JUDY D. WALL

EDUCATION

1967	B.A. (Chemistry), University of North Carolina, Greensboro
1973	Ph.D. (Biochemistry), Duke University, Durham, North Carolina

PROFESSIONAL APPOINTMENTS

2000-Present	Professor, Molec. Microbiol. & Immunology (Joint appointee)
1992-Present	Professor, Biochemistry Division, MU
1984-1992	Associate Professor, Dept. of Biochemistry, MU
1984 (Sep-Dec)	Visiting Scholar, Indiana University
1978-1984	Assistant Professor, Dept. of Biochemistry, MU
1976-1978	Research Assoc., Assist. Prof. (part time), Indiana University
1974-1976	Research Associate, Indiana University

SELECTED HONORS (from 21 total)

1994	Fellow, American Association for the Advancement of Science
1998	Fellow, American Academy of Microbiology
2002	CAFNR Distinguished Researcher Award
2002-2008	Board of Governors, American Academy of Microbiology
2004	Sigma Xi, Graduate Research Mentoring Award
2005	Tribute to MU Women Award, 2005
2007	Nominee, American Society for Microbiology President
2008	Outstanding Undergraduate Research Mentor Award
2013	University of Missouri Curators' Professor

SELECTED NATIONAL COMMITTEE SERVICE (Dept., College, University excluded)

Editorial

1988-96, 2006-14	Editorial Board, *Journal of Bacteriology*
1992-93, 2003-14	Editorial Board, *Applied and Environmental Microbiology*
2002-2013	Editorial Board, *OMICS: A Journal of Integrative Biology*
2004-present	Faculty of 1000, Microbiology Section
2005-present	Editorial Board, *Environmental Microbiology*
1995-2001	Editor in Chief, *Applied and Environmental Microbiology*
1997-2001	Editorial Committee, *Annual Reviews of Microbiology*

Panel Service

1986, 88-92, 96-98	NIH, Microbial Physiology and Genetics
1982, 84	USDA/SEA Competitive Grants and Nitrogen Fixation
2001	DOE Microbial Genome Program, Grant Evaluations
2005	DOE Microbial Genome Sequencing Priorities

Conference Organizing (since 1998 only)

2001-03	Member, Steering Committee for American Academy Colloquium "Global Atmospheric Change and Microbes: Consequences to Food Webs and Elemental Cycling"
2001	Co-Chair, Gordon Conference on Applied and Environmental Microbiology
2003	Chair, Gordon Conference on Applied and Environmental Microbiology
2003	Co-Organizer of Sulfate-Reducing Bacteria Genome Sequencing Jamboree
2006	Co-Chair, Amer. Acad. Microbiol. Critical Issues Colloquium, Biofuel Production
2012	Organizer, EU-US Environmental Biotechnology Workshop, St. Louis, MO, "Microbial Community Dynamics: Cooperation and Competition"
2014	Co-Chair, US Department of Energy, Molecular Sciences Challenges Workshop

Program Review-Advisory Board Membership

1990	Graduate Program, Memphis State University Biology Department
1993-96	ONR URI Marine Bioremediation Program, Univ. of Washington, Seattle
1996-98	Howard Hughes Medical Institute, Predoctoral Fellowship Program Evaluation Committee
1997	Biochemistry Department, University of Nebraska
2008	School of Biology, Georgia Institute of Technology
2008, 2011	Great Lakes Bioenergy Research Center, Univ. of WI, Madison
2008-13	Member, Science Advisory Board, BioEnergy Science Center, Oak Ridge National Lab
2012-present	Chair, Science Advisory Board, BioEnergy Science Center, Oak Ridge National Lab
2009-present	Member, U.S. Department of Energy, Biological and Environmental Research Advisory Board
2010	Chair, U.S. Department of Energy, Committee of Visitors for Climate and Environmental Science Division
2014	Environmental Molecular Sciences Laboratory at the DOE Pacific Northwest National Laboratory, Strategic Review

National Service

2007-10	DC White Award Selection Committee, American Academy of Microbiology
1994-present	EC-US Environmental Biotechnology Task Force Working Group
2010-16	Member, American Academy of Microbiology Committee on Awards

SELECTED AND RECENT PUBLICATIONS (From 106 total)

Chhabra, S.R., et al. 2006. Global Analysis of Heat Shock Response in *Desulfovibrio vulgaris* Hildenborough. *J. Bacteriol.* 2006 188: 1817-1828.

