

Curriculum Vitae

**JOAN E. CUNNICK, PH.D.**

Dept. Animal Science  
Interdepartmental Program in Microbiology  
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**Professional Experience:**

Professor, Department of Animal Science, Iowa State University, Ames, IA  
July 2011-present.

Professor in charge of the Interdepartmental Undergraduate Microbiology Program, Iowa State University, Ames, IA  
July 2003- present.

Associate Professor, Department of Animal Science, Iowa State University, Ames, IA  
July 2003- 2011.

Associate Professor, Department of Microbiology, Iowa State University, Ames, IA  
July 1997 - 2003.

Assistant Professor, Department of Microbiology, Immunology, and Preventive Medicine, Iowa State University, Ames, IA  
August 1991 - June 1997.

Assistant Professor, Department of Pathology,  
University of Pittsburgh Medical School, Pittsburgh, PA  
November 1990 - July 1991.

Research Assistant Professor, Department of Pathology,  
University of Pittsburgh Medical School, Pittsburgh, PA  
October 1989 - October 1990.

Post-doctoral Fellow with Dr. B. S. Rabin, Division of Clinical Immunopathology,  
Department of Pathology, University of Pittsburgh Medical School, Pittsburgh, PA  
February 1987 - September 1989

Graduate Research Assistant for Dr. D. J. Takemoto (Thesis advisor),  
Department of Biochemistry, Willard Hall  
Kansas State University, August 1982-Jan. 1987

**Degrees:**

B.A.; McPherson College, McPherson, Kansas; 1979.

Ph.D. in Microbiology/Immunology; Kansas State University, Manhattan, Kansas; 1987.

**Awards and Honors:**

Graduated magna cum laude, McPherson College.

Rotary Foundation Educational Award, 1981-1982.

Cora M. Downs Award for Excellence in Research, 1984.

Dane G. Hansen Graduate Fellowship, 1985.

Individual Advocacy Award from the Program for Women in Science and Engineering, ISU, 1995

Lydia Pate Mentoring Award, ISU, 1997

Award for Excellence in Honors Teaching 2005

W. Robert Parks Award for Honors Faculty, 2009

Cardinal Key Award and Induction, 2010

Gamma Sigma Delta Induction, 2013

**Memberships in Professional Societies:**

American Society for Microbiology

Sigma Xi Research Society

**Ad-Hoc Reviewer:**

*American Veterinary Medical Association*

*Applied Microbiology and Biotechnology*

*Brain Research*

*Brain, Behavior, and Immunity*

*Clinical Immunology and Immunopathology*

*Journal of Applied Toxicology*

*Journal of Food Science*

*Journal of Interferon & Cytokine Research*

*Journal of Interferon Research*

*Pharmacology, Biochemistry, and Behavior*

*Physiology and Behavior*

*Proceedings of the Society for Experimental Biology and Medicine*

*Psychophysiology*

**Advising, Committees, & Outreach Activities:**

**Interdepartmental Microbiology Program**

- Professor in charge 2004-present
- Chair of Microbiology supervisory committee
- Program has grown from 57 students to 125 primary majors

**Academic Advisor in the Microbiology Program** 1991-present

- 20-48 advisees annually over the past 10 years
- Experience Iowa State (EIS)
  - Lead for 25% of scheduled meeting until 2017, now lead for 10%
  - met with parents and prospective students
- Summer Orientation for new students
  - 2 out of past 16 years-full responsibility
  - 6 out of past 16 years-shared (10%) responsibility
- Coordinate Micro 451: Microbiology Senior Survey 2011-present
  - This is an “R” credit course in which presentations on career opportunities from professionals in various microbiology areas, resumes, interviews, financial literacy, graduate school applications are presented for students to prepare them for “Real World” opportunities

**Undergraduate Microbiology Club Advisor** 1997-present

- 15-25 active participants annually
- Facilitate annual Microbiology High School Workshop
  - Host 40-64 high school students each fall for full day activities
- Facilitate annual trip to ASM (American Society for Microbiology) meeting
- Facilitate annual VEISHA displays 1997-2014

**Outreach Workshop Activities to Promote Microbiology**

- Microbiology High School Workshop 1998- present
  - Annual event each fall for full day
  - “Murder Mystery” Ouchterlony Lab Activity [4 times during the day] &
  - “The good the bad and the smelly” -overview of Microbiology + Epidemiology activity on “Spread of Disease”
- Central High School- Case Studies 2010-2019
  - Annual event for 25-32 Central High School students
  - Lab set up for 16 microbiology cases to instruct students on Gram stain and diagnostic testing
- Science Bound Microbiology Workshops 2001-present
  - Host 16 high school students from under-represented populations in Iowa
  - Hands on workshop every other year 2001-2016, annually 2017-present
  - Assisted with additional workshops (2) 2019
- Agriculture Discovery Days- Summer 2010- present
  - Present 3 different hands on sessions for 12-16 high school students attending USDA Program
  - “Antigen:antibody session”
  - “Bacteriology Session”
  - “Use of microscopes session”

**Honors Program CALS**

2000-present

**Chair, CALS**

2000-2002; 2004-2017

- Lead orientation meetings [2-4] each semester for new honors students
- Review program of study forms
- Review Honors Project Proposals and provide feedback
- Coordinate the review of Honors Project Poster presentations

**Diversity Activities**

- CALS Diversity Committee: Member 1998-present
- Coordinate AGEF-CIRTL Training for Animal Science Faculty Spring 2019
- Coordinate AGEF-CIRTL Training for Graduate Students Fall 2018
- Animal Science Committee on Diversity, Equity & Inclusion Dec 2017 *Established*
  - Chair of committee 2017-present
  - Arrange presentations to promote a more inclusive environment for students, staff, and faculty
- NCORE Presentation: “Creating Inclusive Curriculum & Pedagogy June 2016

**ISU Radiation Safety Committee**

2014-present

- Chair

2019-present

**Publications (refereed manuscripts):**

Boettcher AN, Li Y, Ahrens AP, Kiupel M, Byrne KA, Loving CL, Cino-Ozuna AG, Wiarda JE, Adur M, Schultz B, Swanson JJ, Snella EM, Ho CS, Charley SE, Kiefer ZE, **Cunnick JE**, Putz EJ, Dell'Anna G, Jens J, Sathe S, Goldman F, Westin ER, Dekkers JCM, Ross JW, Tuggle CK. Novel Engraftment and T Cell Differentiation of Human Hematopoietic Cells in *ART<sup>-/-</sup> IL2RG<sup>-/-</sup> SCID* Pigs. *Front Immunol.* 2020 Feb 6;11:100. doi: 10.3389/fimmu.2020.00100. eCollection 2020.

