



Center for Companion Animal Health, UC Davis School of Veterinary Medicine

CAAH Update

Vol. 15, No. 1, Spring 2010

We celebrate our Field of Dreams — and envision more to come

By Niels C. Pedersen

On a summer day in 1998, the staff of the Center for Companion Animal Health (CAAH) stood at the edge of a small pasture adjacent to the Veterinary Medical Teaching Hospital (VMTH). Several llamas and alpacas were grazing peacefully, but in that paddock we saw a mirage of a dream. Our dream was of a major expansion of the CCAH and VMTH.

We realized we had a daunting task before us. The project we conceived would take seven years and cost about \$16 million, including construction and equipment. It would be the first and only building on campus funded entirely by private donations. But we knew that such a state-of-the-art facility was desperately needed, and we were confident that many other people would become equally enthusiastic.

Donors traditionally are less likely to contribute money for “bricks and mortar” than they are for programs. We drew inspiration, though, from the 1989 motion picture *Field of Dreams*, which prophesied, “If you build it, people will come. People will most definitely come.” We were fortunate that hundreds of donors, who made small as well as large gifts, also experienced and embraced the dream — and not just the building.

With their help and generosity, our mirage solidified into reality. Committees of future users — faculty and staff — were allowed to work directly with the architects throughout the planning process to make sure that their areas would fulfill their dreams and be integrated at maxi-

mal efficiency with other functions of the building.

Five years ago we occupied our new building, which added more than 10,000 square feet of assignable clinical space on the first floor, and an equal amount of usable space for laboratories and offices on the second floor. The building also contains three meeting rooms, including the formal Bennett Conference Room, and three break and lunch areas.

The project included remodeling and expansion of the adjacent Veterinary Medicine II building to update laboratories and to construct a new physical therapy unit, laboratory suite and support facilities for the aging Veterinary Medical Teaching Hospital (VMTH).

The beautiful gardens that encircle the new building offer faculty members,

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Retrospective of CCAH milestone events: a growing legacy of achievements

The Center for Companion Animal Health (CCAHA) was established in 1992 to raise funds for studies pertaining to the health of small companion animals and to develop new programs at the cutting edge of veterinary medicine. During the ensuing years, it has contributed substantially to development of new diagnostic and treatment methods, and has supported studies related to genetic abnormalities, cancers, infectious diseases, nutritional disorders and other health problems that affect dogs, cats, and small avian and exotic pets.

The four dogs who scraped the dirt of a llama pasture alongside parking lot 55, symbolically breaking ground for the construction of the 33,000-foot CCAH building on Oct. 18, 2001, signaled the start of a new era. Since completion of the building in early 2004, numerous significant events and veterinary medical milestones have taken place at the Center for Companion Animal Health. In these pages, we celebrate some of these memorable moments.

2004

- Construction of the **Center for Companion Animal Health's** gleaming new building was completed, inaugurated ceremoniously on July 14 when canine cancer patient Jessie Duffield, a Labrador retriever, bit through a ribbon of frankfurters.
- CCAH initiated the **Physical Rehabilitation Service** in the new building.



2005



- CCAH participated in a groundbreaking investigation that identified a gene mutation responsible for **hypertrophic cardiomyopathy** – a devastating heart disease that afflicts cats and also is a leading cause of sudden death in young human athletes. UC Davis veterinary cardiologist Mark Kittleson was a co-author of the study, along with scientists from The Ohio State University and the Baylor College of Medicine. Studies that Kittleson and his colleagues performed with cats including Clifford, a Maine coon cat shown here, helped them understand the mode of inheritance of hypertrophic cardiomyopathy.
- A team of UC Davis veterinary scientists led by Leslie Lyons released their investigative findings identifying the genetic mutation that causes often fatal **polycystic kidney disease** in cats. The study will enable cat breeders to gradually eliminate the defective gene in their breeding lines, and may help contribute to therapies for humans as well as cats.
- CCAH hosted the American Kennel Club's **Canine Health Foundation Breeder's Symposium** in May 2005. Hundreds of breeders and scientists attended scientific presentations about nutrition, forensics, breeding, vaccinations, cancer, DNA, physical rehabilitation, reproduction and other topics.
- Koret Foundation Funds of San Francisco in December awarded a \$1 million grant comprising a five-year commitment to the **UC Davis Koret Shelter Medicine Program**. The grant enabled expansion of CCAH shelter outreach and consultation services, and support for training veterinary students and residents in this emerging specialty.

Field of Dreams from page 1

students, owners and pets an outdoor area for respite and reflection. The artistic memorial wall and a memorial brick patio serve as a tangible testament to the purpose of the building and the dedication of our clinicians, scientists and supporters. We believe the CCAH is among the most beautiful and welcoming buildings on the UC Davis campus.

