

CURRICULUM VITAE
James Gregory Ferry
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BACKGROUND

Address: Department of Biochemistry & Molecular Biology, Pennsylvania State University, University Park, PA, 16802-4500. Voice: 814/863-5721. Electronic: jgf3@psu.edu

Personal: Born November 22, 1943. Married to Marilyn Ann Ferry, nee Mialki (1965). Daughters Karen (1966) and Jennifer (1968).

Education: Postdoctoral training in biochemistry at the University of Georgia (1974-76). Ph.D. in microbiology/biochemistry from the University of Illinois (1974). B.S. in agronomy/soil microbiology from the University of Georgia (1968).

Interests: Physiology, biochemistry, and molecular biology of procaryotic anaerobes.

Employment: Stanley Person Professor (1997-present), Department of Biochemistry & Molecular Biology, Penn State University • Professor of Microbiology (1995-1996), Department of Biochemistry & Molecular Biology, Penn State University • Professor of Microbiology (1986-95), Department of Biochemistry and Anaerobic Microbiology, Virginia Polytechnic Institute and State University • Assistant (1976-81) and Associate (1981-86) Professor of Microbiology, Department of Anaerobic Microbiology, Virginia Polytechnic Institute and State University • Resident Faculty (Summer, 1984), Marine Biological Laboratory, Woods Hole, MA • Visiting Instructor (Summers, 1976-78), Marine Biological Laboratory, Woods Hole, MA • Research Associate (1974-76), Department of Biochemistry, University of Georgia • Research Assistant (1971-74), Department of Microbiology, University of Illinois.

Honors: American Society for Microbiology – Graduate Teaching Award (2001) • Elected Fellow of the American Academy of Microbiology (1992) • NATO Visiting Professorship (1985) • NIH Postdoctoral Fellowship, University of Georgia (1974-76) • USPH Traineeship in Microbiology, University of Illinois (1972-74) • NDEA Fellowship, University of Illinois (1969-70) • George D. Scarseth Scholarship Award, University of Illinois (1970) • A. L. Lang Fellowship Award, University of Illinois (1970).

PROFESSIONAL

Service: Member, American Society for Microbiology, Graduate Microbiology Teaching Award Selection Committee (2003 - present) • Director, Center for Microbial Structural Biology, Pennsylvania State University (1996 - present) • Editorial Board, *Annals of Microbiology* (2000 – present) • Member of the International Committee on Systematic Bacteriology - Subcommittee on the Taxonomy of Methanogenic Bacteria (1986-present) • Member, American Society for Microbiology (1976-present) • Editor, *Journal of Bacteriology* (1992-2002) • Member, American Society for Microbiology, Committee on Graduate Education (2003 - 2006) • Member, NASA Mars Sample Workshop (2000) • Member, (Ad Hoc), Microbial Physiology and Genetics Study Section, National Institutes of Health (2000) • Member, National Science Foundation Graduate Fellowship Evaluation Panel (1993-96) • Member, Workshop on the Changing Environment for Biological Sciences in our Nation's Colleges and Universities (1996) • Member, National Science Foundation, Young Investigator Awards Evaluation Panel (1994) • Chair, American Society for Microbiology, Division K (1993-94) • Member, Department of Energy, Subsurface Microbiology Program Grant Proposal Study Section (1993) • Chair-Elect, American Society for Microbiology, Division K (1992-93) • Co-chair, International Symposium on Topics in Microbial Diversity, Metabolism, and Physiology (1992) • Member, Editorial board, *Journal of Bacteriology* (1987-91) • Member, editorial board, *Applied and Environmental Microbiology* (1983-91) •

Member, American Academy of Microbiology colloquium on Scientific Foundations of Bioremediation: Current Status and Future Needs (1991) • Member, Department of Energy-Biological Energy Research Program, Grant Proposal Study Section (1982,86,90) • Member, National Institutes of Health-Special Grant Proposal Study Section, Human Genome and Model Organisms Project (1989) • Member, National Institutes of Health-Special Grant Proposal Study Section (1988) • Member, Department of Energy, Advanced Research and Technology Development program review panel (1987) • Member, Solar Energy Research Institute and United States Department of Energy, Grant Proposal Review Panel (1987) • Member, Council of Gordon Research Conferences (1987) • Chairman, Gordon Research Conference, Biochemistry and Molecular Genetics of Methanogenesis (1987) • Member, Office of Naval Research-Program in Molecular Biology Grant Proposal Study Section (1985) • Member, National Institutes of Health - Microbial Physiology and Genetics *ad hoc* Grant Proposal Study Section (1984,85) • Resident faculty at the Marine Biological Laboratory, Woods Hole, MA (Summer, 1984) • Visiting instructor at the Marine Biological Laboratory, Woods Hole, MA (Summers, 1976-78).

