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Education

University of California Davis	Genetics	Ph.D.	2009
Western Illinois University	Biology	M.S.	2003
Nebraska Wesleyan University	Biology	B.S.	2000

Professional Experience

July 2020 – current	Associate Professor – University of Nebraska Lincoln, Dept of Animal Science Animal Functional Genomics
Jan 2014 – June 2020	Assistant Professor – University of Nebraska Lincoln, Dept of Animal Science
July 2016 – present	Courtesy Faculty – University of Nebraska Lincoln, School of Biological Sciences
May – Dec 2013	Research Associate – University of Minnesota College of Veterinary Medicine Equine Genetics and Genomics
2011 – 2013	Post-doctoral Research Fellow (NIH T32 Training Grant) – University of Minnesota College of Veterinary Medicine, Equine Genetics and Genomics
2009 – 2013	Associate of the AES, University of California Davis, Dept of Animal Science
2009 – 2011	Post-doctoral Associate –University of Minnesota College of Veterinary Med

Peer-Reviewed Publications (‡-mentored student/post-doc, ϯ-lab manager)

A full list of publications can also be found at:
https://www.ncbi.nlm.nih.gov/myncbi/1T7hbhaGBv8ki/bibliography/public/

In Press

1. Heath HH, Peng SC, Szmatola T, Bellone RR, Kalbfleisch T, **Petersen JL**, Finno CJ. A comprehensive allele specific expression resource for the equine transcriptome. *BMC Genomics.*
2. Nilson SN‡, Burke JM, Becker GM, Murdoch BM, **Petersen JL**, Lewis RM. Genomic diversity of US Katahdin hair sheep. Journal of Animal Breeding and Genetics. doi:10.1111/jbg.12914

2024 (total: 7; senior author: 4)

3. Bailey E, Finno CJ, Cullen J, Kalbfleisch T, **Petersen JL**[1]. 2024. Analyses of whole-genome sequences from 185 North American Thoroughbred horses, spanning 5 generations. [1]Corresponding author. Scientific Reports. 14:22930. doi: 10.1038/s41598-024-73645-9
4. Wilson CS, **Petersen JL**, Brito LF, Freking BA, Nilson SM‡, Taylor JB, Murphy TW, Lewis RM. 2024. Assessment of genetic diversity and population structure of US Polypay sheep from breed origins to future genomic selection. Frontiers in Genetics. 15:1436990. doi:10.3389/fgene.2024.1436990.
5. Hess MK, Mersha A, Ference SS, Nafziger SR, Keane JA, Fuller AM ϯ, Kurz SG, Sutton CM, Spangler ML, **Petersen JL**, Cupp AS. 2024. Puberty classifications in beef heifers are moderately to highly heritable

and associated with candidate genes related to cyclicity and timing of puberty. Frontiers in Genetics. 15:2024. doi:10/3389/fgene/20241405456.

6. Reith RR‡, Beever JE, Paschal JC, Banta J, Porter BF, Steffen DJ, Hairgrove TB, **Petersen JL**. 2024. A de novo mutation in association with autosomal dominant bovine familial convulsions and ataxia in Angus cattle. Animal Genetics. 55(3);344-351. doi:10.1111/age.13409.
7. Reith RR‡, Batt MC‡, Fuller AM ‡, Meekins J, Diehl KA, Zhou Y, Bedwell PS, Ward JA, Sanders SK, **Petersen JL***[1], Steffen DJ*. [1]corresponding author. *authors contributed equally. 2024. A novel *CLN3* variant is responsible for delayed-onset retinal degeneration in Hereford cattle. Journal of Veterinary Diagnostic Investigation. 36(3):438-446. doi:10.1177/10406387241239918.
8. Batt MC‡, Venzor LG, Gardner K, Reith RR‡, Roberts KA‡, Herrera NJ, Fuller AM ‡, Sullivan GA, Mulliniks JT, Spangler ML, Valberg SJ, Steffen DJ*, **Petersen JL***. *authors contributed equally. 2024. An autosomal recessive mutation in *PYGM* causes myophosphorylase deficiency in Red Angus composite cattle. BMC Genomics. 25:417. doi: https://doi.org/10.1186/s12864-024-10330-1
9. Gibbs RL, Wilson JA, Swanson RM, Beard JK, Hicks ZM, Beer HN, Marks-Nelson ES, Schmidt TB, **Petersen JL**, Yates DT. 2024. Daily injection of the β2 adrenergic agonist clenbuterol improved muscle glucose metabolism, glucose-stimulated insulin secretion, and hyperlipidemia in juvenile lambs following heat-stress induced intrauterine growth restriction. Metabolites. 14:156. doi:10.3390/metabo1403156.

2023 (total: 10; first/senior author: 3)

10. Gibbs R, Swanson RM, Beard JK, Hicks Z, Most MS, Beer HN, Grijalva PC, Clement SM, Marks-Nelson ES, Schmidt TB, **Petersen JL**, Yates DT. 2023. Daily injection of the β2 adrenergic agonist clenbuterol improved poor muscle growth and body composition in lambs following heat stress induced intrauterine growth restriction. Frontiers in Physiology. 14:1252508. doi:10.3389/fphys.2023//1252508.
11. Cappelletti E, Piras FM, Sola L, Santagostino M, **Petersen JL**, Bellone RR, Finno CJ, Peng SC, Kalbfleisch T, Bailey E, Nergadze S, Giulotto E. 2023. The localization of centromere protein A is conserved among tissues. Communications Biology. 6:963. doi:10.1038/s42003-023-05335-7.
12. Lu A, Fei Z … **Petersen JL** …Raj K. 2023. Universal DNA methylation age across mammalian tissues. Nature Aging. 3:1144-1166. doi:10.1038/s43587-023-00462-6.
13. Haghani A, Li CZ, … **Petersen JL**…Horvath S. 2023. DNA methylation networks underlying mammalian traits. Science. 381, eabq5693. doi:10.1126/science.abq5693.
14. Todd E, Fromentier A, Sutcliffe R, Running Horse Collin Y, Perdereau A, Aury J-M, Èche C, Bouchez O, Donnadieu C, Wincker P, Kalbfleisch T, **Petersen JL**, Orlando L. 2023. Imputed genomes of historical horses provide insights into modern breeding. iScience. 26, 107104.
15. **Petersen JL**, Sieck RL‡, Steffen DJ. 2023. White coat color of a Black Angus calf attributed to an occurrence of the delR217 variation of *MITF.* Animal Genetics. 54(4):549-552. doi:10.1111/age.13327.
16. Mousavi SF, Razmkabir M, Rostamzadeh J, Seyedabadi H-R, Naboulsi R, **Petersen JL**, Lindgren G. 2023. Genetic diversity and signatures of selection in four indigenous horse breeds of Iran. Heredity. doi:10.1038/s41437-023-00624-7.
17. Valberg SJ, Williams Z, Finno CJ, Schultz A, Velez-Irizarry D, Henry M, Gardner K, **Petersen JL**. 2023. Type 2 polysaccharide storage myopathy in Quarter Horses is a novel glycogen storage disease causing exertional rhabdomyolysis. Equine Veterinary Journal. 55(4): 618-631. doi:10.1111/evj.13876

18. Peng SC, Dahlgren AR, Donnelly CG, Hales EN, **Petersen JL**, Bellone RR, Kalbfleisch T, Finno CJ. 2023. Functional annotation of the animal genomes: an integrated annotation resource for the horse. PLoS Genetics. 19(3):e1010468. doi:10.1371/journal.pgen.1010468.
19. Valberg SJ, Henry ML, Herrick KL, Velez-Irizarry, Finno CJ, **Petersen JL**. 2023. Absence of myofibrillar myopathy in Quarter Horses with a histopathologic diagnosis of type 2 polysaccharide storage myopathy and lack of association with commercial genetic tests. Equine Veterinary Journal. 55(2):230-238. doi:10.1111/evj.13574.

