

19TH ANNUAL RESEARCH DAY  
**SCIENTIFIC PROCEEDINGS**

JAN. 20, 2018 | LORY STUDENT CENTER



COLLEGE OF VETERINARY MEDICINE  
AND BIOMEDICAL SCIENCES  
COLORADO STATE UNIVERSITY

OUR 19TH ANNUAL RESEARCH DAY SHOWCASES THE work of more than 100 aspiring scientists in Colorado State University's College of Veterinary Medicine and Biomedical Sciences. The event gives our rising stars vital experience presenting their research findings to a scientific audience through poster displays and talks. The day also provides young researchers with an avenue for feedback to help them develop ideas that, in many cases, will become lifelong scientific pursuits.

The research projects on display are sponsored by companies, foundations, and institutions concerned with improving human, animal, and environmental well-being. Thank you for supporting and engaging with our presenters - undergraduate students, graduate students, veterinary residents, and post-doctoral fellows - as they pursue research that will improve the health of animals, people, and the planet!

**2018 CVMBS Research Day  
Organizing Committee**

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**Kelly Santangelo** – Faculty Chair – Microbiology,  
Immunology, and Pathology

**Adam Chicco** – Faculty Co-Chair –  
Biomedical Sciences

**Derek Schaeuble** – Biomedical Sciences

**Carolina Gonzalez-Berrios** – Biomedical Sciences

**Katherine Li** – Biomedical Sciences

**Matthew Dilsaver** – Cell & Molecular Biology

**Hailey Sedam** – Environmental and  
Radiological Health Sciences

**Anna Megenhardt** – Microbiology,  
Immunology, and Pathology

**Becky Gullberg** – Microbiology,  
Immunology, and Pathology

**Sara Wist** – Microbiology,  
Immunology, and Pathology

**Dilara Kiran** – Microbiology,  
Immunology, and Pathology

**Lyndsey Gray** – Microbiology,  
Immunology, and Pathology

**Anna Fagre** – Microbiology,  
Immunology, and Pathology

**Becca Tierce** – DVM Program

**Tyler Johnson** – DVM Program

**Valerie Lewis** – Committee Coordinator –  
CVMBS Dean's Office

**Aimee Oke** – Committee Coordinator –  
CVMBS Dean's Office

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## SCHEDULE OF EVENTS

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10:30-11:20 a.m.	Poster set up	Ballrooms A & B
11:30 a.m.	OPENING REMARKS – Dr. Mark Stetter, Dean	LSC Theater
11:40 a.m.	ZOETIS RESEARCH EXCELLENCE AWARD WINNER – Dr. Brendan Podell	LSC Theater
12:45 p.m.	BREAK	
1-5 p.m.	ORAL SESSION 1: Clinical Science	LSC 308
1-5 p.m.	ORAL SESSION 2: Clinical/Basic Science	LSC 306
1-5 p.m.	ORAL SESSION 3: Basic Science	LSC 300
1-2:45 p.m.	POSTER SESSION I JUDGING: Odd-Numbered Posters	Ballrooms A & B
2:45- 3 p.m.	BREAK	
3-4:45 p.m.	POSTER SESSION II JUDGING: Even-Numbered Posters	Ballrooms A & B
5-6 p.m.	SOCIAL HOUR	Ballrooms C & D
6 p.m.	AWARDS	Ballrooms C & D

### DEPARTMENTAL ABBREVIATIONS

BMS:	Biomedical Sciences
CS:	Clinical Sciences
ERHS:	Environmental and Radiological Health Sciences
MIP:	Microbiology, Immunology, and Pathology

# CONGRATULATIONS AGAIN TO 2017 CVMBS RESEARCH DAY WINNERS!

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## ORAL PRESENTATIONS

- First Basic** Steve Lakin, DVM Student, CS, "MEGARes: an accessible database and bioinformatics interface to metagenomic microbiome and resistome analysis." Mentor: Paul Morley
- Second Basic** Claudia Rueckert, post-doctoral fellow, MIP, "*Aedes aegypti* may simultaneously transmit chikungunya, dengue, and Zika viruses." Mentor: Gregory Ebel
- Third Basic** Nunya Chotiwan, graduate student, MIP, "Rapid and Specific Detection of Asian-Lineage Zika Virus." Mentor: Joel Rovnak
- First Clinical** Tarini Ullal, resident, CS, "Demographics and histological changes in a cohort group of dogs with abnormal hepatic copper concentrations." Mentor: David Twedt
- Second Clinical** Ryan Gan, post-doctoral fellow, ERHS, "A comparison of smoke estimation methods and their association with wildfire smoke and cardiopulmonary-related hospital visits during the 2012 Washington wildfires." Mentor: Sheryl Magzamen
- Third Clinical** Greta Krafzur, post-doctoral fellow, UCD, "Lessons learned from a century of heartache in the beef cattle industry: Beef cattle with broken hearts as a natural large animal model of pulmonary hypertension with left ventricular dysfunction owing to intense feeding and fattening regimens augmenti." Mentor: Kurt Stenmark