Invited lectures and seminars: 11th Evolutionary Biology Meeting, Marseille, France (2007) • National Workshop on Astrobiology, Capri, Italy (2005) • Italian National Research Council, Institute of Protein Biochemistry, Naples (2005) • University of Naples, Department of Biological Chemistry (2005) • University of Florence (2005) • International symposium on Archaea, the First Generation, Germany (2005) • Gordon Research Conference on Archaea: Ecology, Metabolism and Molecular Biology (2005) • International symposium on Syntrophic Microbiology, UCLA (2005) • University of Queensland, Brisbane (2005) • University of New South Wales, Sydney (2005) • National Academies Workshop on the Limits of Organic Life in Planetary Systems (2004) • Gordon Research Conference on Molecular Basis of Microbial One-Carbon Metabolism (2004) • American Chemical Society Annual Meeting (2004) • Macquarie University, Sydney (2004) • 5th International Conference on Extremophiles (2004) • Australian Society for Microbiology (2004) • University of Maryland (2004) • 6th International Conference on the Carbonic Anhydrases, Bratislava, Slovakia (2003) • Northeastern University (2003) • Gordon Research Conference on Archaea: Ecology, Metabolism, & Molecular Biology (2003) • University of Bologna (2002) • Rutgers University (2002) • Gordon Research Conference on Environmental Bioinorganic Chemistry (2002) • Gordon Research Conference on the Molecular Basis of One-Carbon Metabolism (2002) • 4th International Congress on Extremophiles, Naples (2002) • Stanford University (2001) • Utah State University (2001) • Cornell University (2001) • University of New South Wales (2001) • Georgia Institute of Technology (2000) • National Institutes of Health (2000) • University of Georgia - Power of Anaerobes Conference (2000) • University of Wisconsin-LaCrosse - Symposium on Industrial and Fermentation Microbiology (2000) • University of Washington - Conference on Carbonic Anhydrase (2000) • Gordon Research Conference (1999) • Keystone Symposium (1999) • Duke University (1999) • Wake Forest University (1999) • Purdue University (1999) • University of California, Santa Barbara (1999) • University of Delaware (1999) • Italian Society for Molecular Biology and Biophysics (1998) • Gordon Research Conference (1998) • University of Maryland (1998) • University of Georgia (1998) • Royston C. Clowes Memorial Lecture, University of Texas-Dallas (1998) • University of Texas-Dallas (1998) • Texas A&M University (1998) • Northern Illinois University (1997) • University of Florida (1997) • University of Minnesota (1997) • University of Georgia (1996) • Gordon Research Conference (1996) • Max-Planck Institut für Biochemie, Martinsreid (1996) • Phillips University, Marburg (1996) • Penn State Lectures on the Frontiers of Science (1996) • Hershey Medical Center, Penn State University (1996) • American Society for Microbiology Annual Meeting (1996) • University of Washington (1996) • Utah State University (1996) • University of Utah (1996) • Bridgewater College (1996) • Clemson Technical Center (1996) • Fourth International Conference on the Carbonic Anhydrases, Oxford University (1995) • Microbial Physiology Summer Course, Ohio State University (1995) • Ludwig Maximilians Universität (1995) • Eighth International Symposium on Microbial Growth on C₁ Compounds, California Institute of Technology (1995) • Symposium on Topics in Rumen Microbiology, the Environmental Applications of Microorganisms and Biodiversity, University of Illinois (1995) • University of Massachusetts (1995) • Stanford University (1994) • University of California, Los Angeles (1994) • DuPont Central Research and Development (1994) • American Society for Microbiology Annual Meeting (1994) • University of Maryland (1994) • American Society for

