

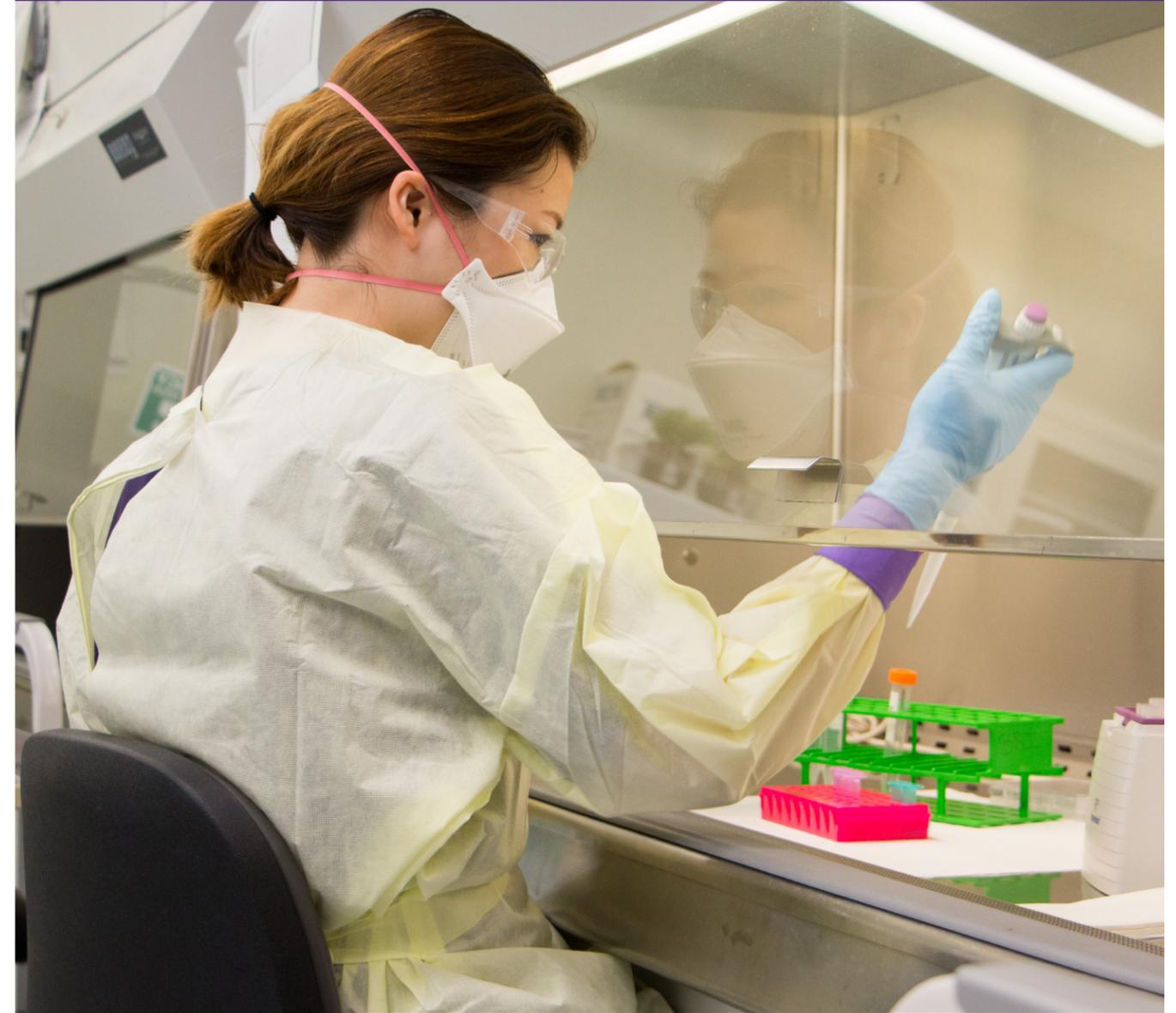
Areas of Research Strength with Faculty Profiles



101 Trotter Hall
Manhattan, KS 66506-5600

Phone: 1-785-532-4537
Fax: 1-785-532-5884

researchdean@vet.k-state.edu
www.vet.k-state.edu/research/



Contact Us!



Bonnie Rush DVM, MS, DACVIM
Dean
College of Veterinary Medicine
785-532-5660
brush@vet.k-state.edu



Frank Blecha, PhD
Associate Dean for Research
University Distinguished Professor
785-532-4537
blecha@vet.k-state.edu

College of Veterinary Medicine
Kansas State University
1710 Denison Avenue
Trotter Hall
Manhattan, Kansas 66506

www.vet.k-state.edu



Kansas State University College of Veterinary Medicine has research strengths in **FIVE general emphasis areas**: infectious disease; food safety and security; beef production, welfare, and management; epidemiology and population health; and comparative translational medicine.

1. **Infectious Disease Emphasis** – Historical and current research strengths of KSU CVM are applied and basic studies on the pathogenesis, prevention and control of important animal infectious diseases. Four focus groups in the Infectious Disease Emphasis are:
 - Viral and Bacterial Pathogenesis of Endemic and Emerging Diseases
 - Transboundary Animal and Zoonotic Diseases
 - Vector-Borne Diseases
 - Antiviral Therapy
2. **Food Safety and Security Emphasis** – The goal of this research emphasis is to develop strategies to identify and mitigate food-borne pathogens, adverse drug and chemical residues, and antimicrobial resistance in livestock production systems. Three focus groups in the Food Safety and Security Emphasis are:
 - Pre-Harvest Food Safety
 - Food Animal Residue Avoidance and Depletion (FARAD) Program
 - Antimicrobial Resistance and Stewardship
3. **Beef Production, Welfare, and Management Emphasis** – Kansas is home of the second greatest concentration of beef cattle per square mile of any state in the U.S. generating over \$7 billion annually in cash receipts. Consequently, the beef industry is absolutely central to the state, regional and rural economies.
4. **Epidemiology and Population Health Emphasis** – The health status of animal and human populations requires knowledge of detection, distribution, and determinants of disease before informed decisions can be made with confidence. As such, federal and state health officials, veterinary practitioners, livestock producers, and industry leaders require high quality information, data analysis, and advice on population health risks.
5. **Comparative Translational Medicine Emphasis** – Uniting veterinary medicine, human medicine and environmental concerns, comparative and translational medicine is an emphasis area of several KSU CVM scientists.

Our specific areas of strength are summarized in the following report.

SPECIFIC AREAS OF STRENGTH IN RSCAD Research, Scholarly and Creative Activities, and Discovery

Infectious Disease – Select Agent Research

The scope of this research strength involves investigations of high-consequence existing or emerging transboundary pathogens, such as African swine fever virus, classical swine fever virus, and Rift Valley fever virus.

Investigators are working in well-funded collaborative research, supported by BSL-2, BSL-3, ABSL-3 and BSL-3Ag large-animal facilities, and the existence of a college-administered, DHS-funded Center of Excellence in Emerging and Zoonotic Animal Disease with:

National Laboratories

USDA Plum Island Animal Disease Center

International Government Laboratories

CSIRO Australian Animal Health Laboratory

The Pirbright Institute, UK

Keywords: *Select agents, Rift Valley fever virus, African swine fever virus, Classical swine fever virus, Center of Excellence in Emerging and Zoonotic Animal Disease, Biosecurity Research Institute*

Viral Pathogenesis of Endemic and Emerging Diseases

The scope of this research strength is major viral diseases of livestock and humans. Studies are performed at the molecular, cellular, and organismic levels including the development of novel animal models.