What has come to our field of dreams during the past six years?

This edition of *CCAHA Update* highlights some of the noteworthy milestones that we have achieved.

The entry doors open to the veterinary school's largest client reception area, which also serves our small-animal dermatology service in Veterinary Medicine II. The first floor of the CCAH houses exam rooms and treatment facilities for the veterinary cancer (oncology), community practice, and avian and exotic animal services. Laboratories on the second floor are positioned to allow for close interactions between scientists and clinicians.

The new building has allowed for tremendous growth in the existing veterinary oncology and avian and exotic animal services, and for the creation of a new program in community practice. The building contains a state-of-the-art radiation therapy unit and facilities for the routine types of surgical procedures conducted in a typical community-based practice.

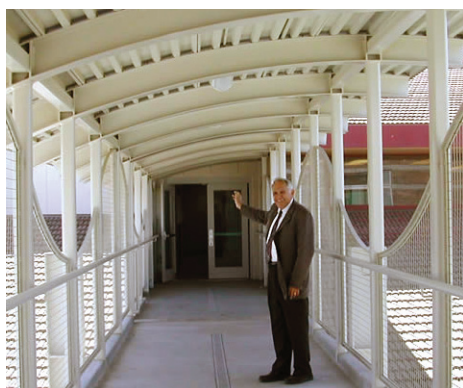
The CCAH also has played a pivotal role in the development of four new School of Veterinary Medicine programs:

1. Koret Shelter Medicine Program
2. Community Practice
3. Physical Therapy
4. Hemodialysis and Blood Purification Unit.

We are proud of the accomplishments of the CCAH during the past six years, and are grateful for all of those people who supported us in constructing and equipping this wonderful facility. However, we have still other "fields of dreams" in the planning. The aging VMTH will require an expansion of equal or greater size than the CCAH to accommodate a regional emergency medicine unit, enlarge small-animal surgical and intensive-care facilities, and enable full development of community practice.

We are confident that such a building will be seen as much more than bricks and mortar – a dream of programs that are sorely needed if we are to fulfill our mission of training the best veterinary practitioners, veterinary specialists and veterinary academicians of the future. We thank you for your ongoing support of the small-animal health-related activities and programs of our faculty, and we hope you will take part with us in transforming our next “field of dreams.”

Niels Pedersen, a professor of veterinary medicine and epidemiology, is director of the Center for Companion Animal Health and director of the UC Davis Veterinary Genetics Laboratory.



Dr. Niels Pedersen in the building's breezeway connecting the new CCAH with the Vet Med II building and the original CCAH.



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The Center for Companion Animal Health (CCAHA) is dedicated to advancing studies in veterinary medicine – encompassing new ways to prevent, diagnose and treat diseases including cancers, genetic and immune disorders, infectious diseases, kidney and heart diseases, and nutritional disorders in companion animals.

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2006

- UC Davis, the Veterinary Genetics Laboratory and the CCAH hosted the **Third International Conference on Feline Genomics and Inherited Diseases** in August 2006. The conference attracted more than 170 scientists from around the world.
- Working collaboratively with human orthotists, physical therapist Jackie Woelz started an **Orthotics, Prosthetics and Bracing Program** for small and large animals.
- The **Tender Loving Care for Pets Program** was established to place pets in welcoming homes following the death of their owners.

2007

- Completion of the **Parsky and Valente Linear Accelerator Suite** enabled treatment of animals as large as horses. The technology produces exceptionally precise radiation beams to treat tumors while sparing surrounding healthy tissues from damage.

2008

- CCAH and UC Davis veterinary faculty members appeared Nov. 25, 2008, in a segment titled **“Fido Fights Cancer”** on *Quest*, a program airing on San Francisco PBS television affiliate KQED. The program included an interview with veterinary oncologist Katherine Skorupski and a visit to the CCAH cancer treatment suite.

2009

- UC Davis School of Veterinary Medicine became the nation's only veterinary school to have a **clinician who earned a doctorate in physical therapy** when Jackie Woelz of the Physical Rehabilitation Program was awarded her doctoral degree.
- A gift from the **Dmarlou Foundation** funded launch of a **stereotactic radio-surgery program** enabling therapy for brain and pituitary tumors in a single treatment.



David Wilson (above), director of the William R. Pritchard Veterinary Medical Teaching Hospital, and volunteer Kathy Dreher hold Burmese kittens belonging to Nancy Reeves, a member of Save Our Cats and Kittens from Feline Infectious Peritonitis (SOCK FIP).

The Fisher family (right) attended Spring Showcase with their dog, Maggie, whom Dr. Karl Jandrey (holding Maggie, center) successfully treated for severe injuries that she had suffered when she was hit by a car.