2022 (total: 9; senior author: 2)

20. Klouth E, Zablotski Y, **Petersen JL**, de Bruijn CM, Gröndahl G, Müller S, Goehring LS. 2022. Epidemiological Aspects of Equid Herpesvirus-associated Myeloencephalopathy (EHM) outbreaks. Viruses. 14(11):2576. doi:10.3390/v14112576.
21. Wang Z, Chivu AG, Choate LA, Rice EJ, Miller DC, Chu T, Chou S-P, Kingsley NB, **Petersen JL**, Finno CJ, Bellone RR, Antczak DF, Lis JT, Danko CG. 2022. Prediction of histone post-translational modification patterns based on nascent transcription data. Nature Genetics. 54:295-305. doi:10.1038/s41588-022-01026-x.
22. Sieck RL[‡], Treffer LK[‡], Fuller AM[†], PointeViana M, Khalimonchuk O, Schmidt TB, Yates DT, **Petersen JL**. 2022. Beta-adrenergic agonists alter oxidative phosphorylation in primary myoblasts. Journal of Animal Science. 100(8):skac208. doi: 10.1093/jas/skac208
23. Posont RJ, Most MS, Cadaret CN, Marks-Nelson E, Beede KA, Limesand SW, Schmidt TB, **Petersen JL**, Yates DT. 2022. Primary myoblasts from intrauterine growth-restricted fetal sheep exhibit intrinsic dysfunction of proliferation and differentiation that coincides with enrichment of inflammatory cytokine signaling pathways. Journal of Animal Science. 100(8):skac145. doi: 10.1093/jas/skac145.
24. Wilson CS, **Petersen JL**, Blackburn HD, Lewis RM. 2022. Assessing population structure and genetic diversity in the US Suffolk sheep to define a framework for genomic selection. Journal of Heredity. 113:431-443. doi:10.1093/jhered/esac026.
25. Gurgul A, Szmatoła T, Ocłoń E, Jasielczuk I, Semik-Gurgul E, Finno CJ, **Petersen JL**, Bellone RR, Hales EN, Ząbek T, Arent Z, Kotula-Balak M, Bugno-Poniewierska M. 2022. Another lesson from unmapped reads – in depth analysis of RNA-Seq reads from various horse tissues. Journal of Applied Genetics. 63:571-581. doi:10.1007/213353-022-00705-z.
26. Reith RR[‡], Sieck RL[‡], Grijalva PC, Swanson R, Fuller AM[†], Diaz DE, Schmidt TB, Yates DT, **Petersen JL**. 2022. Transcriptome analyses indicate that heat stress-induced inflammation in white adipose tissue and oxidative stress in skeletal muscle is partially moderated by zilpaterol supplementation in beef cattle. Journal of Animal Science. 100(3):skac109. doi.org/10.1093/jas/skac019.
27. Bailey E, **Petersen JL**, Kalbfleisch T. Invited Review: Genetics of Thoroughbred racehorse performance. 2022 Annual Review of Animal Biosciences. 10:131-150. doi.org/10.1146/annurev-animal-020420-035235.
28. Horvath S, Haghani A, Peng S, Hales EN, Zoller JA, Raj K, Larison B, Robeck TR, **Petersen JL**, Bellone RR, Finno CJ. 2022. DNA methylation aging and transcriptomic studies in horses. Nature Communications. 13:40. doi.org/10.1038/s41467-021-27754-y.

2021 (total: 10; senior author: 2)

29. Cadaret CT, Posont RJ, Swanson RM, Beard JK, Gibbs RL, Barnes TL[‡], Marks-Nelson ES, **Petersen JL**, Yates DT. 2021. Intermittent maternofetal oxygenation during late gestation improved birthweight, neonatal growth, body symmetry, and muscle metabolism in intrauterine growth-restricted lambs. Journal of Animal Science. 100:skab358:.doi.org/10.1093/jas/skab358.

30. Peng S, **Petersen JL**, Bellone RR, Kalbfleisch T, Kingsley NB, Barber AM[‡], Cappelletti E, Giulotto E, Finno CJ. 2021. Decoding the Equine Genome: Lessons from ENCODE. Genes. 12(11): 1707. doi.org/10.3390.genes12111707.
31. Barnes TB[‡], Burrack RM[‡], Schmidt TB, **Petersen JL**, Yates DT. 2021. Sustained heat stress elevated corneal and body surface temperatures and altered circulating leukocytes and metabolic indicators in wether lambs supplemented with ractopamine or zilpaterol. Journal of Animal Science. 99:skab236. doi:10.1093/jas/skab236.
32. Peng S, Bellone RR, **Petersen JL**, Kalbfleisch TS, Finno CJ. Successful ATAC-seq from snap-frozen equine tissues. 2021. Frontiers in Genetics. 12:641788. doi:10.3389/fgene.2021.641788.
33. Herrera NJ, Bland NA, Ribeiro FA, Henriott ML, Hofferber EM, Meier J, **Petersen JL**, Iverson NM, Calkins CR. 2021. Oxidative stress and postmortem meat quality in crossbred lambs. Journal of Animal Science. 99:skab156. doi:10.1093/jas/skab156.
34. Posont RJ, Cadaret CN, Beard JK, Swanson RM, Gibbs RM, Marks-Nelson ES, **Petersen JL**, Yates DT. 2021. Maternofetal inflammation induced for two weeks in late gestation reduced birthweight and impaired neonatal growth and skeletal muscle glucose metabolism in lambs. Journal of Animal Science. 99:skab102. doi:10.1093/jas/skab102
35. Kingsley NB, Hamilton N, Lindgren G, Orlando L, Bailey E, Brooks SB, McCue M, Kalbfleisch TS, MacLeod JN, **Petersen JL**, Finno CJ, Bellone RR. 2021. Adopt-a-tissue initiative advances efforts to identify tissue-specific histone marks in the mare. Frontiers in Genetics. 12:390. doi:10.3389/fgene.2021.649959.
36. Donnelly CG, Bellone RR, Hales E, Nguyen A, Katzman S, Dujovne G, Knickelbein K, Avila F, Kalbfleisch T, Guiulotto E, Kingsley NB, Tanaka J, Esedaile E, Peng S, Dahlgren A, Fuller A[†], Mienaltowski M, Raudsepp T, Affolter V, **Petersen JL**, Finno CJ. 2021. Generation of a Biobank From Two Adult Thoroughbred Stallions for the Functional Annotation of Animal Genomes Initiative. Frontiers in Genetics. 12:301. doi:10.3389/fgene.2021.650305.
37. Yousefi Mashouf N, Mehrabani Yeganeh H, Nejati Javaremi A, Bailey E, **Petersen JL**. 2021. Genomic comparisons of Persian Kurdish, Persian Arabian, and American Thoroughbred horse populations. PLoS One. 16(2):e0247123. doi:10.1371/journal.pone.0247123.
38. Valberg SJ, Finno CJ, Henry M, Schott M, Velez-Irizarry D, Peng S, McKenzie E, **Petersen JL**. 2021. Commercial genetic testing for type 2 polysaccharide storage myopathy and myofibrillar myopathy does not correspond to a histopathologic diagnosis. Equine Veterinary Journal. 53: 690-700. doi.org/10.1111/evj.13345

