

Complete Curriculum Vitae
Troy Neal Rowan
Ph.D. Candidate

Position:

Graduate Research Assistant
Ph.D. Candidate
Genetics Area Program
Division of Animal Science
920 East Campus Drive
Columbia, MO 65211
Phone (712) 427-0096
E-mail: troyrowan@mail.missouri.edu
Website: <https://troyrowan.github.io/>

Education:

2016 B.S. (Biology), Creighton University, Omaha, NE (2016)
Graduated with Honors

Research Experience:

2019	Visiting scholar, AlphaGenes, Roslin Institute, University of Edinburgh (Dr. John Hickey)
2016 - present	Graduate Research Assistant, Animal Genomics, Division of Animal Sciences, University of Missouri (Dr. Jared E. Decker)
2015 - 2016	Undergraduate Research Assistant, Ecological Diseases, Department of Biology, Creighton University (Dr. Carol Fassbinder-Orth)
2014	Undergraduate Research Assistant, Biochemistry, Department of Biochemistry, University of Nebraska Lincoln (Dr. Karin van Dijk, Dr. Michael D. McConnell)
2013 - 2014	Undergraduate Research Assistant, Microbiology, Department of Biology, Creighton University (Dr. Karin van Dijk)

Honors and Awards:

2019	3rd Place Oral Presentation, Division of Animal Science's Graduate Forum, University of Missouri
2019	2nd Place Poster, Ecological, Evolutionary, and Developmental Biology - Missouri Life Sciences Week, University of Missouri
2018	Honorable Mention Poster in Ecological, Evolutionary, and Developmental Biology - Missouri Life Sciences Week, University of Missouri
2017	2nd Place in Biological Sciences category, Graduate Professional Council 34th Annual Research and Creative Arts Forum, University of Missouri
2017	2nd Place Oral Presentation, Division of Animal Science's Graduate Forum, University of Missouri
2017	Outstanding Presentation and Collaborative Work in Ecological and Evolutionary Genetics/Genomics

Funding

2019	Dorris D. and Christine M. Brown Fellowship, College of Agriculture Food & Natural Resources, University of Missouri. (\$6,000)
2019	Walton-Berry Fellowship, American Simmental Association. (\$5,000)
2019	John D. Bies International Travel Award, University of Missouri Graduate School. (\$2,000)
2019	Neal A. Jorgensen Bioinformatics Travel Award, Plant and Animal Genome XXVII Conference. (\$1,000)
2016 - present	University of Missouri Life Science Fellowship

Computer Skills

Systems	Linux, Windows, Mac
Languages	R, Python, Perl
Applications	PLINK, Snakemake, Git, tidyverse, GATK, AlphaSimR, SHAPEIT, Eagle, IMPUTE2, Minimac, GEMMA, hapFLK, VCFtools, EIGENSOFT, fastSTRUCTURE, GCTA, MTG2

Peer Reviewed Publications

2020

Rowan TN, Durbin HJ, Nilson SM, Seabury CM, Schnabel RD, Decker JE. 2020. Powerful detection of polygenic selection and environmental adaptation in US beef cattle populations. *bioRxiv*. <https://doi.org/10.1101/2020.03.11.988121>

Braz CU, **Rowan TN**, Schnabel RD, Decker JE. 2020. Extensive genome-wide association analyses identify genotype-by-environment interactions of growth traits in Simmental cattle. *bioRxiv*. <https://doi.org/10.1101/2020.01.09.900902>

2019

Rowan TN, Hoff JL, Crum TE, Taylor JF, Schnabel RD, Decker JE. 2019. A Multi-Breed Reference Panel and Additional Rare Variation Maximizes Imputation Accuracy in Cattle. *Genetics Selection Evolution*. <https://doi.org/10.1186/s12711-019-0519-x>

Smith JL, L Wilson ML, Nilson SM, **Rowan TN**, Oldeschulte DL, Schnabel RD, Decker JE, Seabury CM. Genome-wide association and genotype by environment interactions for growth traits in U.S. Gelbvieh cattle. *BMC Genomics*. <https://doi.org/10.1186/s12864-019-6231-y>

Rosen BD, Bickhart DM, Schnabel RD, Koren S, Elsik CG, Tseng E, **Rowan TN**, Low WY, Zimin A, Couldrey C, Hall R, Li W, Rhie A, Ghurye J, McKay SD, Thibaud-Nissen F, Hoffman J, Murdoch BM, Snelling WM, McDanel TG, Hammond JA, Schwartz JC, Nandolo W, Hagen DE, Dreischer C, Schultheiss SJ, Schroeder SG, Phillippy AM, Cole JB, Van Tassell CP, Liu G, Smith TPL, Medrano JF. 2019. De novo assembly of the cattle reference genome with single-molecule sequencing. Accepted *GigaScience*.