- The **Spring Showcase** in May 2009 brought more than 130 donors and pet owners to the CCAH to learn about the latest clinical studies and patient care innovations. Faculty from critical care, community practice, internal medicine and medical oncology disciplines presented overviews of their ongoing work to improve animal health.



Koret Shelter Medicine Program emulated throughout the nation

The Koret Shelter Medicine Program was the first entity in the world to concentrate on the prevention of disease problems for pets in animal shelters. The program has led the way for shelter medicine components in more than half of the veterinary schools in North America.

Through the Koret Shelter Medicine Web site, program staff members have responded to thousands of questions by e-mail messages and phone calls from shelter veterinarians and private-practice veterinarians about shelter animal health. They have carried out dozens of comprehensive on-site evaluations for shelters throughout the nation.

The UC Davis Koret program has three main components:

- **study** of infectious diseases and behavioral problems in shelter animals to determine how to either prevent or manage them;
- **education**, encompassing residencies, externships, academic and continuing education courses, presentations and online scientific resources;
- **consultation and diagnostic services** for animal shelter personnel performed at the lowest possible cost to shelters.

Veterinarian Kate Hurley, who initiated and directs the Koret Shelter Medicine Program, and Mike Bannasch, program coordinator, wrote chapters for the first-ever shelter medicine textbook, *Shelter Medicine for Veterinarians and Staff* (Wiley-Blackwell, 2004). Hurley is coeditor of another book, *Infectious Disease Management in Animal Shelters* (Wiley-Blackwell, 2009), a comprehensive guide to preventing, managing and treating disease outbreaks in shelters.

Hurley's mission is to create a community in which no animal dies simply because it loses its home, and one in which all shelter animals, no matter how long they stay at a facility, receive the best possible care.

In 2006, for example, Koret Shelter Medicine Program personnel helped the Las Vegas shelter identify the cause of an outbreak of hemorrhagic pneumonia that had killed more than 1,000 dogs, and offered recommendations for improvements that included vaccinations on intake and changes in cleaning practices. Within three

months, comfort and health of cats and dogs at the shelter improved dramatically, and the number of animal deaths declined by more than 1,100 compared to the previous year.

Working with scientists at the universities of Wisconsin and Florida, Hurley and her colleagues pioneered an innovative use of antibody testing to minimize the need for euthanasia in controlling deadly outbreaks. Sandra Newbury, who became the Koret Shelter Medicine Program's national shelter medicine extension veterinarian in 2007, has created a data collection and statistical tool for evaluating shelter health management. Hurley and Newbury are members of a national panel committed to establishing Minimum Standards of Care for Shelter Animals.

The Koret Shelter Medicine Program



Mike Bannasch and Kate Hurley examine a shelter kitten that suffers from an infectious disease.

was established with initial support from Maddie's Fund, a nonprofit animal welfare organization. The UC Davis shelter medicine program operates entirely through the generosity of donors. You can obtain more information by visiting www.sheltermedicine.com on the Web or by calling (530) 752-7024.

Community Practice includes preventive care, medical treatment and surgery

The Veterinary Medical Teaching Hospital's Community Practice Program, which is housed in the CCAH building, performs important clinical services for our animal patients while filling a vital role in the education of UC Davis veterinary students. While the VMTH accommodates referrals for specialized services and intricate surgical procedures, the Community Practice program serves clients and gives students fundamental educational experiences in general veterinary medicine.

Our Community Practice service consists of two components: Community Medicine and Community Surgery. Internal Medicine Service faculty member Julie Meadows is section head of Small Animal Community Medicine, which encompasses wellness care and disease prevention or management. That unit offers vaccinations, parasite control, and advice on proper nutrition and behavior training. Elizabeth Montgomery oversees the Community Surgery section, which performs spaying, neutering and other general surgical procedures, including removal of bladder stones, closure of lacerations, and removal of skin masses.

Because general practice encompasses total life care – from pediatrics to geriatrics to end-of-life aid – its location between the oncology and physical rehabilitation facilities in the CCAH building is ideal. The general-care Community Practice facility operates in tandem with specialty and critical-care services available 365 days per year in the adjacent VMTH.

The Community Practice Program will be able to serve clients even more efficiently if funding eventually can be allocated for installation of radiological imaging equipment and additional examination and client conference rooms within the CCAH. Our Community Practice activities enhance the knowledge and skills of veterinary students and faculty who are dedicated to the care and treatment of companion animals.

Physical Rehabilitation Service helps animals restore function

The CCAH Physical Rehabilitation Service, initiated in May 2004, is modeled after a physical therapy department in a human medical center. Rehabilitative therapy is intended as a guided, safe return to the highest level of function for all animals, using evidence-based practice. Licensed physical therapist Jackie Woelz, who is chief of service of the Physical Rehabilitation Service, works closely with the clinicians of the small- and large-animal services in performing supportive treatments.

