CURRICULUM VITAE

Name: Tamar Barkay

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Education:

B.Sc. School of Agronomy, The Hebrew University, Rehovot; June 1974
(Undergraduate degree in Agronomy, major in Microbiology)

M.Sc. Hebrew University, Jerusalem; June 1976
(Master in Environmental Health)

Ph.D. The University of Maryland; December 1980
(Major in Microbiology, Minor in Biochemistry)

Academic positions

Distinguished Professor	Dept. of Biochemistry and Microbiology, Rutgers University, 2015-present
Professor	Dept. of Biochemistry and Microbiology, Rutgers University, 2007 - 2015
Associate Professor	Dept. of Biochemistry and Microbiology, Rutgers University, 2003 – 2007
Assistant Professor	Dept. of Biochemistry and Microbiology, Rutgers University, 1999 - 2003

Other positions held

Research Microbiologist	Environmental Research Laboratory, The Environmental Protection Agency, 1984 – 1996
Visiting Scientist	Dept. of Molecular Microbiology and Biotechnology, Tel Aviv University, Israel, 1997 – 1998

Visiting Associate Professor	Center for Environmental Diagnostics and Bioremediation, University of West Florida, 1998 – 1999
Visiting Professor	National Environmental Research Institute, Aarhus University, Roskilde, Denmark, 2010

Honors and Awards:

Charles H. Revson Postdoctoral Fellowship Award, Weizmann Institute, Rehovot, Israel, 1981 1982.
University of California, Irvine, Career Development Award, 1983.
National Research Council Residence Associateship, 1985 (declined)
The Environmental Protection Agency Scientific and Technological Achievement Award in the Category of Ecology - Level II, 1988
American Academy of Microbiology, elected member, 1990
Research Excellence Award, Cook College, Rutgers University, 2004
The Waksman Award, Theobald Smith Society, 2005
A European Commission's Marie-Currie Incoming Scholar Program award (€143,000) given for a project titled "MERCTIC - Mercury biogeochemistry in the high Arctic". 2010
The Board of Trustees Award for Excellence in Research, Rutgers University, 2015
Elected member of the AAAS, 2015

External Grants and Contracts:

National Science Foundation. Population Biology and Physiological Ecology. "An assessment of stressor induced gene occurrence in Soil Bacterial Communities". Co-Principal Investigator 1985-1986.
EPA Region IV, RARE study on "Investigation on specific rates of mercury transformations as a source of methylmercury contamination in the Everglades drainage Basin". Oct. 1991 - Sept. 1992. $50,000
Electric Power Research Institution, Palo Alto, CA. "Bioremediation of mercury contaminated sites". Jan. 1992 - December 1993. $215,487.
Parks Service, Everglades National Park. "Methylation and demethylation Rrtes in Everglades soils". Oct. 1991 - Sept. 1993. $86,000.
Electric Power Research Institution, Palo Alto, CA. "Genomic Characterization of environmental Isolates of *Pseudomonas cepacia*". Co-principle investigator with T.G. Lessie. July 1995 - June 1998. $225,000.
National Science Foundation. Environmental Geochemistry/Biogeochemistry Program. "Mercury biogeochemistry in a semi-arid aquatic ecosystem: Processes controlling methylation and demethylation" Co-principle investigator (1 of 5). Sept. 1995 - Aug. 1998. $583,179.
National Science Foundation. International Division. "Mercury biogeochemistry in the Idrija river system, Slovenia: Processes controlling methylation and demethylation" .Co -principle investigator (1 of 5). June 1997 - July 2000. $51,515.

Israel Ministry of Science. Infrastructure Research. "Center for bioremediation of pollutants from industrial, urban and agricultural origin" Co-principle investigator (1 of 7). Jan. 98 Dec. 2000. IS 8,886,380 ($2.5 M).

Fisheries and Oceans, Canada. "The preparation of *mer-gfp* bioassessors for Hg(II)". Dec. 1998 - March, 2000. $20,000.

Aluminum Company of America, Inc., "The development of bioassessors for determination of mercury that is bioavailable to mercury methylating bacteria in anaerobic sediments". Jan. 1999 - Dec. 2001. $150,000

National Science Foundation. Environmental Geochemistry/Biogeochemistry Program. "Collaborative study: Mercury cycling in soils: Dynamic sources for aquatic environments". Sept. 1999 - Aug. 2002. $138,000.

Department of Energy. NABIR Program. "Molecular and microcosm analyses of the potential for gene transfer in radionuclei and metal-contaminated subsurface environments". Sept. 1999 - Aug. 2002. $809,000.

National Science Foundation. International Division. "Mercury biogeochemistry in the Idrija river system, Slovenia: Processes controlling methylation and demethylation" .Co-principle investigator (1 of 4). Sept. 1999 - Aug. 2002. $64,000.

New Jersey Water Resources Research Institute. "Factors controlling methylmercury degradation in Pine Barrens lakes". March 2000 – Feb. 2002. $55,000.

Meadowlands Environmental Research Institute. "Factors controlling mercury contamination in Berry's Creek and downstream ecosystems". 2002 – 2003. $63,602

Department of Energy. NABIR Program. "Lateral gene transfer among subsurface bacteria". Lead PI (with P. Sobecky, GA Technical U.). Sept. 2002 - Aug. 2006. $818,476.

National Science Foundation. Biocomplexity Program. "Atmospheric deposition, transport, transformations and bioavailability of mercury across a northern forest landscape". Co-principle investigator (Lead PI: C. Driscol, Syracuse U.). Aug. 2003 - July 2008. $294,696.

Department of Energy. NABIR Program. "Importance of mobile genetic elements and conjugal gene transfer for subsurface community adaptation to biotransformation of metals". Co-principle investigator (Lead PI: S. Sørensen, U. of Copenhagen). Sept. 2003 - Aug. 2006. $149,251.

National Science Foundation and Dept. of Energy. "A workshop on horizontal gene flow in microbial communities". Co-PI (with B. Smets, Uconn). ~$100.000.

National Science Foundation. Biogeoscience Program. "Collaborative research: Mercury isotope fractionation during microbial and abiotic redox transformations". Co-PI (with Joel Blum, U. of Michigan) Sept. 2004 – Aug. 2008. $226,846.

Department of Energy. NABIR Program. "Microbial pathways for the reduction of mercury in saturated subsurface sediments". Lead PI (with Lily Young and Gerben Zylstra, RU). $694,769. Jan. 2005 – Dec. 2008.

National Science Foundation. Research Experience for Undergraduates supplement to "Collaborative research: Mercury isotope fractionation during microbial and abiotic redox transformations", June 2005 – Aug. 2005. $10,400

E.I. du Pont de Nemours and Co. "Factors controlling methylmercury production in the South River, VA: Substrate bioavailability and potentials for methylation and demethylation". $93,280. Jan. 2008 – Dec. 2008.

Department of Energy. ERSP Program. "Reduction of mercury in saturated subsurface

sediments and its potential to mobilize mercury in its elemental form". Lead PI (with Lily Young, Gerben Zylstra, Nathan Yee, RU and Ravi Kukkadapu, PNNL). $996,813. Sept. 2008 – Aug. 2011.

National Science Foundation/Geobiology&Low Temperature Geochemistry. "Collaborative research: mass-dependent and independent mercury isotope fractionation during microbial methylation and redox transformations of mercury in natural waters". Co-PI (with John Reinfelder, RU, and Joel Blum, University of Michigan). $468,495 (RU part). June 2010 – May 2013.

Department of Energy. SBR Program. "Microbial Oxidation of Hg(0): Its Effect on Hg Stable Isotope Fractionation and Methylmercury Production". Lead PI (with Nathan Yee and John Reinfelder). $1,099,555. Sept. 2011 – Aug. 2014

Utah, Dept. of Environmental Resources. "Mercury Biogeochemistry in Great Salt Lake: The Role of Microorganisms in Methylation". Co-PI (with Bonnie Baxter [Westminster Collage] and Eric Boyd [Montana State University]). $62,082. Sept. 2011 – Aug. 2012.