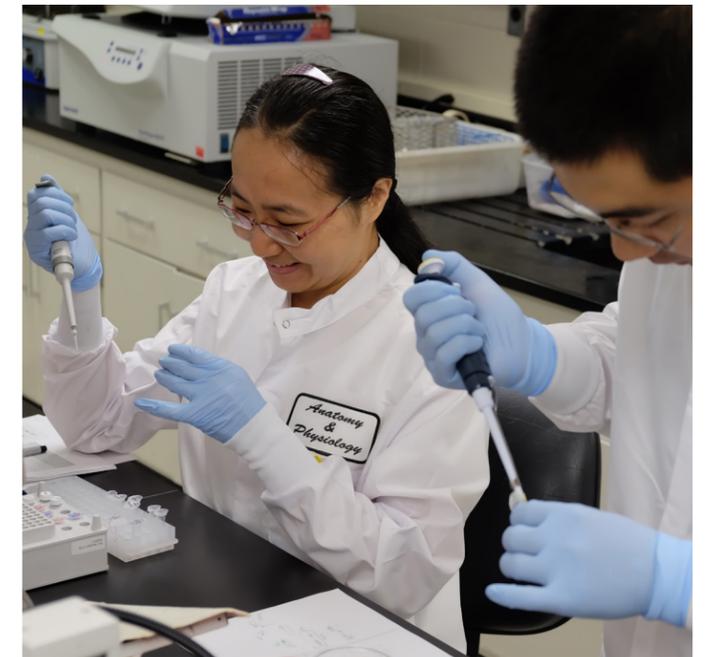
Investigators are engaged in the development and use of infectious clones. Activities are supported by BSL-2 and BSL-3 facilities as well as state-of-the-art flow cytometry, and confocal and electron microscope facilities.

Keywords: *Influenza, Porcine epidemic diarrhea virus, Porcine reproductive and respiratory syndrome virus, Norovirus, Porcine circovirus 2, Swine diseases, Cattle diseases, Biosecurity Research Institute*

Bacterial Pathogenesis of Endemic and Emerging Diseases

The scope of this research strength is investigations of major virulence factors, including structure and function studies, role in pathogenesis, mechanisms of action, and host responses to virulence factors.

Investigators are engaged in multidisciplinary regional, national and international research collaborations to study bacterial pathogens and pathogenesis in both humans and domestic food animals. Many of these pathogens are



zoonotic agents, and thus this research is also integrated with other programs. This research area is well-supported by funds and partnerships with the NIH, USDA, and human and animal health industries.

Keywords: *Bacterial pathogenesis, Innate immunity, Host-pathogen interaction, Food safety, E. coli, Fusobacterium necrophorum, Mannheimia haemolytica, Mycoplasma bovis, Salmonella*

Vaccine Development and Field Efficacy

Researchers in the College of Veterinary Medicine are focused on the development of classical and novel approaches for livestock vaccines with applications to humans and small animals; development of vaccine challenge models; and clinical field studies for validation of efficacy.

Investigators are engaged in the development and use of infectious clones, subunit and vectored vaccines, and field validation and application of commercial products. Activities are supported by BSL-2 and BSL-3 facilities, the Beef Cattle Institute, and partnerships with industry.

Keywords: *Swine diseases, Livestock diseases, Zoonotic diseases, Food safety, Cattle diseases, Vaccine, Immunity, Adjuvants, Beef cattle health and well-being, Beef cattle production practices, Beef Cattle Institute, Biosecurity Research Institute*

SPECIFIC AREAS OF STRENGTH IN RSCAD

Research, Scholarly and Creative Activities, and Discovery



that may lead to the identification of potential antiviral targets, screening and characterization of antiviral compounds and in vivo target validation and efficacy using animal models for coronavirus and calicivirus infections. Special emphasis is on feline infectious peritonitis and systemic, virulent feline calicivirus infection in cats and norovirus infection in humans. A unique strength is collaboration of researchers across multiple disciplines and industry partnership to conduct studies that encompass in vitro studies, antiviral drug design, chemical synthesis and selection of antiviral compounds, and animal models.

Keywords: Antiviral drug, Feline infectious peritonitis, Feline calicivirus, Human norovirus

Diagnostic Assay Development, Validation and Application

Veterinary diagnostics play an important role in the development of the one-health concept. New diagnostic tests, particularly rapid, automated and high-throughput tests, are needed for the detection of existing pathogens as well as emerging diseases, which continually threaten livestock and companion animal populations. Diagnostics are also essential for the detection of zoonotic pathogens in animal and human hosts. Diagnostic testing includes traditional approaches to whole pathogen genome sequencing and bioinformatics. Future vaccines will incorporate diagnostic tests to differentiate infected from vaccinated animals (DIVA).

The Kansas State Veterinary Diagnostic Laboratory (KSVDL) is a full service, fully accredited veterinary diagnostic laboratory. In addition to offering routine diagnostic services to clients, the laboratory is actively engaged in diagnostic test development. Also supporting test development is a group of faculty members distributed between several departments and disciplines. One example is the development of novel approaches for the detection of food-borne, foreign animal and emerging pathogens. Test development is supported by a well-developed infrastructure in immune techniques, biochemistry, molecular biology, test validation, and epidemiology.

Keywords: Veterinary diagnostic testing, Zoonotic and emerging diseases, Rabies, Food-borne pathogens and food safety, Molecular diagnostics, Immune-based diagnostics, Bioinformatics, Pathogen genome sequencing, KSVDL

Mechanisms, Management and Consequences of Antimicrobial Resistance

The scope of this research strength is antimicrobial resistance in livestock, companion animal and zoonotic pathogens. Research includes diagnostic surveillance, pharmacodynamic and population-based models, epidemiology of both genetic and phenotypic resistance, and impacts of antimicrobial use.

A college research strength because several investigators and collaborative teams are engaged in studies of the interactions between antimicrobial use and selection for resistant organisms in livestock and companion animals. A unique strength is the expertise, facilities, and industry partnerships to conduct studies across the breadth of in vitro, laboratory animals and large populations of animals. Unique collaborations involve regulatory aspects, human health, and production agriculture.

Keywords: Livestock diseases, Zoonotic diseases, Food safety, Cattle diseases, Beef cattle production practices

Antiviral Development

Reseracher seek identification of virus or cellular targets for antiviral drug development for coronavirus and calicivirus infections in humans and companion animals; development of in vitro high-throughput screening assays for antiviral compounds; characterization and mechanism of action of antiviral drugs; and in vivo safety and efficacy studies.

A college research strength because several investigators collaborate to conduct studies of host-virus interactions

SPECIFIC AREAS OF STRENGTH IN RSCAD

Research, Scholarly and Creative Activities, and Discovery

Epidemiology and Ecology of Disease

The scope of this research strength includes the epidemiology of pathogens and syndromes in food animal production systems and companion animal species including food safety pathogens, production-limiting diseases, bovine respiratory disease complex, internal and external parasites, and swine infectious diseases. Experimental, observational, and synthesis research methods are used to study host, pathogen, environment, and management factors that contribute to risks in animal well-being, production, and/or human health.

A college research strength because several well-funded investigators and collaborative teams within the college are engaged in research initiatives with local, state, national, and international impacts. The college has unique expertise and capabilities to conduct real-world studies of host-pathogen-environment interactions thereby enabling valid research results including the elucidation of mechanisms of pathogen dissemination, maintenance, and evolution within and among hosts and the environment. For food animal research, the unique blend of expertise in epidemiology and production practices, combined with access to production systems and large populations of animals, result in extremely unique research abilities and resources including the Center for Outcomes Research and Epidemiology. Extensive collaborations with veterinary practitioners, producers, pet owners, and regulatory and industry partners enable unique research capabilities and impactful results.

Keywords: Livestock diseases, Zoonotic diseases, Food safety, Cattle, Swine, Horses, Dogs, Cats, Parasites, Pathogens

Therapeutic Interventions for Disease

Therapeutic intervention research involves in silico, in vitro, and in vivo pharmacodynamic/pharmacokinetic modeling. This work utilizes both challenge models and small and large population natural-occurring disease models. There is also a focus on the case definitions used to identify animals for disease intervention and how these definitions affect therapeutic outcomes.

