CURRICULUM VITAE

Christopher Robert Ross, D.V.M., Ph.D.

PRESENT ADDRESS:

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EDUCATION:

B.S. (Agriculture), University of Missouri, 1977.
D.V.M., University of Missouri, 1981.
Ph.D. (Physiology), University of Missouri, 1990.

POSITIONS HELD:

Associate Veterinarian, general practice, Callaway County Veterinary Clinic, Fulton, MO, 1981-1985.

Postdoctoral Fellow, Dalton Research Center, University of Missouri, Columbia, MO, 1985-1990.

Adjunct Instructor, Department of Veterinary Biomedical Sciences, College of Veterinary Medicine, University of Missouri, Columbia, MO, 1990.

Assistant Professor, Department of Anatomy and Physiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS, 1990-1996.

Associate Professor, Department of Anatomy and Physiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS, 1996-2002.

Professor, Department of Anatomy and Physiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS, 2002-present.

TEACHING EXPERIENCE:

Professional:

Course Title	Institution	Credit Hrs.	% of Course	Formal Contact Hrs. Lecture	Lab	Date
Vet. Phys. Chem.	U. of MO	5	15	12	0	1988
Vet. Phys. Chem.	U. of MO	5	15	12	0	1989
Vet. Pharm.	U. of MO	5	15	12	0	1990
Vet. Pharm.	KSU	5	5	4	0	1990
Vet. Phys. (AP737)[1]	KSU	6	50	15	45	1991
Vet. Phys. (AP737)[1]	KSU	5	81	45	40	1992
Vet. Phys. (AP737)[1]	KSU	5	67	30	40	1993
Vet. Phys. (AP737)[1]	KSU	5	61	35	20	1994
Vet. Phys. (AP737)[1]	KSU	5	55	41	5	1995
Vet. Phys. (AP737)[1]	KSU	5	63	47	5	1996
Vet. Phys. (AP737)[1]	KSU	5	63	47	5	1997
Vet. Phys. (AP737)[1]	KSU	5	70	50	5	1998
Vet. Phys. (AP737)[1]	KSU	5	70	50	5	1999
Vet. Phys. (AP737)[1]	KSU	5	70	50	5	2000

Vet. Phys. (AP737)[1]	KSU	5	70	55	N/A	2001
Vet. Phys. (AP737)[1]	KSU	5	70	55	N/A	2002
Vet. Phys. (AP737)[1]	KSU	6	70	55	N/A	2003
Vet. Phys. (AP737)[1]	KSU	6	75	55	N/A	2004

[1]Course director

Undergraduate:

Course Title	Institution	Credit Hrs.	% of Course	Formal Contact Hrs. Lecture	Lab	Dates
Vet. Med.in Stable Mgmt.	Wm. Woods College	3	20	9	0	1981-1984

Graduate:

Course Title	Institution	Credit Hrs.	% of Course	Formal Contact Hrs. Lecture	Lab	Dates
Seminar (AP 803)	KSU	1	100	0	13	1990, 1997, 1998
Adv. Neuro-endocrinology (AP 888)	KSU	2	7	2	0	1993
Res. Meth. in Vet. Clin. Sci. (CS 895)	KSU	2	7	2	0	1995, 1997,1999
Mechanisms of Drug Action	KSU	3	50	45	0	1998

GRADUATE STUDENTS:

Name	Degree	Institution	Role	Dates

Completed:

Lonnie Kilgore Ph.D. KSU, A&P Advisor Degree, 1995

Central States American College of Sports Medicine student research award for a paper entitled "Induction of the stress protein response in skeletal muscle: A comparison of laboratory models to naturally occurring hypertrophy". (1992)

Sigma Xi Grant-in-Aid of Research: "Heat shock protein 70 induction in response to nutritional compromise, injury, and functional overload in rat skeletal muscle". (1992)

Phi Zeta Basic Sciences Competition, 3rd place. (1993)

American College of Sports Medicine student research award, "Detection and localization of heparan sulfate proteoglycans in ischemic myocardium". (1993)

American College of Sports Medicine, Regional Representative, Student Affairs Committee. (1993-1994)

Kansas Academy of Sciences Eugene Dehner Award for excellence in research presentation (1994)

Sigma Xi Student Travel Award (1995)

American College of Sports Medicine national conference, co-chair of a colloquium entitled "The makings of today's successful scientist: Perspectives from mentors, new investigators, and search committee chairs". (1995)

Hua Wu Postdoc. KSU, A&P Co-Advisor 1996-2000

Conference of Research Workers in Animal Disease poster competition, 1st place. (1996)
Currently employed with Schering-Plough Animal Health Corp., Omaha, NE.

Goulong Zhang Ph.D. KSU, A&P Co-Advisor Degree, 2000
Currently employed as an Assistant Professor, Oklahoma State University, Stillwater, OK.

Jennifer Busch M.S. KSU, A&P Advisor Degree 2002
Phi Zeta Basic Sciences Competition.

Yongming Sang Ph.D KSU, A&P Advisor 2005-present

Other:

Name	Degree	Institution	Role	Dates
Mike Apley	Ph.D.	KSU, A&P	Committee member	Degree, 1992
Asim Abdel-Mageed	Ph.D.	KSU, A&P	Committee member	Degree, 1993
Blaine Lowe	Ph.D.	KSU, A&P	Committee member	Degree, 1994
Yuanjue Zhang	Ph.D.	KSU, An. Sci.	Committee member	Degree, 1994
Tammy Kilian	M.S.	KSU, A&P	Committee member	Degree, 1994
Jishu Shi	Ph.D.	KSU, A&P	Committee member	Degree, 1996
John Stephan	M.S.	KSU, Clin. Sci.	Committee member	Degree, 1996
Hsuan-Jen Huang	M.S.	KSU, A&P	Committee member	Degree, 1996
John Mattson	Ph.D.	KSU, A&P	Committee member	Degree, 1997
Todd Richter	Ph.D.	KSU, GNT	Outside chair	Degree, 1998
Raul Guedes	Ph.D.	KSU, Entom.	Outside chair	Degree, 1997
Diane Mason	Ph.D.	KSU, A&P	Committee member	Degree, 1999
Casey Kindig	Ph.D.	KSU, A&P	Committee member	Degree, 2001
Karl Frees	M.S.	KSU, Clin. Sci.	Committee member	Degree, 2001
Lynn Wagner	Ph.D.	KSU, A&P	Committee member	Degree, 2002
Yanwen Hou	Ph.D.	KSU, Chem	Outside chair	Degree, 2002
Yan Wang	M.S.	KSU, A&P	Committee member	Degree, 2002
Bryan Helwig	Ph.D.	KSU, A&P	Committee member	Degree, 2003
Elizabeth Davis	Ph.D.	KSU, Clin. Sci.	Committee member	Current
Rebecca Quesnell	Ph.D.	KSU, A&P	Committee member	Current
Yan Li	Ph.D.	KSU, A&P	Committee member	Degree, 2003
Balaji Ramanathan	Ph.D.	KSU, A&P	Committee member	Degree, 2004
Debra Sellers	Ph.D.	KSU, HumEc	Outside chair	Degree, 2004
Allison Heaney	M.S.	KSU, Clin. Sci.	Committee member	Current

Misc. teaching activity:

Supervision of second-year veterinary student in the Dalton Research Center Summer Fellow program, University of Missouri, 1989.
Acted as facilitator, Gen. Path (PM 703), 1990.
Supervision of senior undergraduate, Stephanie Church, in the KSU Cancer Center student fellowship program, 1996.
Presented “Practical Aspects of Experimental Design” to Veterinary Research Scholars, 2004.