National Science Foundation/office of Polar Programs. "Collaborative research: Effects of trophic status alterations on pathways of mercury methylation in northern wetlands". Co-PI (with Mark Hines, UMass Lowell. $384,630 (RU part). July 2013 – June 2016

Colgate-Palmolive Co. "The effect of zinc and tin on the growth and oxidative stress response of key oral bacteria". Co-PI (with Jeff Boyd, Rutgers). $145,274. Sept, 2014 - Aug. 2015

Center for Disease Control and Prevention. "Unlocking the microbial ecology of environmental antibiotic resistance". Co-PI (with Nicole Fahrenfeld, Rutgers). $191,904. Oct. 2016 – Sept. 2017.

Internal awards in support of research and research infrastructure:

Cook College, Research Equipment Grant. "An optical thermocycler module to allow the quantitative analysis of specific genes and mRNA transcripts". Dec. 2000. $35,000

Rutgers University Research Infrastructure Award. "Upgrading temperature controlled incubation rooms in Lipman Hall", 2006, $35,000

Rutgers University Research Infrastructure Award." Upgrading of autoclaving facilities in Lipman Hall", 2007, $26,000

NJAES Competitive Intramural Research Program for Illumina sequencing. "'*mer* gene expression to the rescue': the development of a metagenomic/metatranscriptomic approach to study how mercury resistance facilitates microbial community adaptation to mercury toxicity". 2012, $6,697

Internal awards in support of education:

Rutgers University, Research Council Grant. "Factors controlling methylmercury accumulation in New Jersey's freshwater streams". 2001/2002. $1,500.

Rutgers Undergraduate Research Fellow Program. "Identification of *mer* genes in microorganisms from deep sea hydrothermal vents of the East Pacific Rise". (for Yein Chew) 2001 – 2002. $1,500.

Rutgers Undergraduate Research Fellow Program. "Microbial diversity of *mer* genes in bacteria isolated from mercury contaminated environments". (for Christopher Asakiewicz) 2002 – 2003. $1,500.

Rutgers Undergraduate Research Fellow Program. "The isolation and characterization of new organomercury degrading enzymes". (for Rachel Kaletzky) 2002 – 2003. $1,500.
Rutgers Undergraduate Research Fellow Program. "Mercury resistance among bacteria from mercury and sulfur enriched geothermal springs". (for Raul Singh) 2003 – 2005. $1,500.
Grants to Enhance the Undergraduate Curriculum and Teaching. "Experiences in applied and environmental molecular microbiology". Rutgers University. 2004. $5,000.
Rutgers Undergraduate Research Fellow Program. "Isolation and characterization of novel *merA* sequences from anaerobic mercury resistant microorganisms". (for Rita Theofanopoulos) 2004 – 2005. $1,500.

Review boards and committees:

Advisor. Mercury Accumulation Pathways and Processes. Bureau of Research, Wisconsin Department of Natural Resources. 1989
Member of the Editorial Board, Applied and Environmental Microbiology: Jan. 1990 - July 1996.
Member of the Editorial Board, Journal of Industrial Microbiology: Jan. 1996 - Dec. 1998.
Electric Power Research Institute review committee on "Genetic and Microbial Ecology of Biofilms". 1991
Florida Mercury Technical Committee - Advisory committee to Florida DER regarding mercury in fish and wildlife. 1991.
Dept. of Energy, NABIR program, Proposal review panel. 2000
Dept. of Energy, Microbial Genome Program, Proposal review panel. 2001
Dept. of Energy, Science Advisory Board, Sub-committee for the NABIR program. 2003
Dept. of Energy, Genome to Life Program, Proposal review panel. 2003
Rice University, NSF Center of Excellence on Nano-biotechnology. Reviewer, 2003
Nat. Inst. Health. General Medical Sciences. Minority Biomedical Research Support Program. Review panel (by teleconferencing), 2004
Dept. of Energy, Microbial Genome Program, Proposal review panel. June 2004
National Science Foundation, MIP Program, proposal review panel, Nov. 2004
Dept. of Energy, Microbial Genome Program, Proposal review panel. May 2005
National Science Foundation, MIP Program, proposal review panel, Feb. 2006
American Museum of Natural History, Center for Biodiversity and Conservation's annual symposium "Thinking Small: Microbial Diversity and Its Role in Conservation", steering committee, Apr. 2007
National Science Foundation, MIP Program, proposal review panel, Feb. 2007
National Science Foundation, Organism Environment Interactions panel, Oct. 2009
National Science Foundation, Organism Environment Interactions-plants panel, Apr. 2012
Oak Ridge National Laboratory, SFA Science Advisory Committee (Chair since 2011), 2009 – 2013
Dept. of Energy, DOE Office of Science Early Career Research Program, Feb. 2014
Aarhus University, Construction of Villum research Station, Greenland, Science Advisory Board (2013 – 2014)
F1000Research, Science Advisory Board (2014 – present)

Professional Organizations:

American Society for Microbiology
American Association for the Advancement of Science
American Academy of Microbiology
International Society for Microbial Ecology
International Association of Geochemistry

Professional publications:

Olson, B.H., T. Barkay, D. Nies, M. Bellama and R.R. Colwell. 1979. Plasmid mediation of mercury volatilization and methylation by estuarine bacteria. Develop. Ind. Microbiol. **20**:275-284.

Olson, B.H., T. Barkay, and R.R. Colwell. 1979. The role of plasmids in mercury transformations by bacteria isolated from the aquatic environment. Appl. Environ. Microbiol. **38**:278-285.

Barkay, T., B. Olson, and R. R. Colwell. 1979. Heavy metal biotransformations mediated by estuarine bacteria. Manage. Control Heavy Met. Environ. Int. Conf. 1979, pp. 356-363.

McNicol, L.A., T. Barkay, M. J. Voll and R. R. Colwell. 1982. Plasmid carriage in *Aeromonas hydrophila* and other bacteria isolated from the aquatic environment. J. Wash. Acad. Sci. **72**:6066.

Barkay, T., and A. Goldfarb. 1982. Processing of bacteriophage T4 primary transcripts with ribonuclease III. J. Molec. Biol. **162**:299-315.

Barkay, T., S. Tripp, and B. H. Olson. 1983. The effect of sewage Sludge application on cadmium resistance in soil bacterial populations. Manag. Control Heavy Met. Environ. Int. Conf. 1983, pp. 309-313.

Barkay, T., and R. R. Colwell. 1983. Cell wall alteration responsible for increased resistance to mercurials in *Pseudomonas fluorescens* B69. J. Gen. Microbiol. **129**:2945-2950.

Barkay, T., D. L. Johnson, and B. H. Olson. 1984. Use of genetic adaptation to assess pollution in natural environments. Environ. Manag. Int. Conf. London 10-13 July 1984.

Barkay, T., S. Tripp, and B. H. Olson. 1985. The effects of metal rich sewage sludge application on the bacterial communities of grasslands. Appl. Environ. Microbiol. **49**:333-337.

Barkay, T., D. Fouts, and B. Olson. 1985. Preparation of a DNA gene probe for detection of mercury resistance genes in gram negative bacterial communities. Appl. Environ. Microbiol. **49**:686-692.

Colwell, R.R., D. Allen-Austin, T. Barkay, J. Barja, and J. D. Nelson, Jr. 1986. Antibiotic resistance associated with heavy metal mineralization. in: Mineral Exploration Biological

Systems and Organic Matter. Carlisle, W., J. Berry, J. Watterson, and I. Kaplen (eds). Vol. 5. Princeton Hall, Inc. Englewood Cliffs, NJ p. 171-177.

Olson, B. H., and T. Barkay. 1986. The feasibility of using bacterial resistance to metals in mineral exploration. in: Mineral Exploration Biological Systems and Organic Matter. Carlisle, W., J. Berry, J. Watterson, and I. Kaplen (eds). Vol. 5. Princeton Hall, Inc. Englewood Cliffs, NJ p. 171-177.

Barkay, T., D. F. Shearer, and B. H. Olson. 1986. Toxicity testing in soil using microorganisms, in: Toxicity Testing Using Microorganisms Vol. II, Dutka, B. J., and G. Bitton (eds), CRC Press, Boca Raton, FL. p. 133-155.