## POSTER PRESENTATIONS

- First** Nicholas Dannemiller, DVM student, "Birds of a feather get sick together? A disease investigation of Rainbow Lorikeets." Mentor: Josephine Braun
- Second** Stacie Summers, resident, "Serum cytokines and renal alpha-enolase immunohistochemical staining in cats after repeated administration of a parenteral FVRCP vaccine." Mentor: Michael Lappin
- Third** Danielle Weaver, graduate student, CS, "Preliminary experiences with computational analysis of data collected with inertial measurement units from xylazine-induced ataxic horses." Mentor: Yvette Nout-Lomas
- Golden Pipette Award** Department of Microbiology, Immunology, and Pathology

## DR. BRENDAN PODELL RESEARCHING THE INTERSECTION OF TUBERCULOSIS AND DIABETES

By Mary Guiden

**BRENDAN PODELL CAME TO** Colorado State University from the East Coast to study microbiology as an undergraduate because he was interested in skiing. He stayed after developing a passion for research, through his work at the Veterinary Diagnostic Laboratories.

Podell went on to earn doctorates in veterinary medicine and pathology from CSU and joined a world-class team of researchers in the Mycobacteria Research Laboratories. These days, he joked that he has a little less free time to hit the slopes.

Now an assistant professor in the Department of Microbiology, Immunology, and Pathology, he studies the intersection of tuberculosis and diabetes, with an eye towards determining what drugs might be used to treat both diseases together. He works closely with Professor Randy Basaraba, who served as a mentor dating back to his days in the “D Lab.”

On Jan. 20, Podell will receive the Zoetis Research Excellence Award from the College of Veterinary Medicine and Biomedical Sciences. He will also serve as the guest faculty speaker at its annual Research Day.

### **DRAWN TO RESEARCH, MEDICINE**

Podell was not accepted into CSU’s Doctor of Veterinary Medicine program on his first try, at age 22. At the time, he said he was quite disappointed.



“When you’re that age, you... can’t see the other side of the fence,” he said.

But, it was better for him in the long run to not get in that first year. “I wouldn’t have made the connections I made in the D Lab, and wouldn’t have ended up in a research career,” Podell explained.

As a research associate in the lab, he worked a lot of hours during what would be a gap year, before he started his graduate studies. Podell said he quickly learned that he really enjoyed basic science, lab research and molecular biology, exploring the interactions between DNA, RNA and proteins in cells.

He was accepted into CSU’s D.V.M. program the second time around, and continued to work up to 30 hours a week in the Veterinary Diagnostic Laboratories.

He received his D.V.M. in 2008 and enrolled in a program at CSU in which he completed a veterinary medicine residency and doctoral degree in pathology.

His path to becoming a researcher was set, and he continued to work with Basaraba, who served as an advisor and mentor.

Podell and Basaraba made an interesting discovery early on that influences their work today. The research team saw how simply giving lab animals a sugar solution worsened the progression of tuberculosis disease.

“It was fortuitous, and got all of this research started,” Podell said. It opened the door for the team to probe the impact of metabolism and sugar on inflammatory diseases, like TB.

Basaraba, a distinguished researcher in his own right, said he admires Podell's fearlessness and his focused approach to problem-solving.

"Besides his exceptional intellect, he is tenacious and is unafraid to take on technical and conceptual challenges to answer important scientific questions," he said.

"Science is not for the faint-hearted, in that there are small successes which are usually out-numbered by failed experiments, rejected grants and manuscripts. Brendan doesn't allow scientific setbacks to interfere with his quest for answers."

### TB, DIABETES THREATEN MANY IN DEVELOPING COUNTRIES

The dual diagnosis of TB and diabetes affects many people in developing countries, a fact that isn't commonly known. India, for example, is one of 30 high-burden countries for tuberculosis, designated by the World Health Organization. The country also has the highest frequency of diabetes in the world. The International Diabetes Federation estimates that the number of people with diabetes in India and Southeast Asia will increase from 82 million in 2017 to 151 million in 2045.

The conditions are also a challenge to study, with many unanswered questions, including: should clinicians treat people with existing drugs or look at antimicrobials, and should they target diabetes first, get that under control and then target TB in people who are affected by both?

Very few scientists know how to make a model that can replicate the diseases together. Enter Podell, who helped create an animal model of this dual burden as part of his doctoral dissertation.

"We now have the only validated model of this comorbidity, or what happens when a person has both chronic diseases of diabetes and tuberculosis," he said. As a result, researchers at CSU are studying how these diseases interact in order to learn how to treat these conditions when they occur together.

Dr. Susan VandeWoude, associate dean for Research and Graduate Education in the College of Veterinary Medicine and Biomedical Sciences, said Podell is a versatile researcher whose work is original and creative.

"His studies have improved our understanding of complex diseases like diabetes and tuberculosis," she said. "He is an excellent teacher and collaborator, and a future leader in diagnostic and investigative pathology."

Podell's research remains focused on immune disease mechanisms, and what makes people more susceptible to developing TB and diabetes. This research has opened new opportunities for collaboration with Basaraba and physicians who work with human patients, to explore different and alternative treatment approaches for tuberculosis.

He is also interested in sharing his expertise beyond his lab and department at CSU.