2020 (Total: 11; first/senior author: 4)

39. Kalbfleisch T, **Petersen JL**, Tait Jr. RG, Qiu J, Basnayake V, Hackett P, Heaton MP. 2020. Using triallelic SNPs for determining parentage in North American yak (*Bos grunniens*) and estimating cattle (*B. taurus*) introgression. F1000. doi:10.12688/f1000research.25803.2
40. Sieck RL[‡], Fuller AM[†], Bedwell PS, Ward JA, Sanders SK, Xiang S-H, Peng S, **Petersen JL**, Steffen DJ. 2020. Mandibulofacial dysostosis attributed to a recessive mutation of *CYP26C1* in Hereford cattle. Genes. 11:1246. doi:10.3390/genes11111246
41. Dahlgren A, Scott E, Mansour T, Hales E, Ross P, Kalbfleisch TS, MacLeod JN, **Petersen JL**, Bellone RR, Finno CJ. 2020. Comparison of Poly-A[+] Selection and rRNA Depletion in Detection of lncRNA in Two Equine Tissues Using RNA-seq. ncRNA. 6(3):32. doi.org/10.3390/ncrna6030032
42. **Petersen JL**, Coleman SJ. 2020. Invited Review: Next-generation sequencing in equine genomics. Veterinary Clinics: Equine Practice. 36:195-209. doi.org/10.1016/j.cveq.2020.03.002

43. Swanson RM, Tait Jr RG, Galles RM, Duffy EM‡, Schmidt TB, **Petersen JL**, Yates DT. 2020. Heat stress-induced deficits in growth, metabolic efficiency, and cardiovascular function coincided with chronic systemic inflammation and hypercatecholaminemia in ractopamine-supplemented feedlot lambs. Journal of Animal Science. 98:skaa168. doi.org/10.1093/jas/skaa168.
44. Rice ES‡, Koren S, Rhie A, Heaton MP, Kalbfleisch TS, Hardy T, Hackett PH, Bickhart DM, Rosen BD, Vander Ley B, Maurer NW, Green RE, Phillippy AM, **Petersen JL**, Smith TPL. 2020. Continuous chromosome-scale haplotypes assembled from a single interspecies F1 hybrid of yak and cattle. Gigascience. 9:giaa029. doi.org/10.1093/gigascience/giaa029.
45. Helms A, Thompson RE, Lawton S, **Petersen JL**, Watson A, Sula M-J, Steffen DJ, Whitlock BK. 2020. Uterine torsion dystocia complicated by Perosomus elumbis in an Angus calf associated with a consanguineous mating. Case Reports in Veterinary Medicine. 2020:6543037. doi.org/10.1155/2020/6543037.
46. Nilson SM‡, Workman AM, Sjeklocha D, Brodersen B, Grotelueschen DM, **Petersen JL**. 2020. Upregulation of the type I interferon pathway in feedlot cattle persistently infected with bovine viral diarrhea virus. Virus Research. 278:197862. doi.org/10.1016/j.virusres.2020.197862.
47. **Petersen JL**, Kalbfleisch TS, Parris M‡, Tietze SM†, Cruickshank J. 2020. *MC1R* and *KIT* haplotypes associate with coat color in North American yak (*Bos grunniens*). Journal of Heredity. 111:169-181. doi.org/10.1093/jhered/esz070.
48. Kingsley NB, Kern C, Creppe C, Hales EN, Zhou H, Kalbfleisch TS, MacLeod JN, **Petersen JL**, Finno CJ, Bellone RR. 2020. Functionally annotating regulatory elements in the equine genome using histone mark ChIP-Seq. Genes. 11:3. doi.org/10.3390/genes11010003.
49. Burrack RM‡, Duffy EM‡, Yates DT, Schmidt TB, **Petersen JL**. 2020. Whole blood transcriptome analysis in feedlot cattle after 35-days of supplementation with a β1-adrenergic agonist. Journal of Applied Genetics. 61:117-121. do.org/10.1007/s13353-019-00527-6.

2019 (total: 9; first/senior author: 5)

50. Cadaret CN, Merrick EM, Barnes TL‡, Beede KA, Posont RJ, **Petersen JL**, Yates DT. 2019. Sustained maternal inflammation during the early third trimester yields intrauterine growth restriction, impaired skeletal muscle glucose metabolism, and diminished β cell function in fetal sheep. Journal of Animal Science. 97:4822-4833. doi.org/10.1093/jas/skz321.
51. Raudsepp T, Finno CJ, Bellone RR, **Petersen JL**. 2019. Ten years of the horse reference genome: insights into equine biology, domestication and population dynamics in the post-genome era. Animal Genetics. 50:569-597. doi.org/10.1111/age.12857.
52. Barnes TB‡, Cadaret C, Beede K, Schmidt TB, **Petersen JL***, Yates DT*. 2019. Hypertrophic muscle growth and metabolic efficiency were impaired by chronic heat stress, improved by zilpaterol supplementation, and not affected by ractopamine supplementation in feedlot lambs. Journal of Animal Science. 97:4101-4113. doi:10/1093/jas/skz271. *authors contributed equally
53. Wijesena HR, Rohrer GA, Nonneman DJ, Keel BN, Petersen JL, Kachman SD, Ciobanu DC. 2019. Evaluation of genotype quality parameters for SowPro90, a noval genotyping array for swine. Journal of Animal Science. 97:3262-3273. doi.org/10.1093/jas/skz185.
54. **Petersen JL**, Lewis RM, Embertson RM, Valberg SJ, Holcombe SJ. 2019. Heritability of ≥ 360° large colon volvulus in Thoroughbred broodmares. Veterinary Record. 185:269. doi:10.1136/vr.105323.
55. Tozaki T, Kikuchi M, Kakoi H, Hirota K, Nagata S, Yamashita D, Ohnuma T, Takasu M, Kobayashi I, Hobo S, Manglai D, **Petersen JL**. 2019. Genetic diversity and relationships among native Japanese

horse breeds, the Japanese Thoroughbred, and horses outside of Japan using genome-wide SNP data. Animal Genetics. 50:449-459. doi.org/10.1111/age.12819.

56. Beede KA, Limesand SW, **Petersen JL**, Yates DT. 2019. Real supermodels wear wool: summarizing the impact of the pregnant sheep as an animal model for adaptive fetal programming. Animal Frontiers. 9:34-43. doi.org/10.1093/af/vfz018.
57. **Petersen JL**, Tietze SM†, Burrack RM‡, Steffen DJ. 2019. Evidence for a de novo, dominant germ-line mutation causative of osteogenesis imperfecta in two Red Angus calves. Mammalian Genome. doi:10.1007/s00335-019-09794-4.
58. Valberg SJ, Soave K, Williams ZJ, Perumbakkam S, Schott M, Finno CJ, **Petersen JL**, Fenger C, Autry JM, Thomas DD. 2019. Coding sequences of sarcoplasmic reticulum calcium ATPase regulatory peptides and expression of calcium regulatory genes in recurrent exertional rhabdomyolysis. Journal of Veterinary Internal Medicine. 33(2):933-941. doi:10.1111/jvim.15424.