Boettcher AN, **Cunnick JE**, Powell EJ, Egner TK, Charley SE, Loving CL, Tuggle CK. Porcine signal regulatory protein alpha binds to human CD47 to inhibit phagocytosis: Implications for human hematopoietic stem cell transplantation into severe combined immunodeficient pigs. *Xenotransplantation.* 2019 Mar;26(2):e12466. doi: 10.1111/xen.12466. Epub 2018 Oct 12.

Boettcher AN, Loving CL, **Cunnick JE**, Tuggle CK. Development of Severe Combined Immunodeficient (SCID) Pig Models for Translational Cancer Modeling: Future Insights on How Humanized SCID Pigs Can Improve Preclinical Cancer Research. *Front Oncol.* 2018 Nov 30;8:559. doi: 10.3389/fonc.2018.00559. eCollection 2018. PubMed PMID: 30560086; PubMed Central PMCID: PMC6284365.

Powell EJ, Charley S, Boettcher AN, Varley L, Brown J, Schroyen M, Adur MK, Dekkers S, Isaacson D, Sauer M, **Cunnick J**, Ellinwood NM, Ross JW, Dekkers JC, Tuggle CK. Creating effective biocontainment facilities and maintenance protocols for raising specific pathogen-free, severe combined immunodeficient (SCID) pigs. *Lab Anim.* 2018 Jan 1:23677217750691. doi: 10.1177/0023677217750691. [Epub ahead of print]

Powell EJ, **Cunnick JE**, Tuggle CK. SCID pigs: An emerging large animal NK model. *J Rare Dis Res Treat*. 2017;2(3):1-6. Epub 2017 Apr 18.

Powell E, **Cunnick JE**, Knetter SM, Loving CL, Waide EH, Dekkers CM, Tuggle CK. NK cells are intrinsically functional in pigs with Severe Combined Immunodeficiency (SCID) caused by spontaneous mutations in the Artemis gene. 2016 *Vet Immunol Immunopathol*. Jul;175:1-6. doi: 10.1016/j.vetimm.2016.04.008. Epub 2016 Apr 19.

Nahampun HN, Bosworth B, **Cunnick J**, Mogler M, Wang K. Expression of H3N2 nucleoprotein in maize seeds and immunogenicity in mice. *Plant Cell Rep*. 2015 Jun;34(6):969-80. doi: 10.1007/s00299-015-1758-0. Epub 2015 Feb 13.

Palacios MG, **Cunnick JE**, Bronikowski AM. Complex interplay of body condition, life history, and prevailing environment shapes immune defenses of garter snakes in the wild. *Physiol Biochem Zool*. 2013 Sep-Oct;86(5):547-58. doi: 10.1086/672371. Epub 2013 Aug 14.

Palacios MG, **Cunnick JE**, Winkler DW, Vleck CM. Interrelations among immune defense indexes reflect major components of the immune system in a free-living vertebrate. *Physiol Biochem Zool*. 2012 Jan-Feb;85(1):1-10. Epub 2011 Dec 12.

Karaman S, **Cunnick J**, Wang K. Expression of the cholera toxin B subunit (CT-B) in maize seeds and a combined mucosal treatment against cholera and traveler's diarrhea. *Plant Cell Rep*. 2012 Mar;31(3):527-37. Epub 2011 Sep 22.

Lay DC Jr, Kattesh HG, **Cunnick JE**, Daniels MJ, Kranendonk G, McMunn KA, Toscano MJ, Roberts MP. Effect of prenatal stress on subsequent response to mixing stress and a lipopolysaccharide challenge in pigs. *J Anim Sci*. 2011 Jun;89(6):1787-94. doi: 10.2527/jas.2010-3612.

Wiegand BR, Pompeu D, Thiel-Cooper RL, **Cunnick JE**, Parrish FC Jr. Immune response and blood chemistry of pigs fed conjugated linoleic acid. *J Anim Sci*. 2011 May;89(5):1588-94. doi: 10.2527/jas.2009-2722.

Wu, X., Kohut, M., **Cunnick J.**, Bailey, T., Hendrich S. Deoxynivalenol suppresses circulating and splenic leukocyte subpopulations in BALB/c mice: dose response and time course. *Food Addit Contam Part A Chem Anal Control Expo Risk Assess*. 2009 Jul;26(7):1070-80.

Senchina DS, McCann DA, Flinn GN, Wu L, Zhai Z, **Cunnick JE**, Wurtele ES, Kohut ML. *Echinacea tennesseensis* ethanol tinctures harbor cytokine- and proliferation-enhancing capacities *Cytokine* 2009 May;46(2):267-72. Epub 2009 Mar 14.

Zhai Z, Haney DM, Wu L, Solco AK, Murphy PA, Wurtele ES, Kohut ML, **Cunnick JE**. Alcohol extract of *Echinacea pallida* reverses stress-delayed wound healing in mice. *Phytomedicine*. Jun;16(6-7):669-78; 2009. Epub 2009 Mar 20.

Palacios MG, **Cunnick JE**, Vleck D, Vleck CM. Ontogeny of innate and adaptive immune defense components in free-living tree swallows, *Tachycineta bicolor*. *Dev Comp Immunol*. 2009 Apr;33(4):456-63. Epub 2008 Oct 9.

Zhai Z, Solco A, Wu L, Wurtele ES, Kohut ML, Murphy PA, **Cunnick JE**. Echinacea increases arginase activity and has anti-inflammatory properties in RAW 264.7 macrophage cells, indicative of alternative macrophage activation. *J Ethnopharmacol*. 122: 76-85; 2009. Epub 2008 Dec 7.

Lay DC, Kattesh HG, **Cunnick JE**, Daniels MJ, McMunn KA, Toscano MJ, Roberts MP. Prenatal stress on pig development and response to weaning. *J Anim Sci*. 2008 Jun;86(6):1316-24. Epub 2008 Feb 13.

Zhai Z, Haney D, Wu L, Solco A, Murphy PA, Wurtele ES, Kohut ML, & **Cunnick JE**. Alcohol extracts of Echinacea inhibit production of NO and TNF- $\alpha$  by macrophages *in vitro*. *Food and Agricultural Immunology* 18(3): 221 – 236; 2007.

Zhai Z, Liu Y, Wu L, Senchina DS, Wurtele ES, Murphy PA, Kohut ML, **Cunnick JE**. Enhancement of innate and adaptive immune functions by multiple Echinacea species. *J Medicinal Foods* 10 (3): 423-434; 2007.

Wu X, Murphy P, **Cunnick J**, Hendrich. Synthesis and characterization of deoxynivalenol glucuronide: Its comparative immunotoxicity with deoxynivalenol. *Food Chem Toxicol*. 2007 Oct;45(10):1846-55. Epub 2007 Apr 11.