A college research strength because several investigators and collaborative teams are engaged in studies of therapeutic intervention of small and large animal diseases. The college has a unique capability to conduct investigations across

the continuum from in vitro work to large population interventions. A relationship with veterinary practitioners and the food animal industries allows research to be conducted under field conditions, resulting in externally valid results. For food animal interventions, the blend of expertise in production practices with the expertise in clinical pharmacology allows response to critical research needs. For companion animals, clinicians have access to clients and patients that allows evaluation of existing and novel therapeutic interventions, again combined with the college strength in clinical pharmacology.

Keywords: Cattle, Swine, Exotics, Wildlife, Zoo, Dogs, Cats, Horses, Food animal, Bovine respiratory disease, Enteric disease, Pharmacology, Clinical pharmacology, Parasitology

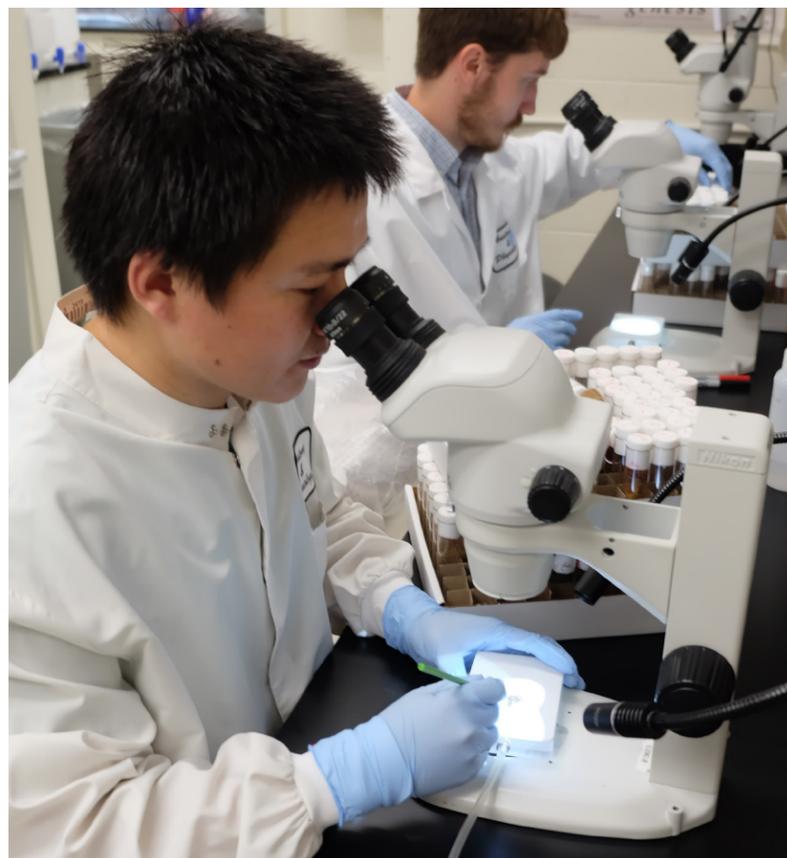
Immune Mechanisms in Health and Disease

Immunity is important for recovery from disease and for protection following vaccination. In addition, aberrant immune responses, such as inflammation, contribute to clinical disease. Diagnosing the immune status provides important information on the outcome following infection and animal models of immune protection and immunopathogenesis are often used. Because several infectious diseases lack vaccines, understanding mechanisms of protection is needed to develop additional therapeutic approaches.

A college research strength because several research teams are involved in the analysis of innate and adaptive immune



SPECIFIC AREAS OF STRENGTH IN RSCAD Research, Scholarly and Creative Activities, and Discovery



the State of Kansas, human and animal health companies, and collaborations with the USDA Arthropod-Borne Animal Disease Unit focused on bluetongue virus transmitted by *Culicoides* midges.

Tick-borne pathogen studies encompass longstanding research focused on understanding the diseases caused by tick-borne pathogens of the genera *Ehrlichia* and *Anaplasma* causing Ehrlichiosis and Anaplasmosis. In particular, research involves understanding pathogen molecular structure, the development of an animal model to study host immunity against *Ehrlichia chaffeensis*, and in defining the contributions of tick and macrophage environments on the pathogen molecular structure and host responses. Research strengths focused on virus-mosquito-vertebrate host interactions of zoonotic viruses important to animal and human health are conducted at BSL-2, BSL-3 and BSL-3Ag facilities. The goal of this research is to provide a better understanding of vector susceptibility, the capacity of the virus to be transmitted, and understanding the molecular-genetic basis of virus transmission to facilitate vaccine and diagnostics design and development, and other countermeasures.

Keywords: *Ehrlichiosis, Anaplasmosis, Ticks, Fleas, Mosquitoes, Alphavirus, Flavivirus, Bunyavirus, Orbiviruses, Culicoides midges, Biosecurity Research Institute*

Nanomedicine

This field is broadly based on exploring the biological interactions of nanomaterials with biological systems using cutting-edge characterization techniques coupled to innovative in vitro, ex vivo, and in vivo animal models. Specific areas of interest include dermal transport of nanomaterials, nanotoxicology and defining and quantitating the role of the protein corona on cellular uptake and biodistribution.

Nanomedicine is a research strength that was greatly enhanced by the establishment of the new Nanotechnology Innovation Center of Kansas State (NICKS) University in the college. This interdisciplinary team bridges research in nanomaterial characterization, cell biology and computational medicine. Newly built facilities include state-of-the-art instrumentation and cell-culture laboratories specifically developed to contribute to the emerging field of nanomedicine, including transmission and scanning electron microscopy. A unique strength

SPECIFIC AREAS OF STRENGTH IN RSCAD Research, Scholarly and Creative Activities, and Discovery

of this program is its ability to conduct in vitro studies, as well as in vivo studies in larger animal species more physiologically reflective of human biodistribution, including robust models for human and animal transdermal nanomedicine delivery. Researchers in this group are internationally recognized for expertise in nanotoxicology.

Keywords: *Nanotechnology, Nanomedicine, Nanotoxicology, Biodistribution, In vitro, Electron microscopy, Nanoparticles, NICKS*

Comparative Pharmacology

Research in this area includes all aspects of quantitative comparative pharmacology including pharmacokinetics, pharmacometrics, clinical pharmacology, human food safety, interspecies comparisons, in vitro and in vivo extrapolations and transdermal drug delivery. Drugs focused on include antimicrobials, analgesics and nano-therapeutics.

Quantitative comparative and clinical pharmacology is an internationally recognized strength of this college that was bolstered by the establishment of the Institute of Computational Comparative Medicine. The USDA-supported national Food Animal Residue Avoidance and Depletion (FARAD) Program is now headquartered here. In addition to a strong program in clinical veterinary pharmacology focused on antimicrobial and analgesic drugs, research also centers on utilizing the latest mathematical, pharmacometric and bioinformatic approaches to develop novel population and physiological-based mechanistic pharmacokinetic models useful for making interspecies extrapolations. Strength also exists in developing relevant in vitro models of drug delivery across epithelial barriers including the skin and mammary tissue, analytical chemistry focused on drugs, as well as quantitating chemical-mixture and formulation interactions for transdermal delivery. A new focus is on developing computational models of drug-induced antimicrobial resistance and quantitative biodistribution of nano-therapeutics.

