CURRICULUM VITAE

Jonathan P. Mochel, DVM, MS, Ph.D, DECVPT, AAVPTF

Associate Professor of Quantitative Pharmacology

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CANDIDATE INFORMATION

- **Name**
  Jonathan P. Mochel

- **Rank**
  Associate Professor (Tenure-Track)

- **Degrees held**

DEFV (2006)	Veterinary Medicine Degree, National Veterinary School of Toulouse (France)
MS (2006)	M1 Pharmacology, Paul Sabatier University, Toulouse (France)
DVM (2007)	Doctorate in Veterinary Medicine, Paris Val de Marne University and National Veterinary School of Alfort (France)
Clinical Internship (2008)	Veterinary Medicine and Surgery, National Veterinary School of Alfort (France)
MS (2009)	M2 Clinical Pharmacology and Pharmacokinetics, Paul Sabatier University, Toulouse (France)
Residency (2013)	Veterinary Pharmacology and Toxicology (DECVPT), European Board of Veterinary Specialization
Ph.D (2015)	Quantitative Systems Pharmacology, Leiden University (Netherlands)

- **Record of Professional Experience**

2004 - 2006	Teaching Assistant, Department of Physiology and Therapeutics, National Veterinary School of Toulouse (France)
2007 - 2008	Chief Intern, Veterinary Internal Medicine and Surgery, Small Animal Internal Medicine andSurgery, Alfort Veterinary School (France)
2009 - 2013	Resident in Veterinary Pharmacology and Toxicology, Novartis, Centre de Recherche Sante Animale, DMPK and Safety, Saint-Aubin (Switzerland)
2011 - 2013	Resident in Veterinary Pharmacology and Toxicology, Novartis, St Johann Campus, Pharmacology Modeling and Simulation, Basel (Switzerland)
2013 - 2015	Senior Pharmacology Modeler, Department of Modeling and Simulation, Novartis, Basel (Switzerland)
2015 - 2016	Quantitative Systems Pharmacology Leader, Roche Innovation Center, Pharma Research and Early Development, Basel (Switzerland)
2016 -	Associate Professor (Presidential High-Impact), Department of Biomedical Sciences, Iowa State University College of Veterinary Medicine, Ames, IA

SCHOLARSHIP

HONORS AND AWARDS

Honors

2013	Diplomate, European College of Veterinary Pharmacology and Toxicology (ECVPT)
2015	Chair of the Education and Residency Committee, ECVPT
2017	Fellow, American Academy of Veterinary Pharmacology and Therapeutics
2017	Councilor, American Academy of Veterinary Pharmacology and Therapeutics
2017	President, Animal Health Modeling and Simulation Society
2018	President Elect, European Association of Veterinary Pharmacology and Therapeutics
2018	Alumni, Y Combinator Seed Accelerator Program

Awards

2006	Valedictorian, Veterinary Medicine Graduate Class, Veterinary School of Toulouse
2007	Silver Medal for Outstanding Veterinary Thesis, Alfort Veterinary School
2007	Valedictorian, Medicine and Surgery Internship National Competitive Exam
2008	Valedictorian, Master of Sciences (M2), Paul Sabatier University (Toulouse)
2019	Iowa State CVM Award for Early Career Achievement in Research
2020	John Pappajohn Entrepreneurial Venture Competition Award (ranked #1/43)
2020	Iowa State University Exemplary Faculty Mentor Award
2020	Iowa State University CVM International Service Award
2021	IowaBio Biotechnology Association Award

SUMMARY OF KEY ACHIEVEMENTS (Q4 2016 – Q2 2021)

I have established a brand new and sustainable research program combining state-of-the-art computational approaches and novel cell culture systems for translational research. The following is a summary of key accomplishments since the beginning of my tenure at Iowa State.

Research Impacts

My scholarship has been disseminated nationally and internationally in the form of peer-reviewed publications, abstract presentations, and invited lectures. Specifically, since Q4 2016 my research program at ISU has resulted in **100 manuscripts** (87 published papers and 13 manuscripts currently under review; 91.5% in Q1 field ranking journals), as well as **107 research abstracts** to international and national meetings.

A majority of these manuscripts (70%) were **accepted in higher IF journals than the reference in my field of research**. This includes publication of scientific results in journals such as *BMC Biol.* (7.5), *CPT Pharmacometrics Syst. Pharmacol.* (6.5), *Brain Behav Immun.* (7.0), *Alzheimers & Dementia* (15.1), or *Med Res Rev.* (9.5). Likewise, several of my research abstracts were published in *Gastroenterology* which has an IF of 19.8.

Altogether, *I produced 26% and 39% of all publications originating from my department* (BMS, N=30 Faculty) in 2019 and 2020, respectively. Of particular importance for ISU and evidence of my value to the organization, I have a track record of successful grant applications totaling **$6,197,946** as *Lead Investigator* ($4,042,621) or *Co-Investigator* ($2,155,325) in the first years of my tenure.

The relevance of my research and its impact have been recognized by the College of Veterinary Medicine who awarded me the **Early Career Achievement in Research**. My **international**

recognition as a key opinion leader in Pharmacology was evidenced by my nomination as **Fellow and Councilor** of the American Academy of Veterinary Pharmacology and Therapeutics (2017), **President** of the Animal Health Modeling and Simulation Society (2017), and **President-Elect** of the European Association of Veterinary Pharmacology and Toxicology (2018). In 2021, I have been nominated to receive the American Academy of Veterinary Pharmacology Research Award, the ISU CVM Mid-Career Achievement in Research Award and the Pharmaceutics Young Investigator Award.

Consistent with the Iowa State Dean's Council vision to build an entrepreneurial culture across the University, I co-founded two successful startup entities which, for the **first time** in the history of the ISU CVM, received seed funding from **Y Combinator** (lead incubator program in the U.S) and the **National Science Foundation**.

Our innovative technology for drug screening has been filed for multiple **patent applications**: (1) #62/902,833 (09/19/2019); (2) #63/003,342 (04/01/2020); (3) #P13197US01 (09/18/2020); and (4) #63/200,614 (03/18/2021). Our invention disclosure on canine intestinal organoids further matured into an exclusive tangible property license agreement with the ISU Research Foundation.

Teaching Impacts

I have developed a portfolio of new lectures in the field of pharmacokinetics and population modeling applied to pharmaceutical sciences. Comparison of my **teaching evaluation scores** with those of the Department of Biomedical Sciences and throughout the College of Veterinary Medicine as a whole, indicates I perform significantly better than my peers in teaching. In addition, **100%** of the surveyed students considered my class a worthwhile investment in their future, and **100%** of the students would recommend my class.

During my tenure at Iowa State I have mentored 4 Faculty members, 7 postdoctoral research associates, 5 clinical pharmacology residents, **64 graduate students** (19 Ph.D, 45 MS), and 4 undergraduate students. I have a demonstrable track record of success in mentoring graduate students at Iowa State University. Notably, several of my Ph.D students received multiple awards acknowledging the quality of their graduate program, including the **College of Veterinary Medicine Graduate Student of the Year** Award and the Biomedical Sciences **Research Excellence** Award.

Twenty six of the MS students I have been mentoring are now successfully enrolled in a clinical program. Outside of my home institution, I was also acknowledged for the quality of my instruction by being appointed **Chair of the Education and Residency Committee** of the European College of Veterinary Pharmacology and Toxicology.

Institutional Service Impacts

Colleagues and administrators have trusted me to serve on important committees to further institutional goals, such as the *Graduate Education and Research Committee*, the *Admission Committee*, and the *Curriculum Committee*. At the University level, I serve on the *Oversight Committee for Conflicts of Interest in Research*. I am actively involved in the development of a new *Industry/Entrepreneurship* track within our BMS graduate program.

This new track will provide students with an opportunity to develop new knowledge and skillset (including hands-on experience with industry partners) that are relevant to careers in pharmaceutical sciences and other related fields. In 2020, I received the **Iowa State CVM International Service Award** that recognizes faculty for outstanding international service in terms of research and teaching within the United States and abroad.

RESEARCH

PUBLICATIONS

Reviews

(1) Martinez M, **Mochel JP***, Neuhoff S*, Pade D*. Comparison of Canine and Human Physiological Factors: Understanding Interspecies Differences that Impact Drug Pharmacokinetics. 2021. AAPS J. 2021 Apr 27;23(3):59. DOI: 10.1208/s12248-021-00590-0. PMID: 33907906. *: equal contributions.

(2) Minkler S, Lucien F, Kimber MJ, Sahoo DK, Bourgois-Mochel A, Musser M, Johannes C, Frank I, Cheville J, Allenspach K, **Mochel JP**. Emerging Roles of Urine-Derived Components for the Management of Bladder Cancer: One Man's Trash Is Another Man's Treasure. Cancers (Basel). 2021 Jan 23;13(3):422. DOI: 10.3390/cancers13030422. PMID: 33498666.

(3) Sebbag L, **Mochel JP**. An Eye on the Dog as the Scientist's Best Friend for Translational Research in Ophthalmology: A Focus on the Ocular Surface. Med Res Rev. 2020 Nov;40(6):2566-2604. DOI: 10.1002/med.21716. PMID: 32735080.

(4) Ambrosini YM, Borcherding D, Kanthasamy A, Kim HJ, Willette AA, Jergens A, Allenspach K, **Mochel JP**. The Gut-Brain Axis in Neurodegenerative Diseases and Relevance of the Canine Model: A Review. Front Aging Neurosci. 2019 Jun 18;11:130. DOI: 10.3389/fnagi.2019.00130. eCollection 2019. PMCID: PMC6591269. Chief Editor's Top Pick 2019-21.

(5) **Mochel JP**, Ekker SC, Johannes CM, Jergens AE, Allenspach K, Bourgois-Mochel A, Knouse M, Benzekry S, Wierson W, LeBlanc AK, Kenderian S. CAR T-Cell Immunotherapy in Human and Veterinary Oncology: Changing the Odds against Hematological Malignancies. AAPS J. 2019 Apr 8;21(3):50. DOI: 10.1208/s12248-019-0322-1. PMID: 30963322.

(6) Martinez MN*, Gehring R*, **Mochel JP***, Pade D*, Pelligand L*. Population Variability in Animal Health: Influence on Dose-Exposure-Response Relationships: Part II: Modelling and Simulation. J Vet Pharmacol Ther. 2018 Aug;41(4):E68-E76. DOI: 10.1111/jvp.12666. PMID: 29806231. *: equal contributions.

(7) **Mochel JP**, Jergens AE, Kingsbury D, Kim HJ, Martín MG, Allenspach K. Intestinal Stem Cells to Advance Drug Development, Precision, and Regenerative Medicine: A Paradigm Shift in Translational Research. AAPS J. 2017 Dec 12;20(1):17. DOI: 10.1208/s12248-017-0178-1. Review. PMID: 29234895.

(8) Bon C, Toutain PL, Concordet D, Gehring R, Martin-Jimenez T, Smith J, Pelligand L, Martinez M, Whittem T, Riviere JE, **Mochel JP**. Mathematical Modeling and Simulation in Animal Health. Part III: Using Nonlinear Mixed-Effects to Characterize and Quantify Variability in Drug Pharmacokinetics. J Vet Pharmacol Ther. 2018 Apr;41(2):171-183. DOI: 10.1111/jvp.12473. PMID: 29226975.

(9) Lin Z, Gehring R, **Mochel JP**, Lavé T, Riviere JE. Mathematical Modeling and Simulation in Animal Health - Part II: Principles, Methods, Applications, and Value of Physiologically Based Pharmacokinetic Modeling in Veterinary Medicine and Food Safety Assessment. J Vet Pharmacol Ther. 2016 Oct;39(5):421-38. DOI: 10.1111/jvp.12311. PMID: 27086878.

(10) Riviere JE, Gabrielsson J, Fink M, **Mochel J**. Mathematical Modeling and Simulation in Animal Health. Part I: Moving Beyond pharmacokinetics. J Vet Pharmacol Ther. 2016 Jun;39(3):213-23. DOI: 10.1111/jvp.12278. PMID: 26592724.

Original Research Papers

Comparative Medicine

(11) Chou YY, Ward JL, Barron LZ, Murphy SD, Tropf MA, Lisciandro GR, Yuan L, **Mochel JP**, DeFrancesco TC. Focused Ultrasound of the Caudal *Vena Cava* in Dogs with Cavitary Effusions or Congestive Heart Failure: A Prospective, Observational Study. PLoS One. 2021 May 28;16(5):e0252544. DOI: 10.1371/journal.pone.0252544. PMID: 34048483.

(12) Freund S, Allenspach K, **Mochel JP**. Nutritional Effects on the Gut Microbiome and the Brain-Gut Axis: Unlocking the Therapeutic and Preventative Potential of Nutrition for Gut Dysbiosis Associated Diseases. Preprints. 2021 May 13. DOI: 202105.0299.v1.

(13) Willette AA, Pappas C, Hoth N, Wang Q, Klinedinst B, Willette SA, Larsen B, Pollpeter A, Li T, Le S, Collazo-Martinez AD, **Mochel JP**, Allenspach K, Dantzer R; Alzheimer's Disease Neuroimaging Initiative. Inflammation, Negative Affect, and Amyloid Burden in Alzheimer's Disease: Insights from the Kynurenine Pathway. Brain Behav Immun. 2021 Mar 25:S0889-1591(21)00121-5. DOI: 10.1016/j.bbi.2021.03.019. PMID: 33775832.

(14) Pappas C, Klinedinst BS, Le S, Wang Q, Larsen B, McLimans K, Lockhart S, Allenspach K, **Mochel JP**, Willette A. CSF Glucose Tracks Regional Tau Progression Based on Alzheimer's Disease Risk Factors. Alzheimers Dement (NY). 2020 Aug 24;6(1):e12080. DOI: 10.1002/trc2.12080. PMID: 32864418.

(15) Ambrosini YM, Borcherding D, Seo YJ, Segarra S, Glanemann B, Garden OA, Neuber S, Müller U, Dang V, Borts D, Atherly T, Jergens A, **Mochel JP**, Allenspach K. Treatment with Hydrolyzed Diet Supplemented with Prebiotics and Glycosaminoglycans Alters Lipid Metabolismin a Canine Model of Inflammatory Bowel Disease. Front Vet Sci. 2020 Jul 30;7:451. DOI: 10.3389/fvets.2020.00451. PMID: 32851029.

(16) Klinedinst BS, Meier NF, **Mochel JP**, Allenspach K, Bennett D, Willette AA. Walking In The Light: How History of Physical Activity, Sunlight, and Vitamin D Levels Account For DEXA-Quantified Body Fat Volumes – a UK Biobank Study. Obesity (Silver Spring). 2020 Aug;28(8):1428-1437. DOI: 10.1002/oby.22852. PMID: 32573118.

(17) Klinedinst BS, Le ST, Larsen B, Pappas C, Hoth NJ, Pollpeter A, Wang Q, Wang Y, Yu S, Wang L, Allenspach K, **Mochel JP**, Bennett DA, Willette AA. Genetic Factors of Alzheimer's Disease Modulate How Diet is Associated with Long-Term Cognitive Trajectories: A UK Biobank Study. J Alzheimers Dis. 2020;78(3):1245-1257. DOI: 10.3233/JAD-201058. PMID: 33252089.

(18) McLimans KE, Collazo Martinez AD, **Mochel JP**, Allenspach K, Willette AA; Alzheimer's Disease Neuroimaging Initiative; Australian Imaging Biomarkers and Lifestyle Flagship Study of Ageing. Serum Vitamin B12, and Related MTRR and Cubilin Genotypes, Predict Neural Outcomes across the AD Spectrum. Br J Nutr. 2020 Mar 17:1-29. DOI: 10.1017/S0007114520000951. PMID: 32180545.

(19) Kilburn LR, Allenspach K, Jergens AE, Bourgois-Mochel A, **Mochel JP**, Serao MCR. Apparent Total Tract Digestibility, Fecal Characteristics, and Blood Parameters of Healthy Adult Dogs Fed High-Fat Diets. J Anim Sci. 2020 Mar 1;98(3):skaa043. DOI: 10.1093/jas/skaa043. PMID: 32047902.

(20) Atherly T, Rossi G, White R, Seo YJ, Allenspach K, **Mochel JP**, Jergens AE. Glucocorticoid Effects on Mucosal Bacteria in Canine Inflammatory Bowel Disease. PLoS One. 2019 Dec 30;14(12):e0226780. DOI: 10.1371/journal.pone.0226780. PMID: 31887117.

(21) Klinedinst BS, Pappas C, Le S, Yu S, Wang Q, Wang L, Allenspach-Jorn K, **Mochel JP**, Willette AA. Aging-Related Changes in Fluid Intelligence, Muscle and Adipose Mass, and Sex-Specific Immunologic Mediation: A longitudinal UK Biobank study. Brain Behav Immun. 2019 Sep9. Pii: S0889-1591(19)30653-1. DOI: 10.1016/j.bbi.2019.09.008. PMID: 31513875.