Palacios MG, **Cunnick JE**, Winkler DW, Vleck CM. Immunosenescence in some but not all immune components in a free-living vertebrate, the tree swallow. *Proc R. Soc Biol* 274:951-957; 2007. Epub 2007 Jan 23.

Beyer AJ, Umble AN, Wang K, **Cunnick JE**. Low dose exposure and immunogenicity of transgenic maize expressing the *Escherichia coli* heat-labile toxin B subunit. *Environmental Health Perspectives* 115(3): 354-360; 2007. Epub 2006 Dec 19).

Kohut ML, McCann DA, Russell DW, Konopka DN, **Cunnick JE**, Franke WD, Castillo MC, Reighard AE, Vanderah E. Aerobic exercise, but not flexibility/resistance exercise, reduces serum IL-18, CRP, and IL-6 independent of beta-blockers, BMI, and psychosocial factors in older adults. *Brain Behav Immun*. 2006 May;20(3):201-9. Epub 2006 Feb 28.

Karaman S, **Cunnick J**, Wang K. Analysis of Immune Response in Young and Aged Mice Vaccinated With Corn-Derived Antigen Against *Escherichia coli* Heat-Labile Enterotoxin. *Mol Biotechnol*. Jan;32(1):31-42, 2006.

Kohut ML, Lee W, Martin A, Arnston B, Russell DW, Ekkekakis P, Yoon KJ, Bishop A, **Cunnick JE**. The exercise-induced enhancement of influenza immunity is mediated in part by improvements in psychosocial factors in older adults. *Brain Behav Immun*. Jul;19(4):357-66, 2005.

Khoo C, **Cunnick J**, Friesen K, Gross KL, Wedekind K, Jewell DE. The role of supplementary dietary antioxidants on immune response in puppies. *Vet Ther*. Spring;6(1):43-56, 2005.

Senchina DS, McCann DA, Asp JM, Johnson JA, **Cunnick JE**, Kaiser MS, Kohut ML. Changes in immunomodulatory properties of Echinacea spp. root infusions and tinctures stored at 4 degrees C for four days. *Clin Chim Acta*. May;355(1-2):67-82, 2005.

Kohut ML, Arntson BA, Lee W, Rozeboom K, Yoon KJ, **Cunnick JE**, McElhaney J. Moderate exercise improves antibody response to influenza immunization in older adults. *Vaccine*. Jun 2;22(17-18):2298-306, 2004.

Kohut ML, Thompson JR, Lee W, **Cunnick JE**. Exercise training-induced adaptations of immune response are mediated by beta-adrenergic receptors in aged, but not young mice. *J Appl Physiol*. 96(4):1312-22. (Epub 2003), 2004.

Kohut ML, Cooper MM, Nickolaus MS, Russell DR, **Cunnick JE**. Exercise and psychosocial factors modulate immunity to influenza vaccine in elderly individuals. *J Gerontol A Biol Sci Med Sci*. Sep;57(9):M557-62, 2002.

Lee S-O, Liu H, **Cunnick JE**, Murphy PA, Hendrich S. Menhaden oil inhibited  $\gamma$ -glutamyltransferase-positive altered hepatic foci in female Sprague-Dawley rats. *Nutrition and Cancer* 44:71-79, 2002.

Chikwamba R, **Cunnick J**, Hathaway D, McMurray J, Mason H, and Wang K. A functional antigen in a practical crop: Maize derived LT-B protects mice against *Escherichia coli* heat labile enterotoxin (LT) and cholera toxin (CT). *Transgenic Research* 11(5):479-93, 2002.

Liu H, Lu Y, Haynes JS, **Cunnick JE**, Murphy P, Hendrich S. Reaction of fumonisin with glucose prevents promotion of hepatocarcinogenesis in female F344/N rats while maintaining normal hepatic sphinganine/sphingosine ratios. *J Agric Food Chem*. 2001 Aug;49(8):4113-21.

Liu H, **Cunnick JE**, Hendrich S. Opposing effects of prostaglandin E2 and F2 $\alpha$  on rat liver-associated natural killer cell activity in vitro. *Prostaglandin Leukotrienes and Essential Fatty Acids* 63: 153-158, 2000.

Hohenshell LM, **Cunnick JE**, Ford SP, Kattesh HG, Zimmerman DR, Wilson ME, Matteri RL, Carroll JA, and Lay DC. Few differences found between early- and late-weaned pigs raised in the same environment. *J Anim Sci* 78:38-49; 2000.

Sonea IM, Harkins K, Wannemuehler MJ, Jergens AE, Merten EA, Sacco RE, **Cunnick JE**. Flow cytometric analysis of canine colonic mucosal lymphocytes from endoscopically obtained biopsy specimens. *Am J Vet Res.*: 60(3):346-53; 1999.

Zhang Y, Song TT, **Cunnick JE**, Murphy PA, Hendrich S. Daidzein and genistein glucuronides in vitro are weakly estrogenic and activate human natural killer cells at nutritionally relevant concentrations. *J Nutr.*: 129(2):399-405; 1999.

Douglas MW, **Cunnick JE**, Pekas JC, Zimmerman DR, von Borell EH. Impact of feeding regimen on behavioral and physiological indicators for feeding motivation and satiety, immune function, and performance of gestating sows. *J Anim Sci.*:76(10):2589-95, 1998.

Chou SH, Kojic L, **Cunnick JE**. Evidence for the involvement of catecholamine in the 2-DG-induced immunomodulatory effects in spleen. *Brain Behav Immunity* 11, 79-93, 1997.

Lu Z, Dantzer WR, Hopmans EC, Prisk V, **Cunnick JE**, Murphy PA, Hendrich S. Reaction with fructose detoxifies fumonisin B1 while stimulating liver-associated natural killer cell activity in rats. *Jr Ag Food Chem* 45, 803-809, 1997.

Chou SH, Kojic L, Nordyke Messingham K, **Cunnick JE**. Characterization of the effect of 2-deoxy-D-glucose on the immune system. *Brain Behav Immunity* 10, 399-416, 1996.

Goodwin JL, Uemura E, and **Cunnick JE**. Microglial release of nitric oxide by the synergistic action of  $\beta$ -amyloid and IFN- $\gamma$ . *Brain Research*, 692: 207-214; 1995.

Hughes RA, **Cunnick JE**, and Kojic LD. Cocaine during embryogenesis alters social, defensive, and immunologic responses in an avian model independent of maternal influences. *Experimental and Clinical Psychopharmacology*, 2:396-404, 1994.

Johnson, RW, von Borell E, Anderson LL, Kojic LD, **Cunnick JE**. "Intracerebroventricular injection of corticotropin-releasing hormone in the pig: Acute effects on behavior, adrenocorticotropin secretion, and immune suppression." *Endocrinology*, 135:642-648; 1994.

