

CURRICULUM VITAE

JO HANDELSMAN

EDUCATION

- 1979-1984 Ph.D., University of Wisconsin-Madison, Molecular Biology
1976-1979 B.S., Cornell University, Agronomy

POSITIONS HELD

- 2014- Associate Director for Science, The White House Office of Science and Technology Policy
- 2010- Professor, Department of Molecular, Cellular and Developmental Biology, Yale University
- 2012-2014 Series Editor, "Entering Mentoring"
- 2010-2013 Director, The Center for Scientific Teaching at Yale
- 2007-2009 Professor and Chair, Department of Bacteriology, University of Wisconsin
- 2007-2011 Editor-in-Chief, *DNA and Cell Biology*
- 2004-2014 Co-Chair (with Bill Wood, University of Colorado), National Academies Summer Institute on Undergraduate Education in Biology
- 2003-2014 Series Editor, "Controversies in Science and Technology"
- 2002- Howard Hughes Medical Institute Professor
- 2002-2010 Director, Wisconsin Program for Scientific Teaching
- 2005-2008 Editor, *Applied and Environmental Microbiology*
- 2005-2008 Editor, *Cell Biology Education*
- 2001-2007 Co-Director (and Co-Founder with Molly Carnes), Women in Science and Engineering Leadership Institute (WISELI)
- 1997-1999 Director, Institute for Pest and Pathogen Management, University of Wisconsin
- 1995-2007 Professor, Department of Plant Pathology, University of Wisconsin
- 1991-1995 Associate Professor, Department of Plant Pathology, University of Wisconsin
- 1985-1991 Assistant Professor, Department of Plant Pathology, University of Wisconsin
- 1984-1985 Postdoctoral Fellow, Department of Plant Pathology, University of Wisconsin

RESEARCH INTERESTS

The goal of the Handelsman lab's research is to understand the structure and function

of microbial communities and the signals that govern them through the application of metagenomics, genetics, and small molecule chemistry. Areas of emphasis include biochemistry and genetic regulation of antibiotic production, microbial diversity, antibiotic resistance, and symbioses in communities in soil, on plant roots, and in insect guts. The lab has established the insect gut as a model for studying the nature of community robustness and invasion processes that govern community stability.

AWARDS AND HONORS

- 2015 – Outstanding Author Contribution Award, Emerald Group Publishing
- 2013 – Honorary Doctor of Science, Bard College
- 2013 – American Society for Microbiology Graduate Microbiology Teaching Award
- 2012 – Named one of the “Ten People Who Mattered this Year” by Nature
- 2012 – Connecticut Academy of Science and Engineering, Elected Member
- 2011 – Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring
- 2011 – American Society for Microbiology DC White Research and Mentoring Award
- 2011 – Frederick Phineas Rose Professor, Yale University
- 2010 – American Institute of Biological Sciences (AIBS) Education Award
- 2009 – American Society for Microbiology Carski Foundation Distinguished Undergraduate Teaching Award
- 2009 – Named “Revolutionary Mind” by Seed Magazine
- 2009 – Fellow, Association for Women in Science
- 2008 – Fellow, American Association for the Advancement of Science
- 2008 – National Associate, National Research Council
- 2008 – American Society for Microbiology Roche Diagnostics Alice C. Evans Award
- 2006 – YWCA Woman of Distinction Award
- 2004 – National Academies Education Mentor in the Life Sciences
- 2003 – Fellow, American Academy of Microbiology
- 2002 – Howard Hughes Medical Institute Professor
- 2002 – Clark Lecturer in Soil Biology, Soil Science Society of America
- 1998 – Cabinet 99 Recognition Award, University of Wisconsin
- 1995 – Chancellor's University Teaching Award, University of Wisconsin
- 1991 – Jung Excellence in Teaching Award for the College of Agricultural and Life Sciences at the University of Wisconsin
- 1988 – Chancellor's Research-Service Award, University of Wisconsin
- 1984 – 1985 NIH Postdoctoral Fellowship
- 1984 – American Cancer Society Postdoctoral Fellowship

RECENT SERVICE ON EDUCATIONAL AND SCIENTIFIC COMMITTEES

- American Society for Microbiology, President (2013)
- National Academy of Sciences Board on Life Sciences, Chair (2012-2014)
- American Society for Microbiology, President Elect (2012-2013)
- American Academy of Arts and Sciences Councilor-at-large (2012-2014)
- Association of American Universities STEM Education Initiative Technical Advisory

Committee, Member (2012-2014)
University of Wisconsin-Madison Advisory Board for “What Matters in Mentoring?
Testing and Measuring a Mentor Training Intervention,” Board Member
(2012-2014)
American Academy of Arts and Sciences Section O Steering Committee, Member
(2012-2014)
American Academy of Arts and Sciences Committee on Nominations, Member
(2011-2014)
University of Minnesota CourseSource Advisory Committee, Member (2011-2014)
Yale University HHMI Program Steering Committee, Member (2011-2014)
Yale University Diversity Fellows Program, Co-Director (2011-2014)
President’s Council of Advisors on Science and Technology Working Group,
STEM Education in Higher Ed, Co-Chair (2010-2012)
National Institutes of Health Junior Faculty Mentoring Course, Steering Committee
Member (2010)
External Advisory Committee, ADVANCE Program, Lehigh University, Member
(2010-2014)
Yale University Committee on Mass Data Storage, Member (2010-2014)
Committee on Yale College Education (CYCE) Steering Committee, Member
(2010-2011)
Yale University Science Council, Member (2010)
Yale University Budget Committee, Member (2010-2013)
Yale University MCDB Faculty Search Committee, Plant Science, Member (2010-
2014)
President’s Council of Advisors on Science and Technology Working Group, K-12
STEM Education, Member (2009-2010)
Committee to Visit the Harvard School of Public Health, Member (2009-2014)
The ISME Journal, Editorial Board Member (2007-2014)
National Institutes of Health, Organizer, Workshop on Microbial Ecology (2008)
American Academy of Microbiology, Committee on Colloquia (2007-2011)
Rosalind Franklin Society, President (2006-2012)
Wisconsin Institute for Discovery Steering Committee (2006-2009)
National Institutes of Health Roadmap Planning Committee (2006)
National Academy of Sciences Board on Life Sciences (2005-2011)
Institute of Medicine of the National Academies, Forum on Microbial Threats
(2005-2010)
University of Wisconsin Department of Plant Pathology Academic Affairs
Committee (2005-2006)
University of Wisconsin Department of Plant Pathology Admissions Committee
(2005-2006)
National Research Council Metagenomics Report Committee: Challenges and
Functional Applications, Co-Chair (2005-2007)
The National Academies Committee on Women in Academic Science and
Engineering (2005-2006)
University of Wisconsin System Working Group for the Status of Women (2005-
2006)
University of Wisconsin Honorary Degrees Committee, Chair (2004-2009)
University of Wisconsin Chancellor’s Advisory Committee (2004-2008)
American Society for Microbiology Committee on Graduate Education (2004-2006)