Barkay, T., and B. H. Olson. 1986. Phenotypic and genotypic adaptation of aerobic heterotrophic sediment bacterial communities to mercury stress. Appl. Environ. Microbiol. **52**:403-406.

Levin, M.A., R. Seidler, A.W. Bourquin, J.R. Fowle III, and T. Barkay. 1987. EPA developing methods to assess environmental release. Bio/technology **5**:38-45.

Trevors, J.T., T. Barkay, and A.W. Bourquin. 1987. Bacterial gene transfer in soil and aquatic environments. A review. Can. J. Microbiol. **33**:191-198.

Barkay, T. 1987. Adaptation of aquatic microbial communities to Hg^{2+} stress. Appl. Environ. Microbiol. **53**:2725-2732.

Ogram, A., G.S. Sayler, and T. Barkay. 1987. The extraction and purification of microbial DNA from sediments. J. Microbiol. Meth. **7**:57-66.

Genthner F.J., P. Chatterjee, T. Barkay, and A.W. Bourquin. 1988. Capacity of aquatic bacteria to act as recipients for plasmid DNA. Appl. Environ. Microbiol. **54**:115-117

Barkay, T., and G.S. Sayler. 1988. Gene probes as a tool for the detection of specific genomes in the environment. in: Aquatic Toxicology and Hazard Assessment: 10th Volume ASTM STP 971, Adams, W.J., G.A. Chapman, and W.G. Landis, (eds), American Society for Testing and Materials, Philadelphia, pp. 29-36.

Barkay, T., and P. Pritchard. 1988. Adaptation of aquatic microbial communities to pollutant stress. Microbiol. Sci. **5**:165-169.

Liebert C., and T. Barkay. 1988. A direct viable counting method for measuring tolerance of aquatic microbial communities to Hg^{2+}. Can. J. Microbiol. **34**:1090-1095.

Barkay, T., D. Chatterjee, S. Cuskey, R. Walter, F. Genthner, and A. Bourquin. 1989. Bacteria and the environment. in: A Revolution in Biotechnology. J. Marx (ed). Cambridge University Press, Cambridge, New Rochelle, Melbourne, Sydney. pp. 94 - 102.

Barkay, T., C. Liebert, and M. Gillman. 1989. The environmental significance of the potential for *mer*(Tn21) mediated reduction of Hg^{2+} to Hg^0 in natural waters. Appl. Environ. Microbiol. **55**:1196-1202.

Barkay, T., C. Liebert, and M. Gillman. 1989. Hybridization of DNA probes with whole community genome for detection of genes that encode microbial responses to pollutants: *mer* genes and Hg^{2+} resistance. Appl. Environ. Microbiol. **55**:1574-1577.

Summers, A.O., and T. Barkay. 1989. Metal resistance genes in the environment. in: Gene Transfer in the Environment. S. Levy, and R. Miller (Eds), McGraw-Hill Publishing Co. New York. pp. 287-308

Barkay, T., and R. Turner. 1989. Gene probes to predict responses of aquatic microbial communities to toxic metals. Manag. Control Heavy Met. Environ. Int. Conf. 1989, pp. 57.

Turner, R., A.J. VandenBrook, T. Barkay, and J.W. Elwood. 1989. Volatilizaiton, methylation and demethylation of mercury in a mercury-contaminated stream. Manag. Control Heavy Met. Environ. Int. Conf. 1989, pp. 353.

Barkay, T., M. Gillman, and C. Liebert. 1990. Genes encoding mercuric reductases from selected gram negative aquatic bacteria have a low degree of homology with *merA* of transposon 501. Appl. Environ. Microbiol. **56**:1695-1701.

Liebert, C., T. Barkay, and R. Turner. 1991. Microbial acclimation to CH_3Hg^+ and Hg^{2+} in a mercury polluted freshwater pond. Microb. Ecol. **21**:139-149.

Barkay, T., R. Turner, A. VandenBrook, and C. Liebert. 1991. The relationships of Hg(II) volatilization from a freshwater pond to abundance of *mer* genes in the gene pool of the indigenous microbial community. Microb. Ecol. **21**:151-161.

Barkay, T., and C. Liebert. 1991. Distribution of metal-resistant microorganisms in the environment, p. 663-682. in: Levin, M.A., R.J. Seidler, and M. Rogul (eds). Microbial Ecology: Principles, Methods, and Applications. McGraw-Hill, Inc., New York.

Barkay, T. The mercury cycle. 1992. Encyclopedia of Microbiology. Vol. 3 p. 65-74. Academic Press, Inc., San Diego.

Barkay, T., R. Turner, E. Saouter, and J. Horn. 1992. Mercury biotransformations and their potential for remediation of mercury contamination. Biodegradation. **3**:147-159.

Barkay, T., C. Liebert, and M. Gillman. 1993. Conjugal gene transfer to aquatic bacteria detected by the generation of a new phenotype. Appl. Environ. Microbiol. **59**:807-814.

Selifonova, O., R. Burlage, and T. Barkay. 1993. Preparation of bioluminescent sensors for detection of Hg(II) in the environment. Appl. Environ. Microbiol. **59**:3083-3090.

Saouter, E., R. Turner, and T. Barkay. 1994. Mercury microbial transformations and their potential for the remediation of a mercury-contaminated site. In: Means, J.L., and R.E. Hinchee (eds), Emerging Technology for Bioremediation of Metals, Lewis Publishers, Boca Raton, FL. pp. 99-104.

Saouter, E., R. Turner, and T. Barkay. 1994. Microbial reduction of ionic mercury for the removal of mercury from contaminated environments. Proceedings of the Symposium on "Recombinant DNA technology II". Ann. NY Acad. Sci. **721**:423-427.

Devereux, R., T. Barkay, and J. Harvey. 1994. Application of microbial ecology research to environmental problems. Water Report: Quality, Resources and Technology **4**:8-11.

Selifonova, O., and T. Barkay. 1994. Role of sodium in transport of mercuric ions and induction of the Tn21 *mer* operon. Appl. Environ. Microbiol. **60**:3503-3507.

Nazaret, S., W.H. Jeffrey, E. Saouter, R. Von Haven, and T. Barkay. 1994. *merA* gene expression in aquatic environments measured by mRNA production and Hg(II) volatilization. Appl. Environ. Microbiol. **60**:4059-4065.

Saouter, E., M. Gillman, R. Turner, and T. Barkay. 1995. Development and field validation of a microcosm to simulate the mercury cycle in a contaminated pond. J. Environ. Toxicol. Chem. **14**:69-77.

Barkay, T., N. Kroer, L.D. Rasmussen, and S. J. Sorensen. 1995. Conjugal transfer at natural population densities in a microcosm simulating an estuarine environment. FEMS Microbiol. Ecol. **16**:43-54.

Barkay, T., S. Nazaret, and W. Jeffrey. 1995. Biodegradative genes in the environment. in: Transformation and Degradation of Toxic Organic Chemicals, Young, L. and C. Cerniglia (eds), J. Wiley Sons, Inc. pp. 545-577.

Saouter, E., M. Gillman, and T. Barkay. 1995. An evaluation of *mer* specified reduction of ionic mercury as a remedial tool of a mercury contaminated freshwater pond. J. Ind. Microbiol. **14**:343-348.

Oremland, R.S., L.G. Miller, P. Dowdle, T. Connell, and T. Barkay. 1995. Methylmercury oxidative degradation potentials in contaminated and pristine sediments of the Carson River, Nevada. Appl. Environ. Microbiol. **61**:2745-2753.

Vaithiyanathan, P., R.G. Kavanaugh, , C.B. Craft, C. J. Richardson, and T. Barkay. 1996. The role of eutrophication in the distribution and potential net methylation of mercury in the peat soils of the Everglade. Env. Sci. Technol. **30**:2591-2597.

Jeffrey, W.H., S. Nazaret, and T. Barkay. 1996. Detection of the *merA* gene and its expression in the environment. Microb. Ecol. **32**:293-303.