Microbiology Annual Meeting (1993) • University of Wisconsin (1993) • Gordon Research Conference on Molecular Aspects of Methanogenesis (1993) • University of Georgia (1992) • University of Nebraska (1992) • International Conference on Bioinorganic and Biotechnological Aspects of Environmental Chemistry, University of Florence (1992) • Seventh International Symposium on Microbial Growth on C-1 Compounds, University of Warwick (1992) • International Symposium on Topics in Microbial Diversity, Metabolism and Physiology, University of Illinois (1992) • American Society for Microbiology Annual Meeting (1992) • Medical College of Virginia (1992) • University of Iowa (1992) • The Sixteenth International Congress on Microbial Ecology and Disease, Virginia Tech (1991) • American Society for Microbiology Annual Meeting (1991) • The Pennsylvania State University (1991) • FASEB Summer Research Conference on Folic Acid, Vitamin B-12, and One-Carbon Metabolism (1990) • Gordon Research Conference on Molecular Aspects of Methanogenesis (1990) • American Society for Microbiology, 90th Annual Meeting (1990) • Cornell University (1990) • IGT International Symposium on Gas, Oil, Coal, and Environmental Biotechnology (1989) • Shimizu Institute of Technology, Tokyo (1989) • University of Regensburg (1989) • University of Ulm (1989) • Sixth International Symposium on Microbial Growth on C-1 Compounds, University of Göttingen (1989) • University of California, Los Angeles (1989) • University of Oklahoma (1989) • Swiss Federal Institute, Zurich (1988) • University of Bologna (1988) • Twenty seventh Plenary Meeting of the International Committee on Space Research, Helsinki (1988) • Marine Biological Laboratory, Woods Hole (1988) • Michigan State University (April, 1988) • University of Nijmegen (1987) • Technical University of Delft (1987) • Cornell University (1987) • Gordon Research Conference on Applied and Environmental Microbiology (1987) • Gordon Research Conference on Molecular Aspects of Methanogenesis (1987) • Purdue University (1987) • Mobil Oil Corporation, Central Research Laboratory, Princeton (1987) • Symposium on the Biotechnology of Anaerobic Digestors, North Carolina State University (1986) • Fifth International Symposium on Microbial Growth on C-1 Compounds, University of Groningen (1986) • Stanford University (1986) • University of California, San Francisco (1986) • University of Florida (1986) • Salk Institute Biological Associates, San Diego (1986) • University of California, Los Angeles (1986) • Ohio State University (1985) • Hydrogen Transfer Workshop, Woods Hole (1985) • Archaeobacteria Workshop, Max Planck Institute for Biochemistry, Munich (1985) • Celanese Chemical Company (1985) • University of California, Davis (1984) • Gordon Research Conference on Biochemistry of Methanogenesis (1984) • Genetics Institute (1984) • Michigan State University (1984) • University of California, Los Angeles (1984) • Massachusetts Institute of Technology (1983) • University of Pisa (1983) • University of Bologna (1983) • University of Georgia (1983) • Cornell University (1982) • Corn Products Company, Chicago (1981) • Argonne National Laboratory (1981) • University of California, Berkeley (1980) • Catholic University (1980) • National Bureau of Standards, Washington (1980) • University of South Carolina (1979) • Office of Naval Research, Washington (1978) • Stanford University (1977) • Clemson University (1977) • Woods Hole Oceanographic Institution (1976) • Purdue University (1976) • CNRS Marseille, France (1975) • University of Minnesota (1974).

TEACHING

Graduate courses taught (Virginia Polytechnic Institute and State University): "Comparative Metabolism of Anaerobic Bacteria" (AL 5160); 1977-94; the mean student evaluation for 1977-94 was 3.6/4.0. • "Graduate Seminar" (AL 5101); 1977, 82, 84, 86, 87, and 1989.

Graduate courses taught (Penn State University): "Molecular Biology of Prokaryotic Anaerobes" (BMB 497B), 1996-01; "Astrobiology" (GEOSC 497C), 2001; "Microbial Diversity" (MICRB 413), 2001; "Biochemistry and Molecular Biology of Anaerobic Prokaryotes" (MICRB 497B), 2004.

Past undergraduate thesis students: Ms. Theresa Koehler • Mr. Christopher Bradburn • Mr. Sean O'Hearn.

Past M.S. students: Mr. David J. Aceti • Ms. Carole A. Dellinger • Ms. Carole J. McIntyre • Mr. Christopher Peer • Mr. Kevin Hill