HONORS AND AWARDS:

University of Missouri, College of Veterinary Medicine, Veterinary class president, 1978.

University of Missouri, College of Veterinary Medicine, J.B. Arthur Scholarship, 1980.
Phi Zeta-Veterinary Honor Society, 1980.
University of Missouri Dean's Honor Roll, 1975-1981.
University of Missouri, College of Veterinary Medicine Surgery Proficiency Award, 1981.
NIH Institutional Postdoctoral Fellowship, Dalton Research Center, 1985-1988.
Outstanding Graduate Teaching Award, University of Missouri Graduate School, 1988-1989.
University of Missouri, College of Veterinary Medicine Committee on Research poster competition, first place, 1989.
NIH Individual National Research Service Award, 1988-1990.

INVITED PRESENTATIONS:

Regulation of basic fibroblast growth factor. Department of Animal Sciences and Industry, Kansas State University, 1992.

Heparan sulfate proteoglycans in cardiovascular disease. Cardiovascular Sciences Day, University of Missouri-Columbia, 1993.

Cytokine expression in angiogenesis. Department of Animal Sciences and Industry, Kansas State University, 1995.

Expression of CINC and syndecan during myocardial infarction. American Heart Association, KS Affiliate annual meeting, 1995.

PR-39: A multi-functional antibiotic peptide. National Institutes of Health, Laboratory of Host Defenses; December, 1995.

The cellular physiology of new blood vessel growth: an application of the basic sciences. American Pre-Veterinary Medical Association Annual Symposium, 1996.

Modulation of neutrophil function by a proline-arginine -rich peptide, PR-39. Dept. of Pediatrics, Joint Program in Neonatology, Children=s Hospital, Harvard Medical School, 1997.

Modulation of neutrophil function by a proline-arginine -rich peptide, PR-39. Dept. of Biochemistry, Kansas State University, 1997.

PR-39: An anti-inflammatory peptide. Dept. of Molecular Physiology and Biophysics, Lousiana State University School of Medicine, Shreveport, LA, 1998.

PR-39, a proline-arginine -rich peptide, suppresses endotoxin-induced liver injury. Advances in Veterinary Shock Research, Philadelphia, PA, 1999.

Contribution of the NADPH oxidase to reperfusion injury. Advances in Veterinary Shock Research, Philadelphia, PA, 1999.

Antiinflammatory effect of NADPH oxidase inhibition. Dept. of Anatomy and Cell Biology, University of Kansas Medical Center, Kansas City, Kansas, 1999.

Antiinflammatory effect of NADPH oxidase inhibition. Dept. of Biochemistry and Cell Biology, St. Louis University Health Sciences Center, St. Louis, MO, 2000.

PR-39, an antiinflammatory peptide. Inflammation Biology group, Pfizer Corporation, Groton, CT, 2001.

PR-39, an antiinflammatory peptide. Workshop on pharmacophysiologic activities of PR-39, Dartmouth College and MicroHeart Corp., Hanover, NH, 10/01.

PR-39, a Proline-Arginine -Rich Peptide, Suppresses Endotoxin-Induced Liver Injury. Workshop on pharmacophysiologic activities of PR-39, Dartmouth College and MicroHeart Corp., Hanover, NH, 10/01.

PR-39, an antiinflammatory peptide. Dept. of Molecular & Integrative Physiology, University of Kansas Medical Center, Kansas City, Kansas, 2002.

PR-39, a multifunctional host-defense peptide. Dept. of Clinical Internal Medicine, Policlinico San Matteo, University of Pavia, Pavia, Italy, May 2003.

Antimicrobial Peptides: Effectors of Innate Immunity. European Society of Clinical Investigation, Verona, Italy, April 2003.

NAD(P)H oxidase inhibition blocks reperfusion-induced leukocyte recruitment in hypercholesterolemic mice. European Society of Clinical Investigation, Phagocyte Workshop, Verona, Italy, April 2003.

JOURNALS REVIEWED:

Life Sciences
American Journal of Physiology: Regulatory, Integrative, and Comparative Physiology.
Journal of Leukocyte Biology
Journal of the American Veterinary Medical Association
Journal of Applied Physiology
British Journal of Pharmacology
American Journal of Veterinary Research
Chapter reviewer for Animal Physiology (1st ed.), Sherwood/Klandorf/Yancey, Wadsworth Publishing, 2003.
Chapter reviewer for Biology (1st ed.), Brooker/Widmaier/Graham/Stiling, McGraw-Hill, 2004.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

American Physiological Society, Sigma Xi, Phi Zeta, American Heart Association Basic Sciences Council, Gamma Sigma Delta, Microcirculatory Society, Shock Society, Oxygen Society.

BIBLIOGRAPHY:

Publications:

1) Ross, CR, JE Wagner, SR Wightman, SE Dill. Experimental transmission of *Syphacia muris* among rats, mice, hamsters, and gerbils. *Laboratory Animal Science* 30(1):35-37, 1980.

2) Ross, CR, CC Hale. Detection of the basic fibroblast growth factor low affinity binding site in cardiac sarcolemmal vesicles. *Life Sciences* 46(24):1809-1815, 1990.

3) Boatwright, RB, DO Williams, KS Rugh, RD Sarazen, CR Ross, HE Garner, DM Griggs, Jr. Distribution of coronary collateral blood flow at different levels of collateral growth in conscious

ponies. *American Journal of Physiology* 263(2):H1145-1153, 1992.

4) Rugh, KS, CR Ross, RB Boatwright, DO Williams, HE Garner, DM Griggs, Jr. Disuse inhibition of newly functional collateral circulation in ponies. *American Journal of Physiology: Heart and Circulatory Physiology* 262(2):H385-H390, 1992.

5) Ross, CR, S Kubinak, CC Hale. Purification of a basic fibroblast growth factor-binding proteoglycan from cardiac plasma membranes. *Biochimica et Biophysica Acta* 1145:219-226, 1993.