Veterinary services may refer companion animals for physical rehabilitation following orthopedic and soft-tissue surgery, oncology, intensive care, neurosurgery or other neurological procedures, or for other medical reasons. Woelz, who has a doctoral degree in physical therapy, completes a functional evaluation and designs a plan of care to restore, maintain or enhance physical function after injury, surgery or onset of disability. She invites clients to attend the sessions and become actively engaged in the rehabilitation process. A senior dog program offers therapy to treat mobility difficulties.

Woelz, whose clinical interests include small-animal locomotor training after spinal cord injury and improving mobility in aging canine companions, educates veterinary students about the benefits of physical rehabilitation. Senior students may elect to complete a rotation through the service.

The Physical Rehabilitation Service offers hope to owners of companion animals who have suffered traumatic neurological injuries that result in paresis (weakness).

Woelz works with canines using adjustable, padded support mechanisms developed in collaboration with teams of UC Davis biomedical engineering and mechanical engineering students.

The CCAH Orthotics, Prosthetics and Bracing Program for small- and large-animal clinics restored mobility for Roxie, a pit bull. She had lost the ability to walk due to bilateral sciatic nerve damage that occurred during spay surgery at another clinic. Dogs with such debilitating damage traditionally were euthanized. But this pioneering program, developed through a collaboration with human orthotists, restored Roxie's independence – she walks, runs and can go up and down stairs.



With the help of prosthetics, Roxie the pit bull now can walk, run and go up and down stairs.

Cancer Center treats patients while enhancing understanding of disease

When the new CCAH Cancer Center opened, it tripled the Veterinary Medical Teaching Hospital's capacity for cancer treatments. The facilities also included laboratories for genetics and cancer studies. It was the nation's first comprehensive cancer center at a veterinary school.

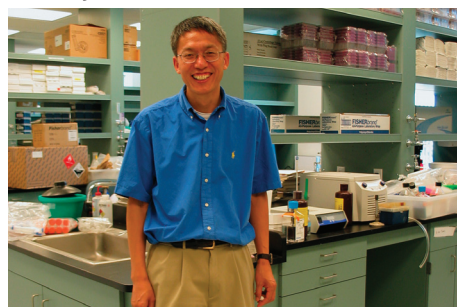
The CCAH contains three clinical cancer units: the Cancer Clinic, the Paul and Borghild Petersen Radiation Oncology Unit, and the Maddie's Fund Medical Oncology Unit.

Medical Oncology

Scientists in the CCAH Veterinary Oncology Laboratory are studying molecular and genetic linkages to the development of certain cancers, and evaluating the ability of drugs to treat cancers in animals. Once the genes are identified, investigators 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 ultimate goal of the program.

Many of the findings of CCAH veterinary faculty members hold potential not only for animals, but also for human



Xinbin Chen directs the school's Veterinary Oncology Laboratory and is co-director of the Comparative Oncology Program.

medicine. Xinbin Chen, professor and director of veterinary oncology in the School of Veterinary Medicine's Department of Surgical and Radiological Sciences, also co-directs the UC Davis Comparative Oncology Program, a collaboration between the School of Medicine and the School of Veterinary Medicine. Investigators in the Comparative Oncology Program are working with animals to find the genes involved in cancers. Chen is investigating how the gene P53 suppresses cancer formation in humans and animals.

"Little is known as yet about the genetics related to canine or feline cancers," Chen said. "Quite a few cancers – such as non-Hodgkin's lymphoma, melanoma and soft-tissue sarcoma – are prevalent in the dog, and skin cancers, especially

Continued on page 8

Philanthropic contributions support CCAH

More than 300 veterinary clinics in the western United States memorialize their clients' pets with contributions to the Companion Animal Memorial Fund. Between July 2008 and June 2009, more than \$245,000 was raised to support companion animal clinical studies.

All of us at CCAH are grateful for the generosity of these donors. All locations are in California unless otherwise noted.

