

Dr. Jonathan H. Fox

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POSITION TITLE: Emeritus Professor of Veterinary Sciences

NARRATIVE: I became Emeritus Professor in 2026 after being a Departmental / WSVL faculty since 2008. As Emeritus faculty I am continuing to pursue my research interest in canine dysautonomia (CD). This research arose out of my long-term interest in the pathogenesis of neurodegenerative diseases, and the unmet need of elucidating the cause and preventing CD. The disease occurs in eastern Wyoming extending through to the central US. During my time at UW, I worked extensively with undergraduate and graduate students in research; was director of the graduate neuroscience program at UW for 20 months; and Departmental Head for 6 years. I taught an undergraduate class in diseases of food animals, and WWAMI medical students. I served as one of the veterinary pathologists at the Wyoming State Veterinary Laboratory for 17 years.

A. Education and Training

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
University of Liverpool, England	BSc	9/1987-6/1990	Medical cell biology
University of Liverpool, England	BVSc	9/1987-6/1993	Veterinary Science
University of Florida, USA	-	7/1993-7/1995	Anatomic pathology
Virginia Tech, USA	<u>Dip. ACVP</u> PhD	9/1996 8/1997-8/2002	Neurotoxicology
Massachusetts General Hospital	Fellow	8/2002-8/2004	Neurodegeneration
Massachusetts General Hospital	Instructor	8/2004-2/2008	Neurodegeneration

B. Positions and Honors

- 1993-1995 Veterinary Pathology Resident, Gainesville, University of Florida.
- 1995-1997 Veterinary Pathologist, Texas Veterinary Medical Diagnostic Laboratory, College Station, Texas.
- 1997-2002 Virginia Polytechnic Institute and State University, College of Veterinary Medicine, Post-graduate studies in neurotoxicology.
- 2002-2004 Research Fellow, Neurology, MGH / Harvard Medical School.
- 2004-July 2008 Instructor in Neuroscience, MGH / Harvard Medical School.
- 2004-July 2008 Assistant in Neurology, MGH / Harvard Medical School.
- Aug 2008-2016 Associate Professor, Department of Veterinary Sciences and Graduate Neuroscience Program, University of Wyoming.
- Aug 2009-2012 Chair of microscopy core advisory committee, University of Wyoming.
- Oct 2012-2015 College of Agriculture and Natural Resources, Tenure and Promotion Committee.

Sept 2013-2014	Internal Selection Committee for the Pew Scholars Program in Biomedical Sciences.
February 2015	NIH study section reviewer. ZRG1 IFCN - Neurotoxicology and Drugs
March-May 2015	Committee for Dean of College of Agriculture and Natural Resources 5-yearly review
Sept 2015-2018	University of Wyoming Faculty Dispute Committee
July 2016--	Professor, Department of Veterinary Sciences, University of Wyoming.
March 2018-2022	Affiliate Professor, Department of Biological Structure, School of Medicine, University of Washington
March19-Dec 20	Director of Neuroscience Graduate Program, University of Wyoming
August 2019-	Interim Departmental Head, Veterinary Sciences, University of Wyoming
April 2020-Jan 2026	Departmental Head, Veterinary Sciences, University of Wyoming
Jan 2026-	Emeritus Professor of Veterinary Sciences

C. Some peer-reviewed papers (underlined are Fox UW undergraduate, graduate, post-docs, or WWAMI students)

A list of all publications is available at- <https://scholar.google.com/citations?user=jc4U4Y8AAAAJ&hl=en>