Clark, M.E., He, Q., He, Z., Alm, E., Huang, K., Hazen, T.C., Arkin, A.P., Wall, J.D., Zhou, J., and Fields, M.W. 2006. Temporal transcriptomic analysis as *Desulfovibrio vulgaris* Hildenborough transitions into stationary phase during electron donor depletion.. *Appl Environ Microbiol.* **72**:5578-88.

Mukhopadhyay, A., et al. 2006. Salt stress in *Desulfovibrio vulgaris* Hildenborough: an integrated genomics approach. *J. Bacteriol.* 188(11):4068-78.

He, Q., Huang, K.H., He, Z., Alm, E.J., Fields, M.W., Hazen, T.C., Arkin, A.P., Wall, J.D., and Zhou, J. 2006. Energetic consequences of nitrite stress in *Desulfovibrio vulgaris* Hildenborough inferred from global transcriptional analysis. *Appl. Environ. Microbiol.* **72**(6):4370-4381.

Pattarkine, M.V., J.J. Tanner, C.A. Bottoms, Y.-H. Lee, and J.D. Wall. 2006. *Desulfovibrio desulfuricans* G20 tetraheme cytochrome structure at 1.5 Å and cytochrome interaction with metal complexes. *J. Mol. Biol.* 358(5):1314-1327 .

Walker, C.B., S.S. Stolyar, N. Pinel, H.C.B. Yen, Z. He, J. Zhou, J.D. Wall, and D.A. Stahl. 2006. Recovery of temperate *Desulfovibrio vulgaris* bacteriophage using a novel host strain. Environ. Microbiol. 8:1950-1959.

Bender, K.S., et al. 2007. Analysis of a ferric uptake regulator (Fur) mutant of *Desulfovibrio vulgaris* Hildenborough. *Appl. Environ. Microbiol.* 73:5389-5400.

Clark ME, Edelmann RE, Duley ML, Wall JD, Fields MW. 2007.Biofilm formation in *Desulfovibrio vulgaris* Hildenborough is dependent upon protein filaments. Environ Microbiol. 9(11):2844-54.

Stolyar, S., et al. (2007). Response *of Desulfovibrio vulgaris* to alkaline stress. J. Bacteriol. 189: 8944-8

Mukhopadhyay, A., et al.. (2007). Cell-wide responses to low-oxygen exposure in *Desulfovibrio vulgaris* Hildenborough. *J. Bacteriol*. 189: 5996-6010

Klonowska, A., M.E. Clark, S.B. Thiemen, B.J. Giles, J.D. Wall, and M.W. Fields. (2008) Hexavalent chromium reduction in *Desulfovibrio vulgaris* Hildenborough causes transitory inhibition of sulfate reduction and cell growth. *Appl. Microbiol. Biotechnol.* 78(6):1007-1016

Elias, D.A, et al. (2009) Expression profiling of hypothetical genes in *Desulfovibrio vulgaris* leads to improved functional annotation. *Nuc. Acids Res.* 37(9):2926-39.

Walker CB, et al. (2009) The electron transfer system of syntrophically grown *Desulfovibrio vulgaris*. *J. Bacteriol.* 191:5793-5801.

Walker, C.B., et al.. (2009) Contribution of mobile genetic elements to *Desulfovibrio vulgaris* genome plasticity. *Environ. Microbiol.* 11:2244-2252.

Keller, K.L., K. Bender, and J.D. Wall (2009) Development of a markerless genetic exchange system for *Desulfovibrio vulgaris* Hildenborough and its use in generating a strain with increased transformation efficiency. *Appl. Environ. Microbiol.* 75:7682-7691.

Li, X., Q. Luo, N.Q. Wofford, K.L. Keller, M.J. McInerney, J.D. Wall, and L.R. Krumholz. 2009. A molybdopterin oxidoreductase is involved in H_2 oxidation in *Desulfovibrio desulfuricans* G20. *J. Bacteriol*. 191:2675-2682.

He, Q., Z. et al. (2010). Impact of elevated nitrate on sulfate-reducing bacteria: a comparative study of *Desulfovibrio vulgaris. The ISME Journal* (2010)1–12.

He, Z., et al. 2010. Global transcriptional, physiological, and metabolite analyses of the responses of *Desulfovibrio vulgaris* Hildenborough to salt adaptation. *Appl. Environ. Microbiol.* 76:1574-1586.

Gorur, A., et al. 2010. Subcellular localization of proteins in the anaerobic sulfate reducer *Desulfovibrio vulgaris* via SNAP-tag labeling and photoconversion. *Microscopy & Microanalysis* 16:864-865

Zane, G. M., H.C. Yen, and J. D. Wall. 2010. Effect of the deletion of *qmoABC* and the promoter distal gene encoding a hypothetical protein on sulfate-reduction in *Desulfovibrio vulgaris* Hildenborough. *Appl. Environ. Microbiol.* 76: 5500–5509.

