

Deborah E. Keil, PhD, MT(ASCP), DABT

Associate Professor
Department of Microbiology and Immunology
Medical Laboratory Sciences
Montana State University
Mailing @ 109 Lewis Hall
Research Laboratory 120 @ 960 Technology Park
Bozeman, Montana 59717
E-mail: deborah.keil@montana.edu

EDUCATION

Ph.D., Biology (Immunotoxicology)	Mississippi State University, MS	1996
B.S., Clinical Laboratory Science	Western Carolina University, NC	1991

PROFESSIONAL EXPERIENCE

Associate Professor, Department of Microbiology and Immunology, Montana State University, Bozeman, Montana	2012-current
Advisory Committee, Medical Laboratory Science Program, MSU	2013-current
Editorial Board, Journal of Toxicology and Environmental Health	2013-current
Professor (lecturer track), Medical Laboratory Sciences, Department of Pathology, University of Utah, School of Medicine	2010-2012
Medical Laboratory Director, Southern Nevada Adult Mental Health Services (SNAMHS) Rawson-Neal Psychiatric Hospital; Las Vegas, NV	2007-current
Appointed to Board of Directors, American Board of Toxicology (ABT)	2012-2016
Secretary, Executive Team	2014-2016
Subcommittees: Co-Chair Globalization Committee, ABT	2013-2014
Eligibility Committee, ABT	2012-2013
Chair Policy and Procedures Committee, ABT	2013-2014
Back-up Committee, ABT	2013
Electronic Testing Committee, Chair	2013
EPA Science Advisory Board (SAB) Trichloroethylene Health Assessment Review Panel Member	2010
Associate Professor, Clinical Laboratory Science Program, School of Allied Health, University of Nevada, Las Vegas	2005-2010
Research Toxicologist, Agriculture and Immunotoxicology Group, Office of the Director, and Analytical Science Branch, Health Effects Laboratory Division, National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control	2002-2004
Associate Professor, Department of Medical Laboratory Sciences, MUSC	2000-2002
Assistant Professor, Department Medical Laboratory Sciences, MUSC	1996-2000
Adjunct Faculty, Marine Biomedical Environmental Science Program, MUSC	1999-2002
U.S. Army Summer Faculty Research & Engineering Program. Walter Reed Army Institute of Research, Washington, D.C. Mentor: Dr. Urszula Kryzch.	1997
Medical Technologist, Oktibbeha County Hospital, Starkville, MS	1991-1996
Medical Technologist, Mission Memorial Hospital, Asheville, NC	1991

CERTIFICATIONS and LICENCES and PROFESSIONAL MEMBERSHIPS

Society of Toxicology, Associate Member	1991-current
American Society for Clinical Laboratory Science (ASCLS)	2005-current
American Association for Bioanalysts (AAB)	2013-current
Medical Technology, Association of the Society of Clinical Pathologists (MT#188480)	1991-current

Diplomate of the American Board of Toxicology (DABT)	2006-current
Recertification: Diplomate of the American Board of Toxicology (DABT)	2010, 2015
Board of Directors, American Board of Toxicology	2011-2015
Licensed Laboratory Director, State of Nevada (#19830DIR-4)	2007-current

FELLOWSHIPS and HONORS

Developing Scholar of the Year Award, Health Sciences Foundation, MUSC	2000
Scholar of the Year Award, College of Health Professions, MUSC	1999
Outstanding Presentation in Risk Assessment, Society of Toxicology, Baltimore, MD.	1995
Department of Biological Sciences, MSU, Graduate Research Fellowship	1994
Outstanding Presentation, Immunology and Microbiology Division of the Mississippi Academy of Science	1992

PUBLICATIONS

Peer-Reviewed

1. DeWitt, J., Buck, B., Goossens, D., Teng, Y., Pollard, J., McLaurin, B., Gerads, R. and Keil, D.E. 2016. Toxicity of Geogenic Dust Exposure from the Drainage Surfaces of the Nellis Dunes Recreation Area, Las Vegas, NV. To be submitted *Toxicology Reports*
2. Keil, D.E., Buck, B., Goossens, D., Pollard, J., McLaurin, B., Gerads, R., and DeWitt, J. 2016. Health Effects Due to Atmospheric Mineral Dust Near Las Vegas, NV. Submitted *Toxicology Reports*
3. DeWitt, J., Buck, B., Goossens, D., Hu, Q., Boles, C., Chow, R., David, W, Young, S., Teng, Y., Spencer, M., Murphy, L., Pollard, J., McLaurin, B., Gerads, R., and Keil, D.E. 2016. Health effects following subacute exposure to geogenic dusts from arsenic-rich sediment at the Nellis Dunes Recreation Area, Las Vegas, NV. *Accepted Toxicology and Applied Pharmacology*. Impact Factor 2014 = 3.705; 5yr: 4.069
4. Leetham, M., DeWitt, J., Buck, B., Goossens, D., Teng, Y., Pollard, J., McLaurin, B., Gerads, R., and Keil, D.E. 2016. Oxidative stress and lung pathology following geogenic dust exposure. *Accepted Dec 15, 2015 Journal of Applied Toxicology*, Feb 29. doi: 10.1002/jat.3297. [Epub ahead of print] PMID: 26922875. Impact Factor 2015 = 2.98
5. Keil, D.E., Buck, B., Goossens, D., Leetham, M., Murphy, L., Eggers, M., Pollard, J., McLaurin, B., Gerads, R., and DeWitt, J. 2015. Immunotoxicological and Neurotoxicological Profile of Health Effects Following Subacute Exposure to Geogenic Dust from Sand Dunes of the Nellis Dunes Recreation Area, Las Vegas, NV. *Toxicology and Applied Pharmacology* Vol 291, January 2016, p.1-12. [doi:10.1016/j.taap.2015.11.020](https://doi.org/10.1016/j.taap.2015.11.020). PMID: 26644169. Impact Factor 2014 = 3.705; 5yr: 4.069
6. DeWitt, J. C., Peden-Adams, M. M., Keil, D.E., & Anderson, S. E. 2012. PPAR involvement in PFAA immunotoxicity. *Reproductive Toxicology*, 33(4), 596-597
7. Keil, D.E., and Arlitsch, K. 2012. Scientists and Librarians Create an Environmental Toxicology Repository. Science and the Internet. Editors Alexander Tokar, Michael Beurskens, Susanne Keuneke, Merja Mahrt, Isabella Peters, Cornelius Puschmann, Timo van Treeck, Katrin Wellerp. Dusseldorf University Press. Page 145. ISBN 978-3-943460-16-2. http://www.uni-duesseldorf.de/home/fileadmin/redaktion/DUP/PDF-Dateien/_Open_Access/Science_and_the_Internet_OA.pdf
8. Fair, P., Driscoll, E., Mollenhauer, M.A.M., Bradshaw, S., Yun, S., Kannan, K., Bossart, G.D., Keil, D.E., and Peden-Adams, M.M. 2011. Effects of environmentally relevant levels of perfluorooctone

- sulfonate on clinical parameters and immunological functions in B6C3F1 mice. *Journal of Immunotoxicology*, Jan-Mar;8(1):17-29. doi: 10.3109/1547691X.2010.527868. Impact Factor 2010: 1.955 PMID: 21261439
9. Fair, P., Stavros, H.C., Mollenhauer, M., DeWitt J.C., Henry, N., Kannan, K., Mitchum, G., Yun, S.H. Bossart, G., Keil, D.E., Peden-Adams, M.M. 2011. Immune function is modulated by DE-71 in Female B6C3F1 Mice. (2012) *Journal of Immunotoxicology*, 40:230-236. PMID: 22214215. Impact Factor 2010: 1.955
 10. DeWitt, J., Peden-Adams, M.M., Keil, D.E., and Deitert, R. 2011. Current Status of Developmental Immunotoxicity: Early Life Patterns and Testing. *Toxicologic Pathology*, 40:230-236. PMID:22109713 Impact Factor 2010: 2.168;
 11. Keil, D.E., Berger-Ritchie, J., McMillin, G. Testing for toxic elements; a focus on arsenic, cadmium, lead and mercury (10-12-LM-S-CE-0187). 2011. *LabMedicine*. Impact Factor 2010: 0.267
 12. Klaassen, J and Keil, D.E. 2010. Discouraging Academic Dishonesty in Online Courses. Accepted to *Clinical Laboratory Science Journal*, Special Education Edition, Vol 23, No 4, Fall 2010. p194-200. PMID: 21140791
 13. Peden-Adams, M.M., Stuckey, J.E., Gaworecki, K., Berger-Ritchie, J., Bryant, K. □ Jodice, P. G., Scott, T., Boone, J.S., Ferrario, J.B., Guan, B., Vigo, C., McGuinn, W.C., DeWitt, J.C., and Keil, D.E. 2009. Developmental toxicity of perfluorooctane sulfonate (PFOS) in white leghorn chickens following *in ovo* exposure. *Reproductive Toxicology*, 27:307-318. Impact Factor: 2.957
 14. Keil, D.E., Dudley, A.C., EuDaly, J., Allen, C.T., Gilkeson, G.S., and Peden-Adams, M.M. 2009. *N,N*-diethyl-*m*-toluamide (DEET) alters immune function in B6C3F1 mice. *Toxicological Sciences*, 108:110-123. Impact factor 2010: 5.093
 15. Peden-Adams, M.M., Keil, D.E., and Gilkeson, G.S. 2008. Response to “Comments on ‘Lifetime exposure to trichloroethylene (TCE) does not accelerate autoimmune disease in MRL+/+ mice’” Letter to the Editor. *Journal of Environmental Science and Health, Part A*, 43:1402-1409. Impact Factor: 1.992
 16. Keil, D.E., Peden-Adams, M.M., Wallace, S. Redmond, K., Ruiz, P., and Gilkeson, G.S. 2008. Assessment of trichloroethylene (TCE) exposure in murine strains genetically-prone and non-prone to develop autoimmune disease. *Journal of Environmental Science and Health, Part A*, 2009, 44:443-453; Impact Factor: 1.992
 17. Peden-Adams, M.M., EuDaly, J.G., Miller, J., Keil, D.E. and Gilkeson, G.S. 2008. Lifetime exposure to trichloroethylene does not accelerate autoimmune disease in MRL +/+ mice. *Journal of Environmental Science and Health, Part A*, 43:1402–1409; Impact Factor: 1.992
 18. Peden-Adams, M.M., Keller, J.M., EuDaly, J.G., Berger, J., Gilkeson, G.S., and Keil, D.E. 2008. Suppression of humoral immunity following exposure to perfluorooctane sulfonate (PFOS). *Toxicological Sciences*, 104:144-154; Impact factor 2010: 5.093
 19. Keil, D.E., Mehlmann, T., Butterworth, L. and Peden-Adams, M.M. 2008. Gestational Exposure to PFOS Suppresses Immunological Function in F1 Mice. *Toxicological Sciences*, 103:77-85; Impact factor 2010: 5.093
 20. Cheney, M.A., Keil, D.E. and Qian, S. 2008. Uptake and Effect of Mercury on Amino Acid Losses from the Gills of the Bivalve Mollusks *Mytilus californianus* and *Anodonta californiensis*. *Journal of Colloid and Interface Science*, 320:369-375. 5 Yr Impact Factor: 2.755

