CURRICULUM VITAE

**James C. Fogleman**

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**I. Degrees, professional certificates:**

1972 B.S., Biology, University of New Mexico, Albuquerque

1974 M.S., Zoology, Colorado State University, Ft. Collins

1979 Ph.D., Genetics, Cornell University, New York

**II. Professional experience:**

1978-80 N.I.H. (NRSA) Postdoctoral Fellow, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson

1980-82 Research Associate, Department of Ecology and Evolutionary Biology, University of Arizona, Tucson

1983 Visiting Assistant Professor, Section of Genetics and Development, Cornell University, Ithaca, New York

1983-88 Assistant Professor, Department of Biological Sciences, University of Denver, Denver, Colorado

1988-94 Associate Professor, Department of Biological Sciences, University of Denver, Denver, Colorado

1990 Visiting Associate Professor, Section of Genetics and Development, Cornell University, Ithaca, New York

1994- Professor, Department of Biological Sciences,

Present University of Denver, Denver, Colorado

2000-01 Associate Chair, Department of Biological Sciences,

 University of Denver, Denver, Colorado

2001-02 Interim Dean; Division of Natural Sciences, Mathematics, and

 Engineering; University of Denver, Denver, Colorado

2002-07 Dean; Division of Natural Sciences, Mathematics, and

 Engineering (which subsequently became Natural Sciences and Mathematics); University of Denver, Denver, Colorado

**III. Research Interests:**

My current interests involve the relevance of cytochrome P450 polymorphism in forensic medicine and akathisia-related acts of violence. Violence and mortality caused by psychiatric drugs do not receive much attention from forensic medical examiners. Akathisia, the most dangerous adverse drug reaction reported for these drugs, is hardly known and seldom recognized within the forensic medical community. By using data from suicide epidemiology, medication as a cause of suicide, homicide and other violence has been accepted in legal cases. The cytochrome P450 (CYP) enzyme system is primarily responsible for the metabolism of most psychoactive medication, including antidepressants. Diminishing mutations in these CYP genes, called polymorphisms, have an impact on the metabolism of these drugs and their half-lives. DNA tests for these enzyme-producing genes can now be used to predict toxicity and adverse drug reactions which produce akathisia. These reactions can be immediate or delayed. Cause and manner of death, as established by a coroner, have far reaching implications. Suicide committed while in a toxic state might be ruled an accident. Homicide, when committed involuntarily by a person affected by a prescribed medication, elicits a different legal defense than the same act committed by a mentally ill person. The correct diagnosis provides an accused person with a defense of “not guilty by reason of involuntary intoxication” or “non-insane automatism”. Thus, the interactions between drugs and these genes are crucially important in a medico-legal context.

**IV. Articles published or accepted for publication:**

Eikelenboom-Schieveld, Selma J.M. and Fogleman, James C. (2022) Cytochrome P450 Genes:Their Role in Drug Metabolism and Violence. In: Anger, Aggression, and Violence: Causes, Pathology and Treatments. C.R. Martin, V.B. Patel, V.R. Preedy (eds.). Springer Nature. (In Press).

Eikelenboom-Schieveld, Selma J.M. and Fogleman, James C. (2022) Violence Caused by Prescription Medication. In: Anger, Aggression, and Violence: Causes, Pathology and Treatments. C.R. Martin, V.B. Patel, V.R. Preedy (eds.). Springer Nature. (In Press).

Eikelenboom-Schieveld, Selma .J.M. and Fogleman, James C. (2021) Psychoactive Medication, Violence, and Variant Alleles for Cytochrome P450 Genes. Journal of Personalized Medicine 11(5), 426 <https://doi.org/10.3390/jpm11050426>

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Eikelenboom-Schieveld, S.J.M., Lucire, Y., and Fogleman, J.C. (2016) The Relevance of Cytochrome P450 Polymorphism in Forensic Medicine and Akathisia-Related Violence and Suicide. Journal of Forensic and Legal Medicine 41(Jul):65-71.

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Vigil, L.J., Danielson, P.B., Sollars, C., Yee, T.M., and Fogleman, J.C. (2000) Achieving shaker flask-scale densities in miniprep-scale cultures with baffled culture tubes and growth medium H15. Biotechniques 29:1207-1209.