2018 (total: 3)

59. Kalbfleisch TS, Rice ES, DePriest Jr MS, Walenz BP, Hestand MS, Vermeesch JR, O'Connell BL, Fiddes IT, Vershinina AO, **Petersen JL**, Finno JC, Bellone RR, McCue ME, Brooks SA, Bailey E, Orlando L, Green RE, Miller DC, Antczak DF, MacLeod JN. 2018. Improved reference genome for the domestic horse increases assembly contiguity and composition. Communications Biology 1:197. doi: 10.1038/s42003-018-0199-z.
60. Burns EN, Bordbari M, Mienaltowski MJ, Affolter VK, Barro MV, Gianino F, Gianino G, Giulotto E, Kalbfleisch TS, Katzman SA, Lassaline M, Leeb T, Mack M, Müller EJ, MacLeod JN, Ming-Whitfield B, Alanis CR, Raudsepp T, Scott E, Vig S, Zhou H, **Petersen JL**, Bellone RR, Finno CJ. 2018. Generation of an equine functional annotation of animal genomes biobank. Animal Genetics. 49(6):564-570. doi: 10.1111/age.12717.
61. Yates DT, **Petersen JL**, Schmidt TB, Cadaret CN, Barnes TB‡, Posont RJ, Beede KA. 2018. Fetal origins of impaired muscle growth and metabolic dysfunction: lessons from the heat-stressed pregnant ewe. Journal of Animal Science. 96:2987-3002. doi: 10.1093/jas/sky164.

2017 (total: 1)

62. Bellone RR, Liu J, **Petersen JL**, Mack M, Singer-Berk M, Drögemüller C, Malvick J, Wallner B, Brem G, Penedo MCT, Lassaline M. 2017. A missense mutation in damage specific DNA binding protein 2 is a genetic risk factor for limbal squamous cell carcinoma in horses. International Journal of Cancer. 141:342-353.

2016 (total: 3)

63. Tuggle CK, Giuffra E, White SN, Clarke L, Zhou H, Ross PJ, Acloque H, Reecy JM, Archibald A, Bellone RR, Biochard M, Chamberlain A, Cheng H, Crooijmans RPMA, Delany ME, Finno CJ, Groenen MAM, Hayes B, Lunney JK, **Petersen JL**, Plastow GS, Schmidt CJ, Soung J, Watson M. 2016. GO-FAANG meeting: a gathering on functional annotation of animal genomes. Animal Genetics. 47:528-533.
64. Trenhaile MD, **Petersen JL**, Kachman SD, Johnson RK, Ciobanu DC. Long-term selection for litter size in swine results in shifts in allelic frequency in regions involved in reproductive processes. 2016. Animal Genetics. 47:534-542.
65. Workman A, Heaton MP, Harhay GP, Smith T, Grotelueschen DM, Sjeklocha D, Brodersen B, **Petersen JL**, Chitko-McKown CG. 2016. Resolving Bovine viral diarrhea virus subtypes from persistently infected U.S. beef calves with complete genome sequence. Journal of Veterinary Diagnostic Investigation. 28:519-528. *Awarded best JVDI Full Manuscript of the year

2015 (total: 2; first author: 1)

66. **Petersen JL**, Mickelson JR, Valberg SJ, McCue ME. 2015. Genome-wide SNP data shows little differentiation between the Appaloosa and other American stock horse breeds. Animal Genetics. 46:585-586.
67. Morota G, Peñagaricano F, **Petersen JL**, Ciobanu DC, Tsuyuzaki K, Nikaido I. 2015. An application of MeSH enrichment analysis in livestock. Animal Genetics. 46:381-387.

2014 (total: 3; first author: 2)

68. **Petersen JL**, Valberg SJ, Mickelson JR, McCue ME. 2014. Haplotype diversity in the equine myostatin gene with focus on variants associated with race distance propensity and muscle fiber type proportions. Animal Genetics. 45:827-835.
69. **Petersen JL**, Mickelson JR, Cleary KD, McCue ME. 2014. The American Quarter Horse: Population structure and relationship to the Thoroughbred. Journal of Heredity. 105:148-162.
70. McCoy AM, Schaefer R, **Petersen JL**, Morrell PL, Slamka MA, Mickelson JR, Valberg SJ, McCue ME. 2014. Evidence of positive selection for a Glycogen Synthase (*GYS1*) mutation in domestic horse populations. Journal of Heredity. 105:163-172.

2013 (total: 2; first author: 2)

71. **Petersen JL**, Mickelson JR, Cothran EG, 34 others, McCue ME. 2013. Genetic diversity in the modern horse illustrated from genome-wide SNP data. PLoS One 8(1): e54997. doi10.1371/journal.pone.0054997.
72. **Petersen JL**, Mickelson JR, Rendahl AK, Valberg SJ, 36 others, McCue ME. 2013. Genome-wide analysis reveals selection for important traits in domestic horse breeds. PLoS Genetics 9(1): e1003211. doi:10.1371/journal.pgen.1003211.

2012 (total: 3; first author: 1)

73. Andersson LS, Larhammar M, Memic F, Wootz H, Schwochow D, Rubin CJ, Patra K, Arnason T, Wellbring L, Hjälm G, Imsland F, **Petersen JL**, 9 others, Andersson L. 2012. Mutations in *DMRT3* affect locomotion in horses and spinal circuit function in mice. Nature 488:642-646.
74. **Petersen JL**, Baerwald MR, Ibarra AM, May B. 2012. A first-generation linkage map of the Pacific lion-paw scallop *(Nodipecten subnodosus)*: Initial evidence of QTL for size traits and markers linked to orange shell color. Aquaculture 350-353:200-209.
75. McCue ME, Bannasch DL, **Petersen JL**, 17 others, Wade CM, Mickelson JR. 2012. A high density SNP array for the domestic horse and extant Perissodactyla: utility for association mapping, genetic diversity, and phylogeny studies. PLoS Genetics. 8(1): e1002451. doi:10.1371/journal.pgen.1002451.

2011 (total: 1)

76. Baerwald MR, **Petersen JL,** Hedrick RP, Schisler GJ, May BP. 2011. A major effect quantitative trait locus for whirling disease resistance identified in rainbow trout *(Oncorhynchus mykiss)*. Heredity. 106:920-926.

2010 (total: 2; first author: 1)

77. **Petersen JL**, Ibarra AM, May BP. 2010. Nuclear and mtDNA lineage diversity in wild and cultured Pacific lion-paw scallop, *Nodipecten subnodosus* (Baja California Peninsula, Mexico). Marine Biology. 157:2751-2767.

78. Lamer JT, Dolan CR, **Petersen JL,** Chick JH, Epifanio JM. 2010. Introgressive hybridization between bighead carp and silver carp in the Mississippi and Illinois Rivers. North American Journal of Fisheries Management. 30:1452-1461.

2009 (total: 2; first author: 1)

79. **Petersen JL**, Ibarra AM, May BP. 2009. Thirty-seven additional microsatellite loci in the Pacific lion-paw scallop, *Nodipecten subnodosus*, and cross-amplification in other Pectinids. Con Gen Res. 1:101-105.

80. Fisch KM, **Petersen JL,** Baerwald MR, Pedroia JK, May B. 2009. Characterization of 24 microsatellite loci in delta smelt, *Hypomesus transpacificus*, and their cross-species amplification in two other smelt species of the Osmeridae family. Molecular Ecology Resources. 9:405-408.

2008 (total: 1; first author: 1)

81. **Petersen JL**, Ibarra AM, Ramirez JL, May BP. 2008. An induced mass spawn of the hermaphroditic lion-paw scallop: Genetic assignment of maternal and paternal parentage. Journal of Heredity. 99:337-348.