Keywords: *Pharmacology, Pharmacokinetics, Drugs, Antimicrobials, Analgesics, Nanomedicine, Analytical*

chemistry, Clinical pharmacology, Chemical food safety, Computational medicine, Bioinformatics, FARAD, ICCM

Stem Cell Biotechnology and Physiology, Stem Cells and Regenerative Medicine

Centered in the Midwest Institute for Comparative Stem Cell Biology, research in the College of Veterinary Medicine exists to further basic and applied research in stem cells and related biotechnology in animals and humans and to extend that discovery through education and commercialization. The institute is uniquely situated to leverage research capabilities through collaboration among Kansas State University, the University of Kansas and the Kansas University Medical Center, and scientists with similar interests at other institutions.

The institute was founded on the discovery of non-controversial stem cells within the umbilical cord by K-State scientists. The Institute has a core of faculty members across the college and has had significant grant funding and commercial licensing success. The basic research discoveries made by its scientists have developed into several novel translational projects and into an ongoing clinical trial at the College of Veterinary Medicine under a FDA investigational new animal drug (INAD), a planned clinical trial at KUMC and in the development of a diagnostic test for cancer being evaluated in China. The Institute has a certificate program that trains the next generation of scientists and physician scientists in stem cells and regenerative medicine.

Keywords: *Stem cells, Regenerative medicine, Intellectual property, Certificate program, Translational research, Midwest Institute for Comparative Stem Cell Biology*



SPECIFIC AREAS OF STRENGTH IN RSCAD

Research, Scholarly and Creative Activities, and Discovery

Cell and Molecular Mechanisms Regulating Physiological Function

Epithelial cell biology and membrane transport physiology are the scope of this research strength. The Epithelial Cell Biology Laboratory focuses on solute transport across epithelial cell layers and associated regulatory cascades that are sensitive to steroid hormones and that contribute to reproductive success. Research in the Membrane Transport Physiology Laboratory is directed at elucidating basic molecular-level structure and function relationships and the sub-cellular regulatory processes that underlie the physiology of epithelial tissues. Particular emphasis is placed on understanding the disruption of these processes in genetic diseases. Basic scientific findings generate significant potential for characterization of therapeutic targets and therapeutic agents, forming the underpinnings for translational medicine.

Multiple international and national collaborations, including with the University of Newcastle (Newcastle-Upon-Tyne, UK), Istituto Giani Gaslini (Genova, Italy), and Yale University (New Haven, CT, USA), contribute to this research strength. Continuing and emergent success in securing extramural funding and in developing undergraduate and graduate students who embark on either careers in health care professions or in post-graduate research and scholarship.

Keywords: *Cell biology, Developmental biology, Tissue regulation, Molecular structure and function, Disease mechanisms, Translational medicine*

Cardiovascular and Respiratory Physiology

Researchers in the College of Veterinary Medicine are tackling chronic heart failure and diabetes, diseases that are endemic in the developed world. Effective treatment is incumbent upon understanding the predations of these conditions on the oxygen transport system (especially organ blood flow and microcirculatory control), development of innovative and accurate models of capillary function and their plasticity to novel therapeutic interventions.

A college and university (Human Ecology) research strength as an interdisciplinary research team works in concert with scientists, administrators and national scientific funding agencies (NIH NHLBI and NIA, AHA, APS, ACSM) and international laboratories (Exeter University, UK; Kobe University, Japan).



Keywords: *Chronic heart failure, Diabetes, Aging, Oxygen transport, Skeletal muscle microcirculation, Capillary hemodynamics, Vascular control*

Fundamental Mechanisms of Cancer and Cancer Therapeutics

A strong core of innovative basic scientists and clinicians within the college, and in a broader context, within the Johnson Cancer Research Center make up this area of strength. These scientists have developed novel technologies for detecting and treating cancer, and have leveraged cell-signaling pathway knowledge to develop and test novel cancer therapeutics and tools for drug discovery.

There is an urgent need to develop targeted therapies for cancer that avoid the many severe (and sometimes fatal) off-target effects of currently employed therapeutics. Scientists in this research strength are working toward this end by developing stem or defensive cells that home to tumors as delivery vectors for more targeted therapy. Umbilical cord matrix stem cells have been shown to have intrinsic anti-cancer effects. They and other types of tumor-homing cells have been used to deliver magnetic nanoparticles for hyperthermic therapy and imaging, as well as to secrete anticancer molecules such as cytokines. These therapies have been shown preclinically to be effective in inhibiting the growth of primary as well as metastatic cancer. One clinical therapy is in the pre-investigational new drug phase of testing.

Keywords: *Mesenchymal stem cells, Stem-cell-based cancer-targeted therapy, Gene therapy, Hyperthermic therapy, Translational research*

FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine



Raghavendra Amachawadi, BVSc, MS, PhD
Assistant Professor, Food Animal Therapeutics

Dr. Amachawadi's research interests are in the area of antimicrobial resistance in gut commensals and foodborne pathogens of swine and cattle production systems. Specifically, on understanding the mechanisms involved in the propagation and dissemination of antimicrobial resistance and on the role of non-antibiotic alternatives in contribution and mitigation of antimicrobial resistance in gut bacteria of cattle and swine. [Faculty Web Page](#)



Michael Apley, DVM, PhD, DACVCP
Professor, Frick Chair in Veterinary Medicine, Production Medicine/Clinical Pharmacology

Dr. Apley's research is focused on food animal therapeutics, antimicrobial resistance, and pharmacokinetics and pharmacodynamics of veterinary drugs. His research is also focused on beef production medicine with an emphasis on feedlot production. [Faculty Web Page](#)



Chieko Azuma, DVM, PhD, DACVR-RO
Certified Professional in IACUC Administration
Clinical Associate Professor, Radiation Oncology

Dr. Azuma's research is focused on investigating biological effects of therapeutic and experimental radiation and evaluation of treatment response in veterinary patients. She also has interests in palliative care and pain management, and research ethics and compliance. [Faculty Web Page](#)



Jianfa Bai, MS, PhD
Clinical Professor, Molecular Diagnostics of Infectious Diseases

Dr. Bai is in charge of molecular diagnostic assay development at Kansas State Veterinary Diagnostic Laboratory for animal, zoonotic and foodborne pathogen identifications, quantifications and characterizations. [Faculty Web Page](#)

FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Matt Basel, PhD **Assistant Professor, Cancer Therapies**

The broad focus of Dr. Basel's research is development of targeted therapies for cancer, particularly pancreatic cancer, using nanotechnology, hyperthermia or combination treatments. [Faculty Web Page](#)



Warren Beard, DVM, MS, DACVS **Professor, Equine Surgery**

Dr. Beard's research is focused in management of postoperative colic patients, surgical treatments for dorsal displacement of the soft palate, endotoxemia, and devising new surgical methods to deal with difficult surgical problems. [Faculty Web Page](#)



David Biller, DVM, DACVR **Professor, Radiology**

Dr. Biller's research is focused on the use of diagnostic ultrasound in the diagnosis and evaluation of spontaneous animal diseases, as well as, the study of polycystic kidney disease in cats. [Faculty Web Page](#)



James Carpenter, MS, DVM, DACZM **Professor, Exotic Pet, Wildlife, and Zoological Medicine**

Dr. Carpenter's research is focused on pharmacokinetics of selected antibiotics and analgesics in exotic animals; medicine and management of captive exotic animals; physiologic and pathologic characteristics of selected species; and parasites and diseases of exotic animals, wildlife, and zoo animals. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Dr. Nicolette (Nicky) Cassel BSc, BVSc, MMedVet, DipECVDI **Assistant Professor**

Dr. Cassel's primary area of research interest is developmental orthopedic diseases in small animal patients and utilizing imaging to further understand the pathology on a histopathological and physiological level. Current and prior clinical research collaborations include Equine MRI imaging, Spirocerca lupi infection in dogs and the repercussions of blunt force trauma on dogs and imaging of these patients. [Faculty Web Page](#)