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Danielson, P.B., Foster, J.L.M., McMahill, M.M., Smith, M.K., and Fogleman, J.C. (1998) Induction by alkaloids and phenobarbital of Family 4 Cytochrome P450s in *Drosophila*: evidence for involvement in host plant utilization. Mol. Gen Genetics 259:54-59.

Fogleman, J.C., Danielson, P.B., and MacIntyre, R.J. (1998) The molecular basis of adaptation in *Drosophila*: the role of cytochrome P450s. Evolutionary Biology 30:15-77.

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Foster, J.L.M. and Fogleman, J.C. (1994) Bacterial Succession in necrotic tissue of agria cactus (*Stenocereus* *gummosus*). Applied and Environmental Microbiology 60:619-625.

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Frank, M.R. and Fogleman, J.C. (1992) Involvement of cytochrome P450 in host plant utilization by sonoran desert *Drosophila*. Proc. Natl. Acad. Sci. USA 89:11998-12002.

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Fogleman, J.C., Duperret, S.M., and Kircher, H.W. (1986) The role of phytosterols in host plant utilization by cactophilic *Drosophila*. Lipids 21:92-96.

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Corn, P.S. and Fogleman, J.C. (1983) Extinction of montane populations of the northern leopard frog (*Rana* *pipiens*) in Colorado. Journal of Herpetology 18:147-152.

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Markow, T.A., Fogleman, J.C., and Heed, W.B. (1983) Reproductive isolation in Sonoran Desert *Drosophila*. Evolution 37:649-652.

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Fogleman, J.C., Hackbarth, K.R., and Heed, W.B. (1981) Behavioral differentiation between two species of cactophilic *Drosophila.* III. Oviposition site preference. American Naturalist 118:541-548.

Markow, T.A. and Fogleman, J.C. (1981) Behavioral differentiation between two species of cactiphilic *Drosophila*. I. Adult geotaxis and phototaxis. Experientia 37:145-146.

Fogleman, J.C., Starmer, W.T., and Heed, W.B. (1981) Larval selectivity for yeast species by *Drosophila mojavensis* in natural substrates. Proc. Natl. Acad. Sci. USA 78:4435-4439.

Fogleman, J.C. and Heed, W.B. (1981) A comparison of the yeast flora in the larval substrates of *D. nigrospiracula* and *D. mettleri*. Drosophila Information Service 56:38-39.

Fogleman, J.C., Corn, P.S., and Pettus, D. (1980) The genetic basis of a dorsal color polymorphism in *Rana* *pipiens* Schreber. Journal of Heredity 71:439-440.

Fogleman, J.C. and Wallace, B. (1980) Temperature-dependent development and competitive ability in three species in the *Drosophila affinis* subgroup. American Midland Naturalist 104:341-351.

Fogleman, J.C. (1979) Oviposition site preference for substrate temperature in *Drosophila melanogaster*. Behavioral Genetics 9:407-412.

Fogleman, J.C. (1978) A thermal gradient bar for the study of *Drosophila*. Drosophila Information Service 53:212-213.

**V. Other major professional contributions:**

**A. Abstracts**

Al-Zahrani, A., Danielson, P.B., and Fogleman, J.C. (2000) Heterologous expression of two novel insect cytochrome P450s: CYP4D10 and CYP28A1. J. Colorado-Wyoming Acad. Sci. 32:24.

Vigil, L.J., Fogleman, J.C., and Danielson, P.B. (2000) Expression of NADPH-cytochrome P450 oxidoreductase. J. Colorado-Wyoming Acad. Sci. 32:19.

Azadan, R., Fogleman, J.C., and Danielson, P.B. (2000) High throughput automated plasmid preparation procedure utilizing 96-well DNA binding filter plates. J. Colorado-Wyoming Acad. Sci. 32:6.

Vigil, L., Yee, T., Danielson, P.B., and Fogleman, J.C. (1999) Modified method for increasing the yield of recombinant plasmid using bacterial growth medium-H15. J. Colorado-Wyoming Acad. Sci. 31:13.

Robertson, T.A., Danielson, P.B., Fogleman, J.C., and Al-Zahrani, A. (1999) Utility of silent mutations for increased heterologous protein expression due to RNA destabilization. J. Colorado-Wyoming Acad. Sci. 31:11.

Al-Zahrani, A., Danielson, P.B., and Fogleman, J.C. (1999) Isolation and sequence of two novel insect cytochrome P450s: CYP6 and CYP9A. J. Colorado-Wyoming Acad. Sci. 31:5.