American Academy of Microbiology Alice Evans Award Nominations (2004-2006)
 Institute for Cross-College Biology Education Steering Committee (2004-2005)
 University of Wisconsin Department of Plant Pathology Long Range Planning
 Committee (2003-2005)
 The National Academies Summer Institutes on Undergraduate Education in
 Biology Steering Committee (2003-2014)
 American Society for Microbiology Small Conferences Committee (2003-2007)
 USDA National Research Initiative Panel Manager (2002-2003)
 University of Wisconsin Provost's Climate Networking Group (2001-2004)
 University of Wisconsin Department of Plant Pathology Long Range Planning
 Committee, Chair (2001-2003)
 University of Wisconsin Search Committee for Dean of the Graduate School, Chair
 (2001-2002)
 University of Wisconsin Search Committee for Director of Research and
 Sponsored Programs (2001)
 University of Wisconsin Search Committee for Chancellor (2000)
 University of Wisconsin Center for Biology Education Executive Committee (1999-
 2004)
 University of Wisconsin Women Faculty Mentoring Program, Member (1998-2007)
 University of Wisconsin Graduate School Technology Transfer Council (1998-
 2003)
 Chemical Biology Initiative at the University of Wisconsin, Co-Chair (1998-2002)
 University of Wisconsin Committee on Women at the University (1996-2001);
 Chair, (1998-2000)

MEMBERSHIP AND PARTICIPATION IN PROFESSIONAL SOCIETIES

American Society for Microbiology
 American Association for the Advancement of Science
 The International Society for Molecular Plant-Microbe Interactions
 Soil Science Society of America
 The International Society for Microbial Ecology

GRADUATE STUDENTS TRAINED (DEGREE, YEAR OF COMPLETION, TRAINING PROGRAM, CURRENT POSITION)

Gwyn Beattie, Ph.D., 1991, Cell and Molecular Biology, *Professor, Robert Earle Buchanan Distinguished Professor of Bacteriology for Research and Nomenclature, Iowa State University*
 Greg Gilbert, Ph.D., 1991, Plant Pathology (co-advised with J.L. Parke), *Professor, Pepper-Giberson Chair of Environmental Studies, University of California-Santa Cruz*
 Larry Halverson, Ph.D., 1991, Institute for Environmental Studies, *Associate Professor, Iowa State University*
 Ricardo Araujo, Ph.D., 1992, Plant Pathology, *Lecturer, Brazil*
 Kevin Smith, M.S., 1992, Plant Breeding and Plant Genetics (co-advised with M.J. Havey), *Professor, University of Minnesota*
 Kevin O'Connell, Ph.D., 1993, Bacteriology, *Researcher, Naval Research Unit, Adjunct Assistant Professor, University of Maryland*

Laura Silo-Suh, Ph.D., 1994, Bacteriology, *Assistant Professor, Microbiology, Mercer University Medical School*

Eduardo Robleto, M.S., 1995, Plant Pathology, *Professor, University of Nevada, Las Vegas*

Eric Stabb, Ph.D., 1997, Bacteriology, *Professor and Associate Head, University of Georgia*

Elizabeth Stohl, Ph.D., 1998, Cell and Molecular Biology, *Research Assistant Professor, Northwestern University Medical School*

Amy Klimowicz, M.S., 1999, Bacteriology, *Research Specialist, University of Wisconsin-Madison*

Elizabeth Emmert, Ph.D., 1999, Bacteriology, *Associate Professor, Salisbury University*

Mark Bittinger, Ph.D., 1999, Cell and Molecular Biology, *Associate Director, Target Biology, Belfer Institute for Applied Cancer Science*

Zhengrong Cui, M.S., 1999, Plant Pathology (co-advised with R.M. Goodman), *Associate Professor, Pharmaceuticals, University of Texas, Austin*

Anne Dunn, Ph.D., 2002, Bacteriology, *Associate Professor, University of Oklahoma*

Lynn Williamson, M.S. 2005, Bacteriology, *Research Specialist, University of Wisconsin-Madison*

Christian Riesenfeld, Ph.D., 2006, Microbiology, *Research Associate, University of Western Florida*

Brad Borlee, Ph.D., 2006, Plant Pathology, *Assistant Professor, Colorado State University*

Katherine Butler, M.S., 2006, Bacteriology, *Laboratory Technician, UCSD*

Brad Garcia, Ph.D., 2008, Plant Pathology, *Director of Technology & Business Development, Primorigen Biosciences*

Zakee Sabree, Ph.D., 2008, Microbiology, *Assistant Professor, Ohio State University*

Brook Peterson, Ph.D., 2008, Microbiology, *Senior Scientist, University of Washington*

Courtney Robinson, Ph.D., 2008, Microbiology, *Assistant Professor, Howard University*

Heather Allen, Ph.D., 2009, Microbiology, *Scientist, USDA, Iowa State University*

Brandon Converse, M.S., 2009, Bacteriology, *Research Specialist, Department of Geology, University of Wisconsin-Madison*

Cliff Hogan, M.S., 2009, Bacteriology, *Microbiology Ph.D. student, University of Wisconsin-Madison*

Lindsay Rusnak, M.S., 2009, Plant Pathology, *Instructor, Madison Area Technical College*

Nichole Broderick, Ph.D., 2009, Entomology and Microbiology, *Assistant Professor, University of Connecticut*

Matthew McMahon, Ph.D., 2011, Microbiology (joint with Prof. Michael Thomas), *Scientist of Metabolic Engineering at Joule Unlimited Technologies, Inc.*

Elizabeth Winograd-Cort, Ph.D., 2013, Molecular, Cellular and Developmental Biology, *Senior Policy Advisor, Office of Science and Technology Policy, The White House*

Jonathan Holt, Ph.D., 2013, Microbiology, *Lecturer, Edgewood College*

CURRENT GRADUATE STUDENTS (DEGREE, TRAINING PROGRAM)

Caleb Fischer, Ph.D. expected September 2016, Molecular, Cellular and Developmental Biology

Gabriel Lozano, Ph.D. expected 2017, Molecular, Cellular and Developmental Biology

Jessica Miles, Ph.D. expected November 2016, Microbiology

PUBLICATIONS (publications are listed in separate sections for papers on microbiology, papers on science education and gender in science, books, and editorials)

PUBLICATIONS: PAPERS IN MICROBIOLOGY

Fischer, C., E. Trautman, J.M. Crawford, E.V. Stabb, N.A. Broderick, and J. Handelsman. 2016. Metabolite exchange within the microbiome produces compounds that influence *Drosophila* behavior. eLife (in revision)

Lozano, G.L., J. Holt, J. Ravel, D.A. Rasko, M.G. Thomas, J. Handelsman. 2016. Draft genome sequence of biocontrol agent *Bacillus cereus* UW85. Genome Announcements 4: doi:10.1128/genomeA.00910-16.