### COLLABORATION EXTENDS BEYOND CAMPUS

In 2015, Podell launched the Experimental Pathology Facility, which provides support for researchers under an initiative from the Office of the Vice President for Research. The facility aims to help researchers better use pathology to understand the outcomes of diseases.

"We've made a lot of contributions and created collaborations through that facility that don't necessarily relate to TB at all," said Podell, who shares administrative duties with Dr. Kelly Santangelo, assistant professor in the Department of Microbiology, Immunology, and Pathology.

What's his advice for aspiring researchers? "Keep an open mind," he said. "I tried to be focused, at first, and to force myself into a career path that wasn't for me."

Many of the students Podell has worked with have gone on to medical or veterinary medicine schools, and some have ended up in research careers. One former student is in law school, and hopes to become a lobbyist for research.

"Your experience is shaped by something you enjoy or don't enjoy," said Podell. "Try not to rush things."

### 2017 ZOETIS RESEARCH EXCELLENCE AWARD

Dr. Brendan Podell is recipient of the 2017 Zoetis Research Excellence Award and will kick off Research Day with a keynote address, "The pathologic intersection of tuberculosis and metabolic disease" at 11:30 a.m. He will receive a plaque and \$1,000 honorarium. Global animal health company Zoetis sponsors Research Day and the Research Excellence Award.

## SESSION 1: Clinical Science

1–5 p.m. | LSC 308

Time	Presenter	Topic	Dept.
1:00	Andrie, Kendra	The comparative and diagnostic features of canine and human malignant mesothelioma   Santangelo	MIP
1:15	Ball, Alyssa	A gene therapy approach using mesenchymal stem cells to induce osteogenesis: an “off the shelf” treatment for fracture repair   Goodrich	CS
1:30	Bayless, Rosemary	Impact of dietary rice bran on the equine fecal microbiome and metabolome and on cytokine gene expression following antimicrobial administration   Hassel	CS
1:45	Broman, Ashton	Evaluation of the equine mental nerve block: in vivo efficacy testing   Rawlinson	CS
2:00	Cheng, Edward	Comparison of alfaxalone and propofol with or without butorphanol for evaluation of laryngeal function in normal dogs   MacPhail	CS
2:15	Li, Katherine	Plasma metabolome of children with elevated cholesterol and modulation by navy bean and rice bran consumption   Ryan	ERHS
2:30	Dannemiller, Nicholas	Comparing the accuracy of two feline foamy virus diagnostics: impacts on prevalence and epidemiology   VandeWoude	MIP
2:45	BREAK		
3:00	Downey, Amy	Biomechanical analysis of a novel equine cervical stabilization technique   Easley	CS
3:15	Frank, Ilan	Evaluation of Ultrasound for Detection of Changes in Muscle Mass Recovery after Tibial Plateau Leveling Osteotomy in Dogs   Duerr	CS
3:30	French, John	Comparison of computed tomographic angiography and ultrasonography in the diagnosis of acute canine pancreatitis, sequelae, and prognosis   Marolf	ERHS
3:45	Huebner, Kate	Effects of a <i>Saccharomyces cerevisiae</i> fermentation product on liver abscesses, microbiomes and resistomes in beef cattle   Morley	CS
4:00	Kappel, Sarah	Extraction of the pars intermedia from the pituitary gland tissue in horses with Cushings using the BrainSight Veterinary System 2 (BSV2)   Easley	CS
4:15	Kopanke, Jennifer	Detection of a non-endemic serotype of bluetongue virus circulating in Colorado ruminants   Mayo	MIP
4:30	Curtis, Benjamin	Clinical features and pathology of hypercellular canine peripheral odontogenic fibromas   Schaffer	MIP
4:45	Martinez, Stephen	Evaluation of Tumor Radiation Dose Enhancement due to CuATSM with Various External Beam Radiation Qualities   Leary	ERHS



## SESSION 2: Clinical/Basic Science

1-5 p.m. | LSC 306

Time	Presenter	Topic	Dept.
1:00	Pannone, Stephen	Comparison of serotonin levels between pit bull-type and non-pit bull-type dogs in shelters   Ruch-Gallie	CS
1:15	Stenkamp-Strahm, Chloe	It's not as black and white as they are: Factors associated with <i>Escherichia coli</i> O157 shedding in US dairy calves   McConnell	CS
1:30	Stuchin, Margot	A comparison of opioid-based protocols for immobilization of captive Grevy's zebra ( <i>Equus grevyi</i> )   Mama	CS
1:45	Summers, Stacie	Serum indoxyl sulfate and p-cresol sulfate levels in cats with stable chronic kidney disease   Quimby	CS
2:00	Vaca, Cindy	Effect of maropitant and omeprazole on recovery quality in dogs undergoing routine ovarioectomy   Boscan	CS
2:15	Velting, Abigail	Use of mobile, robotic high definition computed tomography for diagnosis of spinal cord compression in the horse   Nout-Lomas	CS
2:30	Wolfer, Shana	Tissue heating and cooling properties of a dry-interface pneumatic sleeve applied to the equine distal limb   Haussler	CS
2:45	BREAK		
3:00	Babcock, Isaac Fixman, Ben	Modified Roller Tube Method for Precisely Localized and Repetitive Intermittent Imaging During Long-term Culture of Brain Slices in an Enclosed System   Bamburg	MIP
3:15	Bickett, Thomas	Innate Immunity Induced by BCG   Izzo	MIP
3:30	Cambrelin, Marion	The use of blood soaked filter papers to measure selenium and/or methyl mercury concentrations in marine mammals   O'Hara/ University of Alaska, Fairbanks	Other
3:45	Chiu, Elliott	Feline leukemia virus replicates faster in mountain lion cells   VandeWoude	MIP
4:00	Daimon, Caitlin	The role of proopiomelanocortin neurons in a rodent model of anorexia   Hentges	BMS
4:15	Del-Penho Sinedino, Leticia	Transcriptomic analysis of conceptus and endometrium during pregnancy failure at the preimplantation stage in Holstein cows   Hansen	BMS
4:30	Doster, Enrique	Antimicrobial Use In Beef Feedlot Production and Microbiome Dynamics   Morley	CS
4:45	Georges, Hannah	BVDV infection in persistently infected fetuses causes a robust immune system response in the fetal spleen   Hansen	BMS