- 1 Chopra V, Fox JH, Lieberman G, Dorsey K, Matson W, Waldmeier P, Housman DE, Kazantsev A, Young AB, Hersch S (2007) A small-molecule therapeutic lead for Huntington's disease: preclinical pharmacology and efficacy of C2-8 in the R6/2 transgenic mouse. *Proc Natl Acad Sci U S A* 104: 16685-16689 Doi 10.1073/pnas.0707842104
- 2 Weiss A, Abramowski D, Bibel M, Bodner R, Chopra V, DiFiglia M, Fox J, Kegel K, Klein C, Grueninger Set al (2009) Single-step detection of mutant huntingtin in animal and human tissues: a bioassay for Huntington's disease. *Anal Biochem* 395: 8-15 Doi 10.1016/j.ab.2009.08.001
- 3 Fox JH, Connor T, Chopra V, Dorsey K, Kama JA, Bleckmann D, Betschart C, Hoyer D, Frentzel S, DiFiglia M (2010) The mTOR kinase inhibitor Everolimus decreases S6 kinase phosphorylation but fails to reduce mutant huntingtin levels in brain and is not neuroprotective in the R6/2 mouse model of Huntington's disease. *Molecular neurodegeneration* 5: 26
- 4 Fox JH, Connor T, Stiles M, Kama J, Lu Z, Dorsey K, Lieberman G, Sapp E, Cherny RA, Banks Met al (2011) Cysteine oxidation within N-terminal mutant huntingtin promotes oligomerization and delays clearance of soluble protein. *J Biol Chem* 286: 18320-18330 Doi 10.1074/jbc.M110.199448
- 5 Yao C, O'Toole D, Driscoll M, McFarland W, Fox J, Cornish T, Jolley W (2011) *Filaroides osleri* (*Oslerus osleri*): Two case reports and a review of canid infections in North America. *Veterinary parasitology* 179: 123-129
- 6 Rosas HD, Chen YI, Doros G, Salat DH, Chen N-k, Kwong KK, Bush A, Fox J, Hersch SM (2012) Alterations in brain transition metals in Huntington disease: an evolving and intricate story. *Archives of neurology* 69: 887-893
- 7 Chen J, Marks E, Lai B, Zhang Z, Duce JA, Lam LQ, Volitakis I, Bush AI, Hersch S, Fox JH (2013) Iron accumulates in Huntington's disease neurons: protection by deferoxamine. *PLoS One* 8: e77023 Doi 10.1371/journal.pone.0077023
- 8 Miller MM, O'Toole D, Cavender JL, Cornish TE, Dawson TG, Smylie JM, Fox JH, Hill KL, Montgomery D, Vasquez M, Schumaker, BA (2013) Vaccine associated mucosal disease case study: demonstrating the importance of subsequent herd PI testing. *Bovine Practitioner* 47 (2), 84-93
- 9 Dodds L, Chen J, Berggren K, Fox J (2014) Characterization of striatal neuronal loss and atrophy in the R6/2 mouse model of Huntington's disease. *PLoS currents* 6:
- 10 Lu Z, Marks E, Chen J, Moline J, Barrows L, Raisbeck M, Volitakis I, Cherny RA, Chopra V, Bush AI, Fox JH (2014) Altered selenium status in Huntington's disease: neuroprotection by selenite in the N171-82Q mouse model. *Neurobiol Dis* 71: 34-42 Doi 10.1016/j.nbd.2014.06.022