Companion Animal Memorial Fund Honor Roll Veterinary Clinic Fund Participants

Abby Pet Hospital, Fresno
Acadia Veterinary Clinic, Cupertino
Dr. Winston Acevedo, Redwood City
Adobe Animal Hospital, Concord
Adobe Animal Hospital, Los Altos
Advanced Veterinary Medical Imaging Inc., Tustin
Aggie Animal Dental Service, San Francisco
Agoura Animal Clinic, Agoura Hills
Agoura Hills Animal Hospital, Agoura Hills
Akal Animal Clinic, San Jose
Alameda Pet Hospital, Alameda
Alamo Animal Hospital, Alamo
All Creatures Animal Hospital & Bird Clinic, Crescent City
All Creatures Veterinary Hospital, Dublin
All Pets Hospital, San Francisco
All Pets Medical Center, Pomona
All Pets Veterinary Clinic, Santa Cruz
Alto Tiburon Veterinary Hospital, Mill Valley
Animal & Bird Clinic of Mission Viejo, Mission Viejo
Animal Care Clinic, El Cajon
Animal Care Clinic, El Sobrante
Animal Clinic, Stockton
Animal Clinic at Lake of the Pines, Auburn
Animal Clinic of Encino, Encino
Animal Eye Care, Fremont
Animal Farm Pet Hospital, San Francisco
Animal Hospital at Midvalley, Carmel
Animal Hospital of Cloverdale, Cloverdale
Animal Housecall Service, Sacramento
Animal Inns of America, Garden Grove
Animal Medical Center, Auburn
Animal Medical Center Inc., Van Nuys
Anza Animal Clinic, Westlake Village
Anza Valley Veterinary Clinic, Anza
Aptos Creekside Pet Hospital, Aptos
Aragon Veterinary Clinic, San Mateo
Arbor Animal Hospital, Irvine
Arbor View Veterinary Clinic, Roseville
Arcata Animal Hospital, Arcata
Arch Beach Veterinary Clinic, Laguna Beach
Arguello Pet Hospital Inc., San Francisco
Ark Pet Hospital, Antioch
Arroyo Veterinary Hospital, Sonoma
Atascadero Pet Center, Atascadero

Balboa Pet Hospital, San Francisco
Bay Area Bird Hospital, San Francisco
Belmont Pet Hospital, Belmont
Berkeley Dog & Cat Hospital, Berkeley
Beverly Oaks Animal Hospital, Sherman Oaks
Bird & Pet Clinic of Roseville, Roseville
Bishop Ranch Veterinary Center, San Ramon
Blue Cross Pet Hospital, Carmichael
Blue Cross Pet Hospital, North Hollywood
Blue Cross Veterinary Hospital, Signal Hill
Blue Oak Veterinary Hospital, Jackson
Boulder Creek Veterinary Clinic, Boulder Creek
Boulevard Pet Hospital, Castro Valley
Brandner Veterinary Hospital Inc., Petaluma
Brentwood Family Pet Care, Brentwood
Brentwood Veterinary Hospital, Brentwood
Broadway Pet Hospital, Vallejo
Dr. Kelly Byam, Elk Grove
Calabasas Animal Clinic Inc., Calabasas
Camino Real Pet Clinic, Burlingame
Campus Veterinary Clinic Inc., Berkeley
Canyon Hills Animal Clinic Inc., Yorba Linda
Caring for Cats Housecall Service, Monrovia
Carlsen Animal Hospital, West Los Angeles
Castro Valley Companion Animal Hospital, Castro Valley
The Cat and Bird Clinic, Santa Barbara
Cat Clinic of Beaverton/Accent on Cats – Cat Clinic, Beaverton, Ore.
Cat Hospital of Clayton, Clayton
Cats Only Veterinary Hospital, Rocklin
Centennial Animal Hospital, Corona
Center Veterinary Clinic, San Diego
Central Animal Hospital, Petaluma
Central Coast Pet Emergency Clinic, Arroyo Grande
Ceres Veterinary Clinic, Ceres
Chabot Veterinary Clinic, Hayward
Dr. Susan Chew, Albany
Dr. Michele Chin-Littlejohn, San Marcos
Chino Veterinary Hospital, Chino
Cirby Ridge Animal Hospital, Roseville
Clovis Veterinary Hospital, Clovis
Coast Veterinary Clinic, Morro Bay
Coastside Veterinary Clinic, Half Moon Bay
Codornices Veterinary Clinic, Albany
Coffee Road Veterinary Clinic, Modesto
College Veterinary Hospital, Modesto
Colusa Veterinary Hospital, Colusa
Colyer Veterinary Service, Paradise
Companion Animal Hospital, Santa Cruz
Companion Pet Clinic of Aloha, Aloha, Ore.
Companions Animal Hospital, Paradise
Conejo Valley Veterinary Hospital, Thousand Oaks
Contra Costa Veterinary Emergency Clinic, Concord
The Country Vet, Novato
County Line Animal Hospital, La Habra
Cross Street Veterinary Clinic, Tulare
Crystal Springs Pet Hospital, San Mateo
Del Mar Heights Veterinary Hospital, Del Mar
Del Mar Pet Hospital, Aptos
Dr. Dena DeMasters, Paso Robles
Dr. Janet Depue, Foothill Ranch
Diablo View Veterinary Medical Hospital, Pleasant Hill
Discovery Bay Veterinary Clinic, Discovery Bay
Disney Pet Hospital, Concord
Doctor's Inn Pet Hospital, Sloughhouse
Dog's Best Friend & The Cat's Meow, Albany
Donner Truckee Veterinary Hospital, Truckee
Edgewood Veterinary Clinic, Auburn
El Cerrito Veterinary Hospital, La Mesa
El Sobrante Veterinary Hospital, El Sobrante
Evergreen Animal Clinic Inc., Santa Maria
Evergreen Veterinary Clinic, San Jose
Evers Veterinary Clinic, Chico
Exeter Veterinary Hospital, Exeter
Family Member Veterinary Hospital, Mission Viejo
Feline Medical Center, Reno, Nev.
Dr. Kristen Finch, Ojai
Fontana Animal Hospital, Fontana
Foothill Pet Hospital, Santa Barbara
Four Corners Veterinary Hospital, Concord
Four-Legged Friends Animal Hospital, Phoenix, Ariz.
Four Seasons Animal Hospital, Lafayette
Franklin Ranch Pet Hospital & Hotel, Elk Grove
Frontier Pet Clinic, Napa
Dr. Michael Gadd, West Linn, Ore.
Garden Grove Dog & Cat Hospital, Garden Grove
Dr. Steve Goldberg, Valley Village
Granite Bay Veterinary Clinic, Granite Bay
Grantline Veterinary Hospital, Elk Grove
Dr. Rochen Heers, Henderson, Nev.
High Valley Veterinary Hospital, Ramona
Hillcrest Pet Hospital, Arcadia
Hillcrest Veterinary Hospital, Pleasant Hill
House Calls Veterinary Service, Carmichael