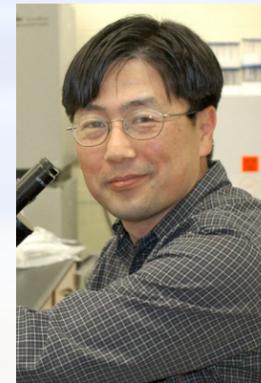
Natalia Cernicchiaro, DVM, MS, PhD **Assistant Professor, Epidemiology**

Dr. Cernicchiaro's research is focused on veterinary epidemiology, food safety, zoonoses and production medicine. Her research interests include the application of epidemiological concepts and techniques, including multi-level modeling and other statistical methods, to design, implement, analyze and interpret observational and experimental data. [Faculty Web Page](#)



Kyeong-Ok Chang, DVM, MS, PhD **Professor, Virology**

Dr. Chang has more than 25 years of research experience in the field of virology, specifically on viral pathogenesis and the development of preventive and/or therapeutic measures for important human and animal pathogens. Currently, his research focuses on noroviruses and coronaviruses, and examining viral proteases as potential therapeutic targets for antiviral drug development. [Faculty Web Page](#)



Jeba Jesudoss Chelladurai **BVSc, MS, PhD, DACVM, Parasitology**

Dr. Jesudoss Chelladurai's research is focused on parasitic diseases affecting pets and large animals. Her primary focus is understanding the mechanism of action of and resistance to therapeutic drugs in nematodes and cestodes, and studying the role of the immune system in host-parasitic interactions. She is also interested in diagnosing parasitic infections in wildlife. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES
College of Veterinary Medicine

Johann (Hans) Coetzee, BVSc, PhD
Professor and Department Head of Anatomy and Physiology

Dr. Coetzee's research is focused on the development of pain assessment techniques and practical analgesic drug regimens for use in food animals. [Faculty Web Page](#)



Jeffrey Comer, PhD
Assistant Professor

Dr. Comer studies molecular interactions to enable design of drugs and drug delivery vehicles with the goal of improving human and animal health. His group primarily uses computer simulation to determine binding thermodynamics, supported by experiment. Major projects include design of peptides for cancer immunotherapy and understanding the behavior of nanomaterials in physiological environments. [Faculty Web Page](#)



Anne Sally Davis, DVM, PhD
Assistant Professor, Experimental Pathology

Dr. Davis' research interests are in the development of tissue-based biomarkers for emerging and zoonotic infectious diseases, development of diagnostic tests and medical countermeasures against emerging and zoonotic viral pathogens, and visualization of host-pathogen interactions in order to better understand infectious disease pathogenesis. Specific areas of concentration include biospecimen quality, viral pathogenesis, virus detection assay development, whole slide imaging/image analysis and high containment research including work with small and large animals as well as select agents. [Faculty Web Page](#)



Elizabeth Davis, DVM, PhD, DACVIM
Professor, Equine Internal Medicine, Department Head of Clinical Sciences

Dr. Davis' research is focused on ways to measure immune responsiveness to vaccination, particularly with an aim on characterizing an age associated response. Immunologic investigations also include characterizing the influence of antigen exposure and development of adverse reactions. Collaborative investigations have involved pharmacokinetic evaluation of drug therapy in the equine host. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES
College of Veterinary Medicine

Robert DeLong, MS, PhD
Associate Professor

Dr. DeLong's research is focused on the impact of nanomaterials on the structure, function and delivery of physiologically or therapeutically relevant nucleic acids and proteins. His group has a keen interest in the anti-cancer properties of nanoparticles when combined with RNA and is studying the nanobio interface with both RNA and protein, for potential chemotherapeutic or immunotherapeutic application against cancer and infectious disease. [Faculty Web Page](#)



Samir El Qaidi, MS, PhD
Research Assistant Professor, Bacteriology

Dr. El Qaidi's research is focused on bacterial virulence gene regulation and pathogenesis, he is especially interested in investigating the intra-bacterial activity of type three secretion system effector proteins and their contribution to bacterial fitness. His research also involves screening for type three secretion system inhibitors and exploring the potential use of bacterial proteins as therapeutics. [Faculty Web Page](#)



Steve Ensley, DVM, MS, PhD
Clinical Professor, Toxicology

Dr. Ensley's research is focused on applied veterinary toxicology, particularly animal drinking water quality, mineral and vitamin nutrition and food animal veterinary toxicology issues. The analytical toxicology section has state-of-the-art equipment that is used for diagnostic and research investigations into food animal veterinary toxicology current issues of concern. The analytical section is developing a center for excellence in food animal veterinary toxicology. [Faculty Web Page](#)



David Eshar, DVM, DABVP, DECZM
Associate Professor, Companion Exotic Pets, Wildlife and Zoo Animal Medicine

Dr. Eshar's research is focused on clinical pathology of non-domestic species, molecular analysis of fecal microbiota for health evaluation of exotic and wild animal species, and anesthesia and critical patient care of wild and companion exotic animals. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Peying Fong, PhD **Associate Professor, Physiology**

Dr. Fong's research focuses on the structure, function, and regulation of membrane proteins mediating solute transport, as well as the impact of membrane transport on overall animal health. Of particular interest is elucidation of membrane trafficking processes and macromolecular complexes ultimately governing localization and function of transporters that subserve iodide accumulation and thyroid gland hormonogenesis. [Faculty Web Page](#)



Roman Ganta, MS, PhD **Professor and Director, Center of Excellence for Vector-Borne Diseases**

Dr. Ganta's research is focused on important human and animal vector-borne infectious diseases. Dr. Ganta's studies involve assessing pathogen molecular structure, host responses, pathogenesis, the effect of tick and host cell environments on the pathogens' adaptation, mutagenesis, diagnostics, vaccine development, and disease surveillance. Current research focuses on *Ehrlichia*, *Anaplasma* and *Rickettsia* species. [Faculty Web Page](#)



Sara Gardhouse, DVM, DACZM **Assistant Professor, Companion Exotic Pets, Wildlife, and Zoo Animal Medicine**

Dr. Gardhouse's research is focused on the pharmacology of chemotherapeutics in non-domestic species, and exotic animal pharmacokinetics and pharmacodynamics. [Faculty Web Page](#)



Natasha Gaudreault, PhD **Research Assistant Professor, Microbiology**

Dr. Gaudreault's research is focused on emerging, foreign animal and zoonotic viral diseases. Her work includes vaccine and virus challenge model studies, and using molecular approaches such as transcriptomics to better understand virus-host interactions. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Jordan T. Gebhardt, DVM, PhD **Assistant Professor, Swine Production**

Dr. Gebhardt's research interests involve practical problems the swine industry faces focused on production medicine, nutrition, and safety of livestock feed. Much of this research is applied in nature and involves collaboration with production systems and professionals in the field. Recent research has focused on the role the feed supply chain has as a potential route of disease transmission, specifically investigating porcine epidemic diarrhea virus (PEDV) and African swine fever virus (ASFV). [Faculty Web Page](#)



Stephanie Hall, PhD **Assistant Professor, Anatomy and Physiology, Exercise Physiology**

Dr. Hall's research is focused on the mechanisms of exercise as a means to prevent and treat disease. Currently, Dr. Hall's studies investigate the exercise-induced neuroprotection in a model of Alzheimer's disease. The goal of this work is to not only highlight exercise as a valuable therapy but also to use exercise as a tool to identify potential pathways for pharmacological intervention. [Faculty Web Page](#)



Gregg Hanzlicek, DVM, PhD **Clinical Associate Professor, Field Investigation**

Dr. Hanzlicek's research is focused on disease surveillance and monitoring systems for beef and dairy health programs and disease surveys. [Faculty Web Page](#)



Christy Hanthorn, DVM, MS, **Research Assistant Professor, Epidemiology**

Dr. Hanthorn's research is focused on beef cattle herd health, preventative medicine and disease outbreak planning and preparedness, particularly regarding Foot and Mouth Disease (FMD). [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Philip R. Hardwidge, PhD Professor, Bacteriology