Smith, M.K., Danielson, P.B., and Fogleman, J.C. (1997) Use of fusion proteins in the expression of novel Drosophila cytochrome P450 genes. J. Colorado-Wyoming Acad. Sci. 29:12.

Dec, E.K., Danielson, P.B., and Fogleman, J.C. (1997) Molecular Cloning of HADPH cytochrome P450 reductase out of Drosophila mettleri. J. Colorado-Wyoming Acad. Sci. 29:11.

Wojcik, N.A., Danielson, P.B., and Fogleman, J.C. (1997) Molecular cloning of the first insect mitochondrial cytochrome P450s. J. Colorado-Wyoming Acad. Sci. 29:10

Reeves, S.A., Danielson, P.B., and Fogleman, J.C. (1997) Identification of a novel insect P450 with homology to mammalian nifedipine oxidase. J. Colorado-Wyoming Acad. Sci. 29:10

McMahill, M.S., Danielson, P.B., and Fogleman, J.C. (1997) Phylogenetic relationships among desert and related species of *Drosophila* based on *RP49* sequence data. J. Colorado-Wyoming Acad. Sci. 29:10.

Danielson, P.B., Phillips, M.E., Dec, E.K. and Fogleman, J.C. (1995) Expression of cytochrome P450 mRNA throughout the life cycle of cactophilic *Drosophila*. J. Colorado-Wyoming Acad. Sci. 27:14.

Danielson, P.B., McMahill, M.S., Hoover, S.C., Phillips, M.E., Ulanoski, M.K. and Fogleman, J.C. (1995) Induction by catus tissue and phenobarbital of cytochrome P450 mRNA in alkaloid-tolerant *Drosophila*. J. Colorado-Wyoming Acad. Sci. 27:14.

Danielson, P.B., Ulanoski, M.K., Hoover, S.C., Foster, J.L.M. and Fogleman, J.C. (1995) Use of 3' RACE PCR for the isolation of multiple cytochrome P450 cDNAs from alkaloid-tolerant *Drosophila*. J. Colorado-Wyoming Acad. Sci. 27:13.

Danielson, P.B., MacIntyre, R.J. and Fogleman, J.C. (1995) Isolation of novel cytochrome P450 genes from alkaloid-tolerant cactophilic *Drosophila* and their phylogenetic relatives. J. Cellular Biochemistry 21A: 196.

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**B. Other**

Eikelenboom, S. and Fogleman, J. (2016) Cytochrome P450, SSRI’s and Violence. Poster Presentation at the 2016 Conference “Individualizing Medicine, Advancing Care Through Genomics” organized by the Mayo Clinic. Rochester, MN

Eikelenboom, S., Lucire, Y., and Fogleman, J.C. (2016) The relevance of Cytochrome P450 polymorphism in forensic medicine and akathisia-related violence and suicide. Contributed paper, GPS 2016 Conference “Goals, Purposes and Strategies for Prisoner and Staff Mental Wellbeing in Custody”, Royal Australian and New Zealand College of Psychiatrists, Fremantle, Western Australia.

Eikelenboom, S., Lucire, Y., and Fogleman, J.C. (2015) From personalized medicine to personalized justice: The promises of translational pharmacogenomics in the justice system. Pharmacogenetic assessment of three homicides. Poster presentation, 2015 Joint Meeting of The Australasian Pharmaceutical Science Association (APSA) and The Australasian Society of Clinical and Experimental Pharmacologists and Toxicologist (ASCEPT), Hobart, Tasmania, Australia.

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Danielson, P.B and Fogleman, J.C. (1995) Evolution of Divergent Patterns of Allelochemical Responsiveness in Novel Drosophilid P450s. Poster presentation, 1995 Mid-West Cytochromes P450 Symposium, Purdue Univerisity, West Lafayette, Indiana.

Danielson, P.B., Dec, E.K. , Hoover, S.C., McMahill, M.S., Phillips, M.E., Ulanoski, M.K. and Fogleman, J.C. (1995) Selective cloning of full length cDNAs from tissue lysates. Contributed paper, 1995 Annual Meeting, Colorado-Wyoming Academy of Science, Colorado Springs, Colorado.