Zhou, A., et al. 2010. Distinctive oxidative stress responses to hydrogen peroxide in sulfate reducing bacteria, *Desulfovibrio vulgaris* Hildenborough. *Environ. Microbiol.* 12: 2645–2657.

Hauser, L.J., et al. 2011. Complete genome sequence and updated annotation of *Desulfovibrio alaskensis* G20. *J. Bacteriol.* 193: 4268-4269.

#Chhabra SR, et al. (2011) Generalized schemes for high throughput manipulation of bacterial genomes. *Appl. Environ. Microbiol.* 77:7595-7604.

Chhabra SR, et al. (2011) Towards a network of protein-protein interactions of the model sulfate reducer *Desulfovibrio vulgaris* Hildenborough. *PloS ONE* 6(6):e21470. PMCID: 3125180.

***Keller, K. L., and J. D. Wall.** 2011. Genetics and molecular biology of the electron flow for sulfate respiration in *Desulfovibrio*. *Frontiers Microbiol.* 2:article 135.

#Keller, K. L., J.D. Wall, and S. Chhabra. 2011. Methods for engineering sulfate reducing bacteria of the genus *Desulfovibrio*. *Meth. Enzymol.* 497: PMID:21601101

Gilmour, C.C., D.A. Elias, A.M. Kucken, S.D. Brown, A.V. Palumbo, and J.D. Wall. 2011. The sulfate-reducing bacterium *Desulfovibrio desulfuricans* ND132 as a model for understanding bacterial mercury methylation. *Appl. Environ. Microbiol* 77:3938-3951

Brown, S.D., et al. 2011. Genome sequence of the mercury-methylating and pleomorphic *Desulfovibrio africanus* strain Walvis Bay. *J. Bacteriol.* 193:4037-4038.

***Zhou, J., et al.** 2011. How sulphate-reducing microorganisms cope with stress: lessons from systems biology. *Nature Rev. Microbiol.* 9:452-466.

Zhou A, et al. 2012. Functional characterization of Crp/Fnr-type global transcriptional regulators in *Desulfovibrio vulgaris* Hildenborough. *Appl. Environ. Microbiol.* 78:1168-1177.

Yang Y, Q. Chen, J.D. Wall, and Z. Hu. 2012. Potential nanosilver impact on anaerobic digestion at moderate silver concentrations. *Water Res.* 46(4):1176-84.

Yang, Y., M. Xu, J.D. Wall, and Z. Hu. 2012. Nanosilver impact on methanogenesis and biogas production from municipal solid waste**.** *Waste Manag.* 32(5):816-25.

Begemann, M.B., M.R. Mormile, O.C. Sitton, J.D. Wall and D.A. Elias 2012**.** A streamlined strategy for biohydrogen production with *Halanaerobium hydrogeniformans*, an alkaliphilic bacterium. *Front. Microbiol.* **3**:93. doi: 10.3389/fmicb.2012.00093

Ramos A.R., K.L. Keller, J.D. Wall, and I.A. Pereira. 2012. The membrane QmoABC complex interacts directly with the dissimilatory adenosine 5'-phosphosulfate reductase in sulfate reducing bacteria. *Front Microbiol.* 3:137

Rajeev, L., K.L. Hillesland, G.M. Zane, A. Zhou, M.P. Joachimiak, Z. He, J. Zhou, A.P. Arkin, J.D. Wall, and D.A. Stahl. 2012. Deletion of the *Desulfovibrio vulgaris* carbon monoxide sensor invokes global changes in transcription. *J Bacteriol.* 194(21):5783-93.

Sim, M.S., D.T. Wang, G.M. Zane, J.D. Wall, T. Bosak, and S. Ono. 2013. Fractionation of sulfur isotopes by *Desulfovibrio vulgaris* mutants lacking hydrogenases or type I tetraheme cytochrome c_3. Front Microbiol. 4:171. doi: 10.3389/fmicb.2013.00171. PMID: 23805134

Parks, J.M., A. Johs, M. Podar, R. Bridou, R.A. Hurt Jr, S.D. Smith, S.J. Tomanicek, Y. Qian, S.D. Brown, C.C. Brandt, A.V. Palumbo, J.C. Smith, J.D. Wall, D.A. Elias, and L. Liang. 2013. The genetic basis for bacterial mercury methylation. Science. 339:1332-5. doi: 10.1126/science.1230667

Figueiredo, M.C., S.A. Lobo, S.H. Sousa, F.P. Pereira, J.D. Wall, L.S. Nobre, and L.M. Saraiva. 2013. Hybrid cluster proteins and flavodiiron proteins afford protection to *Desufovibrio vulgaris* upon macrophage infection. J. Bacteriol. 195:2684-90. doi: 10.1128/JB.00074-13.

