

Curriculum Vitae  
**Sherry D. Fleming**

18 Ackert Hall  
Division of Biology  
Kansas State University  
Manhattan, KS 66506

sdflemin@ksu.edu  
(785)532-6130 (voice)  
(785)532-6653 (fax)

**Executive Summary**

I am extensively trained in the field of Immunology. My research examines the immune response in an integrated, whole animal model of tissue injury. These studies have been continuously funded by multiple awards from the National Institutes of Health, Department of the Army and the American Heart Association since 2005. I have a demonstrated record of successful and productive research. I have had over \$2,300,000 of extramural funding and have produced 23 publications (with 3 additional publications in revision) since I became an Assistant professor in November 2004. Our studies examined the immune response *ex vivo* and established the necessary *in vitro* biochemical and cell culture methods for complete and integrated studies. The examination of the innate immune response in tissue injury led to the development of therapeutics which have been submitted for US patent. My recently funded NIH grant examines the interactions of neoantigens and Toll-like receptor 4. In addition to research, I have become an exceptional instructor. I teach a large, undergraduate general education course, Public Health Biology each fall semester. In addition, I have taught an immunology laboratory and Principles of Biology for undergraduates. Importantly, while teaching my Humoral Innate Immunity class to graduate students, the students published a review article in *Clinical Immunology*. Finally, I provide significant service at departmental, university, national and international scientific community. This includes serving as the director of the Laboratory Animal Care Services in the Division of Biology, serving on multiple committees including the KSU Presidential IACUC committee. I also have served as an Ad hoc reviewer for multiple study sections at NIH and other funding agencies. The specific details of my experience are presented below.

**Research Interests**

Immunology, Complement, Mucosal Immunology, and Innate Immunity

**Education**

- 1998 Ph.D. Immunology, University of Colorado Health Sciences Center, Nov 1998, Dissertation: The Nature of Cell Surface IL-10 and its Inhibition of the Ability of Macrophages to Kill *L. monocytogenes*.
- 1991 MS Microbiology, Kansas State University, June 1991, Thesis: Murine Macrophage Activation by Staphylococcal Exotoxins.
- 1989 BS Microbiology, 1989. Kansas State University

### **Professional Experience**

- 2011- Associate Professor, Division of Biology, Kansas State University  
2009- Ancillary Faculty, Anatomy and Physiology, Kansas State University  
2004- 2011 Assistant Professor, Division of Biology, Kansas State University  
2003-2004 Post-doc, Walter Reed Army Institute for Research, Mentor: George Tsokos  
2003-2004 Post-doc, Dept. of Medicine, Uniformed Services University of the Health Sciences Mentor: George Tsokos  
1999-2003 National Research Council Research Associateship, Walter Reed Army Institute for Research, Silver Spring, MD, Advisor: Dr. George C. Tsokos  
1998-1999 Post-doctoral fellow, Department of Microbiology and Immunology, Uniformed Services University of the Health Sciences, Bethesda, MD, Mentors: Drs. S. Vogel and E. Metcalf.  
1993-1998 Graduate Student, University of Colorado Health Sciences Center, Mentor, Dr. Priscilla Campbell  
1989-1991 Teaching Assistant Kansas State University, Mentor: Dr. Stephen.K. Chapes

### **Honors and Awards**

- 2013 Immunology SEP study section member, Oct 2013  
2012 Ad hoc III NIH study section member, Feb 2012  
2012 Ad hoc CMIA NIH study section member, June 2012  
2012 Faculty Development Award, Kansas State University  
2009 Outstanding Faculty Member, Lambda chi Alpha Fraternity  
2008 Faculty Scholar Award, K-INBRE  
2007 Women and Minorities in Science and Engineering, Making a Difference Award, Kansas State University.  
2006 Junior Faculty Travel Award, American Association of Immunologists  
2004 Maher Award for Excellence in Research, Uniformed Services University of the Health Sciences.  
2001 National Research Council Postdoctoral Fellowship, Walter Reed Institute for Research  
2000 Trainee Merit Award, International Complement Meeting  
1996 Outstanding Research Award, University of Colorado Health Sciences Center  
1989 Cancer Research Award, Kansas State University

### **Professional Societies**

American Association of Immunologists, Clinical Society for Immunology, Society for Leukocyte Biology, Sigma Xi

### **Teaching**

Public Health Biology, BIOL 330- Fall semesters 2004-present, 100-125 students/semester. This is a NON-majors general education course.  
Overall effectiveness as a teacher: 3.8/5.0  
Amount learned in the course: 4.0/5.0

Principles of Biology, BIOL198, Spring 2013, 80 students, This is the introductory biology course.

Overall effectiveness as a teacher: 3.7/5.0

Humoral Innate Immunity, BIOL890, Spring 2012, 4 graduate students.

Overall effectiveness as a teacher: 4.0/5.0

Immunology laboratory, BIOL 671 Spring 2005.

Overall effectiveness as a teacher: 3.3/5.0

### **Advising**

2011-Present: 20 -21 students each semester Based on the Fall 2012 survey, I am above the departmental, college and university means in every category.

### **University Service at KSU**

2010-Present Associate Director of the Laboratory Animal Care, Division of Biology Facility

2010- Present Sarachek Graduate Fellowship and Travel Award Selection Committee

2011-Present Division of Biology Graduate Student Recruitment Committee

2013-Present Microbiology Faculty Search Committee

2012-2013 Microbial Ecology Faculty Search Committee

2012 Biochemistry Faculty Search Committee

2009- 2012 IACUC Presidential Committee

2009-2010 Host-Pathogen Faculty Search committee

2009 Interim Division of Biology Search Committee member

2008-2009 Microbiology Section Chair

2008 Division of Biology Graduate Research Forum Judge

2007-2009 WESP Learning Communities, discussion leader

2006-2009 Sigma Xi Membership Committee

2006-2007 Animal Physiologist Faculty Search Committee, Division of Biology,

2005- 2007, 2009-2010 GROW workshop presentation, "War on Germs" 2 days each summer.

