

Dianne McFarlane, D.V.M., Ph.D., M.S., Dip ACVIM

Professor
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Education:

B.S., Animal Science, Cum Laude, Clemson University, SC
M.S., Molecular Genetics, University of Georgia, GA
1992: D.V.M., University of California, CA
1993: Large Animal Rotating Internship, University of Georgia, School of Veterinary Medicine
1997: ACVIM and ABVP Equine Medicine Residency, North Carolina State University, College of Veterinary Medicine
2006: Ph.D., Clinical Pharmacology, University of Prince Edward Island

Academic Appointments:

1997- 1998: Equine Medicine Clinical Instructor, NCSU, College of Veterinary Medicine
1998: Clinical Instructor, Large Animal Medicine, University of Georgia Locum
2000-2001: Assistant Professor, Large Animal Medicine, Atlantic Veterinary College
2001-2005: Adjunct Professor, Clinical Pharmacology, Atlantic Veterinary College Charlottetown, Canada
2005-2010: Assistant Professor, Dept Physiological Sciences, Oklahoma State University, Center for Veterinary Health Sciences, OK
2010-2012: Associate Professor, Dept Physiological Sciences, Oklahoma State University, Center for Veterinary Health Sciences
2012-2015: Associate Professor, Dept. Physiological Sciences, Ricks Rapp Professor of Equine Musculoskeletal Research, Oklahoma State University, Center for Veterinary Health Sciences
2015-present: Professor, Dept. Physiological Sciences, Ricks Rapp Professor of Equine Musculoskeletal Research, Oklahoma State University, Center for Veterinary Health Science

Awards and Honors:

1996: NCSU Phi Zeta Research Forum, 2nd Place
2002: AVC Graduate Research Forum, 1st place
2002: Canadian Institute of Health, Institute of Aging Fellowship
2003: AVC Graduate Research Forum, 1st place
2004: AVC Graduate Research Forum, 1st place
2004: Ellison Medical Foundation Fellowship for Molecular Biology of Aging Course
2005: Cold Spring Harbor Summer Course scholarship
2005: AVC Graduate Research Forum, 2nd place
2006: Governor General's Gold Academic Medal, Ph.D.
2010: Hero in Veterinary Medicine, ACVIM
2012: Ricks Rapp Professor Equine Musculoskeletal Research
2013: Oklahoma State University Regents Distinguished Research Award

Other Experience and Professional Memberships:

Phi Zeta Honor Fraternity
Gamma Sigma Delta Honor Society
Alpha Zeta Agricultural Honor Society
Alpha Lambda Delta Honor Society
ACVIM
AVMA
AAEP
Gerontological Society of America

Research Support:

Past:

- 2015-2018: 3P40OD010988-18S1, "A baboon model of immunosenescence: The role of cytomegalovirus in immune aging.", Awarded: \$302,277
- 2014-2018: P40OD010988-16, "CMV Infection in Immunosenescence in Captive Baboons", Baboon Research Resource Program, Awarded: \$80,000
- 2016-2017: CVHS Research Advisory Council, OSU, "Use of a specific IGF-1 receptor antagonist in treatment of hyperinsulinemic laminitis in horses", Awarded: \$15,000
- 2015-2016: Zoetis Animal Health, Name withheld for confidentiality, Awarded: \$275,704 direct; \$401,976, total
- 2014-2015: CVHS Research Advisory Council, OSU, "CMV Infection in Immunosenescence in Captive Baboons", Awarded: \$5000
- 2013-2014: CVHS Research Advisory Council, OSU, "CMV Infection in Immunosenescence in Captive Baboons", Awarded: \$5000
- 2013-2015: CVHS Research Advisory Council, OSU, "Development and Application for a Novel Test for PPID", Awarded: \$15,000
- 2014-2015: Boehringer Ingelheim, "Impact of Prascend® on skeletal muscle protein metabolism in PPID-associated muscle atrophy.", Awarded: \$20,900
- 2013-2014: NIH- P40 OD010988, "The role of cytomegalovirus infection in immunosenescence in baboons.", Awarded: \$20,000
- 2013-2014: Pfizer Animal Health LK Maxwell, "Development of equine herpes myeloencephalopathy in young adult horses", Awarded: \$100,430
- 2012-2013: Pfizer Animal Health LK Maxwell, "Prevention of equine herpes myeloencephalopathy by vaccination.", Awarded: \$70,589
- 2012-2013: Elanco Animal Health, "Assessment of efficacy of a long acting incretin mimetic in diabetic cats", Awarded: \$142,788
- 2011-2013: NIH-NCRR T-35, Program Grant, Summer Research Scholars., Awarded: \$337,120
- 2011-2012: OSU-Center Veterinary Health Sciences, "Metabolic gene expression and mitochondrial function in horses with equine metabolic syndrome.", Awarded: \$3,000
- 2011-2012: OSU-Center Veterinary Health Sciences, "Development of an experimental model of feline type 2 diabetes.", Awarded: \$15,000
- 2011-2012: AQHA, "Metabolic gene expression and mitochondrial function in horses with equine metabolic syndrome.", Awarded: \$17,700
- 2011-2012: OSU-Center Veterinary Health Sciences, "Amyloid and its relationship to inflammatory cytokine markers in the feline pancreas.", Awarded: \$3,000
- 2009-2012: Boehringer Ingelheim, FDA trial, "Proprietary drug extended use study.", Awarded: \$5,000
- 2009-2012: Grayson Jockey Club, "Prevention of EHV-1 myeloencephalitis by delayed therapy.", Awarded: \$104,431
- 2009-2010: Am Assoc Feline Practitioners, "Evaluation of an incretin mimetic (exenatide) as an effective adjunctive treatment for diabetes mellitus in cats.", Awarded: \$20,000
- 2009-2010: OSU-Center Veterinary Health Sciences, "Evaluation of an incretin mimetic (exenatide) as a safe and effective treatment for diabetes.", Awarded: \$19,920
- 2008-2013: NIH-NCRR P40 RR12317, "Season variation in immune function in captive baboons.", Awarded: \$120,000
- 2008-2010: ACVIM foundation, "The effect of season, latitude and breed on equine pituitary function.", Awarded: \$38,891
- 2008-2010: Elanco, FDA trial, "An evaluation of the clinical efficacy of a proprietary drug for the control of clinical signs associated with PPID." Awarded: \$111,930
- 2008-2009: OSU-Center Veterinary Health Sciences, "Evaluation of the incretin effect in healthy cats with subsequent safety and efficacy studies regarding an incretin mimetic (exenatide) as a prospective treatment for diabetes mellitus" Awarded: \$12,000
- 2007-2012: NIH K01 RR023946, "Initiating Factors of Neurodegeneration", Awarded: \$646,730
- 2006-2007: OSU-Center Veterinary Health Sciences, "Response of healthy horses and horses with pituitary pars intermedia dysfunction to administration of α -melanocyte stimulating hormone." Awarded: \$10,187

- 2006-2007: OSU-Center Veterinary Health Sciences, "Insulin Resistance: Influence on cytokine regulation and cell mediated immune function." Awarded: \$19,861
- 2006-2007: Sir James Dunn Animal Welfare Center, Atlantic Veterinary College, "Development of an objective scoring system for characterization of histopathological changes of the equine pituitary gland." Awarded: \$5,000
- 2005-2006: OSU-Center Veterinary Health Sciences, "Systemic inflammation and α -synuclein overexpression in development of spontaneous dopaminergic neurodegenerative disease." Awarded: \$19,906
- 2003: Raymond Firestone Trust Research Grant, "Alpha-melanocyte stimulating hormone and energy homeostasis in the horse." Awarded: \$5,000
- 2002-2005: Canadian Institute of Health, Institute of Aging Postdoctoral Fellowship, "Investigating the role of dopaminergic neurodegeneration in Equine Cushing's disease, a possible model for Parkinson's disease." Awarded: \$160,000
- 2002- 2005: Sir James Dunn Animal Welfare Centre, "Effect of age in healthy horses on systemic antibody response following influenza and rabies vaccination." Awarded: \$75,130
- 2002-2003: AVC Research Fund Grant, "A possible link between the pathogenesis of equine laminitis in pituitary dysfunction, black walnut exposure and endotoxemia: a proposed role for α -melanocyte stimulating hormone and/or β -endorphin." Awarded: \$7,285
- 2001-2003: American Horse Show Assoc Grant, "Characterization of genetic polymorphisms of manganese superoxide dismutase and glutathione peroxidase in the horse and pony: relationship to pituitary pars intermedia dysfunction (Equine Cushing's Disease)." Awarded: \$14,992
- 2001-2002: AAEP Graduate Student Grant, "Investigating the role of dopaminergic neurodegeneration in Equine Cushing's disease." Awarded: \$9,630
- 1994-1997: NCSU Dept FAE Resident Grant, "Dysregulation of the immune system of geriatric horses results in a proinflammatory state." Awarded: \$2990