Zhou, A., E. Baidoo, Z. He, A. Mukhopadhyay, J.K. Baumohl, P. Benke, M.P. Joachimiak, M. Xie, R. Song, A.P. Arkin, T.C. Hazen, J.D. Keasling, J.D. Wall, D.A. Stahl, and J. Zhou. 2013. Characterization of NaCl tolerance in *Desulfovibrio vulgaris* Hildenborough through experimental evolution. ISME J. doi: 10.1038/ismej.2013.60

Yang, Y., S. Gajaraj, J.D. Wall, and Z. Hu. 2013. A comparison of nanosilver and silver ion effects on bioreactor landfill operations and methanogenic population dynamics. Water Res. 47:3422-30. doi: 10.1016/j.watres.2013.03.040.

Krumholz, L.R., L. Wang, D.A. Beck, T.Wang, M. Hackett, B. Mooney, T.R. Juba, M.J. McInerney, B. Meyer, J.D. Wall, and D.A. Stahl. 2013. Membrane protein complex of APS reductase and Qmo is present in *Desulfovibrio vulgaris* and *Desulfovibrio alaskensis*. Microbiology 159(Pt 10):2162-8. doi: 10.1099/mic.0.063818-0.

Kazakov, A.E., L. Rajeev, E.G. Luning, G.M. Zane, K. Siddartha, D.A. Rodionov, I. Dubchak, A.P. Arkin, J.D. Wall, A. Mukhopadhyay, and P.S. Novichkov. 2013. New family of tungstate-responsive transcriptional regulators in sulfate-reducing bacteria. J Bacteriol 195(19):4466-75. doi: 10.1128/JB.00679-13. PMID: 23913324

Fels, S.R., G.M. Zane, S.M. Blake, and J.D. Wall. 2013. Rapid transposon liquid enrichment sequencing (TnLE-seq) for gene fitness evaluation in underdeveloped bacterial systems. Appl Environ Microbiol 79(23):7510-7. doi: 10.1128/AEM.02051-13. PMID: 24077707

Keller, K.L., B.J. Rapp-Giles, E.S. Semkiw, I. Porat, S.D. Brown, and J.D. Wall. 2014. A new model for electron flow for sulfate reduction in *Desulfovibrio alaskensis* G20. Appl Environ Microbiol. PMID:24242254

Review articles (listed in references above) * Peer reviewed; # Not peer reviewed

SELECTED INVITED SEMINARS (From 66)

2008	EU-US Workshop on Metabolomics and Environmental Biotechnology, Mallorca
2009	EMBO-FEMS Workshop on Microbial Sulfur Metabolism, Tomar, Portugal,
2010	EU-US Short Course, Environmental Biotechnology, Oklahoma
2012	Environmental Engineering, Missouri University of Science and Technology
2013	Microbiology Department, Montana State University
2013	Plant & Microbial Biology, UC Berkeley
2013	Saturday Morning Science, University of Missouri-Columbia

CURRENT SUPPORT

Lawrence Berkeley National Laboratory, ENIGMA Science Focus Area, Judy Wall (PI), 2007-2014
Title: *Ecosystems and Networks Integrated with Genes and Molecular Assemblies: A multiscale systems approach to microbial bioremediation, carbon sequestration and energy production; from molecules to cells to communities.* Total project cost: $3,917,389

Oak Ridge National Laboratory, Judy Wall (PI), 2011-2014
Title: *Genetics of Mercury Methylation by the Sulfate-Reducing Bacteria*, Mercury remediation SFA
Total project costs: $171,618

DOE DE SC0006809, Judy Wall (Co-PI), 2011-2014
Title: *Identifying Key Proteins in Hg Methylation Pathways of Desulfovibrio by Global Proteomics*
Total project costs $138,578

TEACHING & MENTORING

***Courses** (since 2003)*

BCHEM 9430	Molecular Biology (team taught seven times since 2003)
BCHEM 8435	Enzymology and Metabolism (team taught 3 times)
BCHEM 8060	Ethics (serves as discussant every spring)
BCHEM 4272	Biochemistry (team taught twice, whole course seven times since 2007)

Undergraduate Students [**names in bold, performing research,** posters presented by all undergraduates doing research**;** ***** published**;** *names in italics, laboratory maintenance*]