6) Troyer, DL, WC Cash, T Akbar, CR Ross. Histopathological and immunocytochemical findings in the injured bovine spinal cord. *Progress in Veterinary Neurology* 5(3):98-104, 1994.

7) Kilgore, JL, BF Timson, DK Saunders, RR Kraemer, RD Klemm, CR Ross. Induction of the stress protein response in skeletal muscle: A comparison of laboratory models to naturally occurring hypertrophy. *Journal of Applied Physiology* 76(2):598-601, 1994.

8) Shi, J, CR Ross, MM Chengappa, F Blecha. Identification of a proline-arginine-rich antibacterial peptide from neutrophils that is analogous to PR-39, an antibacterial peptide from the small intestine. *Journal of Leukocyte Biology* 56:807-811, 1994.

9) Kielian, T, CR Ross, S McVey, S Chapes, F Blecha. Lipopolysaccharide modulation of CD14 on porcine alveolar macrophages. *Journal of Leukocyte Biology* 57(4):581-586, 1995.

10) Shi, J, CR Ross, MM Chengappa, MJ Sylte, DS McVey, F Blecha. Antibacterial activity of a synthetic peptide (PR-26) derived from PR-39, a proline-arginine-rich neutrophil antimicrobial peptide. *Antimicrobial Agents and Chemotherapy* 40(1):115-121, 1996.

11) Shi, J, CR Ross, TL Leto, F Blecha. PR-39, a proline-rich antibacterial peptide that inhibits phagocyte NADPH oxidase activity. *Proc. Nat. Acad. Sci., USA* 93: 6014-6018, 1996.

12) Williams, DO, RB Boatwright, KS Rugh, CR Ross, RD Sarazen, HE Garner, DM Griggs, Jr. Equine coronary hemodynamics during brief coronary occlusions at three levels of collateral function. *American Journal of Physiology: Heart and Circulatory Physiology* 39:6: H1893-1904, 1996.

13) Kilgore, JL, TI Musch, CR Ross. Regional distribution of HSP70 proteins after myocardial infarction in the rat. *Basic Research in Cardiology* 91(4):283-288, 1996.

14) Huang, H-J, CR Ross, F Blecha. Chemoattractant properties of PR-39, a neutrophil antibacterial peptide. *J. Leukoc. Biol.* 61(5):624-629, 1997.

15) Zhang, G, CR Ross, S Dritz, J Nietfeld, F Blecha. *Salmonella* infection increases porcine antimibacterial peptide concentrations in serum. *Clinical and Diagnostic Laboratory Immunology* 4:774-777, 1997.

16) Zhang, G, H Wu, J Shi, T Ganz, C Ross, F Blecha. Molecular cloning and tissue expression of porcine β-defensin 1. *FEBS Letters* 424: 37-40, 1998.

17) Kilgore, JL, TI Musch, CR Ross. Physical activity and the HSP70 response. *Canadian Journal of*

Applied Physiology 23(3):245-260, 1998.

18) A Al-Mehdi, G Zhao, C Dodia, K Tozawa, K Costa, V Muzykanlov, C Ross, F Blecha, M Dinauer, A Fisher. Endothelial NADPH oxidase as the source of oxidants with lung ischemia or high K^+. *Circulation Research* 83:730-737, 1998.

19) Wu, H, G Zhang, C Ross, F Blecha. Ontogeny and tissue specificity of cathelicidin gene expression in porcine tissues. *Infect. Immun.* 67(1):439-442, 1999.

20) Shi, J, G Zhang, H Wu, C Ross, F Blecha, T Ganz. Porcine epithelial β-defensin-1 is expressed in the tongue at antimicrobial concentrations. *Infect Immun.* 67(6):3121-7, 1999.

21) RJ Korthuis, D Gute, F Blecha, Ross, CR. PR-39, a proline/arginine-rich antimicrobial peptide, prevents postischemic microvascular dysfunction. *Am. J. Physiol.* 277 *(3 Pt.2)*:H1007-H1013, 1999.

22) Zhang, G, H Hiraiwa, H Yasue, H Wu, C Ross, D Troyer, F Blecha. Cloning and characterization of the gene for a new epithelial β-defensin. Genomic structure, chromosomal localization, and evidence for its constitutive expression. *J. Biol. Chem.* 274:24031-24037, 1999.

23) Zhang, G, H Wu, CR Ross, JE Minton, F Blecha. Cloning of porcine NRAMP1 and its induction by lipopolysaccharide, tumor necrosis factor-α, and interleukin-1β: Role of CD14 and mitogen-activated protein kinases. *Infect. Immun.* 68(3):1086-1093, 2000.

24) Mattson, JP, CR Ross, JL Kilgore, TI Musch. Induction of mitochondrial stress proteins following treadmill running. *Medicine and Science in Sports and Exercise* 32(2):365-369, 2000.

25) Zhang, G, C Ross, F Blecha. Porcine antimicrobial peptides: new prospects for ancient molecules of host defense. *Veterinary Research* 31(3):277-296, 2000.

26) Barchowsky, A, L Klei, K Smith, CR Ross. Oxidant signaling mechanisms initiated by low levels of arsenic in vascular cells. in *Metal Ions in Biology and Medicine, Vol. 6, ed. J.A. Centeno, P. Collery, G. Vernet, R.B. Finkelman, H. Gibb, J-C Etienne, John Libbey and Co., Ltd. pp. 47-49, 2000*.

27) Wu, H, G Zhang, JE Minton, CR Ross, F Blecha. Regulation of cathelicidin gene expression: Induction by lipopolysaccharide, interleukin-6, retinoic acid, and *Salmonella enterica* serovar infection. *Infection and Immunity* 68(10):5552-5558, 2000.

28) Akgur, F, M Brown, G Zibari, J McDonald, C Epstein, C Ross, DN Granger. Role of superoxide in hemorrhagic shock-induced P-selectin expression. *American Journal of Physiology*, Heart Circ Physiol. 279(2):H791-H797, 2000.

29) Hoffmeyer, MR, SP Jones, CR Ross, B Sharp, MB Grisham, FS Laroux, TJ Stalker, R Scalia, DJ Lefer. Myocardial ischemia-reperfusion injury in NADPH oxidase-deficient mice. *Circulation Research* 87(9):812-817, 2000.

30) Hoffmeyer, MR, R Scalia, CR Ross, DJ Lefer. PR-39, a potent neutrophil inhibitor, attenuates myocardial ischemia/reperfusion injury in mice. *American Journal of Physiology* 279:H2824-H2828, 2000.

31) Ikeda, Y, LH Young, R Scalia, CR Ross, AM Lefer. PR-39, a proline/arginine-rich antimicrobial peptide, exerts cardioprotective effects in myocardial ischemia/reperfusion. *Cardiovascular Research*, 49(1):69-77, 2001.