**Cunnick JE**, Kojic L, and Hughes RA. "Stress-induced changes in immune function are associated with increased production of an interleukin-1-like factor in young domestic fowl." *Brain, Behavior, and Immunity*, 8:123-136; 1994.

Cunnick, J.E. and D. Takemoto. Bitter melon (*Momordica charantia*). *Journal of Naturopathic Medicine*. 4:16-21; 1993.

Sonnenfeld G, **Cunnick JE**, Armfield AV, Wood PG, and Rabin BS. "Stress-induced alterations in interferon production and class II histocompatibility antigen expression." *Brain, Behavior, and Immunity* 6:170-178; 1992.

Cohen S, Kaplan JR, **Cunnick JE**, Manuck SB, Rabin BS. "Chronic social stress, affiliation and cellular immune response in nonhuman primates." *Psychological Science*, 3:301-304; 1992.

**Cunnick JE**, Cohen S, Rabin B, Carpenter B, Manuck S, and Kaplan J. "Alterations in specific antibody production due to rank and social instability." *Brain, Behavior, and Immunity* 5:357-369; 1991.

**Cunnick JE**, Lysle DT, Armfield A, and Rabin BS. "Stressor-induced changes in mitogenic activity are not associated with decreased IL-2 production or changes in lymphocyte subsets." *Clinical Immunology and Immunopathology*, 60:419-429; 1991.



Lysle DT, **Cunnick JE**, and Maslonek KA. "Pharmacological manipulation of immune alterations induced by an aversive conditioned stimulus: Evidence for a  $\beta$ -adrenergic receptor-mediated Pavlovian conditioning process." *Behavioral Neuroscience* 105:443-449; 1991.

Antelman SM, **Cunnick JE**, Lysle DT, Caggiula AR, Knopf S, Kocan DJ, Rabin BS, and Edwards DJ. "Immobilization 12 days (but not one hour) earlier enhanced 2-deoxy-D-glucose-induced immunosuppression: Evidence for stressor-induced time-dependent sensitization of the immune system." *Progress in Neuro-Psychopharmacology & Biological Psychiatry* 14: 579-590, 1990.

Lysle DT, **Cunnick JE**, and Rabin BS. "Stressor-induced alteration of lymphocyte proliferation in mice: Evidence for enhancement of mitogenic responsiveness." *Brain, Behavior and Immunity* 4:269-277, 1990.

**Cunnick JE**, Lysle DT, Kucinski BJ, and Rabin BS. "Evidence that shock-induced immune suppression is mediated by adrenal hormones and peripheral  $\beta$ -adrenergic receptors." *Pharmacology, Biochemistry, and Behavior* 36:645-651; 1990.

Lysle DT, **Cunnick JE**, Kucinski BJ, Fowler H, and Rabin BS. "Characterization of immune alterations induced by conditioned aversive stimuli." *Psychobiology* 18:220-226; 1990.

**Cunnick JE**, Sakamoto K, Chapes SK, Fortner GW, and Takemoto DJ. "Induction of tumor cytotoxic immune cells using an extract of the bitter melon (Momordica charantia)." *Cellular Immunology* 126:278-289; 1990.

Montgomery DA, **Cunnick JE**, Coulter MJ, Sinai- Zingde G, Takemoto DJ and Hua DH. "Synthesis and in-vitro cytotoxic activity of phenyl-amino-4-(p-toluenesulfinyl)-trans1,5-hexadiene." *Leukemia Research* 12(7):591-596; 1988.

Lysle DT, **Cunnick JE**, Wu R, Caggiula AR, Wood P, and Rabin BS. "2-deoxy-D-glucose modulation of T-lymphocyte reactivity: Differential effects on lymphoid compartments." *Brain, Behavior, and Immunity* 2:212-221; 1988.

**Cunnick JE**, Lysle DT, Armfield A, and Rabin BS. "Shock-induced modulation of lymphocyte responsiveness and natural killer activity: Differential Mechanisms of induction." *Brain, Behavior, and Immunity* 2:102-113; 1988.

Lysle DT, **Cunnick JE**, Fowler H, and Rabin BS. "Pavlovian conditioning of shock-induced suppression of lymphocyte reactivity: Acquisition, extinction, and preexposure effects." *Life Sciences* 42:2185-2194; 1988.

### **Book Chapters and Requested Articles (non-refereed):**

Wang K, Chikwamba R, **Cunnick JE**. "Plant-based edible vaccines." In S. H. E. Kaufman (ed), Novel Vaccination Strategies .Wiley-VCH Publishing, Weinheim, Germany. P385-410 (2004).

J. E. Cunnick. Psychological and Physical Reaction to Swine Odor: Implications for Health. In Proceedings of the American Association of Swine Practitioners 27th Annual Meeting, Nashville, TN, 1996. pp 385-388.

J. E. Cunnick. Implications of environmental odor on psychological status and health. In New knowledge in livestock odor. Proceedings for the International Livestock Odor Conference '95, Ames, IA., 1995. pp156-159.

J. E. Cunnick, D. T. Lysle, B. J. Kucinski, and B. S. Rabin. "Stress-induced alteration of immune function: Diversity of effects and mechanisms." In N. Fabris, B. D. Jankovic, and N. H. Spector (Eds.), Ontogenetic and Phylogenetic Mechanisms of Neuroimmunomodulation. Annals New York Academy of Science 650:283-287; 1992.

D. T. Lysle and J. E. Cunnick. "Stress-induced alterations of immune function: Animal models." Clinical Immunology Newsletter 12:177-183; 1991.

D. T. Lysle, J. E. Cunnick, B. J. Kucinski, H. Fowler and B. S. Rabin. "Facilitation of conditioned emotional response learning by the immune system." In R. C. A. Frederickson (Ed.), Peripheral signalling of the brain: Role neuro-immune interactions and learning and memory, Hogrefe and Huber International Publishers, Ontario, Canada, pp. 461-466; 1991.

D. T. Lysle, J. E. Cunnick, and B. S. Rabin. "Stress-Induced Alterations of Immunity in Rodents." In N. Plotnikoff, A. Murgu, R. Faith, and J. Wybran (Ed.), Stress and Immunity, CRC Press, Boca Raton, Florida, 1991.

B. S. Rabin, S. Cohen, R. Ganguli, D. T. Lysle, and J. E. Cunnick. "Bidirectional interaction between the central nervous system and immune system." Critical Reviews in Immunology 9: 279-312, CRC Press, 1989.

B. S. Rabin, R. Ganguli, D. T. Lysle, and J. E. Cunnick. "Interaction between the brain and the immune system." In P. E. Bigazzi, G. Wick, and K. Wicher (Eds.), Organ-Specific Autoimmunity, Marcel-Dekker, Inc., NY, 1990.