Dr. Hardwidge's research is focused on enteric bacterial pathogens. He studies type III secretion system effector proteins, how bacteria modulate the innate immune system, and is also characterizing novel vaccine candidates. [Faculty Web Page](#)



Kenneth Harkin, DVM, DACVIM Hodes Professor in Veterinary Medicine, Small Animal Internal Medicine

Dr. Harkin's work includes improving the diagnosis of leptospirosis, evaluating the zoonotic risk associated with infected dogs and investigating pathogenic mechanisms of leptospiral infections. He also studies canine dysautonomia, focused both on identifying the etiology and effects on various organ systems. Other areas of interest include perianal fistulas and liver disease. [Faculty Web Page](#)



Jamie Henningson, DVM, PhD, DACVP Associate Professor and Director, Kansas State Veterinary Diagnostic Laboratory

Dr. Henningson's research is focused on providing pathology support for collaborative studies. Past and current collaborative projects have included bovine viral diarrhea virus in cattle and alpacas, canine influenza virus, canine urethral bulking agents, swine influenza virus, pH1N1 in swine, and porcine reproductive and respiratory syndrome virus. Recently, she has provided pathology support on a mouse model for prostate cancer, classical swine fever virus, low path avian influenza and Rift Valley fever virus. [Faculty Web Page](#)



Brian Herrin, DVM, PhD, DACVM Assistant Professor, Parasitology

Dr. Herrin's primary research objectives are focused on the epidemiology and control of ticks and tick-borne diseases. Some of his recent interests are the epidemiology of Lyme borreliosis in humans and dogs in North America, evaluation of diagnostic assays for tick-borne diseases, and surveillance of ticks and tick-borne diseases of horses. Although his research focus is on ticks, Dr. Herrin enjoys working with all parasites of veterinary importance through the diagnostic service and teaching/outreach opportunities. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Mary Lynn Higginbotham, DVM, MS, DACVIM Associate Professor, Oncology

Dr. Higginbotham's research is focused in the clinical evaluation of novel anti-cancer therapy, evaluation of drug resistance in lymphoma, as well as, the evaluation and treatment of canine nasal tumors. [Faculty Web Page](#)



Margaret A. Highland, DVM, PhD, Dipl. ACVP Associated Professor and Anatomic Pathologist, Kansas State Veterinary Diagnostic Laboratory

Dr. Highland's research is focused on infectious diseases with special interest in small ruminants. Specific research interests include, but are not limited to, infectious agents of the respiratory tract (in particular Mycoplasma spp.). She also has interest in assisting in the development and/or validation of diagnostic assays for use within the Kansas State Veterinary Diagnostic Laboratory, and collaboratively providing anatomic pathology expertise for other researchers' projects. [Faculty Web Page](#)



Stephen Higgs, PhD Associate Vice President for Research, University Distinguished Professor, Research Director, Biosecurity Research Institute (BRI)

Dr. Higgs' research encompasses many aspects of mosquito-borne viruses, with particular interests focusing on mosquito-virus-vertebrate interactions. Using wild type and genetically engineered chikungunya, Sindbis, o'nyong-nyong, West Nile, Zika and yellow fever viruses he has been examining fundamental aspects of virus-vector interactions. [Faculty Web Page](#)



Sam Hocker, DVM, MS, DACVIM (Oncology) Assistant Professor, Veterinary Oncology

Dr. Hocker's research is focused on evaluating the endocannabinoid system's role in cancer pathogenesis and how manipulation of this system may be utilized in cancer therapy. His other research interests are in the evaluation of immunotherapeutics and novel anti-cancer therapies in companion animals. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Yan-Jang (Scott) Huang, PhD **Research Assistant Professor, Pathobiology**

Dr. Huang's research focuses on characterizing the interactions between mosquito-borne viruses and their vectors, the influence of viral genetics on the virulence, transmission efficiency, and attenuation of different arthropod-borne viruses. The long-term objective of his research is to determine mechanisms that are responsible for the emergence of mosquito-borne viruses in nature and develop effective disease control and prevention strategies. Through collaborative research, Dr. Huang conducts research on emerging and re-emerging arboviruses such as Zika virus, chikungunya virus, dengue virus, yellow fever virus, and Japanese encephalitis virus. [Faculty Web Page](#)



Maria Jugan, DVM, MS, DACVIM **Assistant Professor, Small Animal Internal Medicine**

Dr. Jugan's research is focused on feline and canine gastrointestinal disease. Specific focuses include nutrient malabsorption in feline inflammatory bowel disease, as well as alterations in enteroendocrine responses in both canine and feline IBD. Additional research areas include therapeutic manipulations (e.g. fecal transplantation, probiotics) of the gastrointestinal microbiome and metabolome in both acute and chronic small animal enteropathies. [Faculty Web Page](#)



Justin Kastner, MSc, PgDip, PhD **Associate Professor, Food Safety and Security**

Dr. Kastner focuses on trade policy, the history of public health, global cooperation, and the theory and practice of multi- / inter-disciplinary scholarship. He has been PI for STEM-education or trade-facilitation grants and, via the "Frontier field trip" model, provides students with experiential learning (at international ports of entry, policy offices, and archives). He teaches on the main KSU campus, at Olathe, and online. [Faculty Web Page](#)



Yunjeong Kim, DVM, MS, PhD, DACVM **Associate Professor, Virology**

Dr. Kim's research interests include pathogenesis of human and animal viral diseases and the development of screening assay platforms for antiviral drugs and animal models of virus infections with the aim of developing antiviral drugs. Her research focus includes human and animal coronaviruses, such as feline infectious peritonitis and Middle East respiratory syndrome viruses and human norovirus and influenza virus. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Michael Kleinhenz, DVM, PhD **Assistant Professor, Beef Production Medicine**

Dr. Kleinhenz's research focuses on food animal therapeutics and pain assessment. [Faculty Web Page](#)



Butch KuKanich, DVM, PhD, DACVCP **Professor, Pharmacology and Assistant Department Head of Anatomy and Physiology**

Dr. KuKanich's research is focused on applied veterinary clinical pharmacology. Specifically, Dr. KuKanich investigates analgesics, drug-drug interactions and drug metabolism in dogs. Dr. KuKanich uses a combination of pharmacokinetic and pharmacodynamic studies in addition to clinical research trials. He also serves as a resource for study design and data interpretation for all veterinary species. [Faculty Web Page](#)



Kate KuKanich, DVM, PhD, DACVIM **Associate Professor, Small Animal Internal Medicine**

Dr. KuKanich's research is focused on various aspects of small animal infectious disease and public health. She studies ways to optimize our responsible use of antibiotics in dogs and cats, from drug studies to clinical management of resistant infections. She also studies handwashing and hospital acquired infections, transmission or sharing disease between pets and people, and fungal diseases. [Faculty Web Page](#)



Meena Kumari, PhD **Associate Professor**

Dr. Kumari's research is focused on understanding the molecular mechanisms underlying alterations in gene expression in the brain following chronic alcohol exposure. Dr. Kumari is particularly interested in understanding the molecular mechanisms that underlie the changes in gene expression of N-methyl-D aspartate (NMDA) receptors following alcohol exposure. Her main focus is on the role of RNA-protein interactions in regulation of NMDA receptor expression, while also studying the effect of alcohol exposure on RNA splicing of NMDA receptors. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Phillip Lancaster, PhD Research Assistant Professor, Beef Cattle Nutrition

Dr. Lancaster's research is focused on enhancing nutrient utilization through genetic selection, management and nutritional strategies to improve sustainable beef production. His research efforts include using nutrition models to identify cattle with greater feed efficiency, and alternative feeding strategies to make beef production more carbon neutral. [Faculty Web Page](#)