32) Stokes, Karen, E. Chris Clanton, Janice M. Russell, Chris R. Ross, and D. Neil Granger. NAD(P)H oxidase-derived superoxide mediates hypercholesterolemia-induced leukocyte-endothelial cell adhesion. *Circulation Research* 88(5):499-505, 2001.

33) Kreiglstein, C, Wolfgang Cerwinka, James W. Salter, Janice M. Russell, Guido Shuermann, Matthew B. Grisham, Christopher R. Ross, D. Neil Granger. Regulation of murine intestinal inflammation by reactive metabolites of oxygen and nitrogen: Divergent roles of superoxide and nitric oxide. *Journal of Experimental Medicine* 194(9): 1207-1218, 2001.

34) Rozanov C, Roy A, Mokashi A, Daudu P, Ross C, Lahiri S. Inhibition or lack of NAD(P)H oxidase subunits do not alter the normal cytosolic calcium, sensory and respiratory response of chemoreceptors. *Adv Exp Med Biol* 499:67-72, 2002.

35) Ramanathan, B, EG Davis, CR Ross, F Blecha. Cathelicidin antimicrobial peptides: a review. *Microbes and Infect* 4: 361-372, 2002.

36) Wu, H, CR Ross, F Blecha. Characterization of an upstream open reading frame in the 5' untranslated region of PR-39, a cathelicidin antimicrobial peptide, PR-39. *Molecular Immunology* 39(1-2):9, 2002.

37) Madhani, M, A Barchowsky, L Klei, C Ross, S Jackson, H Swartz, P James. Anti-Bacterial peptide PR-39 affects local nitric oxide and preserves tissue oxygenation in the liver during septic shock. *Biochimica et Biophysica Acta* 1588(3):232, 2002.

38) Yamaguchi, T, C Dayton, CR Ross, T Yoshikawa, D Gute, RJ Korthuis. Late preconditioning by ethanol is initiated via an oxidant-dependent signaling pathway. *Free Radical Biology and Medicine* 34(3):365-76, 2003.

39) Cerwinka, W, D Cooper, C Krieglestein, CR Ross, J McCord, D Neil Granger. Superoxide mediates endotoxin-induced platelet-endothelial cell adhesion in intestinal venules. *American Journal of Physiology* 284:H535-541, 2003.

40) James, PE, M Madhani, C Ross, L Klei, A Barchowsky, H Swartz. Tissue hypoxia during bacterial sepsis is attenuated by PR-39, an anti-bacterial peptide. *Adv. Exp. Biol. Med*. 530:645-652, 2003.

41) Ramanathan, B, H Wu, CR Ross, F Blecha. Delay of apoptosis by PR-39, a porcine antimicrobial peptide: Involvement of caspase 3. *Dev. Comp. Immunol.* 28(2):163-169, 2004.

42) Ramanathan, B, JE Minton, C Ross, F Blecha. Cloning of porcine triggering receptor expressed on myeloid cells-1 (TREM-1) and its induction by lipopolysaccharide, peptidoglycan, and *Salmonella enterica* serovar Typhimurium infection. *Dev. Comp. Immunol*. 29:1-7, 2004.

43) Ramanathan, B, JE Minton, C Ross, F Blecha. Characterization of bovine cDNA encoding triggering receptor expressed on myeloid cells 1 (TREM-1). V*eterinary Immunology and Immunopathology* 102:85-89, 2004.

Manuscripts in review or in preparation:

Ross, CR, R Basaraba, F Blecha. PR-39, a proline-arginine -rich peptide, suppresses inflammatory liver injury. In review, *American Journal of Physiology*.

Gene silencing and overexpression of porcine peptidoglycan recognition protein long isoforms: involvement in β-defensin-1 expression. In review, *Infection and Immunity*.

Zheng, L, J Busch, F Blecha, CR Ross. PR-39, a proline-arginine rich peptide, suppresses inflammatory gene expression. In preparation.

Busch, J, L Zheng, CR Ross. PR-39, an antimicrobial peptide, reduces ROS production and neutrophil recruitment in cremaster microvasculature of hypercholesterolemic mice. In preparation.

Carter, A, J Busch, L Zheng, CR Ross. NAD(P)H oxidase in platelets. In preparation.

Ganta, C, N Lu, B Helwig, F Blecha, R Ganta, L Zheng, C Ross, R Fels, M Kenney. Central angiotensin II-enhanced splenic cytokine gene expression is mediated by the sympathetic nervous system. In preparation.

Abstracts:

1) Ross, CR, KS Rugh, RD Sarazen, HE Garner. Coronary collateral formation in the pony: Cumulative effects of two minute coronary artery occlusions. *The Physiologist* 29(4):165, 1986.

2) Sarazen, RD, CR Ross, KS Rugh, RB Boatwright, DO Williams, HE Garner, DM Griggs, Jr. Inverse relationship between reactive hyperemic coronary flow and regional myocardial segment shortening in the conscious pony. *The Physiologist* 29(4):165, 1986.

3) Sarazen, RD, CR Ross, KS Rugh, RB Boatwright, DO Williams, GF Krause, HE Garner, DM Griggs, Jr. Effect of coronary occlusion duration on debt repayment in the conscious pony. *Fed. Proc.* 46(4):1116, 1987.

4) Rugh, KS, CR Ross, RD Sarazen, HE Garner, DG Hatfield. Left ventricular function in atropinized ponies during exercise and recovery. *Fed. Proc.* 46(3):680, 1987.

5) Ross, CR, RD Sarazen, KS Rugh, DM Griggs, Jr., HE Garner. Regional myocardial function in conscious ponies during sublethal endotoxemia. *Fed. Proc.* 46(3):834, 1987.

6) Ward, DS, CR Ross, HE Garner. Cardiovascular function and hematologic alterations in conscious ponies after low level endotoxin insult. 3rd Equine Colic Research Symposium, Athens, Ga. 1988.

7) Williams, DO, RB Boatwright KS Rugh, CR Ross, RD Sarazen, HE Garner, DM Griggs, Jr. Myocardial metabolic and functional responses to transient ischemia in the collateralized conscious pony. *Circulation*, Suppl. II 78(4):II-8, 1988.

8) Boatwright, RB, DO Williams, KS Rugh, RD Sarazen, CR Ross, HE Garner, DM Griggs, Jr. Wavefront of collateral perfusion in ponies subjected to repeated brief coronary occlusions.

FASEB J., 2(5):A947, 1988.

9) Ross, CR, CC Hale. Detection of basic fibroblast growth factor-binding proteins on western blots. *FASEB J.*, 3(4):A1214, 1989.

10) Boatwright, RB, DO Williams, KS Rugh, RD Sarazen, CR Ross, HE Garner, DM Griggs, Jr. Disuse inhibition of coronary collaterals in the awake pony. *FASEB J.*, 3(4):A1306, 1989.