2015

McConnell MD, Lowry D, **Rowan TN**, van Dijk K, Redding KE. 2015. Purification and photobiochemical profile of photosystem 1 from a high-salt tolerant, oleaginous *Chlorella* (Trebouxioophyceae, Chlorophyta). *Biochemistry and Cell Biology*. 93:199-209. <https://doi.org/10.1139/bcb-2014-0144>

Invited Presentations

2019

Rowan TN. 2019. Detecting Signatures of Polygenic Selection in United States *Bos taurus* Beef Cattle. UK Genetics Society Meeting: “A Century of Genetics”. Edinburgh, UK. November 13, 2019.

Rowan TN. 2019. Detecting Signatures of Polygenic Selection and Local Adaptation in United States *Bos taurus* Beef Cattle. GIGA Institute Animal Genomics Unit Seminar. Liege, Belgium. September 2, 2019.

Rowan TN. 2019. Detecting Signatures of Polygenic Selection and Local Adaptation in United States *Bos taurus* Beef Cattle. The Biology of Genomes. Cold Spring Harbor, NY. May 8, 2019.

Rowan TN. 2019. A Large Multi-Breed Reference Panel and Additional Rare Variation Maximizes Genotype Imputation Accuracy in Cattle. ASAS Midwest Section Meeting. Assay-based genotyping workshop. Omaha, NE. March 12, 2019.

Rowan TN. 2019. Detecting Signatures of Polygenic Selection and Local Adaptation in United States *Bos taurus* Beef Cattle. Population Genetics Workshop. Plant and Animal Genome XXVII. San Diego, CA. January 12, 2019.

Rowan TN. 2019. A Large Multi-Breed Reference Panel and Additional Rare Variation Maximizes Genotype Imputation Accuracy in Cattle. NRSP8 Workshop. Plant and Animal Genome XXVII. San Diego, CA. January 11, 2019.

2017

Rowan TN. 2019. Local Genetic Adaptation in United States *Bos taurus* Cattle. Gordon Research Seminar. Quantitative Genetics and Genomics. Galveston, TX. February 26, 2017.

Contributed Presentations

2019

Rowan TN. 2019. Detecting Signatures of Polygenic Selection and Local Adaptation in United States *Bos taurus* Beef Cattle. MU Animal Sciences Graduate Forum. University of Missouri.

Rowan TN. 2019. Detecting Signatures of Polygenic Selection and Local Adaptation in United States *Bos taurus* Beef Cattle. MU Life Science Week. University of Missouri. April 18, 2019.

2018

Rowan TN. 2018. Local Genetic Adaptation in United States *Bos taurus* cattle. Population, Evolutionary, and Quantitative Genetics Conference. Madison, WI. May 14, 2018.

Rowan TN. 2018. Detecting Signatures of Polygenic Selection and Local Adaptation in United States *Bos taurus* Beef Cattle. MU Life Science Week. University of Missouri. April 18, 2019.

2017

Rowan TN. 2017. Local Genetic Adaptation in United States *Bos taurus* Cattle. MU Life Science Week. University of Missouri. April 18, 2019.

Rowan TN. 2017. Local Genetic Adaptation in United States *Bos taurus* Cattle. MU Animal Science Graduate Forum. University of Missouri.

Rowan TN. 2017. Local Genetic Adaptation in United States *Bos taurus* Cattle. Graduate Professional Council Research and Creative Arts Forum. University of Missouri.

Rowan TN. 2019. Local Genetic Adaptation in United States *Bos taurus* Cattle. Gordon Research Seminar. Quantitative Genetics and Genomics. Galveston, TX. February 26, 2017.

Extension and Outreach (13)

2020

“Detecting local adaptation and calculating region-specific EPDs for United States beef cattle”. Extension talk. Southeast Missouri Cattlemen meeting. Jackson, MO. (~90 producers). January 28, 2020

“Genomics 101”. Extension/Veterinary Continuing Education. Missouri Cattle Industry Convention: Show-Me Select Special Program. Columbia, MO. (~75 beef cattle producers and veterinarians). January 10, 2020.

“EPDs and Sire Selection”. Extension/Veterinary Continuing Education. Missouri Cattle Industry Convention: Show-Me Select Special Program. Columbia, MO. (~75 beef cattle producers and veterinarians). January 10, 2020.

“Recommendations for Sire EPD Requirement Changes: 2020 Show-Me Select Program”. Extension presentation. Show-Me Select Heifer Program Annual Board Meeting. Columbia, MO. (~50 producers and extension specialists). January 10, 2020.

2019

“Understanding the Accuracy Value of an EPD”. Extension informational video. July 31, 2019. <https://www.youtube.com/watch?v=pe9TA46pmhE>

“Using EPDs for Selection”. Extension informational video. July 16, 2019. <https://www.youtube.com/watch?v=s6nx5FGr0oo>

“Genomics 101”. Extension presentation. Christian County Livestock and Forage Conference. Clever, MO. (~60 local beef cattle producers). March 18, 2019.