Robert (Bob) Larson, DVM, PhD, DACT, DACVPM Professor, Coleman Chair Food Animal Production Medicine

Dr. Larson's primary area of research is the integration of animal health, production efficiency, and economic considerations in beef cattle production. [Faculty Web Page](#)



Brian V. Lubbers, DVM, PhD, DACVCP Clinical Assistant Professor, Microbiology and Pharmacology

Dr. Lubbers' primary research interest is in antimicrobial resistance of bacteria of veterinary significance; particularly, the bacterial agents of bovine respiratory disease (BRD) complex. [Faculty Web Page](#)



J Dylan Lutter DVM, MS, DACVS-LA CERP Clinical Assistant Professor, Equine Performance Medicine, Surgery, & Rehabilitation

Dr. Lutter's research involves investigations which may impact the clinical outcomes of musculoskeletal injury, particularly in horses. Specific areas include: in vivo/clinical use of biologic or regenerative therapies, wound healing, MRI of the equine distal limb, tendon biology and healing, rehabilitation therapies, and emergency stabilization of equine fractures. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Stephanie Martinez, PhD Assistant Professor, Pharmacology

Dr. Martinez's research is focused on veterinary pharmacogenomics. She studies the mechanisms underlying species, breed and interindividual differences in drug metabolism and how these differences affect drug response in veterinary species. She is particularly interested in the cytochrome P450 system as a major source of variability in drug response. The goal of her research is to enhance drug safety and efficacy in veterinary medicine through the advancement of precision medicine. [Faculty Web Page](#)



Jessica Meekins, DVM, MS, DACVO Assistant Professor, Ophthalmology

Dr. Meekins' current research is focused on evaluating the antiviral effects of naturally occurring compounds on feline herpesvirus-1. She also investigates comparative ophthalmology in exotic/non-domestic animals, establishing normative data for basic ocular diagnostic testing and clinical ophthalmic examination findings in a variety of species. [Faculty Web Page](#)



Matt Miesner, DVM, MS, DACVIM Clinical Associate Professor, Livestock Services

Dr. Miesner's research is focused on bovine lameness, pain management, and disease pathophysiology. [Faculty Web Page](#)



Timothy I. Musch, PhD, FACS, FAPS University Distinguished Professor of Kinesiology, Anatomy & Physiology

Dr. Musch's research is focused on the mechanisms that contribute to exercise intolerance found in individuals suffering from chronic heart failure (CHF). Dr. Musch's studies investigate the perturbations produced in skeletal muscle convective and diffusive oxygen transport associated with CHF along with potential therapeutic modalities that may be used in the treatment of this disease. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Waithaka Mwangi, PhD Professor, Immunology

Dr. Mwangi's research is focused on development of subunit vaccines against African swine fever virus (ASFV) and bovine viral diarrhea virus (BVDV). Efforts are also directed at exploiting the recently discovered bovine ultralong antibodies to develop novel antiviral therapeutics. Ultralong antibodies have novel binding mechanisms with unprecedented viral neutralizing capabilities. [Faculty Web Page](#)



T.G. Nagaraja, BVSc, MVSc, PhD University of Distinguished Professor of Microbiology

Dr. Nagaraja's research interest is in the field of gut microbiology of animals, particularly beef cattle. Currently, his research program is focused on preharvest food safety, specifically Shiga toxinogenic *E. coli*, and liver abscesses in beef cattle. In the past, he has worked on the role of microbes in ruminal function and dysfunction, particularly in animals fed high-grain diets. [Faculty Web Page](#)



Megan Niederwerder, DVM, PhD Assistant Professor, Virology

Dr. Niederwerder's research is focused on understanding how the gut microbiome plays a role in outcome following viral respiratory infection in swine as well as the role of feed and feed ingredients in the introduction and transmission of swine viruses. Research projects have included porcine reproductive and respiratory syndrome virus (PRRSV), porcine circovirus type 2 (PCV2), porcine epidemic diarrhea virus (PEDV), African swine fever virus (ASFV), classical swine fever virus (CSFV), and pseudorabies virus (PRV). [Faculty Web Page](#)



Bradley L. Njaa, BSc(hons), DVM, MVSc, DACVP Professor, Veterinary Anatomic Pathology

Dr. Njaa's research is focused on naturally occurring diseases in domestic and nondomestic veterinary species. He is interested in infectious diseases, neoplastic disease and diseases involving special senses, particularly disease of the middle and internal ear. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Rachel Palinski, PhD Clinical Assistant Professor, Virology and Next-Generation Sequencing

Dr. Palinski's research focuses on viral population characterization and ecological factors that drive viral evolution. Her research includes identifying novel or uncommon viruses within livestock to determine the association of the particular microbe to disease. In the future, her research will combine ecological aspects with individual farm microbiomes to create individualized epidemic risk assessments. [Faculty Web Page](#)



Brandon L Plattner DVM, PhD, DACVP, Clinical Associate Professor, Anatomic Pathology, Section head (KSVDL histology and immunohistochemistry)

Dr. Plattner provides pathology services for KSVDL clients (necropsy, biopsy consultation), as well as pathology support for a variety of collaborative research projects. His interests include pathology of the alimentary and hepatobiliary systems, and innate cellular mucosal immunity during infectious disease of cattle. [Faculty Web Page](#)



Roman Pogranichniy, DVM, PhD Associate Professor and Director of Virology and Serology Laboratory

Dr. Pogranichniy's research focuses on isolating, identifying and characterizing emerging viruses. He is currently working on an African swine fever biosecurity project in Eastern Europe and building capacity to prevent spreading of this virus in Asia. Dr. Pogranichniy also works with different influenza A viral strains, their response to vaccination, detection of the virus and immune response and the pathogenesis of these and others viruses in animals. [Faculty Web Page](#)



Lisa Pohlman, DVM, MS, DACVP Associate Professor, Director of Clinical Pathology

Dr. Pohlman's research focuses on mechanism and classification of canine and feline lymphoma. Identification and characterization of disease in domestic species and improvement of clinical pathology laboratory needs. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

David Poole, PhD, DSc

University Distinguished Professor of Kinesiology, Anatomy & Physiology

Dr. Poole's research focuses on the control of oxygen transport in health and disease such as heart failure, diabetes and cancer. His work addresses muscle function and exercise capacity in diseases where impaired muscle function reduces patient mobility and quality of life. Current projects are developing novel strategies to improve muscle/exercise function through dietary, pharmacological and lifestyle strategies that restore healthy muscle oxygen delivery in these disease conditions. [Faculty Web Page](#)



Amy Rankin, MS, DVM, DACVO

Associate Professor, Ophthalmology

Dr. Rankin's research is focused on the inhibition of intraocular inflammation. [Faculty Web Page](#)



Kathryn Reif, MS, PhD

Assistant Professor, Vector-Borne Diseases

Dr. Reif's research is focused on identifying innovative solutions to combat ticks and tick-borne pathogens of medical, veterinary and agricultural importance. Reif Lab research focus areas include: i) bovine anaplasmosis - evaluating existing control measures and developing novel therapeutics to control bovine anaplasmosis; ii) evaluation of therapeutics to mitigate ticks and tick-borne pathogens on companion animals and livestock; iii) surveillance of ticks and tick-borne pathogens; and; iv) developing related outreach programs for public/stakeholder groups. [Faculty Web Page](#)



Walter Renberg, DVM, MS, DACVS

Professor, Small Animal Surgery

Dr. Renberg's research is focused on the musculoskeletal system in dogs. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

David G. Renter, DVM, PhD

MacDonald Professor in Veterinary Medicine, Epidemiology, Director, Center for Outcomes Research and Epidemiology