## SESSION 3: Basic Science

1–5 p.m. | LSC 300

Time	Presenter	Topic	Dept.
1:00	Gonzalez-Berrios, Carolina	Regulation of tumor suppressors FOXO3 and RSU1 by miR-182 in human trophoblast cells   Winger	BMS
1:15	Haskins, Jeremy	Are the synthetic thymidine analogs, 5-ethyl-2'-deoxyuridine and 5-bromo-2'-deoxyuridine, the friendly scientific laboratory sidekicks we think they are?   Kato	ERHS
1:30	Heck, Adam	Regulation of neural differentiation through RNA methylation in stem cells   C. Wilusz	MIP
1:45	Kiran, Dilara	<i>Mycobacterium tuberculosis</i> -mediated modulation of macrophage metabolism by iron chelation   Basaraba	MIP
2:00	Krakoff, Emma	<i>De novo</i> exploration of MHC class I genes in the Arabian horse.   Antczak/ Cornell University	Other
2:15	Luxton, Jared	Telo-dGH: a personalized diagnostic tool of secondary cancer risk for radiation therapy patients   Bailey	ERHS
2:30	Nealon, Nora Jean	Fractionation of probiotic-fermented rice bran to identify <i>salmonella</i> -growth inhibitory compounds   Ryan	ERHS
2:45	BREAK		
3:00	Rollert, Margaret	Cataract frequency following the Fukushima nuclear disaster in the Large Japanese Field Mouse ( <i>Apodemus speciosus</i> )   Freeman	CS
3:15	Schlein, Lisa	Investigating the therapeutic potential of parthenolide in the treatment of hematopoietic neoplasms in dogs   Thamm	CS
3:30	Schwerdtfeger, Luke	Sex dependent impacts of pathogen and oxygen on human colon   Tobet	BMS
3:45	Severson, Rachel	Extreme Precipitation and Flooding: Exposure Characterization and the Association Between Exposure and Mortality in 108 United States Communities, 1987–2005   Anderson	ERHS
4:00	Sztukowski, Keira	HIV-induced synaptic excitotoxicity via cGMP-regulated protein kinase II activation   Kim	BMS
4:15	Tierce, Rebecca	Natural killer cell immunotherapy and radiation therapy for the reduction of tumor cell burden in the mouse model   Graves/ Stanford University	Other
4:30	Turnidge, Ashley	Sex-dependent glucocorticoid regulation of the corticotropin releasing hormone (CRH) gene   Handa	BMS
4:45	Yan, Meilin	Tropical storms and associated risks to cardiovascular, respiratory, and accidental mortality in 78 United States communities, 1988–2005   Anderson	ERHS

## POSTER PRESENTATIONS

SESSION 1 | ODD-NUMBERED POSTERS | 1-2:45 p.m.

SESSION 2 | EVEN-NUMBERED POSTERS | 3-4:45 p.m.

**NOTE:** The presenters listed below may be found in the Lory Student Center Ballrooms A and B according to their assigned poster numbers.