Past Ph.D. students (post position): Dr. Stephen F. Baron (Postdoctoral Associate, Virginia Commonwealth University Medical College) • Dr. Andrew P. Clements (Postdoctoral Associate, National Institutes of Health) • Dr. John D. Haddock (Postdoctoral Associate, University of Iowa) • Dr. Peter E. Jablonski (Postdoctoral Associate, University of Idaho) • Dr. Matthew T. Latimer (Postdoctoral Associate, NCI, Frederick, MD) • Dr. Harold D. May (Postdoctoral Associate, USDA Albany, CA) • Dr. Neil L. Schauer (Postdoctoral Associate, University of Georgia) • Dr. Kevin R. Sowers (Postdoctoral Associate, University of California, Los Angeles) • Dr. Katherine C. Terlesky (NSF Postdoctoral Fellow, Ohio State University) • Dr. Birgit E. Alber (Postdoctoral Associate, Frieburg University, Germany; Assistant Professor, Ohio State University) • Dr. Ubolsree Learsakulpanich (Research Scientist, National Science and Technology Development Agency, Thailand) • Dr. Tong Zhao • Dr. Rebecca Miles (DesignWrite, Inc.) • Dr. Birtha Borup (Maxigen, Inc.) • Dr. Prabha Iyer (Postdoctoral Associate, Pennsylvania State University; Scientist, J. Craig Venter Institute) • Dr. Francisco Cruz (Postdoctoral Associate, Emory University) • Dr. Sarah Lawrence (Postdoctoral Associate, Fox Chase Cancer Center) • Dr. Sabrina Zimmerman (Scripps, San Diego, CA).

Past Postdoctoral students (post position): Dr. Darren R. Abbanat (Research Scientist, American Cyanamid Company) • Dr. Derrick R. Lovley (Research Scientist, USGS, VA) • Dr. Leon L. Lundie, Jr. (Assistant Professor, New Mexico State University) • Dr. Michael J.K. Nelson (Research Scientist, ECOVA) • Dr. Pramathesh S. Patel (Research Scientist, Squibb Laboratories) • Dr. Rolf Schauder (Assistant Professor, J.W. Goethe Universität, Germany) • Dr. W. Bruce White (Senior Research Associate, USDA, Ames, Iowa) • Dr. Madeline Rasche (Assistant Professor, University of Florida) • Dr. Julie Maupin-Furlow (Assistant Professor, University of Florida) • Dr. Kavita Singh-Wissmann (Research Scientist, Monsanto). • Dr. Cheryl Ingram-Smith (Research Associate, Clemson University) • Dr. Robert Barber (Assistant Professor, University of Wisconsin-Parkside) • Dr. Kerry Smith (Assistant Professor, Clemson University, 2001) • Dr. Brian Tripp (Assistant Professor, Western Michigan University, 2001) • Dr. Richard Ding (Senior Research Associate, University of Massachusetts) • Dr. Andrea Gorrell (Assistant Professor, University of Northern British Columbia) • Dr. Qingbo Li (Assistant Professor, University of Illinois, Chicago).

Current Ph.D. students: Mr. Eric Patridge • Mr. Mingyu Wang • Mr. Matt Reichlen.

Current postdoctoral students (Ph.D.-granting institution): Dr. Daniel Lessner (University of Iowa) • Dr. Suharti Suharti (Technical University of Delft) • Dr. Ricardo Jasso-Chavez (University of Mexico) • Dr. Iris Porat (University of Georgia).

RESEARCH

Past funding: The Upjohn Company, *Methanogenic Inhibitors*, \$19,000 (1979-81). • The Upjohn Company, *Biosynthesis of Coenzyme F₄₂₀*, \$13,640 (1981-82). • Pratt Animal Nutrition Program, *Identification of Potential Feedstuff Additives Highly Specific for the Inhibition of Waste Gas Production in Ruminants*, \$34,421 (1979-81). • Pratt Animal Nutrition Program, *Mechanism of Methane Inhibition in the Rumen by Monensin*, \$35,200 (1982-84). • National Science Foundation, *Hydrogenase- and Hydrogenase-Linked Electron Transport in Methanogenic Bacteria*, \$63,326 (co-investigator), (1979-81). • National Science Foundation, *Hydrogenase- and Formate Dehydrogenase-Linked Electron Transport in Methanogenic Bacteria*, \$80,000 (1981-84). • Syracuse Research Corporation, *Evaluation of Glycolic Acid as a Substrate for Methanogenesis*, \$24,930 (1981-82). • Gas Research Institute, *Microbiological Studies Towards Optimization of Methane From Plant Biomass*, \$126,919 (co-investigator) (1979-82). • Gas Research Institute, *Microbiological and Chemical Studies on the Anaerobic Conversion of Coal-Derived Compounds to Methane*, \$143,544 (1982-84). • Gas Research Institute, *Microbiological and Biochemical Studies Towards Optimization of Substrate Utilization by Methanogenic Bacteria*, \$408,385 (1982-85). • Genetics Institute, *Genetics of Methanogenic Bacteria*, \$50,260 (1984-86). • Dynatech, *Biochemical Studies on Ring Fission by Anaerobic Bacteria*, \$50,000 (1985-1987). • Gas Research Institute, *Enzymological and Genetic*