Howard Animal Hospital, Brawley
Indian Creek Veterinary Clinic, Crescent Mills
Kindness Pet Hospital, Los Altos
King City Veterinary Hospital, King City
Klaich Animal Hospital, Reno, Nev.
Dr. Barbara Kollin, Palo Alto
La Costa Animal Hospital, Carlsbad
La Cumbre Animal Hospital, Santa Barbara
Laguna Grove Veterinary Hospital, Laguna Niguel
Laguna Veterinary Hospital, Santa Rosa
Larkfield Veterinary Hospital, Santa Rosa
Larkspur Landing Veterinary Hospital, Larkspur
Lifetime Animal Care Center, San Diego
Livermore Veterinary Hospital, Livermore
Dr. Milinda Lommer, Corte Madera
Lone Mountain Veterinary Hospital, Carson City, Nev.
Loomis Basin Veterinary Clinic Inc., Loomis
Los Alamitos Animal Hospital, Los Alamitos
Los Coches Animal Hospital, Soledad
Los Osos Pet Hospital, Los Osos
Mangrove Veterinary Hospital, Chico
Manteca Veterinary Hospital, Manteca
Marina Hills Animal Hospital, Laguna Niguel
Marysville Veterinary Hospital, Marysville
Matilija Veterinary Hospital Inc., Ojai
Mayfair Veterinary Hospital, San Jose
Maze Animal Hospital Inc, Modesto
McKenzie Animal Clinic, Oroville
Dr. Debra Melcon, San Francisco
Mendocino Animal Hospital, Ukiah
Merced Animal Medical Center, Merced
Mid-Peninsula Animal Hospital, Menlo Park
Midtown Animal Hospital, Sacramento
Mid-Valley Veterinary Hospital, Orland
Miramonte Veterinary Hospital, Mountain View
Mission Pet Hospital, San Francisco
Mobile Vet, Glendale
Modesto Veterinary Hospital Inc., Modesto
Montecito Animal Clinic, Pacheco
Moore Veterinary Care, Ventura
Moraga Veterinary Hospital, Moraga
Morro Bay Veterinary Clinic, Morro Bay
Moulton Animal Hospital, Laguna Niguel
Mt. Diablo Veterinary Medical Center, Lafayette
Mt. Shasta Animal Hospital, Mt. Shasta
Mueller Pet Medical Center, Sacramento
Muir Oaks Veterinary Hospital, Martinez
Murphy Avenue Pet Clinic, Sunnyvale
Dr. Mark Nample, Fresno
Napa Valley Veterinary Hospital, Napa
Newbury Park Veterinary Clinic, Newbury Park
Newport Hills Animal Hospital, Newport Beach
Nipomo Dog & Cat Hospital, Nipomo