Sørensen, S.J., N. Kroer, E. Sørensen, G. Sengeløv, and T. Barkay. 1996. Conjugation in aquatic environments. in: Molecular Microbial Ecology Manual, Akkermans, A.D.L., J.D. van Elsas, and F.J. de Bruijn (eds.), Kluwer Academic Publishers.

Rasmussen, L.D., R.R. Turner, and T. Barkay. 1997. Cell-density dependent sensitivity of a *mer-lux* bioassay. Appl. Environ. Microbiol. **63**:3291-3293.

Barkay, T., M. Gillman, and R.R. Turner. 1997. Effects of dissolved organic carbon and speciation of Hg(II) on bioavailability of mercury. Appl. Environ. Microbiol. **63**:4267-4271.

Barkay, T. 1997. A *mer-lux* reporter system to study factors that determine mercury availability to bacteria. in: Progress in Microbial Ecology, Martins, M.T. M.I.Z. Sato, J.M. Tiedje, L.C.N. Hagler, J. Döbereiner, and P.S. Sanchez (eds), SBM - Brazilian Society for Microbiology, Sâo Paulo, Brazil, pp. 551-557.

Kroer, N., T. Barkay, S.J. Sørensen, and D. Weber. 1998. Effects of root exudates and bacterial metabolic activity on conjugal gene transfer in the rhizosphere of a marsh plant. FEMS Microbiol. Ecol. **25**:375-384.

Barkay, T., R.R. Turner, L.D. Rasmussen, C. Kelly, and J.Rudd. 1998. Lux-facilitated detection of mercury in natural waters. in: Bioluminescent Protocols, LaRossa, R. (ed). Humana Press, Inc. Totowa, NJ. pp. 231-246.

Kurtz, J.C., R. Devereux, T. Barkay, and R.B. Jonas. 1998. Evaluation of sediment slurry microcosms for modeling microbial communities in estuarine sediments. Environ. Toxicol. Chem. **17**:1274-1281.

de Lipthay, J.R., T. Barkay, J. Vekova, and S.J. Sørensen. 1999. Utilization of phenoxyacetic acid by strains using either the *ortho* or *meta* cleavage of catechol during phenol degradation after conjugal transfer of *tfdA*, the gene encoding a 2,4-dichlorophenoxyacetic acid/2-oxoglutarate dioxygenase. Appl. Microbiol. Biotechnol. **51**:207-214.

Rosenberg, E., T. Barkay, S. Navon-Venezia, and E.Z. Ron. 1999. Role of *Acinetobacter* bioemulsans in petroleum degradation. In: Novel Approaches for Bioremediation of Organic Pollution. Fass, R., Y. Flashner, and S. Reuveny (eds) Kluwer Academic/Plenum Publishers, New York, pp/ 171-180.

Barkay, T., S. Navon-Venezia, E.Z. Ron, and E. Rosenberg. 1999. Enhanced solubilization and biodegradation of polyaromatic hydrocarbons by the bioemulsifier alasan. Appl. Environ. Microbiol. **65**:2697-2702.

Barkay, T. The mercury cycle. 2000. Encyclopedia of Microbiology. 2nd edition. Academic Press, Inc., San Diego. pp. 171-181.

Rasmussen, L.D., S.J. Sørensen, T.R. Turner, and T. Barkay. 2000. Application of a *mer-lux* biosensor for estimating bioavailable mercury in soil and its utility in relating the response of soil microbial communities to bioavailable mercury. Soil Biol. Biochem. **32**:639-646.

Hines, M.E., M. Horvat, J. Faganeli, J.-C. Bonzongo, T. Barkay, E.B. Major, K.J. Scott, E.A, Bailey, J.J. Warwick, and W.B. Lyons. 2000. Mercury biogeochemistry in the Idrija River, Slovenia from above the mine into the Gulf of Trieste. Environ. Res. **83**:129-139.

de Lipthay, R.J., T. Barkay, and S.J. Sørensen. 2001. Enhanced degradation of phenoxyacetic acid in soil by horizontal transfer of the *tfdA* gene encoding a 2,4-dichlorophenoxyacetic acid dioxygenase. FEMS Microbiol. Ecol. **35**:75-84.

Barkay, T., and J. Schaefer. 2001. Metal and radionuclide bioremediation: Issues, considerations, and potentials. Curr. Opion. Microbiol. **4**:318-323.

Barkay, T. 2001. Molecular and biochemical investigation of the potential for microbial mercury volatilisation in the Idrijca River – Gulf of Trieste ecosystem. Materials Geoenviron. **48**:109-115.

Schaefer, J.K., R. Dorn, and T. Barkay. 2001. Microbial factors controlling methylmercury accumulation in freshwater ecosystems in New Jersey, USA. Materials Geoenviron. **48**:219-225.

Sørensen, S.J., J. Radnoti de Lipthay, A.K. Müller, T. Barkay, L.H. Hansen, and L.D. Rasmussen. 2002. Molecular methods for assessing and manipulating the diversity of microbial populations and processes. In: Enzymes in the Environment. Burns, R.G. (ed). Marcel Dekker. pp. 363 – 389.

Schaefer, J.K., J. Letowski, and T. Barkay. 2002. *mer*-mediated resistance and volatilization of Hg(II) under anaerobic conditions. Geomicrobiol. J. **19**:87-102.

de Lipthay, J.R. , J. Aamand , and T. Barkay. 2002. Expression of the *tfdA* gene in aquatic microbial communities during degradation of 2,4-dichlorophenoxyacetic acid. FEMS Microbiol. Ecol. **40**:205-214.

Golding G.R., C.A Kelly, R. Sparling, P.C. Loewen, J.W.M. Rudd, and T. Barkay. 2002. Demonstration of facilitated uptake of Hg(II) by *Vibrio anguillarum* and *Escherichia coli* under anaerobic and aerobic conditions. Limnol. Oceanog. **47**:967-975.

Benyehuda, G., J. Coombs, P.M. Ward, D. Balkwill, and T. Barkay. 2003. Metal resistance among aerobic chemoheterotrophic bacteria from the deep terrestrial subsurface. Can. J. microbiol. **49**:151-156.

Barkay, T., S. Miller, and A.O. Summers. 2003. Bacterial mercury resistance from atoms to ecosystems. FEMS Microbiol. Rev. **27**:355-384.

Coombs, J.M., and T. Barkay. 2004. Molecular evidence for the evolution of metal homeostasis genes by lateral gene transfer in bacteria from the deep terrestrial subsurface. Appl. Environ. Microbial. **70**:1698-1707.

Schaefer, J.K., J. Yagi, J. Reinfelder, T. Cardona, K. Ellickson, S. Tel-Or, and T. Barkay. 2004. The role of the bacterial organomercury lyase (MerB) in controlling methylmercury accumulation in mercury contaminated natural waters. Env. Sci. Technol. **38**:4304-4311.

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Turner, R.R., T. Barkay, and L.D. Rasmussen. Recovery of mercury-contaminated sites: Role of mercury-resistant bacteria. 4th International Conference on Mercury as a Global Contaminant, Hamburg, Germany, Aug. 4-8, 1996.

Turner, R.R., T. Barkay, and L.D. Rasmussen. Development and application of an indicator of the bioavailability of mercury to microorganisms. An EPA/DOE Workshop on Mercury Speciation and Bioavailability, Denver, Colorado, Sept. 17-19, 1996.

Bonzongo, J.C., W.B. Lyons, J.J. Warwick, M.E. Hines and T. Barkay. 1997. Levels, speciation and fate of mercury in the Carson River system. Presented at the Geol. Soc. Amer. Annual Meeting, Salt Lake.

Barkay, T., S. Navon-Venezia, P.A. Willumsen, E.Z. Ron, and E. Rosenberg. Alasan-enhanced solubilization and biodegradation of polyaromatic hydrocarbons. Novel Approaches for Bioremediation of Organic Pollution. 42nd OHOLO Conference, Eilat, Israel, May 3-7, 1998.

Barkay, T., S. Navon-Venezia, P.A. Willumsen, E.Z. Ron, and E. Rosenberg. Alasan-enhanced solubilization and biodegradation of polyaromatic hydrocarbons. 98th Annu. Meet. Am. Soc. Microbiol. Atlanta, May 17-21, 1998.