Danielson, P.B., Phillips, M.E., Dec, E.K. and Fogleman, J.C. (1995) Expression of cytochrome P450 mRNA throughout the life cycle of cactophilic *Drosophila*. Contributed paper, 1995 Annual Meeting, Colorado-Wyoming Academy of Science, Colorado Springs, Colorado.

Danielson, P.B., McMahill, M.S., Hoover, S.C., Phillips, M.E., Ulanoski, M.K. and Fogleman, J.C. (1995) Induction by cactus tissue and phenobarbital of cytochrome P450 mRNA in alkaloid-tolerant *Drosophila*. Contributed paper, 1995 Annual Meeting, Colorado-Wyoming Academy of Science, Colorado Springs, Colorado.

Danielson, P.B., Ulanoski, M.K., Hoover, S.C., Foster, J.L.M. and Fogleman, J.C. (1995) Use of 3' RACE PCR for the isolation of multiple cytochrome P450 cDNAs from alkaloid-tolerant *Drosophila*. Contributed paper, 1995 Annual Meeting, Colorado-Wyoming Academy of Science, Colorado Springs, Colorado.

Dec, E.K. and Fogleman, J.C. (1995) The sonoran cactus-*Drosophila* system as a model of P450-mediated insect host plant interactions. Contributed paper, 1995 Annual Meeting, Colorado-Wyoming Academy of Science, Colorado Springs, Colorado.

Danielson, P.B., MacIntyre, R.J. and Fogleman, J.C. (1995) Isolation of novel cytochrome P450 genes from alkaloid-tolerant cactophilic *Drosophila* and their phylogenetic relatives. Poster presentation, 1995 Keystone Symposium "Toward the Genetic Manipulation of Insects,” Tamarron, Colorado.

Danielson, P.B., Frank, M.R. and Fogleman, J.C. (1993) Comparison of larval and adult P-450 activity levels for alkaloid metabolism in desert *Drosophila*. Contributed paper, 1993 Annual Meeting, Colorado-Wyoming Academy of Science, Denver, Colorado.

Danielson, P.B., Frank, M.R. and Fogleman, J.C. (1993) Comparison of larval and adult P-450 activity levels for alkaloid metabolism in desert *Drosophila*. Poster presentation, 1993 Gordon Research Conference, Oxnard California.

Frank, M.R. and Fogleman, J.C. (1993) Differential cytochrome P-450 metabolism of natural and model substrates in Sonoran Desert *Drosophila*. Poster presentation, 1993 Gordon Research Conference, Oxnard California.

Foster, J.L.M. and Fogleman, J.C. (1993) Ecology of bacteria in cactus necroses. Poster presentation, 1993 Annual Meeting, American Society for Microbiology, Atlanta Georgia.

Foster, J.L.M. and Fogleman, J.C. (1992) Do bacteriocins affect the succession of bacteria infecting newly injured cactus tissue? Poster presentation, 1992 Annual Meeting, American Society for Microbiology, New Orleans, Louisiana.

Frank, M.R. and Fogleman, J.C. (1992) The involvement of cytochrome P450 in host plant utilization by desert *Drosophila*. Contributed paper, 1992 Annual Meeting, Southwestern and Rocky Mountain Division of the American Association for the Advancement of Science (AAAS), Tucson, Arizona.

Frank, M.R. and Fogleman, J.C. (1992) The involvement of cytochrome P450 in host plant utilization by desert *Drosophila*. Contributed paper, 1992 Annual Meeting, Colorado-Wyoming Academy of Science, Colorado Springs, Colorado.

Foster, J.L.M. and Fogleman, J.C. (1991) Survey of bacteria in cactus necroses. Poster presentation, 1991 Annual Meeting, American Society for Microbiology, Dallas, Texas.

Foster, J.L.M. and Fogleman, J.C. (1990) Ecology and physiology of the bacteria colonizing newly injured cactus tissue. Poster presentation, 1990 Annual Meeting, American Society for Microbiology, Anaheim, California.

Foster, J.L.M. and Fogleman, J.C. (1989) Bacterial succession in newly injured *Stenocereus* *gummosus* (agria cactus) tissue. Poster presentation, 1989 Annual Meeting, American Society for Microbiology, New Orleans, Louisiana.

Fogleman, J.C. (1987) Interactions of bacteria and plant chemistry in host plant selection by *Drosophila* *mojavensis*. Contributed paper, 28th Annual Drosophila Conference, Chicago, Illinois.