2005- Present Committee member for 11 Ph.D. and 12 MS students including 8 students from the Vet school.

### **Professional Service**

AAI Annual meeting Session Chair: May 2013

#### **Grant Reviewer**

NIH Study Section SRG1 IMM-M (02) M- Ad hoc

NIH Study Section: NHLBI RFA-13-025 Trans-Agency Research Consortium for Trauma-Induced Coagulopathy (TACTIC) (UM1)

NIH III Study Section , Ad hoc

NIH CMIA Study Section Ad hoc

Italian grant review with Face to Face

OCAST Study Section

K-INBRE Incentives and Awards Committee

NIH Special Emphasis Panel, ZGM1 PPBC-5 (BT),

NIH Challenge grants  
Dutch Digestive Foundation grants, 2010, 2012, 2013  
Italian Ministry of Health grants, 2010, 2011, 2012

**Manuscript review**

Journal of Immunology, Clinical Immunology, Journal of Leukocyte Biology, Journal of Experimental Physiology, BMC Gastroenterology, European Journal of Immunology, Reproduction, Fertility and Development, Gut, Infection and Immunity, Laboratory Investigation, European Journal of Pharmacology, Comparative Medicine, Pharmacological Sciences, The Tohoku Journal of Experimental Medicine, European Journal of Pharmacological Sciences, Clinical and Experimental Immunology

**Textbook reviewer**

Goldsby's Immunology, Kuby Immunology, and Human Disease at a Molecular Level for Non-science Majors

**Other Service:**

Communications Committee- Clinical Immunology Society  
American Journal of Clinical and Experimental Immunology, Associate Editorial Board Member

**Grants and Awards**

**Current**

NIH R21AI107005 **S.D. Fleming**, PI, \$317, 250, Neoantigens and TLR4. 2/2014-1/2016

NIH RO1AIO61691. **S.D. Fleming**, P.I. \$1,125,000 Natural Antibodies and Tissue Injury. 1/2007-3/ 2012. No cost extension until Feb.28, 2014

**Previous**

American Heart Association Grant in Aid, **S.D. Fleming**, \$144,000. Hemorrhage-induced intestinal immune response. 7/2011-7/2013.

NIH 1R01AI061691-03S2 (ARRA supplement). **S.D. Fleming**, P.I. \$49,452 Natural Antibodies and Tissue Injury. 8/2009-8/2010

NIH 1R01AI061691-03S1 (Students and Science Educators ARRA supplement). **S.D. Fleming**, P.I. \$83,415 Natural Antibodies and Tissue Injury. 7/2009-10/2010

Kansas IDeA Network of Biomedical Research Excellence Faculty Scholar Award. **Sherry Fleming**, PI. \$10,000 with \$10,000 matching funds from the University. 5/2008-4/2010.

KSU Center for Biomedical Research for Excellence (COBRE): Epithelial Function in Health and Disease Renewal. P20 RR017686, D. Marcus, P.I. **S.D. Fleming** Junior Investigator Transition year, \$21,900 7/2008-6/2009.

American Heart Association Beginning-Grant-In Aid. **S.D. Fleming**, P.I. %71,499 TLRs alter ischemia-reperfusion induced vascular permeability. 1/2007-12/2009.

KSU Center for Biomedical Research for Excellence (COBRE): Epithelial Function in Health and Disease Renewal. P20 RR017686, D. Marcus, P.I. **S.D. Fleming** Junior Investigator, \$125,000 7/2007-6/2008.

DOD US Army. **S. Fleming**, P.I. \$86,000 Targeted Complement inhibition of Hemorrhage induced damage and inflammation, Jul 2006-Jun 2007

NIH COBRE in Epithelial Function in Health and Disease Investigator Award. . **S.D. Fleming**, P.I. \$267,400 TLR Expression Alters Ischemia-induced Intestinal Epithelial Damage. 7/05-6/07.

DOD, US Army. **S.D. Fleming**, P.I. \$39,996 The role of complement activation in mouse hemorrhage and resuscitation associated injury, May 2005-May 2006

NIH COBRE - Epithelial Function in Health and Disease Faculty Development award, **S. Fleming**, P.I. \$18,000. 1 Apr 05-30 June 05

#### **Local grants**

Johnson Cancer Research Center, Heart Award. **S.D. Fleming**, PI \$4,425. Nov 2011-Nov 2012. Lipid changes in inflammation. \$25000 total with \$3000 to Fleming lab

Johnson Cancer Research Center, Heart Award. **S.D. Fleming**, PI \$4,425. Nov 2011-Nov 2012. A mouse model to protect the heart endothelium during myocardial infarctions

Cancer Research Terry C. Johnson Cancer Center Innovative Award. **S.D. Fleming**, P.I. \$10,000 Nov 10-Nov 11. Beta2 glycoprotein I inhibition of angiogenesis and thrombosis in cancer

K-INBRE, Flow Cytometry Core Laboratory Facility Support. **S.D. Fleming**, PI. M. Wilkerson and C. Wyatt, Co-PI. \$35,000 with \$8000 matching funds 5/06-4/07.

Terry C. Johnson Cancer Center. **S.D. Fleming**, P.I. \$5,410. 4/07. Equipment grant

NSF ADVANCE College of Arts & Sciences Career Enhancement Opportunity. \$1000. 5/07-12/07.

Terry C. Johnson Cancer Center Innovative Award. **S.D. Fleming**, P.I. \$14,000. The role of CR2 in B cell CLL. 5/05-4/06.

NSF ADVANCE College of Arts & Sciences Career Enhancement Opportunity. **S.D. Fleming**, P.I. \$1000 "Current Protocols in Immunology". 5/05-12/05.

KSU Mentoring Fellowships for Women and Minorities in the Sciences and Engineering.  
**S.D. Fleming**, P.I. \$4800. 7/05-7/06.