B. S. Rabin, D. T. Lysle, and J. E. Cunnick. "Stress and the immune system." In H. F. Krause (Ed.), Otolaryngic Allergy and Immunology, W. B. Saunders, Co., Philadelphia, PA, 1989.

J.E. Cunnick, D.T. Lysle, A. Armfield and B.S. Rabin. "Shock induced immunosuppression: Naltrexone sensitive and insensitive parameters." In O. Zinder and S. Bresnitz (Eds.), UCLA Symposia on Molecular and Cellular Biology, Molecular Biology Stress, Vol 97. Alan R. Liss, Inc., New York, NY; 1989.

B. S. Rabin, J. E. Cunnick and D. T. Lysle. "Alteration of the immune system by housing." Advances in Health 5:15-25; 1988.

B. S. Rabin, R. Ganguli, J. E. Cunnick and D. T. Lysle. "The central nervous system-immune system relationship." In Deodhar, S. (Ed.), Clinics in Laboratory Medicine, W. B. Saunders, 1988.

## **Published Reports and Proceedings:**

Adeline N. Boettcher, Joan E. Cunnick, Ellis J. Powell, Timothy K. Egner, Sara E. Charley, Crystal L. Loving and Christopher K. Tuggle. Porcine SIRPA binds to human CD47 to inhibit phagocytosis: Implications for human hematopoietic stem cell transplantation into severe combined immunodeficient (SCID) pigs. *J Immunol* May 1, 2018, 200 (1 Supplement) 59.11

C.M.Grieshop, T. S. Stahly R.C. Ewan, B.J. Nonnecke, J.E.Cunnick. Effect of Gestational Folic Acid Supplementation on Offspring Immune Organ Development and Postnatal Immune Response. 1998 ISU Swine Research Report, ASL-R1562.

Shabalovskaya, S, Anderegg J, and **Cunnick J**. X-ray spectroscopic and in vitro study of porous TiNi. In: Pelton A, Hodgson D, Russel S, Duerig T, editors. Proceedings of the SMST, Asilomar CA, March 1997; 401-406.

Cunnick, J. E., SH Chou, and D. Mergen. Irradiation of biologics for the inactivation of virus. A Report to Iowa Industries from ISU Extension to Business and Industry, July 1996.

Cunnick, J. E. and D. Mergen. Irradiation of chicken bursae and serum. A Report to Iowa Industries from ISU Extension to Business and Industry, July 1996.

Cunnick, J. E. and D. Mergen. Irradiation of lipopolysaccharide (Endotoxin). A Report to Iowa Industries from ISU Extension to Business and Industry, July 1996.

Douglas, M. W., D. R. Zimmerman, J. E. Cunnick, J. C. Pekas, and R. L. Hruska. Effects of feeding regimen on the performance, immune function and behavior of gestating sows. 1995 ISU Swine Research Report. ASL-R1261, 1996.

Shabalovskaya, S, **Cunnick J**, Anderegg J, Harmon B, Sachdeva R. Preliminary data on *in vitro* studeis of proliferation rat spleen cell response to Ni-Ti surface characterized using ESCA analysis. In: Pelton A, Hodgson D, Duerig T, editors. Proceedings of the SMST, Asilomar CA, March 1994; 209-215.

von Borell, E., R. Johnson, L. Anderson, J. Cunnick, and L. Kojic. The role of corticotropin-releasing hormone (CRH) in mediating the effects of stress in the pig. 1993 ISU Swine Research Report. ASL-R1083, 1993.

Johnson, R. W., E. von Borell, L. L. Anderson, J. Cunnick, and L. Kojic. A technique for studying the neurophysiologic control of the stress response in pigs. 1992 ISU Swine Research Report. ASL-R964, 1992.

## **Teaching Laboratory Manuals:**

“Immunology Laboratory Manual: A course pack for Micro 475L”. This 78 page manual is updated and printed annually by Copy Works for use by students enrolled in the Immunology Laboratory.

“ISU Microbiology Club Workshop.” This 32 page workshop guide is updated and printed annually by the ISU Copy Center for use by high school students attending the fall microbiology workshop. It contains background information and laboratory information for students to conduct staining, diagnostics, DNA extraction and a forensic murder mystery using a combination of antibody and PCR techniques.

## **Oral Presentations:**

### **International meetings & forums- invited speaker:**

“Interventions for stress induced immune dysregulation: Effects of *Echinacea*.” Plenary lecture for the Congreso Biomedical Science “Desde la Neurociencia hacia la Neurología Clínica” at the Universidad San Sebastian, Chile. November 26-28, 2009. (Spanish presentation)

“Psychoneuroimmunology: Effects of Stress on Immune Function.” Plenary lecture for the Congreso Biomedical Science “Desde la Neurociencia hacia la Neurología Clínica” at the Universidad San Sebastian, Chile. November 26-28, 2009. (Spanish presentation)

“Maiz Transgenico para Vacuna Oral” Presented to the Microbiology Department, Universidad de Concepción, Chile, May 2003. (Spanish presentation).

“Transgenic Corn as an Edible Vaccine” Presented to the Biotechnology Research Group, Universidad San Sebastian, Chile, May 2003. (English).

"Psiconeuroinmunologia" Lecture in the 11<sup>th</sup> Congreso Chileno de Tecnología Medica, Concepción, Chile. October 24-26. 2002.

"Multiple Sclerosis." Lecture in the Primer Congreso Regional de Kinesiología de Concepción, Chile. October 26-28, 2000.

"Immunology in the 21<sup>st</sup> Century." Opening lecture in the Primer Congreso Regional de Kinesiología de Concepción, Chile. October 26-28, 2000

### **National & Regional meetings & forums:**

“Science Outreach for the Microbiologist: Tips and Tools for Incorporating Outreach into your Career” Co-presenters Cathy Vrentas, USDA; Rebekah Taylor (Frostburg State University), Julia Massimelli (University of California, Irvine), Joan Cunnick (Iowa State University), Veronica Segarra (High Point University), Thomas McKeon (University of Pennsylvania), Liz Pyschnik (Rutgers). Full afternoon Workshop Presentation at ASM Microbe (American Society of Microbiology Annual Meeting) 2017, New Orleans LA June 1-June 4, 2017

“Creating Inclusive Curriculum & Pedagogy” G Jones-Johnson [Sociology-LAS], B Burt [Education- Hum Sciences] J Cunnick [Animal Science-CALS]; NCORE (National Conference on Race & Ethnicity), San Francisco CA May 30-June 4, 2016.

“Spontaneous Severe Combined Immunodeficiency (SCID) in Pigs” Presented at The Commonwealth Medical College mini-symposium for Immunology (M.B.S. Program). March 18-20, 2015.