Hines, M.E., M. Horvat, J. Faganeli, J-C.J. Bonzongo, T. Barkay, E.B. Major, K. Scott, E.A. Bailey, J.J. Warwick, and W.B. Lyons. Mercury biogeochemistry in the Idrija River, Slovinia: From above the mine into the Gulf of Trieste. 5th International Conference on Mercury as a Global Pollutant. Rio de Janeiro, Brazil, May 23-28, 1999.

Barkay, T., M. Hines, J-C. Bonzongo, K. Scott, P. Kringelum, W.B. Lyons, J.J. Warwick, And J. Faganeli. Molecular analysis of a mercury contaminated aquatic ecosystem. 99th Annu. Meet. Am. Soc. Microbiol. Chicago, May 30-June 3, 1999.

Hines, M.E., S. Nadig, T. Barkay, J-C.J. Bonzongo, and E.A. Bailey. Mercury methylation/demethylation and the *mer* operon in the Carson River, Nevada. 99th Annu. Meet. Am. Soc. Microbiol. Chicago, May 30-June 3, 1999.

Barkay, T., C. Kelly, G. Golding, K. Scott, and J. Rudd. Microbial "biosensors" to measure bioavailable mercury in the environment. 11th Internationa Biodeterioration and Biodegradation Symposium, Arlington, VA, Aug. 1-6, 1999.

Kelly, C.A., K.J. Scott, J.W.M. Rudd, T. Barkay, and M. Holoka, M. A new, aquatic "bioreporter" for measurement of bioavailable mercury in aquatic environments. A&WMA International Specialty Conference on Mercury in the Environment. Bloomington, Minnesota, September 15-17, 1999.

Barkay, T., S. Sørensen, and N. Kroer. Molecular and microcosms analyses of the potential for gene transfer in radionuclei and metal-contaminated subsurface environments. DOE-NABIR PI Workshop. Reston VA. Jan. 31–Feb. 2, 2000

Barkay, T. Microbial transformations: A critical factor determining Hg toxicity. Invited talk. 100th Annu. Meet. Am. Soc. Microbiol. Los Angeles, May 21–25, 2000.

Barkay, T. Mercury biosensors. Invited talk. Annu. Meet. Can. Soc. Microbiol. Winnipeg, Manitoba, June 11–14, 2000.

Barkay, T., G. Benyehuda, and D. Balkwill. Metal resistance among bacteria isolated from subsurface cores. DOE-NABIR PI Workshop. Warrenton, VA. March 12-14, 2001.

Golding, G., C.A. Kelly, R. Sparling, P.C. Loewen, J.W.M. Rudd, and T. Barkay. Facilitated uptake of mercury at trace concentrations by *Escherichia coli* and *Vibrio anguillarum*. Workshop on the Fate, Transport, and Transformation of Mercury in Aquatic & Terrestrial Environments. West Palm Beach, FL., May 8-10, 2001.

Lipthay, J.R., J. Aamand, and T. Barkay. Expression of *tfdA* in aquatic microbial communities during degradation of 2,4-dichlorophenoxyacetic acid. 9th International Symposium on Microbial Ecology. Amsterdam, The Netherlands, Aug. 26–31, 2001.

J.K. Schaefer, J. Reinfelder, J. Yagi, and T. Barkay. The potential role of *mer*-mediated resistance in controlling methylmercury accumulation in freshwater ecosystems in New Jersey. 102th Annu. Meet. Am. Soc. Microbiol. Salt Lake City, May 19– 3, 2002, and The 34th Mid-Atlantic Industrial & Hazardous Waste Conference, Rutgers University, New Brunswick, NJ, Sept. 20-21, 2002.

Chew Y. S., C. Vetriani, and T. Barkay. Mercury resistance and *mer*A sequences of moderately thermophilic and mesophilic bacteria from hydrothermal vents. 102th Annu. Meet. Am. Soc. Microbiol. Salt Lake City, May 19 – 23, 2002.

Coombs J.M., G. Benyehuda, and T. Barkay. A nested PCR approach to examine the molecular basis of resistance via heavy metal efflux pumps among bacteria of the deep terrestrial subsurface. 102th Annu. Meet. Am. Soc. Microbiol. Salt Lake City, May 19–23, 2002, and Bioremediation and Biodegradation: Current Advances in Reducing Toxicity, Exposure and Environmental Consequences, Asilomar Conference Center, Pacific Grove, California, June 1 – 12, 2002.

Yagi , J.M., and T. Barkay. Determination of mercuric reductase activity of soil microbial communities. 102th Annu. Meet. Am. Soc. Microbiol. Salt Lake City, May 19–23, 2002.

Barkay, T., and J. Schaefer. Microbe-mercury interactions: old paradigms, new frontiers. Bioremediation and Biodegradation: Current Advances in Reducing Toxicity, Exposure and Environmental Consequences. Asilomar Conference Center, Pacific Grove, CA, June 9–12, 2002.

Coombs J.M., G. Benyehuda, J. de Lipthay, S. Sørensen, and T. Barkay. Lateral gene transfer of genes encoding heavy metal efflux pumps in bacteria of the deep terrestrial subsurface. International Symposium on Subsurface Microbiology, Copenhagen, Denmark, Sept. 8–13, 2002, and The 34th Mid-Atlantic Industrial & Hazardous Waste Conference, Rutgers University, New Brunswick, NJ, Sept. 20-21, 2002.

Barkay, T. The role of microbial transformations in controlling methylmercury accumulation in aquatic environments. The 34th Mid-Atlantic Industrial & Hazardous Waste Conference, Rutgers University, New Brunswick, NJ, Sept. 20-21, 2002. Invited talk.

Yagi , J., J. Schaefer, J.-C. Bonzongo, K. Duddleston, K. Haase, M. Hines, and T. Barkay. Factors controlling methylmercury production in bank soils of the Carson River, Nevada. 103th Annu. Meet. Am. Soc. Microbiol. Washington DC, May 18–22, 2003.

Coombs, J.M., and T.Barkay. Lateral transfer of metal homeostasis genes: a comparison between surface bacteria and isolates from the deep terrestrial subsurface. 103th Annu. Meet. Am. Soc. Microbiol. Washington DC, May 18–22, 2003.

Kaletsky, R., A. Chatziefthimiou, M. Fleming, and T.Barkay. Isolation and initial characterization of novel organomercurial lyases. 103th Annu. Meet. Am. Soc. Microbiol. Washington DC, May 18–22, 2003.

Chatziefthimiou , A. D., C. Vetriani, and T. Barkay. Isolation and characterization of mercury resistant, thermophilic, thiosulfate-oxidizing bacgteria from a hot spring in Mount Amiata, italy. 104th Annu. Meet. Am. Soc. Microbiol. New Orleans, May 19–23, 2004.

Ní Chadhain, S. M., S. Hicks, J. Schaefer, T. Barkay, G. J. Zylstra. Novel mercuric reductase genes found in anaerobic communities of mercury contaminated sediments. 104th Annu. Meet. Am. Soc. Microbiol. New Orleans, May 19–23, 2004.

Schaefer, J. K., J. Yagi, T. Cardona-Marek, K. Ellickson, S. Tel-Or, J. Reinfelder, and T. Barkay. The role of the bacterial enzyme, organomercurial lyase, in controlling methylmercury accumulation in mercury contaminated natural waters. 7th International Conference on Mercury as a Global Pollutant. Ljubljana, Slovenia, June 27–July 2, 2004.

Kritee K., B. Klaue, T. Barkay, and J.D. Blum. Mercury isotopic fractionation observed during the reduction of Hg(II) to Hg(0) by the bacterial mercuric reductase. 7th International Conference on Mercury as a Global Pollutant. Ljubljana, Slovenia, June 27–July 2, 2004.

Crespo-Medina, M. T. Barkay, and C. Vetriani. Mercuric reductase enzymes from mesophilic bacteria are optimally active at a moderately thermophilic to thermophilic temperature range. Extremophiles 2004. 5th International Conference on Extremophiles. Cambridge, MD, Sept. 19–23, 2004.