Stulberg, E.R., G.L. Lozano, J.B. Morin, H. Park, E.G. Baraban, C. Mlot, C. Heffelfinger, G.M. Phillips, J.S. Rush, A.J. Phillips, N.A. Broderick, M.G. Thomas, E.V. Stabb, and J. Handelsman. 2016. Genomic and secondary metabolite analyses of *Streptomyces* sp. 2AW provide insight into the evolution of the cycloheximide pathway. Frontiers in Microbiology. 7: 573.

Miles J., J.F. Holt, and J. Handelsman. 2015. Allies and adversaries: roles of the microbiome in infectious disease. Microbe 10: 370-374.

Holt, J.F., M.R. Kiedrowski, K.L. Frank, J. Du, C. Guan, N.A. Broderick, G.M. Dunny, and J. Handelsman. 2015. *Enterococcus faecalis* 6-phosphogluconolactonase is required for both commensal and pathogenic interactions with *Manduca sexta*. Infection and Immunity. 83(1): 396-404.

Udikovic-Kolic, N., F. Wichmann, N.A. Broderick, and J. Handelsman. 2014. Bloom of resident antibiotic-resistant bacteria in soil following manure fertilization. Proceedings of the National Academy of Sciences. doi:10.1073/pnas.1409836111.

Shade, A., S.E. Jones, J.G. Caporaso, J. Handelsman, R. Knight, N. Fierer, and J.A. Gilbert. 2014. Conditionally rare taxa disproportionately contribute to temporal changes in microbial diversity. mBio. 5(4): e01371-14.

Wichmann, F., N. Udikovic-Kolic, S. Andrew, and J. Handelsman. 2014. Diverse antibiotic resistance genes in dairy cow manure. mBio. 5(2): e01017-13.

- Blum, J.E., C.N. Fischer, J. Miles, and J. Handelsman. 2013. Frequent replenishment sustains the beneficial microbiome of *Drosophila melanogaster*. *mBio*. 4(6): e00860-13. doi: 10.1128/mBio.00860-13.
- Shade, A., A.K. Klimowicz, R.N. Spear, M. Linske, J.J. Donato, C.S. Hogan, P.S. McManus, and J. Handelsman. 2013. Streptomycin application has no detectable effect on bacterial community structure in apple orchard soil. *Applied and Environmental Microbiology*. 79(21): 6617-6625.
- Baraban, E.G., J.B. Morin, G.M. Phillips, A.J. Phillips, S.A. Strobel, and J. Handelsman. 2013. Xyolide, a bioactive nonenolide from an Amazonian endophytic fungus, *Xylaria feejeensis*. *Tetrahedron Letters*. doi: 10.1016/j.tetlet.2013.05.093.
- Shade, A., J.G. Caporaso, J. Handelsman, R. Knight, and N. Fierer. 2013. A meta-analysis of changes in bacterial and archaeal communities with time. *ISME Journal*. doi: 10.1038/ismej.2013.54.
- Shade, A., P.S. McManus, and J. Handelsman. 2013. Unexpected diversity during community succession in the apple flower microbiome. *mBio*. 4(2): e00602-12. doi:10.1128/mBio.00602-12.
- Shade, A., H. Peter, S.D. Allison, D. Baho, M. Berga, H. Buergmann, D.H. Huber, S. Langenheder, J.T. Lennon, J.B. Martiny, K. Matulich, T.M. Schmidt, and J. Handelsman. 2012. Fundamentals of microbial community resistance and resilience. *Frontiers in Microbiology*. 3: 417. doi: 10.3389/fmicb.2012.00417.
- Araujo J.F., A.P. de Castro, M.M. Costa, R.C. Togawa, G.J. Júnior, B.F. Quirino, M.M. Bustamante, L. Williamson, J. Handelsman, and R.H. Krüger. 2012. Characterization of soil bacterial assemblies in Brazilian savanna-like vegetation reveals acidobacteria dominance. *Microbial Ecology*. 64(3): 760-770.
- Shade, A., C.S. Hogan, A.K. Klimowicz, M. Linske, P.S. McManus, and J. Handelsman. 2012. Culturing captures members of the soil rare biosphere. *Environmental Microbiology*. 14(9): 2247-2252.
- McMahon, M.D., C. Guan, J. Handelsman, and M.G. Thomas. 2012. Metagenomic analysis of *Streptomyces lividans* reveals host-dependent functional expression. *Applied and Environmental Microbiology*. 78: 3622-3629.
- Shade, A. and J. Handelsman. 2012. Beyond the Venn diagram: The hunt for a core microbiome. *Environmental Microbiology*. 14(1): 4-12.
- de Castro, A.P., B.F. Quirino, H. Allen, L.L. Williamson, J. Handelsman, and R.H. Krüger. 2011. Construction and validation of two metagenomic DNA libraries from Cerrado soil with high clay content. *Biotechnology Letters*.

33: 2169-2175.

- Mason, K.L., T.A. Stepien, J.E. Blum, J.F. Holt, N.H. Labbe, J.S. Rush, K.F. Raffa, and J. Handelsman. 2011. From commensal to pathogen: Translocation of *Enterococcus faecalis* from the midgut to the hemocoel of *Manduca sexta*. *mBio*. 2(3): e00065-11.
- Maloy, S., J. Handelsman, and S. Singh. 2011. Dynamics of host-associated microbial communities. *Microbe*. 6: 21-25.
- Schloss, P.D., H.K. Allen, A.K. Klimowicz, C. Mlot, J.A. Gross, S. Savengsuksa, J. McEllin, J. Clardy, R.W. Ruess, and J. Handelsman. 2010. Psychrotrophic strain of *Janthinobacterium lividum* from a cold Alaskan soil produces prodigiosin. *DNA and Cell Biology*. 29(9): 533-41.
- Borlee, B.R., G.D. Geske, H.E. Blackwell, and J. Handelsman. 2010. Identification of synthetic inducers and inhibitors of the quorum-sensing regulator LasR in *Pseudomonas aeruginosa* by high-throughput screening. *Applied and Environmental Microbiology*. 76(24): 8255-8258.
- Klimowicz, A.K., T.A. Benson, and J. Handelsman. 2010. A quadruple-enterotoxin-deficient mutant of *Bacillus thuringiensis* remains insecticidal. *Microbiology*. 156: 3575-3583.
- Lang, K.S., J.M. Anderson, S. Schwarz, L. Williamson, J. Handelsman and R.S. Singer. 2010. Novel florfenicol and chloramphenicol resistance gene discovered in Alaskan soil by using functional metagenomics. *Applied and Environmental Microbiology*. 76(15): 5321-5326.
- Donato, J., L.A. Moe, B.J. Converse, K.D. Smart, F.C. Berklein, P.S. McManus and J. Handelsman. 2010. Metagenomic analysis of apple orchard soil reveals antibiotic resistance genes encoding predicted bifunctional proteins. *Applied and Environmental Microbiology*. 76(13): 4396-4401.
- Broderick, N.A., E. Vasquez, J. Handelsman and K. F. Raffa. 2010. Effect of clonal variation among hybrid poplars on susceptibility of gypsy moth (Lepidoptera: Lymantriidae) to *Bacillus thuringiensis* subsp. *kurstaki*. *Journal of Economic Entomology*. 103(3): 718-725.
- Broderick, N.A., K.F. Raffa and J. Handelsman. 2010. Chemical modulators of the innate immune response alter gypsy moth larval susceptibility to *Bacillus thuringiensis*. *BMC Microbiology*. 10(1): 129.
- Allen, H.K., J. Donato, H.H. Wang, K.A. Cloud-Hansen, J. Davies and J. Handelsman. 2010. Call of the wild: Antibiotic resistance genes in natural environments. *Nature Reviews Microbiology*. 8(4): 251-259.
- Robinson, C.J., P.D. Schloss, Y. Ramos, K.F. Raffa and J. Handelsman. 2010. Robustness of the bacterial community in the cabbage white butterfly