21. Peden-Adams, M.M., EuDaly, J.G., Dabra, S., EuDaly, A., Heesemann, L. M., Smythe, J., and Keil, D.E. 2007. Suppression of humoral immunity following exposure to the perfluorinated insecticide sulfluramid. *Journal of Environmental Science and Health, Part A*, 70(13):1130-1141; Impact Factor: 1.992.
22. Peden-Adams, M.M., EuDaly, J.G., Heesemann, L. M., Smythe, J., Miller, J., Gilkeson, G.S., and Keil, D.E. 2006. Developmental immunotoxicity of trichloroethylene (TCE): Studies in B6C3F1 mice. *Journal of Environmental Science and Health, Part A*, 41:249-271; Impact Factor: 1.992
23. Leonard, S.S., Keil, D.E., Mehlmann, T., Proper, S., Xianglin, S., and Harris, G.K. 2006. Essiac tea: Scavenging of reactive oxygen species and effects on DNA damage. *Journal of Ethnopharmacology*, 103(2):288-96; Impact Factor: 2.049
24. Keller, J.M., McClellan-Green, P.D., Kucklick, J.R., Keil, D.E., and Peden-Adams, M.M. 2006. Effects of organochlorine contaminants on loggerhead sea turtle immunity: Comparison of a correlative field study and *in vitro* exposure experiments. *Environmental Health Perspectives*, 114(1): 70-76; Impact Factor: 5.86
25. B'Hymer, C., Keil, D.E., and Cheever, K.L. 2005. A Test Procedure for the Determination of the (2-Methoxyethoxy) acetic Acid in Urine from Jet Fuel Exposed Mice. *Toxicology Mechanisms and Methods*, 15 (5): 367; Impact Factor: 0.557
26. Keller, J.M., McClellan-Green, P.D., Lee, A.M., Arendt, M.D., Maier, P.P., Segars, A.L., Whitaker, J.D., Keil, D.E., and Peden-Adams, M.M. 2005. Mitogen-Induced Lymphocyte Proliferation of Loggerhead Sea Turtles: Comparison of Methods and Effects of Gender and Body Condition on Immunity. *Veterinary Immunology and Immunopathology*, Feb 10;103(3-4):269-81; Impact Factor: 1.652
27. Peden-Adams, M.M., Dudley, A.C., EuDaly, J.G., Allen, C.T., Gilkeson, G.S., and Keil, D.E. 2004. Pyridostigmine bromide alters immune function in B6C3F1 mice. *Immunopharmacology and Immunotoxicology* 26(1)1-15; Impact Factor: 0.766
28. Keil, D.E., Dudley, A.C., EuDaly, J., Dempsey, J., Butterworth, L., Gilkeson, G.S., and M.M. Peden-Adams. 2004. Immunological and hematological effects observed in B6C3F1 mice exposed to JP-8 jet fuel for 14 days. *Journal of Toxicology and Environmental Health, Part A*, 67:1-21; 5 Yr **Impact Factor**: 1.992
29. Komutarin, T., Azadia, S., Butterworth, L., Keil, D., Chitsomboon, B., Suttajit, M., and Meade, B.J. 2004. Extract of the seed coat of *Tamarindus indica* inhibits nitric oxide production by murine macrophages *in vitro* and *in vivo*. *Food and Chemical Toxicology*, 42(4):649-58; Impact Factor: 2.186
30. Swenk, R., Asher, L., Chalom, I., Lanar, D., Sun, P., White, K., Keil, D., Kester, K., Stoute, J., Gray Heppner, D., and Krzych, U. 2003. Opsonization by antigen-specific antibodies a mechanism of protective immunity induced by *Plasmodium falciparum* circumsporozoite protein-based vaccine. *Parasite Immunology*, 25:17-25; Impact Factor: 2.231
31. Keil, D.E., Warren, D.A., Jenny, M.J., EuDaly, J., Smythe, J., and M.M. Peden-Adams. 2003. Immunological function in mice exposed to JP-8 jet fuel *in utero*. *Toxicological Sciences*, 76(2):347-356; Impact factor 2010: 5.093

32. Allen, C.T., Peden-Adams, M.M, EuDaly, J., and Keil, D.E. 2003. Subchronic exposure to ellagic acid impairs cytotoxic T-cell function and suppresses humoral immunity in mice. *Immunopharmacology and Immunotoxicology*, 25 (3): 409-422; Impact Factor: 0.766
33. Watt, J.M., Wade, M.M., Holman, S.C., Wilson, W.W., Keil, D.E., Pruett, S.B., Jacques, M., Champlin, F.R. 2003. Influence of serotype A capsulation on cell surface physiologic factors in *Pasteurella multocida*. *Colloids and Surfaces B: Biointerfaces*. 28:227-238. Impact Factor: 2.562
34. Peden-Adams M.M., EuDaly, J., EuDaly, E., Dudley, A., Zeigler, J., Lee, A., Robbs, J., Gilkeson, G. and Keil, D.E. 2002. Evaluation of immunotoxicity induced by single or concurrent exposure to N,N-diethyl-m-toluamide, pyridostigmine bromide and JP-8 jet fuel. *Toxicology and Industrial Health*, 17(5-10): 192-209; Impact Factor: 0.731
35. Wear, D.J., D.E. Keil, and R. Altig. 2002. Interobserver survey comparisons: Stream frogs in southeastern Madagascar and a lab test. *Herpetological. Natural History* 9(1): 79-82. Impact Factor: 0.76
36. Keil, D.E., Leubke, R.W., and Pruett, S.B. 2001. Quantifying the relationship between immunological parameters and host resistance. *Journal of Immunology*, 167:4543-4552; Impact Factor: 7.145.
37. Pruett S.B., Myers, L.P., and Keil D.E. 2001. Toxicology of metam sodium. *Journal of Toxicology & Environmental Health. Part B, Critical Reviews*. 4(2):207-22. 5 Yr Impact Factor: 4.341
38. Dudley, A.C., Peden-Adams, M., EuDaly, J., Pollenz, R.S., and Keil, D.E. 2001. An aryl hydrocarbon receptor independent mechanism of immunotoxicity of JP-8 jet fuel. *Toxicological Sciences*, 59: 251-259; Impact factor 2010: 5.093
39. Keil, D.E., Luebke, R.W., Ensley, M., Gerard, P., and Pruett, S.B. 1999. Evaluation of multivariate statistical methods for analysis and modeling of immunotoxicology data. *Toxicological Sciences*, 51:245-258; Impact factor 2010: 5.093
40. Keil, D.E., Padgett, E.L., Barnes, D.B., and Pruett, S.B. 1996. The role of decomposition products in sodium dimethyldithiocarbamate (SMD)-induced immunotoxicity. *Journal of Toxicology and Environmental Health, Part A*, 47:479-492. 5 Yr Impact Factor: 1.992
41. Moore, C., Keil, D.E. and Coats, K. 1996. Thermal Inactivation of Bovine Immunodeficiency Virus. *Applied and Environmental Microbiology*, 62:4280-4283
42. Keil, D.E., Luebke, R.W., and Pruett, S.B. 1995. Differences in the effects of dexamethasone on macrophage nitrite production: Dependence on exposure regimen (*in vivo* or *in vitro*) and activation stimuli. *International Journal of Immunopharmacology*, 17:157
43. Pruett, S. B., Ensley, D.K. and Crittenden, P. 1993. (*formerly D.K. Ensley*). The role of chemical-induced stress responses in immunosuppression: A review of quantitative associations and cause-effect relationships between chemical-induced stress responses and immunosuppression. *Journal of Toxicology and Environmental Health, Part A*, 39:163. 5 Yr Impact Factor: 1.992

Published Educational Reviews

Keil, D.E. 1999. Bacterial sepsis associated with platelet transfusion. American Society of Clinical Pathologists. Tech Sample No. I-4. p. 21-26

Keil, D.E. 1998. Serologic problems associated with intravenous immunoglobulin therapy. American Society of Clinical Pathologists. Tech Sample No. I-4. p. 23-28

BOOK and FINAL REPORT CHAPTERS

DeWitt, J.C. and Keil, D.E. 2015. Chapter: Current Issues in Developmental Toxicology in Immunopathology in Toxicology and Drug Development. September 15, 2015 Submission and Completion.

Keil, D.E. 2014. Immunotoxicity of PFOS and PFOA. Chapter in: Toxicity of Perfluoroalkyl and Polyfluoroalkyl Substances. Editor: J. DeWitt. Springer Publishers, UK. Chapter Completed May, 2014. Page 239-248. http://link.springer.com/chapter/10.1007%2F978-3-319-15518-0_10

DeWitt, J. C., Peden-Adams, M. M., & Keil, D.E. 2014. Immunotoxic Effects of Perfluoroalkylated Compounds: Mechanisms of Action. Edited by Emanuela Corsini and Henk Van Loveren. Published by John Wiley and Sons. *Molecular Immunotoxicology*, 2007, 1. Print ISBN: 978-3-527-33519-0; ePub ISBN: 978-3-527-67699-6

Keil, Deborah; DeWitt, Jamie; Spencer, Mallory; Murphy, Lacey; David, Winnie; Chow, Rebecca; Young, Sharon; Hu, Qing; Eggers, Margaret; Gerads, Russ; Goossens, Dirk; Buck, Brenda. 2014. Immunotoxicological and Neurotoxicological Effects of Subacute Exposure to CBN 1 Dust Samples, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 233 – 276.

Keil, Deborah; DeWitt, Jamie; Hu, Qing; Chow, Rebecca; David, Winnie; Young, Sharon; Spencer, Mallory; Murphy, Lacey; Teng, Yuanxin; Goossens, Dirk; Buck, Brenda. 2014. Immunotoxicological and Neurotoxicological Effects of Subacute Exposure to CBN 2 Dust Samples, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 277 – 294.

DeWitt, Jamie; Keil, Deborah; Hu, Qing; David, Winnie; Spencer, Mallory; Murphy, Lacey; Eggers, Margaret; Goossens, Dirk; Buck, Brenda. 2014. Immunotoxicological and Neurotoxicological Effects of Subacute Exposure to CBN 3 Dust Samples, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 295 – 309.

DeWitt, Jamie; Keil, Deborah; Hu, Qing; David, Winnie; Spencer, Mallory; Murphy, Lacey; Eggers, Margaret; Goossens, Dirk; Buck, Brenda. 2014. Immunotoxicological and Neurotoxicological Effects of Subacute Exposure to CBN 4 Dust Samples, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 310 – 326.

