In order to ensure the integrity of horse racing in California, the Kenneth L. Maddy Equine Analytical Chemistry Laboratory (EACL) was authorized in 1993 through legislation authored by California State Senator Ken Maddy. The EACL started testing samples in 2000 and became the sole CHRB anti-doping service by 2005.

Equine Analytical Chemistry
A robust and aggressive anti-doping program is the cornerstone to protecting the integrity of horse racing and the safety of horses and human athletes. In California, nearly $3 billion are wagered on horse racing each year, with more than 5,000 races and 40,000 horse starts. Using cutting-edge technology, the EACL analyzes more than 12,000 post-race blood and urine samples. With the addition of pre-race, post-race, out-of-competition, and evidentiary samples, the laboratory facilitates more than 50,000 tests per year.

Important projects conducted by the chemistry section include:

- Development of testing technology that is now the gold standard for substance detection
- Regulation of bicarbonate loading (“milkshaking”) in Thoroughbred racing
- Creation of methods for identification of dermorphin, nikethamide, selective androgen receptor modular, and other Association of Racing Commissioners Class 1 substances – all prohibited performance enhancing drugs
- Customization of state-of-the-art technology used to detect growth promoters and other emerging threats facing the performance horse industry
- Development of hair testing to better control abuse of anabolic agents and other drugs

Equine Pharmacology
Ensuring the safety and welfare of racehorses through the establishment of appropriate regulatory recommendations and providing information to veterinarians—so they can effectively treat these athletes—is integral to an effective drug testing program. The EACL pharmacology section is instrumental in providing much needed drug withdrawal information to veterinary practitioners. It manages an exercised research herd comprised of former racehorses, whose fitness levels are maintained by using high-speed treadmills located in the Equine Athletic Performance Laboratory. The EACL pharmacology section has published numerous studies describing the pharmacokinetics and pharmacodynamics of equine drugs including cobalt administration in horses. Data generated from these studies has been utilized by national and international regulatory agencies to set appropriate thresholds for therapeutic drugs and medications.

Important projects conducted by the pharmacology section include:

- Establishment of molecular models (gene expression) to characterize the duration of drug activity
- Identification and characterization of mutations in drug metabolizing enzymes that have the potential to impact drug pharmacokinetics and clinical effects
- Extensive research to characterize the pharmacokinetics and clinical effects of corticosteroids and the establishment of biomarkers for corticosteroid administration in horses
- Investigation of the effectiveness of furosemide in the treatment of EIPH, utilizing varying dosing protocols

“UC Davis has created a lab that is second to none in the testing of horses for illegal drugs in order to eliminate inappropriate use thereof, thus benefitting the wagering world and the integrity of the Sport.”

– Sherwood Chillingworth, executive vice president, Oak Tree Racing Association