(22) Jergens AE, Guard BC, Redfern A, Rossi G, **Mochel JP**, Pilla R, Chandra L, Seo YJ, SteinerJM, Lidbury J, Allenspach K, Suchodolski J. Microbiota-Related Changes in Unconjugated Fecal Bile Acids Are Associated With Naturally Occurring, Insulin-Dependent Diabetes Mellitus in Dogs. Front Vet Sci. 2019 Jun 27;6:199. DOI: 10.3389/fvets.2019.00199. eCollection 2019. PMCID: PMC6610424.

(23) Kathrani A, Lezcano V, Hall EJ, Jergens AE, **Mochel JP**, Atherly T, Allenspach K. Indoleamine-Pyrrole 2,3-Dioxygenase-1 (IDO-1) mRNA is Over-Expressed in the Duodenal Mucosa and is Negatively Correlated with Serum Tryptophan Concentrations in Dogs with Protein-Losing Enteropathy. PLoS One. 2019 Jun 10;14(6):e0218218. DOI: 10.1371/journal.pone.0218218. PMID: 31181125.

(24) Kathrani A, Lezcano V, Hall EJ, Jergens AE, Seo YJ, **Mochel JP**, Atherly T, Allenspach K. IL-13 and IL-33 mRNA are Under-Expressed in the Duodenal Mucosa of German Shepherd Dogs with Inflammatory Bowel Disease. J Vet Intern Med. 2019 Jun 6. DOI: 10.1111/jvim.15544. PMID:31169944.

(25) Chandra L, Borcherding DC, Kingsbury D, Atherly T, Ambrosini YM, Bourgois-Mochel A, Yuan W, Kimber M, Qi Y, Wang Q, Wannemuehler M, Ellinwood NM, Snella E, Martin M, Skala M, Meyerholz D, Estes M, Fernandez-Zapico M, **Mochel JP*** and Allenspach K*. Derivation of Adult Canine Intestinal Organoids for Translational Research in Gastroenterology. BMC Biol. 2019 Apr 11;17(1):33. DOI: 10.1186/s12915-019-0652-6. PMID: 30975131.* co-corresponding author.

(26) Allenspach KA, **Mochel JP**, Du Y, Priestnall SL, Moore F, Slayter M, Rodrigues A, Ackermann M, Krockenberger M, Mansell J; WSAVA GI Standardization Working Group, (…) Suchodolski J, Berghoff N, Jergens AE. Correlating Gastrointestinal Histopathologic Changes to Clinical Disease Activity in Dogs With Idiopathic Inflammatory Bowel Disease. Vet Pathol. 2018 Dec 18:300985818813090. DOI: 10.1177/0300985818813090. PMID: 30563436.

(27) Schneider B, Balbas-Martinez V, Jergens AE, Troconiz IF, Allenspach K, **Mochel JP**. Model-Based Reverse Translation Between Veterinary and Human Medicine: The One Health Initiative. CPT Pharmacometrics Syst Pharmacol. 2018 Feb;7(2):65-68. DOI: 10.1002/psp4.12262. PMID: 29178333.

(28) Dencker L*, Hellmann K*, **Mochel J***, Senel S*, Linden H*, Tyden E*, Vendrig JC*, Schmerold I. EUFEPS Network on Veterinary Medicines Initiative: An Interdisciplinary Forum to Support Veterinary Pharmacology and Promote the Development of New Pharmaceuticals for Animal Health. Eur J Pharm Sci. 2016 August 25; 91:I- VII. DOI: 10.1016/s0928-0987(16)30254-8. *: equal contributions.

Pharmacokinetics and PK/PD Modeling

(29) Sebbag L, Kirner NS, Wulf L, **Mochel JP**. Tear Film Pharmacokinetics and Systemic Absorption of Topical 1% Prednisolone Acetate Ophthalmic Suspension in Dogs. Front Vet Sci. 2020 Oct 27;7:571350. DOI: 10.3389/fvets.2020.571350. PMID: 33005646.

(30) Martinez M, **Mochel JP***, Pade D*. Pharmacokinetic Considerations In Inter-Species Comparisons. Curr Opin Toxicol. 2020 Oct 23:98-105. *: equal contributions.

(31) Sebbag L, **Mochel JP**. Pharmacokinetics of Oral Prednisone at Anti-inflammatory to Immunosuppressive in Dogs: A Naïve Pooled-Data Approach. Front Vet Sci. 2020 Oct 19;7:571457. DOI: 10.3389/fvets.2020.571457. eCollection 2020. PMID: 33195563.

(32) Schneider B, Benzekry S, **Mochel JP**. Comprehensive Joint Modeling of First-Line Therapeutics in Non-Small Cell Lung Cancer. medRxiv. 2020. DOI: 10.1101/2020.11.24.20238212.

(33) Olivarez JD, Kreuder AJ, Tatarniuk DM, Wulf LW, Dembek KA, **Mochel JP**, Smith JS. Pharmacokinetics and Tissue Levels of Pantoprazole in Neonatal Calves After Intravenous Administration. Front Vet Sci. 2020 Nov 27;7:580735. DOI: 10.3389/fvets.2020.580735. PMID: 33330703.

(34) Warner R, Ydstie J, Wulf L, Gehring R, Coetzee J, **Mochel JP** and Gorden P. Comparative Pharmacokinetics of Meloxicam between Healthy Post-Partum versus Mid-lactation Dairy Cattle.Front Vet Sci. 2020 Sep 8;7:548. DOI: 10.3389/fvets.2020.00548. eCollection 2020. PMID: 33102542.

(35) Warner R, Ydstie J, Wulf L, Gehring R, Coetzee J, **Mochel JP** and Gorden P. Corrigendum: Comparative Pharmacokinetics of Meloxicam between Healthy Post-partum versus Mid-lactation Dairy Cattle. Front Vet Sci. 2021 May 26;8:665021. DOI: 10.3389/fvets.2021.665021. eCollection 2021. PMCID: PMC8188475.

(36) Wang J, Schneider BK, Sun P, Seo YJ, **Mochel JP***, Cao X*. Nonlinear Mixed-Effects Pharmacokinetic Modeling of the Novel COX-2 Selective Inhibitor Vitacoxib in Cats. Front Vet Sci.2020 Sep 24;7:554033. DOI: 10.3389/fvets.2020.554033. eCollection 2020. PMID: 33102567. *: co-corresponding author.

(37) Kittrell HC, **Mochel JP**, Brown J, Schneider BK, Ratliffe B, Karriker L. Pharmacokinetics and Bioavailability of Flunixin Meglumine in Pre-Wean Piglets Following Oral, Topical, and Intramuscular Routes of Administration. Front Vet Sci. 2020 Aug 28;7:586. DOI: 10.3389/fvets.2020.00586. PMID: 33005646.

(38) Vaghi C, Rodallec A, Fanciullino R, Ciccolini J, **Mochel JP**, Mastri M, Ebos JML, Poignard C, Benzekry S. Population Modeling of Tumor Growth Curves Identifies a Reduced Gompertz Model and Improves Prediction of Tumor Initiation Time. PLoS Comput Biol. 2020;16(2):e1007178. DOI:10.1371/journal.pcbi.1007178. PMID: 32097421.

(39) Tinklenberg RL, Murphy SD, **Mochel JP**, Seo YJ, Mahaffey AL, Yan Y, Ward JL. Dose-Response Effects of Oral Short-Term Prednisone Therapy on Clinicopathologic and Hemodynamic Variables in Healthy Dogs. Am J Vet Res. 2020;81(4):317–325. DOI:10.2460/ajvr.81.4.317. PMID: 32228253.

(40) Sebbag L, Kirner N, Allbaugh R, **Mochel JP**. Pharmacokinetics of Topical Drug Delivery: Does Size Really Matter? Front Vet Sci. 2019 Dec 19;6:457. DOI: 10.3389/fvets.2019.00457. PMID: 31921915.

(41) Musser M, Mahaffey AL, Fath M, Buettner G, Brett W, Schneider B, Seo YJ, **Mochel JP**, Johannes CM. In vitro Cytotoxicity and Pharmacokinetic Evaluation of Pharmacological Ascorbate in Dogs. Front Vet Sci. 2019 Nov 7;6:385. DOI: 10.3389/fvets.2019.00385. PMID: 31788483.

(42) Smith JS, Borts DJ, Slagel CC, Rajewski SM, Bousquet-Melou A, Ferran AA, Plummer PJ, **Mochel JP**. Pharmacokinetics of Ertapenem in Sheep (Ovis aries) with Experimentally Induced Urinary Tract Infection. Comp Med. 2019 Oct 1;69(5):413-418. DOI: 10.30802/AALAS-CM-18- 000144. PMID: 31581974.

(43) Wang J, Schneider BK, Xue J, Sun P, Qiu J, **Mochel JP***, Cao X*. Pharmacokinetic Modeling of Ceftiofur Sodium Using Non-linear Mixed-Effects in Healthy Beagle Dogs. Front Vet Sci. 2019Oct 17;6:363. DOI: 10.3389/fvets.2019.00363. PMID: 31681816. *: co-corresponding author.

(44) Martinez M, Boopathy S*, Carlert S*, Jamei M*, **Mochel JP*** and Vertzoni M*. Workshop Report: USP Workshop on Exploring the Science of Drug Absorption. Dissol Technol. 2019. DOI: 10.14227/DT260319P38. *: equal contributions.

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(49) Moczarnik J, Berger DJ, Noxon JO, LeVine DN, Lin Z, Coetzee JF, **Mochel JP**. Relative Oral Bioavailability of Two Amoxicillin-Clavulanic Acid Formulations in Healthy Dogs: A Pilot Study. J Am Anim Hosp Assoc. 2019 Jan/Feb;55(1):14-22. DOI: 10.5326/JAAHA-MS-6872. Nov 14. PMID: 30427713.

(50) Smith JS, **Mochel JP**, Borts DJ, Lewis KA, Coetzee JF. Adverse Reactions to Fentanyl Transdermal Patches in Calves: A Preliminary Clinical and Pharmacokinetic Study. Vet Anaesth Analg. 2018 Jul;45(4):575-580. DOI: 10.1016/j.vaa.2018.02.009. PMID: 29880278.

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(52) Gorden PJ, Ydstie JA, Kleinhenz MD, Brick TA, Smith JS, Griffith RW, Wulf LW, Rajewski SM, Zhang M, Sidhu PK, **Mochel JP**, Coetzee JF. Comparative Plasma and Interstitial Fluid Pharmacokinetics and Tissue Residues of Ceftiofur Crystalline-Free Acid in Cattle with Induced Coliform Mastitis. J Vet Pharmacol Ther. 2018 Jul 4. DOI: 10.1111/jvp.12688. PMID: 29971798.

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Book Chapters

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(96) Allenspach K, **Mochel JP**. Genetics and Immunopathogenesis of Chronic Inflammatory Enteropathies in Dogs. 2020 Nov 1:91-100. Book Chapter In: Advances in Small Animal Care.

Preprints (Under Review)

(97) Allenspach K, Borcherding DC, Iennarella-Servantez C, Ambrosini Y, Atherly T, Bourgois-Mochel A, Rossoni M, Kilburn L, Jergens AE, **Mochel JP**. Unfavorable Changes in the Gut Microbiome, Intestinal Epithelium and Serum Metabolome Induced by Short-Term High-Fat Diet. *Science Advances*.

(98) Yaeger M*, **Mochel JP***, Wu Z, Plummer P, Sahin R, Beyi A, Zhang Q, Griffith R. Pharmacokinetics of Tulathromycin in Pregnant Ewes Challenged with Campylobacter Jejuni. *PLoS One (Revise and Resubmit)*. *: co-corresponding authors.

(99) Ward JL, Chou YY, Yuan L, Dorman K, **Mochel JP**. Retrospective Evaluation of a Dose-Response Relationship Between Angiotensin-Converting Enzyme Inhibitors and Long-Term Outcome in Dogs with Cardiac Disease. *Journal of Veterinary Internal Medicine (Revise and Resubmit)*.

(100) Sebbag L, Broadbent VL, Kenne DE, Perrin A, **Mochel JP**. Albumin in Tears Modulates Bacterial Susceptibility to Topical Antibiotics in Ophthalmology. *Frontiers in Microbiology*.

(101) Copeland AT, Kreuder AJ, Dewell G, Dewell R, Wiley C, Yuan L, **Mochel JP** and Smith JS. Randomized Comparison Between a Forced Air Delivery System and Warm Water Bath for Neonatal Calf Hypothermic Resuscitation With or Without Adjunct Oral Caffeine Administration. *PLoS One*.

(102) Glanemann B, Seo YJ, Priestnall S, Garden OA, Jergens AE, Segarra S, **Mochel JP**, Allenspach K. Clinical Efficacy of Prebiotics and Glycosaminoglycans versus Placebo In Dogs with Food Responsive Enteropathy Receiving a Hydrolyzed Diet: A Pilot Study. *PLoS One*.

(103) Heinrich ERE, Levine DN, Walton R, Gonzales J, Seo YJ, **Mochel JP**, Allenspach K. Retrospective Comparison of a Novel Continuous Insulin Infusion Protocol to Standard Of Care Treatment for Diabetic Ketoacidosis in Dogs. *Journal of the American Veterinary Medical Association*.

(104) Allenspach K, **Mochel JP**. Current Diagnostics for Chronic Enteropathies in Dogs. *Veterinary Clinical Pathology*.

(105) Zorn C, Walton RAL, McKeen L, **Mochel JP**, Blong AE. Retrospective Comparison of Outcomes in Septic Peritonitis With or Without Closed-Suction Abdominal Drainage in 115 Dogs. *Journal of the American Veterinary Medical Association*.

(106) Shanahan MT, Kanke M, Oyesola OO, (…), **Mochel JP**, Allenspach K, (…), Tait Wojno ED, Sethupathy P. Multi-Omic Analysis Reveals MicroRNA Markers of Every Major Intestinal Epithelial Cell Type. *American Journal of Physiology Gastrointestinal and Liver Physiology*.

(107) Smith JS, Ebner LS, Cremerius H, Cantrell C, (…), **Mochel JP**, Kreuder A. Comparison of Two Point-of-Care Glucometers for Field Evaluation of Healthy Neonatal Calves. *J Vet Emerg Crit Care*.

(108) Thenuwara SH, Greenlee H, Allenspach K, **Mochel JP**. Culture and Maintenance of Urine Derived, 3-Dimensional Canine Transitional Cell Carcinoma Organoids. *Preprints.*

(109) Smith JS, **Mochel JP**. Pharmacokinetics of Pantoprazole and Pantoprazole Sulfone in Goats after Intravenous Administration. *Frontiers in Veterinary Science*.

Manuscripts In Preparation

(110) Kopper J, Iennerella-Servantez C, (…). Martinez M, Allenspach K, **Mochel JP**. Harnessing The Biology of Canine Intestinal Organoids To Heighten Understanding of Inflammatory Bowel Disease Pathogenesis and Accelerate Drug Discovery: A One Health Approach (*Frontiers in Genetics*).

(111) Sahoo-Kumar D, **Mochel JP**, Borcherding D, Jergens AE, Allenspach K. Differential Transcriptomic Profiles in Response to LPS Stimulated Canine Intestinal Organoids (*Scientific Reports*).

(112) Le ST, Cerna J, (…), **Mochel JP**, Willette A. Mitochondrial Bioenergetics and Alzheimer's Disease: Pyruvate Kinase and Associations with Neural and Cognitive Outcomes (*Neurobiology of Aging*).

(113) Yuan W, Hannah LJ, (…), Allenspach-Jorn K, **Mochel JP** and Kimber MJ. Characterization of Extracellular Vesicles Released by the Gastrointestinal Nematode Parasite, *Ascaris Suum*, and Their Effects on Host Cells (*PLoS Pathogens*).

(114) Gabriel V, **Mochel JP**, Sahoo D, Jergens AE, Allenspach K. Nonalcoholic Fatty Liver Disease (NAFLD): Why to Woof and not Squeak? (*Clinical and Translational Gastroenterology*).

(115) Schneider B, Benzekry S, **Mochel JP**. A Systems Pharmacology Model to Improve Clinical Outcome in NSCLC (*Clinical Cancer Research*).

(116) Zdyrski C, Sahoo D, Bourgois-Mochel AE, Allenspach K, **Mochel JP**. Homology Directed Repair in Canine Duodenal Enteroids to Mimic the Wild-Type P-glycoprotein Mutation (*Pharmaceutics*).