Foster, J.L.M. and Fogleman, J.C. (1987) Microbial colonization of injured cactus tissue. Poster presentation, 1987 Annual Meeting, American Society for Microbiology, Atlanta, Georgia.

Foster, J.L.M. and Fogleman, J.C (1986) Volatile production on necrotic cactus tissue. Poster presentation, 1986 Annual Meeting, American Society for Microbiology, Washington, D.C.

Fogleman, J.C. (1980) Larval niche separation of two species of cactophilic *Drosophila*. Contributed paper, 22nd Annual Drosophila Conference, Snowbird, Utah.

Fogleman, J.C. (1979) The effect of temperature on competitive ability of three species in the *affinis* subgroup of *Drosophila*. Contributed paper, 48th Annual Meeting, Genetics Society of America, Edmonton, Canada.

Fogleman, J.C. (1979) Competition between three species in the *affinis* subgroup. Contributed paper, 21st Annual Drosophila Conference, Bloomington, Indiana.

**VI. Invited papers or lectures presented:**

**A. Research seminars**

1981 Department of Zoology, Arizona State University.

1981 Department of Biology, Illinois State University.

1983 Section of Genetics and Development, Cornell University.

1983 Department of Environmental, Population, and Organismic Biology, University of Colorado.

1985 Department of Biology, University of Colorado at Denver.

1985 Department of Chemistry, Montana State University.

1986 Sigma Xi Seminar Program, Colorado State University.

1986 Department of Entomology, Colorado State University.

1987 Denver Microbiology Club, University of Colorado Health Science Center.

1987 Department of Biology, Syracuse University.

1987 Section of Genetics and Development-Section of Ecology and Systematics, Cornell University.

1988 Department of Genetics, University of Alberta (Canada).

1989 Kempe Research Center, The Children's Hospital, Denver

1992 Department of Biology, University of Tulsa.

1992 Department of Zoology, University of Arkansas.

1992 Department of Entomology, University of Wisconsin, Madison.

1995 Department of Biological Sciences, University of Cincinnati.

1997 Department of Biology, Ithaca College.

1997 Section of Genetics and Development, Cornell University.

1997 Department of Biology, Colorado State University.

1997 Department of Entomology, University of Arizona.

1998 Sigma Xi Seminar Program, University of Denver

**B. Symposia**

1982 NSF Workshop: Ecological Genetics and Evolution. Title: "The role of volatiles in *Drosophila* ecology." Oracle, Arizona.

1985 Southwestern and Rocky Mountain Division of the American Association for the Advancement of Science (AAAS) Symposium: Interactions Among Plants and Animals in the Western Deserts. Title: "Columnar cacti and desert *Drosophila*: Chemistry of host plant specificity." Tucson, Arizona.

1985 American Oil Chemist's Society (AOCS) Symposium: Chemistry, Biosynthesis, and Function of Sterols. Title: "The role of phytosterols in host plant utilization by cactophilic *Drosophila.*" Philadelphia, Pennsylvania.

1989 NSF Workshop: Ecological and Evolutionary Genetics of *Drosophila*. Title: "The ecological and evolutionary importance of host plant chemistry." Armidale, N.S.W., Australia.

1989 Arizona State University (Sponsor) Symposium: Origins of Biodiversity. Title: "The chemistry and bacteriology of necrotic cactus tissue: review and preview." Tempe, Arizona.

1995 Mid-West Cytochromes P450 Symposium. Title: "Diversity and Transcriptional Regulation of P450s in Cactophilic *Drosophila.*" Purdue University; West Lafayette, Indiana.

1995 Third International Symposium “Cytochrome P450 Biodiversity.” Title: "Diversity and Transcriptional Regulation of Cytochrome P450s in Alkaloid-Tolerant Cactophilic *Drosophila.*" Woods Hole, Massachusetts.

1995 Bruce Wallace Symposium. Title: "The Molecular Basis of Adaptation in Desert *Drosophila.*" Cornell University; Ithaca, New York.

1996 NSF Workshop: Molecular, functional, and evolutionary approaches to stress and inducible stress responses: bridging the gaps. Arlington, VA

1998     Fourth International Symposium “Cytochrome P450 Biodiversity.” Title: "Diversity and Evolution of Cytochrome P450s in Insects*.*" Strasburg, France.

