

MYRNA M. MILLER, D.V.M., Ph.D.
Curriculum Vitae
2018

ADDRESS 45 Westwinds Road, Laramie, WY, 82070

EDUCATION

Cornell University, Ithaca, NY
Unit of Avian Health, Dept. of Microbiology and Immunology, College of Veterinary Medicine.
Ph.D. January, 2005.

Colorado State University, College of Veterinary Medicine, Fort Collins, CO.
Doctor of Veterinary Medicine - May, 1984

Colorado State University, Fort Collins, CO.
Bachelor of Science - May, 1980

Otero Junior College, La Junta, CO.
Associate of Science - June, 1978

WORK EXPERIENCE

University of Wyoming, Department of Veterinary Sciences
Wyoming State Veterinary Laboratory
Associate professor and diagnostic virologist
Laramie, WY. May 2010 to present

Arthropod-Borne Animal Diseases Research Laboratory. USDA, ARS.
Laramie, WY. 2007- May 2010

Description: Primary investigator and veterinary medical officer working on diseases of livestock transmitted by insect vectors. Viruses studied included Bluetongue Virus and Rift Valley Fever Virus.

Research Scientist. Department of Animal Science, University of Wyoming.
Laramie, WY. 2005 – 2007.

Description: Work as a research scientist with the Center for the Study of Fetal Programming.

Ph.D. study, Cornell University, College of Veterinary Medicine, Department of Microbiology and Immunology.
Ithaca, NY. 2000 – 2004.

Description: Completed study and research in the fields of infectious disease, molecular medicine, and reproductive physiology. Topic of research was vertical transmission and

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persistence of Chicken Infectious Anemia Virus in the reproductive tissues of hens and roosters.

Cobb-Vantress, Inc., PO Box 1030, Siloam Springs, AR 72761. 1997 - 2000

Description: Part-time, independent veterinary consultant for a primary broiler breeder company. This work included visiting grower farms to assess flock health and management, on-site and laboratory necropsies, and assisting with sampling and laboratory testing of pedigree flocks for the avian leucosis virus, subtype J.

Sugar Creek Animal Hospital, Bentonville, AR. 1997-2000.

Description: Part-time clinical medicine and surgery in a mixed small and large animal practice.

Rose Animal Hospital, Bentonville, AR. 1992-1997.

Description: Clinical veterinary medicine and surgery in a mixed small and large animal practice.

Mennonite Central Committee/Church World Service, Phnom Penh, Cambodia.

1988 to 1991. Description: Volunteer for church organization assisting the Cambodian national veterinary department.

College of Animal Science, Avian Science Department, Poultry Research Farm, Colorado State University, Fort Collins, CO. 1980 to 1983.

Description: Research assistant with work including poultry care and feeding, coccidian infection experiments, and avian artificial insemination.

RECENT PRESENTATIONS, POSTERS and NONPEER REVIEWED PUBLICATIONS

Seroprevalence of a novel mule deer-associated alphaherpesvirus in Wyoming. Presented at the American Association of Veterinary Laboratory Diagnosticians. San Diego, October 8, 2017.

Odocoileus hemionus deer adenovirus, complete genome sequencing and phylogenetic analysis from naturally occurring cervid cases in Wyoming, Washington, California and Colorado.

Presented at the 2016 American Association of Veterinary Diagnosticians annual convention, Providence, RI.

Using cattle as sentinels for Bluetongue virus and Epizootic Disease virus transmission studies in eastern Wyoming. **Myrna Miller**. This was a key-note presentations at the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) Field Day, August 20, 2015.