(117) Allenspach K, Sahoo D, Dao, K, Zdyrski C, Bourgois-Mochel AE, , **Mochel JP**. A Canine-Specific *In Vitro* Model to Characterize Intestinal Permeability of Therapeutic Drug Candidates (*Pharmaceutics*).

(118) Gehring R, **Mochel JP**, Ronnberg H, Senel S, Schmerold I. Classification of Antimicrobials as Issued by the WHO, OIE and EMA (*Frontiers in Veterinary Science*).

(119) Smith JS, Plummer P, Ferran A, **Mochel JP**. Concurrent Use of an Immunostimulant and Antibiotic Improves Treatment Outcome in a Sheep Model of CAUTI (*Frontiers in Microbiology*).

(120) Seo YJ, Smith JS, **Mochel JP**. Pharmacokinetic Modeling of Fentanyl Citrate and Norfentanyl in Holstein Calves Using a Nonlinear Mixed-Effects Approach (*Frontiers in Veterinary Science*).

(121) Ward JL, Guillot E, Ware WA, Yuan L, **Mochel JP**. Renin-Angiotensin-Aldosterone System Activity in Cats with Systemic Hypertension or Cardiomyopathy (*Journal of Veterinary Internal Medicine*).

(122) Buseman M, Blong A, Bridgid L, Yuan L, **Mochel JP**, Walton R. Admission TP as a Predictor of RBC Transfusion Requirement: 90 dogs (*Journal of Veterinary Emergency and Critical Care*).

(123) Sherman A, Hawbecker T, Yuan L, **Mochel JP**, Mickelson MA. Short-term Complications Associated with Prophylactic Gastropexy Performed During Abdominal Exploratory for Emergency Gastrointestinal Surgery (*Veterinary Surgery*).

(124) Evans J, Ward J, Domenig O, **Mochel JP**, Creevy KE. The Use of a RAAS Profile to Diagnose Hyper-Reninism in a Cat with a Malignant Renal Neoplasm (*Journal of Veterinary Internal Medicine*).

(125) Martin RJ, Hsu W, Toutain PL, **Mochel JP**. Principles of Drug Absorption, Drug Disposition and Drug Action (Book Chapter in: Handbook of Veterinary Pharmacology).

(126) Ware W, **Mochel JP**, Ward J. Drugs Acting on the Cardiovascular System (Book Chapter in: Handbook of Veterinary Pharmacology).

(127) Jergens AE, Kopper J, **Mochel JP**, Allenspach K. Gastrointestinal Pharmacology (Book Chapter in: Handbook of Veterinary Pharmacology).

EDITORIAL ROLE

- **Guest Editor (2021)** Pharmaceutics (IF: 4.5).
  "Innovative Methods to Optimize Prediction of Oral Drug Bioavailability: More than a Gut Feeling".

- **Associate Editor (2021-22)**
  Handbook of Veterinary Pharmacology (Wiley-Blackwell), Third edition.

INVITED LECTURES

(1) **Mochel JP**. Reverse Translational Pharmacology: Paradigm Shift or Flash in the Pan. European Federation for Pharmaceutical Sciences (2021).

(2) **Mochel JP**. RAAS Modulation in Veterinary Cardiology: Which is Stronger – The Light Side or Dark Side of the Force? European College of Veterinary Internal Medicine Annual Conference (2021).

(3) Ward JL, **Mochel JP**. Effects of Cardiovascular Disease and Its Pharmacotherapy on the RAAS in Cats. American College of Veterinary Internal Medicine Forum (2021).

(4) **Mochel JP**. Model-Based Informed Drug Development in Animal Health. Dubai, United Arab Emirates University (2021).

(5) **Mochel JP**. Pharmacodynamics of ACE inhibitors in Dogs with Cardiac Disease, Proteinuria or Hypertension: When Size Matters. A Retrospective Study of 326 Cases. European College of Veterinary Internal Medicine Annual Conference (2020).

(6) **Mochel JP**. Complexity is Overrated: Back to the Basics of the Renin-Angiotensin Aldosterone System. Translational RAAS Interest Group, Las Vegas, NV (2020).

(7) **Mochel JP**. Reconciling Quantitative and Clinical Sciences in VetMed 2.0. European College of Veterinary Internal Medicine Annual Conference, Milan (2019).

(8) **Mochel JP**. Translational Pharmacology: Paradigm Shift or Flash in the Pan? AAPS PharmSci 360 Conference, Washington, D.C (2018).

(9) **Mochel JP**. Canine Organoids for Drug Testing: Moving Beyond Caco-2 Cell Systems. U.S Pharmacopeia Workshop on Drug Absorption, Rockville, MD (2018).

(10) **Mochel JP**. Translational Pharmacology: Paradigm Shift or Flash in the Pan? International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (2018).

(11) **Mochel JP**. Model-Based Approaches in Veterinary Pharmacology. Fall Seminar of the Institute of Computational Comparative Medicine (ICCM). Kansas State University, Manhattan, KS (2018).

(12) **Mochel JP**. Canine Organoids for Drug Testing: Moving Beyond Caco-2 Cell Systems. U.S Pharmacopeia Workshop on Drug Absorption, Rockville, MD (USA).

(13) **Mochel JP**. Modeling and Simulation: Shifting Gears to Accelerate Understanding of Variability in Animal and Translational Health. American Association of Veterinary Pharmacology and Therapeutics Biennial, Washington, D.C (2017).

(14) **Mochel J**. Chronopharmacology of the Renin-Angiotensin Network in Dogs. The Value of Model-Based Approaches: Some 'Food for Thought'. International Seminar Programme on Drug Innovation, Utrecht (2016).

(15) **Mochel J**. Chronopharmacology of the Renin-Angiotensin Aldosterone System in Dogs: The Value of PK/PD Modeling. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Nantes (2015).

(16) **Mochel J**. Tuning in to Body's Rhythms to Adapt Dosing Schedules. International Cardiology Advisory Board Meeting, Zurich (2013).

(17) **Mochel J**, Fink M, Peyrou M, Giraudel J, Stanski D, Danhof M. Modeling and Simulation: a Comprehensive Tool to Streamline Drug Development. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Noordwijkerhout (2012).

CONFERENCE PAPERS

2021

(1) **Mochel JP**. Reverse Translational Pharmacology: Paradigm Shift or Flash in the Pan. European Federation for Pharmaceutical Sciences (Virtual).

(2) Schneider BK, Ward J, Sotillo S, Johnson C, Guillot E, **Mochel JP**. A Quantitative Systems Pharmacology Model for Bedside Optimization of ACE Inhibitor Dose Scheduling in Veterinary Cardiology. Population Approach Group in Europe Meeting (PAGE) (Virtual).

(3) Zdyrski C, Iennarella-Servantez CA, Sahoo D, Ward J, Long EK, Gabriel V, Minkler SJ, Mao S, Bourgois-Mochel A, Jergens AE, Allenspach K, **Mochel JP**. Homology Directed Repair in Canine Duodenal Enteroids to Mimic the Wild-Type P-Glycoprotein Mutation. Digestive Disease Week (Virtual).

(4) **Mochel JP**, Ward JL. RAAS Modulation in Veterinary Cardiology: Which is Stronger – The Light Side or Dark Side of the Force? European College of Veterinary Internal Medicine Annual Conference (Virtual).

(5) Vojtech G, **Mochel JP**, Zdyrski C, Sahoo D, (…), Jergens AE, Allenspach K. First Description and Preliminary Characterization of a Microfluidic Canine Liver-on-a-Chip. European College of Veterinary Internal Medicine Annual Conference (Virtual).

(6) Ward JL, Guillot E, Domenig O, Ware W, Yuan L, **Mochel JP**. Renin-Angiotensin Aldosterone System Activity in Cats with Systemic Hypertension or Cardiomyopathy. European College of Veterinary Internal Medicine Annual Conference (Virtual).

(7) Ward JL, **Mochel JP**. Effects of Cardiovascular Disease and Its Pharmacotherapy on the RAAS in Cats. American College of Veterinary Internal Medicine Forum (Virtual).

(8) Iennarella-Servantez CA, Bedos L, Sahoo DK, Long EK, Petrovsky B, Stokes R, Zdyrski C, Gabriel V, Resop MJ, Rund LR, Mao S, Bourgois-Mochel A, Jergens AE, **Mochel JP** and Allenspach K. Effects of Macronutrient Composition on Adipose Tissue Deposition and Body Weight in Healthy Dogs Fed Westernized Diet. American College of Veterinary Internal Medicine Forum (Virtual).

(9) Iennarella-Servantez CA, Servantez JM, Yaeger MJ, Ellinwood NM, Rossoni Serao MC, **Mochel JP** and Allenspach K. Evaluation of Intestinal and System Health Effects of Dogs Fed Extruded versus Raw Meat-Based Diets. American Academy of Veterinary Nutrition (Virtual).

(10) Iennarella-Servantez CA, Kathrani A, Sahoo DK, Long EK, Zdyrski C, Gabriel V, Bedos L, Mao S, Bourgois-Mochel A, Resop MJ, Rund LR, Rossoni Serao M, Jergens AE, **Mochel JP** and Allenspach K. Colonic Epithelium Develops Proliferative Phenotype in Response to High-Fat, High-Carbohydrate Westernized Diet in Dogs. American Academy of Veterinary Nutrition (Virtual).

(11) Iennarella-Servantez CA, Kathrani A, Sahoo DK, Long EK, Zdyrski C, Gabriel V, Bedos L, Mao S, Bourgois-Mochel A, Resop MJ, Rund LR, Rossoni Serao M, Jergens AE, **Mochel JP** and Allenspach K. Diet-Induced Clinical Responsiveness of Translational Dog Model for Human Western Diet (WD)-Related Disease Research. American Society of Animal Science (Virtual).

(12) Allenspach K, Phillips GJ, Jergens AE, **Mochel JP**. Short-Term High-Fat/Low-Carbohydrate Diet in Dogs Induces Dysbiosis of the Gut Microbiota Analogous to Obesity in People. Society of Mucosal Immunology (Virtual).

(13) Gabriel V, Zdyrski C, Dao K, (…), **Mochel JP**, Allenspach K. Preliminary Characterization of Canine Hepatic Spheroids: A Potential Model For Translational Research in Gastroenterology. International Society for Stem Cell Research (Virtual).

(14) Bedos L, Gabriel V, Zdyrski C, Sahoo DK, **Mochel JP** and Allenspach K. Isolation of Canine and Feline Corneal Organoids: A New Tool for the Study and Treatment of Corneal Diseases. European College of Veterinary Ophthalmologists (Virtual).

(15) Smith JS, Ebner LS, Cremerius H, Cantrell C, (…), **Mochel JP**, Kreuder A. A Field Comparison of Two Point of Care Glucometers in Healthy Calves. International Veterinary Emergency and Critical Care Symposium (Virtual).

2020

(16) **Mochel JP**, Chou YY, Yu L, Ward J. Pharmacodynamics of ACE inhibitors in Dogs with Cardiac Disease, Proteinuria or Hypertension: When Size Matters. A Retrospective Study of 326 Cases. European College of Veterinary Internal Medicine Annual Conference (Virtual).

(17) Iennarella-Servantez CA, Gabriel V, Atherly T, (…), Bourgois-Mochel A, Jergens AE, Allenspach K, **Mochel JP**. Collection, Culture, and Characterization of Canine Healthy Bladder and Urothelial

Carcinoma Organoids: Reverse Translational Clinical Research in the Veterinary Patient. European College of Veterinary Internal Medicine Annual Conference (Virtual).

(18) Gabriel V, Iennarella-Servantez CA, Atherly T, Minkler S, Thenuwara S, Mao S, Colosimo M, Kurr L, Borcherding D, Bourgois-Mochel A, Jergens AE, **Mochel JP**, Allenspach K. Culture and Maintenance of Well-Differentiated Canine Hepatic Organoids and Urinary Bladder Organoids. European College of Veterinary Internal Medicine Annual Conference (Virtual).

(19) Allenspach K, Suchodolski J, Gabriel V, (…), Bourgois-Mochel A, Rossoni-Serrao M, **Mochel JP**. Short-Term Feeding with High-Fat Diet Induces Dysbiosis-Associated Changes of Fecal Metabolites Consistent with Changes in Serum Metabolomics in Dogs. European College of Veterinary Internal Medicine Annual Conference (Virtual).

(20) Smith JS, Kreuder AJ, Kosusnik AR, **Mochel JP**. Clinical Safety Data for the Use of Pantoprazole in Hospitalized Ruminants. American College of Veterinary Internal Medicine Forum (Virtual).

(21) Mao S, Iennarella-Servantez C, (…), Y, Seo YJ, Allenspach K, **Mochel JP** and Jergens AE. Phenotypic and Functional Characterization of Adult Intestinal Organoids from Dogs with Inflammatory Bowel Disease. American College of Veterinary Internal Medicine Forum (Virtual).

(22) Petrovsky B, Zellner E, Yuan L, **Mochel JP**, Kraus K. Retrospective Comparison of Locking and Non-locking Plating Systems on 63 Canine Ilial Body Fractures. American College of Veterinary Surgeons Summit (Virtual).

(23) Page L, Allbaugh R, **Mochel JP**, Peraza J, Bertram M, Sebbag L. Impact of Diurnal Variation, Sex, Tear Collection Method, and Disease State on Tear Protein Levels in Dogs. American College of Veterinary Ophthalmology (Virtual).

(24) Bertram M, Albaugh RA, **Mochel JP**, Peraza J, Page L, Sebbag L. Influence of Schirmer Strip Wetness on Volume Absorbed, Volume Recovered, and Total Protein Content in Canine Tears. American College of Veterinary Ophthalmology (Virtual).

(25) Kurr L, Allenspach K, (…), Ambrosini Y, Seo YJ, Jergens AE, **Mochel JP**. Harnessing The Biology of Intestinal Organoids To Accelerate Drug Discovery in Inflammatory Bowel Disease. American Society for Biochemistry and Molecular Biology (Virtual).

(26) **Mochel JP**. Complexity is Overrated: Back to the Basics of the Renin-Angiotensin Aldosterone System. Translational RAAS Interest Group, Las Vegas, NV (USA).

(27) Ward J, **Mochel JP**. Rational Dose Selection for ACE Inhibitors in Canine Heart Diseases. Translational RAAS Interest Group, Las Vegas, NV (USA).

(28) Schneider BK, Benzekry S, **Mochel JP**. A Semi-Mechanistic PK/PD Model of Bevacizumab-Cytotoxic Combination Therapy For Dosing Scheduling Optimization in Non-Small Cell Lung Cancer. Quantitative Systems Pharmacology Conference (Virtual).

(29) Borcherding D, Atherly T, Bourgois-Mochel A, Rossoni M, Kilburn L, Ambrosini Y, Perez B, Gabriel V, Lenarella-Servantez C, Mao S, Jergens AE, **Mochel JP** and Allenspach K. Polyphenols Reverse the Pathologic Effects of Palmitic Acid and High Fat Diet in Canine Enteroids. Digestive Disease Week, (Virtual). Poster of Distinction (Top 10%).

(30) Vaghi C, Rodallec A, Fanciullino R, Ciccolini J, **Mochel JP**, Mastri M, Ebos JML, Poignard C, Benzekry S. Population modeling of tumor growth curves: the reduced Gompertz model. International Symposium on Mathematical and Computational Oncology (ISMCO) (Virtual).

(31) Colosimo M, **Mochel JP**, Johannes C, Musser M, Jergens AE, Mickelson M and Allenspach K. Phenotypic, Molecular, and Functional Characterization of Canine Urothelial Organoids. Association of American Veterinary Medical Colleges (AAVMC) (Virtual).

2019

(32) Moody LM, **Mochel JP**, Soler EA, Sebbag L. Albumin in Tear Film Decreases the Bioavailability of Topical Tropicamide and Latanoprost in Dogs. American College of Veterinary Ophthalmologists, Hawaii, HI (USA).

(33) Soler EA, **Mochel JP**, Allbaugh RA, Moody LM, Sebbag L. Impact of Acute Conjunctivitis on Tear Film Dynamics, Quantity and Quality in Healthy Beagle Dogs. American College of Veterinary Ophthalmologists, Hawaii, HI (USA).

(34) Sebbag L, Yan Y, Smith JS, Allbaugh RA, Wulf LW, **Mochel JP**. Tear Fluid Pharmacokinetics Following Oral Prednisone Administration In Dogs With or Without Conjunctivitis. American College of Veterinary Ophthalmologists, Hawaii, HI (USA).

(35) Schneider BK, Boyer A, Ciccolini J, Barlesi F, Wang K, Benzekry S, **Mochel JP**. Optimal Scheduling of Bevacizumab and Pemetrexed/Cisplatin Dosing in Non-Small Cell Lung Cancer. American Conference of Pharmacometrics, Orlando, FL (USA).