Noreda Animal Clinic, Northridge
 North Peninsula Veterinary Emergency Clinic, San Mateo
 Northgate Veterinary Hospital, Manteca
 Northridge Veterinary Center, Northridge
 Northtown Animal Hospital, Santa Rosa
 Oak Park Veterinary Clinic, Grover Beach
 Oak Park Veterinary Hospital, Oak Park
 Oakland Veterinary Hospital, Oakland
 Occidental Veterinary Clinic, Occidental
 Ocean Beach Veterinary Clinic, San Francisco
 Oceanview Veterinary Hospital, Pacific Grove
 Ontario Veterinary Hospital, Ontario
 Orange Villa Veterinary Hospital, Orange
 Overgaard Animal Clinic, Overgaard, Ariz.
 Oxnard Veterinary Hospital, Oxnard
 Pacific Animal Hospital, Oceanside
 Pacific Northwest Veterinary Hospital, Sequim, Wash.
 Pacific Petcare Veterinary Hospital, San Diego
 Park Animal Hospital, San Francisco
 Park Centre Animal Hospital, Alameda
 Parktown Veterinary Clinic, Milpitas
 Dr. Laura Pasten, Carmel
 Peninsula Center Pet Hospital, Rolling Hills Estates
 Pet Care Centers of America Inc., Orange
 Pet Emergency & Specialty Center, San Rafael
 Pet Medical Center., Temecula
 Pet Medical Center Of Las Vegas, Las Vegas, Nev.
 Pet Vets of Folsom Inc., Folsom
 Dr. Alison Pillsbury, Jackson
 Pinole Pet Hospital, Pinole
 Pismo Beach Veterinary Clinic, Pismo Beach
 Pleasant Valley Veterinary Center, Penn Valley
 Point Reyes Animal Hospital, Point Reyes Station
 Porter Pet Hospital, Northridge
 Presidio Way Veterinary Hospital, San Francisco
 Primary Care Dog and Cat Hospital, Arroyo Grande
 Redlands Animal Hospital Inc., Redlands
 Redwood Animal Hospital, Castro Valley
 Redwood Veterinary Hospital, Vallejo
 Redwood Veterinary Hospital, Visalia
 Reedley Veterinary Hospital, Reedley
 Richmond Veterinary Hospital, Richmond
 Rocklin Road Animal Hospital, Rocklin
 Rural Animal Clinic, Tempe, Ariz.
 Sacramento Cat Hospital, Carmichael
 Salida Veterinary Hospital and House Call Service, Salida
 San Diego Pet Hospital, Lemon Grove
 San Francisco Veterinary Specialists, San Francisco
 San Juan Animal Hospital, San Juan Capistrano

Dr. Debra Scheenstra, Novato
 Scotts Valley Veterinary Clinic, Scotts Valley
 Sepulveda Animal Hospital, Culver City
 Shasta Lake Veterinary Clinic, Shasta Lake
 Shasta Valley Veterinary, Montague
 Dr. Elizabeth King Shelton, Mesa, Ariz.
 Dr. Alisa Shen, San Jose
 Slate Creek Animal Hospital, Placerville
 South Bay Veterinary Hospital, Chula Vista
 South County Animal Hospital, Morgan Hill
 South Hillsdale Animal Hospital, San Mateo
 Steele Canyon Veterinary Clinic, Jamul
 Summit Veterinary Hospital Inc., Los Gatos
 Sunnyside Pet Hospital, Fresno
 Sunnyvale Veterinary Clinic, Sunnyvale
 Sunset Animal Clinic, Suisun
 Sunset Cliffs Animal Hospital, San Diego
 Sunset Whitney Veterinary Hospital, Rocklin
 Sweetwater Veterinary Clinic, Agua Dulce
 Sylvan Corners Pet Hospital, Citrus Heights
 Sylvan Veterinary Hospital, Modesto
 Tamalpais Pet Hospital, Mill Valley

Tarzana Pet Clinic Inc., Tarzana
 Tassajara Veterinary Clinic, Danville
 Tehachapi Veterinary Hospital, Tehachapi
 Terra Linda Veterinary Hospital, San Rafael
 Terra Vista Animal Hospital, Rancho Cucamonga
 Town & Country Animal Hospital, Bonita
 Turquoise Animal Hospital, San Diego
 University Veterinary Hospital, Berkeley
 Valley Animal Hospital, Merced
 Valley Veterinary Clinic, Red Bluff
 VCA Albany Animal Hospital, Albany
 VCA Animal Hospital of Santa Cruz, Santa Cruz
 VCA Antech/All Our Pets Veterinary Hospital, Sacramento
 VCA Antech/Old River Veterinary Hospital, Tracy
 VCA Antech/Westside Animal Hospital, West Sacramento
 VCA Cottage Animal Hospital, Walnut Creek
 VCA McClave Veterinary Hospital Inc., Reseda
 VCA Monte Vista Animal Hospital Inc., Concord

