

# Curriculum Vitae

**Lauren A. Baker**

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## EDUCATION

<b>Doctor of Philosophy</b>	Comparative Biomedical Sciences University of Wisconsin-Madison GPA: 3.94	<i>June 2016-Oct 2019</i> Madison, WI
<b>Professional School</b>	Doctor of Veterinary Medicine University of Wisconsin-Madison GPA: 3.90	<i>Aug 2011-May 2016</i> Madison, WI
<b>Master of Science</b>	Comparative Biomedical Sciences University of Wisconsin-Madison GPA: 4.0	<i>June 2013-Aug 2014</i> Madison, WI
<b>Bachelor of Arts</b>	Psychology University of Wisconsin-Madison GPA: 3.75	<i>Sept 2005-Dec 2009</i> Madison, WI

## RESEARCH EXPERIENCE

**University of Wisconsin-Madison, Research Associate** *Sept 2019-present*

Comparative Genetics Laboratory  
University of Wisconsin-Madison School of Veterinary Medicine  
Mentor: Peter Muir, BVSc, MVetClinStud, PhD, DACVS, DECVS  
Mentor: Susannah Sample, MS, DVM, PhD, DACVS  
Nature of Work: Multi-omic study of Mendelian and complex diseases in companion animals

**University of Wisconsin-Madison, Postdoctoral Trainee** *June 2016-Aug 2019*

Computation and Informatics in Biology and Medicine  
Genetics Biotechnology Center  
Nature of Work: Identification of genetic variants associated with complex trait disease

**University of Wisconsin-Madison, Project Assistant***June 2012-June 2016*

Comparative Orthopaedic Research Laboratory

University of Wisconsin-Madison School of Veterinary Medicine

Mentor: Peter Muir, BVSc, MVetClinStud, PhD, DACVS, DECVS

Nature of Work: Genome-wide association study of ACL rupture in the canine model

**University of Wisconsin-Madison, Project Assistant***Jan 2009-Aug 2011*

Department of Animal Sciences

University of Wisconsin, Madison

Mentor: Thomas Crenshaw, PhD

Nature of Work: Dietary induction of hyperoxaluria in the swine model

**HONORS AND AWARDS**

Richard F. Marsh Outstanding Graduate Student Research Award	2020
New Investigator Recognition Award Finalist	2020
Best Plenary: Bioinformatics & Computational Biology-NLM Informatics Training Conference	2019
NLM Training Grant Award Recipient (T15 LM007539)	2018
NLM Training Grant Award Recipient (T15 LM007539)	2016
SVM Student Research Award	2015
Elaine Meyer Memorial Scholarship	2014
Academic Leadership Award	2013
NIH Research Training Grant Recipient (T32 OD10999)	2013
Alice Uhrig Boese Scholarship	2012
Elaine Meyer Memorial Scholarship	2012
Daisy Herbert Currier Scholarship	2012

**PUBLICATIONS**

**Baker LA**, Chan K, Lopes FB, Bollig N, Todhunter RJ, Rosa GJM, Binversie EE, Sample SJ, Muir P. Bayesian and machine learning models for genomic prediction of anterior cruciate ligament rupture in the canine model. *G3: Genes, Genomes, Genetics*. 2020; *Accepted*.

Sample SJ, Stilin A, Binversie EE, **Baker LA**, Hardie RJ. Late-onset laryngeal paralysis: Owner perception of quality of life and cause of death. *Veterinary Medicine and Science*. 2020; doi: 10.1002/vms3.240.

Terhaar HM, Muir P, **Baker LA**, Binversie EE, Chi J, Sample SJ. Contribution of Habitual Activity to Cruciate Ligament Rupture in Labrador Retrievers. *Veterinary Comparative Orthopedics & Traumatology*. 2020; doi: 10.1055/s-0039-3399527.

**Baker LA**, Muir P, Sample SJ. Genome wide association studies and genetic testing for the small animal practitioner: understanding the science, success, and future of a rapidly developing field. *Journal of the American Veterinary Medical Association*. 2019; 255: 1126-1136.