- 11 Berggren KL, Chen J, Fox J, Miller J, Dodds L, Dugas B, Vargas L, Lothian A, McAllum E, Volitakis I, Fox JH (2015) Neonatal iron supplementation potentiates oxidative stress, energetic dysfunction and neurodegeneration in the R6/2 mouse model of Huntington's disease. Redox biology 4: 363-374
- 12 Lu Z, Barrows L, Fox J (2015) Thiol-disulfide Oxidoreductases TRX1 and TMX3 Decrease Neuronal Atrophy in a Lentiviral Mouse Model of Huntington's Disease. PLoS currents 7:
- 13 Berggren KL, Lu Z, Fox JA, Dudenhoefter M, Agrawal S, Fox JH (2016) Neonatal iron supplementation induces striatal atrophy in female YAC128 Huntington's disease mice. Journal of Huntington's disease 5: 53-63
- 14 Donley DW, Olson AR, Raisbeck MF, Fox JH, Gigley JP (2016) Huntingtons disease mice infected with Toxoplasma gondii demonstrate early kynurenine pathway activation, altered CD8+ T-cell responses, and premature mortality. PloS one 11: e0162404
- 15 Agrawal S, Berggren KL, Marks E, Fox JH (2017) Impact of high iron intake on cognition and neurodegeneration in humans and in animal models: a systematic review. Nutrition reviews 75: 456-470
- 16 Berggren K, Agrawal S, Fox JA, Hildenbrand J, Nelson R, Bush AI, Fox JH (2017) Amyloid Precursor Protein Haploinsufficiency Preferentially Mediates Brain Iron Accumulation in Mice Transgenic for The Huntington's Disease Mutation. Journal of Huntington's disease 6: 115-125
- 17 Fox JH, Porter BF, Easterwood L, Hildenbrand JR, Hélie P, Smylie J, O'Toole D (2018) Acute hepatic steatosis: a helpful diagnostic feature in metallic phosphide-poisoned horses. Journal of Veterinary Diagnostic Investigation 30: 280-285
- 18 Agrawal S, Fox J, Thyagarajan B, Fox JH (2018) Brain mitochondrial iron accumulates in Huntington's disease, mediates mitochondrial dysfunction, and can be removed pharmacologically. Free Radical Biology and Medicine 120: 317-329
- 19 Baskaran P, Markert L, Bennis J, Zimmerman L, Fox J, Thyagarajan B (2019) Assessment of pharmacology, safety, and metabolic activity of capsaicin feeding in mice. Scientific reports 9 (1), 8588
- 20 Agrawal S, Fox JH (2019) Novel proteomic changes in brain mitochondria provide insights into mitochondrial dysfunction in mouse models of Huntington's disease. Mitochondrion <https://doi.org/10.1016/j.mito.2019.03.004>
21. Sanderson H, Vasquez M, Killion H, Vance M, Sondgeroth K, Fox J (2020) Fatal *Chlamydia psittaci* infection in a domestic kitten. Journal of Veterinary Diagnostic Investigation. Veterinary Parasitology: Regional studies and report. <https://doi.org/10.1177/1040638720966960>
22. Donley D, Realing M, Gigley J, Fox J (2021) Iron activates microglia and directly stimulates indoleamine-2, 3-dioxygenase activity in the N171-82Q mouse model of Huntington's disease. PLOS ONE <https://doi.org/10.1371/journal.pone.0250606>
23. Griffith SM, Gigley J, Fox J, Bangoura, B (2021). Identification and characterization of *Eimeria* spp. in western north American Bison (*Bison bison*) herds and potential risk of cross-species transmission. <https://doi.org/10.1016/j.vprsr.2021.100627>
24. Korrapati V, Sathyaikumar, Verónica Pérez de la Cruz, Benjamín Pineda, Gustavo Ignacio Vázquez Cervantes, Daniela Ramírez Ortega, David W Donley, Paul L Severson, Brian L West, Flaviano Giorgini, Jonathan H Fox, Robert Schwarcz (2022). Cellular Localization of Kynurenine 3-Monooxygenase in the Brain: Challenging the Dogma. Antioxidants <https://doi.org/10.3390/antiox11020315>

D. Pre-publications and in review (underlined are UW undergraduate or WWAMI medical students)

- 1 Donley D, Nelson R, Gigley J, Fox J (2019) Mutant huntingtin protein alters the response of microglial cells to inflammatory stimuli. bioRxiv, 550913
- 3 Donley DW, Jenkins T, Deiter C, Campbell R, Realing M, Chopra V, Hersch S, Gigley JP, Fox JH (2019) Latent *Toxoplasma gondii* infection increases soluble mutant huntingtin and promotes neurodegeneration in the YAC128 mouse model of Huntington's disease. doi: <https://doi.org/10.1101/550624>

E. Funding:

Our recent CD research has been funded mainly by non-profit grants and numerous generous donations to the Canine Dysautonomia research account held at the UW foundation.

Traditional and Multiomic Approach to Elucidating the Cause and Pathogenesis of Canine Dysautonomia. Agency, American Kennel Club: Funding Dates, Jan 24-July 26: Amount (total): \$78,171.

An Investigation into the Role of a Botulinum Toxin as the Cause of Canine Dysautonomia.
Agency, Paws to People: Funding Dates, Mar 23- Mar 24: Amount (direct): \$13,500.