No.	Presenter	Title   Mentor	Dept.
1	Acerbo, Evan	The Effects of Sulforaphane on Nitric Oxide Induced Mitochondrial Dysfunction   Hanneman / CEM	ERHS
2	Ackart, David	Targeting Host Metabolism as <i>Tuberculosis</i> Intervention   Basaraba	MIP
3	Al-Turki, Taghreed	TERRA in The Telomeric DNA Damage Response   Bailey	ERHS
4	Ali, Asghar	Upstream Regulators and Downstream Targets of Let-7 miRNAs: An Important Pathway for Differentiation of Human Trophoblast Cells   Winger	BMS
5	Altina, Noelia	Elucidating the role of NUCKS1 in homologous recombination   Wiese	ERHS
6	Ammons, Dylan	The breakdown and function of hyaluronan in the pathogenesis of TZL   A. Avery	MIP
7	Armann, Kody	Vitamin A Deficient Guinea Pig Model Development   Podell	MIP
8	Beck, Alyssa	BENEFICIAL: Beans/Bran Enriching Nutritional Eating For Intestinal health & Cancer Including Activity for Longevity   Ryan	ERHS
9	Bordman, Aryn	Evolving trends in zoological companion animal presentations: a retrospective study   Johnston	CS
10	Bracchi, Lauren	Early lymphoid cell targets of chronic wasting disease prions in white-tailed deer   Hoover	MIP
11	Brewster, Connie	Rapid sheep-side detection of respiratory pathogens in bighorn sheep   Quackenbush	MIP
12	Brock, Maria	<i>Pseudomonas aeruginosa</i> variants obtained from veterinary clinical samples reveal a role for cyclic di-GMP in biofilm formation and colony morphology   Borlee	MIP
13	Bryan, Shilo	Effect of maropitant and omeprazole on gastroesophageal reflux in anesthetized dogs undergoing routine ovariectomy   Boscan	CS
14	Butler, Molly	Identification of a novel retrovirus associated with thymic lymphoma in Gunnison's prairie dogs   Quackenbush	MIP
15	Byer, Brittany	The effects of taurolidine alone and in combination with mitoxantrone or piroxicam in canine transitional cell carcinoma in vitro   Seguin	CS
16	Cao, Jennifer	Immune modulation and antiangiogenic activity of beta-receptor antagonists   Dow	MIP

## POSTER PRESENTATIONS

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No.	Presenter	Title   Mentor	Dept.
17	Carranza, Kasimir	The effect of freezing on human breast milk-derived stem cells   Hanneman/ CEM	ERHS
18	Cawley, Jacob	Unveiling drug resistance pathways in canine diffuse large B cell lymphoma   A. Avery	MIP
19	Cheung, Louana	Experimental infection of dogs with H3N2   Lappin	CS
20	Chotiwan, Nunya	Using Virus as a Tool to Interrogate the Study of Cancer Cell Development   Perera	MIP
21	Curley, Taylor	Mast Cell Tumor Histamine Release Following Morphine Exposure   Boscan	CS
22	Del Pino, Nicole	Total mercury concentrations in female northern fur seals and their pups   Rea/ University of Alaska, Fairbanks	Other
23	Evans, Michelle	Pathogenesis of chikungunya virus in experimentally infected southern toads ( <i>Anaxyrus terrestris</i> ) and leopard frogs ( <i>Lithobates pipiens</i> )   Bowen	BMS
24	Eytalis, Lauren	Incidence of bacterial contamination and reactivation of latent bacteria in the equine uterus following breeding   Ferris	CS
25	Galloway, Anne	Metastatic behavior and outcome of canine intranasal osteosarcoma   Lana	CS
26	Gil, Natalia	The effect of the probiotic <i>Enterococcus faecium</i> SF-68 on cats with chronic kidney disease   Lappin	CS
27	Gonzalez Castro, Raul	Localization and Quantitative Expression of Phospholipase C Zeta in Equine Sperm Using Commercial Antibodies   Carnevale	BMS
28	Grams-Johnson, Holly	Myxoma virus induced oncolysis of primary canine tumor cell lines   MacNeill	MIP
29	Haberecht, Hannah	Combinations of probiotics and rice bran differentially suppress the growth of multi-drug resistant <i>Salmonella</i> and <i>E. coli</i>   Ryan	ERHS
30	Harrison, Jacqueline	Preactivated mesenchymal stem cells and antibiotics eradicate multidrug resistant infections in clinical canine patients   Dow	CS
31	Haugen, Jessica	Metformin as a host-directed therapy to improve immune cell function against <i>Mtb</i> infection   Basaraba	MIP
32	Heise, Natascha	Implementation of Case Studies in the Undergraduate Cadaveric Classroom   Clapp	BMS
33	Holbrook, Ellen	Genetic characterization and comparative genome analysis of vesicular stomatitis virus isolates from Colorado   Mayo	MIP
34	Hood, Jocelyn	Effect of a probiotic on fecal characteristics and signs of upper respiratory tract disease in shelter cats   Lappin	CS