**Baker LA**, Rosa GJM, Hao Z, Piazza A, Hoffman C, Binversie EE, Sample SJ, Muir P. Multivariate genome-wide association analysis identifies novel and relevant variants associated with anterior cruciate ligament rupture risk in the dog model. *BMC Genetics*. 2018;19(1):39.

**Baker LA**, Kirkpatrick B, Rosa GJ, Gianola D, Valente B, Sumner JP, Baltzer W, Hao Z, Binversie EE, Volstad N, Piazza A. Genome-wide association analysis in dogs implicates 99 loci as risk variants for anterior cruciate ligament rupture. *PloS one*. 2017 Apr 5;12(4):e0173810.

**Baker LA & Muir P**. Genetics of cruciate ligament rupture. *Advances in the Canine Cranial Cruciate Ligament*. 2017: 57-64.

**Baker LA & Muir P**. Epidemiology of cranial cruciate ligament rupture. *Advances in the Canine Cranial Cruciate Ligament*. 2017: 109-113.

Piazza AM, Binversie EE, **Baker LA**, Nemke B, Sample SJ, Muir P. Variance associated with walking velocity during force platform gait analysis of a heterogeneous sample of clinically normal dogs. *American Journal of Veterinary Research*. 2017 Apr;78(4):500-7.

Patel SR, Penniston KL, **Iwicki L**, Saeed I, Crenshaw TD, Nakada SY. Dietary induction of long-term hyperoxaluria in the porcine model. *Journal of Endourology*. May 2012, 26(5): 433-438. doi:10.1089/end.2011.0182

## CONFERENCE PRESENTATIONS

**Baker LA**, McNally R, Berres M, Binversie EE, Sample SJ, Muir P. Exploiting biological priors to enhance genome-wide association study in a dog model of ACL rupture. Orthopedic Research Society Annual Meeting. (*Finalist: New Investigator Research Award*). Phoenix, AZ. February 9, 2020.

Binversie EE, Engelman CD, Hao Z, Moran JJ, Piazza AM, Sample SJ, **Baker LA**, Muir P. Association of canine copy number variation with anterior cruciate ligament rupture. Orthopedic Research Society Annual Meeting. Phoenix, AZ. February 10, 2020.

**Baker LA**, McNally R, Binversie EE, Sample SJ, Muir P. Exploiting biological priors to enhance GWAS in a dog model of ACL rupture. NLM Informatics Training Conference. Indianapolis, IN. June 24, 2019.

**Baker LA**, Rosa GJM, Hao Z, Piazza A, Hoffman C, Binversie EE, Sample SJ, Muir P. Multivariate genome-wide association identifies novel and relevant variants associated with cruciate ligament rupture in the Labrador retriever. American College of Veterinary Surgeons Annual Summit. Phoenix, AZ. October 26, 2018.

Binversie EE, Engelman CD, Hao Z, Piazza AM, Sample SJ, **Baker LA**, Muir P. Analysis of copy number variation in dogs implicates genomic structural variation in the development of cruciate ligament rupture. American College of Veterinary Surgeons Annual Summit. Phoenix, AZ. October 27, 2018.

**Baker LA**, Rosa GJM, Muir P. Bayesian modeling for genetic risk of anterior cruciate ligament rupture in dogs. NLM Informatics Training Conference. La Jolla, CA. June 5, 2017.

**Baker LA**, Rosa GJM, Kirkpatrick B, Gianola D, Valente B, Hao Z, Binversie EE, Volstad N, Sample SJ, Muir P. Cranial cruciate ligament rupture in dogs is a highly polygenic heritable trait based on genome-wide association analysis. American College of Veterinary Surgeons Annual Summit. Seattle, WA. October 5, 2016.

Sample SJ, Muir P, **Baker LA**, Hao Z, Rylander HK, Eminaga S, Barnes HL, Binversie EE, Piazza AM, Volstad NJ, Hans EC, Hardie RJ, Murphy S, Svaren J. Genome-wide association study of acquired laryngeal paralysis polyneuropathy in Labrador Retrievers. Veterinary Surgery, 2016; E44.

