John Wesson spoke to their peers. The faculty speaker, selected by students, was veterinary ophthalmologist Steve Hollingsworth.

Mark Nuñez, president of the California Veterinary Medical Association, led the graduates as they took the Veterinarian's Oath.

Surgeon and Veterinarian Save Young Dog with Swallowing Disorder

A little dog, named Mojito, appears to have a healthy life ahead thanks to doctors from the UC Davis schools of medicine and veterinary medicine who collaborated on a unique surgical procedure to treat a near-fatal swallowing disorder.

Without treatment, the one-year-old male miniature dachshund would have continued to choke on food and struggle with drinking water. The disorder typically leads to aspiration pneumonia.

Peter Belafsky, associate professor of otolaryngology at UC Davis School of Medicine, and Stanley Marks, professor of veterinary medicine and epidemiology, performed the unusual operation April 13 at the Veterinary Medical Teaching Hospital.

Belafsky, who directs the Center for Voice and Swallowing at UC Davis Medical Center in Sacramento, said, "We are combining the best of our human and veterinary research and surgery teams to advance science and medicine. Together, we pioneered the use of botulinum toxin

injections to treat esophageal problems in animals. Mojito's surgery represents another important step."

Belafsky, who normally treats human patients, operated on a throat muscle in the dog that affects its ability to swallow. The surgery has been successfully used for about 10 years in humans suffering from cricopharyngeal dysfunction, a disorder involving a small ring of muscle on top of the esophagus that fails to relax adequately or work in a coordinated manner, causing extreme swallowing difficulties and aspiration.

Cricopharyngeal muscle disorders and swallowing problems are found in both canines and humans.

Marks initiated the surgery by placing a temporary feeding tube into Mojito's stomach. Belafsky then used the same kind of laser-assisted device used for human patients to cut and divide the dog's cricopharyngeal muscle so that it no longer will constrict and prevent the passage of food into the dog's esophagus. The procedure—laser-assisted cricopharyngeal myotomy—did not require external incisions and took less than an hour.



Stanley Marks, with Mojito, is an expert in veterinary gastroenterology

Belafsky and Marks said that Mojito's prognosis is excellent. Only a few days after surgery, he was able to eat a mushy food mixture without choking.

"This is the best of both worlds," said Marks. "By learning from each other, we're discovering answers that can benefit both animals and people. From an academic research and clinical care perspective, it is the ideal way to advance medicine."

Treatment for Brain Tumors

Continued from page 1

They have obtained NIH funding for a clinical trial of this novel technique in animals.

Dickinson identified several cases in which veterinary clients have agreed to participate in this distinctive research—while offering hope to their pets.

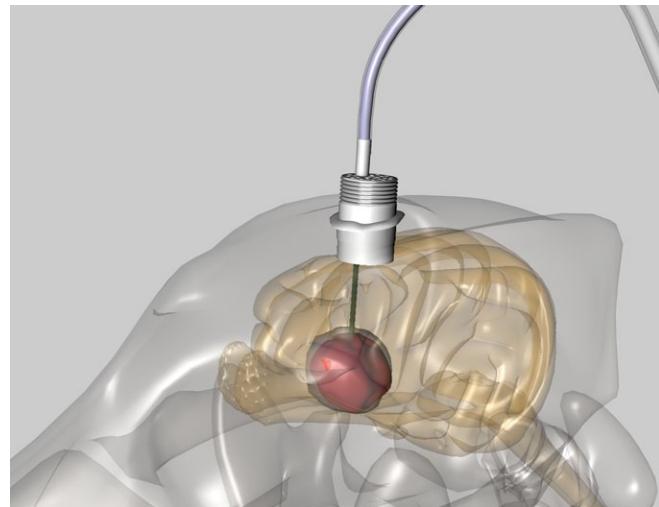
Convection-enhanced Delivery

First, Devon undergoes an MRI. Dickinson and UCSF colleagues John Bringas and Krystof Bankiewicz (study leader) examine the images to plan Devon's procedure and medication.