No.	Presenter	Title   Mentor	Dept.
35	Hopkins, Leone	Expression and Function of the Co-Stimulatory Checkpoint Molecule OX40 by T Cells in Dogs   Dow	CS
36	Hovenga, Claire	Effects of diet and a stress relieving supplement on upper respiratory disease and diarrhea in shelter cats   Lappin	CS
37	Ivanovich, Kyrie	Evaluation of Plasmodium parasitemia and clonality in children undergoing ivermectin mass drug administration for malaria control   Foy	MIP
38	Janik, Emily	The syndrome of multiple cutaneous mast cell tumors in canines: metastasis or <i>de novo</i> tumors?   Lana	CS
39	Kechejian, Sarah	Comparative analysis of ELISA and qPCR screening for Feline Foamy Virus infection in Colorado mountain lions ( <i>Puma concolor</i> )   VandeWoude	MIP
40	Kline, Kyle	Evaluation of step monitors for tracking activity levels in stalled horses   Moorman	CS
41	Knapek, Katie	Immunological Gene Expression Changes in the Fetal Thymus after Maternal Infection with Bovine Viral Diarrhea Virus   Hansen	BMS
42	Krause, Laurel	Evaluation of an in-clinic test for detection of <i>Leptospira</i> spp. antibodies in cats   Lappin	CS
43	Kuzmik, Alana	Flow cytometric analysis of canine small B-cell lymphomas   P. Avery	MIP
44	Larsen, Elizabeth	Determination of short- and long-term prognoses for horses with navicular bursa abnormalities treated with navicular bursoscopy and stem cell therapy   Moorman	CS
45	Lehman, Mallory	Incidence and outcome of clostridial enterocolitis in neonatal foals presented to the Colorado State University Veterinary Teaching Hospital between 2007-2017   Nout-Lomas	CS
46	Li Puma, Lance	<i>FADS2</i> Overexpression Exacerbates Myocardial Ischemia-Reperfusion Injury in Mice: Role of Mitochondria   Chicco	BMS
47	Linde, Peter	Interaction of <i>FADS2</i> genotype and dietary essential fatty acid intake on metabolic risk in mice   Chicco	BMS
48	Marsh, Summer	Effect of a proprietary tricarboxylic acid cycle intermediate on glomerular filtration rates in normal dogs   Lappin	CS
49	Mueten, Travis	Evaluation of efficacy of dual PI3K/Akt/mTOR pathway Inhibition in canine osteosarcoma cells in vitro and xenograft mouse model   Thamm	CS
50	Mills, Stephanie	Acyl-CoA thioesterases mediate dengue replication in human cells   Perera	MIP
51	Monck, Samantha	Anatomy of the ovine shoulder joint and determination of arthroscopic surgical approaches   Easley	CS

## POSTER PRESENTATIONS

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No.	Presenter	Title   Mentor	Dept.
52	Mundell, Cary	Understanding the Diversity of RNA Domains in Virus Families that Stall XRN1   J. Wilusz	MIP
53	Murtazina, Dilyara	RNA-Seq analysis of enriched ovine gonadotrope population using adenoviral mediated targeting of green fluorescent protein (GFP)   Clay	BMS
54	Oppel, Renee	Navy bean consumption by colorectal cancer survivors modulates the stool metabolome   Ryan	ERHS
55	Ornellas-Walsh, Norrine	Characterization of the IFNAR <sup>±</sup> mouse placental histostructure at days 14.5 and 18.5 of pregnancy   Mathiason	MIP
56	Parlier, Mark	Snake mites ( <i>Ophionyssus natricis</i> ) as a potential vector for reptarenavirus infection in snake populations   Stenglein	MIP
57	Pearce, Camron	Inhaled clofazimine for the treatment of <i>Mycobacterium abscessus</i> and <i>Mycobacterium tuberculosis</i> infections   Gonzalez-Juarrero	MIP
58	Pierce, Dayton	AMPA receptor trafficking is decreased with the loss of function phosphatase ptp-3 in the nematode <i>C. elegans</i>   Hoerndli	BMS
59	Pires, Elena	Characterization of Homologous Recombination DNA Repair in Canine Tumor Cell Lines   Wiese	ERHS
60	Prell, Melissa	Evaluation of cooled-storage after thawing frozen stallion semen   McCue	CS
61	Read, Jenna	Hijacking lipid biosynthesis for flavivirus replication   Perera	MIP
62	Rivero, Jacqueline	Detection of <i>Francisella tularensis</i> in the Mosquito Population of Rural Alaska   Murphy / University of Alaska, Fairbanks	Other
63	Scarborough, Meredith	Telomeres and varying lifespans in two rodent species   Bailey	ERHS
64	Schaeuble, Derek	Glutamate transporter knockdown in the infralimbic cortex increases heart rate, blood pressure, and cardiomyocyte area in response to chronic stress   Myers	BMS
65	Schefski, Jennifer	Dose dependent effects of CORM-2 on mitigating rattlesnake venom induced coagulopathy in canine whole blood   Olver	MIP
66	Scheu, Samuel	Effect of selective dry cow therapy on udder health and milk microbiome in dairy cattle with low somatic cell count   Caixeta	CS
67	Schultz, Karla	Treatment of feline dermatophytosis in a shelter setting: a retrospective comparison of the efficacy of two antifungal rinses   Lappin	CS
68	Scott, Janelle	Clinical and laboratory findings in cats fed <i>Toxoplasma gondii</i> sporulated oocysts   Lappin	CS
69	Seabolt, Rowan	The Process and Pitfalls of Transgenic Mice: the use of sheep and firefly genes to study female reproduction   Magee	BMS