Dr. Renter's research emphasizes the application and extension of epidemiologic principles and methods to enhance animal health outcomes, food safety, and the sustainability of food animal production systems. His recent areas of research focus are on generating industry-relevant knowledge for addressing complex and contemporary issues in the beef industry and providing leadership in the field of outcomes research for veterinary medicine. [Faculty Web Page](#)



Emily Reppert, DVM, MS, DACVIM

Assistant Professor, Agricultural Practices

Dr. Reppert's research is focused on tick-borne diseases such as *Anaplasma phagocytophilum*. Her primary clinical research interest is in therapy for the management of urinary disease in ruminants and management of metabolic diseases in small ruminants and camelids. [Faculty Web Page](#)



Jürgen Richt, DVM, PhD

Regents and University Distinguished Professor, Eminent Scholar Director, Center of Excellence for Emerging and Zoonotic Animal Diseases

Dr. Richt's research focuses on emerging zoonotic infections with an emphasis on animal prion diseases, animal influenza, African swine fever, Middle East respiratory syndrome and Rift Valley fever viruses. Dr. Richt studies host-pathogen interactions in various infectious disease models and his work on agents with zoonotic potential led to strategies to identify, control and eradicate such agents. [Faculty Web Page](#)



James K. Roush, DVM, MS, DACVS

Doughman Professor, Small Animal Surgery

Dr. Roush's past and current research are focused in the areas of bone healing and blood supply, osteoarthritis, and canine gait analysis. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Michael Sanderson, DVM, MS, DACVPM

Jones Professor of Epidemiology and Beef Production

Dr. Sanderson's team focuses on the epidemiology of disease and decreased production in beef operations, and the application of epidemiology and simulation modeling to facilitate decision making. Their research includes: modeling biosecurity practices for beef operations to identify optimal biosecurity and management programs, livestock movement networks and the disease and economic effects of an FMD outbreak in the U.S. [Faculty Web Page](#)



Elizabeth Santschi, DVM, DACVS

Professor, Equine Surgery

Dr. Santschi's research is focused on investigating the biochemical causes of, and treatments for, subchondral bone lucencies. Dr. Santschi also investigates the prevalence and causes of stifle osteochondrosis. [Faculty Web Page](#)



Thomas Schermerhorn, VMD, DACVIM

Professor, Jarvis Chair in Veterinary Medicine, Small Animal Internal Medicine

Dr. Schermerhorn's research is focused on cellular and molecular endocrinology, especially the study of diabetes mellitus and related metabolic disorders in dogs and cats. Dr. Schermerhorn's clinical interests include all aspects of canine and feline endocrinology. His major research focuses on the epidemiology, pathology and therapeutic management of feline diabetes. [Faculty Web Page](#)



Bruce Schultz, PhD

Professor, Epithelial Cell Physiology

Dr. Schultz's research is focused on understanding the physiological regulation of epithelial ion transport and barrier functions. Dysfunction of epithelial transport mechanisms is associated with pancreatic, renal, intestinal, reproductive and pulmonary disorders. The goal of his research efforts is to achieve a better understanding of epithelial physiology and to develop interventions that prevent or overcome such pathological conditions. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Jishu Shi, DVM, PhD

Professor, Director, U.S.-China Center for Animal Health

Dr. Shi's lab is working on novel vaccine and diagnostic strategies that lead to the development of better control and prevention approaches targeting swine diseases that are important for the U.S. and China, including porcine reproductive and respiratory syndrome (PRRS), classical swine fever virus (CSF), porcine circovirus (PCV), African swine fever (ASF) and other emerging viral diseases of swine. [Faculty Web Page](#)



Nora L. Springer, DVM, DACVP

Assistant Professor, Diagnostic Medicine/Pathobiology

Dr. Springer's research is focused on the tumor microenvironment, or how cancerous cells can influence non-neoplastic cells and tissues to promote malignancy. Dr. Springer's studies focus specifically on the role of extracellular matrix remodeling on cancer development, progression, and metastasis. [Faculty Web Page](#)



Masaaki Tamura, DVM, PhD

Associate Professor of Anatomy and Physiology

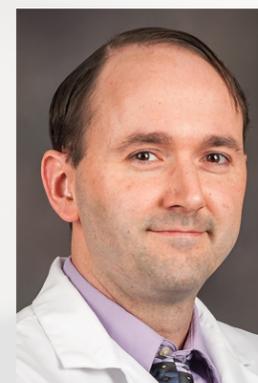
Dr. Tamura, a member of the Johnson Cancer Research Center, aims to find cures for cancers by studying cancer cell-targeted nanoparticle-based gene therapy, metastatic tumor-targeted stem cell therapy, and diet-based alternative medicine for cancer immune therapy/prevention. [Faculty Web Page](#)



David Upchurch, DVM, MS, DACVS-SA

Assistant Professor, Small Animal Soft Tissue Surgery

Dr. Upchurch's research is focused on suture biomechanics, cutaneous marginal shrinkage and instructional methods. He also has clinical interests in oncologic surgery, regenerative medicine, and reconstructive surgery. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Dana L. Vanlandingham, PhD, MS, FRES **Associate Professor, Arbovirology**

Dr. Vanlandingham's research is focused on the interactions between arboviruses, the mosquito vector, and the vertebrate host. She specifically works on zoonotic arboviruses of medical and veterinary importance. [Faculty Web Page](#)



Abbie Viscardi, PhD **Research Assistant Professor, Animal Behavior and Welfare**

Dr. Viscardi's research is focused on assessing and managing pain in livestock species. She aims to better understand how animals express and communicate pain, how we can effectively alleviate pain on-farm and methods to refine common husbandry procedures. She is most interested in using non-invasive techniques to assess pain, such as behavior and facial grimace analysis. [Faculty Web Page](#)



Lihua Wang, PhD **Research Assistant Professor, Virology and Immunology**

Dr. Wang's research is focused on development of novel vaccines and diagnostic assays for high impact swine infectious diseases including classical swine fever (CSF), African swine fever (ASF), porcine reproductive and respiratory syndrome (PRRS), porcine pseudorabies (PPV), porcine circovirus (PCV), and other emerging viral diseases. [Faculty Web Page](#)



Mark Weiss, BS, PhD **Professor, Stem Cell Biotechnology**

Dr. Weiss' research is focused on stem cell biotechnology. His lab successfully produced various stem cell lines such as rat embryonic stem cells and cells derived from umbilical cord or other tissues with the intent of using this technology to advance cellular therapy and regenerative medicine. Dr. Weiss also focuses on the mechanisms of pluripotency in rat embryonic stem cells. [Faculty Web Page](#)



FACULTY/RESEARCHER PROFILES

College of Veterinary Medicine

Brad White, DVM, MS **Professor, Production Medicine, Director, Beef Cattle Institute**

Dr. White's research program is directed towards cattle production and management, with an emphasis on calf health management. His program focuses on common diseases including bovine respiratory disease and bovine viral diarrhea. Research areas include utilization of production data to improve health decision making and advancing identification methods for illness in both individuals and populations. [Faculty Web Page](#)



William Whitehouse, DVM, DACVIM **Assistant Professor, Small Animal Internal Medicine**

Dr. Whitehouse's research is focused on different aspects of kidney diseases in dogs and cats. His current research is focused on understanding the pathophysiology and improving the treatment of chronic kidney disease and acute kidney injury. [Faculty Web Page](#)



Raelene M. Wouda, BVSc DACVIM (Oncology) **Assistant Professor, Veterinary Oncology** **MANZCVS (Small Animal Medicine)**

Dr. Wouda is actively involved in pre-clinical, phase 1, phase 2, and phase 3 clinical trials. Her research interests include the utilization of new and existing chemotherapeutic agents in innovative roles, novel immunotherapeutic approaches, individualized and intensified therapeutic protocols, the development of personalized therapeutic plans, and drug resistance. [Faculty Web Page](#)