- larval midgut. *Microbial Ecology*. 59(2): 199-211.
- Handelsman, J. 2009. Metagenetics: Spending our inheritance on the future. *Microbial Biotechnology*. 2(2): 138-139.
- Broderick, N.A., C.J. Robinson, M.D. McMahon, J. Holt, J. Handelsman and K.F. Raffa. 2009. Contributions of gut bacteria to *Bacillus thuringiensis*-induced mortality vary across a range of Lepidoptera. *BMC Biology*. 7: 11-20.
- Klepzig, K.D., A.S. Adams, J. Handelsman, and K.F. Raffa. 2009. Symbioses: A key driver of insect physiological processes, ecological interactions, evolutionary diversification, and impacts on humans. *Environmental Entomology*. 38(1): 67-77.
- Allen, H.K., K.A. Cloud-Hansen, J.M. Wolinski C. Guan, S. Greene, S. Lu, M. Boeyink, N.A. Broderick, K.F. Raffa, and J. Handelsman. 2009. Resident microbiota of the gypsy moth midgut harbor antibiotic resistance determinants. *DNA and Cell Biology*. 28(3): 109-117.
- Sabree, Z.L., M.R. Rondon, and J. Handelsman. 2009. Metagenomics. In: *Encyclopedia of Microbiology* (Third Edition). Academic Press, pp. 622-632.
- Vasanthakumar, A., J. Handelsman, P.D. Schloss, and K.F. Raffa. 2008. Gut microbiota of an invasive subcortical beetle, *Agrilus planipennis* Fairmaire, across various life stages. *Environmental Entomology*. 37(5): 1344-1353.
- Allen, H. K., L.A. Moe, J. Rodbumrer, A. Gaarder, and J. Handelsman. 2008. Functional metagenomics reveals diverse β -lactamases in a remote Alaskan soil. *ISME Journal*. 3: 243–251.
- Little, A.E.F., C. Robinson, S.B. Peterson, K.F. Raffa, and J. Handelsman. 2008. Rules of engagement: Interspecies interactions that regulate microbial communities. *Annual Review of Microbiology*. 62: 375–401.
- Borlee, B. R., G.D. Geske, C.J. Robinson, H. Blackwell, and J. Handelsman. 2008. Quorum-sensing signals in the microbial community of the cabbage white butterfly larval midgut. *ISME Journal*. 2: 1101-1111.
- Liles, M.R., L.L. Williamson, J. Rodbumrer, V. Torsvik, R.M. Goodman, and J. Handelsman. 2008. Recovery, purification, and cloning of high-molecular-weight DNA from soil microorganisms. *Applied and Environmental Microbiology*. 74(10): 3302-3305.
- Isenbarger, T. A., M. Finney, C. Ríos-Velázquez, J. Handelsman, and G. Ruvkun. 2008. Miniprimer PCR, a new lens for viewing the microbial world. *Applied and Environmental Microbiology*. 74(3): 840-849.
- Schloss, P.D. and J. Handelsman. 2008. The last word: Books as a statistical metaphor for microbial communities. *Annual Review of Microbiology*. 61:

23-24.

- Schloss, P.D. and J. Handelsman. 2008. A statistical toolbox for metagenomics: Assessing functional diversity in microbial communities. *BMC Bioinformatics*. 9: 34.
- Handelsman, J. 2007. Metagenomics and microbial communities. In: *Encyclopedia of the Life Sciences*. John Wiley and Sons, Ltd. Chichester, UK.
- Delalibera, I. A. Vasanthakumar, B.J. Burwitz, P.D. Schloss, K.D. Klepzig, J. Handelsman, and K.F. Raffa. 2007. Composition of the bacterial community in the gut of the pine engraver, *Ips pini* (Say) (Coleoptera) colonizing red pine. *Symbiosis*. 43: 97-104.
- Guan, C., J. Ju, B.R. Borlee, L.L. Williamson, B. Shen, K.F. Raffa, and J. Handelsman. 2007. Signal mimics derived from a metagenomic analysis of gypsy moth gut microbiota. *Applied and Environmental Microbiology*. 73(11): 3669-3676.
- Vasanthakumar, A, I. Delalibera Jr., J. Handelsman, K.D. Klepzig, P. Schloss, and K.F. Raffa. 2006. Characterization of gut-associated microorganisms in larvae and adults of the southern pine beetle, *Dendroctonus frontalis* Zimmerman. *Environmental Entomology*. 35: 1710-1717.
- Broderick, N.A., K.R. Raffa, and J. Handelsman. 2006. Midgut bacteria required for *Bacillus thuringiensis* insecticidal activity. *Proceedings of the National Academy of Sciences*. 103(41): 15196-15199.
- Chan, Y.A., M.T. Boyne, A.M. Podevels, A.K. Klimowicz, J. Handelsman, N.L. Kelleher, and M.G. Thomas. 2006. Hydroxymalonyl-acyl carrier protein (ACP) and aminomalonyl-ACP are two additional type I polyketide synthase extender units. *Proceedings of the National Academy of Sciences*. 103(39): 14349-14354.
- Sabree, Z.L., V. Bergendahl, M.R. Liles, R.R. Burgess, R.M. Goodman, J. Handelsman. 2006. Identification and characterization of the gene encoding the *Acidobacterium capsulatum* major sigma factor. *Gene*. 376: 144-151.
- Peterson, S.B., A.K. Dunn, A.K. Klimowicz, and J. Handelsman. 2006. Peptidoglycan from *Bacillus cereus* mediates commensalism with rhizosphere bacteria from the *Cytophaga-Flavobacterium* group. *Applied and Environmental Microbiology*. 72: 5421-5427.
- Schloss, P.D., I. Delalibera, J. Handelsman, K.F. Raffa. 2006. Bacteria associated with the guts of two wood-boring beetles: *Anoplophora glabripennis* and *Saperda vestita* (Cerambycidae). *Environmental Entomology*. 35: 625-629.
- Schloss, P.D. and J. Handelsman. 2006. Introducing TreeClimber, a test to