Dickinson removes sutures on Devon's head to reveal a specially designed cylinder, placed into his skull, that remains in place between each of several potential

treatments. Dickinson and Bringas strategically set tiny tubes—fused silica cannulae—into several holes in the cylinder to guide where medication will flow. The neurology team then infuses the chemotherapy drug (liposomal CPT-11) directly to Devon's tumor in a process called convection-enhanced delivery.

The surgery is tricky due to the need to open up the skull. However, the localization of the treatment allows clinicians to administer stronger chemotherapy doses with minimal or



A cylinder fixed into the skull allows clinicians to guide drugs directly to the tumor site

no systemic side effects. The medicine also stays at the tumor site longer than it would in traditional therapy—up to five weeks.

In the imaging suite, Devon remains immobile in the MRI machine throughout the procedure. The instrument displays in real time how the medication flows down into the tumor under carefully controlled pressure. Bringas monitors administration of the drug as Dickinson's team oversees the treatment and works with the anesthesia team to assure that the procedure progresses safely.

Applications in Human Medicine

If this project in dogs shows that the delivery technique can be consistently applied, medical researchers will seek FDA approval to begin clinical trials in humans.

Dickinson says, "Dogs are the best models on the planet for human cancer." Devon, along with two other dogs, Lupine and Cheech, have made dramatic recoveries. The patients may be making medical history. But for now, their owners are simply glad that their pets can survive with a good quality of life.



The class of 1984 established an endowed scholarship and announced the first recipient, Jenevieve Crawford (2010), shown in white coat. Congratulating her were Dean Bennie Osburn (left) and alumni Mary Whitehill, Penelope Collins and Paul Sessa

ALUMNI ACHIEVEMENT 2010

The Alumni Achievement Award, the highest honor bestowed by the School of Veterinary Medicine, recognizes graduates who have made outstanding personal and professional contributions to veterinary science or one of its branches, to veterinary practice in any of its forms, or service to humankind and the advancement of human welfare. Congratulations to this year's recipients.

Kenneth J. Drobatz, D.V.M.,

M.S.C.E., DACVIM, DACVECC (D.V.M. 1985), is recognized for leadership in veterinary emergency service and critical care as well as dedication to teach and inspire students. Drobatz is a professor and chief of critical care at the University of Pennsylvania School of Veterinary Medicine.



Constantin Genigeorgis,

D.V.M., M.S., Ph.D., DECVP (M.S. 1963, comparative pathology, Ph.D. 1966, comparative pathology) is recognized for national and international contributions to veterinary food safety and public health. Genigeorgis is a professor emeritus of the UC Davis School of Veterinary Medicine and an internationally known food safety researcher.



Michael D. Kock, B.Vet.Med.,

M.P.V.M., MRCVS, (Zoo and Wildlife Medicine residency 1982, M.P.V.M. 1986), is recognized for outstanding contributions to wildlife health, conservation and management in the United States and Africa. He is a senior field veterinarian for the Wildlife Conservation Society's Field Global Health Program, based in South Africa.



Terry Paik, D.V.M. (D.V.M. 1974),

is acknowledged for dedication to veterinary disaster preparedness, response and the relief of animal suffering. He is the San Diego County Veterinary Disaster Response Coordinator and the Disaster Preparedness Committee Administrative Officer of the California Veterinary Medical Association.



Jeff W. Tyler, D.V.M., M.P.V.M.,

Ph.D., DACVIM, (M.P.V.M. 1985, Large Animal Medicine residency 1986, Ph.D. 1989, comparative pathology) has been recognized for outstanding contributions to global food animal medicine through teaching, research and service. This is a posthumous award for Tyler, who died in 2009. Tyler was a professor in the Food Animal Area at the University of Missouri College of Veterinary Medicine.