2006 (total: 1)

82. Ibarra AM, **Petersen JL,** Famula TR, May BP. 2006. Characterization of 35 microsatellite loci in the Pacific lion-paw scallop *(Nodipecten subnodosus)* and their cross-species amplification in four other scallops of the Pectinidae family. Molecular Ecology Notes: 6:153-156.

2003 (total: 1)

83. **Petersen JL,** Bischof R, Krapu GL Szalanski AL. 2003. Genetic variation in the Midcontinental population of sandhill crane, *Grus canadensis*. Biochemical Genetics. 41:1-12.

2001 (total: 1; first author: 1 *author order reversed)

84. Szalanski AL, Steinauer G, Bischof R, **Petersen J**. 2001. Origin and conservation genetics of the threatened ute ladies'-tresses, *Spiranthes diluvialis* (Orchidaceae). American Journal of Botany 88:177-180.

Textbook/Guide

Evans JW, Hoffman RM, **Petersen JL**, VanVleck LD. 2021. The Horse, 3rd ed. Waveland Press, Inc. ISBN 1-4786-3947-4. 620 pg.

Contributed to "Genomic characterization of animal genetic resources." Ajmone-Marsan et al. FAO Animal Production and Health Guidelines No 32. Rome. https://doi.org/10.4060/cc3079en

Book Chapter

Petersen JL. Horse Breeding. 2023. *In* Encyclopedia of Sustainability Science and Technology, Meyers RA (ed). p279-296. Springer, New York, NY. doi.org/10.1007/978-1-4939-2493-6_1120-1.

Referred Proceedings Papers (‡-mentored student/post-doc, ᵡ-grad committee member, ᵻ-lab tech)
Since joining UNL (2014)

1. Barber AM‡, Helms A, Thompson R, Whitlock BK, Steffen DJ, **Petersen JL**. 2021. Whole-genome sequencing to investigate a possible genetic basis of perosomus elumbis in a calf resulting from a consanguineous mating. Translational Animal Science. 5(S1):S1-5. doi.org/10/1093/tas/txab171.
2. Reith RR‡, Sieck RL‡, Grijalva PCᵡ, Swanson RMᵡ, Diaz DE, Schmidt TB, Yates DT, **Petersen JL**. Supplementing zilpaterol hydrochloride to heat-stressed beef cattle for 21 d alters the adipose transcriptome and is predicted to alter stress response pathways. Translational Animal Science. 5(S1):S56-60. doi.org/10/1093/tas/txab158.
3. Sieck RL‡, Reith RR‡, Fuller AMᵻ, Grijalva PCᵡ, Treffer LK‡, Swanson RMᵡ, Ponte Viana M, Khalimonchuk O, Diaz DE, Schmidt TB, Yates DT, **Petersen JL**. 2021. Beta-adrenergic agonists and heat stress impact skeletal muscle gene expression and mitochondrial function in beef cattle. Translational Animal Science. 5(S1):S164-169. doi.org/10/1093/tas/txab157.
4. Beer HN, Lacey TAᵡ, Gibbs RL, Most MSᵡ, Hicks ZM, Grijalva PCᵡ, **Petersen JL**, Yates DT. 2021. Placental insufficiency improves when intrauterine growth-restricted fetal sheep are administered daily ω-3 polyunsaturated fatty acid infusions. Translational Animal Science. 5(S1):S6-10. doi.org/10/1093/tas/txab166.
5. Lacey TAᵡ, Gibbs RL, Most MSᵡ, Beer HN, Hicks ZM, Grijalva PCᵡ, **Petersen JL**, Yates DT. 2021. Decreased fetal biometrics and impaired β-cell function in IUGR fetal sheep are improved by daily ω-3 PUFA infusion. Translational Animal Science. 5(S1):S41-45. doi.org/10/1093/tas/txab168.
6. Grijalva PCᵡ, Most MS, Gibbs RL, Hicks ZM, Lacey TAᵡ, Beer HN, Schmidt TB, **Petersen JL**, Yates DT. 2021. Fish oil and dexamethasone administration partially mitigates heat stress-induced changes in circulating leukocytes and metabolic indicators in feedlot wethers. Translational Animal Science. 5(S1):S30-33. doi.org/10/1093/tas/txab167.
7. Gibbs RL, Swanson RMᵡ, Beard JK, Schmidt TB, **Petersen JL**, Yates DT. 2021. Deficits in skeletal muscle glucose metabolism and whole-body oxidative metabolism in the intrauterine growth-restricted juvenile lamb are improved by daily treatment with clenbuterol. Translational Animal Science. 5(S1):S20-24. doi.org/10.1093/tas/txab187.
8. Most MS, Grijalva PC, Beer HN, Gibbs RL, Hicks ZM, Lacey TA, Schmidt TB, **Petersen JL**, Yates DT. 2021. Dexamethasone and fish oil improve average daily gain but not muscle mass or protein content in feedlot wethers after chronic heat stress. Translational Animal Science. 5(S1):S46-50. doi.org/10.1093/tas/txab163.
9. Reith RR, Sieck RL, Grijalva PC, Diaz DE, Schmidt TB, Yates DT, **Petersen JL**. 2021. Abstract: Zilpaterol hydrochloride and heat stress each alter the cattle adipose transcriptome and are predicted to alter molecular pathways after 21 days. Journal of Animal Science. 99(S1)17-18. doi.org/10.1093/jas/skab054.031.
10. Gibbs R, Swanson RMᵡ, Beard J, Schmidt TB, **Petersen JL**, Yates DT. 2020. Deficits in growth, muscle mass, and body composition following intrauterine growth restriction persisted in lambs at 60 d of age but were improved by daily clenbuterol supplementation. Translational Animal Science. 4(S1):S53-57. doi.org/10.1093/tas/txaa097
11. Reith RR‡, Duffy EM‡, Swanson RMᵡ, Fuller AMᵻ, Schmidt TB, Yates DT, **Petersen JL**. 2020. Heat stress and β-adrenergic agonists alter the adipose transcriptome and fatty acid mobilization in ruminant livestock. Translational Animal Science. 4(S1):S141-144. doi.org/10.1093/tas/txaa122