- compare microbial community structures. *Applied and Environmental Microbiology*. 72: 2379-2384.
- Schloss, P.D. and J. Handelsman. 2006. Introducing SONS, A tool for operational taxonomic unit-based comparisons of microbial community memberships and structures. *Applied and Environmental Microbiology*. 72(10): 6773-6779.
- Schloss, P.D. and J. Handelsman. 2006. Toward a census of bacteria in soil. *PLoS Computational Biology*. 2: e92.
- Handelsman, J. 2006. Metagenomics or megagenomics? *Nature Reviews Microbiology*. 3: 457-458.
- Cloud-Hansen, K.A., S.B. Peterson, E.V. Stabb, W.E. Goldman, M.J. McFall-Ngai, and J. Handelsman. 2006. Breaching the great wall: Peptidoglycan and microbial interactions. *Nature Reviews Microbiology*. 4: 710-716.
- Gillespie, D., M.R. Rondon, and J. Handelsman. 2005. Metagenomic libraries from uncultured microorganisms. In: *Molecular Microbial Ecology*. A.M. Osborn and C. J. Smith, eds. Bios Sci. Pub.: 261-279.
- Williamson, L.L., B.R. Borlee, P.D. Schloss, C. Guan, H.K. Allen, and J. Handelsman. 2005. Intracellular screen to identify metagenomic clones that induce or inhibit a quorum-sensing biosensor. *Applied and Environmental Microbiology*. 71: 6335-6344.
- Handelsman, J. 2005. How to find new antibiotics. *The Scientist*. 19: 20.
- Schloss, P.D. and J. Handelsman. 2005. Metagenomics for studying unculturable microorganisms: Cutting the Gordian knot. *Genome Biology*. 6: 229.
- Delalibera, I., K. Raffa, and J. Handelsman. 2005. Contrasts in cellulolytic activities of gut microorganisms between the wood borer *Saperda vestita* (Coleoptera: Cerambycidae), and the bark beetles *Ips pini*, and *Dendroctonus frontalis* (Coleoptera: Curculionidae). *Environmental Entomology*. 34: 541-547.
- Handelsman, J., C.J. Robinson, and K. Raffa. 2005. Microbial communities in lepidopteran guts: From models to metagenomics. In: *The Influence of Cooperative Bacteria on Animal Host Biology*. M.J. McFall-Ngai, B. Henderson, and E.G. Ruby, eds. New York: Cambridge University Press, pp. 143-168.
- Schloss, P. D., and J. Handelsman. 2005. Introducing DOTUR, a computer program for defining operational taxonomic units and species richness. *Applied and Environmental Microbiology*. 71(3): 1501-1506.
- Handelsman, J. 2005. Sorting out metagenomes. *Nature Biotechnology*. 23(1):

38-39.

- Schloss, P. D., and J. Handelsman. 2004. Status of the microbial census. *Microbiology and Molecular Biology Reviews*. 68(4): 686-691.
- Handelsman, J. 2004. Metagenomics: Application of genomics to uncultured microorganisms. *Microbiology and Molecular Biology Reviews*. 68(4): 669-685.
- Liles, M.R., L.L. Williamson, J. Handelsman, and R.M. Goodman. 2004. Isolation of high molecular weight genomic DNA from soil bacteria for genomic library construction. In *Molecular Microbial Ecology Manual*, 2nd ed. G.G. Kowalchuk, F.J. de Bruijn, I.M. Head, A.D. Akkermans, and J.D. van Elsas, eds. The Netherlands: Kluwer Academic Publishers, pp. 839-852.
- Safdar, N., J. Handelsman, and D.G. Maki. 2004. Does combination antimicrobial therapy reduce mortality in gram-negative bacteraemia? A meta-analysis. *The Lancet – Infectious Diseases*. 4(8): 519-27.
- Schloss, P.D., B.R. Larget, and J. Handelsman. 2004. Integration of microbial ecology and statistics: A test to compare gene libraries. *Applied and Environmental Microbiology*. 70(9): 5485-92.
- Riesenfeld, C.R., P.D. Schloss, and J. Handelsman. 2004. Metagenomics: Genomic analysis of microbial communities. *Annual Review of Genetics*. 38: 525-52.
- Riesenfeld, C.R., R.M. Goodman, and J. Handelsman. 2004. Uncultured soil bacteria are a reservoir of new antibiotic resistance genes. *Environmental Microbiology*. 6(9): 981-989.
- Emmert, E.A.B., A.K. Klimowicz, M.G. Thomas, and J. Handelsman. 2004. Genetics of zwittermicin A production in *Bacillus cereus*. *Applied and Environmental Microbiology*. 70: 104-113.
- Broderick, N.A., K. Raffa, R.M. Goodman, and J. Handelsman. 2004. Census of the bacterial community of the gypsy moth larval midgut using culturing and culture-independent methods. *Applied and Environmental Microbiology*. 70: 293-300.
- Handelsman, J. 2004. Soils – the metagenomics approach. In: *Microbial Diversity Bioprospecting*. Alan T. Bull, ed. American Society for Microbiology Press, pp. 109-119.
- Handelsman, J. and K. Smalla. 2003. Conversations with the silent majority. *Current Opinion in Microbiology*. 6: 271-273.
- Schloss, P.D. and J. Handelsman. 2003. Biotechnological prospects from metagenomics. *Current Opinion in Biotechnology*. 14: 303-310.