Selected Publications:

1. McFarlane D. Immune dysfunction in aged horses. *Veterinary Clinics of North America: Equine Practice*. 2016 Jun 18. pii: S0749-0739(16)30009-8. doi: 10.1016/j.cveq.2016.04.009. [Epub ahead of print] Review.
2. McFarlane D, Banse H, Maxwell LK. Pharmacokinetic and Pharmacodynamic Properties of Pergolide Mesylate following Long Term Administration to Horses with Pituitary Pars Intermedia Dysfunction (PPID). *J Vet Pharm Therap* 2016 Jun 15. doi: 10.1111/jvp.12339. [Epub ahead of print].
3. McFarlane D, Hill K, Anton J. Neutrophil function in healthy aged horses and horses with pituitary dysfunction. *Vet Immunol Immunopath*. 2015 165(3-4):99-106.
4. Banse H, Frank N, McFarlane D. Role of oxidative stress in obesity-associated insulin resistance in horses. *Canadian J Vet Res* 2015 79:329-338.
5. Willis EL, Eberle R, Wolf RF, White GL, McFarlane D. The effects of age and cytomegalovirus on markers of inflammation and lymphocyte populations in captive baboons. *PLoS One* 2014 9 (9):e107167.
6. Herndon A, Breshears M, McFarlane D. Oxidative Modification, Inflammation and Amyloid in the Normal and Diabetic Cat Pancreas. *J Comp Pathol*. 2014 151 (4):352-362.
7. Willis EL, Wolf RF, White GL, McFarlane D. Age- and gender-associated changes in the concentrations of serum TGF- β , DHEA-S and IGF-1 in healthy captive baboons (*Papio hamadryas anubis*). *Gen Comp Endocrinol*. 2014 195:21-7.
8. Cordero M, Brorsen BW, McFarlane D (corresponding). Circadian and circannual rhythms of cortisol, ACTH and α -melanocyte stimulating hormone in healthy horses. *Domestic Animal Endocrinol* 2012 43(4):317-24.
9. McFarlane D, Wolf R, McDaniel K, White G. The Effect of Season on Inflammatory Response in Captive Baboons. *J Med Primatolog* 2012 41(6):341-8.
10. Holbrook T, Tipton T, McFarlane D (corresponding). Neutrophil and cytokine dysregulation in hyperinsulinemic obese horses. *Vet Immunol Immunopath* 2012 145(1-2):283-9.
11. Beech J, McFarlane D, Lindborg S, Sojka JE, Boston RC. Melanocyte-stimulating hormone and adrenocorticotropin concentrations in response to thyrotropin-releasing hormone and comparison with adrenocorticotropin concentration after domperidone administration in healthy horses and horses with pituitary pars intermedia dysfunction. *J Am Vet Med Assoc* 2011 238: 1305-15.
12. Seyfert T, Brunker J, Maxwell LK, Payton M, McFarlane D. Effects of a glucagon-like peptide-1 mimetic (exenatide) in healthy cats. *Internat J Applied Research Vet Med* 2012 10(2):147-156.
13. McFarlane D, Wolf R, McDaniel K, White G. Age- associated Alterations in Innate Inflammatory Response in Captive Baboons. *J Gerontology: Biol Sci* 2011 66(12):1309-17.