Keil, Deborah; DeWitt, Jamie; Spencer, Mallory; Murphy, Lacey; Goossens, Dirk; Teng, Yuanxin; Buck, Brenda. 2014. Immunotoxicological and Neurotoxicological Effects of Subacute Exposure to CBN 5 Dust Samples, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 328 – 342.

Keil, Deborah; DeWitt, Jamie; Goossens, Dirk; Hu, Qing; Spencer, Mallory; Murphy, Lacey; David, Winnie; Eggers, Margaret; Chow, Rebecca; Young, Sharon; Teng, Yuanxin; Buck, Brenda. 2014. Immunotoxicological and Neurotoxicological Effects of Subacute Exposure to CBN 6 Dust Samples, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 343 – 358.

DeWitt, Jamie; Keil, Deborah; Hu, Qing; David, Winnie; Spencer, Mallory; Murphy, Lacey; Eggers, Margaret; Goossens, Dirk; Buck, Brenda. 2014. Immunotoxicological and Neurotoxicological Effects of Subacute Exposure to CBN 7 Dust Samples, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 359 – 376.

Spencer, Mallory; Keil, Deborah; DeWitt, Jamie. 2014. Oxidative Stress and Lung Histopathology Following Sub-Acute Exposure to Natural Dust Collected From The Nellis Dunes Recreational Area, *In* Nellis Dunes Recreational Area: Dust Exposure and Human Health Risk Assessment, Final Report to Bureau of Land Management for Task Agreement Number L11AC20058, p. 434 – 454.

Keil, D.E. 2013. Protein Chapter for Clinical Chemistry: Techniques, Principles, Correlations 7th edition, 2013. Editors: Bishop, Fody, and Schoeff. Lippincott Publishers. ISBN 978-1-4511-1869-8

Keil, D.E. 2013. Toxicology Chapter for Clinical Chemistry: Techniques, Principles, Correlations 7th edition for 2013. Editors: Bishop, Fody, and Schoeff. Lippincott Publishers. ISBN 978-1-4511-1869-8

Keil, D.E. and Ayala, N. 2013. Therapeutic Drug Monitoring Chapter for Clinical Chemistry: Techniques, Principles, Correlations 7th edition, 2013. Editors: Bishop, Fody, and Schoeff. Lippincott Publishers. ISBN 978-1-4511-1869-8

McMillan, G.A., Keil, D.E., Strathmann, F.G. 2012. Chapter 21: Lead Testing in The Clinical Toxicology Laboratory – Contemporary Practice of Poison Evaluation, 2nd edition. Published by AACCC Press. Editors, T. Kwong, B. Magnani, T. Rosano, P. Orsulak, and L. Shaw.

DeWitt, J.C., Peden-Adams, M.M., Keil, D.E., and Dietert, R.R. 2012. Developmental Immunotoxicity (DIT): assays for evaluating effects of exogenous agents on development of the immune system. In: Current Protocols in Toxicology. Chapter 18: Unit 18.15. PMID: 22511116

Keil, D.E. 2006. Immunotoxicology of Jet Propulsion Fuel-8. Chapter in 3rd edition, Immunotoxicology and Immunopharmacology. Editor Dr. Robert Leubke, EPA. CRC Press.

Pruett, S.B. and Keil, D.E. 1999. Metam Sodium. Invited chapter in Hayes Handbook of Pesticide Toxicology, Academic Press, San Diego.

Wu, W. J., Carson, E. J., Collier, S. D., Keil, D.E., Weiss, P. A., and Pruett, S. B. 1996. Effects of drugs on immune system parameters. Handbook of Human Toxicology. Edited by Dr. E. J. Massaro. CRC Press, Inc., Boca Raton, Fl.

Pruett, S.B., Keil, D.E., Ensley, M., and Luebke, R.W. 1996. Interspecies immunotoxicity: Relative importance of acquired and innate immune functions. Modulators of Immune Responses. The Evolutionary Trail. Eds. J.S. Stolen, T.C. Fletcher, C.J. Secombes, J.T. Zelikoff, L.E. Twerdok, D.P. Anderson. SOS Publications, Fair Haven, NJ. p. 343-350

GRANTS FUNDED

R13 NIEHS Conference Grant. “**Elongate Mineral Fiber Terminology and Characterization**” and “**Novel Research Findings on Environmental Asbestos Exposure**”. PI: Jean Pfau and Deborah Keil. **\$50,000**. Submitted Dec 11, 2015.

Emerging Exposures to Natural Occurring Asbestos in Western States: Fiber Specific Pulmonary and Autoimmune Health Effects in a Mouse Model. \$50,000. PIs: Deborah E. Keil

and Jean C. Pfau. MAES, College of Agriculture, Montana State University. *Funded October 2015-July 2016.*

University of New Mexico Center for Native Environmental Health Equity Research. NIH/EPA. 1P50ES026102. Center PI Lewis/Gonzales; Total Award: **\$5,000,000.** MSU PI: Keil. Total SubAward: \$530K. 07/01/2015-06/30/2020. Addressing environmental health (EH) disparities and social determinants with primary biomedical and environmental research and Native-focused community engagement is the goal of the Center for Native American Environmental Health Equity Research. *Status: Funded through 2020.*

Chronic Exposure to Contaminants in Drinking Wells on the Crow Reservation: Characterization of Health Effects and Strategies for Intervention. P20GM103474. PI: Deborah E. Keil. Co-PI: John Doyle. 3/26/2015-04/30/2015. **\$50,000.** *This proposal was developed with community partners of the Crow Steering Committee and community in Little Big Horn, Montana. Status: Funded for 2015; Data analysis with INBRE statisticians ongoing through Nov 2015.*

Safety through Simulation: Interdisciplinary Educational Activities to Enhance Teamwork between Nursing and Medical Laboratory Students. Jan 7, 2013 – December 2013. **\$8,900.** Principal Investigators: Elizabeth Kinion, Deborah E. Keil, Teresa Seright, Barbara Hudson. Funded by MSU Innovation in Teaching,. *Status: Funded for 2013*

Human Health Risk Assessment of Nellis Dunes Recreational Area. Submitted to Bureau of Land Management. April 2011 – September 2014. **\$2,500,000.** Principal Investigators: Brenda Buck (UNLV), Deborah E. Keil (UU/UNLV), Dirk Goosens (UNLV), Jamie DeWitt (ECU), Margie Peden-Adams (UNLV/NOAA). *Status: Completed.* Task Agreement: L11AC20058. Sub award to MSU approximately \$375K.

Immunotoxicological Assessment of Dust Samples Collected From the Nellis Air Force Base: A Pilot Study. Spring 2010. **\$10,000.** Subcontract with Bureau of Land Management and PI Brenda Buck, Ph.D. Principal Investigator for subcontract: Deborah E. Keil; Co-PI: Margie Peden-Adams

Plasma Ghrelin Levels Following Diet-Induced Weight Loss. December 2008. **\$10,000.** Foundation Grant. Funding Period: 1 year. Principal Investigators: Sally Miller (nursing); Co-PI: Deborah E. Keil

Plasma Ghrelin Levels Following Diet-Induced Weight Loss. September 2008. **\$10,000.** UNLV RDA. Funding Period: 1 year. Principal Investigators: Sally Miller (nursing); Co-PI: Deborah E. Keil

Labs are Vital, Abbott Laboratory. AxSYM Clinical Chemistry Instrumentation. September 2008. **\$127,000.** Principal Investigators: Janice Conway-Klaassen and Deborah E. Keil

Establishment of a Clinical Research Core Laboratory. Awarded December 2007. University of Nevada Las Vegas, Research Infrastructure Award. Total: **\$100,000.** Funding Period: 1 year. Principal Investigators: Deborah E. Keil, J. Klaassen, J. McWhorter, M. Landers, M. Elekonich, M. Peden-Adams

Development of Carbon Nanotube Pipettes (CNP) for Single Cell Surgery in Nanomedicine Era. Awarded August 2007. University of Nevada Las Vegas, Presidents Award. Total: **\$50,000.** Funding Period: 2 years. Investigators: Shizhi Qian, Yingtao Jiang, Biswajit Das, Marcos A. Cheney, Deborah E. Keil.

Establishing Biomarkers for Low Back Pain Disability. Funded by University of Nevada Las Vegas. Awarded May 1, 2007. Total: **\$9,541.** Funding Period: 1 year. Principal Investigators: Nancy Mendel, Merrill Landers, and Deborah E. Keil.

The Role of PFOS on Immunological Cell Types and Mechanisms of Suppression in the Development of Primary IgM Immunological Responses. Funded by School of Health and Human Sciences, University of Nevada Las Vegas. Awarded February 2006. Total: **\$6,666**. Funding Period: 1 year. Principal Investigator: Deborah E. Keil; Co-Investigator: Margie Peden-Adams, Ph.D. In addition, EPSCOR Nevada also funded an undergraduate student, Ms. Jennifer Berger, in support of this project for an additional **\$4,500**.

A Comparative Study Evaluating the Dose-Responsive Effects of Methylmercury and Thimerosal on Select Nervous, Immune and Enzyme Parameters during Vulnerable Periods of Development. Funded by *Cure Autism Now* Foundation. Awarded August 1, 2001. Total: **\$171,756**. Funding Period: Mar 2002-Mar 2004. Principal Investigator: Deborah E. Keil, Ph.D., Co-Investigators: Margie Peden-Adams, Ph.D. and Ronald Brown, Ph.D.

Evaluation of Immunotoxicity Due to Concurrent Exposure to DEET, Pyridostigmine, and JP-8 Jet Fuel. Funded by the Department of Army. US Army Center for Environmental Health Research. Total: **\$448,369**. Funding Period: February 1999 – February 2002. Principal Investigator: Deborah E. Keil, Ph.D. Co-Investigator: Gary Gilkeson, MD.

Immunotoxicity Due to Coexposure of DEET, Pyridostigmine, and Stress. Funded by Department of Veterans Administration. Total: **\$300,000**. Funding Period: November 1998-November 2001. Principal Investigator: Gary Gilkeson, MD. Co-Investigator: Deborah E. Keil, Ph.D.

Evaluation of Immunotoxicological Effects of Concurrent Exposure to Ammonium Perchlorate and Trichloroethylene in Drinking Water. Funded by the Dean of the College of Health Professions, Medical University of South Carolina, July 1, 2000. Total: **\$7,000**. Principal Investigator: Deborah E. Keil, Ph.D., Co-Investigators: Gary Gilkeson, M.D., and Margie Peden-Adams, Ph.D.

Immunological Effects of Trichloroethylene Exposure. Funding yearly from October 1999 – October 2001 by Environmental Biosciences Program, Medical University of SC. Support: **\$50,000** per year. Principal Investigator: Gary Gilkeson, MD. Co-Investigator: Deborah E. Keil, Ph.D.