12. Sieck RL[‡], Treffer L[‡], Ponte Viana M, Khalimonchuk O, Schmidt TS, Yates DT, **Petersen JL**. 2020. Beta-adrenergic agonists increase maximal output of oxidative phosphorylation in bovine satellite cells. Translational Animal Science. 4(S1):S94-97. doi.org/10.1093/tas/txaa112
13. Duffy EM[‡], Hamilton HC, Schmidt TB, Yates DT, **Petersen JL**. 2019. Effect of environmental temperature and β adrenergic agonist supplementation on rumen volatile fatty acid production. Translational Animal Science. 3(S1):1744-1748. doi.org/10.1093/tas/txz079
14. Cadaret CN, Posont RJ[ʎ], Swanson RM[ʎ], Beard JK, Barnes TL[‡], Beede KA, **Petersen JL**, Yates DT. 2019. Intermittent maternofetal O_2 supplementation during late gestation rescues placental insufficiency-induced intrauterine growth restriction and metabolic pathologies in the neonatal lamb. Translational Animal Science. 3(S1):1696-1700. doi.org/10.1093/tas/txz060
15. Gibbs RL, Cadaret CN, Swanson RM[ʎ], Beede KA, Posont RJ[ʎ], Schmidt TB, **Petersen JL**, Yates DT. 2019. Body composition estimated by bioelectrical impedance analyses (BIA) is diminished by prenatal stress in neonatal lambs and by heat stress in feedlot wethers. Translational Animal Science. 3(S1):1691-1695. doi.org/10.1093/tas/txz059
16. Posont RJ[ʎ], Cadaret CN, Beede KA, Beard JK, Swanson RM[ʎ], Gibbs RM, **Petersen JL**, Yates DT. 2019. Maternal inflammation at 0.7 gestation in ewes leads to intrauterine growth restriction and impaired glucose metabolism in offspring at 30d of age. Translational Animal Science. 3(S1):1673-1677. doi.org/10.1093/tas/txz055
17. Swanson RM[ʎ], Beede KA, Freeman MD, Eggleston ML, Schmidt TB, **Petersen JL**, Yates DT. 2019. Ractopamine HCl improved cardiac hypertrophy but not poor growth, metabolic inefficiency, or greater white blood cells associated with heat stress in concentrate-fed lambs. Translational Animal Science. 3(S1):1786-1791. doi.org/10.1093/tas/txz098
18. Kubik RM[‡], Tietze SM[ŧ], Schmidt TB, Yates DT, **Petersen JL**. 2018. Investigation of the skeletal muscle transcriptome in lambs fed β adrenergic agonists and subjected to heat stress for 21 d. Translational Animal Science. 2:S53-S56. doi:10.1093/1093/tas/txy053.
19. Duffy EM[‡], Tietze SM[ŧ], Knoell AL, Aluthge ND, Fernando SC, Schmidt TS, Yates DT, **Petersen JL**. 2018. Rumen bacterial composition in lambs is affected by β adrenergic agonist supplementation and heat stress at the phylum level. Translational Animal Science. 2:S145-S148. doi:10.1093/tas/txy052.
20. Cadaret CN, Merrick EM, Barnes TL[‡], Beede KA, Posont RJ[ʎ], **Petersen JL**, Yates DT. 2018. Sustained maternal inflammation during the early third trimester yields fetal adaptations that impair subsequent skeletal muscle growth and glucose metabolism in sheep. Oral Presentation. Translational Animal Science. 2:S14-S18. doi: 10.1093/tas/txy047 *Awarded best graduate student presentation
21. Barnes TL[‡], Kubik RM[‡], Cadaret CN, Beede KA, Merrick EM, Chung S, Schmidt TS, **Petersen JL**, Yates DT. 2017. Identifying hyperthermia in heat-stressed lambs and its effects on β agonist-stimulated glucose oxidation in muscle. Oral presentation. Proceedings Western Section American Society of Animal Science. 63:25-29. doi: 10.2527/asasws.2017.0038 *second place in the graduate student competition (of 31 entries).

Other Materials

Webinars

- Webinar: Using Genomics to Connect Novel Defects to Their Origin. 2023. National Beef Cattle Evaluation Consortium, Brown Bagger Series. https://www.nbcec.org/index.html
- Developing Genetic Tests for Unwanted Traits. 2023. Scientific Knowledge Advancement for Yaks (SKAY) Webinar Series. https://www.skayresearchgroup.com/
- Using Genomics to Connect Novel Defects to Their Origin. 2023. National Beef Cattle Evaluation Consortium, Brown Bagger Series. https://www.nbcec.org/index.html
- Horse Color Genetics. 2020. Nebraska Equine Webinar Series. Available: https://www.youtube.com/watch?v=lS1nuP3x3lE
- Genetic Diseases. Nebraska Equine Webinar Series. 2018. Available: https://www.youtube.com/watch?v=crEwjNAX-MI&feature=youtu.be

White Papers/Articles

- Article: Bailey E, Kalbflesich T, **Petersen JL**. 2025. Whole genome sequencing of Thoroughbred horses: a tool for surveillance and management. Equine Disease Quarterly. Vol 34, no 1.
- Article: Batt MC‡, **Petersen JL**. 2024. Nebraska team identifies new genetic defect impacting cattle morbidity and meat quality. UNL BeefWatch (and associated podcast)
- Article: Reith RR‡, **Petersen JL**. UNL contributes to the identification of new genetic defects in cattle. 2024. UNL BeefWatch. https://beef.unl.edu/beefwatch/2024/unl-contributes-identification-new-genetic-defects-cattle
- Article: Bailey E, Kalbfleisch T, **Petersen JL.** 2022. Genome Sequencing. Equine Disease Quarterly. Vol 31, no 1.
- Article: Grijalva PC, Diaz DE, Garcia SR, Schmidt TB, **Petersen JL**, Yates DT. Zilpaterol supplementation improved indicators of well-being but not growth in heat-stressed Red Angus steers. 2021. UNL Beef Cattle Report.
- Article: Gibbs RL, Swanson RM, Beard JK, Schmidt TB, **Petersen JL**, Yates DT. Growth performance in livestock with stress-induced low birthweight is recovered by clenbuterol administration. 2021. UNL Beef Cattle Report.
- Article: Bailey E, Kalbflesich TS, **Petersen JL.** 2020. Inbreeding and Genomics. Equine Disease Quarterly. Vol 29, no 1.
- Article: Genomics helps scientists and producers understand and manage emerging disease. 2019. UNL BeefWatch.
- White Paper: Current Genetics and Genomics in Yak. 2019. International Yak Association.
- Article: Assistance sought in identifying novel, abnormal traits in calves. 2018. UNL BeefWatch.

Podcasts

- Interviewed *in* Equine Innovators: Horse Breeds and Genetic Variation. Podcast by *The Horse*. June 2021. https://thehorse.com/1101127/equine-innovators-horse-breeds-and-genetic-variation/
- Interviewed *in* The Yakademics: Genomics of Yaks. Oct 2023. https://podcasters.spotify.com/pod/show/theyakademics/episodes/Genomics-of-Yaks-e29mb7e/a-aad1agk

Other

- Interviewed in: University of Kentucky College of Agriculture, Food and Environment News, DNA doesn't lie: New genetic study illuminates genetic diversity in North American Thoroughbreds. Jan 2025. https://news.ca.uky.edu/article/dna-doesnt-lie-new-genetic-study-illuminates-genetic-diversity-north-american-thoroughbreds
- Interviewed in: American Paint Horse Journal, The Case for Conservation. Fall Issue 2024.
- Interviewed in: Market Journal, Shaky Calf Mutation. 2024. https://www.youtube.com/watch?v=Lb2-9b36SMA&t=193s
- Interviewed in: Western Ag Reporter, The Science Behind Genetic Defects. 2024. https://www.westernagreporter.com/articles/the-science-behind-genetic-defects/
- Appearance (scientific expert) *in* Clydesdale, Saving the Greatest Horse. 2020. BBC Scotland, Canada/UK Co-Produced Documentary. Infleld Fly Productions. www.savingthegreatesthorse.com/
- Interviewed *in* Genetic influences behind today's Quarter Horses, by Sally Scholle. Tri-State Livestock News. December 2020.
- Developed Equine Genetics lessons: Introduction to Horse Management course (on-line) with Michigan State University through the Michigan Alliance for Animal Agriculture grant (MAAA). 2016.