14. McFarlane D, Paradis MR, Zimmel D, Sykes B, Brorsen BW, Sanchez A, Vainio K. The effect of latitude of residence, breed and pituitary dysfunction on seasonal ACTH and α -MSH plasma concentration. *J Vet Intern Med* 2011 25(4):872-81.
15. Cordero M, Miller LM, Breshears M, Miller M, Duckett WM, McFarlane D (corresponding author). The Effect of Season on the Histological and Histomorphometric Appearance of the Equine Pituitary. *J Equine Vet Sci* 2012 32:75-79.
16. McFarlane D. Equine pituitary pars intermedia dysfunction. *Vet Clin North Am Equine Pract*; 2011 27(1):93-113 (requested review).
17. McFarlane D, Hale GM, Johnson EM, Maxwell LK. Fecal egg count following anthelmintic administration in aged horses and horses with equine pituitary pars intermedia dysfunction *J Am Vet Med Assoc* 2010 236:330-334.
18. Muirhead TL, McClure JT, Wichtel JJ, Stryhn H, Markham RJ, McFarlane D, Lunn DP. The effect of age on the immune response of horse to vaccination. *J Comp Pathol.* 2010 142 S1: S85-90.
19. Beech J, Boston RC, McFarlane D, Lindborg S. Evaluation of endogenous plasm adrenocorticotropin (ACTH), alpha- melanocyte stimulating hormone (MSH) and insulin concentrations in normal horses and ponies and those with pituitary pars intermedia disease (PPID) during different seasons. *J Am Vet Med Assoc* 2009 235:715-722.
20. Glover C, Miller LM, Dybdal NO, Lopez A, Duckett WM, McFarlane D (corresponding author). Extrapituitary and pituitary pathological changes in horses with pituitary pars intermedia dysfunction, a retrospective study. *J Equine Vet Sci* 2009 29: 146-153
21. McFarlane D, Holbrook TC. Cytokine dysregulation in aged horses and horses with pituitary pars intermedia dysfunction. *J Vet Intern Med* 2008 22:246-442.
22. McFarlane D. Advantages and limitations of the equine disease, pituitary pars intermedia dysfunction as a model of spontaneous dopaminergic neurodegenerative disease. *Aging research reviews* 2007; 6 (1):54-63. Epub 2007 Feb 20. (requested review)
23. McFarlane D, Beech J, Cribb AE. Alpha-melanocyte stimulating hormone release in response to thyrotropin releasing hormone in healthy horses, horses with pituitary pars intermedia dysfunction and equine pars intermedia explants. *Domestic Animal Endocrinol* 2006; 30: 276-288.
24. McFarlane D, Miller LM , Craig LE, Dybdal NO, Habecker PL, Miller MA, Patterson JS, Cribb AE. Agreement in histological assessment of the pituitary pars intermedia in aged horses. *Am J Vet Res* 2005; 66 (12): 2055-2059. 25. McFarlane D, Cribb AE. Systemic and pars intermedia oxidative stress and antioxidant capacity in horses with pituitary pars intermedia dysfunction. *Am J Vet Res* 2005; 66 (12): 2065-2072.
25. McFarlane D, Dybdal NO, Donaldson MT, Miller LM, Cribb AE. Nitration and increased alpha synuclein expression associated with dopaminergic neurodegeneration in Equine Pituitary Pars Intermedia Dysfunction (PPID.) *J of Neuroendocrinol* 2005 17: 73-80.
26. Donaldson MT, McDonnell S, Schanbacher B, Lamb S, McFarlane D, Beech J. Variation in plasma ACTH concentration and dexamethasone suppression test results with season, age and sex in healthy ponies and horses. *J Vet Intern Med* 2005 19: 217-222.
27. McFarlane D, Donaldson MT, McDonnell S, Cribb AE. Seasonal and sample handling effects on measurement of plasma α -melanocyte stimulating hormone in horses and ponies. *Am J Vet Res* 2004; 65 (11):1463-1468.
28. Donaldson MT, McFarlane D, Jorgensen, Beech J. Correlation between plasma alpha-melanocyte stimulating hormone concentration and body mass index in healthy horses. *Am J Vet Res* 2004; 65 (11):1469-1473.
29. McFarlane D, Sellon DC, Gibbs S. Age-related quantitative alterations in lymphocyte subsets and immunoglobulin isotypes in healthy horses. *Am J Vet Res* 2001; 62 (9): 1413-1417.