No.	Presenter	Title   Mentor	Dept.
70	Seel, Peter	Weathering of Radio-Cesium released from the Fukushima Dai-ichi Nuclear Power Plant   Sudowe	ERHS
71	Selemenakis, Platon	How does exposure of the brain to ionizing radiation lead to cognitive injury?   Wiese	ERHS
72	Shipman, Jason	Prevalence of <i>Felis catus</i> gammaherpesvirus 1 DNA in the tissues of cats with chronic gingivostomatitis   Lothamer	CS
73	Shou, Jiayi	Sucrose withdrawal-induced depression and anxiety-like behavior by Kir2.1 upregulation in the nucleus accumbens   Kim	BMS
74	Shuff, Julia	<i>Mycobacterium bovis</i> in feral swine: novel molecular detection using filters obtained from breath and fecal samples   Linke	CS
75	Silva Angulo, Fabiola	Aerosolized BCG: an alternative immunization route for BCG vaccination in murine model   Izzo	MIP
76	Smith-Osborne, Lydia	Role of angiotensin II on ROS production in Parkinson's disease   Amberg	BMS
77	Soontararak, Sirikul	Mesenchymal stem cells derived from induced pluripotent stem cells promote intestinal healing and microbiome normalization in inflammatory bowel disease model   Dow	CS
78	Sowder, Bradley	Exposure of zoonotic disease agents to Colorado dairy workers   Linke	CS
79	Tanner, Amelia	Role of placental FATP4 in fetal development and metabolic programming   Bouma	BMS
80	Wallace, Tyler	Mapping Infralimbic Cortex Projections to Brainstem Nuclei: Establishing a Quantitative "Projectome"   Myers	BMS
81	Wittenberns, Brittany	Splenic stromal sarcoma in 47 dogs: a retrospective analysis   Thamm	CS
82	Yohe, Amy	Establishing a Postoperative Infection Rate in Horses Undergoing Sinus Flap Surgery at Colorado State University   Moorman	CS
83	Zabrana Gutierrez, Luis	Changes in the gut microbial diversity and metabolomic changes in Nicaraguan weaning infants after 6 months of Rice Bran supplementation   Ryan	ERHS
84	Zarei, Iman	Modulation of plasma and urine metabolome in colorectal cancer survivors consuming navy beans or rice bran   Ryan	ERHS
85	Zug, Amy	Assessment of an immunomodulator on the duration and severity of signs of upper respiratory infections in shelter cats   Lappin	CS

## VETERINARY SUMMER SCHOLARS PROGRAM

DVM Students Dive into Research

**APPLY BY FEB. 9, 2018!**



Veterinary Summer Scholars toured the Colorado Division of Wildlife this summer and got to socialize with Niko, the newborn bighorn sheep.

OUR VETERINARY SUMMER SCHOLARS PROGRAM provides veterinary students with hands-on exposure to veterinary medical research to introduce them to potential biomedical research careers. The application deadline is Feb. 9 for the summer 2018 program.

Last year, 30 veterinary students from CSU and abroad participated in Veterinary Summer Scholar Program. Students spent the summer working in research labs, attending weekly research seminars, and going on field trips to other CSU, federal, and state research facilities. Many of the projects conducted by CSU students last summer are being presented today at the CVMBS Research Day.

The College of Veterinary Medicine and Biomedical Sciences received funding from the National Institutes of Health in 2013 to build on the program's success. Partnership with the Young Investigator Awards Program has further boosted participation

The National Institutes of Health and Boehringer Ingelheim, a multinational animal health company, support the program, along with several other organizations, the college, and faculty mentors who help provide stipends for program participants.

We encourage students to apply for experiential learning in veterinary medical research!

To view the research of students funded in 2017, or to apply for the summer 2018 program, please visit the website at:

[csu-cvmbs.colostate.edu/dvm-program/Pages/Veterinary-Scholars-Program.aspx](http://csu-cvmbs.colostate.edu/dvm-program/Pages/Veterinary-Scholars-Program.aspx)

### BY THE NUMBERS

- 30 scholars in the 2017 program, from CSU and other veterinary programs across the country and around the world. The scholars are selected through a competitive application process and receive financial support from program sponsors.
- 295 summer scholars since 2001
- 500+ total students mentored by CVMBS faculty in past 10 years
- 20 percent of student participants in past five years have been under-represented minorities
- Over 70 CVMBS faculty mentors

### SPONSORS OF THE 2017 PROGRAM:

- National Institutes of Health
- Boehringer Ingelheim
- Morris Animal Foundation
- PetSmart Charities
- American Society of Lab Animal Practitioners
- University of Alaska, Fairbanks
- United State Department of Agriculture
- CSU College of Veterinary Medicine and Biomedical Sciences



## YOUNG INVESTIGATOR GRANT PROGRAM: FUNDING RESEARCH AND BOOSTING VET STUDENTS

Center for Companion Animal Studies, Department of Clinical Sciences



Young Investigator grants help students and early-career researchers like Dr. Stacie Summers pursue clinical projects, and improve the chances of securing complementary internships, graduate programs, and residencies.

**THE YOUNG INVESTIGATOR GRANT PROGRAM** provides funding to support research involving Colorado State veterinary students, and many of the recently funded projects are presented during Research Day.

In 2017, corporate and non-corporate sponsors donated more than \$50,000 to the program. This funding was distributed to 25 research projects involving students in our DVM Program.

The Young Investigator Grant Program began in 2006 with a donation of \$20,000 from HESKA Corp. In its 11 years, the program has grown to support five times the number of research projects that it supported in its first year – a credit to sponsors who understand the importance of bolstering young scientists, and a credit to our DVM students for the impressive quality of their research efforts.

The College of Veterinary Medicine and Biomedical Sciences thanks all program sponsors. These supporters are helping to advance veterinary science while also involving more DVM students in important clinical research. To view the grants funded in 2017 or to make a donation, please visit the Center for Companion Animal Studies website at [companionanimals.colostate.edu](http://companionanimals.colostate.edu).