NSF ADVANCE Lecture Series

\$1200 Hosted: Dr. Andrea Tenner

\$1200 Hosted: Dr. Stephanie Vogel

\$1200 Hosted: Dr. Terez Shea-Donohue

### **Invited Presentations**

- $\beta$ 2-glycoprotein I tolls through the intestine: understanding the triggers of ischemia/reperfusion injury. Biochemistry and Molecular Biophysics, KSU, **Sherry Fleming** scheduled for Feb. 2014.
- Inhibiting the triggers of ischemia/reperfusion injury. K-INBRE Symposium, Regional speaker, **Sherry Fleming**, Jan 2014.
- Beta2-Glycoprotein I tolls through the intestine: Understanding intestinal ischemia/reperfusion injury. Anatomy and Cell biology, KUMC **Sherry Fleming**, Sept 2013.
- TLR2 initiates intestinal ischemia/reperfusion induced tissue damage American Association of Immunologist annual meeting, Honolulu, HI. **Sherry Fleming** May 2013.
- Tolling through the intestine: TLR2 in ischemia/reperfusion injury, Anatomy and Physiology, Vet. Med, KSU, **Sherry Fleming** April 2013.
- Mouse models of excessive innate immune responses. Comparative Medicine Group, Vet. Med, KSU. **Sherry Fleming**, Dec 2012.
- The perilous balance of the innate immune response Diagnostic Medicine/Pathobiology. Vet. Med, KSU, **Sherry Fleming** Sept 2012.
- Innate immune response to ischemia/reperfusion-induced injury- Department of Molecular & Integrative Physiology KUMC **Sherry Fleming** Nov 2010.
- Lipids, antibodies and PGE<sub>2</sub>. Functional Genomics Consortium, Spring Symposium, KSU, **Sherry Fleming**. Mar 2010.
- Mechanisms of Ischemia/Reperfusion-induced Intestinal Damage. **Sherry Fleming**. Department of Microbiology, Molecular Genetics and Immunology, KUMC. Apr. 2009.
- Naturally occurring antibodies in health and disease international workshop. Beta2-glycoprotein I binds to surface of damaged intestinal tissue in response to ischemia/reperfusion, International Workshop on Natural Antibodies and Disease, Bern, Switzerland. **Sherry Fleming** Oct. 2007.
- Innate Immunity and Intestinal Ischemia, Division of Rheumatology, Beth Israel Deaconess Medical Center, Harvard Institutes of Medicine. **Sherry Fleming** July 2007.
- Innate Immune Responses in Ischemia/Reperfusion-induced Intestinal Injury, Molecular Biosciences, University of Kansas. **Sherry Fleming** Sept. 2006.
- Innate Immunity, Natural Antibodies and Tissue Injury, Dept. of Biological Sciences, Emporia State University. **Sherry Fleming** Oct. 2005.

- Complement, Natural Antibodies and Tissue Injury, Dept of Biochemistry, KSU, **Sherry Fleming** Feb. 2005.
- Complement, Natural Antibodies and Tissue Injury, Diagnostic Medicine/Pathobiol, Vet Med, KSU, **Sherry Fleming** Feb. 2005.
- TLR Expression Alters Ischemia-induced Intestinal Epithelial Damage, Epithelial COBRE group, Vet. Med, KSU, **Sherry Fleming** Feb. 2005.

**Community Service as a KSU Faculty**

Manhattan Area Technical College, Biotech Advisory Committee  
Guest speaker, Junction City High School, Microbiology classes

**Publications** (\* non-peer reviewed)

1. Lea H. Dib, M. Teresa Ortega, **Sherry D. Fleming**, Stephen K. Chapes and Tonatiuh Melgarejo 2014. Bone Marrow Leptin Signaling Mediates Obesity-Associated Adipose Tissue Inflammation in Male Mice. *Endocrinology* 155:40-6.
2. Slone, E., M.R. Pope, M. Roth, R. Welti, and **S.D. Fleming**. 2012. TLR9 is indispensable for ischemia-reperfusion induced damage. *Am J Clin Exp Immunol.* 2012;1(2):124-135.
3. Laman K. Mamedova, Kai Yuan, Amber N. Laudick, **Sherry D. Fleming**, Douglas G. Mashek and Barry J. Bradford. 2013. Toll-like receptor 4 signaling is required for induction of gluconeogenic gene expression by palmitate in HepG2 cells. *J. Nut. Biochem.*24:1499-507.
4. Michael R. Pope, Urska Bukovnik, John M. Tomich and **Sherry D. Fleming**. Small  $\beta$ 2-glycoprotein I peptides protect from intestinal ischemia reperfusion injury SD. 2012. *J Immunol* 189:5047-56.
5. **\*S.D. Fleming**, 2012. Naturally occurring autoantibodies mediate ischemia/reperfusion-induced tissue injury. *Adv. Exp. Med. Biol.* 750:174-185. In: Naturally occurring antibodies, H. Lutz editor.
6. Shishido, S. S. Varahan, K. Yuan, X. Li and **S.D. Fleming**. 2012. Humoral innate immune response and disease. *Clinical Immunology.* 144:142-158.
7. M. Tomasi, M. Y. Hiromasa, M.R. Pope, S. Gundlaur, J.M. Tomich, and **S.D. Fleming**. 2012. Human  $\beta$ 2-glycoprotein I attenuates mouse intestinal ischemia/reperfusion induced injury and inflammation. *Mol. Immunol.* 52:207-216.
8. Keith M. Woods, Michael R. Pope, Sara M. Hoffman and **Sherry D Fleming** 2011. Marginal zone B cell production of pathogenic natural antibodies is CR2 dependent but C3 independent. *J. Immunol.* 186:1755-62.
9. Sara Hoffman, Hua Wang, Michael Pope and **Sherry Fleming** 2011. Helicobacter infection alters MyD88 and Trif signaling in response to intestinal ischemia/reperfusion. *Exp. Physiology* 96:104-13. (Microphotograph on cover)
10. Sara Hoffman and **Sherry Fleming**. 2010. Natural *Helicobacter* Infection Modulates Mouse Intestinal Muscularis Macrophage Responses. *Cell Biochem and Function.* 28: 686–694.
11. **Sherry D. Fleming**, Mike Pope, Sara Hoffman, Tiffany Moses, Urska Bukovnik, John M. Tomich, Lynn Wagner, and Keith Woods. 2010. Domain V peptides