Intracellular Signaling Pathways as Targets of Uranium Immunotoxicity. Funded by Environmental Biosciences Program, Medical University of SC. Total: **\$47,647**. Funding Period: October 1998- October 1999. Principal Investigator: Karen Burnett, Ph.D. Co-Investigator: Deborah E. Keil, Ph.D. (did not complete study due to collaborator's change in employment)

Effects of Ammonium Perchlorate on Thyroid Hormone Levels, Hematopoiesis, and Immune Status of B6C3F1 Female Mice. Funded by the Department of Defense. US Defense Special Weapons Agency, June 1997. Total: **\$298,177**. Funding Period: January 1998 - August 1999. Principal Investigator: Deborah E. Keil, Ph.D. Co-Investigator: Alan Warren, Ph.D.

The Immune Status of Mice Exposed In Utero to JP-8 Jet Fuel: Relationship to Maternal-Fetal Pharmacokinetics. Funded by the Department of Defense. US Defense Special Weapons Agency, June 1997. Total: **\$284,845**. Funding Period: January 1998 - December 1999. Principal Investigator: Deborah E. Keil, Ph.D. Co-Investigator: Alan Warren, Ph.D.

Evaluation of a Multivariate Statistical Model for Immunotoxicology Data. Funded by the Dean of the College of Health Professions, Medical University of South Carolina, April 1, 1997. Total: **\$5,000**. Principal Investigator: Deborah E. Keil, Ph.D.

NIOSH RESEARCH STUDIES

Evaluation of Immunotoxicity due to Jet Fuel Exposure During *In Utero* Development. Project Period: June 2002-2004. Principal Investigator: Deborah E. Keil, Ph.D.

Immunotoxicity to Perfluorinated Compounds Following Exposure During *In Utero* Development. Project Period: June 2002-2004. Principal Investigator: Deborah E. Keil, Ph.D.

Invited Editorials and Teleconferences

Keil, D.E. 2014. What I need from the academic library: the perspective of a faculty researcher. *Journal of Library Administration*. Invited Editorial in Column: posIT. Vol. 54, Issue 3, page 1-8. May, 2014. Manuscript ID: 915168. DOI: 10.1080/01930826.2014.915168

Keil, D.E. 2012. The Value of Undergraduate Research. Invited Editorial. *ADVANCE for Medical Laboratory Professionals*. Vol. 24, Issue 5, Page 16.
<http://laboratorian.advanceweb.com/Archives/Article-Archives/The-Value-of-Undergraduate-Research.aspx>

Keil, D.E. 2012. Prepared and Presented National Online ASCP Teleconference: *Beyond the Dipstick: The Clinical Usefulness of Urine in Detecting Disease and Environmental Chemical Exposures* May 8, 2012

PUBLISHED PROCEEDINGS/ABSTRACTS and PRESENTATIONS

National Peer-Reviewed, Published Abstracts

Maria Rodriguez, Elisa Santori, Jacob Seymour, Lacey Murphy, Jean Pfau, Brenda Buck, Dirk Goossens, Jamie DeWitt, and Deborah E. Keil. 2016. Epigenetic Modification of Global Methylation Associated with Immunotoxicity Following Heavy Metal Dust Exposure. Poster for Undergraduate Student Presentation at American Society of Clinical Laboratory Science (ASCLS), Philadelphia Aug 1-4, 2016.

Leetham-Spencer, M., Keil, D.E., Buck, B., Goossens, D., DeWitt, J.C. Oxidative Stress and Lung Histopathology Following Subacute Exposure to Natural Dust from the Nellis Dunes Recreation Area. Control ID: 2093096. Society of Toxicology Conference, San Diego, Ca March 2015. (*Also invited to present at MSU student research day, April 15, 2015*)

Murphy, L., Keil, D.E., Banister, C., Buck, B., Goossens, D., DeWitt, J.C. Epigenetic Markers of B Cell Differentiating Transcription Factor Genes in Mice Exposed to Dust from Nellis Dunes Recreational Area, Clark County, Nevada. Poster 2251; 514. Society of Toxicology Conference, San Diego, Ca March 2015. (*Also invited to present at MSU student research day with undergraduate Laura Fisch, April 15, 2015*)

Buck, B., Keil, D.E., Goossens, D., DeWitt, J. Warren, Al., McLaurin, B., Teng, Y., David, W., Eggers, M., Leetham-Spencer, M., Morman, S., Murphy, L., Young, S. 2014. Human Health Risk Assessment of Mineral Dust Exposure, Nellis Dunes Recreational Area, NV, USA. Invited: Soil Mineralogy Division for the 2014 ASA-CSSA-SSSA Meetings, November 2-5, Long Beach, Ca.
<https://scisoc.confex.com/scisoc/2014am/webprogram/Paper86190.html>

Leetham-Spencer, Mallory; Dewitt, Jamie C.; Peden-Adams, Margie M.; Chow, Rebecca M.; David, Winnie B.; Murphy, Lacey T.; Jensen, Marna; Walters, Nancy; Gryder, Laura; Buck, Brenda J.;

Goossens, Dirk; Teng, Yuanxin; Young, Sharon; Keil, Deborah E. Immunotoxicity Profile following Exposure to Geological Dust Samples Collected from Nellis Dunes Recreational Area Map Unit CBN2: Median Grain Size 4.5 μm . Society of Toxicology, Phoenix, AZ. March 24-27, 2014. *The Toxicologist*, (Also invited to present at MSU student research day, April 15, 2014)

Murphy, L., David, Winnie B; Chow, Rebecca M; Leatham-Spencer, Mallory; Jensen, Marna; Buck, Brenda J; Goossens, Dirk; Teng, Yuanxin; Gryder, Laura; Young, Sharon; Walters, Nancy; Keil, Deborah E.; Peden-Adams, Margie M¹; DeWitt, Jamie C. Immunotoxicity Profile following Exposure to Silt Deposit Dust Samples from Nellis Dunes Recreational Area, Clark County, Nevada. Society of Toxicology, Phoenix, AZ. March 24-27, 2014. *The Toxicologist*, (Also invited to present at MSU student research day, April 15, 2014)

Keil, D.E., and Arlitsch, K. Scientists and Librarians Create an Environmental Toxicology Repository. International Conference on Science and the Internet. Presentation. Dusseldorf, Germany. 1-3 August 2012.

Keil, D.E. serving as discussant representing Women in Toxicology, Society of Toxicology for the presentation: 50 Years of 'The Pill': Risk Reduction and Discovery of Benefits beyond Contraception. AAAS February 2012, Vancouver BC, Canada

Peden-Adams, M.M., Ayala, N. Young, S., Hinckley, K., Rueckert, J.A., Taylor, L., Chow, M., David, W., Henry, N., and Keil, D.E. 2012. Evaluation of possible modes of action for PFOS-induced humoral immunosuppression. Submitted abstract to the Society of Toxicology, San Francisco, CA for March 11, 2012 Conference. *The Toxicologist*, Vol 121, March 2012.

Buck, B.J., Soukup, D., Goossens, D., McLaurin, B., Keil, D.E., Peden-Adams, M., Proper, S., Teng, Y, Baron, D., Ulery, A. OHV-generated and natural dust containing arsenic: Preliminary Health Effects due to acute exposure, Nellis Dunes Recreation Area, Nevada USA. 2011 GSA Annual Meeting in Minneapolis (9-12 October 2011). Vol. 43, No.5

Buck, B.J., Goossens, D., McLaurin, B., Soukup, D., Teng, Y., Keil, D.E., Peden-Adams, M., Baron, D., Ulery, A. Assessment of Dust Emissions at Nellis Dunes Recreational Area, Nevada USA: Prelude to a Human Health Risk Assessment. Presented at the Medical Geology Conference, Spring 2011

Peden-Adams, M., Berger-Ritchie, J., Young, S., Ayala, N., Keil, D. E. The role of T-cell IL-2 and macrophage IL-10 production in PFOS-induced humoral immunosuppression. Presented at the Society of Toxicology, Washington DC. March 6-10, 2011. *The Toxicologist*, Vol 120, Supplement No. 2, March 2011.

Proper, S.P., Peden-Adams, M., Ayala, N., Berger-Ritchie, J., Lebahn, S., Young, S., Buck, B., Goossens, D., Soukup, D., Sudowe, R., Teng, Y., Baron, D., Harkema, J.R. and Keil, D.E. Health Effects Due to Acute Exposure of Dust Samples Collected from Nellis Dunes Recreational Area. *The Toxicologist*. March 6-10, 2011. *The Toxicologist*, Vol 120, Supplement No. 2, March 2011, Abstract #670, p144.

Fair, P. A., Mollenhauer, M., Henry, N., Bossart, G., Wills, L., Keil, D. E., Peden-Adams, M. M. Effects of a complex mixture of PCBs on immune function in B6C3F1 mice. Presented at SETAC, November 2010.

DeWitt, J.C., Peden-Adams, M.M., Keil, D.E., and Anderson, S.E. 2010. PPAR involvement in PFAA Immunotoxicity. PFAA Days III, US EPA, Research Triangle Park, NC. June 8-10, 2010

Fair, P. A., Mollenhauer, M., Henry, N., Bossart, G., Wills, L., Keil, D. E., Peden-Adams, M. M. Effects of a Complex Mixture of PCBs on Immune Function in B6C3F1 Mice. *The Toxicologist*, Vol. 84, No. S-1, March 2010.

Peden-Adams, Margie M., Mollenhauer, Meagan, Morse, Maraya, Wills, Lauren, Keil, Deborah E. Effects of Perfluorooctanesulfonic Acid (PFOS) on NF- κ B, AP-1 and PPAR-alpha. *The Toxicologist*, Vol. 84, No. S-1, March 2010.

Conway-Klaassen, J., Glatzel, J., Keil, D.E. 2009. Developing academic integrity by discouraging academic dishonesty in online courses. Clinical Laboratory Educators Conference, Feb 2009.

Peden-Adams, M.M. and Keil, D.E. Suppression of immune function in mice following developmental exposure to PFOS. Platform presentation at the Society of Toxicology. #2243. March 2009.