(36) **Mochel JP**. Reconciling Quantitative and Clinical Sciences in VetMed 2.0. European College of Veterinary Internal Medicine Annual Conference, Milan (Italy).

(37) Ambrosini Y, Borcherding D, Atherly T, Martinez M, Jergens AE, Allenspach K, **Mochel JP**. A Novel Canine In Vitro Model for Investigation of Intestinal P-Glycoprotein-Mediated Drug Transport. European College of Veterinary Internal Medicine Annual Conference, Milan (Italy).

(38) Jergens AE, **Mochel JP**, Kilburn L, Atherly T, Bourgois-Mochel A, Borcherding D, Ambrosini Y, Allenspach K. Effect of Dietary Fat Content on Mucosal Microbiota and Serum Metabolome in Healthy Beagles. European College of Veterinary Internal Medicine Annual Conference, Milan (Italy).

(39) Glanemann B, Seo YJ, Priestnall S, Garden OA, Jergens AE, Segarra S, **Mochel JP**, Allenspach K. Clinical Efficacy of Prebiotics and Glycosaminoglycans versus Placebo In Dogs with Food Responsive Enteropathy receiving a Hydrolyzed Diet: A Pilot Study. European College of Veterinary Internal Medicine Annual Conference, Milan (Italy).

(40) Allenspach K, Jergens AE, **Mochel JP**. Use of Intestinal Organoids to Improve Predictability of Bioavailability. European College of Veterinary Internal Medicine Annual Conference, Milan (Italy).

(41) Kirner NS, **Mochel JP**, Allabugh R, Wulf L, Sebbag L. Ocular and Systemic Considerations for Topical Drug Delivery in Dogs. MAF National Veterinary Scholars Symposium, Ames, IA (USA).

(42) Mao S, Atherly T, Borcherding D, Ambrosini Y, Allenspach K, Seo YJ, **Mochel JP** and Jergens AE. Phenotypic and Functional Characterization of Adult Intestinal Organoids from Dogs with Inflammatory Bowel Disease. National Veterinary Scholars Symposium, Ames, IA (USA).

(43) Martindale A, **Mochel JP**, Hay-Kraus B, Naiman J, Seo YJ, Petrovsky B, Zellner E. Effect of Intraoperative Antibiotic Administration on Physiological Parameters in Dogs. National Veterinary Scholars Symposium, Ames, IA (USA).

(44) Borcherding D, Ambrosini Y, Atherly T, Phillips R, Hostetter J, Estes M, Fernandez-Zapico ME, Wang K, Martin M, Jergens AE, Allenspach K, **Mochel JP**. A Novel Canine Enteroid Model for Genome

Editing of Multi-Drug Resistance Proteins and Dose-Exposure Response of Chemotherapeutic Drugs. International Society for Stem Cell Research, Los Angeles, CA (USA).

(45) Nelli RK, Atherly T, Allenspach K, **Mochel JP**, Jergens AE, Gimenez-Lirola GL. Small Intestinal Enteroids on Transwells are Ideal to Study Swine Enteric Coronaviruses. International Society for Stem Cell Research, Los Angeles, CA (USA).

(46) Borcherding D, Ambrosini Y, Segarra S, Glanemann B, Garden O, Atherly T, Jergens AE, **Mochel JP**, Allenspach K. Treatment with Hydrolyzed Diet Supplemented with Prebiotics and Glycosaminoglycans Improves Abnormalities in Lipid Metabolism in a Canine Model of Inflammatory Bowel Disease. Digestive Disease Week, San Diego, CA (USA).

(47) Borcherding D, Ambrosini Y, Atherly T, Phillips R, Hostetter J, Ellinwood NM, Snella E, Estes M, Fernandez-Zapico ME, Wang K, Martin M, Jergens AE, Allenspach K, **Mochel JP**. CRISPR/CAS9-Mediated Genome Editing of Multi-Drug Resistance Proteins in a Novel Canine Enteroid Model. Digestive Disease Week, San Diego, CA (USA).

(48) Ambrosini Y, Borcherding D, Mochel JP, Atherly T, Phillips R, Hostetter J, Ellinwood NM, Snella E, Estes M, Fernandez-Zapico ME, Wang K, Martin M, Jergens AE, **Mochel JP**, Allenspach K. Molecular Response of Canine Intestinal Organoids to Gastrointestinal Nematode Extracellular Vesicles. Digestive Disease Week, San Diego, CA (USA).

(49) Borcherding D, Ambrosini Y, Atherly T, Phillips R, Hostetter J, Ellinwood NM, Snella E, Estes M, Fernandez-Zapico ME, Wang K, Martin M, Jergens AE, Allenspach K, **Mochel JP**. A Novel Canine Intestinal Organoid Model to Characterize Dose-Exposure-Response of Chemotherapeutic Drugs. Digestive Disease Week, San Diego, CA (USA).

(50) Borcherding D, **Mochel JP**, Ambrosini Y. Atherly T, Phillips R, Hostetter J, Ellinwood NM, Snella E, Estes M, Fernandez-Zapico ME, Wang K, Martin M, Jergens AE, Allenspach K. High-Fat Ketogenic Diet Decreases Serum Lipid Metabolites in Healthy Dogs. Digestive Disease Week, San Diego, CA (USA).

(51) Tinklenberg RL, Murphy SD, **Mochel JP**, Seo YJ, Mahaffey AL, Yan Y, Ward JL. Dose-Response Effects of Oral Short-Term Prednisone Therapy on Clinicopathologic and Hemodynamic Variables in Healthy Dogs. American College of Veterinary Internal Medicine Forum, Phoenix, AZ (USA).

(52) Musser M, Mahaffey AL, Fath M, Buettner G, Brett W, Schneider B, Seo YJ, **Mochel JP**, Johannes CM. In vitro Cytotoxicity and Pharmacokinetic Evaluation of Pharmacological Ascorbate in Dogs. American College of Veterinary Internal Medicine Forum, Phoenix, AZ (USA).

(53) Glanemann B, Seo YJ, Priestnall SL, Garden OA, Jergens AE, Segarra-Lopez S, **Mochel JP**, Allenspach K. Clinical Efficacy of Hydrolyzed Diet With Supplemental Prebiotics and Glycosaminoglycans versus Placebo In Canine Food Responsive Enteropathy: A Pilot Study. American College of Veterinary Internal Medicine Forum, Phoenix, AZ (USA).

(54) Ambrosini YM, Borcherding D, Atherly T, Essner J, Wierson W, Kim HY, Jergens AE, **Mochel JP***, Allenspach K*. A Novel Canine-Specific Model System to Study P-Glycoprotein-Mediated Drug Transport. *: co-corresponding author. American College of Veterinary Internal Medicine Forum, Phoenix, AZ (USA).

(55) Kathrani A, Lezcano V, Hall EJ, Jergens AE, **Mochel JP**, Atherly T, Allenspach K. Indoleamine-Pyrrole 2,3-Dioxygenase-1 (IDO-1) mRNA is Over-Expressed in the Duodenal Mucosa and is Negatively Correlated with Serum Tryptophan Concentrations in Dogs with Protein-Losing Enteropathy. American College of Veterinary Internal Medicine Forum, Phoenix, AZ (USA).

(56) Kathrani A, Lezcano V, Hall EJ, Jergens AE, Seo YJ, **Mochel JP**, Atherly T, Allenspach K. IL-13 and IL-33 mRNA are Under-Expressed in the Duodenal Mucosa of German Shepherd Dogs with Inflammatory Bowel Disease. American College of Veterinary Internal Medicine Forum, Phoenix, AZ (USA).

(57) Heinrich E, Walton R, Blong A, LeVine D, Seo YJ, **Mochel JP**, Allenspach K. Comparison of a Novel Continuous Insulin Protocol to Standard of Care Treatment for Diabetic Ketoacidosis. American College of Veterinary Internal Medicine Forum, Phoenix, AZ (USA).

(58) Musser M, Mahaffey AL, Fath M, Buettner G, Brett W, Schneider B, Seo YJ, **Mochel JP**, Johannes CM. In vitro Cytotoxicity and Pharmacokinetic Evaluation of Pharmacological Ascorbate in Dogs. ESVONC, Frankfurt (Germany).

(59) Schneider BK, Boyer A, Ciccolini J, Barlesi F, Wang K, Benzekry S, **Mochel JP**. Simulation-based Optimization of Bevacizumab-Pemetrexed/Cisplatin Combination Therapy in Non-Small Cell Lung Cancer. Population Approach Group in Europe (PAGE) Meeting, Stockholm (Sweden).

(60) Seo YJ, Kanthasamy AG, Allenspach K, de Lange ECM, **Mochel JP**. Physiologically-Based Pharmacokinetic (PBPK) Model for the Prediction of Levodopa (L-dopa) Disposition in Plasma and Various Brain Compartments Across Species. Population Approach Group in Europe (PAGE) Meeting, Stockholm (Sweden).

(61) Allenspach K, Atherly T, Borcherding D, Ambrosini Y, Jergens AE, Kilburn L, Bourgois-Mochel A, Rossoni-Serrao M, **Mochel JP**. High-Fat Diet Increases Stemness of Intestinal Epithelial Cells and Induces Dysbiosis of the Mucosal-Adherent Microbiome in Dogs. International Congress of Mucosal Immunology, Brisbane (Australia).

2018

(62) **Mochel JP**. Translational Pharmacology: Paradigm Shift or Flash in the Pan? AAPS PharmSci 360 Conference, Washington, D.C (USA).

(63) **Mochel JP**, Jergens AE, Borcherding D, Ambrosini Y, Fernandez-Zapico M, Kim HY, Allenspach K. Canine Organoids for Drug Testing: Moving Beyond Caco-2 Cell Systems. U.S Pharmacopeia Workshop on Drug Absorption, Rockville, MD (USA).

(64) Smith JS, **Mochel JP**. Treatment of Cerebrospinal Nematodiasis in Boer Goats Utilizing a Camelid Therapy Protocol. Neurosciences Research Day, Ames, IA (USA).

(65) Sebbag L, Showman L, McDowell E, Perera A, **Mochel JP**. Impact of Tear flow, Collection Devices and Extraction Methods on Tear Concentrations Following Oral Administration of Doxycycline in Dogs and Cats. American College of Veterinary Ophthalmologists, Minneapolis, MN (USA).

(66) Sebbag L, Allbaugh RA, Wehrman RF, Uhl L, Chen T, Seo YJ, **Mochel JP**. Fluorophotometric Assessment of Tear Volume and Turnover Rate in Healthy Brachycephalic and Non-Brachycephalic Dogs and Cats. American College of Veterinary Ophthalmologists, Minneapolis, MN (USA).

(67) Sebbag L, Weaver A, Allbaugh RA, Seo JY, Vogel J, **Mochel JP**. A Novel *In Vivo* Model of Conjunctivitis in Dogs. American College of Veterinary Ophthalmologists, Minneapolis, MN (USA).

(68) Uhl L, Saito A, Iwashita H, Maggs DJ, **Mochel JP**, Sebbag L. Feline Dry Eye Syndrome: Ten Cases (2006 - 2018). American College of Veterinary Ophthalmologists, Minneapolis, MN (USA).

(69) Uhl L, **Mochel JP**, Hayes B, Olds J, Schneider B, Sebbag L. Is Schirmer Tear Test-1 Reliable in the General Feline Population? American College of Veterinary Ophthalmologists, Minneapolis, MN (USA).

(70) Allbaugh RA, (…), **Mochel JP**, Borts DJ. Evaluation of Voriconazole Concentrations in Equine Tears Following Subconjunctival Injection of Concentrated Antifungal Combined with Thermosensitive Poloxamer Gel. International Equine Ophthalmology Consortium, Reykjavik (Iceland).

(71) Lerch M, Allbaugh RA, Sebbag L, **Mochel JP**, Borts D. Paper Spray High-Resolution Accurate Mass Spectrometry for Quantitation of Voriconazole in Equine Tears and Plasma. American Society for Mass Spectrometry Conference, San Diego, CA (USA).

(72) Sebbag L, McDowell EM, Hepner PM, **Mochel JP**. Effect of Tear Collection on Lacrimal Total Protein Content in Dogs and Cats. European College of Veterinary Ophthalmologists, Florence (Italy).

(73) **Mochel JP**, Jergens AE, (…), Kim HJ, Allenspach K. Canine Organoids for Drug Efficacy and Safety Testing: An Innovative Preclinical Model For Drug Development. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (Poland).

(74) Smith JS, Borts D, Coetzee JF, Ayral G, **Mochel JP**. Pharmacokinetic Modeling of Fentanyl Citrate and Norfentanyl in Holstein Calves Using a Nonlinear Mixed-Effects Approach. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (Poland).

(75) Sebbag L, Showman L, McDowell E, Perera A, **Mochel JP**. A Comparison of Schirmer Strips and Ophthalmic Sponges for Quantifying Doxycycline in Tear Fluid of Dogs and Cats Following Oral Drug Administration. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (Poland).

(76) Schneider B, Wang K, Fernandez-Zapico M, Benzekry S, **Mochel JP**. Measurement Error Modeling of Tumor Volume in a Xenograft Mouse Model of Non-Small Cell Lung Cancer. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (Poland).

(77) **Mochel JP**, Jergens AE, Troconiz I, Balbas V, Benzekry S, Wang K, Fernandez-Zapico M, Allenspach K. Reverse Translational Pharmacology: Paradigm Shift or Flash in the Pan? International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (Poland).

(78) Smith JS, Slagel C, Borts D, Ferran A, Bousquet-Melou A, Plummer P, **Mochel JP**. Pharmacodynamics of Ertapenem With and Without Concurrent Use of an Immunostimulant Using an Induced Cystitis Model in Sheep. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (Poland).

(79) Smith JS, **Mochel JP**, Borts D, Griffith R. Pharmacokinetics of Tulathromycin in Healthy Goats and Goats with Induced *Pasteurella Multocida* Pneumonia. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Wroclaw (Poland).

(80) Atherly T, Allenspach K, **Mochel JP**, Jergens AE. Glucocorticoid Effects on Microbial Community Structure in Canine Inflammatory Bowel Disease. European College of Veterinary Internal Medicine Congress, Rotterdam (Netherlands).

(81) Allenspach K, **Mochel JP**, Chandra L, Atherly T, (…), Wang K, Martin M, Jergens AE. Expression of Prostaglandin EP4 Receptor in Canine Jejunum and Enteroids Derived from Healthy Dogs. European College of Veterinary Internal Medicine Congress, Rotterdam (Netherlands).

(82) Kingsbury D, **Mochel JP**, Atherly T, Chandra L, Philips R, Hostetter J, Wannemuehler M, Jergens AE, Allenspach K. Comparison of Endoscopically (Egd/Colo) Procured Enteroids and Colonoids from Normal Dogs and Dogs with Naturally Occurring Chronic Enteropathies (IBD). Digestive Disease Week (DDW), Washington, D.C (USA).

(83) Allenspach K, **Mochel JP**, Kingsbury D, (…), Snella L, Estes M, Martin M, Jergens AE. Functional Characterization of Enteroids/Colonoids From Endoscopically Obtained Biopsies in Healthy and Diseased Dogs. American College of Veterinary Internal Medicine Forum, Seattle, WA (USA).

(84) Allenspach K, **Mochel JP**, Kingsbury D, Chandra L, Atherly T, Bourgois-Mochel A, Borcherding D, Yuan W, Kimber M, Philips R, Hostetter J, Wannemuehler M, Ellinwood NM, Snella L, Jergens AE. Characterization of Paneth-like Cells in the Canine Small Intestine. American College of Veterinary Internal Medicine Forum, Seattle, WA (USA).

(85) Smith JS, **Mochel JP**, Schneider B, Borts D, Griffith RW. Pharmacokinetics of Tulathromycinin Goats with Experimentally-Induced Respiratory Disease. American College of Veterinary Internal Medicine Forum, Seattle, WA (USA).

(86) Van Vertloo L, Guard B, Allenspach K, **Mochel JP**, Park SY, Chandra L, Jergens AE, Suchodolski J. Microbiota-Related Changes in Fecal Bile Acid Metabolism Are Associated With Diabetes Mellitus in Dogs. American College of Veterinary Internal Medicine Forum, Seattle, WA (USA).

(87) Khelik I, Berger DJ, **Mochel JP**, Palerme JS, Ware W, Ward JL. Clinicopathologic, Hemodynamic, and Echocardiographic Effects of Anti-Inflammatory Glucocorticoids in Systemically Healthy Cats. American College of Veterinary Internal Medicine Forum, Seattle, WA (USA).

(88) Schneider B, Boyer A, Ciccolini J, (…), Benzekry S, **Mochel JP**. Modeling Primary Tumor Growth in Xenograft Mouse Model of Non-Small Cell Lung Cancer Treated With Pemetrexed-Cisplatin and Bevacizumab. Population Approach Group in Europe (PAGE) Meeting, Montreux (Switzerland).