- Liles, M.R., B.F. Manske, S.B. Bintrim J. Handelsman, and R.M. Goodman. 2003. A census of rRNA genes and linked genomic sequences within a soil metagenomic library. *Applied and Environmental Microbiology*. 69: 2684-2691
- Dunn, A.K., A.K. Klimowicz, and J. Handelsman. 2003. Use of a promoter trap to identify *Bacillus cereus* genes regulated by tomato seed exudate and a rhizosphere resident, *Pseudomonas aureofaciens*. *Applied and Environmental Microbiology*. 69: 1197-205.
- Broderick, N.A., R.M. Goodman, J. Handelsman, and K.F. Raffa. 2003. Effect of host diet and insect source on synergy of gypsy moth (Lepidoptera: Lymantriidae) mortality to *Bacillus thuringiensis* subsp. *kurstaki* by zwittermicin A. *Environmental Entomology*. 32: 387-391.
- Handelsman, J., and L.P. Wackett. 2002. Ecology and industrial microbiology: Microbial diversity – sustaining the Earth and industry, editorial overview. *Current Opinion in Microbiology*. 5: 237-239.
- Gillespie, D.E., S.F. Brady, A.D. Bettermann, N.P. Cianciotto, M.R. Liles, M.R. Rondon, J. Clardy, R.M. Goodman, and J. Handelsman. 2002. Isolation of antibiotics turbomycin A and B from a metagenomic library of soil microbial DNA. *Applied and Environmental Microbiology*. 68: 4301-4306.
- Dunn, A.K. and J. Handelsman. 2002. Toward an understanding of microbial communities through analysis of communication networks. *Antonie von Leeuwenhoek*. 81: 565-574.
- Handelsman, J. 2002. Future trends in biocontrol. In: *Biological Control of Crop Diseases*. S.S. Gnanamanickam, ed. New York: Marcel Dekker, Inc., pp. 443-448.
- Handelsman, J., M. Liles, D. Mann, C. Riesenfeld, and R.M. Goodman. 2002. Cloning the metagenome: Culture-independent access to the diversity and functions of the uncultivated microbial world. In: *Methods in Microbiology – Functional Microbial Genomics*. Academic Press, pp. 241-255.
- Brady, S.F., C.J. Chao, J. Handelsman, and J. Clardy. 2001. Cloning and heterologous expression of a natural product biosynthetic gene cluster from eDNA. *Organic Letters* 3: 1981-1984.
- Simon, H.M., K.P. Smith, J.A. Dodsworth, B. Guenther, J. Handelsman, and R.M. Goodman. 2001. Influence of tomato genotype on growth of inoculated and indigenous bacteria in the spermosphere. *Applied and Environmental Microbiology*. 67: 514-520.
- Bittinger, M.A., J.A. Gross, J. Widom, J. Clardy, and J. Handelsman. 2000. *Rhizobium etli* CE3 carries *vir* gene homologs on a self-transmissible

- plasmid. *Molec. Plant-Microbe Interact.* 13: 1019-1021.
- Handelsman, J. 2000. Antagonism. In: *Encyclopedia of Plant Pathology*. O.C. Maloy and T.D. Murray, eds. New York: John Wiley.
- Kazmar, E.R., R.M. Goodman, C.R. Grau, D.W. Johnson, E.V. Nordheim, D.J. Undersander, and J. Handelsman. 2000. Regression analyses for evaluating the influence of *Bacillus cereus* on alfalfa yield under variable disease intensity. *Phytopathology*. 90: 657-665.
- Rondon, M.R., P.R. August, A.D. Bettermann, S.F. Brady, T.H. Grossman, M.R. Liles, K.A. Loiacono, B.A. Lynch, I.A. MacNeil, C. Minor, C.L. Tiong, M. Gilman, M.S. Osburne, J. Clardy, J. Handelsman, and R.M. Goodman. 2000. Cloning the soil metagenome: A strategy for accessing the genetic and functional diversity of uncultured microorganisms. *Applied and Environmental Microbiology*. 66: 2541-2547.
- Bittinger, M.A. and J. Handelsman. 2000. Identification of genes in the RosR regulon of *Rhizobium etli*. *Journal of Bacteriology*. 182: 1706-1713.
- Broderick, N.A., R.M. Goodman, K.F. Raffa, and J. Handelsman. 2000. Synergy between zwittermicin A and *Bacillus thuringiensis* subsp. *kurstaki* against gypsy moth (Lepidoptera: Lymantriidae). *Environmental Entomology*. 29: 101-107.
- Stohl, E.A., J.L. Milner, and J. Handelsman. 1999. Zwittermicin A biosynthetic cluster. *Gene*. 237: 403-411.
- Stohl, E.A., S.F. Brady, J. Clardy, and J. Handelsman. 1999. ZmaR, a novel and widespread antibiotic resistance determinant that acetylates zwittermicin A. *Journal of Bacteriology*. 181: 5455-5460.
- Raffel, S.J., E.R. Kazmar, R. Winberg, E.S. Oplinger, J. Handelsman, R.M. Goodman, and C.R. Grau. 1999. First report of root rot of soybeans caused by *Corynespora cassiicola* in Wisconsin. *Plant Disease*. 83: 696.
- Rondon, M.R., S.J. Raffel, R.M. Goodman, and J. Handelsman. 1999. Toward functional genomics in bacteria: Analysis of gene expression in *Escherichia coli* from a bacterial artificial chromosome library of *Bacillus cereus*. *Proceedings of the National Academy of Sciences*. 96: 6451-6455.
- Smith, K.P., J. Handelsman, and R.M. Goodman. 1999. Genetic basis in plants for interactions with disease-suppressive bacteria. *Proceedings of the National Academy of Sciences*. 96: 4786-4790.
- Shang, H., J. Chen, J. Handelsman, and R.M. Goodman. 1999. Behavior of *Pythium torulosum* zoospores during their interaction with tobacco roots and *Bacillus cereus*. *Current Microbiology*. 38: 199-204.

- Dunn, A.K. and J. Handelsman. 1999. A vector for promoter trapping in *Bacillus cereus*. *Gene*. 226: 297-305.
- Emmert, E.A.B. and J. Handelsman. 1999. Biocontrol of plant disease: A (Gram-) positive perspective. *FEMS Microbiology Letters*. 171: 1-9.
- Rondon, M.R., R.M. Goodman, and J. Handelsman. 1999. The Earth's bounty: Assessing and accessing soil microbial diversity. *Trends in Biotechnology*. 17: 403-409.
- Handelsman, J., M.R. Rondon, S. Brady, J. Clardy, and R.M. Goodman. 1998. Molecular biology access to the chemistry of unknown soil microbes: A new frontier for natural products. *Chemistry & Biology*. 5: R245-R249.
- Goodman, R.M., S.B. Bintrim, J. Handelsman, B.F. Quirino, J.C. Rosas, H.M. Simon, and K.P. Smith. 1998. A dirty look: Soil microflora and rhizosphere microbiology. In: *Radical Biology: Advances and Perspectives on the Function of Plant Roots*. H.E. Flores, J.P. Lynch, and D. Eissenstat, eds. Rockville, MD: American Society of Plant Physiologists. Press, pp. 219-231.
- Emmert, E.A.B., J.L. Milner, J.C. Lee, K.L. Pulvermacher, H.A. Olivares, J. Clardy, and J. Handelsman. 1998. Effect of canavanine from alfalfa seeds on the population biology of *Bacillus cereus*. *Applied and Environmental Microbiology*. 64: 4683-4688.
- Rosas, J.C., J.A. Castro, E.A. Robleto, and J. Handelsman. 1998. A method for screening *Phaseolus vulgaris* L. germplasm for preferential nodulation with a selected *Rhizobium etli* strain. *Plant and Soil*. 203: 71-78.
- O'Connell, K.P., S.J. Raffel, B.J. Saville, and J. Handelsman. 1998. Mutants of *Rhizobium tropici* strain CIAT899 that do not induce chlorosis in plants. *Microbiology*. 144: 2607-2617.
- Biermann, B.J., J.S. de Banzie, J. Handelsman, J.F. Thompson, and J.T. Madison. 1998. Methionine and sulfate increase a Bowman-Birk-type protease inhibitor and its messenger RNA in soybeans. *Journal of Agricultural and Food Chemistry*. 46: 2858-2862.
- Silo-Suh, L.A., E.V. Stabb, S.J. Raffel, and J. Handelsman. 1998. Target range of zwittermicin A, an aminopolyol antibiotic from *Bacillus cereus*. *Current Microbiology*. 37: 6-11.
- Stabb, E.V. and J. Handelsman. 1998. Genetic analysis of zwittermicin A resistance in *Escherichia coli*: Effects on membrane potential and RNA polymerase. *Molecular Microbiology*. 27: 311-322.
- Bintrim, S.B., T.J. Donohue, J. Handelsman, G.P. Roberts, and R.M. Goodman.