Keil, D.E., Mollenhauer, M., Berger-Ritchie, J., Lutman, M., Morse, M. and Peden-Adams, M.M. PFOS-Induced Immune Modulation in B6C3F1 Mice Following Oral Exposure *The Toxicologist*, Vol. 83, No. S-1, March 2009

Peden-Adams, M.M., Mollenhauer, A.M., Keil, D.E. Comparative Immunological Responses between Wild-Type and PPAR-alpha^{-/-} Null Mice Following Exposure to PFOS. *The Toxicologist*, Vol. 83, No. S-1, March 2009

Morse, M., Mollenhauer, M., Lutman, M., Berger-Ritchie, J., Keil, D.E., and Peden-Adams, M.M. Effects of Perfluorooctane Sulfonate (PFOS) on Macrophage Function and Splenocyte Subpopulations in B6C3F1 Mice. *The Toxicologist*, Vol. 83, No. S-1, March 2009

Mollenhauer, M., Fair, P., Driscoll, E., Keil, D.E., and Peden-Adams, M.M. The effects of perfluorooctane sulfonate exposure on inflammation in B6C3F1 mice. *The Toxicologist*, Vol. 82, No. S-1, March 2008

Fair, P., Bossart, G., Mollenhauer, M., Keil, D.E., and Peden-Adams, M.M. Immunological alterations in B6C3F1 mice following oral exposure to a brominated flame retardant mixture: DE-71. *The Toxicologist*, Vol. 82, No. S-1, March 2008

Peden-Adams, M.M., Mollenhauer, M., Driscoll, E., Berger, J., Keil, D.E., and Fair, P. Evaluation of possible modes of action for PFOS-induced humoral immunosuppression. *The Toxicologist*, Vol. 82, No. S-1, March 2008

Mollenhauer, M., Driscoll, E., Bradshaw, S., Berger, J., Fair, P.A., Keil, D.E., Peden-Adams, M.M. Immune Alterations in B6C3F1 mice following oral exposure to PFOS. *Society of Environmental Toxicology and Chemistry (SETAC)*, Annual Meeting Milwaukee, WI, November 2007

Keil, D.E., EuDaly, J., Berger, J., Pangallo, J., Peden-Adams, M.M. PFOS-Induced Immune Modulation in B6C3F1 Mice Following Oral Exposure. *The Toxicologist*, Vol. 81, No. S-1, March 2007

Berger, J., Stuckey, J., Pangallo, J., EuDaly, J., Scott, T., Bryant, K., Keil, D.E., Jodice, P., and Peden-Adams, M.M. Immunological Alterations in Chicks Following In Ovo Exposure to Perfluorooctane Sulfonate (PFOS). *The Toxicologist*, Vol. 81, No. S-1, March 2007

Stuckey, J., Bryant, K., Pangallo, J., Berger, J., EuDaly, J., Keil, D.E., Jodice, P., Peden-Adams, M.M. Immunological Alterations in Chicks Following In Ovo Exposure to A Brominated Flame Retardant Mixture: DE-71. *The Toxicologist*, Vol. 81, No. S-1, March 2007

Keil, D.E., Stuckey, J., EuDaly, J.G., Lee, A.M., Pangallo, J., Berger, J., Jodice, P., Scott, T.R., Peden-Adams, M.M. (2007). Effects of PFOS on Developmental Immune Function in Rodent and Avian Models. Perfluoroalkyl Acids and Related Chemistries: Toxicokinetics and Mode-of-Action Workshop. Society of Toxicology – Current Concepts in Toxicology. February 14-16, 2007. Westin Arlington Gateway, Arlington, VA.

Peden-Adams, M.M., Romano, T., EuDaly, J.G., Muir, D.C.G., Houde, M., Bossart, G.D., Fair, P.A., Keil, D.E. (2007). Comparison of Immune Modulation in Two Mammalian Species In Relation To PFOS Exposure. Perfluoroalkyl Acids and Related Chemistries: Toxicokinetics and Mode-of-Action Workshop. Society of Toxicology – Current Concepts in Toxicology. February 14-16, 2007. Westin Arlington Gateway, Arlington, VA.

McGuinn, W., Peden-Adams, M., EuDaly, J., Gilkeson, G., and Keil, D.E. The pharmacokinetics of DEET in the mouse. *The Toxicologist*, Vol. 80, No. S-1, March 2006

Peden-Adams, M., Stuckey, J., EuDaly, J., and Keil, D.E. Oral exposure to perfluorooctane sulfonate (PFOS) for 28 days suppresses immunological function in B6C3F1 mice. *The Toxicologist*, Vol. 80, No. S-1, March 2006

Keil, D.E., Eudaly, J., Miller, J., Gilkeson, G., Peden-Adams, M.M.. Lifetime exposure to trichloroethylene (TCE) does not Accelerate autoimmune disease in MRL +/+ mice. *The Toxicologist*, Vol. 80, No. S-1, March 2006

Keil, D.E., Mehlmann, T., Butterworth, L. and Peden-Adams. 2005. Gestational Exposure to PFOS Suppresses Immunological Function in F1 Mice. *The Toxicologist*, Vol. 79, No. S-1, March 2005

Keil, D.E., Heesemann, L.M., Miller, J., EuDaly, J.G., Gilkeson, G.G., and Peden-Adams, M.M. 2004. The Delayed-Type Hypersensitivity Response is a Biomarker for Trichloroethylene Exposure. *Society of Environmental Toxicology and Chemistry (SETAC)*, 25th Annual Meeting, November 2004

Smythe, J., Keil, D.E., EuDaly, J., Griffin, W.C., and Peden-Adams, M.M. Assessment of Postnatal Exposure to Thimerosal or Methylmercury using a Morris Water Maze Procedure in B6C3F1 Mice. *The Toxicologist*, Vol. 78, No. 1-S, March 2004

Peden-Adams, M.M., EuDaly, J., Heesemann, L., Smythe, J., and Keil, D.E. Postnatal Exposure to Thimerosal Alters Immunological Function in Adult Mice. *The Toxicologist*, Vol. 78, No. 1-S, March 2004

Keil, D.E., Butterworth, L. Azadi, S. and Peden-Adams, M.M. Dermal Exposure to JP-8 Jet Fuel During Pregnancy Alters Immunological Function in F1 Mice. *The Toxicologist*, Vol. 78, No. 1-S, March 2004

Keil, D.E., Heesemann, L., Adams, C., Meyers, K., EuDaly, A., Smythe, J., EuDaly, J., Gilkeson, G., and Peden-Adams, M.M. Immunological Function is Altered After Lifetime Exposure to Trichloroethylene (TCE). *Society of Environmental Toxicology and Chemistry (SETAC)*, 23rd Annual Meeting, November 2003

Keil, D.E., Adams, C., Butterworth, L. EuDaly, J., and Peden-Adams, M. M. JP-8 Jet Fuel Does Not Alter Serum Cytokine Levels in B6C3F1 Mice Following 7-Day Oral or Dermal Exposure. *The Toxicologist*, Vol. 72, No. S-1, p.330, March 2003

Adams, C., Keil, D.E., Meyers, K., EuDaly, A., Smythe, J., EuDaly, J., Gilkeson, G., and Peden-Adams, M.M. Lifetime Exposure to Trichloroethylene (TCE) Modulates Immune Function. *The Toxicologist*, Vol. 72, No. S-1, p.375, March 2003

Mikell, C., Peden-Adams, M.M., Dabra, S., EuDaly, J., Keil, D.E. Hepatic Phase I and II Enzyme Profiles after 7-Day Dermal or Oral Exposure to JP-8 Jet Fuel. *The Toxicologist*, Vol. 72, No. S-1, p.330, March 2003

Peden-Adams, M.M., Adams, C., Meyers, K., EuDaly, A., Smythe, J., EuDaly, J., and Keil, D.E. Varied Exposure Regimes to Methyl Mercury (MeHg) During Postnatal Development Leads to Different Immune Responses. *The Toxicologist*, Vol. 72, No. S-1, p.376, March 2003

M.M. Peden-Adams, J.M. Keller, R. D. Day, A.R. Johnson, J. EuDaly, D.E. Keil, J.R. Kucklick, S. Christopher, P. Maier, B. Stender, A. Segars, and D. Whitaker. Relationship of Lymphoproliferation and Clinical Blood Parameters to Contaminants in Loggerhead Turtles. *Society of Environmental Toxicology and Chemistry (SETAC)*, 23rd Annual Meeting, November 2002

A.R. Johnson, J.M. Keller, J. EuDaly, D.E. Keil, J.R. Kucklick, and M.M. Peden-Adams. Critical Assessment of a Method for Determining Immune Status of Free-Ranging Loggerhead Turtles using Frozen Lymphocytes. *Society of Environmental Toxicology and Chemistry (SETAC)*, 23rd Annual Meeting, November 2002

Peden-Adams, M.M., EuDaly, J., Dudley, A., Zeigler, J., Lee, A., Robbs, J., Gikeson, G., and Keil, D.E. Evaluation of immunotoxicity induced by single or concurrent exposure to N,N-diethyl-m-toluamide (DEET), pyridostigmine bromide (PYR) and JP-8 jet fuel. Invited Speaker for the 36th Annual Conference on Theories and Practices in Toxicology and Risk Assessment, Cincinnati, Ohio April 15-18 (page 29 of program)

Keil, D.E. JP-8 Jet Fuel: From in utero to adult to autoimmunity. National Institutes for Occupational Safety and Health. Invited speaker, September 2001

Peden-Adams, M.M., EuDaly, J.G., Dabra, S., Heesemann, L., EuDaly, A., and Keil, D.E. Sulfluramid-induced alterations in immunotoxicological parameters. *The Toxicologist*, Vol. 66, No. 1-S, p.146, March 2002

Keil, D.E., Scharstein, K., EuDaly, J.G., and Peden-Adams, M.M. Comparisons of JP-8-induced immune alterations following two different routes of exposure in female B6C3F1 mice. *The Toxicologist*, Vol. 66, No. 1-S, p.145, March 2002

Gilkeson, G.S., Peden-Adams, M.M., EuDaly, J.G., Dabra, S., EuDaly, A., Hayes, R., Heesemann, L., Miller, J., Smyth, J., and Keil, D.E. Exposure to single or tertiary mixtures of N,N-diethyl-m-toluamide (DEET), pyridostigmine bromide (PYR), JP-8 jet fuel and stress in autoimmune-prone mice. *The Toxicologist*, Vol. 66, No. 1-S, p.79, March 2002

Peden-Adams, M.M., EuDaly, J., Schuler, A., Lee, A., Robbs, J., Gilkeson, G., and Keil, D.E. Effects of exposure to N,N-diethyl-m-toluamide, pyridostigmine bromide, and JP-8 or Stress on immunity and host resistance. *Society of Environmental Toxicology and Chemistry (SETAC)*, 22nd Annual Meeting, November 11 – 15, Baltimore, MD

Keil, D.E., Peden-Adams, M.M., Gainey, K., Roberts, F.L., Albert, J., EuDaly, J., Redmond, S., and Gilkeson, G. 2001. Combined effects of trichloroethylene and ammonium perchlorate on biomarkers of immune function. *Society of Environmental Toxicology and Chemistry (SETAC)*, 22nd Annual Meeting, November 11 – 15, Baltimore, MD

Keil, D.E., Warren, D.A., Peden-Adams, M.M., and Eudaly, J. The effects of JP-8 on immune function and thyroid hormone levels in B6C3F1 mice exposed in utero. *The Toxicologist*, Vol. 55, No. 1, p.218, March, 2001