(89) Yan Y, **Mochel JP**, Allbauch R, Wulf L, Borts DJ, Sebbag L. Tear Fluid Pharmacokinetics Following Oral Prednisone. ISU College of Veterinary Medicine Summer Symposium, Ames, IA (USA).

(90) Lezcano V, Jergens AE, Atherly T, Chandra L, Borcherding D, Seo YJ, **Mochel JP**, Kanthrani A, Allenspach K. mRNA Expression of Th2 Cytokines Differs in Duodenal Mucosa of Healthy and Diseased Dogs. ISU College of Veterinary Medicine Summer Symposium, Ames, IA (USA).

(91) Lerch M, Albauch R, Sebbag L, **Mochel JP**, Borts DJ. Quantitation of Voriconazole in Equine Tears and Plasma via Paper Spray High-Resolution Accurate Mass Spectrometry. ISU College of Veterinary Medicine Winter Symposium, Ames, IA (USA).

(92) Allenspach K, Chandra L, **Mochel JP**, Jergens A. Targeting IL-1 beta; Translational Inflammatory Bowel Disease Research. ISU College of Veterinary Medicine Winter Symposium, Ames, IA (USA).

2017

(93) Kingsbury D, Sun L, Qi Y, Fredericks J, Wang Q, Wannemuehler M, **Mochel J**, Jergens A, Allenspach K. Optimizing the Development and Characterization of Canine Small Intestinal Crypt Enteroids as a Research Model. International Society for Stem Cell Research Annual Meeting, Boston, MA (USA).

(94) Kingsbury D, Sun L, Qi Y, Fredericks J, Wang Q, Wannemuehler M, **Mochel J**, Jergens A, Allenspach K. Optimizing the Development and Characterization of Canine Small Intestine Crypt Enteroids as a Research Model. International Congress of Mucosal Immunology, Washington, D.C (USA).

(95) Balbas-Martinez V, Allenspach K, Kingsbury D, Jergens AE, Troconiz I, **Mochel JP**. One Health: Translational and Reverse Translational Modeling of Inflammatory Bowel Disease using an advanced Boolean Network. Population Approach Group in Europe (PAGE) Meeting, Budapest (Hungary).

(96) Smith JS, **Mochel JP**, Borts D, Haymond K, Schleining J, Coetzee JF. Pharmacokinetics of Fentanyl and Fentanyl Transdermal Patches in healthy and hospitalized Calves. American College of Veterinary Internal Medicine Forum, Washington, D.C (USA).

(97) **Mochel JP**. Modeling and Simulation: Shifting Gears to Accelerate Understanding of Variability in Animal and Translational Health. American Association of Veterinary Pharmacology and Therapeutics Biennial, Washington, D.C (USA).

(98) Kingsbury D, Fredericks J, Qi Y, Wang Q, Wannemuehler M, **Mochel J**, Jergens A, Allenspach K. Watch It Grow. The Original Dog Mini-Gut. ISU College of Veterinary Medicine Winter Symposium, Ames, IA (USA).

(99) Allenspach K, **Mochel JP**, Du Y, Priestnall S, Moore F, Slaytor M, Rodrigues A, Day M, Ackermann M, Krockenberger M, Mansell J, WSAVA GI Standardization Working Group, Suchodolski J, Berghoff N, Jergens AE. Correlating Gastrointestinal Histopathologic Findings to Clinical Disease Activity in Dogs with Idiopathic Inflammatory Bowel Disease. European College of Veterinary Internal Medicine Conference, Malta (Italy).

(100) Allenspach K, **Mochel JP**, Suchodolski J, Jergens AE. Specific Virulence Factors in Mucosa-Associated E. coli of Dogs With Inflammatory Bowel Disease (IBD) Predict Survival. European College of Veterinary Internal Medicine Congress, Malta (Italy).

(101) Sebbag L, Harrington D, **Mochel JP**. Tear Fluid Collection in Dogs and Cats Using Ophthalmic Sponges. American College of Veterinary Ophthalmologists Conference, Baltimore, MA (USA).

(102) **Mochel JP**, Kingsbury D, Jergens AE, Allenspach K. Using Canine Intestinal Stem Cells to Advance Drug Development, Precision and Regenerative Medicine. ISU Faculty Research Symposium, Ames, IA (USA).

(103) Smith JS, Zwueste D, Beahm A, Siegel K, **Mochel JP**, Winger K. Neurologic Diseases of Miniature Companion Pigs: 19 Cases (2000-2015). ISU Neuroscience Symposium, Ames, IA (USA).

(104) Rowen NM, **Mochel JP**, Gannon M, Nelson M, LeVine DN. Regulation of Canine Neutrophil Extracellular Trap Formation by Immune-Mediated Hemolytic Anemia Therapeutics. BIVI-NIH National Veterinary Scholars Symposium, Ames, IA (USA).

(105) Hepner P, Sebbag L, Allbaugh R, Showman L, Perera A, Strong T, **Mochel JP**, Wiggans T, Maggs D. Metabolomics and Biochemical Analysis of Tears in Healthy Cats and in Cats Affected With Corneal Sequestrum. Merial-NIH National Veterinary Scholars Symposium, Ames, IA (USA).

(106) Slagel C, Smith JS, **Mochel JP**, Plummer P. Concurrent Use of an Immunostimulant and Antibiotic Improves Treatment Outcome in a Sheep Model of Catheter-Associated Urinary Tract Disease Due to Pseudomonas Aeruginosa. BIVI-NIH National Veterinary Scholars Symposium, Ames, IA (USA).

(107) McDowell W, **Mochel JP**, Showman L, Perera A, Hepner P, Sebbag L. Effect of Tear Collection Method on Total Protein Content and Drug Concentration in Tear Fluid of Dogs and Cats. NIH National Veterinary Scholars Symposium, Ames, IA (USA).

2016

(108) **Mochel J**, Danhof M. Pharmacodynamics of the Renin-Angiotensin Aldosterone System and Blood Pressure in Relation to Food Intake in Dogs. Population Approach Group in Europe (PAGE) Meeting, Lisbon (Portugal).

(109) **Mochel J**. Chronopharmacology of the Renin-Angiotensin Network in Dogs. The Value of Model-Based Approaches: Some 'Food for Thought'. International Seminar Programme on Drug Innovation, Utrecht (Netherlands).

2015

(110) **Mochel J**, Seewald W, Danhof M. Pharmacokinetics of the Angiotensin Receptor-Neprilysin Inhibitor LCZ696 in Furosemide-Treated Dogs. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Nantes (France).

(111) **Mochel J**, Peyrou M, Giraudel J, Danhof M. First-In-Class Angiotensin Receptor-Neprilysin Inhibitor LCZ696 Markedly Influences the Dynamics of Circulating cGMP and Biomarkers of the Renin-Angiotensin Aldosterone System in Dogs. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Nantes (France).

(112) **Mochel J**. Chronopharmacology of the Renin-Angiotensin Aldosterone System in Dogs: The Value of PK/PD Modeling. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Nantes (France).

(113) Bieth B, Bornkamp B, Toutain C, Garcia R, **Mochel J**. Model-Based Dose-Response Analysis of Furosemide Effect on the Renin-Angiotensin Cascade and Diuresis in Dogs. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Nantes (France).

(114) Pelligand L, **Mochel J**. Monte Carlo Simulations and their Application in Veterinary Medicine. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Nantes (France).

(115) Pelligand L, Soubret A, King JN, Elliot J, **Mochel J**. Simultaneous Intravenous and Subcutaneous Population Modelling of Robenacoxib Disposition Kinetics in Cats. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Nantes (France).

(116) **Mochel J**, Bornkamp B, Bieth B. Evaluating the Dose-Response Relationship of Furosemide on Diuresis and RAAS Activation in Dogs Combining Multiple Comparisons and Modeling Techniques. Population Approach Group in Europe (PAGE) Meeting, Hersonissos (Greece).

(117) Pelligand L, Renard D, Soubret A, King JN, Elliot J, **Mochel J**. Modeling of Pharmacokinetic Data Using Nonlinear Mixed-Effects: A Paradigm Shift in Veterinary Pharmacology. A Case Study with the Nonsteroidal Anti-Inflammatory Robenacoxib in Cats. Population Approach Group in Europe (PAGE) Meeting, Hersonissos (Greece).

2014

(118) **Mochel J**, Burkey B, Fink M, Garcia R, Peyrou M, Giraudel J, Renard D, Danhof M. First- In-Class Angiotensin Receptor Neprilysin Inhibitor LCZ696 Modulates the Dynamics of the Renin Cascade and Natriuretic Peptides System with Significant Reduction of Aldosterone Exposure. Annual Scientific Session of the American College of Cardiology, Washington, D.C (USA).

(119) **Mochel J**, Renard D, Fink M, Danhof M. Daily Variations of Renin, Urinary Electrolytes and Blood Pressure are Driven by Food Intake in Dogs. Symposium on Pharmacokinetics, Pharmacodynamics and Systems Pharmacology, Noordwijkerhout (Netherlands).

2013

(120) Fink M, **Mochel J**, Gabrielsson J, Gehring R, Laffont C, Pelligand L, Steimer JL, Toutain PL, Whittem T, Riviere J. Animal Health Modeling & Simulation Society (AHM&S): A New society Promoting Model-Based Approaches for a Better Integration and Understanding of Quantitative Pharmacology in Veterinary Sciences. Population Approach Group in Europe (PAGE) Meeting, Glasgow (UK).

(121) **Mochel J**, Fink M, Peyrou M, Desevaux C, Deurinck M, Danhof M. Chronobiology of the Renin-Angiotensin-Aldosterone System in Dogs: Relation to Blood Pressure and Renal Physiology. Population Approach Group in Europe (PAGE) Meeting, Glasgow (UK).

(122) **Mochel J**. Tuning in to Body's Rhythms to Adapt Dosing Schedules. International Cardiology Advisory Board Meeting, Zurich (Switzerland).

2012

(123) **Mochel J**, Fink M, Peyrou M, Giraudel J, Danhof M. Using Nonlinear Mixed Effects Modeling to Characterize the Pharmacokinetics and Pharmacodynamics of Benazepril in Dogs. Population Approach Group in Europe (PAGE) Meeting, Venice (Italy).

(124) **Mochel J**, Fink M, Peyrou M, Desevaux, Deurinck M, Danhof M. Capturing the Diurnal Changes in Renin Activity and Blood Pressure to Streamline Drug Therapy of RAAS-Related Disorders in Dogs. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Noordwijkerhout (Netherlands).

(125) **Mochel J**, Fink M, Peyrou M, Giraudel J, Danhof M. Population PK/PD Modeling of Benazepril-Induced RAAS Inhibition Using Nonlinear Mixed Effects. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Noordwijkerhout (Netherlands).

(126) **Mochel J**, Fink M, Peyrou M, Giraudel J, Stanski D, Danhof M. Modeling and Simulation: a Comprehensive Tool to Streamline Drug Development. International Congress of the European Association of Veterinary Pharmacology and Toxicology, Noordwijkerhout (Netherlands).

(127) **Mochel J**, Strehlau G, Mohamed R, Peyrou M. Dynamics of the Renin-Angiotensin-Aldosterone System (RAAS) After Oral Administration of Benazepril in Dogs. American College of Internal Medicine Forum, Denver, CO (USA).

CREATIVE WORKS

Software Development

(1) Schneider BKS, **Mochel JP**. Live Simulator of Non-Small Cell Lung Cancer Dynamics for Varied Administration Schedules of Bevacizumab: https://chart-studio.plotly.com/~Benjamin-PKPD/17/#/.

(2) Schneider BKS, **Mochel JP**. Live Simulator of Benazeprilat Pharmacokinetics and Pharmacodynamic Response as a Function of ACE inhibitor Dose Scheduling: https://benjamin-pkpd.shinyapps.io/bz_calculator_alpha/.

(3) Schneider BKS, **Mochel JP**. Bedside Calculator of Schirmer Tear Test (STT1) Value in Veterinary Ophthalmology: https://benjamin-pkpd.shinyapps.io/stt-calculator/.

Entrepreneurship

LifEngine Animal Health (LEAH) Lab, Inc

- Role: Founder and Consultant
- Mission: LEAH develops new cell-based therapies using proprietary CellSmith technology targeting homologous cancers (e.g., B-Cell Lymphoma) in dogs and human patients
- Milestones:
    - 2018: Y Combinator accelerator ($150,000)
    - 2020: NSF SBIR Phase I ($275,000)
    - 2020: Bioscience Seed Grant, ISU VPR ($34,000)
    - Angel investment: > $800,000

3D Health Solutions, Inc

- Role: Founder and Chief Operating Officer
- Mission: 3DHS provides a platform for efficient drug screening in pharmaceutical research
- Milestones:
    - 2019: NSF SBIR Phase I ($275,000)
    - 2019: Iowa Innovation Corporation ($50,000)
    - 2020: Winner, John Pappajohn Iowa Entrepreneurial Venture Competition ($40,000)
    - 2020: VentureNet Iowa Proof of Commercial Relevance ($25,000)
    - 2020: Regents Innovation Fund ($50,000)
    - 2021: Winner, Iowa Biotech Showcase Competition ($10,000)

Expertise in IP Litigation

- 2020-2021: Pharmacokinetic Expert Report. Opposition Proceedings before the European Patent Office (EPO) and involving patent EP2164496 in the name of Bayer Intellectual Property GmbH (hereinafter Bayer). Spanish Court.

- 2020: Pharmacokinetic Expert Report. Opposition Proceedings before the European Patent Office (EPO) and involving patent EP2164496 in the name of Bayer Intellectual Property GmbH (hereinafter Bayer). UK Court.

- 2021: Pharmacokinetic Expert Report. Legal proceedings before Spanish Courts involving Spanish national portion of European patent EP2928454-B1.

COLLABORATIVE RESEARCH

Since the beginning of my tenure at Iowa State, I have provided mathematical and statistical support to more than 70 different projects with the overall objective to streamline clinical research at the College of Veterinary Medicine. In particular, and as reflected in my publication log, I have collaborated closely with multiple Faculty from the VCS and VDPAM department, including Drs. Ward (Cardiology), Johannes/Musser (Oncology), Berger (Dermatology), Jergens (Gastroenterology) and Gorden (Clinical Pharmacology), among others. A tabulated summary of completed and ongoing collaborative research projects between 2017 and 2021, including role and outcome is provided below.