- inhibit  $\beta$ 2-glycoprotein I mediated mesenteric ischemia/reperfusion-induced tissue damage and inflammation. *J. Immunol* 185: 6168-78.
12. Diana J. Hylton, Sara M. Hoffman, N. Van Rooijen, Stephen Tomlinson and **Sherry D. Fleming**. 2011. Macrophage IL-12 mediates hemorrhage-induced damage in a complement dependent manner. *Shock* 35: 134-140.
  13. Michael R. Pope, Sara M Hoffman, Stephen Tomlinson and **Sherry D. Fleming**. 2010. Complement regulates TLR4-mediated inflammatory responses during intestinal ischemia reperfusion. *Mol Immunol* 48: 356–364.
  14. Thurlow, L.R. V.C. Thomas, S. Narayan, S. Olson, **S.D. Fleming** and L.E. Hancock. 2010. Gelatinase contributes to the pathogenesis of endocarditis caused by *Enterococcus faecalis*. *Infection and Immunity*. 78:4936-43.
  15. Hylton, DH, LM Phillips, SM Hoffman and **SD Fleming**. 2010. Hemorrhage-induced intestinal damage is complement independent in *Helicobacter hepaticus* infected mice. *Shock* 34: 467-474. **Highlighted in "Whats new in Shock"**
  16. Sparkes, B., E. Archer, M. Roth, R. Welti and **S. D. Fleming**. 2010. Intestinal lipid alterations occur prior to antibody-induced prostaglandin E2 production in a mouse model of ischemia/reperfusion. *Biochim Biophys Acta*. 1801:517-525.
  17. Thurlow, L.R. V.C. Thomas, **S.D. Fleming** and L.E. Hancock. 2009. Enterococcus faecalis capsular polysaccharide serotypes C and D and their contributions to host innate immune evasion. *Infection and Immunity* 77: 5551-5557.
  18. Moses, T.M., Tustin, L.M and **S.D. Fleming**. 2009. Intestinal ischemia induced TLR4 expression alters PGE2 expression. *J. Leuk. Biol.* 86: 781-790.
  19. Liudmila Kulik, **Sherry D. Fleming**, Chantal Moratz, Jason W. Reuter, Aleksey Novikov, Kuan Chen, Kathy A. Andrews, Adam Markaryan, Richard J. Quigg, Gregg J. Silverman, George C. Tsokos and V. Michael Holers. 2009. Pathogenic Natural Antibodies Recognizing Annexin IV are required to develop intestinal ischemia-reperfusion Injury. *J. Immunol.* 182:5363-73.
  20. **Sherry D. Fleming**, Lauren M. Phillips, John D. Lambris, and George C. Tsokos, Complement component C5a mediates hemorrhage-induced intestinal damage. 2008. *J. Surg. Res.*150:196-203.
  21. Sairam V Jabba, Alisha Oelke, Ruchira Singh, Rajanikanth J Maganti, **Sherry D Fleming**, Susan M Wall, Eric D Green, and Philine Wangemann. 2006. Macrophage invasion contributes to degeneration of stria vascularis in Pendred syndrome mouse model. *BMC Med.*4:37.
  22. **\*S. D. Fleming** and G. C. Tsokos. 2006. Complement, natural antibodies, autoantibodies and tissue injury. *Autoimmunity Reviews* 5:89-92 (Invited review)
  23. **S.D. Fleming**, 2006. Natural Antibodies, autoantibodies and complement activation in tissue injury, *Autoimmunity* 39:379-86. (peer reviewed review article)
  24. Anderson, J., **S.D. Fleming**, S. Rehrig, G.C.Tsokos, M. Basta, and T. Shea-Donohue. 2005. Intravenous immunoglobulin attenuates mesenteric ischemia-reperfusion injury. *Clin. Immunol.* 114:137-146.
  25. **Fleming, S.D.**, R.P. Egan, G. Girardi, V.M. Holers, J. Salmon, M. Monestier, and G.C. Tsokos. 2004. Anti-phospholipid antibodies restore mesenteric ischemia/reperfusion induced injury in complement receptor CR2/CR1 deficient