Peden-Adams, M.M., Dudley, A.C., EuDaly, J., Gilkeson, G.S, and Keil, D.E. Concurrent exposure to N,N-diethyl-m-toluidide (DEET), pyridostigmine bromide (PYR), and JP-8 jet fuel effects on biomarkers of immune function in B6C3F1 mice. *The Toxicologist*, Vol. 55, No. 1, p.141, March, 2001

Dudley, A.C., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. JP-8 Jet Fuel Induces CYP2B1, CYP2E1, and GST π but not CYP1A1 in Murine Liver. *The Toxicologist*, Vol. 55, No. 1, p.405, March, 2001

Gilkeson, G.S., Dudley, A.C., EuDaly, J., Peden-Adams, M.M., and Keil, D.E. Concurrent exposure to N,N-diethyl-m-toluidide (DEET), pyridostigmine bromide (PYR), and exercise stress effects on biomarkers of immune function in B6C3F1 mice. *The Toxicologist*, Vol. 55, No. 1, p.142, March, 2001

Wallace, S., Gilkeson, G.S., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. A comparative study evaluating the immunological effects of Trichloroethylene in NZB/NZW and B6C3F1 mice. *The Toxicologist*, Vol. 55, No. 1, p.141, March, 2001

Allen, C., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. Ellagic acid alters immunological function. *The Toxicologist*, Vol. 55, No. 1, p.421, March, 2001

Keil, D.E., Peden-Adams, M. M., EuDaly, J., and Gilkeson, G. Immunotoxicological evaluation of concurrent exposure N,N-diethyl-m-toluamide (DEET), JP-8 jet fuel, pyridostigmine bromide (PYR), and/or exercise stress in B6C3F1 mice. Illnesses among Gulf War Veterans: A Decade of Scientific Research. Presented at the Conference in Washington, DC. January 24-26, 2001

Peden-Adams, M.M., A.C. Dudley, J. EuDaly, G. Gilkeson, P.A. Fair, D.E. Keil. 2000. Evaluation of mitogen-induced lymphoproliferative responses and NK-cell activity in Atlantic Bottlenose Dolphins (*Tursiops Truncatus*). *Society of Environmental Toxicology and Chemistry (SETAC)*, 21th Annual Meeting (2000). Invited Platform

Keil, D.E., Jenny, M., Warren, D.A., and EuDaly, J. Immune, thyroid and hematological evaluation of ammonium perchlorate in B6C3F1 mice. *The Toxicologist*, Vol. 54, No. 1, p.156. March, 2000

Jenny, M., Keil, D.E., Warren, D.A., EuDaly, J. Dietary iodine modulates ammonium perchlorate induced immunotoxicity. *The Toxicologist*, Vol. 54, No. 1, p.156. March, 2000

Gilkeson, G.S., Dudley, A.C., EuDaly, J., Peden-Adams, M.M., and Keil, D.E. Effects of N,N-diethyl-m-toluamide (DEET) on immune function parameters in B6C3F1 mice. *The Toxicologist*, Vol. 54, No. 1, p.156. March, 2000

Peden-Adams, M.M., Dudley, A.C., EuDaly, J., Gilkeson, G.S., and Keil, D.E. Effects of exercise stress or pyridostigmine bromide (PSB) on immune function parameters in B6C3F1 mice. *The Toxicologist*, Vol. 54, No. 1, p.162. March, 2000

Dudley, A.C., EuDaly, J., Peden-Adams, M.M., and Keil, D.E. An aryl hydrocarbon receptor independent mechanism of JP-8 jet fuel immunotoxicity in two strains of mice. *The Toxicologist*, Vol. 54, No. 1, p.158. March, 2000

Keil, D.E., Warren, D.A., Roberts, L., EuDaly, J., Dudley, A., and Peden-Adams, M. The immunological status of mice exposed *in utero* to JP-8 jet fuel. Presentation at the AFOSR JP-8 Jet Fuel Toxicology Workshop. University of Arizona, Tucson, AZ. Jan 11-12, 2000.

Dudley, A.C., EuDaly, J., Peden-Adams, M., Pollenz, R.S. and Keil, D.E. An Aryl Hydrocarbon receptor independent mechanism of JP-8 jet fuel immunotoxicity in Ah Responsive (B6C3F1) and Ah nonresponsive (DBA/2) mice. Presentation at the AFOSR JP-8 Jet Fuel Toxicology Workshop. University of Arizona, Tucson, AZ. Jan 11-12, 2000.

Jenny, M.J., Keil, D.E., Warren, D.A., Bullard-Dillard, R., and EuDaly, J. Effects of ammonium perchlorate in B6C3F1 mice on thyroid, hematological, and immunological parameters. *The Toxicologist*, Vol. 48, No.1, p.114. March 1999

Junkins, A.D., Hundley, J.M., Sonnett, R.W., Karr, C.K., and Keil, D.E. Development of a clinical practicum course using a simulated clinical laboratory. American Society for Clinical Laboratory Science, San Juan, Puerto Rico. March 1999

Hundley, J.M., Junkins, A.D., Holladay, E.B., Karr, C.K., Sonnett, R.W., and Keil, D.E. An entry level Master of Science degree in Clinical Laboratory Science. American Society for Clinical Laboratory Science, San Juan, Puerto Rico. March 1999

Watt, J.M., Keil, D.E., Pruett, S.B., and Champlin, F.R. Influence of Serotype A encapsulation and experimental decapsulation on phagocytosis by murine peritoneal macrophages in avian isolates of *Pasteurella multocida*. 97th American Society for Microbiology General Meeting, May 1997

Keil, D.E., Luebke, R., and Pruett, S.B. Evaluation of multivariate statistical methods and their application in quantitative modeling of immunotoxicology data. *The Toxicologist*, Vol. 36, No.1, p.200. March, 1997

Watt, J.M., Holman, S.C., Wilson, W.W., Keil, D.E., Pruett, S.B., and Champlin F.R. Effect of experimental decapsulation on cell surface properties in Serotype A *Pasteurella multocida* strains of avian origin. 96th American Society for Microbiology General Meeting, New Orleans, Louisiana, May 1996

Keil, D.E., Ensley, M.D., and Pruett, S.B. Criteria for immunological data for analysis by multivariate methods. *The Toxicologist*, Vol.30, No.1, p.341-342. March 1996

Keil, D.E., Ensley, M.D., Luebke, R.W., and Pruett, S.B. A multi-indicant predictive model of immunosuppression by dexamethasone in B6C3F1 mice. *The Toxicologist*, Vol.15, No.1, p.100. March 1995

Keil, D.E., Luebke, R.W., and Pruett, S.B. Nitrite production of peritoneal macrophages after *in vivo* and *in vitro* exposure to dexamethasone. *The Toxicologist*, Vol.15, No.1, p.176. March 1995

(formerly D.K. Ensley)

Ensley, D.K., Luebke, R.W., and Pruett, S.B. Quantitative evaluation of the relationship between immune parameters and host resistance. *The Toxicologist*, Vol.14, No.1, p.400. March 1994

Crittenden, P., Padgett, E.L., Ensley, D.K., Carr, R., Burrus, C., and Pruett, S.B. *In vivo* immunotoxicity of methylparathion in B6C3F1 female mice. *The Toxicologist*, Vol.14, No.1, p.123. March 1994

Ensley, D.K., Padgett, E.L., Barnes, D., and Pruett, S.B. Methylisothiocyanate as the primary immunotoxic metabolite of sodium methylthiocarbamate in B6C3F1 female mice. *The Toxicologist*, Vol.13, No.1, p.324. March 1993

Ensley, D.K., Han, Y.C., Padgett, E.L., and Pruett, S.B. Immunotoxicity of a commercial preparation of sodium methylthiocarbamate. *The Toxicologist*, Vol.12, No.1, p.50. February 1992

Regional

Keil, D.E. From DEET to Dust: Research in Progress. Invited speaker for the Department of Public Health and Human Services Laboratory Services Bureau, 1400 E Broadway, Helena, MT. January 8, 2013.

J. Smythe, M.M. Peden-Adams, J. Eudaly, W. Griffin, and D.E. Keil. Postnatal Exposure to Methyl Mercury (MeHg) Shows Little Effect on Cognitive Ability. Presentation at the Carolinas SETAC Annual Meeting. Fort Johnson Marine Resources Center, Charleston, SC. April 3-4, 2003

Gainey, K., Albert, J., Laughridge, F., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. Flow cytometric evaluation of CD4/8 lymphocytic subpopulations in B6C3F1 mice exposed concurrently to ammonium perchlorate (AP) and trichloroethylene (TCE) in drinking water for 90 days. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting), March, 2001

Albert, J., Gainey, K., Laughridge, F., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. Evaluation of natural killer cell activity after exposure to ammonium perchlorate (AP) and trichloroethylene (TCE) in drinking water for 90 days. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting), March, 2001

Laughridge, F., Albert, J., Gainey, K., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. Evaluation of autoantibody production after exposure to ammonium perchlorate (AP) and trichloroethylene (TCE) in drinking water for 90 days. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting), March, 2001

Robbs, J., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. Resistance to *Listeria monocytogenes* challenge after concurrent exposure to tertiary mixtures of pyridostigmine bromide, DEET, JP-8, or exercise stress in mice. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting), March, 2001

Lee, A., Peden-Adams, M.M., EuDaly, J., and Keil, D.E. Resistance to B16F10 tumor challenge after concurrent exposure to tertiary mixtures of pyridostigmine bromide, DEET, JP-8, or exercise stress in mice. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting), March, 2001

Allen, C., Peden-Adams, M., and Keil, D.E. The effects of ellagic acid on immunological responses. Plants and Medicine Meeting. Plants, Medicine & The Economic Future of SC. SC Sustainable Universities Initiative. Charleston, SC. September 21-22, 2000

Banks, K.P., Peden-Adams, M., EuDaly, J., and Keil, D.E. The effect of concurrent exposure to pyridostigmine bromide, DEET, and JP-8 on specific IgM antibody production. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting). April, 2000

Wallace, S., Gilkeson, G., Peden-Adams, M., Redmond, K., and Keil, D.E. The immune effects of trichloroethylene on autoantibody production in two strains of mice. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting). April, 2000

Allen, C., Peden-Adams, M., and Keil, D.E. The effects of ellagic acid on natural killer activity and humoral antibody responses. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting). April, 2000

Hughes, N., Vesper, F., Peden-Adams, M., and Keil, D.E. Therapeutic effects of glucagon on carbon monoxide poisoning. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting). April, 2000

Lawrence, J., EuDaly, J., Warren, D.A., and Keil, D.E. Effects of JP-8 jet fuel on hematopoiesis in B6C3F1 mice. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting). March, 1999

Marquis, T., Jenny, M.J., Warren, D.A., and Keil, D.E. Effects of JP-8 jet fuel on macrophage function in B6C3F1 mice. Carolina's Clinical Connection Meeting (NC and SC Medical Technology Meeting). March, 1999