Completed Research Projects

Year	Project Title	PI Name	Role	Outcome
2017-18	Fentanyl and Norfentanyl Pharmacokinetics in Calves	Smith	Pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publications and abstracts (EAVPT, ACVIM)
2017-18	Effect of Tear Collection on Lacrimal Total Protein Content	Sebbag	Study design, manuscript preparation	Peer-reviewed publication and abstracts (EAVPT, ECVO)
2017-18	Subconjonctival Formulation of Concentrated Voriconazole with Thermosensitive Polaxamer Gel	Allbaugh	Study design, statistical data analysis, abstract preparation	Peer-reviewed publications and abstracts (ASMS, IEOC)
2017-18	Amoxicillin and Clavulanic Acid Relative Bioavailability Study	Berger	Statistical data analysis, manuscript preparation	Peer-reviewed publication
2017-18	Prednisolone Therapy and Cardiovascular Outcomes in Cats	Ward	Statistical data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVIM)
2017-18	Correlating Gastrointestinal Histopathologic Changes to Clinical Disease Activity in Dogs	Jergens	Statistical data analysis, manuscript preparation	Peer-reviewed publication and abstract (ECVIM)
2017-18	Clinical Features of Cats with Aqueous Tear Deficiency	Sebbag	Study design, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2017-18	Impact of Flow Rate, Collection Devices, and Extraction Methods on Doxycycline Pharmacokinetics in Tears	Sebbag	Study design, manuscript preparation	Peer-reviewed publication and abstract (ACVO)

2017-18	Tear Fluid Collection in Dogs and Cats Using Ophthalmic Sponges	Sebbag	Study design, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2017-18	Plasma and Interstitial Fluid Pharmacokinetics and Tissue Residues of Ceftiofur Crystalline-Free Acid in Cattle with Induced Coliform Mastitis	Gorden	Pharmacokinetic support, manuscript preparation	Peer-reviewed publication
2017-18	Intranasal Naloxone as a Potential Antidote for Fentanyl Toxicosis	Blong	Study design, statistical data analysis	Pilot clinical trial
2017-18	Florfenicol Pharmacokinetics in Cattle	Gorden	Pharmacokinetic data analysis	Internal report
2017-18	Moxidectin Pharmacokinetics in Ewes	Coetzee	Pharmacokinetic data analysis	Internal report
2017-19	Neutrophil Extracellular Traps' (NET) Role in Thrombosis	LeVine	Study design, statistical support, MAF grant preparation	MAF grant application and abstract (BIVI-NIH)
2017-19	Second Genome SGM-1019 P2X7 Antagonist for the Treatment of IBD	Allenspach	Study design, mathematical modeling, review of toxicology data	Peer-reviewed publication and abstract (PAGE)
2018-19	Fluorophotometric Assessment of Tear Volume and Turnover Rate in Healthy Dogs and Cats	Sebbag	Study design, mathematical modeling, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2018-19	Comparative Genetics of IBD in Dogs and Humans	Jernigan	Study design, NIH grant preparation	NIH R01 grant application
2018-19	Prednisolone Therapy and Cardiovascular Outcomes in Dogs	Ward	Study design, statistical data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVIM)
2018-19	Fluorescein Disposition Kinetics in Companion Animals	Sebbag	Study design, mathematical modeling, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2018-19	Experimental Conjunctivitis Model in Dogs	Sebbag	Study design, statistical data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVO)

2018-19	Glucocorticoids Therapy in Dogs with IBD and its Effect on the Gut Microbiota	Jergens	Statistical data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2018-19	Gut Microbial Changes in Dogs with Diabetes mellitus	Jergens	Statistical data analysis, manuscript preparation	Peer-reviewed publication and abstract (ECVIM)
2018-19	Metabolomic Changes Following High-Fat Low-Carbohydrate Diet in Dogs	Allenspach	Statistical data analysis, manuscript preparation	Peer-reviewed publication and abstract (ECVIM)
2018-19	Vitacoxib Pharmacokinetics in Dogs	Wang	Pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication
2018-19	Lidocaine Pharmacokinetics in Dogs	Hay-Kraus	Pharmacokinetic data analysis	Internal report
2018-19	Pharmacokinetics of Ertapenem in Sheep with Experimentally Induced Urinary Tract Infection	Smith	Study design, pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication and abstract (ECVPT)
2018-19	Evaluation of Toceranib Phosphate for the Treatment of Gastrointestinal Stromal Tumors in Dogs	Berger	Pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication
2018-20	Flunixin Pharmacokinetics in Swine	Kittrell	Study design, pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication
2018-20	Specific Virulence Factors in Mucosa-Associated E. coli of Dogs With IBD	Allenspach	Statistical data analysis, manuscript preparation	Peer-reviewed publication (pending) and abstract (ECVIM)
2019-20	Pharmacokinetics of Levodopa Following Dosing with Engineered Probiotics in Dogs	Kanthasamy/ Mochel	Study design, study execution, data analysis, manuscript preparation	NIH U01 grant submission
2019-20	Bupivacaine Pharmacokinetic Modeling in Horses	Le	Study design, pharmacokinetic modeling	Internal report
2019-20	Prednisolone Dose-Response Modeling	Ward	Study design, data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVIM)

2019-20	Echocardiography Measures in Estrus and Pregnancy	Ward	Study design, statistical data analysis, manuscript preparation	Peer-reviewed publication
2019-20	Ceftiofur Pharmacokinetic Modeling in Dogs	Wang	Study design, data analysis, manuscript preparation	Peer-reviewed publication
2019-20	Clinical Efficacy of Prebiotics and Glycosaminoglycans in Dogs with IBD	Allenspach	Statistical data analysis	Abstract (ECVIM) and peer-reviewed publication
2019-20	Prognostic Factors and Treatment Options for Presumed or Confirmed Canine Aortic Body Chemodectomas	Coto	Statistical data analysis, manuscript preparation	Peer-reviewed publication
2019-20	Ascorbate Pharmacokinetics and Pharmacodynamics in Healthy Beagle Dogs	Musser	Study design, statistical data analysis, manuscript preparation	Peer-reviewed publication and abstracts (ACVIM, ESVONC)
2019-20	Pharmacokinetics of Topical Drug Delivery	Sebbag	Study design, pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2019-20	Tear Fluid Pharmacokinetics Following Oral Prednisone Administration in Dogs	Sebbag	Study design, pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2019-20	Impact of Albumin Levels in Tear Film on Drug Bioavailability	Sebbag	Study design, pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2019-20	Mathematical Modeling of Schirmer Tear Test Data for Building Prediction Intervals in Cats	Sebbag	Study design, mathematical modeling, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2019-20	Assessment of Two Immunoassays and Selected Ocular Parameters Following a Nicergoline Challenge	Sebbag	Study design, manuscript preparation	Peer-reviewed publication
2019-20	Histamine-Induced Conjunctivitis and Breakdown of Blood-Tear Barrier in Dogs	Sebbag	Study design, statistical data analysis, manuscript preparation	Peer-reviewed publication

2019-20	Gompertz Modeling of Tumor Growth	Benzekry	Manuscript preparation	Peer-reviewed publication and abstract (ISMCO)
2019-20	Retrospective Clinical Investigation of the Toxicity and Adverse Effects of Pantoprazole in Hospitalized Ruminants	Smith	Data analysis, manuscript preparation	Peer-reviewed publication
2019-20	Tulathromycin Efficacy for the Prevention of Campylobacter-Induced Abortions in Sheep	Yaeger	Study design, pharmacokinetic data analysis, manuscript preparation	Peer-reviewed publication (under review)
2020-21	Benazeprilat Pharmacokinetic-Pharmacodynamic Modeling (PKPD) in Dogs	Ward/ Mochel	Study design, PKPD modeling	Industry-funded trial, abstract (PAGE) and manuscript in preparation
2020-21	Dose-Response Relationship Between ACE Inhibitors and Long-Term Outcome in Dogs with Cardiac Disease	Ward/ Mochel	Data analysis, manuscript preparation	Peer-reviewed publication and abstracts (ACVIM, ECVIM)
2020-21	Point-Of-Care Ultrasound in Dogs with Cardiac Disease	Ward	Data analysis, manuscript preparation	Peer-reviewed publication
2020-21	Impact of Acute Conjunctivitis on Ocular Surface Homeostasis in Dogs	Sebbag	Study design, data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2020-21	Serum Albumin and Total Protein Concentration in the Tear Film of Horses with Healthy or Diseased Eyes	Sebbag	Study design, data analysis, manuscript preparation	Peer-reviewed publication and abstract (ACVO)
2020-21	Prednisolone Ocular Pharmacokinetics in Dogs	Sebbag	Study design, data analysis, manuscript preparation	Peer-reviewed publications
2020-21	Pharmacodynamic Effects of Cefazolin on Cardiovascular Parameters in Dogs	Zellner	Statistical data analysis	Peer-reviewed publication in preparation
2020-21	Factors Influencing the Outcome of Ilial Fractures in Dogs	Petrovsky	Statistical data analysis	Peer-reviewed publication

2020-21	Evaluation of Intraoperative Culture Results in Abdominal Surgeries in Dogs and Cats	Zellner	Statistical data analysis	Peer-reviewed publication in preparation
2020-21	The Effect of Prazosin on Feline Recurrent Urethral Obstruction	Zellner/ Hanson	Statistical data analysis	Peer-reviewed publication
2020-21	Characteristics of Optimum Implantation Corridors in Vertebral Bodies	Schmitt	Statistical data analysis	Peer-reviewed publication
2020-21	Telmisartan Pharmacokinetic Modeling in Cats	Pozniak	Pharmacokinetic modeling	Peer-reviewed publication in preparation
2020-21	Hollow Fiber Modeling of Ertapenem Pharmacokinetics	Smith	Study design, data analysis	Peer-reviewed publication in preparation
2020-21	Meloxicam Efficacy Modeling in Cattle	Warner	Study design, data analysis, manuscript preparation	Peer-reviewed publication
2020-21	Preliminary Evaluation of a Pasteurella Multocida Respiratory Disease Induction Model for Goats	Smith	Study design, data analysis, manuscript preparation	Peer-reviewed publication
2020-21	Evaluation of Select Serum Biomarkers for IBD Diagnosis	Allenspach	Data analysis	Industry-sponsored study
2020-21	Proof-of-Concept In Vivo Evaluation of the Effect of Candidate Probiotics on Canine Intestinal Health	Allenspach	Study design, data analysis	Industry-sponsored trial
2020-21	Pharmacokinetics, Efficacy and Safety of Pantoprazole in Ruminants	Smith	Study design, data analysis, manuscripts preparation	Peer-reviewed publications and AABP grant application
2020-21	Retrospective Comparison of a Novel Continuous Insulin Infusion Protocol to Standard Of Care Treatment for Diabetic Ketoacidosis in Dogs	Levine	Data analysis, manuscripts preparation	Peer-reviewed publication under review
2020-21	Retrospective Comparison of Outcomes in Septic Peritonitis With or Without Closed-Suction Abdominal Drainage in 115 Dogs	Walton	Data analysis, manuscripts preparation	Peer-reviewed publication under review

Ongoing Research Projects				
Year	**Project Title**	**PI Name**	**Role**	**Outcome**
2021-	Point-Of-Care Ultrasound in Cats with Cardiac Disease	Ward	Data analysis, manuscript preparation	Peer-reviewed publication in preparation
2021-	RAAS Activity in Cats with Systemic Hypertension or Cardiomyopathy	Ward/ Mochel	Data analysis, manuscript preparation	Peer-reviewed publication in preparation; industry-sponsored trial
2021-	RAAS Activity in Cats with Systemic Hypertension or Cardiomyopathy	Ward/ Mochel	Data analysis, manuscript preparation	Peer-reviewed publication in preparation; industry-sponsored trial
2021-	Risk Factors for Acute Kidney Injury in Dogs Receiving Parenteral Furosemide	Ward/ Mochel	Data analysis, manuscript preparation	Peer-reviewed publication in preparation
2021-	Pharmacokinetics of CBD in Livestock	Gorden	Data analysis, manuscript preparation	Peer-reviewed publication in preparation
2021-	Effect of a Candidate Probiotic Using a High-Fat Diet Model	Allenspach	Study design	Ongoing industry-sponsored trial
2021-	Complications Associated with Prophylactic Gastropexy	Sherman	Data analysis, manuscript preparation	Peer-reviewed publication in preparation
2021-	Anesthesia-Associated Complications in Brachycephalic Dogs	Petrovsky	Data analysis	Statistical analysis ongoing
2021-	Population Pharmacokinetics of Ivermectin in Heifers	Gorden	Data collection, mining and analysis	Pharmacokinetic analysis ongoing
2021-	Total Protein as a Predictor of RBC Transfusion Requirement in Dogs	Walton	Data analysis, manuscript preparation	Peer-reviewed publication in preparation
2021-	A Novel Continuous Insulin Infusion Protocol for DKI	Levine	Study design and statistical support	Study ongoing
2021-	Prevalence of Anticoagulant-Related Bleeding in Dogs	Walton	Study design and statistical support	Data collection ongoing
2021-	Lidocaine/Morphine Epidural Anesthesia and Outcome	Murphy	Study design and statistical support	Data collection ongoing
2021-	Efficacy of Palladia on Feline Pancreatic Carcinoma	Johannes	Data analysis, manuscript preparation	Statistical analysis ongoing
2021-	Ketorolac-Associated Gastrointestinal Bleeding	Van Vertloo	Data analysis, manuscript preparation	Statistical analysis ongoing

FUNDING SUPPORT

Total funding awarded as Lead Investigator or Co-Investigator (01/01/2017-06/01/2021): ***$6,197,946***

CURRENT SUPPORT

Principal Investigator or Co-Principal Investigator

Total (current/completed) funding awarded as PI or CO-PD/PI (01/01/2017-06/01/2021): ***$4,042,621***

(1) Departmental Start-Up
Source: Iowa State University College of Veterinary Medicine
Dates: 2016-21
Role: PI
The purpose of this grant is to set up the PI's laboratory and fund preliminary studies needed to be competitive for extramural research support.

(2) Ultrasound-Based Diagnostic and Monitoring of Bladder Cancer Treatment with Drug Released from Nanoparticles
Source: NIH R33/44 PA-19-272
Dates: 07/01/21 – 06/30/23
Role: PI
Total Costs: $377,650
The objective of this proposal is to demonstrate how nanoparticle-based therapeutic strategies can improve targeted drug delivery and clinical efficacy in spontaneous animal models of bladder TCC.

(3) Using Canine Urothelial Organoids to Predict Therapeutic Response In Human and Canine Bladder Cancer: A One Health Approach
Source: Barry Cancer Research Foundation
Dates: 07/01/20 – 06/30/22
Role: MPI
Total Costs: $120,000
The objective of this study is to establish canine spheroids from urothelial transitional cell carcinomas as a preclinical model for human drug discovery.

(4) EDGE FGT: Development of Fibroblasts and Organoids as Tools for Functional Genomics in Turtles, Applicable to Other Non-Mammalian Vertebrates
Source: National Science Foundation Enabling Discovery through GEnomics (EDGE)
Dates: 10/01/21 – 09/30/25
Role: CO-PD/PI
Total Costs: $1,300,000
This proposal will advance the use of non-model taxa to study genome-to-phenome mapping.

(5) Exposure-Response of Amlodipine on the RAAS Fingerprint and Blood Pressure in Cat
Source: CEVA Sante Animale
Dates: 01/01/2021 – 12/31/2022
Role: PI
Total Costs: $174,993
In this study, we aim to quantify the effect of calcium channel blockade on blood pressure using a modeling and simulation approach.

(6) Dose-Exposure-Response of Benazeprilat on Biomarkers of the Renin-Angiotensin Aldosterone System in Dogs: Is Higher Always Better?

Source: CEVA Sante Animale
Dates: 06/01/20 – 12/31/21
Role: PI
Total Costs: $125,216
The objective of this study is to characterize the exposure-response relationship of benazeprilat on biomarkers of the RAAS which are relevant to the pathophysiology of congestive heart failure.

(7) Use of Canine Enteroids/Colonoids to Explore Differences in Intestinal Absorption/Metabolism/Transporter Characteristics in Dogs as a Function of Intestinal Region, Breed, Genotype and Disease
Source: HHS-Food & Drug Administration (FDA)
Role: PI
Dates: 10/11/18 – 10/10/23
The overall goal of this project is to demonstrate the superior performances of 3D canine organoids in predicting drug intestinal transport and metabolism over current *in vitro* models.

(8) The Antimicrobial Resistance Consortium
Source: Vice President for Research Interdisciplinary Award
Dates: 09/01/18 – 08/31/21
Role: CO-PI
Total Costs: $750,000
This project aims at developing innovative therapeutic strategies to reduce antimicrobial resistance.

(9) Intesto-Guard™ Efficacy in Canine Intestinal Organoids and Live Clinical Trials for the Treatment of Chronic Enteropathies
Source: IG Biosciences Corp
Dates: 07/01/19 – 12/31/21
Role: MPI
Total Costs: $458,526
This project aims to evaluate the efficacy of a commercial product (Intesto-Guard™) for the treatment of canine enteropathies by combining *in vivo* clinical trials and *in vitro* enteroid studies.

(10) Prognostic Value of Circulating Cortisol in Canine Congestive Heart Failure (CHF)
Source: AKC Foundation
Dates: 10/01/19 – 09/30/21
Role: CO-PI
Total Costs: $51,240
This study aims at establishing reference cortisol values in dog patients with symptomatic CHF.

(11) Proof-of-Concept Evaluation of Candidate Probiotics on Canine Intestinal Health
Source: Deerland Corp
Dates: 03/01/21 – 08/31/21
Role: CO-PI
Total Costs: $73,564
This follow-up study aims to demonstrate the efficacy of a new candidate probiotic in a model of chronic intestinal inflammation.

(12) Improving In Vitro Prediction of Oral Biologics Permeability
Source: Regents Innovation Fund
Dates: 01/01/21 – 12/31/21
Role: MPI

Total Costs: $50,0000
In this application, we are evaluating the predictive performances of 3D organoids in modeling oral absorption or large molecules.

(13) Development of Improved Model Systems of Host-Mucosal Microbiome Interactions to Understand the Mechanisms of Dietary Impact on the Host
Source: Iowa State University College of Veterinary Medicine
Dates: 09/01/19 – 08/31/21
Role: CO-PI
Total Costs: $41,124
This project focuses on the use of microfluidic gut-on-a-chip model systems to characterize the effect of high-fat diets on the intestinal microbiome and gut health.

(14) Investigating the Mechanistic Bioactivity of Parasitic Nematode Extracellular Vesicles on the Host intestinal Epithelium
Source: Iowa State University College of Veterinary Medicine
Dates: 09/01/19 – 08/31/21
Role: CO-PI
Total Costs: $41,124
In this application, we propose to determine how gastrointestinal parasites trump the host mucosal immunity in soil-transmitted helminthiases.

(15) Snapshot Characterization of the Effect of Mineralocorticoid Receptor Antagonism with Spironolactone on the RAAS Fingerprint in Dogs
Source: CEVA Sante Animale
Dates: 01/01/2021 – 12/31/2021
Role: PI
Total Costs: $34,165
The objective of this study is to establish the dose-response relationship of mineralocorticoid receptor antagonism on the RAAS fingerprint in dogs.