11) Griggs, DM, DO Williams, RB Boatwright, RD Sarazen, CR Ross, HE Garner. The effects of acetylcholine (ACH) on coronary flow and wall thickening (WT) in conscious ponies. *FASEB J.*, 1990.

12) Akbar, T, CR Ross, WC Cash, HW Leipold, DL Troyer. Immunohistochemical study of bFGF in the experimentally hemisectioned bovine spinal cord. Cong. of Res. Workers An. Dis. annual meeting, 1991.

13) Ross, CR, CC Hale. Purification of a basic fibroblast growth factor-binding proteoglycan from bovine cardiac sarcolemma. *FASEB J.*, 6(4):A1078, 1992.

14) Shi, J, CR Ross, MM Chengappa, F Blecha. Isolation and primary purification of defensin-like proteins from porcine neutrophils. Conf. of Res. Workers An. Dis. annual meeting, 1993.

15) Kilgore, JL, BF Timson, DK Saunders, RR Kraemer, RD Klemm, CR Ross. Stress protein induction in skeletal muscle: Comparison of laboratory models to work-induced hypertrophy. *Med. & Science in Sports and Exercise*, 25(5):S34, 1993.

16) Shi, J, CR Ross, MM Chengappa, F Blecha. Identification of a proline-arginine-rich antibacterial peptide from neutrophils. Conference of Research Workers in Animal Diseases annual meeting, 1994.

17) Shi, J, CR Ross, MM Chengappa, F Blecha. Identification of a proline-arginine-rich antibacterial peptide from neutrophils. *J. Leukoc. Biol.* (Suppl. 2), 1994.

18) Kilgore, JL, CR Ross, JE Kirchmer, DK Saunders. A 73 kD heat shock protein is upregulated in hibernating *Trachemys script elegans* myocardium. KS Acad. Sci. annual meeting, 1994.

19) Shi, J, CR Ross, MJ Sylte, DS McVey, F Blecha. Antibacterial activity of synthetic peptides derived from PR-39, a proline-arginine-rich peptide from porcine neutrophils. *FASEB J.* 9:A522, 1995.

20) Kilgore, JL, CR Ross, DK Saunders. Acute anesthetic effects on tissue concentrations of HSP70 family proteins. *Med. Sci. Sports Exer.* 27(5)S124, 1995.

21) Shi, J, CR Ross, TL Leto, F Blecha. PR-39: A neutrophil peptide possessing antibacterial and antioxidant activity. Conf. on Res. Workers in An. Dis. annual mtg., 1995.

22) Shi, J, CR Ross, MM Chengappa, F Blecha. Sequence analysis, synthesis, and antibacterial

activity of a proline-arginine-rich peptide from porcine neutrophils. American Society of Animal Science & American Dairy Science Association annual meeting, 1995.

23) Stephan, JS, RM McLaughlin, JK Roush, D Mosier, C Ross, G Griffith. Effect of a cytokine impregnated collagen matrix on meniscal healing in dogs-preliminary results. Veterinary Orthopedic Society annual meeting, 1996.

24) Stephan, JS, RM McLaughlin, JK Roush, D Mosier, C Ross, G Griffith. The in vivo effects of a cytokine impregnated collagen matrix on meniscal healing in dogs. American College of Veterinary Surgeons annual meeting, 1996.

25) Leto, TL, J Shi, CR Ross, F Blecha. PR-39, a proline-rich antimicrobial peptide from neutrophils that inhibits NADPH oxidase by binding to a SH3 domain of P47phox. Journal of Investigative Medicine 44(3):268A, 1996.

26) Huang, H-J, CR Ross, F Blecha. PR-39, a proline-arginine-rich antibacterial peptide, is a neutrophil chemoattractant. Phi Zeta Research Day, 1996.

27) Wu, H, CR Ross, F Blecha. Characterization of the tissue distribution of PR-39, a porcine antibacterial peptide. Conference of Research Workers in Animal Diseases, 1996.

28) Zhang, G, CR Ross, F Blecha. Development of an enzyme immunoassay for PR-39, and porcine antibacterial peptide. Conference of Research Workers in Animal Diseases, 1996.

29) Huang, H-J, CR Ross, F Blecha. Chemoattractant properties of PR-39, a proline-arginine-rich antibacterial peptide. Conference of Research Workers in Animal Diseases, 1996.

30) Mattson, JP, CR Ross, JL Kilgore, TI Musch. Effects of training and chronic heart failure (CHF) on the expression of heat shock protein 75 (HSP75) in female rat skeletal muscle. *Med. & Science in Sports and Exercise* 1997.

31) Ross, CR, F Blecha, RJ Korthuis. NADPH oxidase inhibition blocks postischemic leukocyte adhesion. FASEB J. 11(3):A340, 1997.

32) Ross, CR, F Blecha, RJ Korthuis. NADPH oxidase inhibition blocks postischemic leukocyte adhesion. Gordon Conference on Phagocytes, 1997.

33) Blecha, F, CR Ross, RJ Korthuis, SD Eicher, J Shi. In vivo application of the antibacterial peptide PR-39. Gordon Conference on Antimicrobial Peptides, 1997.

34) Zhang, G, CR Ross, S Dritz, J Neitfeld, F Blecha. *Salmonella* infection increases porcine antibacterial peptide concntrations in serum. Phi Zeta annual Research Day, 1997.

35) Zhang, G, CR Ross, S Dritz, J Neitfeld, F Blecha. *Salmonella* infection increases porcine antibacterial peptide concntrations in serum. Interdisciplinary Research Forum, KSU, 1997.

36) Fisher, Aron, A Al-Mehdi, C Dodia, G Zhao, K Costa, V Muzykanlov, C Ross. Endothelial NADPH oxidase as a source of reduced oxygen species (ROS) with lung ischemia. Oxygen Society, 1997.

37) Fisher, Aron, A Al-Mehdi, C Dodia, G Zhao, K Costa, V Muzykanlov, C Ross. NADPH oxidase as a source of reduced oxygen species (ROS) with K^+-induced endothelial cell depolarization. Oxygen Society, 1997.

38) Shi, J, G Zhang, H Wu, C Ross, F Blecha, T Ganz. Salinity and elastase inhibition influence the bactericidal activity of porcine neutrophil cathelicidins. Congress of Research Workers in Animal Disease, 1997.

39) Zhang, G, H Wu, C Ross, F Blecha. Identification of pBD-1, a porcine β-defensin, and its tissue expression. Congress of Research Workers in Animal Disease, 1997.

40) H Wu, G Zhang, C Ross, F Blecha. Regulation of PR-39 expression in bone marrow progenitor cells. Congress of Research Workers in Animal Disease, 1997.