VCA Sacramento Animal Medical Group, Carmichael
 VCA West Los Angeles Animal Hospital, Los Angeles
 Veterinary Housecalls, San Clemente
 Veterinary Medical Center of Turlock, Turlock
 Veterinary Medical Center Studio City
 Veterinary Medical Center Inc., Atascadero
 Village Oak Veterinary Hospital, Modesto
 Village Square Veterinary Hospital, Portola Valley
 Village Veterinary Clinic, Lompoc
 Village Veterinary Clinic Inc., Stockton
 Walker Street Dog & Cat Hospital, La Palma
 Washington Square Veterinary Clinic, Petaluma
 Waterford Veterinary Services, Waterford
 Dr. Ivan Weinstein, Tucson, Ariz.
 Willow Rock Pet Hospital, Rocklin
 Dr. Elizabeth Winchester, Lockeford
 Ygnacio Animal Hospital, Walnut Creek
 Yosemite Pet Hospital, Simi Valley

Koret Foundation Center for Veterinary Genetics investigates diseases and offers pedigree testing

As the CCAH began operation in its new building, veterinary geneticist Leslie Lyons and her faculty colleagues discovered the genetic mutation that causes polycystic kidney disease (PKD) in Persian cats. Their meticulous screening of 800 cats in search of the mutation implicated PKD1, a gene already known to cause PKD in humans. Lyons and her colleagues subsequently developed a DNA-based test to alert breeders and have worked since then to eradicate this most prevalent inherited disease in cats. Veterinarians now can use cheek swabs to collect DNA to test for the gene, which can be performed for kittens as early as 8 to 10 weeks of age.

Scientists in 2005 identified a spontaneous genetic mutation in Maine Coon cats

that is responsible for hypertrophic cardiomyopathy, the most common heart disease in domestic cats.

Our Koret Foundation Center for Veterinary Genetics enables companion animal

owners to learn more about inherited diseases, especially in their purebred dogs and cats. The UC Davis Veterinary Genetics Laboratory can perform parentage testing and pedigree analysis.



Geneticist Leslie Lyons and Chantal Tu, then a veterinary student who has since graduated, prepared reagents for mapping feline genes.

(1409)

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Cancer Center *from page 5*

squamous cell carcinoma, are 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."

Several faculty members, including Sara Frasier, Michael Kent, Robert Rebhun, Carlos Rodriguez, Katherine Skorupski and Alain Theon, are conducting clinical trials to study the efficacy of various human or veterinary cancer drugs in dogs and cats.

Radiation Oncology

Radiation oncology specialists are treating animal patients using advanced technologies, as well as investigating the efficacy of radiation therapy at the molecular level to improve understanding of cancer treatment. CCAH performs conventional radiation therapies and also enrolls selected patients in clinical trials investigating novel approaches.

"Much can be learned from observing and carefully tracking how patient cancers respond to the best therapies available," explained Alain Theon, UC Davis professor of veterinary surgical and radiological sciences.

The radiation oncology wing includes a high-power linear accelerator that can be used to treat all sizes of animals.

Therapies performed at CCAH include stereotactic radiosurgery, by which clinicians target and treat brain tumors and other abnormalities precisely and

efficiently. This method is a noninvasive alternative to surgery, enabling practical treatment for tumors located deep within the brain or in proximity to vital brain areas. First applied in humans, stereotactic radiosurgery shrinks brain and pituitary tumors by damaging tumor-cell DNA.

"This procedure's accuracy helps us to spare normal tissue as much as possible

and allows us to use a high dose of radiation in one to three sessions to accomplish our treatment objective," said radiation oncologist Michael Kent of the Oncology Service. "Stereotactic radiosurgery reduces treatment time and avoids multiple applications of anesthesia." In contrast, other radiotherapy methods require up to 20 radiation sessions.

Hemodialysis and Blood Purification Unit among only eight in nation

This CCAH-centered program was the first in the world to treat animals in renal failure using techniques and equipment based on human pediatrics. It has and will continue to serve as a model and training ground for similar units across the United States and abroad. The Hemodialysis and Blood Purification Unit has helped many dogs, cats and other animal species survive bouts of renal failure that otherwise would have been lethal. Antifreeze

poisoning and certain drug overdoses, as well as infections such as leptospirosis, can now be successfully treated if caught early enough. As the name of the unit implies, it is capable of doing a lot more than treating renal failure.

A new \$450,000 renovation accommodates blood-purification techniques that are at the cutting edge. The facility will greatly increase the range of diseases that can be treated, including autoimmune diseases, cancers and liver failure. In addition to remov-



John Kirby, animal health technician, gives KC, who was flown here from Texas, her hemodialysis treatments.

ing bad things from blood, the unit can harvest helpful constituents such as plasma, platelets and stem cells. As such, the facility also will expand the types of health studies conducted by faculty and residents.



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