Barkay T, Schaefer, J, Poulain, A. and, Amyot M. Microbial transformations in the mercury geochemical cycle. 15th Goldschmidt Conference. Moscow, Idaho, May 20–25, 2005. Invited talk

Kritee, K., B. Klaue, J. Blum, and T. Barkay. Biological mercury (Hg) isotope fractionation. 15th Goldschmidt Conference. Moscow, Idaho, May 20 – 25, 2005.

Raimondo, M.A., H.S. Humphrys, J. Coombs, T. Barkay, and P.A. Sobecky. 2005. heavy metal resistance of aerobic subsurface chemoheterotrophs obtained from the field research center, oak Ridge, Temmessee. 105th Annu. Meet. Am. Soc. Microbiol. Atlanta, June 5–9, 2005

Wiatrowski, H. A., and T. Barkay. A novel mechanism for reduction of mercury (II) by *Shewanella oneidensis* MR-1. 105th Annu. Meet. Am. Soc. Microbiol. Atlanta, June 5–9, 2005.

Coombs, J., G. Oregaard, I. Torres, C.H. Black, P. Sobecky, and T. Barkay. A functional gene microarray for the detection of a genomic linkage between metal resistance and *inc/rep* genes on broad host Range plasmids. 105th Annu. Meet. Am. Soc. Microbiol. Atlanta, June 5–9, 2005.

Schaefer, J., and T. Barkay. Diversity of mercuric reductase (MerA) genes and transcripts in mercury contaminated waters. 105th Annu. Meet. Am. Soc. Microbiol. Atlanta, June 5–9, 2005.

Yu, R., J. K. Schaefer, C. Dipasquale, and T. Barkay. Molecular characterization of bacterial and archaeal communities in a Hg contaminated Adirondack wetland. North East Microbiology, Physiolgy, and Taxonomy Meeting, Blue Mountain Lake, NY, June 2005.

Barkay, T. Gene transfer in the soil environment. International Union of Microbiological Societies 2005. San Francisco. CA, July 23-28, 2005 - invited

Barkay, T., and J. Coombs. Horizontal gene transfer of metal homeostasis genes and its role in microbial communities of the deep terrestrial subsurface. Society of General Microbiology Symposium on "Micro-organisms in Earth Systems", Keele, England, Sept. 12–15, 2005 – invited.

Barkay, T., and C. Vetriani. Microbe-mercury interactions in geothermal environments: insights into the evolution and origin of microbial mercury detoxification. Gordon Research Conference on Environmental Bioinorganic Chemistry, Andover, NH, June 18–23, 2006 – invited.

Wiatrowski, H., and T. Barkay. Reduction of Hg(II) to Hg(0) by dissimilatory metal reducing bacteria. 8th International Conference on Mercury as a Global Pollutant. Madison, WI, Aug. 11–Aug 16, 2006.

Kritee, K., J. Blum, M. Johnson, B. Berquist, and T. Barkay. The measurement of microbial mercury stable isotope fractionation and its potential utility for distinguishing between Hg sources. 8th International Conference on Mercury as a Global Pollutant. Madison, WI, Aug. 11–Aug 16, 2006.

Crespo-Medina, M., N. Bloom, A. Chatziefthimiou, J. Reinfelder, C. Vetriani, and T. Barkay**.** Interactions of chemosynthetic bacteria with mercury at deep-sea hydrothermal vents. 8th International Conference on Mercury as a Global Pollutant. Madison, WI, Aug. 11–Aug 16, 2006.

Yu, R., C. DiPasquale, and T. Barkay. Molecular characterization of microorganisms in a methylmercury producing Adirondack Wetlands. 8th International Conference on Mercury as a Global Pollutant. Madison, WI, Aug. 11–Aug 16, 2006.

Crane, S., J. Dighton, and T. Barkay. Interactions between mercury and ectomycorrhizal fungi. 8th International Conference on Mercury as a Global Pollutant. Madison, WI, Aug. 11–Aug 16, 2006.

Barkay, T. J. Coombs, and A. Chaziefthimiou. Horizontal gene transfer in microbial communities: Genetic plasticity for coping with environmental change. 4th Okazaki Biology Conference on "Terra Microbiology II", Okazaki, Japan, Sept. 10–15, 2006 – invited.

Øregaard, G., J.R. de Lipthay, T. Barkay, and S.J. Sørensen. High diversity of bacterial mercuric reductase genes from surface and sub-surface soil. 11th International Symposium on Microbial Ecology. Viena, Austria, Aug. 20–25, 2006

Wiatrowski, H., Y. Wang, L. Young, and T. Barkay. Reduction of Mercury (II) to Mercury (0) in Anoxic Enrichment Cultures Derived from Subsurface Sediments. 107th Annu. Meet. Am. Soc. Microbiol. Totonto, May 21–25, 2007

K. Kritee, J. D. Blum, M. W. Johnson, B. A. Bergquist, T. Barkay. Variation In The Extent Of Mercury (Hg) Stable Isotope Fractionation During Reduction Of Hg(II) To Hg(0) By Different Microbial Strains. 107th Annu. Meet. Am. Soc. Microbiol. Totonto, May 21–25, 2007

Crespo-Medina, M,, M. Cuebas, T. Barkay, and C. Vetriani. Isolation and partial characterization of aerobic chemosynthetic thiosulfate oxidizing bacteria from diffuse flow hydrothermal vents from the East Pacific Rise. 107th Annu. Meet. Am. Soc. Microbiol. Totonto, May 21–25, 2007

Yu, R.-Q., T. Barkay, J. K. Schaefer, C. DiPasquale, I. Adatto, M. E. Hines. Molecular Characterization of Microbial Communities in a Methylmercury-Contaminated Adirondack Lake Wetland. 107th Annu. Meet. Am. Soc. Microbiol. Totonto, May 21–25, 2007

Crane, S., T. Barkay, and J. Dighton. Growth Responses to and Accumulation of Mercury by Ectomycorrhizal Fungi. 107th Annu. Meet. Am. Soc. Microbiol. Totonto, May 21–25, 2007

Wang, Y., P. Lu-Irving, D. Krabbenhoft, S. King, and T. Barkay. Relating the Distribution of the Mercuric Reductase Gene (*merA*) to Environmental Gradients in Yellowstone Springs Using Seven Novel Sets of Degenerate PCR Primers that Cover the Known Diversity of *merA*. 107th Annu. Meet. Am. Soc. Microbiol. Totonto, May 21–25, 2007

Wang, Y., P. Lu-Irving, Z. Freedman, and T. Barkay. The mercury resistance (*mer*) system of *Thermus thermophilus* HB27 as a model for evolution of microbe-metal interactions in geothermal envrionemnts. 107th Annu. Meet. Am. Soc. Microbiol. Totonto, May 21–25, 2007

Barkay, T., Y. Wang, P. Lu-Irving, D. Krabbenhoft, S. King, S. Crane, J. Dighton, E. Boyd, and G. Geesey. The effect of environmental conditions on the distribution of the mercuric reductase (*merA*) gene in mercury-enriched acidic and circumneutral hot springs in Yellowstone National Park. Geothermal Biology and Geochemistry in Yellowstone National Park. NSF Research Coordination Network & MAU Thermal Biology Institute 2008 Workshop. Mammoth Hotel, Yellowstone National Park, Wyoming Jan. 10-13, 2008

Freedman, Z. T. Barkay, and G. Geesey. Isoltaion and characterization of early evolving mercury resistant bacteria in Yellowstone National Park. Geothermal Biology and Geochemistry in Yellowstone National Park. NSF Research Coordination Network & MAU Thermal Biology Institute 2008 Workshop. Mammoth Hotel, Yellowstone National Park, Wyoming Jan. 10-13, 2008

Barkay, T. Between a soft metal and a hot place: Mercury microbiology in geothermal environments. 108th Annu. Meet. Am. Soc. Microbiol. Boston, June 1 – 5, 2008 – invited

Kritee, K., T. Barkay, and J. Blum. Absence of magnetic isotope fractionation for Hg during dark biological processes: experimental evidence and theoretical considerations. Am. Geophys. Union Fall meeting 2008, San Francisco, Dec. 2008 - invited