Oral Presentations (Guest Lectures/Seminars/Invited Conference Presentations)
Since joining UNL (2014)

Invited

- November 2024. UNL Race Nebraska and Horsemen's Health Update. Genetic Diversity in Thoroughbreds: What do we Know?
- August 2024. Gudmundsen Sandhills Laboratory Open House. The "shaky calf" mutation: how GSL calves helped to improve animal health and studies of meat quality. Thedford, NE.
- May 2024. Dorothy Russell Havemeyer 14th International Horse Genome Workshop. A survey of genetic variation in today's US Thoroughbred with application to predicting the diversity of tomorrow. Caen, Normandy France.
- January 2024. International Plant and Animal Genome 31. Contributions of equine FAANG to the research community. San Diego, CA.
- October 2023. University of California-Davis Horse Day. Thoroughbreds – History Written in DNA.
- July 2023. University of Kentucky Gluck Equine Research Center Seminar Series. Genomic diversity measures for Thoroughbreds. (with Drs Bailey and Kalbfleisch)
- July 2023. International Society for Animal Genetics Horse Genetics and Genomics Workshop. Update on the Equine FAANG Project: the data, what we have learned, and how you can use the information for discovery (workshop keynote presentation)
- July 2023. International Society for Animal Genetics Conference ISAG FAO Advisory Group on Animal Genetic Diversity. Genetic diversity of Clydesdale and Shire draft horses with implications for management
- April 2023. University of Kentucky Gluck Equine Research Center Seminar Series. Using genetic information to understand and inform the management of horse breeds.
- March 2023. Midwest Section of the American Society of Animal Sciences. Functional annotation of the equine genome: from sample collection to FAIR data.

- April 2022. Iowa State University Animal Breeding and Genetics Seminar Series. Genetic diversity and its implications in the management of domestic populations: the case of the Clydesdale horse.
- October 2020**.** University of Kentucky Gluck Equine Research Center Seminar Series. A Study of Thoroughbred Genetics with Drs Bailey and Kalbfleisch. Available at: https://www.youtube.com/watch?v=9jD2RxsKhX4
- October 2019. UNL Symposium on the Evolutionary Genomics of Adaptation. Genetic diversity and relationships among populations of the domestic horse: applications for management and in understanding the genetic basis of various traits
- March 2019. Midwest Section of the American Society of Animal Sciences. Efforts toward functional annotation of the equine genome
- April 2018. VA Nebraska-Western Iowa Health Care Friday Research Seminar. Working toward a refined understanding of how heat stress and β-agonist supplementation impact animal growth and wellbeing.
- Nov 2015. Gluck Equine Research Center, University of Kentucky. Genetic differences among horse populations and the basis for unique traits.

Stakeholders

- March 2023. American Shire Association Annual Meeting. Equine Genetics: A focus on the Shire
- April 2023. Budweiser Team Meeting. Update on Clydesdale Genetics
- January 2019. American Sheep Industries Annual Meeting. Update on genomics

Local

- September 2022. UNL Animal Breeding and Genetics Seminar. Genetic diversity and its implications in the management of domestic populations: the case of the Clydesdale horse.
- Nov 2019. Nebraska Wesleyan University Liberal Arts Seminar. How humans shaped the horse genome.
- March 2017. UNL Institute of Animal Care Seminar. A physiological, molecular, and whole-animal evaluation of the impact of stress on animal well-being and performance.
- April 2016. School of Biological Sciences Seminar. Using genomics to understand relationships among horse populations and the basis of complex traits.
- March 2016. Animal Biological Systems Seminar. Hold your horses – the cost and benefit(?) of a gain-of-function variant in *GYS1*.
- Nov 2015. ARD/USMARC Collaboration Update: Genetic susceptibility of cattle to persistent infection by bovine viral diarrhea virus.
- Nov 2014. Nebraska Wesleyan University Tri-Beta Honor Society Seminar. From breed histories to specific mutations: Explaining the incredible diversity of horses using genomics

Guest Lectures

- Animal Science 486: Animal Biological Systems (2022-2024) Stories of Animal Genetics
- Animal Science 450: Equine Management (2014-2022) Horse genetics for breeders, managers, and enthusiasts.
- Animal Science 252: Introduction to horse industry and management (2014-2022) Equine color genetics

Other Conference Abstracts/Proceedings (not formally published; author or co-author)

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
5	4	8	8	11	14	10	2	15	10	13

From the current year (*-presentor, ‡-mentored student/post-doc, ǂ-lab manager)

- Palaniapan Balasubramaniam N‡*, AbouEl Ela NH, Bailey E, Kalbfleisch T, **Petersen JL**. 2024. Comparative analysis of inbreeding coefficients and genetic variation in American Thoroughbred horses using the T2T and Ecab3 genome assemblies. Oral and poster presentation. Plant and Animal Genome 32. San Diego, CA.
- Cullen JN*, Stroupe SC, Durward-Akhurst SA, Martini D, Delledonne M, **Petersen JL**, Kalbfleisch T, Davis BW, McCue ME. 2024. Reining in reference bias with the equine pangenome. Oral presentation. Plant and Animal Genome 32. San Diego, CA.
- Stroupe SC*, Cullen JN, Durward-Akhurst SA, Martini D, Delledonne M, **Petersen JL**, Kalbfleisch T, McCue ME, Davis BW. 2024. Unbridled insights into the equine pangenome. Oral presentation. Plant and Animal Genome 32. San Diego, CA.
- Kalbfleisch T*, Li K, Ciosek JL, Johnson LC, Robyn ED, **Petersen JL**, Durward-Akhurst SA, McCue ME, Cullen JN, Laird-Smith M, Hudson E, AbouEl Ela NH, Palaniappan Balasubramaniam N‡, Miller D, Antczak D, Raudsepp T, Adelson DL, Dessaix C, Giulotto E, Cappelletti E, Watson C, Safonova Y, Voss K, Zhu Y, Horin P, Bergstrom TF, Antonacci R, Davis BW. 2024. Progress toward annotation of the mule T2T assembly. Oral presentation. Plant and Animal Genome 32. San Diego, CA.
- Li K*, Ciosek JL, Robyn ED, AbouEl Ela NH, Johnson LC, Cullen JN, Stroupe SC, Durward-Akhurst SA, McCue ME, Davis BW, Loux SC, Hudson E, Laird-Smith M, **Petersen JL**, Kalbfleisch T. 2024. Telomere-to-telomere assembly of an Egyptian Arabian and Shire horse. Poster presentation. Plant and Animal Genome 32. San Diego, CA.
- Ciosek JL*, Johnson LC, Li K, Robyn ED, AbouEl Ela NH, Palaniappan Balasubramaniam N‡, Miller D, Antczak D, Hudson E, Laird-Smith M, Cullen JN, Stroupe SC, **Petersen JL**, Durward-Akhurst SA, McCue ME, Raudsepp T, Adelson DL, Dessaix C, Giulotto E, Cappelletti E, Watson C, Voss K, Zhu Y, Horin P, Bergstrom TF, Antonacci R, Davis BW, Kalbfleisch T. 2024. Donkey T2T: A reference telomere-to-telomere genome assembly for *Equus asinus.* Poster presentation. Plant and Animal Genome 32. San Diego, CA.
- AbouEl Ela NH*, Bailey E, **Petersen JL**, Palaniappan Balasubramaniam N‡, Kalbfleisch T. 2024. Developing of cost-efficient genomic strategies through imputation of skim sequencing in Thoroughbred horses.
- Robyn ED *, Johnson LC, Li K, Ciosek JL, AbouEl Ela NH, Hudson E, Laird-Smith M, Cullen JN, Stroupe SC, Durward-Akhurst SA, McCue ME, **Petersen JL**, Davis BW, Kalbfleisch T. 2024. Progress toward an Equid pangenome with telomere-to-telomere genomes: results from a horse/zebra hybrid. Poster presentation. Plant and Animal Genome 32. San Diego, CA.