2000 Society for Integrative and Comparative Biology Symposium "An Integrative Approach to the Studies of Terrestrial Plant-Animal Interactions." Title: "Chemical Interactions in the Cactus-Microorganism-Drosophila Model System of the Sonoran Desert." Atlanta, Georgia.

2001 European Society for Evolutionary Biology (VIII Congress) Symposium "Genetics of adaptation: major versus minor genes." Title: "Independent Recruitment and Major Gene Effects of Cytochrome P450s in Cactophilic *Drosophila* of the Sonoran Desert." Aarhus, Denmark.

**VII. Research grants/contract awards:**

NSF, "Ecology and Genetics of Cactophilic *Drosophila* and Their Associated

Microflora," (with W.B. Heed and H.W. Kircher), $251,000; 7-15-82 to 9-15-85.

NSF, Subcontract from Syracuse University (W.T. Starmer, P.I.), "A Collaborative Research on the Yeast Flora Associated with *Opuntia* cacti," $10,000;

1-15-84 to 1-15-85.

NIH, "The Plant-Bacteria-*Drosophila* Model System: Interactions,” $353,910;

12-1-85 to 11-30-88.

NIH, Co-PI on Shared Equipment Grant for a transmission electron microscope, $170,000; (s10 RR03995)

The Alfred P. Sloan Foundation, "Molecular Genetics and Evolutionary Divergence of

P-450 Genes in Desert *Drosophila,*" $37,165; 1-1-90 to 12-31-90.

NSF, "Ecological Genetics of Habitat Selection in *Drosophila*: Field Tests, $9,416;

9-15-90 to 2-29-92.

NSF, "Collaborative Research: Ecological and Evolutionary Genetics of P-450 Genes in

Desert *Drosophila*,” $32,000; 8-1-91 to 1-31-93.

USDA, "Cloning P450 Genes Responsible for Alkaloid Resistance, $50,000;

9-15-93 to 9-14-95.

NSF, "Collaborative Research: Ecological and Evolutionary Genetics of

P-450 Genes in Desert *Drosophila*,” $152,584; 2-1-94 to 6-30-97.

NSF, Research Opportunity Award (Supplement), "Collaborative Research: Ecological and Evolutionary Genetics of P-450 Genes in Desert *Drosophila*,” $18,000,

5-15-97 to 1-15-98.

NSF, "Ecological and Evolutionary Genetics of P-450 Genes in Desert *Drosophila*” (with Phil Danielson), $270,000; 7-1-98 to 6-30-03.

NSF, "Acquisition of an Automated DNA Sequencing and Sample Prep Core Unit for Research and Education", $126,798; Co-PI on Shared Equipment Grant (DBI-9977691); 9-15-99.

NSF, "Acquisition of a Real-time Quantitative PCR System for Research and Education”, $100,446; Co-PI on Shared Equipment Grant (DBI-0116722); 9-1-01.

NSF, “A WAVE Nucleic Acid Fragment Analysis System for Research and Education”, $107,296; Co-PI on Multi-User Equipment Grant (DBI- 0200484); 7-1-02.

NIH, “Identification of Genes that Delay ALS onset”, $1,916,512; 5-1-04 to 4-30-09; I joined this project as a co-PI with Cathy Kunst in January, 2008.

**VIII. Miscellaneous:**

Reviewer for numerous journals, NSF, NIH, USDA, and the National Geographic Society.

Member of the Executive Committee of the Colorado-Wyoming Academy of Science, 1986-1989.

Member of the Editorial Board for the journal, *Applied and Environmental Microbiology*, 1990-1999.

Member of the Population Biology Panel, National Science Foundation (Spring 1994).

Member of the Graduate Fellowships Panel (Biology), National Science Foundation

(1995 -1997).

Member of the Special Emphasis Panel: Multidisciplinary Science, National Science Foundation (Spring 1997).

Ad Hoc Member of the Tropical Medicine and Parasitology Panel, National Institutes of Health (July 1997, Nov. 1997, and Nov. 1998).

Chair of the Graduate Fellowships Panel (Environmental Life Sciences), National Science Foundation (1998 - 1999).

Member, Board of Trustees, Eleanor Roosevelt Institute, Denver, CO (2003-2007).

**IX. Courses Taught at DU:**

General Ecology

 General Genetics

 Population Genetics

 General Microbiology

Molecules to Humankind

Biostatistics

 First Year Seminar

 Coral Reef Ecology