- mice. *J. Immunol.* **173**:7055-7063.
26. **Fleming, S.D.**, M. Monestier, and G.C. Tsokos. 2004. Accelerated ischemia/reperfusion-induced injury in autoimmunity-prone mice. *J. Immunol.* **173**: 4230-4235.
  27. **Fleming, S.D.**, D. Mastellos, G. Karpel-Massler, T. Shea-Donohue, J. Lambris, and G.C. Tsokos. 2003. C5a causes limited, polymorphonuclear cell-independent, mesenteric ischemia/reperfusion-induced. *Clin. Immunol.* **108**:263-273.
  28. Tsokos, G.C. and **S.D. Fleming**. 2003. Autoimmunity, complement activation, tissue injury and reciprocal effects. *Curr. Dir. Autoimmun.* **7**: 149-164.
  29. **Fleming, S.D.** and G.C. Tsokos. 2003. Role of Complement in Trauma *in Combat Medicine: Basic and Clinical Research in Military Trauma, and Emergency Medicine.* pp. 131-148 Ed. G.C. Tsokos and J. Atkins, Humana Press, Totowa, NJ.
  30. Karpel-Massler, G., **S.D. Fleming**, M. Kirschfink, and G.C. Tsokos, . 2003. Human C1 esterase inhibitor attenuates murine mesenteric ischemia/reperfusion induced local organ injury. *J. Surg. Res.* **115**:247-256.
  31. **Fleming, S.D.**, J. Anderson, F. Wilson, T. Shea-Donohue and G.C. Tsokos. 2003. C5 is required for CD49d expression on neutrophils and VCAM expression on vascular endothelial cells following mesenteric ischemia/reperfusion. *Clin. Immunol.* **106**:55-64.
  32. **Fleming, S.D.**, T. Shea-Donohue, J.M. Guthridge, L. Kulik, T.J. Waldschmidt, M.G. Gipson, G.C. Tsokos and V.M. Holers. 2002. Mice deficient in complement receptors 1 and 2 lack a tissue injury-inducing subset of the natural antibody repertoire. *J. Immunol.* **169**:2126-2133.
  33. Mukasa, A., Lahn, M., **Fleming, S.**, Freiberg, B., Pflum, E., Vollmer, M., Kupfer, A, O'Brien, R., and W. Born. 2002. Extensive and preferential Fas/Fas-ligand-dependent death of  $\gamma\delta$ T cells following infection with *Listeria monocytogenes*. *Scand. J. Immunol.* **56**:233-247.
  34. **Fleming, S.D.**, B. Starnes, J.G. Kiang, A. Stojadinovic, G.C. Tsokos, and T. Shea-Donohue. 2002. Heat stress protection against mesenteric ischemia/reperfusion - induced alterations in intestinal mucosa in rats. *J. Applied Physiol.* **92**:2600-2607.
  35. Rehrig, S., **S.D. Fleming**, J. Anderson, J.M. Guthridge, J. Rakstang, C. McQueen, V.M. Holers, G.C. Tsokos, and T. Shea-Donohue. 2001. Complement inhibitor, Crry-Ig attenuates intestinal damage after the onset of mesenteric ischemia/reperfusion injury in mice. *J. Immunol.* **167**: 5921-5927.
  36. **Fleming, S.D.** and G.C. Tsokos. 2001. Complement Inhibitors in Rheumatic Diseases in *Modern Therapeutics in Rheumatic Diseases.* Pg 443-452. Ed. G.C. Tsokos, Humana Press, Totowa, NJ
  37. **Fleming, S.D.**, S. Toratani, T. Shea-Donohue, Y. Kashiwabara, S.N. Vogel, and E.S. Metcalf. 2000. Pro- and anti-inflammatory gene expression in the murine small intestine and liver after chronic exposure to alcohol. *Alcohol Exp. Clin. Res.* **25**:579-590.
  38. **Fleming, S.D.**, P.L.M. Leenen, J.H. Freed, and P.A. Campbell. 1999. Murine macrophage cell surface IL-10 inhibits listericidal activity. *J. Leuko. Biol.* **66**:961-967.

39. **Fleming, S.D.** and P.A. Campbell. 1997. Some macrophages can kill *Listeria monocytogenes* while others can not. *Immunol. Rev.* **158**:69-77.
40. **Fleming, S.D.** and P.A. Campbell. 1996. Macrophages have cell surface IL-10 that regulates macrophage bactericidal activity. *J. Immunol.* **156**:1143-1150.
41. Chapes, S.K., K.M. Kopydlowski, **S.D. Fleming**, and J.J. Iandolo. 1992. Glucocorticoid effects on immune cell activation by staphylococcal exotoxins and lipopolysaccharide. *Transactions of the Kansas Acad. Sci.* **95**:23-28.
42. **Fleming, S.D.**, J.J. Iandolo, and S.K. Chapes. 1991. Murine macrophage activation by staphylococcal exotoxins. *Infect. Immun.* **59**:4049-4055.
43. **Fleming, S.D.**, L.S. Edelman, and S.K. Chapes. 1991. Effects of corticosterone and microgravity on inflammatory cells. *J. Leukocyte Biol.* **50**:69-76.
44. **Fleming, S.D.**, C.F. Rosenkrans, and S.K. Chapes. 1990. Test of the antiorthostatic suspension model on mice: effects on the inflammatory cell response. *Aviat. Space and Environ. Med.* **61**:327-33.

**Publications in Revision:**

1. Emily Archer Slone\*\* and Sherry D Fleming. Membrane Lipid Interactions in Intestinal Ischemia/reperfusion-induced Injury. *Clinical Immunology*. To be resubmitted Feb. 2014.
2. Emily Archer Slone\*\*, Michael R. Pope and Sherry D. Fleming. Phospholipid scramblase 1 mediates lipid changes in hypoxia and reoxygenation-induced endothelial damage. To be resubmitted Spring 2014.
3. Michael R Pope and Sherry D Fleming. Multiple roles of TLR2 in intestinal ischemia/reperfusion-induced damage and inflammation. *Journal of Immunology*. To be resubmitted Spring 2014.

**Intellectual Property**

**Fleming, SD**, U. B and J. Tomich.  $\beta$ 2-glycoprotein I Peptide Inhibitors. US non-provisional patent application, Docket No. 42220 filed Mar. 1, 2013.

**Professional Presentations:** (\* presented by undergraduate student, \*\* presented by a Vet student, underline indicates presenter)

Kellyn Pollard\*  $\beta$ 2-glycoprotein I-derived peptides alter angiogenesis in melanoma tumors. K-INBRE Symposium, Jan 2014. **1<sup>st</sup> place oral presentation.**

Jeremy Goering\*, Michael R Pope, and Sherry D. Fleming\_Role of TLR2 in melanoma tumor growth. K-INBRE Symposium. Jan 2014.

Sarah Shi (high school student), Inflammatory response and colonic lipid profile from DSS-induced colitis. NIDDK STEP-UP oral presentation Aug 2013.

Kellyn Pollard\*,  $\beta$ 2 glycoprotein I-derived Peptides Alter Angiogenesis in Melanoma Tumors, SUROP program oral presentation, July 2013

Mengzhu Ge\*, SFleming and T Burnett. Hypoxia does not increase specific binding of autoantibodies to mouse cell lines. IDeA Regional conference, May 2013

Sherry Fleming and Michael Pope. TLR2 initiates intestinal ischemia/reperfusion induced tissue damage. AAI May 2013