Current Mentored Students

Post-doctoral Scholar

Nandhini Palaniappan Balasubramaniam (March 2024 – current)
Collaboration with Drs. Bailey and Kalbfleisch, University of Kentucky
Project: Genetics of the North American Thoroughbred

Graduate Students (PhD) – Primary Advisor

Mackenzie Batt (May 2024 – current)
Project: Elucidating the role of mtDNA genotype on cellular efficiency in beef cattle.
Award: Larrick Student Travel Award (2024)

Tiffany Hegdahl (fall 2024 – current)
Project: Population genetics of Shire horses; Genetic risk factors for chronic progressive lymphaedema
Award: Fall 2024, 1st place ($500 travel award) Arthud 3-minute Thesis Competition

Graduate Student (MS) – Primary Advisor
Lauren Seier (June 2023 – current)
Project: Understanding the role of mtDNA variation in animal performance and a study of heritable hydrops in Simmental cattle.
Award: 2024 Margrave Agricultural Fellowship ($5,000)

Undergraduate Students
Caroline Miller (spring 2023 – current), animal science major at UNL
Project: study of chronic progressive lymphedema in draft horses

Abigail Webb (fall 2023 – current), biology major at UNL
Project: assays of mitochondrial function in beef cattle
Honor's thesis student

Greg Treffer (fall 2023 – current), animal science major at UNL
Project: study of chronic progressive lymphedema in draft horses

Addison Hillman (fall 2022 – current), animal science major at UNL
Project: identifying de novo variation in cattle
UCARE project: Investigating the genetics of a hairless Angus calf; genomic investigation of polydactyly in Angus cattle
Honor's thesis student

Ashley Llewellyn (fall 2022 – current),
Project: identifying de novo variation in cattle
UCARE Project: understanding the genetics of "golden" coat color in yak

Previous Students & Post-Docs (Primary Mentor)

Post-doctoral Researchers
Sara Nilson (Aug 2022 – Oct 2024)
Co-advised with Dr. Ron Lewis
Subsequent position: Quantitative Genomics, Neogen

Edward Rice (fall 2018 – June 2019)
PhD from the University of California-Santa Cruz
Project: Bioinformatics and Genome Annotation
Subsequent position: Senior Scientist, University of Missouri

Graduate Students

Rachel Reith (Aug 2021 – Aug 2024)
MS from UNL. Animal Breeding and Genetics
Awards: UNL Arthaud Graduate Student Oral Presentation (PhD) – 1st place (2023); Larrick Student Travel Award (2024)
Subsequent Position: Post-doctoral researcher, genomics of reproductive physiology, UNL

Mackenzie Batt (June 2022 – May 2024)
Project: Investigation of mtDNA diversity and enzyme activities; Understanding the genetic and functional basis of a skeletomuscular condition in crossbred calves
Subsequent Position: PhD student

Tiffany Hegdahl (fall 2020 – Aug 2022)
Primary advisor: James Wilson (UNO)
Research advisor: Jessica Petersen
Subsequent position: lab technician at UNO

Alexa Barber (Summer 2020 – May 2022)
BS from UNL. Major: animal science
Project: functional annotation of the equine genome
Awards: International Plant and Animal Genome NRSP8 Travel Award (2022)
Subsequent position: lab technician at UNMC

Rachel Reith (MS: Summer 2019 – August 2021)
BS from Kansas State University. Major: animal science
Project: Identification of changes in adipose in livestock housed in heat stress and fed β-adrenergic agonist supplements; identification of de novo mutations associated with phenotypic variation in livestock.

Renae Sieck (Summer 2019 – May 2021)
BS from UNL. Major: animal science
Project: Quantifying mitochondrial function of animals supplemented with β-adrenergic agonists; identification of de novo mutations associated with phenotypic variation in livestock.
Awards: UNL Dean's Graduate Student Fellowship (2020), UNL ARD Widaman Distinguished Graduate Fellowship (2020), Nebraska Cattlemen's Foundation Beef State Scholarship (2020), Winner – Midwest Section of the American Society of Animal Sciences Graduate Competition (MS, 2021), Western Section of the American Society of Animal Sciences Young Scholar Award (2021).

Erin Duffy (Fall 2017 – Aug 2019)
BS from University of Illinois – Champaign. Major: animal science
Project: Understanding host response to heat stress and β-adrenergic agonist supplementation: focus on the microbiome and GI tract.
Subsequent Position: Research technologist, Medical College of Wisconsin

Rachel Burrack (Kubik) (fall 2016 – Aug 2018)
BS from Nebraska Wesleyan University. Major: biology
Project: Impact of heat stress and supplementation with β-adrenergic agonists on gene expression
Current: Laboratory Research Technologist, UNL Virology

Taylor Barnes (co-advisor with Dustin Yates; summer 2016 – Aug 2018)
BS from University of Nebraska – Lincoln. Major: biology
Project: Impact of maternal stress on growth and development
Current: PhD student at Texas A&M University

Sara Nilson (Fall 2014 – Aug 2016)

BS from Oklahoma State University. Major: pre-veterinary

Project: Identifying genetic factors for susceptibility/resistance to persistent infection by bovine viral diarrhea virus

Current: PhD student at the University of Missouri

Post-bachelor's Student

Kelsey Roberts (March 2022 – July 2023), BS in Animal Science (UNL) May 2022

Projects: Investigating variation in candidate loci for behavior in dogs (with Dr. Jeff Stevens, Psychology Department); genome-wide association study of Shivers in Clydesdale horses

Subsequent position: PhD student at UC Davis

Undergraduate/Post-baccalaureate Students (Year Completed Studies)

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
2	0	2	1	3	1	3	3	1	3

Subsequent Positions of Undergraduate Researchers

- Veterinary School – 4
- Graduate School – MS (3), PhD (2)
- Veterinary/PhD Dual Degree program – 1
- Dental School – 1
- Industry or Non-Profit – 5

Graduate Committee Membership

Completed	**Current**
MS – 8	MS – 1
PhD – 5	PhD – 4

Awards & Honors

- Nominated for the UNL IANR Omtvedt Innovation Award in Research (2022)
- Nominated for UNL ARD Junior Faculty Excellence in Research Award (2016 and 2017)
- Nominated for the Midwest Section of the American Society of Animal Science Outstanding Young Researcher Award (2018)
- UNL Parent's Recognition Award (2020)
- Nominated for the Council on Undergraduate Research (CUR) Biology Division Mentor Award (2020)
- Gamma Sigma Delta Agricultural Honor Society (2015)

Teaching

Undergraduate

Animal Science 330 – Animal Breeding and Genetics	fall 2021 - current
Animal Science 330 (with Dr. Ron Lewis)	fall 2016 - 2020
Animal Science 399 – Companion Animal Genetics	spring 2016

Graduate

Animal Science/Agronomy 931 – Population Genetics (co-instructor)	fall 2014 - 2020

Current Professional Activities

Committees

- International Plant and Animal Genome (PAG) Organizing Committee. (2024-present)
- International Society of Animal Genetics/FAO Domestic Animal Genetic Diversity Standing Committee, Equine representative. (2018-present)
- Organizing committee – 15th International Dorothy Russell Havemeyer Horse Genome Workshop to be held in Lexington, Kentucky
- Scientific Advisory Committee, American Paint Horse Association (APHA). (2024-present)
- Science Committee, USYaks, now the North American Yak Association (2018-present)
- Member USDA Multistate Research Groups NRSP8, S1094
- Equine Science Society –Genetics Committee (2014-present)

Professional Memberships

- American Genetic Association (AGA) – member (2008-present)
- International Society of Animal Genetics (ISAG) – member (2008-present)
- Member – American Society of Animal Science (2017-present)