Further Characterization of Rio Grande Virus and Potential for Serological Cross Reactivity with other Phleboviruses. Mitchell Szymczak and **Myrna Miller**. **Refereed and award winning poster.** *Mitchell Szymczak, recipient of a UW undergraduate INBRE research fellowship, was awarded the Dr. Edwin Lennette Award (\$1,200) to present this poster describing the results of his research at the 31st American Society of Microbiologists Clinical Virology Symposium in Daytona Beach, FL, April 26-29, 2015.*

Processes, Procedures, and Challenges of Diagnostic Multiplex PCR Assays. Jennifer McKenna, Marce Vasquez, **Myrna Miller**. **Refereed and award winning poster.** This poster describes the

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challenges of developing multiplex diagnostic PCR assays for a veterinary diagnostic laboratory and was presented by Jennifer McKenna, one on my virology technicians. ***This poster was awarded a \$500.00 travel scholarship to be presented at the American Society of Microbiologists Clinical Virology Symposium, Tampa Florida, April 26-29, 2015.***

Validation and Optimization of Diagnostic PCR Assays. Marce Vasquez, Jennifer McKenna, **Myrna Miller. Refereed entry.** Poster presented at the American Society of Microbiologists Clinical Virology Symposium describes the exceptional challenges of validation and monitoring of diagnostic assays for veterinary use where, unlike human context, assays must be sensitive and specific for many species of animals from birds to bison. Tampa Florida, April 26-29, **2015.**

The Wyoming State Veterinary Laboratory plays an important role in rabies surveillance in the state. Three decades of tracking rabies in Wyoming. Myrna M. Miller. Paper published in *Reflections*, the College of Agriculture and Natural Resources Research Reports, **2015** issue.

Sequencing the Genome of Rio Grande Virus Reveals Potential for Misdiagnosis of Rift Valley Fever Virus Infection. Mitchell Szymczak and Myrna M. Miller. Published in *Reflections*, the College of Agriculture and Natural Resources Research Reports, **2015** issue

Rabies in Wyoming; where we have been and the recent epizootic in South East Wyoming. Myrna M. Miller. Presented at the Wyoming State Veterinary Medical Association Winter Meeting, Caspar, WY. December **2014.**

Three Decades of Tracking Rabies in Wyoming. Myrna M. Miller, Amy Boerger-Fields, Amy Gilbert, Ken Mills, Karl Musgrave, Brant Schumaker. Poster presented at the American Association of Veterinary Laboratory Diagnosticians Annual Meeting, Kansas City, MO. **2014.**

Further Characterization of Rio Grande Virus and Potential for Serologic Cross Reactivity with other Phleboviruses. Mitchell Szymczak, Will K. Reeves, Myrna M. Miller. **Refereed and winner of the Edwin Lennette Award (\$1,200.00) at the American Society of Microbiology, Clinical Virology Symposium, Daytona Beach, FL, April 26-29, 2015.**

Identifying vaccinal-type strains BoHV-1 in bovine abortion using single nucleotide polymorphisms: 10 herd episodes. O'Toole D; Miller M; Chase CC. American Association of Veterinary Laboratory Diagnosticians, Kansas City, MO. Oct **2014.**

Canine dysautonomia: outbreak investigation in a litter of puppies. Hull NC, Shoults H, O'Toole D, Fox J, Miller MM, Johnson GC, Shaw DP, Schumaker B. Poster presented at the American Association of Veterinary Laboratory Diagnosticians, Kansas City, MO. Oct **2014.**

Caprine abortion: fetal and placental lesions attributed to natural *Chlamydophila pecorum* infection. Federico Giannitti, Myrna M. Miller. AAVLD annual meeting, 2013.

Cache Valley Virus; a new world Orthobunyavirus. Presented at the 2012 virology section meeting, AAVLD conference. Greensboro, NC, October 19, 2012.

Bluetongue 17 vaccine comparison between a modified live virus vaccine and an autogenous killed virus vaccine. A poster presented by graduate student, Kelsie Speiser, and BreAnna Bonner at the Rocky Mountain Virology club annual meeting in Pinegree Park, CO, September 28-30, 2012.