41) H Wu, G Zhang, C Ross, F Blecha. Developmental expression of a porcine neutrophil antimicrobial peptide. *FASEB J.* 12(5):A1046, 1998. Experimental Biology, 1998.

42) Ross, CR, F Blecha, R Basaraba. Suppression of inflammatory liver injury by a proline-arginine - rich peptide, PR-39. *FASEB J.* 12(5):A1004, 1998. Experimental Biology, 1998.

43) Zhang, G, H Wu, C Ross, F Blecha. Porcine beta-defensin-1: Gene structure and developmental expression. *FASEB J.* 12(5):A911, 1998.

44) Shi, J, G Zhang, H Wu, C Ross, F Blecha, T Ganz. Neutrophil elastase regulated activation of protegrins in porcine skin wound fluid and peritoneal inflammatory exudate. Society for Leukocyte Biology annual meeting, 1998.

45) Shi, J, G Zhang, H Wu, C Ross, F Blecha, T Ganz. Porcine beta-defensin-1 is synergistic with neutrophil antibacterial peptide cathelicidins. Society for Leukocyte Biology annual meeting, 1998.

46) Shi, J, G Zhang, H Wu, C Ross, F Blecha, T Ganz. Synergism of porcine epithelial b-defensin-1 and neutrophil antibacterial peptides. Congress for Workers in Animal Disease annual meeting. 1998.

47) Zhang, G, H Wu, Minton, E, C Ross, F Blecha. Cloning of porcine natural resistance-associated macrophage protein 1 (NRAMP1) and its inducible expression in early *Salmonella* infection. Congress for Workers in Animal Disease annual meeting. 1998.

48) Wu, H, G Zhang, C Ross, F Blecha. Promoter analysis of a cathelicidin-family antimicrobial peptide. Congress for Workers in Animal Disease annual meeting. 1998.

49) Roubaud, V, C Ross, Z Zweier. Inhibition of phagocyte NADPH oxidase activity by the peptide, PR-39. Oxygen Society, 1998.

50) Zhang, G, H Wu, C Ross, F Blecha. Differential induction of IL-18 in porcine immune cells. Experimental Biology, 1999.

51) Ross, C, D Gute, S Holland, F Blecha, R Korthuis. Contribution of the NADPH oxidase to reperfusion injury. Advances in Veterinary Shock Research, Philadelphia, PA, 1999.

52) Ross, C, F Blecha, R Basaraba, P James. PR-39, a proline-arginine -rich peptide, suppresses endotoxin-induced liver injury. Advances in Veterinary Shock Research, Philadelphia, PA, 1999.

53) Ross, C, F Blecha, R Basaraba, P James. PR-39, a proline-arginine -rich peptide, suppresses endotoxin-induced liver injury. Gordon Conference on Phagocytes, 1999.

54) Zhang, G, H Hiraiwa, H Yasue, H Wu, C Ross, D Troyer, F Blecha. Cloning and characterization of the gene for porcine epithelial β-defensin-1. Congress for Workers in Animal Disease annual meeting, 1999.

55) Wu, H, Zhang, G, C Ross, F Blecha. Identification of a negative regulatory element in the cathelicidin gene promoter and its function in phorbol myristate acetate (PMA) treated cells. Congress for Workers in Animal Disease annual meeting, 1999.

56) Hoffmeyer, M, CR Ross, AJ Palazzo, DJ Lefer. Myocardial ischemia-reperfusion injury in NADPH oxidase deficient mice. Experimental Biology, 2000.

57) Stokes, K, C Clanton, CR Ross, DN Granger. NADPH oxidase contributes to hypercholesterolemia-induced leukocyte-endothelial cell adhesion. Experimental Biology, 2000.

58) Roy, A, A Mokashi, C Rozanov, P Daudu, C Ross, S Lahiri. Inhibition of NAD(P)H oxidase by diphenylene iodonium and PR-39 did not prevent glomus cell calcium and chemoreceptor responses in rat carotid body. Experimental Biology, 2000.

59) Ross, C, D Gute, R Korthuis. NADPH oxidase deficiency attenuates reperfusion-induced leukocyte recruitment in cremaster muscle. Experimental Biology, 2000.

60) Rozanov, C, A Roy, A Mokashi, P Daudu, C Ross, S Lahiri. Mice deficient in the $p47^{phox}$ or $gp91^{phox}$ subunits of NADPH oxidase do not alter the normal glomus cell $[Ca^{2+}]_c$ and respiratory response to normoxia and to hypoxia. VIII Oxford Conference, 2000.

61) Jones, SP, MR Hoffmeyer, CR Ross, DJ Lefer. NADPH oxidase does not promote neutrophil infiltration, myocardial injury, or contractile dysfunction following coronary ischemia and reperfusion. American Heart Association annual meeting, 2000.

62) Zheng, L, J Busch, F Blecha, CR Ross. PR-39, a proline-arginine rich peptide, suppresses inflammatory gene expression. *FASEB J.* 16(4), 2002.

63) Busch, J, L Zheng, CR Ross. PR-39, an antimicrobial peptide, reduces ROS production and

neutrophil recruitment in cremaster microvasculature of hypercholesterolemic mice. *FASEB J.* 16(4), 2002.

64) Wood, JG, B Zogleman, CR Ross, N Gonzalez. PR-39 -dependent inhibition of NADPH oxidase promotes mast cell degranulation yet attenuates microvascular inflammatory responses during systemic hypoxia. Experimental Biology 2003.

65) Ramanathan, B, JE Minton, CR Ross, F Blecha. Porcine TREM-1, a member of the immunoglobulin superfamily: cloning and expression studies. Annual meeting of the American Association of Immunologists, 2003.

66) Sang, Y, CR Ross, F Blecha. Characterization of porcine peptidoglycan recognition proteins: gene cloning and antimicrobial peptide regulation. Annual meeting of the American Association of Immunologists, 2003.

67) Ross, CR, J Busch Harris, A Carter, L Zheng, D Gritti, G Ricevuti. NAD(P)H oxidase in platelets. Experimental Biology 2004.

PATENTS HELD:

Peptide modulation of reperfusion injury (#6,133,233). C Ross, F Blecha, J Shi, 1999.

PATENTS APPLIED FOR:

PR-39, an antiinflammatory peptide. Application in process. C Ross, F Blecha, 2003.

RESEARCH SUPPORT:

Extramural

Active

Short-term training of students in health professional schools. National Institutes of Health. Co-investigator, $244,545.

Porcine antibacterial peptides. 98-35204-6397, USDA NRICGP, Co-P.I., $270,000 total direct costs. 11/01-11/04.

Cerebral protection and resuscitation after circulatory arrest. National Institutes of Health. Subcontractor (Yan Xu, P.I.), $167,244 total direct costs requested. 2003-2008.