1997. Molecular phylogeny of Archaea from soil. Proceedings of the National Academy of Sciences. 94: 277-282.
- Smith, K.P., J. Handelsman, and R.M. Goodman. 1997. Modeling dose-response relationships in biological control: Partitioning host responses to the pathogen and biocontrol agent. *Phytopathology*. 87: 720-729.
- Bittinger, M.A., J.L. Milner, B.J. Saville, and J. Handelsman. 1997. *rosR*, a determinant of nodulation competitiveness in *Rhizobium etli*. *Molecular Plant-Microbe Interactions*. 10: 180-186.
- Milner, J., L. Silo-Suh, R.M. Goodman, and J. Handelsman. 1997. Antibiosis and beyond: Genetic diversity, microbial communities, and biological control. In: *Ecological Interactions and Biological Control*. D.A. Andow, D.W. Ragsdale, and R.F. Nyvall, eds. Minneapolis, MN, pp. 107-127.
- O'Connell, K.P., R.M. Goodman, and J. Handelsman. 1996. Engineering the rhizosphere: Expressing a bias. *Trends in Biotechnology* 14: 83-88.
- Handelsman, J. and E.V. Stabb. 1996. Biocontrol of soilborne plant pathogens. *Plant Cell*. 8: 1855-1869.
- Raffel, S.J., E.V. Stabb, J.L. Milner, and J. Handelsman. 1996. Genotypic and phenotypic analysis of zwittermicin A-producing strains of *Bacillus cereus*. *Microbiology*. 142: 3425-3436.
- Milner, J.L., L. Silo-Suh, J.C. Lee, H. He, J. Clardy, and J. Handelsman. 1996. Production of kanosamine by *Bacillus cereus* UW85. *Applied and Environmental Microbiology*. 62: 3061-3065.
- Gilbert, G.S., M.K. Clayton, J. Handelsman, and J.L. Parke. 1996. Use of cluster and discriminant analyses to compare rhizosphere bacterial communities. *Microbial Ecology*. 32: 123-147.
- Milner, J.L., E.A. Stohl, and J. Handelsman. 1996. Zwittermicin A resistance gene from *Bacillus cereus*. *Journal of Bacteriology*. 178: 4266-4272.
- Chen, J., L.M. Jacobson, J. Handelsman, and R.M. Goodman. 1996. Compatibility of systemic acquired resistance and microbial biocontrol for suppression of plant disease in a laboratory assay. *Molecular Ecology*. 5: 73-80.
- Milner, J.L., S.J. Raffel, B.J. Lethbridge, and J. Handelsman. 1995. Culture conditions that influence accumulation of zwittermicin A by *Bacillus cereus* UW85. *Applied Microbiology and Biotechnology*. 43: 685-691.
- Osburn, R.M., J.L. Milner, E.S. Oplinger, R.S. Smith, and J. Handelsman. 1995. Effect of *Bacillus cereus* UW85 on the yield of soybean at two field sites in Wisconsin. *Plant Disease*. 79: 551-556.

- Stabb, E.V., L. Jacobson, and J. Handelsman. 1994. Zwittermicin A-producing strains of *Bacillus cereus* from diverse soils. *Applied and Environmental Microbiology*. 60: 4404-4412.
- Silo-Suh, L.A., B.J. Lethbridge, S.J. Raffel, H. He, J. Clardy, and J. Handelsman. 1994. Biological activities of two fungistatic antibiotics produced by *Bacillus cereus* UW85. *Applied and Environmental Microbiology*. 60: 2023-2030.
- Araujo, R.S., E.A. Robleto, and J. Handelsman. 1994. A hydrophobic mutant of *Rhizobium etli* altered in nodulation competitiveness and growth in the rhizosphere. *Applied and Environmental Microbiology*. 60: 1430-1436.
- He, H., L.A. Silo-Suh, J. Handelsman, and J. Clardy. 1994. Zwittermicin A, an antifungal and plant protection agent from *Bacillus cereus*. *Tetrahedron Letters*. 35: 2499-2502.
- Gilbert, G.S., J. Handelsman, and J.L. Parke. 1994. Root camouflage and disease control. *Phytopathology*. 84: 222-225.
- O'Connell, K.P. and J. Handelsman. 1993. Foliar chlorosis in symbiotic host and non-host plants induced by *Rhizobium tropici* type B strains. *Applied and Environmental Microbiology*. 59: 2184-2189.
- Halverson, L.J., M.K. Clayton, and J. Handelsman. 1993. Variable stability of antibiotic-resistance markers in *Bacillus cereus* UW85 in the soybean rhizosphere in the field. *Molecular Ecology*. 2: 65-78.
- Halverson, L.J., M.K. Clayton, and J. Handelsman. 1993. Population biology of *Bacillus cereus* UW85 in the rhizosphere of field-grown soybeans. *Soil Biology & Biochemistry*. 25: 485-493.
- Beattie, G.A. and J. Handelsman. 1993. Evaluation of a strategy for identifying nodulation competitiveness genes in *Rhizobium leguminosarum* biovar *phaseoli*. *Journal of General Microbiology*. 139: 529-538.
- Smith, K.P., M.J. Havey, and J. Handelsman. 1993. Suppression of cottony leak of cucumber with *Bacillus cereus* strain UW85. *Plant Disease*. 77: 139-142.
- Gilbert, G.S., J.L. Parke, M.K. Clayton, and J. Handelsman. 1993. Effects of an introduced bacterium on bacterial communities on roots. *Ecology*. 74: 840-854.
- Milner, J.L., R.S. Araujo, and J. Handelsman. 1992. Molecular and symbiotic characterization of exopolysaccharide-deficient mutants of *Rhizobium tropici* strain CIAT899. *Molecular Microbiology*. 6: 3137-3147.