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Risk analysis of bluetongue virus infection in wild and domestic ungulates in Wyoming using GIS. A poster presented by graduate student, Kelsie Speiser, at the 2012 meeting of The Wildlife Society in Laramie Wyoming in November 2012.

An outbreak of equine herpesvirus myeloencephalitis related to a cutting horse competition in May 2011. Presented at the Wyoming State Veterinary Medical Association winter meeting, Caspar WY, December 3, 2011.

Abortions in a university beef herd following vaccination with a modified live bovine herpesvirus-1. A Poster presented at the American Association of Veterinary Laboratory Diagnosticians annual meeting by graduate student Anna Yedinak. Buffalo, NY. September 30, 2011.

Safety and efficacy testing of an attenuated Rift Valley fever virus vaccine, MP-12. Presented at the University of Wyoming, College of Agriculture, Department of Animal Science lunch seminar series, February 4, 2011.

PEER-REVIEWED PUBLICATIONS

1. **Myrna M Miller**, DVM, PhD; Todd E Cornish, Ph.D., DVM; Terry E Creekmore, MS; Karen Fox, DVM, PhD; Will W Laegreid, DVM, MS, PhD; Jennifer McKenna, MS; Marce Vasquez, BS; Leslie Woods, DVM, PhD. Whole genome sequence of *Odocoileus hemionus* deer atadenovirus isolates from deer, moose and elk are highly conserved and support a new species in the genus *Atadenovirus*. *J Gen Viro*. 2017 Sep;98(9):2320-2328.
2. Will K. Reeves, **Myrna M. Miller**, Orhan Bayik, Leah Cahpmann. Operational Mosquito and Vector-Borne Diseases Surveillance at Incirlik Air Base, Turkey. The United States Army Medical Department Journal. Online at: http://www.cs.amedd.army.mil/amedd_journal.aspx. May 2017.
3. Karen A. Fox, Levi Atwater, Laura Hoon-Hanks, and **Myrna Miller**. A Mortality Event in Elk (*Cervus elaphus nelsoni*) Calves Associated with Malnutrition, Pasteurellosis, and Deer Adenovirus in Colorado, USA. *Journal of Wildlife Diseases*: July 2017, Vol. 53, No. 3, pp. 674-676.
4. Will K. Reeves, **Myrna M. Miller**, William E. Gruner. Two Rhabdoviridae: Dillard's Draw virus, a putative new rhabdovirus, and Merida virus from *Culex tarsalis* (Diptera: Culicidae) in New Mexico, USA. Accepted for publication, *Acta Virol*. vol. 62, No. 3, 2018.
5. Juan F Muñoz-Gutiérrez, Kerry S Sondgeroth, Elizabeth S Williams‡, Donald L Montgomery, Terry E Creekmore, **Myrna M Miller**. Infectious keratoconjunctivitis in free-ranging mule deer (*Odocoileus hemionus*) from Wyoming and identification of a novel alphaherpesvirus. Submitted to *J of Wildlife Dis*, May, 2017.
6. **Myrna M. Miller**, Kristine E. Bennett, Barbara S. Drolet, Robbin Lindsay, James O. Mecham, Will K. Reeves, Hana M. Weingartl, William C. Wilson. Evaluation of the efficacy, potential for vector transmission, and duration of immunity of MP-12, an attenuated Rift Valley fever virus vaccine candidate, in sheep. *Clin and Vacc Immuno*, August 2015, 22(8), 930-937.