(16) International Academic Partnerships Program (IAPP)
Source: Polish National Agency for Academic Exchange
Dates: 09/01/19 – 08/31/21
Role: PI
Total Costs: $10,660
Summary: This application aims to foster international research collaborations between the European Union (e.g., Italy, Netherlands, UK, Poland) and the U.S in the field of PK/PD mathematical modeling.

<u>*Co-Investigator*</u>

Total (current/completed) funding awarded as CO-I (01/01/2017-06/01/2021): ***$2,155,325***

(17) Novel Re-Engineered L-DOPA Probiotic Therapy for Parkinson's Disease
Source: NIH PAR-18-761
Dates: 04/01/20 – 03/31/23
Role: CO-I
Total Costs: $1,177,494
In this application, we aim at developing *E. coli* bacterial probiotics to produce constant delivery of levodopa to the systemic circulation and prevent L-DOPA-induced dyskinesia in Parkinson's patients.

(18) High-Throughput Metabolic Spectra Imaging to Predict Response to Therapy in Colorectal Cancer
Source: DOD CDMRP - Peer-Reviewed Cancer Research Program
Dates: 09/01/20 – 08/31/22
Role: CO-I
Total Costs: $586,553
Through this research, we are developing Raman Spectroscopy imaging for characterization of chemotherapeutic response in canine organoids.

(19) Improving In Vitro Prediction of Oral Drug Permeability and Metabolism Using a Novel 3D Canine Organoid Model
Source: NSF 18-550
Dates: 07/01/19 – 09/30/21
Role: CO-I
Total Costs: $225,000
The goal of this project is to improve current *in vitro* screening systems of therapeutic drugs.

(20) Evidence-Based Incremental Care Approach to Managing Acute Canine Vomiting
Source: ASPCA Foundation
Dates: 11/23/2020 – 04/30/2023
Role: CO-I
Total Costs: $50,000
In this study, we are evaluating the clinical factors associated with acute vomiting in dogs.

PENDING SUPPORT

Principal Investigator or Co-Principal Investigator

Total funding pending as PI or CO-PD/PI: ***$6,785,504***

(1) CPS Frontiers Collaborative Research: Context Aware Management of Cattle Farming
Source: NSF 20-563
Dates: 07/01/21 – 06/30/25
Role: CO-PD/PI
Total Costs: $3,902,491
In this application, we propose to develop sensor-based methods to improve detection of endemic diseases in large animal production systems.

(2) Leveraging the Power of Systems Pharmacology Modeling to Improve Clinical Outcome in Non-Small Cell Lung Cancer
Source: NIH R21 RFA-CA-21-013
Dates: 01/01/22 – 12/31/23
Role: PI
Total Costs: $400,947
The aim of this research is to develop a precision medicine tool to optimize drug dosing schedules in patients with lung cancer.

(3) Pharmacokinetic-Pharmacodynamic Characterization of SGLT-2 Inhibition in a Preclinical Model of Metabolomic Syndrome and Patients with Heart Failure
Source: CEVA Sante Animale
Dates: 09/01/21 – 08/31/23
Role: PI

Total Costs: $1,385,930
This research programs aims to characterize the pharmacokinetics and pharmacodynamics of a new class of therapeutic agents in dogs with heart failure, kidney disease, and hypertension.

(4) Using Canine Organoids to Advance Therapeutic Drug Development in Bladder Cancer
Source: NIH R21 PA-19-356
Dates: 09/01/21 – 08/31/23
Role: MPI
Total Costs: $420,750
The objective of this application is to establish canine 3D organoids as a preclinical model for drug testing in muscle invasive bladder cancer.

(5) Unravelling the impact of P-glycoprotein Mutation on the Disposition Kinetics, Efficacy and Safety of Cardiovascular Drugs in Dogs
Source: Independent Research Fund Denmark
Dates: 09/01/21 – 08/31/24
Role: PI
Total Costs: $78,980
This proposal aims at establishing an *in vitro* organoid model to study the impact of P-glycoprotein (ABCB1) mutation on drug intestinal transport.

(6) Clinical Trial to Obtain 60 Intestinal Organoid Cell Lines from 10 Healthy Dogs
Source: Millipore Sigma
Dates: 01/01/22 – 12/31/22
Role: MPI
Total Costs: $109,250
In this study, we aim to establish a partnership with Millipore Sigma to establish novel 3D cell lines from various epithelial tissues.

(7) Proof-of-Concept Evaluation of the Effect of Candidate Probiotics in 3D Canine Organoids
Source: Anizome Corp
Date: 09/01/21 – 08/31/22
Role: MPI
Total Costs: $78,200
The objective of this project is to characterize the *in vitro* efficacy of candidate probiotics on the intestinal epithelium of dogs with inflammatory bowel disease.

(8) Preclinical Efficacy of Candidate Probiotics in 3D Canine Intestinal Organoids
Source: Chr. Hansen A/S
Date: 09/01/21 – 08/31/22
Role: CO-PI
Total Costs: $236,456
In this application, we aim to study the effect of candidate probiotics on intestinal permeability (i.e., *gut leakiness*) in 3D canine intestinal organoids.

(9) Development and Validation of New Genetic Assays for Diagnostic of Canine IBD
Source: Antech Diagnostics
Dates: 09/01/21 – 08/31/23
Role: MPI
Total Costs: $172,500

The guiding hypothesis in this proposal is that single nucleotide polymorphisms in the *EEF1A1* gene, are associated with a greater risk of developing canine inflammatory bowel disease (IBD).

Co-Investigator

Total funding pending as Co-I: ***$7,538,489***

(10) Novel Reengineered Microbiome-based Biologic Therapy to Treat Cognitive and BehavioralSymptoms of Alzheimer's Disease and Related Dementias
Source: NIH U01 PAR-18-820
Dates: 09/01/21 – 08/31/26
Role: CO-I
Total Costs: $7,513,489
In this application, we aim to evaluate the preclinical efficacy of a novel bioengineered microbiome-based platform that provides constant delivery of L-DOPA using preclinical animal models of AD.

(11) Pantoprazole as a Gastroprotectant in Calves: A Pharmacokinetic and Pharmacodynamic Study
Source: American Association of Bovine Practitioners
Dates: 06/01/21 – 05/31/22
Role: CO-I
Total Costs: $25,000
In this study, we aim at modeling the pharmacokinetics of pantoprazole and its efficacy in modulating gastric ulcers in calves.

GRANTS COMPLETED

Principal Investigator or Co-Principal Investigator

(1) Using Canine Intestinal Stem Cells to Advance Drug Development, Precision and Transplantation Medicine
Source: Iowa State University Vice President for Research Miller Award
Dates: 10/01/17 – 10/31/19
Role: PI
Total Costs: $150,000
The purpose of this project was to develop protocols for growth and characterization of canine enteroids/colonoids to interrogate molecular pathways involved in the pathogenesis of Crohn’s Disease.

(2) Proof-of-Concept Vivo Evaluation of Candidate Probiotics on Canine Intestinal Health
Source: Deerland
Dates: 01/01/20 – 12/31/20
Role: CO-PI
Total Costs: $55,085
The objective of this study was to characterize the *in vivo* efficacy of a new probiotic candidate on the fecal microbiome and metabolome, as well as the serum metabolome.

(3) A Large-Scale Microfluidics Platform for Accelerating Toxicology Testing using Animal-Based Organoids
Source: NIH 1R43ES029890-01
Dates: 07/01/19 – 05/31/20
Role: PI

Total Costs: $35,475
This project aimed at developing *in vitro* toxicology assays in 3D canine enteroids to replace live animal experiments.

(4) Validation Study To Determine The Sensitivity and Specificity of Serum Test for Canine IBD
Source: Antech Diagnostics
Dates: 09/01/19 – 12/31/20
Role: CO-PI
Total Costs: $41,182
In this application, we aimed to validate the predictive performances of a new serum-based assay for canine IBD.

(5) Development of An Organ-On-A-Chip for Canine Chronic Enteropathies
Source: ACVIM Foundation
Dates: 09/01/18 – 08/31/20
Role: Mentor and CO-PD
Total Costs: $25,000
The goal of this project was to establish the very first microfluidic gut-on-a-chip using canine enteroids/colonoids for mechanistic studies in IBD.

(6) Evaluation of Novel Serum and Fecal Assays for the Diagnosis of Canine Inflammatory Bowel Disease
Source: Life Diagnostics
Dates: 10/01/20 – 03/31/21
Role: CO-PI
Total Costs: $14,030
The aim of this project was to evaluate novel plasma biomarkers for the diagnosis of chronic enteropathies in dogs.

(7) Accuracy and Precision of Compounded Famciclovir for Treatment of Cats Affected with Feline Herpesvirus Type-1
Source: WINN Feline Foundation and Vision for Animal Foundation
Date: 06/01/19 – 12/31/19
Role: CO-PI
Total Costs: $13,587
This project focused on the characterization of compounded famciclovir accuracy and precision for the treatment of feline herpesvirus type 1.

(8) Using Canine Intestinal Stem Cells to Advance Precision and Regenerative Medicine
Source: Iowa State University College of Veterinary Medicine
Dates: 09/01/17 – 06/30/19
Role: MPI
Total Costs: $40,000
This project focused on the development of a large animal disease models for transplantation research and precision medicine.

(9) Development of a Novel Sheep Model of Human Sepsis
Source: USDA Formula Grant
Dates: 10/01/17 – 09/30/19
Role: CO-PI
Total Costs: $40,000

The aim of this study was to establish a translational animal model for carbapenem-resistant urinary tract infections.

(10) Towards a Better Understanding of Corneal Sequestrum: Biochemical Analysis of Tears in Healthy Cats and in Cats Affected with Sequestrum
Source: Morris Animal Foundation
Date: 06/01/17 – 08/31/17
Role: CO-PI
Total Costs: $5,000
In this project, we aimed to characterize the biochemical signature of tears in cats with ocular sequestrum.

(11) Ocular and Systemic Considerations for Topical Drug Delivery
Source: Morris Animal Foundation and ISU VCS Research Incentive
Dates: 06/01/19 – 08/31/19
Role: CO-PI
Total Costs: $10,000
In this application, we proposed to establish standard operating procedures to optimize the efficacy and safety of topical treatments for ocular use in companion animals.

(12) Pharmacokinetics of Liposomal Bupivacaine Following Perineural Injection in the Horse
Source: ISU VCS Research Incentive
Dates: 04/01/19 – 03/31/20
Role: CO-PI
Total Costs: $5,000
The guiding hypothesis of this proposal was that liposomal formulation of bupivacaine significantly impacts its pharmacokinetics vs. standard injectable (HCl-based) formulations.

Co-Investigator

(13) P-Glycoprotein Assessment in Canine Gut-On-A-Chip for Drug Transport and Safety Modeling
Source: ACVIM Foundation
Dates: 01/01/20 – 12/31/20
Role: Mentor
Total Costs: $25,000
In this application, our objective was to develop canine-specific drug transport assays in intestinal organoids to characterize the risk of drug-drug interactions.

(14) In-Depth Characterization of the Phenotypic Epithelial Changes in Canine IBD
Source: Comparative Gastroenterology Society
Dates: 01/01/20 – 12/31/20
Role: CO-I
Total Costs: $12,000
Through this project, we aimed to characterize structural and functional changes in the intestinal epithelium of dogs with inflammatory bowel disease (IBD).

(15) Prognostic Value of Circulating Cortisol in Canine Congestive Heart Failure
Source: ACVIM Foundation
Dates: 07/01/19 – 06/30/20
Role: CO-I

Total Costs: $15,000
In this application, we proposed to study the value of systemic cortisol concentrations for the prediction of morbidity and mortality in canine congestive heart failure.

(16) Development of a Clinically Relevant Lameness Model for Evaluation of Analgesic Strategies in Dairy Cattle
Source: ILHAC General Call 2019
Dates: 06/01/19 – 05/31/20
Role: CO-I
Total Costs: $24,480
The goal of this study was to improve current preclinical models for evaluation of analgesic therapeutic strategies in dairy cattle.

(17) Application of Bupivacaine Liposome Injectable Suspension for Sustained Analgesia from Disbudding Pain in Calves
Source: Iowa Veterinary Medical Association
Dates: 03/01/20 – 02/28/21
Role: CO-I
Total Costs: $19,798
The objective of this research was to characterize the pharmacokinetics and efficacy of liposomal bupivacaine for pain management in calves.

(18) Determination of Pharmacokinetics and Withdrawal Periods in Milk Following IntramammaryAdministration of Cephapirin Sodium to Lactating Does
Source: USDA NIFA Capacity Funds
Date: 10/01/19 – 12/31/20
Role: CO-I
Total Costs: $20,000
The aim of this project was to evaluate the pharmacokinetics and risk of violative residues with cephapirin in minor use / minor species, such as lactating does.

OTHER SIGNIFICANT CONTRIBUTIONS

Current

Nanomedicine Countermeasures to Overcome Antimicrobial Resistance
Source: DTRA 1-19-C-0005
Dates: 11/01/18 – 10/30/21
Role: Collaborator
Total Costs: $1,458,344
The objective of this proposal is to develop a nanomedicine countermeasure for the treatment of antimicrobial resistance category A and B biowarfare agents.

Pending

Deciphering the Role of the Gut Microbiome in IBD Using a Canine Patient-Specific Gut-on-a-Chip
Source: NIH K01 PA-20-190
Dates: 09/01/21 – 08/31/26
Role: Mentor
Total Costs: $512,999
In this application, we attempt to obtain quantitative and spatiotemporal insight of the intercellular impact of the EMI axis in IBD pathogenesis using a canine microfluidic gut-on-a-chip.

PATENTS AND INNOVATIONS

Patent Applications

(1) Provisional Patent Application **#62/902,833**, filed on 09/19/2019:
"*Canine Intestinal Organoids and Methods of Their Use*"

(2) Provisional Patent Application **#63/003,342**, filed on 04/01/2020:
"*3D In Vitro System to Improve Study of Oral Drug Absorption in Dogs*"

(3) Non-Provisional (Utility) Patent Application **#P13197US01**, filed on 09/18/2020:
"*Canine Epithelial Organoids and Methods of Making and Use*"

(4) Provisional Patent Application **#63/200,614**, filed on 03/18/2021:
"*Canine Hepatic Organoids*"

Invention Disclosures to ISU Research Foundation (ISURF)

(1) ISURF Disclosure **#04641**:
"Using Canine Intestinal Stem Cells to Advance Drug Development, Precision and Regenerative Medicine"

(2) ISURF Disclosure **#05037**:
"An Innovative 3D In Vitro System To Improve Study of Oral Drug Absorption in Dogs"

(3) ISURF Disclosure **#05038**:
"Protocol for Cultivation and Maintenance of Canine Transitional Cell Carcinoma (TCC) Organoids"

(4) ISURF Disclosure **#05039**:
"Standard Operating Protocol for Canine Organoids Freezing/Thawing"

(5) ISURF Disclosure **#05272**:
"Canine Hepatic Organoids"

License Agreement

***2019**: Exclusive Tangible Property License Agreement related to ISURF Disclosure #04641*

LEADERSHIP ROLES

2015 – Committee Chair, European College of Veterinary Pharmacology and Toxicology

2017 – President, Animal Health Modeling and Simulation Society

2017 – Fellow, American Academy of Veterinary Pharmacology and Therapeutics

2017 – Executive Board Member, American Academy of Veterinary Pharmacology and Therapeutics

2017 – Executive Board Member, European Federation for Pharmaceutical Sciences

2018 – President Elect, European Association of Veterinary Pharmacology and Toxicology

2018 – Committee Chair, European College of Veterinary Pharmacology and Toxicology

2018 – Thrust Leader, National Institute of Antimicrobial Resistance and Education

2019 – Board Member, Translational Renin-Angiotensin-Aldosterone System Interest Group

PROFESSIONAL SERVICE

Current Professional and Scientific Society Membership

2015 – Committee Chair, European College of Veterinary Pharmacology and Toxicology

2017 – President, Animal Health Modeling and Simulation Society

2017 – Fellow, American Academy of Veterinary Pharmacology and Therapeutics

2017 – Executive Board Member, American Academy of Veterinary Pharmacology and Therapeutics

2017 – Executive Board Member, European Federation for Pharmaceutical Sciences

2017 – Member, International Society of Pharmacometrics

2017 – Member, American Association of Pharmaceutical Scientists

2017 – Member, American Gastroenterology Association

2017 – Member, Comparative Gastroenterology Society

2018 – President Elect, European Association of Veterinary Pharmacology and Toxicology

2018 – Committee Chair, European College of Veterinary Pharmacology and Toxicology