“*Echinacea* in immune dysregulation, wound healing and macrophage activation” Invited seminar to Division of Biology, Kansas State University; November 22, 2010.

“Winning at Outreach, Education, and Leadership Development as Part of Undergraduate Microbiology Club Activities.” Presented at Microbrew: Mixing Ideas for Successful Teaching Strategies in Microbiology. Session presented at the 17<sup>th</sup> Annual American Society for Microbiology Conference for Undergraduate Educators, San Diego, CA May 20-23, 2010.

“Plant-Based Vaccines: Current and Future Promise” Presented to Third Annual Nutrition and Wellness Research Center Symposium, 2009 on Vaccines, Immunity, and Well-being, Ames IA

May 18, 2009. *Co-presented with Dr. Kan Wang in Agronomy. Wang presented the biochemistry of LT-B transgenic corn, Cunnick presented the immunological activity of LT-B transgenic corn.*

“Evaluating Effects of Plant Extracts on the Immune System.” Presented to the Supply Side West Trade Show in Las Vegas, NV. Sept 29, 2004.

"Psychological and Physical Reaction to Swine Odor: Implications for Health." American Association of Swine Practitioners 27th Annual Meeting, Nashville, TN, 1996.

"Implications of environmental odor on psychological status and health." The International Livestock Odor Conference '95, Ames, IA., 1995.

"Perspectives in research: Psychoneuroimmunology." Seminar presented at McPherson College, McPherson, KS; September 27; 1994.

"Conditioned stress-induced immune alteration." Invited symposium presentation at American Psychological Association 99th Annual Convention, San Francisco, CA; August 16-20, 1991.

"Stress-paradigms, stress and immunity." Invited lecturer for Neuroimmunopharmacology at The Medical College of Pennsylvania and Temple University, Philadelphia, PA; March 11, 1991.

"Stress-induced alterations of lymphocyte reactivity: Characterization of effects and mechanisms." Colloquium presentation at Department of Anatomy, Loyola University, Stritch School of Medicine, Maywood, IL; April 2, 1991.

"Factors which can effect test reproducibility in psychoneuroimmunology: Tissue Preparation." Presented at Mechanisms of Neuro-Immune Interaction, Pittsburgh, PA; September 25-28, 1989.

"Stress-Associated Immunodeficiencies." Presented at the American Society for Microbiology Meeting, New Orleans, LA; May 14-16, 1989.

### **Local presentations:**

“Creating Inclusive Curriculum & Pedagogy to Facilitate Inclusive and Diverse Classroom Environments” G Jones-Johnson [Sociology-LAS], B Burt [Education- Hum Sciences] J Cunnick [Animal Science-CALS] S Cross [Business] C Hargrave [Education]; ISCORE (ISU Conference on Race & Ethnicity), Ames Iowa March 3, 2016.

“Disease & Resistance: The Wars Within!” Presented as part of the series *Viral and Bacterial Diseases in People and Animals Osher Lifelong Learning Institute* at ISU - Iowa State University Alumni Association. Sept 12, 2012.

“*Echinacea*: Could it be a healthy alternative?” Presented to the ISU Chapter of Tri-Beta; March 27, 2011.

“Vaccines & Infectious Diseases: Stories & Recommendations” Presented to the Daughters of the American Revolution as part of the ISU Speakers Bureau; April 5, 2010.

"Immunology: Your protection against disease." Visiting Professor Program; College of Agriculture, ISU. Presented 3-4 times each fall to Iowa high schools; 1997-1999.

"Psychoneuroimmunology: Can stress affect health?" Presented to the Fibromyalgia Support Group of Ames; January 26, 1999.

"Animals In Research." Presented to the Howard Hughes RABS; February 23, 1996 and June 1996.

"Use of flow cytometry in the characterization of stress-induced changes in immune function." Presented at the Annual Midwest Flow Cytometry Meeting, St. Paul, MN; May 11, 1996.

"Use of flow cytometry in the characterization of stress-induced changes in immune function." Presented at the Iowa Flow Cytometry Users Group Meeting, Ames, IA; February 1, 1996.

"Mentoring Women in Science and Engineering: Looking ahead and looking back." Keynote Address for the Summer Internship Research Conference sponsored by the ISU Program for Women in Science and Engineering; July 1995.

"Use of flow cytometry in the characterization of stress-induced changes in immune function." Presented at the Iowa Flow Cytometry Users Group Meeting, Ames IA, February 1, 1996.

### **Abstracts:**

Khoo C, Abu-Jaradeh RAE, **Cunnick JE**, Gross KL. Dietary Glutamine Supplementation Enhances Ex Vivo Canine Peripheral Blood Lymphocyte Response. Experimental Biology Annual Meeting, Washington, DC. April 2007.

Beyer AJ, **Cunnick JE**. Immunogenicity of Transgenic Maize-Derived LT-B is Dependent on Administration Frequency. American Society for Microbiology General Meeting, Orlando FL May 2006.

Zhai Z, Liu Y, Kohut ML, **Cunnick JE**. Enhancement of Adaptive Immune Function by Multiple Echinacea Species. Autumn Immunology Conference, Chicago IL. November 2005.

Beyer AJ, Umble A, Wang K, **Cunnick JE**. Determination of Environmentally Safe Levels of Transgenic Maize-Derived LT-B. Autumn Immunology Conference, Chicago IL. November 2005.

Sprank T, Briggs SD, Lekcharoensuk C, **Cunnick JE**, Nieves MA Characterization of Canine Blood-derived Dendritic Cells. Summer Scholars Program, College of Veterinary Medicine, ISU. August 2005.

Briggs SD, Lekcharoensuk C, **Cunnick JE**, Nieves MA. Characterization of Canine Blood-derived Dendritic Cells in Two Age Groups. Summer Scholars Program, College of Veterinary Medicine, ISU. August 2004.

Kohut ML, Nickolaus MS, Cooper MM, Magel AE, Hendricks TS, **Cunnick JE**. Exercise and immune response to influenza vaccination in the elderly. Psychoneuroimmunology Meeting, May 2000.

Downard KA, **Cunnick JE**. NK cells and tyrosine phosphorylation-Modulation by genistein. Presented at Signaling & Gene Expression in the Immune System, Meeting at Cold Spring Harbor; June 1999.

Hughes, RA, Baker, MR, Nollen, N, Chou, SH, Nordyke, KA, and Cunnick, JE. Behavioral and immunological consequences of brief embryonic exposure to nicotine or alcohol in domestic fowl. Soc. Neurosci Abs 21:2096; 1995.