Host defense peptides in the bovine eye. Kansas State University Agricultural Experiment Station 1433. Principal Investigator, $38,000 total direct costs. 2004-2006.

Intramural

NAD(P)H oxidase in platelets. Kansas State University College of Veterinary Medicine Dean's Research Fund, $7,000, 2003.

Proteomic evaluation and NAD(P)H oxidase expression in cultured valvular endothelial cells from normal dogs and those with chronic valvular disease. Clinical-Resident Research Program, Dept. of Anatomy and Physiology, $5,000, 2003.

Pending

Porcine innate immunity-Connecting peptidoglycan recognition proteins and antimicrobial peptides. USDA NRI Competitive Grants Program. Co-principal investigator with F. Blecha, $459,531 total costs requested. 2004-2007.

The protective effect of antioxidant therapy on canine valvular interstitial cells when exposed to vasoactive substances known to be present in cardiac failure. (Co-investigator),Waltham Foundation, $14,040, 2004-2006.

Recent applicants submitted but not funded

NAD(P)H oxidase (Nox2) in platelets. American Heart Association, Heartland Affiliate. Principal Investigator, $130,000 total direct costs requested. 2004-2005.

Healthy eating and physical activity research and extension consortium: Community-based obesity and chronic disease prevention. Kansas State University Targeted Excellence Program, $750,000 total costs requested, 2004-2007.

Host defense peptides in the bovine eye. USDA NRI Competitive Grants Program. Principal investigatory, $458,471 total costs requested. 2004-2007.

Inactive

Heparin-binding mitogens in coronary collateralization. NIH Individual National Research Service Award, $33,000 annual direct costs, 1988-1990.

Release of stored basic fibroblast growth factor by equine wound fluid. UMC College of Veterinary Medicine, USDA Formula Funds, co-investigator, $25,240, 1989-1990.

Immunohistochemical localization of heparan sulfate proteoglycan in bovine heart. Fraternal Order of the Eagles, Kansas Chapter, P.I., $5,000, 1991.

Molecular characterization of a cardiac basic fibroblast growth factor-binding proteoglycan. American Heart Association, Kansas Affiliate, P.I., $21,949 total direct costs, funded but returned due to overlap with other proposals, 1991.

Molecular characterization of a bFGF-binding proteoglycan. National Institutes of Health AREA grant, P.I., $74,943 total direct costs, 1991-1995.

Mediation of bovine herpes virus 1 infection by growth factor binding proteins. Kansas State University Agricultural Experiment Station, USDA 1433 Funds, P.I., $32,000 total direct costs, 1991-1993.

Generation of antibodies directed against a basic fibroblast growth factor-binding proteoglycan. Pharmaceutical Manufacturer's Association Foundation, P.I., $20,000 total direct costs, 1991-1993.

Detection and localization of heparan sulfate proteoglycans in ischemic myocardium. Co-investigator with JL Kilgore. American College of Sports Medicine Graduate Student Research Awards program. $2,450, 1993-1994.

Requirement of bovine herpesvirus-1 for specific heparan sulfate proteoglycans. Kansas State University Agricultural Experiment Station, USDA 1433 Funds, P.I., $28,100 total direct costs, 1993-1995.

Coronary collateral formation in the conscious pony. National Institutes of Health, Heart, Lung, and Blood Institute, Subcontractor, $56,842 total direct costs, 1993-1996.

Expression of inflammatory cytokines in equine tendon injury. Kansas Racing Commission, P.I., $10,845 total direct costs, 1995-1997.

Career Enhancement Award. American Physiological Society, $3,400, 1996.

Expression of heparan sulfate proteoglycans, heparanase, and interleukin-8 following myocardial infarction. American Heart Association (KS Affiliate), P.I., $43,704 total direct costs, 1994-1997.

Porcine antibacterial peptides: Novel agents for porcine enteric diseases. Kansas State University Agricultural Experiment Station, USDA 1433 Funds, coinvestigator, $48,000 total direct costs, 1994-1997.

Involvement of KC, PR-39, and syndecan in coronary angiogenesis. American Heart Association (KS Affiliate), P.I., $49,360 total direct costs, 1996-1998.

Porcine antibacterial peptides. USDA Nat. Res. Init. Comp. Grants Program, coinvestigator with F. Blecha and R. Oberst, $185,000 total costs, 1995-1998.

Modulation of reperfusion injury by a neutrophil peptide. American Heart Association, (KS Affiliate), Co-investigator, $52,000 total direct costs, 1997-1999.

Porcine antibacterial peptides. 98-35204-6397, USDA NRICGP, Co-P.I., $206,400 total direct costs. 11/98-11/01.

Porcine cathelicidins: Induction and regulation of expression. USDA 1433 program. Co-investigator, $48,000 total costs, 1997-2000.

Evaluation of vascular endothelial growth factor in normal and tumor bearing dogs. Morris Animal Foundation, co-investigator with Dr. Ruthanne Chun (P.I.), $38,000 total direct costs. 1999-2001.

Contribution of the NADPH oxidase to reperfusion injury. 9951428Z, American Heart Association (Heartland Affiliate), P.I., $68,508 total direct costs. 07/99-06/01.

The NADPH oxidase and neutrophil recruitment in muscle. 1 R15 HL64595-01, National Institutes of Health, P.I., $100,000 total direct costs. 04/00-03/02

<u>Grants Consulting Activity</u>

Ischemia and Reperfusion Injury to the Lung. National Institutes of Health; Heart, Lung and Blood Institute. Aron B Fisher, P.I (1998-2003).

Intramural

Myocardial function in sublethal endotoxemia. University of Missouri College of Veterinary Medicine Committee on Research, $2,450, 1986.

Angiogenic factors in coronary collateralization. University of Missouri Research Council, $4,630, 1986.

Heparin-binding growth factors released during coronary collateralization. University of Missouri Research Council, $2,750, 1987.

Purification and characterization of basic fibroblast growth factor-binding proteoglycans on myocardial cell membranes. University of Missouri College of Veterinary Medicine Committee on Research, $2988, 1989.

Regulation of growth factor receptors by hypoxia. Kansas State University Graduate School, $2,000, 1990.

Molecular characterization of a cardiac basic fibroblast growth factor-binding proteoglycan. Kansas State University College of Veterinary Medicine Dean's Research Fund, $4,000, 1990.

Partial primary structure of cardiac fibroblast growth factor-binding proteoglycan. Kansas State University Graduate School, $1,500, 1990.

Mediation of bovine herpes virus type 1 infection by fibroblast growth factor-binding proteins. Kansas State University College of Veterinary Medicine Dean's Research Fund, $4,000, 1991.

Heparan sulfate expression during formation of collateral coronary vessels. Kansas State University College of Veterinary Medicine Deans's Research Fund, $5,000, 1992.

Travel Fellowship. Kansas State University Cancer Center, $1,000, 1995.