The Center for Equine Health has received a \$3 million pledge from the William and Inez Mabie Family Foundation to support ongoing research and teaching efforts in equine medical science. The foundation also challenges other prospective donors to provide another \$1.8 million in matching gifts within six years to endow the center director's position.

Hospital Advisory Boards Promote Service and Teaching

Administrators and faculty based at the William R. Pritchard Veterinary Medical Teaching Hospital meet regularly with external advisory boards of veterinarians to develop ideas to improve patient care and better serve referring veterinarians, clients and students.

W. David Wilson, director, says, "We seek help from all veterinarians to consider the teaching hospital as their referral center. Referring veterinarians are the lifeblood of our clinical training programs. Their case referrals provide clinical training opportunities for students and residents, their future associates. Our advisory boards provide an essential communications link with practitioners."

Large Animal Advisory Board

Administrators have been strengthening that link as the hospital grapples with a deficit and a drop in caseload. At the Large Animal Advisory Board's December 2009 meeting, attendees had a thorough discussion of issues affecting the hospital: service and communications improvements, proposals for generating revenue, and the news that the teaching hospital

has taken on responsibilities for continuing education and other community engagement.

On the teaching side, the group brought up an evaluation of the food animal program and the school's development of an assessment of clinical training outcomes and core competencies required for accreditation.

Outreach to Veterinarians

The hospital also has been recruiting board members from a broader range of practitioners who do not necessarily refer cases.

Taking this feedback to the next level, clinicians and administrators have reached out at regional meetings to gain input from the broadest possible range of large animal veterinarians. "Candid comment related to why practitioners do or do not refer clients helps us move forward with new practices and initiatives," Wilson says.



Faculty, residents and clients benefit from exchanging ideas about clinical training and patient health in the field and in the hospital

Practitioners can learn more about these meetings from Bill Herthel, Large Animal Clinic, (530) 752-0290. To volunteer as a board member, please contact W. David Wilson, director, wdwilson@ucdavis.edu, (530) 752-2957.

Reunion Weekend

The 2010 Reunion Weekend is scheduled on October 1-3 for the classes of 1960, 1970, 1980, 1985, 1990 and 2000. For more information, call (530) 752-7024.

Weight-Loss Surgery May Reverse Type 2 Diabetes

Researchers have shown for the first time that a surgical procedure in rats, similar to bariatric surgery in humans, can delay the onset of type 2 diabetes. The researchers also have identified biochemical changes caused by the surgeries that may be responsible for that delay.

Findings from the study, published in *Gastroenterology*, should help researchers identify strategies for preventing and treating type 2 diabetes, a chronic

condition in which the body is unable to properly metabolize sugar and fat, leading to serious complications including heart disease, blindness and kidney failure.

"Bariatric surgery is considered to be the most effective long-term treatment for human obesity and often leads to marked improvements in diabetes," says Professor of Nutrition Peter Havel, senior author. Post-doctoral researcher Bethany Cummings, the lead author, performed

the difficult surgical procedures. He adds, "This study...supports the observations from a number of earlier clinical studies reporting that diabetes is often improved prior to substantial weight loss. It also suggests that endocrine changes in hormones produced by the gastrointestinal tract may contribute to the early effects of bariatric surgery, in addition to the later effects of weight loss."

In the Clinic: Neurology/Neurosurgery Service

While Beverly Sturges explores stem cell research to promote healing of spinal cord injuries and collaborates on a new approach to control epilepsy, she says, "Where I spend most of my time is in the clinic teaching students and caring for animals. We're busy, and we want to stay that way."

"We" is the Neurology/Neurosurgery Service, where five veterinary neurologists are treating disorders of the brain, spinal cord, and vertebrae, as well as diseases affecting muscles, nerves and the neuromuscular junction.