Chou, S-H., L. D. Kojic, K.L. Gruis, and J. E. Cunnick. Metabolic stress increases rates of apoptosis and number of CD8+ cells in the thymus. Presented at Research Perspectives in Psychoneuroimmunology, Key Biscayne, FL. Nov. 16-20, 1994.

Kojic, L. D., S-H. Chou, S. Harris, and J. E. Cunnick. Modulation of glial cell proliferation and cytokine production by stress. Presented at Research Perspectives in Psychoneuroimmunology, Key Biscayne, FL. Nov. 16-20, 1994.

Chou, S-H., L. D. Kojic, and J. E. Cunnick. Alterations in T-cell and macrophage function induced by a metabolic stress, 2-deoxy-D-glucose (2DG): Effects and mechanisms. *Soc. Neurosci Abs* 20:947; 1994.

Hughes, R.H., J. E. Cunnick, L. D. Kojic, V. Rajaraman, S. H. Chou, and M. R. Baker. Prenatal cocaine and postnatal stress disregulates immune system responses in young domestic fowl. *Soc. Neurosci Abs* 20:601; 1994.

Chou, S-H., L. D. Kojic, and J. E. Cunnick. Characterization of the effect of 2-deoxy-D-glucose on the immune system. Presented at Iowa State Univ Physiology Council Minisymposium on "Stress and Immune Modulation." April 8, 1994.

Kojic, L. D. and J. E. Cunnick. "Acute metabolic stress in vivo modulates cytokine production from glial cells." 29th Canadian Congress of Neurological Sciences. June 27-30, 1994.

Cunnick, J. E., K. L. Gruis, L. D. Kojic, and S. H. Chou. "Physical exercise, psychological stress, and immune function." *Soc Neurosci Abs* 19:506; 1993.

Johnson, R.W., E. von Borell, L.L. Anderson, J.E. Cunnick, and L.D. Kojic. "Adrenocorticotropin, behavior and lymphocyte response in pigs to intracerebroventricular injection of porcine or rat corticotropin-releasing hormone." *Endocrinology (Abstract)* 130; 1993.

L. D. Kojic, R. A. Hughes, S. H. Chou, and J. E. Cunnick. "Stress-mediated increase of macrophage IL-1-like activity is related to the kinetics of mitogen responses." Presented at Research Perspectives in Psychoneuroimmunology III. Boulder, CO. April 21-24, 1993.

Cunnick, J.E., L.D. Kojic, S. H. Chou, and R. A. Hughes. "Chronic stress induces changes in thymocyte function and CD4/CD8 populations." Presented at Research Perspectives in Psychoneuroimmunology III. Boulder, CO. April 21-24, 1993.

J. E. Cunnick, L. Kojic, and R. A. Hughes. "Social stress during immune development: An avian model." *Soc Neurosci Abs* 18:677, 1992.

H. Fowler, B. J. Kucinski, and J. E. Cunnick. "Second-order and sensory preconditioning of suppressed lymphocyte reactivity and NK-cell function: Evidence for cognitive control of immune activity." Presented at Research Perspectives in Psychoneuroimmunology III. Columbus, OH. September 12-14, 1991.

H. Fowler, B. J. Kucinski, L. E. Nelson, J. E. Cunnick, and B. S. Rabin. "Fear-induced opiates mediate the immunosuppressive effects of conditioned aversive stimuli: Naltrexone and diazepam reversibility." Presented at Research Perspectives in Psychoneuroimmunology III. Columbus, OH. September 12-14, 1991.

J. E. Cunnick, H. Pokharna, A. Armfield, A. Mazzarella, and B. S. Rabin. "Stress-induced changes in phagocytosis and hydrogen peroxide production." Presented at Research Perspectives in Psychoneuroimmunology III. Columbus, OH. September 12-14, 1991.

B. J. Kucinski, J. E. Cunnick, and H. Fowler. "Second-order and sensory preconditioning of immunosuppression: Evidence for cognitive control." *Soc Neurosci Abs* 17:1203, 1991.

M. O. Fraser, G. E. Hoffman, D. T. Lysle, J. E. Cunnick, M. A. Pezzone, B. J. Kucinski, and B. S. Rabin. "Brain C-fos immunoreactivity induced by conditioned and unconditioned aversive stimuli." Society for Neuroscience 16:1197; 1990.

J. E. Cunnick, G. Sonnenfeld, A. V. Armfield, P.G. Wood, and B. S. Rabin. "Stress-induced alterations in interferon production and IA antigen expression: Attenuation by a  $\beta$ -adrenergic receptor antagonist." Soc Neurosci Abs 17:1201, 1991.

D. T. Lysle and J. E. Cunnick. "Stressor-induced modulation of immune function: Evidence for a context dependent habituation process." Society for Neuroscience 16:1197; 1990.

J. E. Cunnick, D. T. Lysle, M. O. Fraser, M. A. Pezzone, and B. S. Rabin. "Inhibition of sympathetic output attenuates shock-induced suppression of mitogenic activity." Society for Neuroscience 16:1211; 1990.

D. T. Lysle, J. E. Cunnick, B. J. Kucinski, H. Fowler, and B. S. Rabin. "Conditioned stressor induced alterations of immune function: Effects of conditioned excitatory and inhibitory stimuli." Society for Neuroscience 15:296; 1989.

J. E. Cunnick, D. T. Lysle, H. Fowler, and B. S. Rabin. "Role of glucocorticoids and catecholamines in the mediation of shock-induced suppression of T-lymphocyte mitogenic responsiveness." Society for Neuroscience 15:296; 1989.

D. T. Lysle, B. J. Kucinski, J. E. Cunnick, H. Fowler, and B. S. Rabin. "Activation of the immune system facilitates conditioned emotional response learning." Society for Neuroscience 14(1):60; 1988.

J. E. Cunnick, D. T. Lysle, A. Armfield, and B. S. Rabin. "Evaluation of suppressed lymphocyte responsiveness induced by shock: Assessment of interleukin-2 dependent and independent pathways." Society for Neuroscience 14(2):1288; 1988.

D. T. Lysle, J. E. Cunnick, H. Fowler, and B. S. Rabin. "Stressor-induced modulation of lymphocyte reactivity: Parametric evaluation and Pavlovian conditioning." Presented at the FASEB summer conference on "Neuroimmunomodulation", June 1988.

J. E. Cunnick, D. T. Lysle, A. Armfield, and B. S. Rabin. "Stress induced modulation of immunological parameters: Differential mechanisms of induction." Presented at the FASEB summer conference on "Neuroimmunomodulation", June 1988.

D. T. Lysle, J. E. Cunnick, H. Fowler, and B. S. Rabin. "Shock-induced immunosuppression: Parametric evaluation and Pavlovian conditioning." FASEB Jr. 2(4): A486; 1988.