### YOUNG INVESTIGATOR AWARDS

- 20 – 25 research grants funded per year
- Student, intern, resident and faculty
- Over 180 grants funded
- Over 50 faculty have participated
- Over 200 DVM students on publications
- Several research awards for students

### 2017 YOUNG INVESTIGATOR GRANT PROGRAM SPONSORS

#### PLATINUM SPONSOR

Boehringer Ingelheim - Merial

#### GOLD SPONSORS

Bayer Animal Health  
IDEXX Laboratories  
Merck Animal Health  
Nestle Purina PetCare  
VCA Antech, Inc.  
Zoetis Animal Health

#### SILVER SPONSORS

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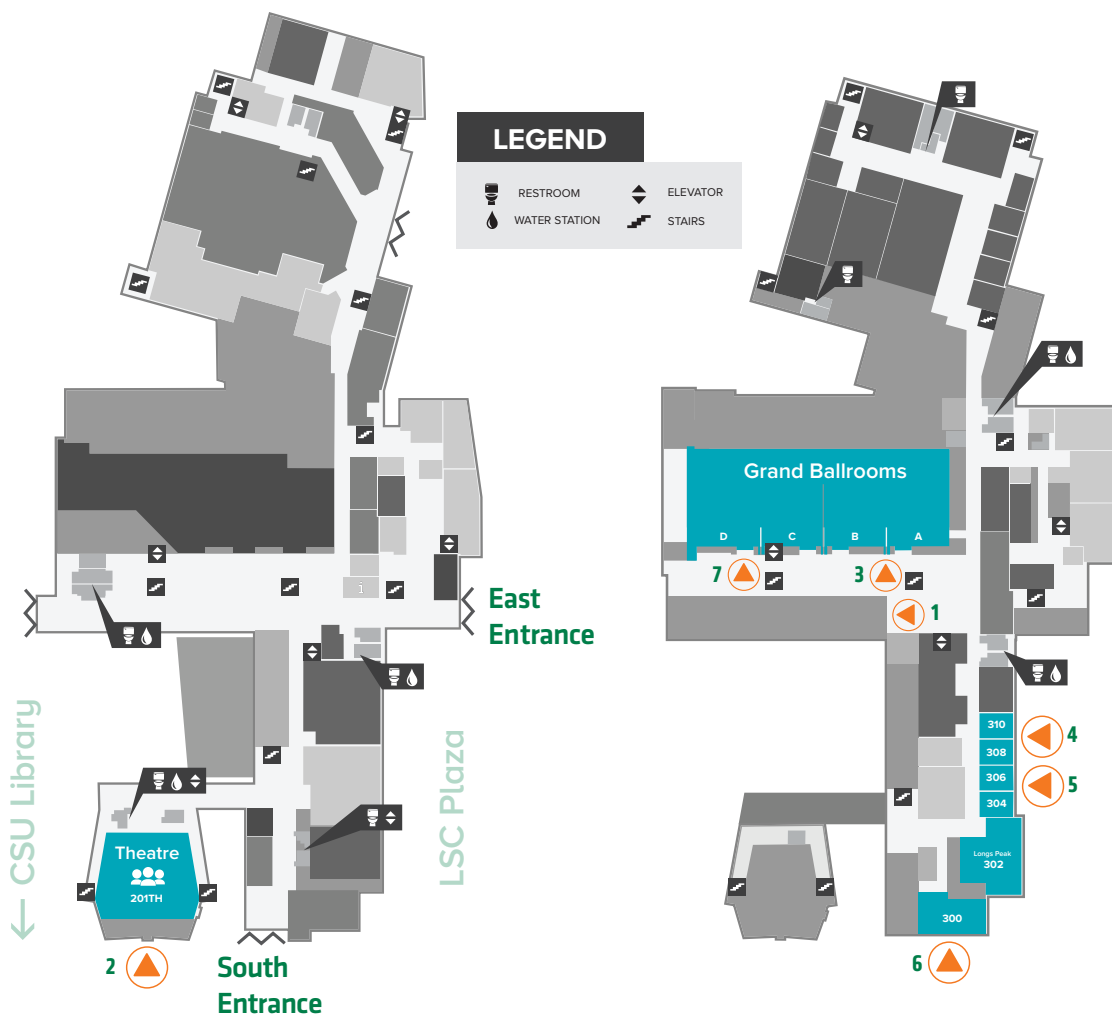
#### BRONZE SPONSORS

Hill's Pet Nutrition and SCAVMA  
International Veterinary Seminars  
Vetoquinol  
Virbac



200 LEVEL

300 LEVEL



LOCATIONS

- 1 Registration
- 2 LSC Theater: Keynote Speaker
- 3 Grand Ballrooms A & B: Poster Session
- 4 LSC 308-310: Oral Session I (Clinical)
- 5 LSC 304-306: Oral Session II (Clinical/Basic)
- 6 LSC 300: Oral Session III (Basic)
- 7 Grand Ballrooms C & D: Reception/Awards





COLLEGE OF VETERINARY MEDICINE  
AND BIOMEDICAL SCIENCES  
COLORADO STATE UNIVERSITY