Keil, D.E. Invited Speaker. "Malaria – Development of a Vaccine." Carolinas Clinical Connection. Charlotte, NC. 1998

Keil, D.E. Invited Speaker. "Drugs and their Effect on the Immune System" Tennessee State Society of American Medical Technologists, Continuing Education Seminar and State Meeting, Nashville, TN. 1995

(formerly D.K. Ensley)

Ensley, D.K., Luebke, R.W., and Pruett, S.B. Quantitative relationships between immunological parameters and host resistance: A multivariate statistical approach. Presentation at the Eighth Annual Symposium on Immunotoxicology, Virginia Beach, VA. September 1993

Ensley, D.K., Padgett, E.L., Barnes, D., and Pruett, S.B. The effects of methylisothiocyanate, the primary immunotoxic metabolite of sodium methylthiocarbamate. Regional Society of Microbiology and Biochemistry, Starkville, MS. November 1992

Ensley, D.K., Han, Y.C., Padgett, E.L., and Pruett, S.B. An investigation of the immunotoxic effects of sodium methylthiocarbamate in B6C3F1 female mice. South Central Chapter of the Society of Toxicology, Starkville, MS. September 1991

Pool, G.L., Ensley, D.K., Samples, B.L., and Lumb, R.H. PAF stimulation of the respiratory burst in phagocytes of the rainbow trout. Southeastern Regional Lipid Conference, Cashiers, NC. October 1990

University

Maria Rodriguez, Elisa Santori, Jacob Seymour, Lacey Murphy, Jean Pfau, and Deborah E. Keil. 2016. Epigenetic Modification of Global Methylation Associated with Immunotoxicity Following Heavy Metal Dust Exposure. Poster for Undergraduate Student Day Montana State University, April 15, 2016.

Morse, M., Mollenhauer, M., Lutman, M., Berger-Ritchie, J., Keil, D.E., and Peden-Adams, M.M. Effects of Perfluorooctane Sulfonate (PFOS) on Macrophage Function and Splenocyte Subpopulations in B6C3F1 Mice. UNLV Division of Health Sciences Interdisciplinary Research Scholarship Day. April 16, 2009. Page 19.

Menzel, N., Keil, D.E. and Landers, M. Biomarkers for low back pain-related disability. Division of Health Sciences: Interdisciplinary Research Scholarship Day. April, 16, 2009.

Keil, D.E., Mollenhauer, M., Berger-Ritchie, J., Lutman, M., Morse, M. and Peden-Adams, M.M. PFOS-Induced Immune Modulation in B6C3F1 Mice Following Oral Exposure. Division of Health Sciences: Interdisciplinary Research Scholarship Day. April, 16, 2009.

Morse, M., Mollenhauer, M., Lutman, M., Berger-Ritchie, J., Keil, D.E., and Peden-Adams, M.M. Effects of Perfluorooctane Sulfonate (PFOS) on Macrophage Function and Splenocyte Subpopulations in B6C3F1 Mice. Division of Health Sciences: Interdisciplinary Research Scholarship Day. April, 16, 2009.

Menzel, N., Keil, D., Landers, M. Biomarkers for Low Back Pain. Division of Health Sciences: Interdisciplinary Research Scholarship Day. Abstract #61. April, 10, 2008.

Berger, J., Stuckey, J., Peden-Adams, M., Keil, D. 2006. The Role of PFOS on Immunological Cell Types and Mechanisms of Immunosuppression. Summer Undergraduate Research Closing Poster Session, August 11, 2006. Sponsors: EPSCoR, NSF REU, NIH – INBRE, HiPSEC REU

Banks, K.P., Peden-Adams, M., EuDaly, J., and Keil, D.E. The effect of concurrent exposure to pyridostigmine bromide, DEET, and JP-8 on specific IgM antibody production. 1st Annual College of Health Professions Student Research Day. April, 2000

Wallace, S., Gilkeson, G., Peden-Adams, M., Redmond, K., and Keil, D.E. The immune effects of trichloroethylene on autoantibody production in two strains of mice. 1st Annual College of Health Professions Student Research Day. April, 2000. Awarded 2nd place.

Allen, C., Peden-Adams, M., and Keil, D.E. The effects of ellagic acid on natural killer activity and humoral antibody responses. 1st Annual College of Health Professions Student Research Day. April, 2000. Awarded 1st place.

Hughes, N., Vesper, F., Peden-Adams, M., and Keil, D.E. Therapeutic effects of glucagon on carbon monoxide poisoning. 1st Annual College of Health Professions Student Research Day. April, 2000

Jenny, M.J., Keil, D.E., and EuDaly, J. Dietary iodine alters suppression of thyroid hormone biosynthesis and ammonium perchlorate induced immunotoxicity. 34th Annual MUSC Student Research Day. November 1999

Dudley, A.C., EuDaly, J., Peden-Adams, M.M., and Keil, D.E. An aryl hydrocarbon receptor independent mechanism of JP-8 jet fuel immunotoxicity in two strains of mice. 34th Annual MUSC Student Research Day. November 1999

Jenny, M.J., Keil, D.E., Warren, D.A., Bullard-Dillard, R., and EuDaly, J. Effects of ammonium perchlorate in B6C3F1 mice on thyroid, hematological, and immunological parameters. 33rd Annual MUSC Student Research Day. November 1998

TEACHING/MENTORING EXPERIENCE

Mentoring of Graduate Students, Committee Chair

1999	Matthew Jenny, M.S.	The effects of ammonium perchlorate on thyroid, hematological and immunological function in B6C3F1 female mice
1999	Jessie Lawrence, M.S.	The effects of JP-8 jet fuel on hematopoiesis in B6C3F1 mice
1999	Tracy Marquis, M.S.	The effects of JP-8 jet fuel on macrophage function in B6C3F1 mice
1999	Julie Kasperski, M.S.	Comparative study on the cytokine levels in irradiated and filtered platelet concentrates

2000	Camilla Allen, M.S.	The effects of ellagic acid on natural killer cell activity and humoral antibody responses
2000	Kimberlee Banks, M.S.	The effects of concurrent exposure of DEET, pyridostigmine bromide, and JP-8 on IgM humoral antibody responses
2000	Stacey Wallace, M.S.	The effects of trichloroethylene on autoantibody production in NZB/NZW and B6C3F1 mice
2000	Nikki Hughes, M.S.	Use of glucagon in the treatment of carbon monoxide poisoning
2000	Andrew Dudley, M.S.	Effects of concurrent exposure to DEET, pyridostigmine, and exercise stress on immunological parameters
2001	Keisha Gainey, M.S.	Combined effects of trichloroethylene and perchlorate on T lymphocyte subpopulations after 90-days exposure
2001	Jaime Albert, M.S.	Combined effects of trichloroethylene and ammonium perchlorate on spleen and thymus weight and natural killer cell activity
2001	Farrah Laughridge, M.S.	Exposure to trichloroethylene (TCE) and ammonium perchlorate (AP singly and in combination alter autoantibody production in female B6C3F1 mice.
2001	Jessica Robbs, M.S.	The effects of tertiary and single exposures to JP-8 Jet Fuel, DEET, pyridostigmine bromide and exercise stress in resistance to <i>Listeria monocytogenes</i>
2001	Jessica Zeigler, M.S.	The effects of single and tertiary exposure to JP-8 Jet Fuel, N,N-Diethyl-m-toluamide (DEET), Pyridostigmine Bromide, and Exercise Stress on CYP2B1 and GST π
2001	Amanda Lee, M.S.	The tertiary effects of DEET, pyridostigmine bromide, and JP-8 jet fuel or stress on a host resistance tumor model
2002	Shola Gates, M.S.	Investigation of autoantibodies to dsDNA and ssDNA in MRL-lpr/lpr mice challenged with DEET, PYR, JP-8, and stress. (<i>co-chair with Dr. Peden-Adams</i>)
2002	Amber Johnson, M.S.	Investigative immunotoxicological methods comparisons using fresh and frozen marine leukocytes. (<i>co-chair with Dr. Peden-Adams</i>)
2002	Robert Haynes, M.S.	Effects of concurrent exposures to DEET, PYR, JP-8, and stress on the development of CD4/CD8 lymphocyte subpopulations in autoimmune-prone mice. (<i>co-chair with Dr. Peden-Adams</i>)
2002	Julie Miller, M.S.	Effects of concurrent exposures to DEET, PYR, JP-8, and stress on the development of autoantibodies in autoimmune-prone mice. (<i>co-chair with Dr. Peden-Adams</i>)
2008	Jennifer Berger-Richie	Undergraduate mentor
2009	Maraya Morse	Undergraduate mentor
2009	Jennifer Berger-Richie	Graduate mentor and committee member; Masters in Public Health
2010-2014	Sharon Young, B.S.	M.A. and Ph.D. Graduate mentor and committee member; Anthropology Department, UNLV
2013-2015	Lacey Murphy	Masters in Microbiology and Immunology, MSU.
2013-2015	Mallory Spencer	Masters in Microbiology and Immunology, MSU.
2013-2014	Shavonn Whiten	Masters in Land Resources and Environmental Studies Committee member, not primary
2010	Nancy Walters, DVM	Masters in Public Health, UM. Mentored research requirement: Treg expression in metal exposed mice (NDRA study).

Undergraduate and High School Mentoring

1999	Tameka Greene	McClellenville High School, SC
1998	Nina Montgomery, BS	Clafin College, Orangeburg, SC
1998	Charlease Kelly, BS	Clafin College, Orangeburg, SC
2001	Sundee Dabra, BS	Clemson University, SC
2001	Joshua Smyth, BS	Clearwater University, FL
2001	Lauren Heesemann, BS	College of Charleston, SC
2001	Kate Scharstein, BS	College of Charleston, SC
2006	Robert Perez, BS CLS	Senior CLS, UNLV
	Hormone validation studies with using blood spots and saliva.	
	Collaboration with Dr. Peter Gray, Medical Anthropology, UNLV	
2006	Justina Pangallo, BS CLS; Senior CLS, UNLV; The Role of PFOS on Immunological Cell Types and Mechanisms of Immunosuppression.	
	Collaboration with Dr. Peden-Adams, MUSC/NOAA	
2006	Jennifer Berger, BS CLS; Senior CLS, UNLV; EPSCOR recipient The Role of PFOS on Immunological Cell Types and Mechanisms of Immunosuppression.	
	Collaboration with Dr. Peden-Adams, MUSC/NOAA	
2009-2010	Nadia Ayala	Senior CLS, UNLV; undergraduate research credit
2010	Zack Kohler	Senior CLS, UNLV; undergraduate teaching credit
2010	Jovanica Perez	Senior CLS, UNLV; undergraduate teaching credit
2011	Justin Rueckert	Senior MLS, U Utah; undergraduate research
2011	Kira Hinckley	Senior MLS, U Utah; undergraduate research
2011	Lacey Murphy	Senior MLS, U Utah; undergraduate research
2010-2014	Marna Jensen	Junior MLS major, Montana State University
2014-2015	Laura Fisch	Junior, PreMed Major, Montana State University
		Undergraduate working on INBRE
2016	Meghann Karsch	Undergraduate Montana State University
2016-	Zoie Kapish	Undergraduate Montana State University
2016-	Jacob Seymour	Undergraduate Montana State University
2016-	Caleb Stair	Undergraduate Montana State University
2016	Logyn Blom	Undergraduate Montana State University
2016-	Maria Rodriguez	Undergraduate Montana State University
2016-	Elisa Santori	Undergraduate Montana State University
2016-	Jessica Eggers	Undergraduate Stanford University