J. E. Cunnick, D. T. Lysle, A. Armfield, and B. S. Rabin. "Stress induced immunosuppression: Naltrexone sensitive and insensitive cell populations." FASEB Jr. 2(4): A485; 1988.

D. T. Lysle, J. E. Cunnick, H. Fowler, and B. S. Rabin. "Pavlovian conditioning of shock-induced immunosuppression: Acquisition, extinction, and preexposure effects." Paper presented at the meeting of the Eastern Psychological Association (1988), Buffalo, NY.

J.E. Cunnick, D.T. Lysle, A. Armfield and B.S. Rabin. "Shock induced immunosuppression: Naltrexone sensitive and insensitive parameters." Journal of Cellular Biochemistry, Sup. 12D: 314; 1988.



D. T. Lysle, B. S. Rabin, A. R. Caggiula, R. Myers, J. E. Cunnick, S. M. Antelman, L. H. Epstein, H. Fowler. "Relationship between psychological neural, endocrine, and immunologic changes induced by aversive stimulation." Society for Neuroscience, 13(3): 1582; 1987.

J. E. Cunnick and D. J. Takemoto. "Characterization of cell types activated by an extract of the bitter melon (*Momordica charantia*)." Federation Proceedings 45 (4): 1110; 1986.

J. E. Cunnick and D. J. Takemoto. "Modulation of murine immune cells by the bitter melon (*Momordica charantia*)." Proceedings of American Association of Cancer Research 26: 277; 1985.

J. E. Cunnick, G. W. Fortner and D. J. Takemoto. "In vitro modulation of immune responses by the bitter melon (*Momordica charantia*)." Journal of Cell Biology 99 (4): 333a; 1984.

D. J. Takemoto, C. Jilka, F. Fortner and J. Cunnick. "Characterization of anti-lymphoma factor from the bitter melon (*Momordica charantia*)." Federation Proceedings 43 (4); 950; 1984.

### **Other Research Activities:**

Organizing committee for Iowa State Univ Physiology Council Minisymposium on "Stress and Immune Modulation." April 8, 1994.

### **Teaching Experience:**

#### **Iowa State University 1991-present**

##### **Courses Taught-ISU**

Immunology (3 credits; Every Spring 1992-present)

Dual listed with undergraduate and graduate students

With honors component Spring 2014-present

Immunology Laboratory (1-2 credits; Every Spring 1992-present)

Medical Microbiology (3 cr) (previously: Microbial Infection and Immunity [4 cr])  
Every Fall 1999-present

Orientation in Microbiology (R credit; Every Fall 1996-1999)

General Microbiology, (2 credits) Fall 1998, Fall 2005

Art, Healing and the Creative Process (1 cr) Honors seminar. Spring 2004, Fall 2004, Fall 2005, Fall 2006

Medicine & Healing: What Does Spirituality & Art Have to Do with It? (1 cr) Honors Seminar. Fall 2011

Senior Survey in Microbiology. (R cr) Fall 2011, co-instructor. Full responsibility, Fall 2012 -present

##### **Guest Lectures-ISU**

Women in Science and Engineering; Guest lecture: Juggling Careers and Family;  
Alt Fall 1995, 1997, 1999

Molecular Immunology; Guest lecture: Cytokines; Alt Fall 1996, 1998, 2000

Domestic Animal Behavior and Well Being; Guest lecture: Psychoneuroimmunology;  
Fall 1999-2001

Toxicology Methods; Present 2 sessions on in vitro assessment of immunotoxicants. Spring 2004, Spring 2006, Spring 2008, Spring 2010, Spring 2012.

Microbial World; 3 lectures Fall 2010, 1 lecture Fall 2011.

University of Pittsburgh Guest Lectures: 1988-1990

Immunology, Topic: Cellular Immunology

Psychoneuroimmunology, Topic: Cellular Immunology

Kansas State University Graduate Teaching Assistant: 1980-1985

Microbiology Laboratory, 2 semesters

Bacteriology Laboratory, 2 semesters

Immunology Laboratory, 2 semesters

## **Advising, Committees, & Outreach Activities:**

### **Interdepartmental Microbiology Program**

- Professor in charge 2004-present
- Program has grown from 57 students to 117 primary majors
- Chair of supervisory committee

### **Academic Advisor in the Microbiology Program**

1991-present

- 25-48 advisees annually over the past 10 years
- Experience Iowa State (EIS)
  - Lead for 25% of scheduled meeting
  - met with parents and prospective students
- Summer Orientation for new students
  - 2 out of past 15 years-full responsibility
  - 6 out of past 15 years-shared (10%) responsibility
- Coordinate Micro 451: Microbiology Senior Survey 2011-present
  - This is an “R” credit course in which presentations on career opportunities from professional in various microbiology areas, resumes, interviews, financial literacy, graduate school applications are presented for students to prepare them for “Real World” opportunities

### **Undergraduate Microbiology Club Advisor**

1997-present

- 15-25 active participants annually
- Facilitate annual Microbiology High School Workshop
  - Host 40-64 high school students each fall for full day activities
- Facilitate annual trip to ASM (American Society for Microbiology) meeting
- Facilitate annual VEISHA displays 1997-2014

### **Outreach Workshop Activities to Promote Microbiology**

- Microbiology High School Workshop 1998- present
  - Annual event each fall for full day
  - “Murder Mystery” Ouchterlony Lab Activity [4 times during the day] &
  - “The good the bad and the smelly” -overview of Microbiology + Epidemiology activity on “Spread of Disease”

- Central High School- Case Studies 2010-present
  - Annual event for 25-32 Central High School students
  - Lab set up for 16 microbiology cases to instruct students on Gram stain and diagnostic testing
- Science Bound Microbiology Workshops 2001-present
  - Host 16 high school students from under-represented populations in Iowa
  - Hands on workshop presented every other year
- Agriculture Discovery Days- Summer 2010- present
  - Present 3 different hands on sessions for 12-16 high school students attending USDA Program
  - “Antigen:antibody session”
  - “Bacteriology Session”
  - “Use of microscopes session”

**Honors Program Chair, CALS** 2000-2002; 2004-2017

- Lead orientation meetings [2-4] each semester for new honors students
- Review program of study forms
- Review Honors Project Proposals and provide feedback
- Coordinate the review of Honors Project Poster presentations

**Diversity Activities**

- CALS Diversity Committee: Member 1998-present
- Established Animal Science Committee on Diversity, Equity & Inclusion Dec 2017
  - Chair of committee 2017-present
  - Arrange presentations to promote a more inclusive environment for students, staff, and faculty
- NCORE Presentation: “Creating Inclusive Curriculum & Pedagogy June 2016

**ISU Radiation Safety Committee** 2014-present

- Chair 2019-present