- Emily Archer Slone\*\* and Sherry D. Fleming Phospholipid scramblase 1 alters phospholipid distribution mediating a response in endothelial cells following hypoxia and reoxygenation .AAI May 2013
- Jeremy Goering\*, Jazmine Zeledon, Emily Archer-Slone, Michael R. Pope, and Sherry D. Fleming, Role of TLR2 in tissue damage and immune surveillance, IDEa conference, May 2013
- Jeremy Goering\*, Jazmine Zeledon, Emily Archer-Slone, Michael R. Pope, Sherry D. Fleming, Role of TLR2 in tissue damage and immune surveillance, Division of Biology Undergraduate Research Forum. Apr. 2013
- Jiena Gu\*, Miranda Everhart, Michael R. Pope, Emily Archer Slone, and Sherry D Fleming. Peptide B2-GPI 296c-s decreases tumor angiogenesis. Division of Biology Undergraduate Research Forum. Apr. 2013
- Justin Ewald\*, Jazmin Zeledon and Sherry Fleming.  $\beta$ 2-Glycoprotein 1 Peptide Increases Tumor Nitric Oxide Production Division of Biology Undergraduate Research Forum. Apr. 2013
- Jazmin Zeledon\*, Michael Pope and Sherry Fleming. Peptide derived from  $\beta$ 2glycoprotein I inhibits melanoma cell growth in vivo. Developing Scholars Poster Session. Apr. 2013
- Emily Archer Slone\*\*, Kansas State Research Forum, Kansas State University, Mar. 2013, **1<sup>st</sup> place award**
- Emily Archer Slone\*\*, Phi Zeta Day, College of Veterinary Medicine, Kansas State University, Feb. 2013, **1<sup>st</sup> place award**
- Jeremy Goering\*, Jazmine Zeledon, Emily Archer-Slone, Michael R. Pope, Sherry D. Fleming, Role of TLR2 in tissue damage and immune surveillance, K-INBRE Annual Symposium, Manhattan, KS, Jan. **2013 Outstanding poster award**
- Emily Archer Slone\*\* and Sherry D. Fleming. Phospholipid scramblase 1 alters phospholipid distribution mediating a response in endothelial cells following hypoxia and reoxygenation K-INBRE Annual Symposium, Manhattan, KS, Jan.2013
- Brittanie R. Partridge\*\*, Yaritza Sanchez Silva, and Sherry D. Fleming. Effects of beta-2 glycoprotein 1 derived peptide on tumor growth in a clinically relevant mouse melanoma model, VRSP Poster session, Ft. Collins, CO Aug. 2012
- Caitlin Koziel\*\*, Alexander Beeser, Hiroyuki Hiraishi, Sherry D. Fleming, Katsura Asano The role of 5MP1 and 5MP2 in fibrosarcoma tumorigenesis VRSP Poster session, Ft. Collins,CO, Aug 2012
- Yaritza Sanchez SilvaC\* Melanoma tumor growth after treatment with peptides derived from Beta2 glycoprotein ISUROP Oral Forum, July 2012
- Jeremy Goering\* Role of TLR2 in hemorrhage induced trauma, Division of Biology Undergrad poster session, April 2012
- Jazmin Zeledon\* Peptide derived from  $\beta$ 2 glycoprotein I inhibits melanoma cell growth in vivo, Division of Biology Undergrad poster session, April 2012
- Miranda Everhart\*  $\beta$ -2 Glycoprotein I Peptide 296c-s Inhibits Spontaneous Mammary Tumor Growth, Division of Biology Undergrad poster session April 2012
- Emily Archer Slone\*\*, Division of Biology Graduate Research Forum, Kansas State University, Mar. 2012, **Outstanding Presentation award**

- Jeremy Goering\*, Michael R. Pope Sherry D. Fleming Role of TLR2 in hemorrhage induced trauma. K-INBRE Jan 2012
- Jazmin Zeledon\*, Michael Pope, and Sherry D. Fleming: B2 glycoprotein I peptide inhibits melanoma. K-INBRE- Jan 2012 symposium. Jan 2011.
- Emily Archer Slone\*\*, Mary Roth, Ruth Welti, Sherry D. Fleming. Recovery from oxygen deprivation leads to phospholipid bilayer disruption and phospholipid scramblase 1 upregulation changes and an inflammatory response in endothelial cells. Sigma Xi Annual Meeting, Raleigh, NC, Nov. 2011
- Kaori Knights and Sherry Fleming. Hypoxic peritoneal and splenic B1a B cells exhibit different phenotypes. Society of Leukocyte Biology. Sept. 2011.
- Emily Archer Slone\*\*, M Roth, R Welti and SD Fleming. Recovery from oxygen deprivation leads to phospholipid bilayer disruption and phospholipid scramblase 1 upregulation changes and an inflammatory response in endothelial cells. Poster and Oral Presentation. Leukocyte Biology Society. Sept 2011
- Emily Archer Slone\*\*, M Roth, R. Welti and SD Fleming. Oxygen Hypoxia Induces Prostaglandin E<sub>2</sub> Production in Endothelial Cells. Poster Presentation, INBRE Regional meeting, May 2011
- Miranda Everhart\*, Justin Theleman, Emily Slone, and Sherry Fleming, Hypoxia alters TLR2 Expression on Endothelial Cells. Poster presentation, Undergraduate Research Forum, Apr 2011.
- Emily Archer Slone\*\*, M Roth, R. Welti and SD Fleming Hypoxia Induces Prostaglandin E<sub>2</sub> Production in Endothelial Cells. Poster Presentation, Undergraduate Research Forum, Apr. 2011
- Emily Archer Slone\*\*, Ischemia/reperfusion induced lipid metabolism is independent of injury. Spring Functional genomics symposium Poster presentation Mar 2011
- Lea Dib\*, Ortega MT, Chapes SK, Fleming S, Melgarejo T.- Leptin Receptor Contributes to the Metabolic and Inflammatory Profile of High Fat Fed Mice, Poster Presentation. Keystone symposium Jan 2011
- Emily Archer Slone\*\*, Ischemia/reperfusion induced lipid metabolism is independent of injury. Oral presentation and Poster Presentation. K-INBRE symposium. Jan 2011.  
**First place Oral presentation and top 10 poster**
- Carly Kettler\*, Ryan Cobble, Sherry Fleming, Tim Burnett. Specific binding of serum IgG and IgM to mouse intestinal cell lines. Poster Presentation K-INBRE Jan 2011
- Sherry D Fleming – CR2 targeted complement inhibitors attenuate intestinal damage. Aug 2010. International complement workshop. New York City
- Emily Archer\*\*, Byron Sparkes, Ruth Welti and Sherry Fleming. Ischemia/reperfusion-induced lipid do not correlate with damage or PGE<sub>2</sub> production. AAI. May 2010
- Emily Archer Slone\*\* and SD. Fleming. Ischemia/reperfusion-induced intestinal lipid alterations occur prior to antibody-induced PGE<sub>2</sub> production. Kansas Research Forum. Apr. 2010.**2<sup>nd</sup> place**
- Emily Archer\*\*, Byron Sparkes, Ruth Welti and Sherry Fleming. Ischemia/reperfusion-induced lipid alterations occur prior to antibody-induced PGE<sub>2</sub> production. Phi Zeta Research Day. Mar 2010 **Outstanding poster award.**