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7. Kelsie L. Speiser, Brant A. Schumaker, Walter E. Cook, Todd E. Cornish, Kristi M. Cammack, **Myrna M. Miller**. Comparison of Humoral Response to Two Bluetongue Serotype 17 Vaccine in Sheep. *J Am Vet Med Assoc*, May 1, 2016, 48(9), 1043-1049.
8. Will K. Reeves, Mitchell Szymczak, Kristen L. Burkhalter, **Myrna M. Miller**. Laboratory Validation of the Sand Fly Fever Virus Antigen Assay. *J Am Mosquito Control Assoc*, 31(4):380-383,2015.
9. R.W. Fulton, J.M. d'Offay, R. Eberle, R.B. Moeller, H. Van Campen, D. O'Toole, C. Chase, **M.M. Miller**, R. Sprowls, D.V. Nydam. Bovine herpesvirus-1: Evaluation of genetic diversity of subtypes derived from field strains of varied clinical syndromes and their relationship to vaccine strains. *Vaccine*, 2015 Jan 15;33(4):549-558.
10. Noah C. Hull, Donal O'Toole, **Myrna M. Miller**, Hannah Shoults, Robin Deck, Warren Jones, Gayle C. Johnson, Daniel P. Shaw, Brant A. Schumaker. Canine dysautonomia in a litter of Havanese puppies. *J Vet Diagn Invest*. 2015 July 15.
11. Federico Giannitti, Mark Anderson, **Myrna Miller**, Joan Rowe, Karen Sverlow, Marce Vasquez, Germán Cantón. Chlamydia pecorum: fetal and placental lesions in sporadic caprine abortion. In press. *J Vet Diagn Invest*. 10 Dec 2015.
12. Hana M. Weingartl, **Myrna Miller**, Charles Nfon, William C. Wilson. Development of a Rift Valley fever virus viremia challenge model in sheep and goats. *Vaccine*. 2014 Apr 25;32(20):2337-2344.
13. D. O'Toole, C. C. L. Chase, **M. M. Miller**, and H. Van Campen. Kennedy, the Early Sixties, and Visitation by the Angel of Death. *Vet Pathol* 2014, 51(6), 1051-1062.
14. Reeves, W.K., **Miller, M.M.** Culicoides sonorensis (Diptera: Ceratopogonidae) is not a competent vector of Cache Valley virus (family Bunyaviridae, genus orthobunyavirus). *Archives of Virology*, 2013;158(10):2175-7. Epub 2013, May 01.
15. **Miller, M.M.**, O'Toole, D., Cavender, J.L., Cornish, T.E., Dawson, T.G., Smylie, M., Fox, J.H., Hill, K.L., Montgomery, D.L., Vasquez, M., Schumaker, B.A. Vaccine Associated mucosal disease case study: demonstrating the importance of subsequent herd PI testing. *Bovine Practitioner*, 2012.
16. Schumaker B.A., **Miller M.M.**, Grosdidier P., Cavender J.L., Montgomery D.L., Cornish T.E., Farr R.M., Driscoll M., Maness L.J., Gray T., Petersen D., Brown W.L., Logan J., O'Toole D. Canine distemper outbreak in pet store puppies linked to a high-volume dog breeder. *J Vet Diagn Invest*, 2012 Nov,24(6):094-8.
17. Donal O'Toole, MVB, PhD; **Myrna M. Miller**, DVM, PhD; Jacqueline L. Cavender, MS; Todd E. Cornish, DVM, PhD, DACVP. Pathology in Practice, report on abortions in the University of Wyoming beef herd. *J Am Vet Med Assoc*, 241(2), 189-191, 2012.
18. Loftis, AD, Reeves WK, **Miller MM**, Massung RF. Coxiella burnetii, the agent of Q fever, in domestic sheep flocks from Wyoming, USA. *Vector-Borne and Zoonotic Diseases*. 12(3):189-91 (2012).
19. Singh, K., **Miller M.M.**, Kohrt, L.J., Scherba, G., Garrett, E.F., Fredrickson, R.L. Development of a novel diagnostic test for detection of bovine viral diarrhea persistently infected animals using hair. *Journal of Veterinary Science* 12(3), 295-297, 2011.
20. Barbara Drolet, Hana M. Weingartl, Jieyuan Jiang, Brett Dalman, Peter Marszal, **Myrna M. Miller**, Markus Czub, William C. Wilson. Development and evaluation of one-step