NIOSH Student Mentor Program

2002	Carmenza Mikell, B.S.	West Virginia University, WV
2003	Steve Proper, B.S. (2005)	Kettering University, Flint, MI
2003	Tracey Mehlmann, B.S.	Wheeling Jesuit University, Wheeling, WV

K-12 Mentoring

2013	Volunteer mentor for 3 rd grader experiments, Helena Grade School,	2013- current
------	---	---------------

Courses Taught in Department of Microbiology and Immunology, Montana State University

Capstone Seminar BIOM 494, 2 sections of 12 students SPR	2013
Capstone Seminar BIOM 494, 2 sections of 10 students SPR	2014
Toxicology: The Science of Poisons (15 students; 3 credit) SPR	2014
Fundamentals of Hematology (60 students; 3 credit) FALL	2014
Toxicology: The Science of Poisons (40 students; 3 credit) SPR	2015
Fundamentals of Hematology LAB (40 students; 1 credit) FALL	2015

Fundamentals of Hematology (60+ students; 3 credit) FALL 2015

Courses Taught in Clinical Laboratory Sciences Masters Program, MUSC

Professional Practice in Immunohematology	1998-2001
Topics in Immunohematology	1998-2001
Research and Statistics	1998-2001
Immunohematology and Transfusion Practices	1997-2001
Introduction to Laboratory Management	1997-2001
Chemical Pathology (Clinical Chemistry II)	2001

Courses Taught in Clinical Laboratory Sciences Undergraduate Degree Program, UNLV

Clinical Chemistry I, II (Instrumentation and Pathophysiology) current	2005-
Immunohematology/Transfusion Medicine current	2006-

Courses Taught in Medical Laboratory Sciences Program, University of Utah

Clinical Chemistry I and II (MDLB 4200, 4210)	2011-current
Research (MDLB 5210) current	2012-
Body fluids (MDLB 3680) current	2010-

Courses Taught as a Graduate Assistant, Mississippi State University

Medical Parasitology	1992-1996
Quantitative Methods in Medical Technology	1992-1996
Botany	1991-1993

SERVICE

International

Executive Board of Directors, American Board of Toxicology (ABT) Member of the Executive Board of the American Board of Toxicology (ABT) Serving in the capacity of various roles: Secretary; Co-Chair Globalization Committee; Chair Policy and Procedures Committee; Member of Eligibility and Exam Committee	2012-2016
International Conference for Medical Laboratorians in Sub-Saharan Region of Africa. July, 2012 in Ghana. Presented workshop Medical Laboratory QC/QA	2012
Invited speaker, Brazilian Congress on Toxicology. October 7-10, 2013. Represented American Board of Toxicology.	2013

National

Undergraduate Education SubCommittee, Society of Toxicology	2014- 2017
Education Committee, Immunotoxicology Specialty Section	2014
Alice Hamilton Award, NIOSH. Reviewer.	2012, 2013
Roundtable Speaker, Undergraduate Mentoring. Clinical Laboratory Educators Conference – ASCLS. Salt Lake City, UT	Feb 2012
Health Improvement Institute (HII), Arrangements Development Committee (ADC)	2011

Serve on Discussant Panel at AAAS: 50 years of "The Pill": Risk Reduction and Discovery of Benefits Beyond Contraception, Reflections and Forecast	2012
Secretary/Treasurer, Women in Toxicology, Society of Toxicology	2010-2012
EPA Science Advisory Board (SAB) Trichloroethylene Health Assessment Rev Panel	2010
Undergraduate Research, Society of Toxicology	2010
Ad hoc NIH/Immunotoxicology Committee, SOT	2010
Session Chair for Society of Toxicology Conference, Autoimmunity	2001
Methods Committee, Immunotoxicology Specialty Section, Society of Toxicology	2000
Awards Committee, Immunotoxicology Specialty Section, Society of Toxicology	2003

University, Montana State University

Center for Research Computing Visioning Committee	2013-current
Classroom Committee, Faculty Senate	2013-2015

University, University of Utah

Cyber Infrastructure Data Management Subcommittee	2012
Admissions Committee, MLS Program	2012

University, University of Nevada, Las Vegas

Academic Freedom and Ethics Committee	2009-2010
Institutional Biosafety Committee (IBC)	2007-2010
AHS adhoc Research Committee, Chair	2007-2010
Selection Committee for Dean of Graduate Studies and VP for Research	2006-2007

University, Medical University of South Carolina, Charleston

University Gender Issues Committee	1999-2000
Electronic Research Administration Working Group	1998-2001
Basic Science Building Science Advisor	1998-1999
Operations Committee, Strom Thurmond Biological Research Building	1998-2001
University Research Council	1998-2001
Faculty Senate	1998-2000
Institutional Animal Care and Use Committee (IACUC)	2000-2002

College of Health Professions, Medical University of South Carolina, Charleston

Search Committee for Assistant Dean of Research, College of Health Professions	1999-2000
Research Task Force, College of Health Professions	1998-1999
Chair of the Research Subcommittee, College of Health Professions	1997-2000
Strategic Research Committee, College of Health Professions	2000-2001

Dept. of Medical Laboratory Science, Medical University of South Carolina, Charleston

Marine Biomedical Environmental Science Committee	1998-2002
Departmental Recruitment Committee	1997-2001
Departmental Safety Committee	1997-2001

SOCIETY MEMBERSHIP

Diplomate and Board Member, American Board of Toxicology	2006-current
American Association of Clinical Chemistry (AACC)	2005-2012
South Carolina Academy of Science	1999-2002
American Society of Clinical Laboratory Science	1997-2002; 2005-current
Associate Membership with the Society of Toxicology	1997-current
Association for the Society for Clinical Pathologists (ASCP)	1992-current

CONTINUING EDUCATION and PROFESSIONAL MEETINGS ATTENDED

54 th Annual Society of Toxicology Meeting, San Diego, CA	2015
53 rd Annual Society of Toxicology Meeting, Phoenix, AZ	2014
Interprofessional Education Workshop by University of Washington @ MSU campus	2013
52 nd Annual Society of Toxicology Meeting, San Antonio, TX	2013
Specialized Techniques for Dose-Response Assessment and Risk Assessment of Chemical Mixtures, Continuing Education SOT, San Antonio, TX	2013
Science and the Internet, Aug 1-3, Dusseldorf, German	2012
SOT Contemporary Concepts in Toxicology (CCT) workshop entitled "Multi-scale Integration of Human Health and Environmental Data," co-sponsored by the US Environmental Protection Agency (USEPA), USEPA campus in Research Triangle Park, NC May 8–11, 2012	2012
51 st Annual Society of Toxicology Meeting, San Francisco, Ca	2012
Clinical Laboratory Educators (CLEC) Meeting, Salt Lake City, UT	2012
50 th Annual Society of Toxicology Meeting, Washington, DC	2011
Arrangements Development Committee (ADC) for the Project to harmonize health research guidelines, held on November 1, 2011	2011
Recertification of Diplomat of American Board of Toxicology- Passed	2010
49 th Annual Society of Toxicology Meeting, Salt Lake City, UT	2010
NIH Regional Seminar. Las Vegas, NV. June 25	2009
Beckman-Coulter Seminar, San Francisco, CA June 11	2009
Professional Practice in Clinical Chemistry: A Review & Update, AACC, Alexandria, VA.	2009
48 th Annual Society of Toxicology Meeting, Baltimore, MD	2009
47 th Annual Society of Toxicology Meeting, Seattle, WA	2008
AACC Conference, San Diego, CA July 15-18	2007
Professional Practice in Clinical Chemistry: A Review & Update, AACC, Washington, D.C.	2007
46 th Annual Society of Toxicology Meeting, Charlotte, NC	2007
Cambridge HealthTech Institute, Translational Research	2006
45 th Annual Society of Toxicology Meeting, San Diego, CA	2006
The Society of Environmental Toxicology and Chemistry, Baltimore, MD November 14-17	2005
Visiting Professor, Mystic Aquarium, Mystic, Connecticut. Collaboration with Vice President of Marine Research, Dr. Tracy Romano	2005
Professional Practice in Clinical Chemistry: A Review & Update, AACC, Alexandria, VA	2005
Diplomat American Board of Toxicology Review Course, Kansas City, KS Director: Dr. Curtis Klaassen	2004
43 rd Annual Society of Toxicology Meeting, Baltimore, MD	2004
Workshop on Juvenile Animal Studies: Testing Strategies and Design ILSI Health and Environmental Sciences Institute, Washington, D.C.	2003
Michigan Society of Toxicology: Proteomics, Genomics, Metabonomics	2003
42 nd Annual Society of Toxicology Meeting, Salt Lake City, Utah	2003
41 st Annual Society of Toxicology Meeting, Nashville, TN Molecular Toxicology and Toxicogenomics Courses	2002
40 th Annual Society of Toxicology Meeting, San Francisco, CA	2001
39 th Annual Society of Toxicology Meeting, Philadelphia, PA	2001
Conference on Federally Sponsored Gulf War Veterans' Illnesses Research Pentagon City, VA	2001
The Efficacy and Safety of Medicinal Herbs. International Conference. The Institute of Nutrition, University of NC, Chapel Hill, NC.	2000
Southeastern Society of Toxicology Meeting. Athens, GA	2000

Plants, Medicine & The Economy: Working Conference. SC Sustainable Universities Initiative, Charleston, SC	2000
AFOSR JP-8 Jet Fuel Toxicology Workshop. Tucson, AZ	2000
WebCT Course, MUSC	1999
Conference on Federally Sponsored Gulf War Veterans' Illnesses Research Pentagon City, VA	1999
Workshop on Human and Murine Stem Cell Evaluation. Stem Cell Technologies, Inc. Vancouver, BC	1999
38 th Annual Society of Toxicology Meeting, New Orleans, LA	1999
Linking Environmental Agents and Autoimmune Diseases. National Institute of Environmental Health Sciences. Research Triangle Park, NC	1998
Assessing and Managing Risks in a Democratic Society. Society for Risk Analysis Annual Meeting and Exposition, Phoenix, AZ.	1998
36 th Annual Society of Toxicology Meeting. Cincinnati, OH	1997
35 th Annual Society of Toxicology Meeting, Anaheim, CA	1996