- Aaron Deeds\*, Megan Wolters and Sherry Fleming. The effects of lymphocytes on hemorrhage-induced intestinal injury. K-INBRE symposium, Jan 2010. **KansasBio Award**
- Diana Hylton\*, Stephen Tomlinson and Sherry Fleming. Complement inhibitor, CR2-fH attenuates intestinal damage and IL-12 in a mouse hemorrhage model. K-INBRE symposium, Jan 2010 **KansasBio Award**
- Keith Woods and SD Fleming, The Role of  $\beta$ 2-GPI in Ischemia/Reperfusion Induced Mesentery Damage, Creighton University, Oct. 2009.
- Emily Archer Slone\*\* and SD Fleming Ischemia/reperfusion-induced intestinal lipid alterations occur prior to antibody-induced PGE2 production. Anatomy and Physiology. Sept. 2009.
- Emily Archer\*\*, Byron Sparkes, Ruth Welti and Sherry Fleming. Antibodies are required for prostaglandin E2 production after intestinal ischemia/reperfusion-induced lipid changes. Merck-Merial NIH National Veterinary Scholars Symposium. Aug. 2009.
- Byron Sparkes\*, Keith Woods and Sherry Fleming. Phospholipase A2 activation in response to ischaemia/reperfusion. Annual meeting of the American Association of Immunologists, Seattle, WA, May 2009
- Megan Wolters\*, Diana Hylton and Sherry Fleming. Hemorrhage-induced intestinal inflammation requires B cells. Division of Biology Undergrad Poster Session. April 2009
- Diana Hylton\*, Stephen Tomlinson and Sherry Fleming. CR2-fH attenuates hemorrhage-induced intestinal damage. Division of Biology Undergrad Poster Session. April 2009
- Diana Hylton\* and SD Fleming, Natural Colonization by *Helicobacter* alters Hemorrhage-Induced Intestinal Damage. K-State Research Forum. Mar 2009
- Diana Hylton\*, Lauren Phillips and S. D. Fleming. Natural colonization by *Helicobacter* alters hemorrhage-induced intestinal damage. K-INBRE symposium, Jan 2009. **KansasBio Poster Award.**
- Matt Ruelle\* and Sherry Fleming. Hypoxia alters TLR4 and Cox2 expression in endothelial cells. K-INBRE symposium, Jan 2009. **KansasBio Poster Award.**
- Byron Sparkes\*, Keith Woods and Sherry Fleming. Phospholipase A2 activation in response to ischaemiareperfusion. K-INBRE symposium, Jan 2009.
- Diana Hylton\*, Lauren Phillips and S. D. Fleming. Natural colonization by *Helicobacter* alters hemorrhage-induced intestinal damage. Society for Leukocyte Biology. Nov. 2008.
- B. Sparkes\*, E. Archer, M. Roth, R. Welti and SD Fleming. Ischemia/reperfusion changes mouse intestinal lipid composition. Society for Leukocyte Biology. Nov. 2008.
- Emily Archer\*\*, Mary Roth, Ruth Welti and Sherry D. Fleming. Ischemia/Reperfusion Changes Mouse Intestinal Lipid Composition. Merck-Merial NIH National Veterinary Scholars Symposium. Jul. 2008.
- Lauren Phillips\* and SD Fleming C5a mediates hemorrhage-induced intestinal injury. 13<sup>th</sup> Annual K-State Research Forum. **2<sup>nd</sup> place in undergraduate division.** May 2008
- Lauren M. Phillips, Diana Hylton\* and Sherry D. Fleming, *Helicobacter* Infection Alters Hemorrhage Induced Intestinal Damage. Division of Biology Undergrad Research Forum, Apr 2008.