“Local Adaptation in *Bos taurus* Beef Cattle”. Extension presentation. Missouri’s Regional Livestock Extension Specialist In-Service. Columbia, MO. (~30 regional livestock specialists). March 2, 2019

2018

“SHOW ME the Beef (Research): Science-driven approaches to improving cattle in Missouri and beyond” Public outreach presentation. MOST policy fellows candidate forum. Columbia, MO. October 10, 2018. (~50 community members, political candidates, and online viewers). Interview here: <https://www.kbia.org/post/boone-county-forum-gives-candidates-scientific-platform>

“Moneybull: The science of breeding more profitable and sustainable cattle.” Public outreach presentation. Science on Tap CoMo. Columbia, MO. September 26, 2018. (~50 community members + online broadcast)

“Field Testing the GeneMax Advantage Test”. Extension presentation. MU Thompson Research Farm Field Day. Spickard, MO. September 17, 2018. (~50 local cattle producers).

“EPDs and Genomics Explained”. Extension presentation. MU Southwest Center Field Day. Mt. Vernon, MO. September 13, 2018. (~1,000 students and local cattle producers)

“Genomics 101”. Southwest Missouri Veterinary Medicine Conference. Springfield, MO. November 2018. (~50 veterinarians).

2017

Rowan TN & Decker JE. 2017. “Searching for Environmental Adaptation in Beef Cattle.” Popular press article. SimTalk Magazine. September 26, 2018.

Abstracts

2019

Decker JE, **Rowan TN**, Nilson S, Durbin HJ, Braz CU, Schnabel RD, Seabury C. 2019. Matching Cow’s Genetics to Environment Using Genomics. ASAS-CSAS Annual Meeting. Austin, TX. July 9, 2019.

Taylor JF, **Rowan TN**, Crum TE, Hoff JL, Schnabel RD, Decker JE, Patterson D. 2019. Developing DNA Tests for Improved Fertility and Reduced Embryonic Loss in US Cattle Breeds. Beef Improvement Federation Conference. Brookings, SD. June 19, 2019.

Taylor JF, Hoff JL, **Rowan TN**, Neal JD, Decker JE, Schabel RD. 2019. Identification of disease-causing pathogens and breeding for disease resistance in cattle. Grand Challenges of Science Workshop: “The potential for Biotechnology to vanish World hunger”. Pirassununga, Brazil. April 12, 2019.

Smith JL, Oldeschulte DL, Wilson ML, Nilson SM, **Rowan TN**, Schnabel RD, Decker JE, Seabury CM. 2019. Genome-Wide Association and Genotype By Environment Interactions for Growth Traits in U.S. Gelbvieh Cattle. International Plant & Animal Genome XXVII. San Diego, CA. January 13, 2019.

2018

Rowan TN, Decker JE, Taylor JF, Schnabel RD. 2018. Impact of the New Reference Genome on Genotype Imputation Accuracy. International Plant & Animal Genome Conference XXVI. San Diego, CA. January 13, 2018.

Teaching & Youth Engagement

2019 - 2020 Tester/consultant, SeeGenetics: CowGames genetics teaching simulation

Spring 2020 Teaching Assistant, Applied Livestock Genetics

Spring 2018 Teaching Assistant, Genomics of Plants and Animals

2017 - 2020 Practical developer and proctor, MU Animal Science Undergraduate Academic Quadrathlon

2017 - 2019 Genetics station chair, MU Animal Science Experience Day
(Introduce genetics to 100+ visiting HS students)

Professional Organizations

Member, UK Genetics Society (2019 - present)

Member, American Association for the Advancement of Science (2018 - present)

Member, Genetics Society of America (2017 - present)

Member, Phi Sigma Biological Sciences Honor Society (2016 -2017)

Conferences Attended

2019

Nov. 13-15 UK Genetics Society - A Century of Genetics (Edinburgh, UK)

Aug. 26-30 Annual Meeting of the European Federation of Animal Science
(Ghent, Belgium)

Jun. 18-21 Beef Improvement Federation Conference (Brookings, SD)

May 7-11 The Biology of Genomes (Cold Spring Harbor, NY)

Jan. 12-16 Plant & Animal Genome Conference XXVII (San Diego, CA)

2018

Dec. 5-8 11TH BIF Genetic Prediction Workshop. (Kansas City, MO)

Jun. 20-23 Beef Improvement Federation Conference (Fort Collins, CO)
May 13-16 Population, Evolutionary, and Quantitative Genetics Conference
(Madison, WI)

2017

Nov. Genome to Phenome: USDA Blueprint for Animal Production. (Beltsville, MD)
Jun. 13 Beef Improvement Federation Conference (Athens, GA)
Feb. 26-Mar. 3 Gordon Research Conference on Quantitative Genetics and Genomics
(Galveston, TX)

Dissertation Committee

Jared E. Decker (chair)	Division of Animal Sciences, University of Missouri
Jeremy F. Taylor	Curators' Professor and Wurdack Chair of Animal Genomics, Division of Animal Sciences, University of Missouri
Robert D. Schnabel	Division of Animal Sciences, University of Missouri
J. Chris Pires	Division of Biological Sciences, University of Missouri
Wesley Warren	Division of Animal Sciences, University of Missouri