2018 – Thrust Leader, National Institute of Antimicrobial Resistance and Education

2018 – Member, Clinical and Laboratory Standards Institute for Antimicrobial Susceptibility Testing

2019 – Board Member, Translational Renin-Angiotensin-Aldosterone System Interest Group

2021 – Platinum Member, American Association for the Advancement of Science

Peer-Review and Editorial Board: Scientific Journals

2017 – Review Editor, Frontiers (Veterinary Infectious Diseases)

2017 – Reviewer, Journal of Veterinary Pharmacology and Toxicology

2017 – Reviewer, American Journal of Veterinary Research

2017 – Reviewer, BMC Veterinary Research

2017 – Reviewer, BSP Pharmaceutical Sciences

2018 – Reviewer, Biomaterials Science

2018 – Reviewer, Journal of Veterinary Internal Medicine

2018 – Reviewer, Journal of Pharmacokinetics and Pharmacodynamics

2019 – Editorial Board Member, Current Drug Metabolism

2019 – Reviewer, Frontiers in Veterinary Science

2019 – Reviewer, Pharmaceutics

2019 – Reviewer, British Journal of Clinical Pharmacology

2019 – Reviewer, Translational Neurodegeneration

2020 – Reviewer, CPT: Pharmacometrics and Systems Pharmacology

2020 – Reviewer, Frontiers Endocrinology

2021 – Reviewer, Frontiers Immunology

2021 – Reviewer, Journal of Small Animal Practice

Peer-Review: Research Grants

(ONG: ONGoing)

2017 – 2019: Reviewer, NIH Study Section, Early Career Reviewer (ECR) Program

2020 – ONG: Reviewer, NSF Study Section, Physiological Mechanisms and Biomechanics Program

2020 – ONG: Reviewer, UK Medical Research Council (MRC)

2020 – ONG: Reviewer, CNRS/INSERM Study Section, ATIP-Avenir Program

2020 – ONG: Reviewer, Italian Cystic Fibrosis Research Foundation

TEACHING

ASSIGNMENTS AND ROLES

BMS 439/539: ***Principles of Pharmacology***

I currently teach 13 lectures in our one-year Biomedical Sciences (Pharmacology and Toxicology) BS (439) and MS (539) program. The broad goals of this course are to give students a knowledge base of the main properties, mechanisms of actions and logical uses of the therapeutic compounds that are for treating diseases and conditions of humans and animals. My specific contribution to this course includes teaching of the following: (1) Drug Metabolism Pharmacokinetics, (2) Basic Autonomic Anatomy and Physiology of the Autonomous Nervous System, (3) Chemical Mediators of the Autonomous Nervous System, (4) Cholinergic Transmission, (5) Noradrenergic Transmission, (6) 5-HT and Pharmacology of Migraines and Purines, (7) Local Hormones: Cytokines, Biologically Active Lipids and Peptides, (8) Peptides and Nitric Oxide, (9) Control of Blood Glucose and Diabetes Mellitus, (10) Obesity, (11) Pituitary and Adrenal Cortex, (12) Drug Discovery and Development, and (13) Biopharmaceuticals.

BMS 502: ***Methods in Biomedical Sciences***

The objective of this graduate course (1-year MS) is to familiarize students with many of the important methodologies used in modern biomedical research. These include common techniques used in molecular biology, virology, bacteriology, cell biology, immunology, genome science, structural biology, pharmacology, histopathology, behavioral biology, physiology and quantitative pharmacology. I currently teach two laboratory classes in that course covering the basics of pharmacokinetics and applications in pharmaceutical science, with a special focus on the calculation of a therapeutic dose and extrapolation of dosing regimens between animal species.

BMS 354: ***General Pharmacology***

The objective of this professional course (VM3) is to provide veterinary students with a fundamental understanding of clinical pharmacology. I currently teach 2 lectures in that course covering the basics of pharmacokinetics for drug dose calculation in veterinary species.

VDPAM 560: ***Ecology of Infectious Diseases***

The overall goal of this class (graduate level, Ph.D) is to provide students with a broad applied knowledge on the ecology of infectious diseases. Specific objectives include understanding dynamics of pathogen transmission within and between animal populations, approaches to reduce risk of pathogen introduction, and scientific methods for the early detection of pathogens. My contribution to this course involves mathematical methods used to optimize dosing strategies in the context of population medicine. This includes: identification of population characteristics (i.e., covariates) that impact drug disposition kinetics, and therapeutic strategies to minimize antimicrobial resistance development in food-producing animals.

VDPAM 654: ***Comparative Antimicrobial Clinical Pharmacology***

VDPAM 654 is a graduate course (Ph.D level) that provides advanced training in the mechanisms of action for antimicrobials, understanding the underlying pharmacokinetics (PK) and pharmacodynamics (PD) of antimicrobial selection, and regulatory issues associated with antimicrobial use in veterinary medicine. I currently teach 2 lectures (4 hours total) in that class, with a special focus on applications of

nonlinear mixed-effects for characterizing antimicrobial disposition kinetics and effects in livestock. Another component of my teaching pertains to the use of PK/PD modeling approach to mitigate antimicrobial resistance and the role of generics in resistance development.

TOX 689: ***Toxicology Interdepartmental Program***

TOX 689 is an interdepartmental Toxicology program (graduate level, Ph.D) organized as a seminar series for Ph.D students. I typically teach a couple of lectures covering the use of mathematics to characterize the safety of therapeutic drugs in preclinical research in that class.

ISU Preparing Future Faculty (PFF): ***Coming Back to American Academe: Returning from Industry***

The PFF program is scheduled as a 2-hour lab course focusing on the importance of building collaboration between academia in industry. Iowa State University's PFF program was founded to help better prepare graduate students (Ph.D) and Postdoctoral RA to become the future teachers, researchers, and citizens of the academic community. About 70 ISU Ph.D candidates and Postdoctoral fellows are enrolled in the class, representing a wide variety of disciplines from all over Iowa State University. I have been teaching class for the last two years (2018, 2019) in collaboration with Dr. Holly Bender (CELT) and Clark Coffman (GDCB).

ADVISING

Faculty Members

Year	**Name**	**Affiliation**
2016-	Lionel Sebbag, DVM, Ph.D, DACVO	Hebrew University of Jerusalem
2016-	Joseph Smith, DVM , Ph.D, DACVIM, DACVCP	University of Tennessee
2017-	Patrick Gorden, DVM, Ph.D, DABVP, DACVCP	Iowa State University
2021-	Jamie Kopper, DVM, Ph.D, DACVIM, DACVECC	Iowa State University

Professional Students (DVM)

Year	**Name**	**Class**
2019-	Madeline Colosimo	VM3
2019-	Chelsea Iennarella	VM3
2019-	Sichao Mao	VM3
2021-	Allison Mosichuk	VM3

Research Assistants

Year	Name	Degree/Department
2017-18	Yingzhou Du	Ph.D/Statistics
2019-	Lingnan Yuan	Ph.D/Statistics

Residents

Year	Name	College	Status
2017-19	Patrick Gorden	American College of Veterinary Clinical Pharmacology (ACVCP)	Diplomate (2019)
2016-20	Joseph Smith	ACVCP	Diplomate (2020)
2018-	Alexis Viel	European College of Veterinary Pharmacology and Toxicology	Candidate (2022)
2020-21	Adam Copeland	American Board of Veterinary Practitioners	Diplomate (2021)
2020-	Jeff Olivarez	American College of Veterinary Internal Medicine	Candidate (2020)

MS/PHD SUPERVISION (MAJOR PROFESSOR)

Year	Name	Degree	Trajectory
2016-19	Joseph Smith[#]	Ph.D (Biomedical Sciences)	Faculty
2016-20	Lionel Sebbag[#]	Ph.D (Biomedical Sciences)	Faculty
2016-20	Benjamin Schneider	Ph.D (Biomedical Sciences)	Postdoctoral RA
2020-	Christopher Zdyrski	Ph.D (Biomedical Sciences)	In Program
2020-	Vojtech Gabriel[#]	Ph.D (Biomedical Sciences)	In Program
2020-	Chelsea Iennarella[#]	Ph.D (Biomedical Sciences)	In Program
2021-	Abubakar Bello	Ph.D (IAPP)	In Program
2017-18	Grace Matangira	MS (Biomedical Sciences)	Dentistry School
2018	Oanh Nguyen	MS (Biomedical Sciences)	Ph.D Candidate
2018	Erin Goar	MS (Biomedical Sciences)	Veterinary School

2018	Samantha Thomson	MS (Biomedical Sciences)	Medical School
2018	Michael Knouse	MS (Biomedical Sciences)	Medical School
2018	Sarah Higgins	MS (Biomedical Sciences)	Veterinary School
2019	Fatiha Iqbal	MS (Biomedical Sciences)	Medical School
2019	Kendra Myers	MS (Biomedical Sciences)	USDA
2019	Kimberly Dao	MS (Biomedical Sciences)	Research Assistant
2019	Megan Bonnett	MS (Biomedical Sciences)	Medical School
2019	Nicole Hasstedt	MS (Biomedical Sciences)	Veterinary School
2019	Jordan Neyens	MS (Biomedical Sciences)	Podiatric Medical School
2019	Hannah Gustafson	MS (Biomedical Sciences)	Medical School
2019	Joshua Dunigan	MS (Biomedical Sciences)	Medical School
2019	Austin Parris	MS (Biomedical Sciences)	Dentistry School
2020	Jessica Heinen	MS (Biomedical Sciences)	Health Unit Coordinator
2020	Charlotte Halley	MS (Biomedical Sciences)	Medical School
2020	Alexandria Reed	MS (Biomedical Sciences)	Graduate Student
2020	Madison Heilskov	MS (Biomedical Sciences)	Resident Assistant
2020-21	Savantha Thenuwara	MS (Biomedical Sciences)	Medical School
2020-21	Adam Copeland	MS (Biomedical Sciences)	Veterinary Residency
2020-	Jeff Olivarez	MS (Biomedical Sciences)	In Program
2021	Sarah Freund	MS (Biomedical Sciences)	Research Scientist
2021	Ridhi Jani	MS (Biomedical Sciences)	Dental School application
2021	Leeann Aguilar	MS (Biomedical Sciences)	Graduate Student
2021	Andrea Garcia-Ferre	MS (Biomedical Sciences)	Pharmacy School
2021-	Zihui Ni	MS (Biomedical Sciences)	In Program
2021-	Allison Mosichuk	MS (Clinical Sciences)	In Program
2021-	Vanessa Livania	MS (Toxicology)	In Program

[#] *Smith (2017): Lora and Russ Talbot Graduate Award*
[#] *Smith (2018): ISU College of Veterinary Medicine Graduate Student of the Year*
[#] *Sebbag (2019): Lora and Russ Talbot Graduate Award*
[#] *Sebbag (2019): ISU Biomedical Science Research Excellence Award*
[#] *Gabriel (2020): Brown Graduate Fellowship*
[#] *Iennerella (2020): Dukes Scholarship*
[#] *Iennerella (2021): AKC National Veterinary Award for Academic and Research Excellence*

MS/PHD SUPERVISION (POSC)

Year	Name	Degree	Trajectory
2018-20	Rochelle Warner	Ph.D (Population Medicine)	Practicing Veterinarian
2018-20	Heather Kittrell	Ph.D (Population Medicine)	Veterinarian (Director)
2019-	Meghan Gage	Ph.D (Biomedical Sciences)	In Program
2018-	Ashenafi Beyi	Ph.D (Microbiology)	In Program
2018-	Bharathi Niveditha	Ph.D (Biomedical Sciences)	In Program
2019-	Kristen Hayman	Ph.D (Population Medicine)	In Program
2019-	Brittany Larsen	Ph.D (Biomedical Sciences)	In Program
2019-	Ahmed Abdalla	Ph.D (Biomedical Sciences)	In Program
2020-	Robert Schmidt	Ph.D (Bioinformatics)	In Program
2021-	Piyush Padhi	Ph.D (Biomedical Sciences)	In Program
2021-	Alejandra Bargues	Ph.D (Biomedical Sciences)	In Program
2021-	Michelle Buckley	Ph.D (Population Medicine)	In Program
2018	Alejandro Tarabillo	MS (Biomedical Sciences)	Research Associate
2018	Miriam Reed	MS (Biomedical Sciences)	Veterinary School
2018	Paige Slifer	MS (Biomedical Sciences)	Veterinary School
2018-20	Chou Yen-Yu	MS (Clinical Sciences)	Practicing Veterinarian
2019	Jesslyn Hendrickson	MS (Biomedical Sciences)	Medical School
2019	Hunter White	MS (Biomedical Sciences)	Research Associate
2019	Alex McMullen	MS (Biomedical Sciences)	Medical School

2019	Kaysha Rodriguez	MS (Biomedical Sciences)	Veterinary School
2019	Savanna Bergeron	MS (Biomedical Sciences)	Veterinary School
2019	Lucien Bahinga	MS (Biomedical Sciences)	Medical School
2019-	Madeline Colosimo	MS (Clinical Sciences)	In Program
2019-	Sichao Mao	MS (Clinical Sciences)	In Program
2020	Selena Gomez	MS (Biomedical Sciences)	Veterinary Assistant
2020	Jack Danks	MS (Biomedical Sciences)	Veterinary School
2021	Steven Timotijevic	MS (Biomedical Sciences	Assistant Scientist
2021-	Kelsey Meyer	MS (Population Medicine)	In Program

UNDERGRADUATE MENTORING

Year	**Name**	**Affiliation**	**Trajectory**
2019-20	Laura Kurr	Biochemistry (Honors)	Research Fellow
2020-	Yu Ting Liu	Biochemistry	In Program
2021-	Sidney Honold	Genetics	In Program
2021-	Bibiana Granadillo	Biology	In Program

POSTDOCTORAL TRAINING

Year	**Name**	**Trajectory**	**Affiliation**
2016-18	Dawn Kingsbury	CMO	AnimalBiome
2017-18	Lawrance Chandra	Fellowship	Oklahoma State University
2018-19	Yeonjung Seo	Faculty	University of Pittsburgh
2018-20	Yoko Ambrosini	Research Scientist	University of Texas
2018-20	Dana Borcherding	Senior Scientist	Washington University
2020-	Dipak Sahoo	In Program	Iowa State University
2021-	Benjamin Schneider	In Program	Iowa State University

TEACHING GRANTS

I recently co-established a training program revolving around the use of mathematical modeling in animal health between various institutions in Europe (Ghent, Milan, Paris, Bath, Wroclaw, Vienna, Padova) and Iowa State University. This initiative is being funded by the *International Academic Partnerships Program* (https://www.iie.org/Programs/International-Academic-Partnership-Program). It involves several 4-12 weeks rotations between the various partner institutions, including 3-days hands-on workshops to teach the basics of pharmacokinetics and pharmacodynamics to veterinary and graduate students.

CURRENT LEADERSHIP POSITIONS

2015 – Committee Chair, European College of Veterinary Pharmacology and Toxicology

2017 – President, Animal Health Modeling and Simulation Society

2017 – Fellow, American Academy of Veterinary Pharmacology and Therapeutics

2017 – Executive Board Member, American Academy of Veterinary Pharmacology and Therapeutics

2017 – Executive Board Member, European Federation for Pharmaceutical Sciences

2018 – President Elect, European Association of Veterinary Pharmacology and Toxicology

2019 – Scientific Advisor, Translational Renin-Angiotensin-Aldosterone System Interest Group

SERVICE IN PROFESSIONAL TEACHING SOCIETIES (ONG: ONGoing)

2012 – 2017: Secretary, Animal Health Modeling and Simulation Society

2015 – 2021: Chair, Education and Residency Committee, European College of Veterinary Pharmacology

2017 – ONG: President, Animal Health Modeling and Simulation Society

2017 – ONG: Councilor, American Academy of Veterinary Pharmacology and Therapeutics

2017 – ONG: Board Member, Veterinary Network, European Federation for Pharmaceutical Sciences

2018 – ONG: President Elect, European Association of Veterinary Pharmacology and Toxicology

2021 – ONG: Mentor, International Society of Pharmacometrics Mentorship Program

INSTITUTIONAL SERVICE

DEPARTMENTAL COMMITTEES

2019 – ONG: Member, BMS Graduate Education and Research Committee

2019 – 2019: Member, BMS *Ad Hoc* Search Committee

2020 – 2020: Member, VDPAM/VDL *Ad Hoc* Search Committee

COLLEGE COMMITTEES

2017 – 2020: Member, College of Veterinary Medicine Admission Committee

2020 – ONG: Member, College Curriculum Committee

INSTITUTIONAL COMMITTEES

2017 – ONG: Member, Oversight Committee for Conflicts of Interest in Research

2019 – 2020: Member, USDA African Faculty Exchange Program Faculty Scholars