- Susan Suozzo\*, Tiffany Moses and Sherry D. Fleming, Epithelial tlr4 up regulation by ischemia and reperfusion Division of Biology Undergrad Research Forum, Apr 2008.
- Diana Hylton\*, Stephen Tomlinson and Sherry D. Fleming, Targeted CR2-fH Attenuates Hemorrhage Induced Intestinal Damage. Division of Biology Undergrad Research Forum, Apr 2008.
- Lauren M. Phillips\*, Diana Hylton and Sherry D. Fleming Helicobacter Infection Alters Hemorrhage Induced Intestinal Damage Division of Biology Undergrad Research Forum, Apr. 2008
- S. Suozzo\* and SD Fleming, Ischemia alteration of TLR4 expression in intestinal epithelium. K-INBRE Symposium, Kansas City, MO Jan 2008.
- SM Hoffman and SD Fleming, Effects of Helicobacter infection on intestinal muscle macrophages. Society for Leukocyte Biology Annual Meeting, Cambridge, MA Oct 2007.
- S. Suozzo\*, SD Fleming, TLR4 alterations in ischemia/reperfusion. Division of Biology Undergraduate Forum. April 2007.
- L. Phillips\*, D. Hylton, SD Fleming. C5 and C5a mediate hemorrhage-induced intestinal tissue injury. Division of Biology Undergraduate Forum. April 2007.
- D. Hylton\*, L. Phillips, SD Fleming. Helicobacter infection alters hemorrhage-induced mouse intestinal injury. Division of Biology Undergraduate Forum. April 2007.
- Sara Hoffman Effects of *Helicobacter* on intestinal muscle macrophages, DOB Grad Student Forum, Mar 2007.
- LM Tustin and SD Fleming, Glycoprotein I binds to negatively charged phospholipids in response to ischemia/reperfusion in the intestine. Society for Leukocyte Biology Annual Meeting, San Antonio, TX Nov. 2006
- S.M. Hoffman and SD Fleming, Phagocytic intestinal muscle macrophages are not inflammatory. Society for Leukocyte Biology Annual Meeting, San Antonio, TX Nov 2006
- L. Phillips\* and SD Fleming, Complement mediates hemorrhage-induced mouse intestinal injury. Society for Leukocyte Biology Annual Meeting, San Antonio, TX Nov 2006.
- Nicole Slater\*\*, Lynn Tustin and Sherry Fleming, Effects of antibodies from TLR4-/- mice and TLR4 mutant mice on ischemia and reperfusion-induced injury. Merck/Merial Veterinary Scholars Program Symposium, Baton Rouge, LA, Aug. 2006.
- SD Fleming and LM Phillips, TLR effects on natural antibody mediated intestinal epithelial damage. IDEA Conference, Washington DC, July 2006.
- LM Phillips\* and SD Fleming, Complement mediated hemorrhage-induced intestinal tissue injury. IDEA Conference, Washington DC, July 2006.
- SM Hoffman and SD Fleming, The role of intestinal macrophages in ischemia/reperfusion-induced tissue injury. IDEA Conference, Washington DC, July 2006.
- SD Fleming and GC Tsokos, Multiple B cell populations are associated with ischemic induced intestinal damage. Immunology 2006, Annual meeting of the American Association of Immunologists, Boston, MA, May 2006.

Lauren Phillips\* and Sherry D. Fleming, Complement Mediates Hemorrhage-Induced Intestinal Tissue Injury. Division of Biology Undergraduate Research Forum. April 2006.

Sara Hoffman and Sherry D. Fleming, Intestinal Macrophages in Ischemia/Reperfusion-Induced Tissue Injury. 4<sup>th</sup> Annual K-INBRE Symposium Poster Presentation, Jan. 2006.

Lauren Phillips\* and Sherry D. Fleming, Complement Mediates Hemorrhage-Induced Intestinal Tissue Injury. 4<sup>th</sup> Annual K-INBRE Symposium Poster Presentation, Jan. 2006.

S.D. Fleming and G.C. Tsokos Multiple B cell subsets produce damaging natural antibodies, 12th International Congress of Mucosal Immunology. Jun 2005.

Lauren Phillips\* and Sherry D. Fleming. Hemorrhage Induced Mouse Intestinal Damage, Division of Biology Undergraduate Research Forum Apr. 2005.

### **Advisees**

#### **Current**

#### **Undergraduates**

Jeremy Goering, K-INBRE Scholar, Project: "Hemorrhage and melanoma and TLR2"

Kellyn Pollard K-INBRE and SUROP student

Lauren Hernandez, "Peptide inhibition of metastases"

Joshua Wirtz, "Small peptide inhibition of melanoma"

#### **Previous**

#### **Postdoctoral Associate**

Maurizio Tomasi, "Purification of mouse  $\beta$ 2 glycoprotein I"

#### **Post-doctoral fellows**

Lynn Tustin, Role of  $\beta$ 2 glycoprotein I in ischemia/reperfusion induced damage.

Keith Woods, In vitro analysis of cellular binding of  $\beta$ 2 glycoprotein I

#### **Graduate**

Emily Archer Slone, Ph.D. 2013. Hypoxia induced lipid changes in mouse intestinal cells. (DVM/PhD student, currently 3<sup>rd</sup> yr DVM student)

Kaori Knights, MS 2013 "The role of membrane bound proteins in intestinal ischemia/reperfusion"

Leonie Dohmen, 2013 Exchange MS student from Braunschweig, Germany. "Role of beta2-glycoprotein I in in vivo hypoxic environments"

Sara (Brogan) Hoffman, MS 2008 "Intestinal macrophages in ischemia/reperfusion induced injury"

#### **VRSP students**

Nicole Slater, Merck Vet. Scholar "TLR4 alteration of damaging antibodies

Emily Archer, Veterinary Summer Scholar, "Ischemia/reperfusion changes mouse intestinal lipid composition".

Brittanie Partridge, VRSP Scholar, Project: " B2-glycoprotein I peptides"  
Caitlin Kozel, Co advisor of VRSP Scholar, "5MP and tumorigenesis"

### **Undergraduate**

Sara Brogan. Project: "Intestinal macrophage isolation and characterization".  
Lauren Phillips, Project: "Role of complement in hemorrhage"  
Susie Suozzo, Project: "LCM isolation of intestinal epithelials"  
Diana Hylton, Project: "Role of complement in hemorrhage"  
Matt Ruelle, Project: "TLR4 alterations of C3 deposition"  
Byron Sparkes, (Univ. of Herefordshire intern student), "Ischemia/reperfusion induced changes in intestinal lipids"  
Aaron Deeds,  
Brittney England (Emporia State student), "Antibody isotypes bound in response to IR"  
Justin Theleman, "Hypoxia induction of TLR2"  
Miranda Everhart, "Breast cancer and beta2-glycoprotein I"  
Yaritza Sanchez Silva, (Univ. of Puerto Rico, SUROP student) Melanoma and beta2 glycoprotein I  
Jazmin Zeldon, Developing Scholar, Project: "B2-glycoprotein I peptides in melanoma".  
Justin Ewald, KSU Research Scholar, Project: "B2-glycoprotein I peptides induce NO in melanoma"  
Jiena Gu, "Peptide B2-GPI 296c-s decreases tumor angiogenesis"

### **High School**

Megan Wolters- HS credit, project: "Lymphocytes and hemorrhage"  
Sarah Shi, NIDDK Step Up (High School student), Inflammatory response and colonic lipid profile from DSS-induced colitis, Aug 2013, NIH