1995 **Tiffany Murnan***, **Jenny Wang**, **Hieu Nguyen**, *Nyressa Ramos*;

1996 **Hieu Nguyen**, **Thomas J. Esparza**;

1997 **Thomas J. Esparza, James Concannon**, *Shawndra Brown*;
1998 **Thomas J. Esparza**, *Shawndra Brown*; 2000 **Darren Gentry, Diana Rau**;
2001 **Darren Gentry, Diana Rau**; 2002 **Alias Smith,** *Kate Hart*;
2003-6 **Kate Hart**; 2005-6 *Michelle Whitesides*;
2006-8 **Matthew Begemann*, Matthew Shirley**; 2007-8 **Daniel Hess**;
2008-10 **Rachel Waller, Lana McMillan**; 2010-11 **Sam Hanger**, *Sarah Henshaw*;
2011 **Lana McMillan**, **Huitian (Jenny) Gao**, *Hannah Cleeton*;
2012 **Lana McMillan, Huitian (Jenny) Gao**, **Sarah Henshaw**, *Hannah Cleeton*;
2013 **Huitian (Jenny) Gao**, **Sarah Henshaw**, *Hannah Cleeton*, **Elizabeth Payne**, and **Aiden Lee**.
2014 *Myah McCrary*

Graduate Students-M.A.

1987	Antonio Figueredo, Prof. Universidad Nacional de Asunción, Paraguay
2003	Joyce McBeth (Geology), Ph.D. Univ. Manchester; Canadian Light Source, Inc.
2004	Kelly Titkemeier (Geology), Geologist in Canada
2002	Tessa Reviere, (Nuclear Engineering)
2005	Suzanne Miller, (Biochem), Scientist, Sigma-Aldrich Chemical Co.
2008	Elliott Drury (MM&I), Bioinformatics, Monsanto Chemical Co.

Graduate Students-Ph.D.

1988	Dr. Ann Goldenberg, teacher, Albuquerque, NM
1989	Dr. Hong-wu Xu, Researcher, Dalian Medical University, China
1992	Dr. Roberto Borghese, Assistant Professor, Università di Bologna, Italy
1997	Dr. Tara Wickman, (now Giblin), the Kimball Endowed Chair in Natural Sciences and Dean of the School of Humanities and Sciences, Stephens College, Columbia, MO
2000	Dr. Joseph A. Ringbauer, Jr., Biological Science Lab Technician, USDA ARS
2004	Dr. Ray Payne,
2004	Dr. Chris Hemme, Inst. Environ. Genomics, Univ. Oklahoma, Research Associate
Current	Geoffrey Christensen, Hannah Korte, Samuel Fels, Steve Smith

Research Associates *(current positions)*

Susumu Takakuwa, Kyoto Women's University, Kyoto, Japan
James Martin Odom, DuPont Chemical Company
Barbara Genthner, University of West Florida, Pensacola, FL
Fred Genthner, EPA, Gulf Breeze, Florida
Corrado Fogher, NATO Fellow, Universita Cattolica, Piacenza, Italy
John Argyle, PharmD, Box Butte General Hospital, Idaho
Marc Rousset, CNRS Marseilles, France (Staff Position)
Robert S. English, (94-'96), Abbott Laboratories, Chicago
Jan Kurtz, Research Biologist, EPA, Gulf Breeze, FL
Natalia Motchoulskaia, May – December, 1998.
Laurence Casalot, Aix Marseille Univ., CNRS/INSU, IRD, Mediterranean Inst. Oceanography, Marseille, France
Lise Larsen, Team leader in QC Microbiology Laboratory at ALK Abelló, Denmark
Mrunalini Pattarkine, Dec. 2001-2006; Adjunct Prof., Harrisburg, PA
Huei-che "Bill" Yen, Fall 2002-2008; back to family business, Taiwan
Joseph A. Ringbauer, Jr., Fall 2002-2006; USDA Staff Scientist
Kelly Bender, Fall 2003- Summer 2005, Assoc. Prof. Microbiology, Univ. Ill, Carbondale
Nurgul Balci, 2005- 2007, Assoc. Prof., Istanbul, Turkey
Kimberly Keller, 2006- 2012; Assist. Prof. William Woods University, Fulton, MO
Elizabeth Semkiw, 2009-2012; MO Health Dept., Epidemiology
Romain Bridou, 2011-current; from Pau University, France
Kara De Leon, 2013 – current; from Montana State University

Research Assistant Professors *(current position)*

Dwayne Elias, 2005- 2009, Staff Scientist at ORNL

Date: Feb. 2014