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- rRT-PCR and immunohistochemical methods for detection of Rift Valley fever virus in North American biosafety level 2 diagnostic laboratories. *J Virol Methods*, 2012 Feb; 179(2):373-82.
21. Wilson, W.C., Jiang, J., Weingart, H., Rodriguez, L., Murrieta, C., Drolet, B.S. and **Miller, M.M.** Molecular Detection Technologies for H. Arboviruses. In Sustainable Improvement of Animal Production and Health N.E. Odongo, M. Garcia, and G.J. Viljoen Eds. Part III. P. 305-8. 2010. (Peer-reviewed Proceedings).
 22. **Miller M. M.**, Brown, J., Cornish, T., Johnson, G., Mecham, J.O., Reeves, W.K., Wilson, W. Investigation of an Epizootic of Bluetongue virus serotype 17 in sheep in Wyoming. *J Am Vet Med Assoc.* 237(8):955-959, 2010.
 23. Murrieta, C.M., Bennett, K.E., Stuart, M.A., West, **M.**, **Miller, M.M.** A comparison of hamster anesthetics and their effect on mosquito (Dipter: Culicidae) blood feeding. *Journal of Entomological Science*, 45(4): 1-4, October 2010.
 24. Reeves, W., **Miller, M.M.** Infection of *Culicoides sonorensis* (Diptera: Ceratopogonidae) with Weldon virus. *Journal of Entomological Science* 44(4): 412-414. October 2009.
 25. Reeves, W., **Miller, M.M.** Control of *Bovicola equi* (Phthiraptera: Trichodectidae) with Dimilin and permethrin. *Journal of Vector Ecology.* 34(1): 160. June 2009.
 26. Reeves, W., **Miller, M.M.** Spot-on Treatments of Diflubenzuron and Permethrin to Control a guinea pig louse, *Gliricola porcelli* (Phthiraptera: Gyropidae). *Journal of Entomological Science*, 44(4): 410-411, October 2009.
 27. Reeves, W., Nol, P., **Miller, M.M.**, Jones, G. Effects of ivermectin on the susceptibility of *Culicoides sonorensis* (Diptera:Ceratopogonidae) to bluetongue and epizootic hemorrhagic disease viruses. *Journal of Vector Ecology.* Vol 34(1): 161-163, June 2009.
 28. Reeves, W., **Miller, M.M.** Aqueous 2% geraniol as a mosquito repellent failed against *Aedes Aegypti* on ponies. *Journal of American Mosquito Control Association.* 26(3): 340-341, 2010.
 29. Reeves, Will K., Lloyd, J.E. Stobart, R., Stith, C.E., **Miller, M.M.**, Bennett, K.E., Johnson, G. Control of *Culicoides sonorensis* (Diptera: Ceratopogonidae) on sheep with long lasting repellent pesticides. *Journal of the American Mosquito Control Association*, 26(3): 302-305, 2010
 30. Ford SP, Zhang L, Zhu M, **Miller, MM**, Smith DT, Hess BW, Moss GE, Nathanielsz PW, Nijland MJ. Maternal obesity accelerates fetal pancreatic β cell but not α cell development in the sheep: prenatal and postnatal consequences. *American Journal of Physiology. Regulatory, integrative and comparative physiology.* 297:R835-R843, 15 July 2009.
 31. Schlabritz-Loutsevitch NE, Lopez-Alvarenga JC, Comuzzie AG, **Miller, MM**, Ford SP, Li C, Hubbard GB, Ferry RJ Jr, Nathanielsz PW. The prolonged effect of repeated maternal glucocorticoid exposure on the maternal and fetal leptin/insulin-like growth factor axis in *Papio* species. *Reproductive Science.* 16(3):308-19, 2009.
 32. Zhou Y, Nijland M, **Miller M**, Ford S, Nathanielsz PW, Brenna JT. The influence of maternal early to mid-gestation nutrient restriction on long chain polyunsaturated fatty acids in fetal sheep. *Lipids.* 43(6):525-31, 2008.