Barkay, T. and N. Yee. Reduction of Hg in saturated subsurface sediments and its potential to mobilize Hg in its elemental form. 3rd DOE-ERSP Annual PI meeting, Washington DC, Apr. 20-23, 2009 - invited

Yee, N., H.A. Wiatrowski, S. Das, C.-C. Lin, M. Parikh, R. Kukkadapu, and T. Barkay. Reduction of Hg(II) to Hg(0) by Magnetite. 3rd DOE-ERSP Annual PI meeting, Washington DC, Apr. 20-23, 2009

Wang, Y., H.A. Wiatrowski, R. John, P. Lu-Irving, L. Young, L. Kerkhof, and T. Barkay. Impact of mercury on denitrifying microbial communities in subsurface sediments. 109th Annu. Meet. Am. Soc. Microbiol. Philadelphia, May 17 – 21, 2009

Freedman, Z. T. Barkay, Y. Wang, and G. Geesey. Isolation of Chemoautotrophic Mercury Resistant Bacteria from microbial mats in Yellowstone National Park. 109th Annu. Meet. Am. Soc. Microbiol. Philadelphia, May 17 – 21, 2009

Yu, R-Q., T. Barkay, R. Turner, J.R. Flanders, and E. Mack. Potentials for Microbial Methylmercury Production in the South River, VA. 109th Annu. Meet. Am. Soc. Microbiol. Philadelphia, May 17 – 21, 2009

Chatziefthimiou, A.D. A.L. Isola, and T. Barkay. Mercury Contamination and its Effects on Phylogenetic and Functional Diversity of Soil Hg^R Bacteria. 109th Annu. Meet. Am. Soc. Microbiol. Philadelphia, May 17 – 21, 2009

Ziogaite, B., B. Smith, A. Chatziefthimiou, T. Barkay, and J. Coombs. Isolation and Microarray Analysis of Cryptic Plasmids from Metal Resistant Bacteria of the Deep Terrestrial Subsurface. 109th Annu. Meet. Am. Soc. Microbiol. Philadelphia, May 17 – 21, 2009

Barkay, T., Wang, Y., and S. Crane. Microbial mercury resistance in geothermal springs. Goldschmidt 2009, Davos, Switzerland, June 21 – 26, 2009

Wiatrowski, H. S. Das, R. Kukkadapu, E. Ilton, T. Barkay, and N. Yee. Reduction of Hg(II) to Hg(0) by Magnetite. Goldschmidt 2009, Davos, Switzerland, June 21 – 26, 2009

Yu, R.-Q., M.E. Hines, and T. Barkay. Microbial mercury methylation by syntrophic microbial consortia. 110th Annu. Meet. Am. Soc. Microbiol. San-Diego, May 23 – 27, 2010

Barkay, T., A. Møller, A. Poulain, H. Skov, and N. Kroer. Microbial transformations: A missing link in understanding mercury fate and effects in polar regions. International Polar year, Oslo, Norway, June 8-12, 2010

Barkay, T. Microbial transformation of mercury. International Conference on "Mercury in Contaminated Sites: Characterization, Impacts and Remediation", Piran, Slovenia, Oct. 10-14, 2010 -invited

Yee N., Barkay T., Parikh M., Lin C., Wiatrowski H.A., Das S., Biotic/Abiotic Pathways of Hg(II) Reduction by Dissimilatory Iron Reducing Bacteria, Geological Society of America, Baltimore, MAR 2010

Lin C., Wang Y., Wiatrowski H.A., Yee N., Barkay T., Reduction of Mercury(II) to Mercury(0) by Nitrate Enrichment Cultures Established by the Subsurface Sediments from Oak Ridge, TN, Geological Society of America, Baltimore, MAR 2010

T. Barkay, K. Kritee, E. Boyd, and G. Geesey. Between a rock and a hot place: What do microbial genomes tell us about the natural history of the interactions of microorganisms with mercury? NASA Astrobiology Institute, Workshop Without Walls "Molecular Paleontology and Resurrection: Rewinding the Tape of Life", Nov. 8-10, 2010

Yee N., Parikh M., Lin C., Kukkadapu K., Barkay T., Reduction of Hg(II) to Hg(0) by Biogenic Magnetite, Geochimica et Cosmochimica Acta 74: A1184, Suppl.2010

Parikh M., Lin C., Kukkadapu K., Wang Y., Dohnalkova A., Kukkadapu K., Bowden M., Barkay T., Yee. N. Novel iron-reducing bacterium isolated from Oak Ridge TN, Geochimica et Cosmochimica Acta 74: A792, Suppl. 2010

Lin C., Wang Y., Wiatrowski H., Yee N., Barkay T. Reduction of Hg(II) to Hg(0) by Nitrate Enrichment Cultures Derived from Subsurface Sediments. Geochimica et Cosmochimica Acta 74: A605, Suppl. 2010

Freedman, Z. and T. Barkay. Mer-riment in Hot and Hostile Environments: Interactions of Aquificales with Mercury. 111th Annu. Meet. Am. Soc. Microbiol. New Orelans, May 21 – 24, 2011.

Barkay, T. Microbial mercury methylation: historical perspectives, current understandings, and future directions. The 10th International Conference on Mercury as a Global Pollutant (ICMGP), Hlifax, July 24-29, 2011 – Invited talk

Wang, Y., H. Wiatrowski, N. Yee, T. Barkay, and, C.-C Lin. Redox cycling of Hg by dissimilatory nitrate-reducing enrichment cultures. The 10th International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, July 24-29, 2011

Crane, S., M. Husar, J. Dighton, and T. Barkay. The response of saprotrophic fungi from forest soils to mercury: tolerance and community diversity. The 10th International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, July 24-29, 2011

Cruz, K., M. Crespo-medina, S. Borin, R. Cruz, C. Vetriani, and T. Barkay. Is there a novel mercury resistance mechanism among chemosynthetic bacteria from deep sea hydrothermal vents? The 10th International Conference on Mercury as a Global Pollutant (ICMGP), Halifax, July 24-29, 2011

Yu, R.-Q, M. Hines, and T. Barkay. Two pathways for the enhancement of mercury methylation by syntrophic interactions. The 10th International Conference on Mercury as a Global Pollutant (ICMGP), Hlifax, July 24-29, 2011

Colombo, M., T. Barkay, J. Reinfelder, and N. Yee. Microbial Methylation of $Hg^0_{(aq)}$. Goldschmidt 2011, Prague, Czech Republic, Aug. 14 – 19, 2011.

Parikh, M., C.-C. Lin, T. Barkay, and N. Yee. Iron reduction by a *Clostridia* consortium. Goldschmidt 2011, Prague, Czech Republic, Aug. 14 – 19, 2011.

Barkay, T. The origin, evolution, and distribution of the mercury resistance (*mer*) system in geothermal environments. The 11th International Conference on Thermophiles Research. Big Sky, Montana, Sept. 11-16, 2011 – Invited talk

Freedman, Z., and T. Barkay. Mercury resistance among thermophilic Aqificales. The 11th International Conference on Thermophiles Research. Big Sky, Montana, Sept. 11-16, 2011

Vetriani, C., T. Barkay, S. Borin, M. Bolognini, M. Crespo-Medina, C. O'Brian, I. Perez-Rodriguez, J. Ricci, and B. Wawrik. Chemosynthetic microbial biofilms at post eruptive vents on

the East Pacific Rise at 9°N. 112th Annu. Meet. Am. Soc. Microbiol. San Francisco, June 16 – 19, 2012.

Colombo, M., J. Ha, J. Reinfelder, T. Barkay, and N. Yee. Microbial production of methylmercurcury from Hg(0). Goldschmidt 2012, Montreal, Canada, June 24 – 29, 2012.

Parikh, M., T. Barkay, and N. Yee. Role of Syntrophy in the Microbial Reduction of Crystalline Iron Oxides. Goldschmidt 2012, Montreal, Canada, June 24 – 29, 2012.

Dighton, J., S. Crane, and T. Barkay. Response of ectomycorrhizal symbionts of pine to mercury. The 7th International Symbiosis Congress, Krakow, Poland, July 22-28, 2012.