Studies of One-Carbon Reactions in the Pathway of Acetate Utilization by Methanogenic Bacteria, \$519,831 (1986-88). • National Science Foundation, *Hydrogenase- and Formate Dehydrogenase-Linked Electron Transport in Methanogenic Bacteria*, \$183,000 (1984-88). • Department of Energy, *Enzymological Studies of One-Carbon Reactions in the Pathway of Acetate Utilization by Methanogenic Bacteria*, \$208,998 (1986-1989). • Virginia Center for Innovative Technology, Biotechnology Institute, *Characterization of the Formate Dehydrogenase Operon from Methanobacterium formicum*, \$39,847 (1989-91). • Virginia Center for Innovative Technology, Biobased Materials Center, *Enzymology of the Anaerobic Detoxification of Phenolic Compounds*, \$45,000. (1989-92). • Gas Research Institute, *Molecular Biology of One-Carbon Metabolism in Anaerobic Bacteria*, \$345,000 (1989-92). • Department of Energy, *Enzymological Studies of One-Carbon Reactions in the Pathway of Acetate Utilization by Methanogenic Bacteria*, \$459,000 (1990-95). • Office of Naval Research, *Enzymological and Molecular Genetic Studies to Determine the Potential for Marine Methanogenic Microorganisms to Detoxify Chlorinated Hydrocarbons*, \$414,702 (1991-95). • National Science Foundation, *Biochemistry and Molecular Genetics of Formate Utilization in Methanogenic Bacteria*, \$185,000 (1992-95). • National Institutes of Health, *Molecular Biology of Acetate Conversion to Methane*, \$403,145 (1992-95). • Department of Energy, *Enzymology of the Pathway for Acetate Conversion to Methane in Methanosarcina thermophila*, \$355,000 (1995-98). • E.I. DuPont de Nemours and Company, *Microbial Purification of Dimethylamine*, \$55,000 (1998-99). • Department of Energy, *Conference on Microbial Structural Biology: Novel Enzymes from Diverse Microbes*, \$4,000 (1997-98). • National Science Foundation, *Proteasomes in the Methanogenic Archaea*, \$255,000 (1996-99), principal investigator. • National Institutes of Health, *Prokaryotic Carbonic Anhydrases*, \$921,217 (1996-2000), principal investigator. • National Institutes of Health Fellowship to Dr. Robert Barber, *Regulation and Selectivity of Proteolysis in Archaea*, \$64,336 (1998-2000), sponsor. • Department of Energy, *Enzymology of the Pathway for Acetate Conversion to Methane in Methanosarcina thermophila*, \$324,000 (1998-2001), principal investigator. • National Science Foundation Research Training Grant, *Structure/Function of Novel Enzymes from Diverse Microbes*, \$1,646,355 (\$310,000 proportion) (1996-2004), co-principal investigator. • National Institutes of Health Individual Award for Mr. Frank Cruz, *Biochemistry of a Novel Iron-Sulfur Flavoprotein*, \$66,000 (2000-2003), sponsor. National Aeronautics and Space Administration Penn State Astrobiology Research Center, \$4,633,319 (\$150,000 proportion) (1998-2003), co-principal investigator. • National Institutes of Health, *Enzymology of Acetotrophic Methanogenesis Supplement Frank Cruz*, \$37,843 (2003-2004), P.I. • Department of Energy, *Enzymology of the Pathway for Acetate Conversion to Methane in Methanosarcina thermophila*, \$385,000 (2001-2004), P.I. • National Institutes of Health, *Enzymology of Acetotrophic Methanogenesis*, \$749,242 (2000-2004), P.I. • Advanced Resources International, *Methanogenic Conversion of Carbon Dioxide into Methane*, \$100,000, (2005-2006), P.I.

Current funding: National Science Foundation, *Methanosarcina genomics*, \$1,389,771 (2002-2007), P.I. • NASA National Astrobiology Institute, *Evolution of a Habitable Planet - Oxygen and Anaerobes*, \$294,663 (2003-2008), co-P.I. • NIH National Research Council Fellowship, *Oxygen Adaptation of the Archaeon Methanosarcina thermophila* \$98,000 (2004-2006), sponsor for Dr. Dan Lessner. • Department of Energy, *New Perspectives on Acetate and One-Carbon Metabolism in the Methanoarchaea*, \$360,000, (2005-2008), P.I.

Patents: Jablonski, P. E., and J. G. Ferry. 1995. Use of carbon monoxide dehydrogenase for bioremediation of toxic compounds. United States Patent No. 5,466,600.