Treatments for most tumors of central nervous system

Sturges says, "Even other veterinarians may not realize the extent of neurology treatments available here. We've got treatments, conventional and experimental, for many tumors in the brain," Sturges explains, including meningiomas and gliomas, common tumors in dogs and

cats. "We also work with tumors of several kinds that compress the spinal cord.

"With newer technologies such as intra-operative ultrasound, an ultrasonic aspirator and post-operative imaging, our ability to excise brain and spinal cord tumors has increased dramatically, even with tumors previously considered inoperable," Sturges says. "One of the things we do that isn't always done elsewhere is to follow up each procedure with an imaging study to assess whether we've removed all the cancerous tissue. This gives us a much better baseline for assessing the success of surgical removal alone or in combination with other treatments like chemotherapy and radiation therapy."

Inflammatory and degenerative diseases

The service handles a wide range of spinal diseases that require laminectomies or spinal stabilization procedures. Pets with chronic inflammatory disease also

seek out the service, Sturges says. "We're using a variety of drugs that mediate the immune response."

In-house electrodiagnostic and neuromuscular disease laboratories help achieve a precise diagnosis with diseases of muscle, nerve and the neuromuscular junction.

The service provides 24-hour emergency care for animals with immediate neurological and neurosurgical needs.

Teaching

How do complicated cases help faculty teach students who may never specialize? "Most cases referred to our service are pretty complex," Sturges acknowledges, but there is always something that students can learn. "We canvass all cases so students get a good, broad spectrum of clinical experience with disorders that they are most likely to encounter." For example, degenerative disc disease in dachshunds can be managed with medical and surgical treatment. "We like to expose students to things they may not necessarily do while in practice, but should know about so that they can educate/refer clients and provide the best care for their patients.

"I realize that my biggest influence is in teaching today's students, who will become tomorrow's referring veterinarians," Sturges says. "Their referrals will keep the hospital a center of excellence. The students need to know how to recognize a patient with neurological disease and identify the right resources to find patients the help they need."

Neurology/Neurosurgery Specialists

- Peter Dickinson
- Marguerite F. Knipe
- Richard A. LeCouteur
- Beverly K. Sturges
- Karen M. Vernau, Chief of Service



UC Davis faculty members Karen Vernau, center, and Marguerite Knipe, holding dog, conduct a neurological exam as fourth-year veterinary students observe

THANK YOU NOTES



Technician John Kirby, above, cares for a cat as it undergoes hemodialysis in a remodeled facility featuring new equipment and expanded blood-purification services. The \$400,000 renovation was funded entirely by client-donors

Grant Supports Shelter Animal Health

The Koret Foundation has granted \$400,000 to the UC Davis Koret Shelter Medicine Program.

In the first phase of funding from the Koret Foundation, we consulted with shelters caring for over 350,000 animals each year, says program director Kate Hurley, DVM, MPVM. "That's still only a fraction of the estimated eight million that pass through shelters annually. This funding will help us build our website and shelter consultation service so we can help even more animals."

To receive the grant, the school must raise matching funds of \$400,000 over the next two years.

The UC Davis Koret Shelter Medicine Program aims to improve

the quality of life for animals in shelters through health and behavior studies, veterinary education and service to animal shelters.

"Healthy animals are more adoptable," says Hurley, "so when shelter personnel and our program can protect shelter pets from getting sick, we're literally saving lives. We are so grateful for Koret's support of this vital work."

The Koret Foundation has provided more than \$2.45 million to the school to support research at the Center for Companion Animal Health, create the Koret Foundation Center for Veterinary Genetics, establish a veterinary student exchange program with the Koret School of Veterinary Medicine at the Hebrew University of Jerusalem in Israel, and expand the shelter medicine program.