Pineda, R., R. Yu, M. Marvin Di-Pasquale, T. Barkay. Populations of sulfate reducing bacteria and potential Hg methylation in response to a sediment salinity gradient in Great Salt Lake, Utah. North Eastern Microbiologists: Physiology, Ecology and Taxonomy, Blue Mountain Lake, New York, July 29 – Aug. 1, 2012.

Chatziefthimiou, A.D., Chien, M.-F., and T. Barkay. Community and *merA* gene diversities of indigenous soil bacterial communities in industrially mercury polluted areas in the USA and Taiwan. 14th International Symposium on Microbial Ecology. Copenhagen, Denmark, Aug. 19-24, 2012

Møller, A.K., T. Barkay, M.A. Hansen, A. Norman, L.H. Hansen, S.J. Sørensen, E.S. Boyd, and N. Kroer. Novel and conserved bacterial mercuric reductase genes (*merA*) and mercury resistance plasmids in High Arctic snow, freshwater and sea-ice brine. 14th International Symposium on Microbial Ecology. Copenhagen, Denmark, Aug. 19-24, 2012

Cruz, K., C. Vetriani, and T. Barkay. Modeling the role of extracellular polysaccharide secretion in sequestration of mercury as a mechanism of tolerance in deep- sea hydrothermal vent bacteria using *Escherichia coli*. SETAC North America, The 33nd Annual Meeting, Long Beach, Calif. Nov. 11-15, 2012

Motta, L.C., Kritee, M. Tsui, T. Barkay, J. D. Blum, J. and R. Reinfelder. Effects of pH, dissolved oxygen, and wavelength of light on mercury stable isotope fractionation during photochemical reduction of organically complexed Hg(II). The 11th International Conference on Mercury as a Global Pollutant (ICMGP), Edinburg, UK, July 28 –Aug. 2, 2013

Kritee, L. C. Motta, M. Tsui, T. Barkay, J. D. Blum, and J. R. Reinfelder. Mass independent stable isotope fractionation of mercury during intra and extra-cellular algal transformations of inorganic and organic mercury. The 11th International Conference on Mercury as a Global Pollutant (ICMGP), Edinburg, UK, July 28 –Aug. 2, 2013

Colombo, M.J., J. Ha, J. R. Reinfelder, T. Barkay, and N. Yee. Oxidation of Hg(0) to Hg(II) by Anaerobic Bacteria. The 11th International Conference on Mercury as a Global Pollutant (ICMGP), Edinburg, UK, July 28 –Aug. 2, 2013

Jenssen, S., M. Tsui, K. Tsz, T. Barkay, J. Blum, and J.R. Reinfelder. Mercury stable isotopic composition of inorganic mercury and monomethylmercury in sediments from a contaminated estuary. The 11th International Conference on Mercury as a Global Pollutant (ICMGP), Edinburg, UK, July 28 –Aug. 2, 2013

Barkay, T., A. Poulain, and N. Kroer. Mercury and sea ice: will warming and a declining sea-ice coverage affect Hg biogeochemistry in polar regions? The 11th International Conference on Mercury as a Global Pollutant (ICMGP), Edinburg, UK, July 28 –Aug. 2, 2013

Ndu, U., T. Barkay, and J.R. Reinfelder. The Effect of Ligand Complexation on the Reduction of Inorganic Mercury and Demethylation of Methylmercury by a Mercury Resistant *Escherichia coli* Strain. The 11th International Conference on Mercury as a Global Pollutant (ICMGP), Edinburg, UK, July 28 –Aug. 2, 2013

Barkay, T., and G.G. Geesey. Interactions of inorganic mercury with microbial mats formed in an acidic hot spring. Goldschmidt 2014, Sacramento, CA, June 8-13, 2014

Malcolm, K., J. Dighton, and T. Barkay. The effects of mercury on fungal phylloplane communities. The 2014 Annual Meeting of the Mycological Society of America. East Lansing, MI, June 8-12, 2014.

Norambuena, J., Y. Wang, and T. Barkay. Elucidating the *mer* operon in *Thermus themophilus* HB27, role in the biosynthesis of thiolated metabolites. North Eastern Microbiologists: Physiology, Ecology and Taxonomy, Blue Mountain Lake, New York, July 29 – Aug. 1, 2014

Lloyd, N., S. Janssen, and T. Barkay. Does exposure to mercury select for antibiotic resistance in the fish gut microbiome? North Eastern Microbiologists: Physiology, Ecology and Taxonomy, Blue Mountain Lake, New York, July 29 – Aug. 1, 2014

Rudnick, M., T. Barkay, S. Janssen, and G.G. Geesey. Interactions of inorganic mercury with microbial mats formed in an acidic hot spring. North Eastern Microbiologists: Physiology, Ecology and Taxonomy, Blue Mountain Lake, New York, July 29 – Aug. 1, 2014

Malcolm, K., J. Dighton, and T. Barkay. The effects of mercury on fungal phylloplane communities of *Vaccinium corymbosum.* The 10th International Mycological Congress, Bangkok, Thailand, 3-8 August 2014

N. Lloyd, S.E. Janssen, J.R. Reinfelder, and T. Barkay. Does Environmental Exposure of Killifish to Mercury Select for Multiple Drug Resistant Bacteria in the Fish Gut? 4th ASM Conference on Antimicrobial Resistance in Zoonotic Bacteria and Foodborne Pathogens, Washington, DC, May 8 - 11, 2015

J. Norambuena, Y. Wang, and T. Barkay. Does the unusual structure of the *mer* operon in the thermopholic bacterium *Thermus thermophiles* HB27 link mercury detoxification to oxidative stress response? 115th Annu. Meet. Am. Soc. Microbiol. New Orleans, LA, May 16 – June 2, 2015.

Graduate Students:

Søren Sørenson	Ph.D. awarded in 1994 by The University of Copenhagen
Janice Kurts	Ph.D. awarded in 1995 by George Mason University
John Danbar	Ph.D. student, Michigan State University, 1994
Lasse Rassmusan	Ph.D. student, The University of Copenhagen, 1996
Jeffra Scheafer	Ph.D. (2005), Rutgers University
Aspa Chatziefthimiou	Ms.C. (2005), Rutgers University
Rachel Ward	Ms.C. (2007), Rutgers University
Kritee	Ph.D. (2008), Rutgers University
Sharron Hicks Crane	Ph.D. (2011), Rutgers University
Melitza Crespo-Medina	Ph.D. (2008), Rutgers University
Riqing Yu	Ph.D. (2011), Rutgers University
Zac Freedman	Ph.D. (2012), Rutgers University
Aspa Chatziefthimiou	Ph.D. (2012), Rutgers University
Kim Cruz	Ph.D. (2014), Rutgers University
Bharam Manavi	Ms.C. (2014), Rutgers University
Javiera Norambuena-Santos	Ph.D. Rutgers University, Present
Nicole Lloyd	Ph.D. Rutgers University, Present
Spencer Roth	Ph.D. Rutgers University, Present
Swetha Kasety	Ms.C.. Rutgers University, Present

Potsdoctoral fellows:

Dr. Erwan Saouter - 1992 through 1994
Dr. Sylvie Nazaret - 1992 through 1994
Dr. Rathi Kavanagh - 1992 through 1994
Dr. Jarek Letowski – 2000 - 2001
Dr. Jonna Coombs – 2001 - 2005
Dr. Heather Wiatrowski – 2003 – 2008
Dr. Yanping Wang – 2005 – 2010
Dr. Chu-Ching Lin – 2008 – 2010
Dr. Riqing Yu – 2011 - 2012

Technicians:

Ms. Cynthia Liebert - 1987 through 1992
Mr. Mark Gillman - 1989 through 1994
Ms. Olga Selifonova - 1992 through 1993
Ms. Shiyeng Zhang - 1991 through 1992
Ms. Susan Nadig - 1996
Ms. Ruth Dorn – 2000 through 2001

Ms. Gili Benyehuda – 2000 through 2002
Ms. Shoshi Tel-Or – 2001 through 2002
Ms. Jane Yagi – 2001 through 2003
Ms. Patricia Lu-Irving – 2005 – 2007
Mr. Joshua Roden - 2014