Sample SJ, Muir P, Hao Z, Rylander H, Eminaga S, Barnes-Heller H, **Baker L**, Binversie E, Piazza A, Volstad N, Hans E, Hardie R, Murphy S, Svaren J. Genetic basis of a naturally occurring canine model of peripheral neuropathy, Society of Neuroscience 2016.

**Baker LA**, Rosa GJM, Kirkpatrick B, Gianola D, Valente B, Hao Z, Binversie EE, Volstad N, Sample SJ, Muir P. Genome wide association study of canine non-contact cruciate ligament rupture. International Conference of Quantitative Genetics. June 12, 2016.

**LA Iwicki**, JL Reichert, JR Booth, DK Schneider, DK Schneider, TD Crenshaw. Recovery of bone mineralization and strength after a marginal dietary calcium deficiency in growing pigs. ADSA-ASAS Joint Annual Meeting. New Orleans, LA. July 11, 2011.

## **LAB PRESENTATIONS**

### **Estimating the Risk of Cruciate Ligament Rupture in Dogs through Genomic Prediction**

*June 2019*

Department of Surgical Sciences Orthopaedic Rounds  
School of Veterinary Medicine, University of Wisconsin-Madison

### **Leveraging the Canine Model for Genetic Dissection of ACL rupture**

*April 2019*

Computation and Informatics in Biology and Medicine Seminar  
Genetics Biotechnology Center  
University of Wisconsin-Madison

### **Multivariate Genome-Wide Association Analysis Identifies Novel and Relevant Variants Associated with Canine Cruciate Ligament Rupture**

*January 2018*

Department of Surgical Sciences Orthopaedic Rounds  
School of Veterinary Medicine, University of Wisconsin-Madison

### **Bayesian Analysis for Simultaneous GWAS and Genomic Prediction of Complex Traits**

*January 2017*

Department of Surgical Sciences Orthopaedic Rounds

School of Veterinary Medicine, University of Wisconsin-Madison

**Comparative Genetics of Anterior Cruciate Ligament Rupture**

*Sept 2016*

Computation and Informatics in Biology and Medicine Seminar  
Genetics Biotechnology Center  
University of Wisconsin-Madison

**Genetic Dissection of Canine Cranial Cruciate Ligament Rupture**

*Spring 2014*

Department of Surgical Sciences Orthopaedic Rounds  
Comparative Biomedical Sciences Graduate Student Seminar  
Seminar in Animal Genetics

**Genome-wide Association Study of Canine Non-Contact Cruciate Rupture** *April 2014*

Poster Presentation  
Phi Zeta Research Day  
School of Veterinary Medicine, University of Wisconsin-Madison

## **STUDENT RESEARCH TRAINING**

**2019-present** Margaret Patterson  
**2019-present** Nyah Kohler (Biol 152)  
**2019-present** Aashna Iyer  
**2019-present** Kiley Bauer  
**2019-present** Brooke Lee, BS  
**2018-2019** Hannah Terhaar, DVM  
**2018-present** Nathan Bollig, DVM  
**2018-present** Rachel McNally, MS  
**2018-present** Jacqueline Chi, BA  
**2017-present** Kore Chan, BS  
**2017** Zuzanna Kania (Biol 152)  
**2016-2017** Jacob Nilles, DVM  
**2016-2017** Allison Stilin, BS  
**2016-2017** Chris Hoffman, DVM  
**2014-present** Emily Binversie, MS, DVM

## **PATENTS**

Muir P, **Baker L**, inventors; Wisconsin Alumni Research Foundation, assignee. Method to predict heritable canine non-contact cruciate ligament rupture. United States patent application US 15/010,491. 2016 Jan 29.

## **LEADERSHIP**

**UW SVM Pet Food Store Manager**

*2012-2015*

Responsible for complete restructuring and re-launch of the program  
Maintained relationships with pet food industry representatives by email, phone, and in-person

Educated staff and students about their options for both prescription and maintenance diets  
Managed inventory, financials, and employee schedules

**Animal Behavior Club President**

*2012-2014*

Responsible for planning and implementing our yearly Animal Behavior CE Conference

Coordinated a monthly educational meeting for students

Managed seven other Animal Behavior Club officers