Travel Fellowship. Kansas State University Cancer Center, $1,000, 1996.

Travel Fellowship. Kansas State University Cancer Center, $650, 1997.

Travel Fellowship. Kansas State University Cancer Center, $1,400, 1999.

Kansas State University Faculty Development Award; Travel to European Society of Clinical Investigation, Verona, Italy, and to the Antimicrobial Peptides Gordon Conference, Barga, Italy, $1,500, 2003.

Travel Fellowship. Kansas State University Cancer Center, $1,800, 2003

PROFESSIONAL DEVELOPMENT

Participated in the problem-based learning workshop held at the KSU College of Veterinary Medicine, March 24-25, 1992.

Attended the multimedia workshop held at the University of Kansas Medical Center, March 21, 1992.
Attended the Veterinary Medical Education Symposium, University of Illinois, 1994.
Attended the Institute for Academic Training short course on education technology, Raleigh-Durham, NC, 1996.
Attended the American Association for Higher Education Forum on Faculty Roles and Rewards, San Diego, CA, 1997.
Sabbatical leave, University of Pavia, Pavia, Italy. 2003.
Participated in the KSU Teaching Renewal Retreat, 2004.
Participated in the CVM Teaching Retreat, 2004.
Participated in the KSU Diversity Summit, April, 2004.

PROFESSIONAL SERVICE:

Community

Steering committee for 1995 fundraiser, American Heart Association, KS Affiliate, local chapter.
Served as Assistant Scoutmaster, Troop 74
Served on KSU merit badge conference steering commitee, 1998-1999; Chair, 2000-2001.
Mate, Sea Scout Ship 5074 (2001-2004).
Skipper, Sea Scout Ship 5074 (2004-present.

Departmental

Search committee: gross anatomist (1990-1991).
Search committee: physiology/biochemistry (1991).
Ad hoc graduate program review committee (1990-1991).
Search committee: physiologist (1992).
Ad hoc committee to rework the departmental promotion and tenure document (1991-1992).
Search committee (chair): pharmacologist (1993).
Ad hoc committee for establishment of policy for funding of techs and graduate students (1993).
Ad hoc committee for disposition of the radioisotope room (1993).
Ad hoc committee for the purchase of MacIntosh, multimedia workcenter (1993).
Search committee: neuropharmacologist (1995-1996)
Ad hoc A&P committee for establishment of teaching evaluation criteria (1995)
Ad hoc A&P committee to evaluate distribution of faculty teaching and research assignments (1995).
Mid-tenure review committee (Lisa Freeman) (1996).
Graduate Executive committee (1991-92); (seminar coordinator-1991).
Graduate Executive committee (1997-99); Chair (1997-98).
Graduate Executive committee (2004-06); Chair (2004-05).
Ad hoc graduate program review committee (1997).
Search committee: cell biologist (1997-1998).
Rudy Clarenburg Lectureship Committee (1997-1999).
Search committee: physiologist (1997-1998)
Short-term training grant advisory committee (1998-present)
Search committee: interim Dept. Head (1998)
Search committee (chair): pharmacologist (1999-2000)
Mid-tenure review committee (Bruce Schultz) (2000).
Resource Advisory Committee (2001-present).
Mid-tenure review committee (Rob Hunter) (2004).
Search committee: biochemistry/proteomics position (2003-2004).

Coles Hall common equipment room coordinator (1990-present).

College

Search committee: opthalmology position (1991).
CVM safety/infectious diseases committee (1990-92).
CVM faculty council (1991-92; secretary, 1991-1992).
CVM scholarships and awards committee (1991-1992).
Search committee: clinical nutritionist (1993).
Curriculum task force, CVM (1994).
CVM Research Committee (1992-1997; 1994-1995, chair).
Ad hoc committee for Dean's evaluation (1993)
Search committee: Clinical Sciences dept. head (1995).
Search committee: Clinical Sciences equine surgery position (1995).
Ad hoc committee on Research Policy (1995).
Search committee: Clinical Sciences Coleman Chair in production animal medicine (1996-1997).
President, Phi Zeta Veterinary Honor Society (1992-93).
President, Phi Zeta (1997-98).
Microbiology and Biotechnology Building Task Force (1998-present).
Clinical Residents Research Project Committee (1998).
Search committee: Associate Dean for Research (1999-2000).
Mid-tenure review committee for Dr. Ruthanne Chun (1999).
Academic Standards Committee (2000-present).
Search committee: Anatomy and Physiology Dept. Head (2000-2001).
Review committee: E.J. Frick Professorship (2001).
Admissions Committee (1997-2000, 2001-04).
Faculty Council, Chair (2003-2005).
Peer mentoring group for Elizabeth Davis (2004-present).
Phi Zeta Day competition judge (2004).
Mid-tenure review committee for Dr. Tom Schermerhorn (2004)
International Affairs Committee (2005-present).

University

KSU Campus Environmental Health and Safety Committee (1991-1994).
CVM Graduate Council representative (1995-98).
Faculty Senate representative (1995-98, 1999-2004).
Faculty review panel, USRG and FDA grants program (1995, 2001-04).
Search committee: Kinesiology exercise physiology position (1995).
Biosafety Committee (1995-1999).
Cancer Center Student Fellowship review committee (1996).
Search committee, interim Associate Dean of the Graduate School, and interim Associate Vice Provost for Research (1998).
Institutional Animal Care and Use committee (1998-2001).
CVM representative, University Committee for Central Research Services (1999-01).
Committee on Integrity in Research and Scholarly Activity (1997-2000).
Search committee, Associate Vice Provost for Research (1999-2000).
Faculty advisor, KSU Sailing Club, (2003-present).
Member of Depscor Steering Committee, (2004-present).

College Assessment Review Committee-Graduate College, (2004-present).

State

Served on the scientific review panel, American Heart Association, Kansas and Kentucky Affiliates (1997) and the Kansas Affiliate (1998).

National

Served as judge for the Research and Creative Activities Forum, University of Missouri-Columbia (1993, 1994, 1995).

Served as *ad hoc* reviewer for NIH Pathology A study section (1992, 1993, 1994, 2000, 2002). Invited to serve, June, 2001; declined due to schedule conflict.

Served as reviewer, NIH Special Emphasis Panel, ZRG2 Pathology A study section (2003).

Served as judge for the AVMA Association for Women Veterinarians, Distinguished Service Award and Outstanding Woman Veterinarian Award (1996-1998).

Served as *ad hoc* reviewer for the USDA National Research Initiative Competitive Grants Program (1997, 1998, 2000).

Phi Zeta national awards committee (Chair 2001-2002).

Served on the American Institute of Biological Sciences review panel for Dept. of Defense Congressionally-Directed Medical Research Programs (2000-2004).

USAMRC reviewer