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33. **Miller, M.M.**, Schat, K.A., Jarosinski, K.W. Negative modulation of the chicken infectious anemia virus promoter by COUP-TF and an e box-like element at the transcription start site binding δ EF1. *Journal of General Virology*. 89(Pt 12):2998-3003, 2008.
34. **Miller, M.M.**, Jarosinski, K.W., Schat, K.A. Positive and negative regulation of transcription of chicken anemia virus. *Journal of Virology*. 79(50):2859-2868, 2005.
35. **Miller, M.M.**, Ealy, K.A., Oswald, W.B., and Schat, K.A. Detection of chicken anemia virus and viral DNA in embryonal tissues. *Avian Diseases*. 47:662-671, 2003.
36. **Miller, M.M.**, Schat, K.A. Chicken infectious anemia virus: an example of the ultimate host-parasite relationship. *Avian Diseases*. 48:734-745, 2004. Patterns of chicken infectious anemia virus (CIAV) seroconversion in three Cornell SPF flocks. Proceedings; Second International Symposium on Infectious Bursal Disease and Chicken Infectious Anaemia, 410-417. June 2001.
37. Markowski-Grimsrud, C.J., **Miller, M.M.**, Schat, K.A. Development of a strain-specific real time PCR and RT-PCR assay for chicken infectious anemia virus (CIAV) quantitation. *Journal of Virological Methods*, 101(1-2):135-47. March 2002.

BOOK SECTION

Global Virology I – Identifying and Investigation Viral Diseases, published in 2015.

Contributor to book chapter 13: Viral Hemorrhagic Fevers of Animals Caused by Double-Stranded RNA Viruses. Editors: Paul Shapshak, John T. Sinnott, Charurut Somboonwit, Jens H. Kuhn. Springer Publishing Company, New York, NY. pp;345-359.

COURSES TAUGHT AND GRADUATE STUDENTS

Medical Virology: PATB 4710/5710.

WWAMI first year medical students.

Master's student graduated and currently in professional veterinary medical school.

Co-PI on project supporting a master's student in Department of Agriculture Economics.

Master's student currently working on a BTV transmission project.

Master's student working on cervid adenovirus genotyping and epidemiology project.

Eight undergraduate student research fellows, two with published papers.

PROFESSIONAL MEMBERSHIPS AND LICENSES

American Society for Microbiology

American Veterinary Medical Association

American Association of Veterinary Laboratory Diagnosticians

United States Animal Health Association

Wyoming and New York State License to practice Veterinary Medicine

USDA Veterinary Accreditation in the states of Wyoming and New York

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GENERAL SERVICE TO THE UNIVERSITY OF WYOMING, NATIONAL ORGANIZATIONS AND SCIENTIFIC COMMUNITY

- **University and Department. A partial list of committees that I have served since 2010.**
 - **University of Wyoming IACUC, May 2010 – to June 2014.** *I served on the IACUC up to summer of 2014, and served as chair for the last 6 months.*
 - Microbiology interdepartmental program steering committee (June 2011 – to present).
 - UW Containment Action Team which provides guidance on operations of the BSL-3 suite located in the WSVL (September 2011 – to present)
 - University of Wyoming sheep management committee since 2011 to present.
 - Search committee member for the Animal Science Department head, 2014-2015.
 - Search committee for three Department of Veterinary Sciences faculty positions.

- **National Committees**
 - **American Association of Veterinary Laboratory Diagnosticians Virology Committee**
 - **United Stated Animal Health Association Committee on Bluetongue and Related Orbiviruses.**

- **Review of manuscripts.** I have served as an ad-hoc external reviewer for five scientific journals.
 - Virology
 - Research in Veterinary Science
 - Vector-Borne and Zoonotic Diseases
 - Journal of Infectious Diseases
 - Ciencia Rural