First Pet Adopted in Tender Loving Care Program

Toby is the first dog enrolled in the Center for Companion Animal Health's Tender Loving Care for Pets Program (TLC) to come to Davis seeking a new home. The program promises to find a new loving home for pets that are predeceased by their owners. The owners make a bequest to the school to provide lifetime veterinary care for their beloved companions. After his owner died unexpectedly in early April, Toby, a 13-year-old cocker spaniel, was relocated from Virginia to Davis. Smitten by his charm, school employee Celeste Borelli and her family became Toby's new permanent caretakers.

To learn how you can become a caretaker for a TLC pet, please call (530) 752-7024 or send a message to development@vetmed.ucdavis.edu.



Veterinary ophthalmologist Kathryn Good, left, examines Toby with the help of Tracy Alexander, class of 2010, as client Celeste Borelli looks on

www.vetmed.ucdavis.edu

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Practitioners Aid Admissions Process

The school appreciates the participation and insights of veterinarians from private practice and other fields of veterinary medicine to assure a fair and rigorous admissions process.

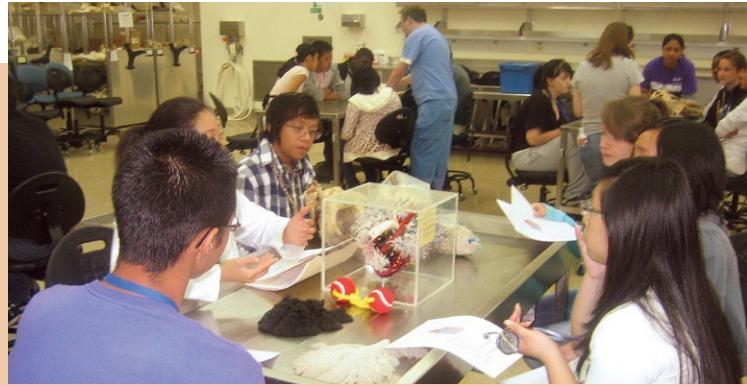
On the Admissions Committee, Mike Ina, Arguello Pet Hospital, San Francisco, worked with faculty members to review applications, identify unique applicants, conduct interviews and select candidates for the class of 2014.

"We recognize Dr. Mike Ina, a 1974 DVM graduate, for two years of excellent service," says Dean Bennie Osburn. With a practical perspective, Ina asked interviewees about working relationships, client issues, practical ethical situations and other concerns of small animal clinicians.

The Admissions Advisory Committee members evaluated applications and identified unique applicants for the Admissions Committee to consider. Practitioner members of the 2010 committee were:

■ Michelle Beko	■ Richard Hack
■ Richard Breitmeyer	■ Frank Kocher
■ Aine Coil	■ Bree Montana
■ Patricia Colley	■ Kelly Palm
■ Gary Darling	■ Carrie Schlacter
■ Brenda Forsythe	■ John Shaner
■ Susan Gillen	■ Ben Sun

Practitioners may contact Yasmin Williams, admissions director, ymwilliams@ucdavis.edu, to volunteer for the Admissions Advisory Committee.



Visiting high school students get a taste of lab life at the Vet Med Exploration Academy

Early Prep for Vet School

Veterinary students and admissions advisers are reaching out sooner than ever to prospective students to prepare them for veterinary school.

In May, 30 high school students from Northern California committed three weekends to academics at the UC Davis Veterinary Medicine Exploration Academy Program, a new school venture with UC Davis Academic Preparation Programs. Academic advisers invited students with varied backgrounds and interests to consider veterinary medicine as a career and challenged them with enrichment activities:

- Faculty lectures on equine medicine, eye specialties, surgery, toxicology and more
- Laboratory sessions alongside veterinary student mentors
- Hands-on introductions to anatomy, microbiology, radiology and other topics
- A writing project
- A laboratory exam

Small groups and one-on-one sessions provided individual attention and guidance on preparation for college and veterinary school.

Academic Preparation Programs and its affiliates have a successful 40-year history of preparing first-generation and/or low-income students from middle and high schools in the Sacramento Valley, Shasta County and Siskiyou County to pursue postsecondary education.