- Halverson, L.J. and J. Handelsman. 1991. Enhancement of soybean nodulation by *Bacillus cereus* UW85 in the field and in a growth chamber. *Applied and Environmental Microbiology*. 57: 2767-2770.
- Handelsman, J., W.C. Nesmith, and S.J. Raffel. 1991. Microassay for biological and chemical control of infection of tobacco by *Phytophthora parasitica* var. *nicotianae*. *Current Microbiology*. 22: 317-319.
- O'Connell, K.P., R.S. Araujo, and J. Handelsman. 1990. Exopolysaccharide-deficient mutants of *Rhizobium* strain CIAT899 induce chlorosis in beans. *Molecular Plant-Microbe Interactions*. 3: 424-428.
- Handelsman, J., S. Raffel, and L. Sequeira. 1990. Monoclonal antibodies against *Agrobacterium tumefaciens* strain C58. *Current Microbiology*. 21: 181-185.
- Handelsman, J., S.J. Raffel, E.H. Mester, L. Wunderlich, and C.R. Grau. 1990. Biological control of damping-off of alfalfa seedlings by *Bacillus cereus* UW85. *Applied and Environmental Microbiology*. 56: 713-718.
- Gilbert, G.S., J. Handelsman, and J.L. Parke. 1990. Role of ammonia and calcium in lysis of zoospores of *Phytophthora cactorum* by *Bacillus cereus* UW85. *Experimental Mycology*. 14: 1-8.
- Beattie, G., M. Clayton, and J. Handelsman. 1989. Quantitative comparison of the laboratory and field competitiveness of *Rhizobium leguminosarum* biovar *phaseoli*. *Applied and Environmental Microbiology*. 55: 2755-2761.
- O'Connell, K.P. and J. Handelsman. 1989. *chvA* locus may be involved in export of neutral B-1,2-linked D-glucan from *Agrobacterium tumefaciens*. *Molecular Plant-Microbe Interactions*. 2: 11-16.
- Beattie, G.A. and J. Handelsman. 1989. A rapid method for the isolation and identification of *Rhizobium* from root nodules. *Journal of Microbiological Methods*. 9: 29-33.
- Handelsman, J. and J.L. Parke. 1989. Mechanisms of biocontrol of soilborne plant pathogens. In: *Plant-Microbe Interactions* Vol. 3. T. Kosuge and E.W. Nester, eds. New York: McGraw Hill, pp. 27-61.
- Triplett, E.W., G.P. Roberts, P.W. Ludden, and J. Handelsman. 1989. What's new in nitrogen fixation. *ASM News*. 55: 15-21.
- Handelsman, J., E.H. Mester, L. Wunderlich, and C. Grau. 1988. Rapid screening of bacteria for biocontrol of *Phytophthora* damping off of alfalfa. *Biological and Cultural Tests*. 3: 60.
- Ugalde, R.A., J. Handelsman, and W.J. Brill. 1986. Role of Galactosyltransferase Activity in Phage Sensitivity and Nodulation Competitiveness of *Rhizobium meliloti*. *Journal of Bacteriology*. 166: 148-154.

Handelsman, J. and W.J. Brill. 1985. *Erwinia herbicola* isolates from alfalfa roots may play a role in nodulation by *Rhizobium meliloti*. Applied and Environmental Microbiology. 49: 818-821.

Handelsman, J., R.A. Ugalde, and W.J. Brill. 1984. *Rhizobium meliloti* competitiveness and the alfalfa agglutinin. Journal of Bacteriology. 157: 703-707.

PUBLICATIONS: PAPERS ON SCIENCE EDUCATION AND GENDER IN SCIENCE

Moss-Racusin, C.A., J. van der Toorn, J.F. Dovidio, V.L. Brescoll, M.J. Graham, and J. Handelsman. 2016. A "scientific diversity" intervention to reduce gender bias in a sample of life scientists. CBE Life Sciences Education 15 (3) doi: 10.1187/cbe.15-09-0187

Moss-Racusin, C.A., J. van der Toorn, J.F. Dovidio, V.L. Brescoll, M.J. Graham, and J. Handelsman. 2014. Scientific diversity interventions. Science. 343(6171): 615-616.

Casadevall, A. and J. Handelsman. 2014. The presence of female conveners correlates with a higher proportion of female speakers at scientific symposia. mBio. 5(1): e00846-13. doi: 10.1128/mBio.00846-13.

Graham, M.J., J. Frederick, A. Byars-Winston, A.B. Hunter, and J. Handelsman. 2013. Increasing persistence of college students in STEM. Science. 341(6153): 1455-1456.

Moss-Racusin, C.A., J.F. Dovidio, V.L. Brescoll, M.J. Graham, and J. Handelsman. 2012. Science faculty's subtle gender biases favor male students. Proceedings of the National Academy of Sciences. 109(41): 16474-16479.

Anderson, W. A., U. Banerjee, C.L. Drennan, S.C.R. Elgin, I.R. Epstein, J. Handelsman, G.F. Hatfull, R. Losick, D.K. O'Dowd, B.M. Olivera, S.A. Strobel, G.C. Walker, and M. Warner. 2011. Changing the culture of science education at research universities. Science. 331(6014): 152-153.

Rios-Velazquez, C., L.L. Williamson, K.A. Cloud-Hansen, H.K. Allen, M.D. McMahon, Z.L. Sabree, J.J. Donato, and J. Handelsman. 2011. Summer workshop in metagenomics: One week plus eight students equals gigabases of cloned DNA. Journal of Microbiology & Biology Education. 12(2): 120-126.

Sheridan, J.T., E. Fine, C.M. Pribbenow, J. Handelsman, and M. Carnes. 2010. Searching for excellence & diversity: Increasing the hiring of women faculty at one academic medical center. Academic Medicine. 85(6): 999-1007.

- Pribbenow, C., J. Sheridan, J. Winchell, D. Benting, J. Handelsman, and M. Carnes. 2010. The tenure process and extending the tenure clock: The experience of faculty at one university. *Higher Education Policy*. 23: 17-28.
- Pfund, C., S. Miller, K. Brenner, P. Bruns, A. Chang, D. Ebert-May, A. Fagen, J. Gentile, S. Gossens, I. Khan, J. Labov, C.M. Pribbenow, M. Susman, L. Tong, R. Wright, W.B. Wood, R. Yuan, and J. Handelsman. 2009. Summer institute to improve university science teaching. *Science*. 324: 470.
- Miller, S., C. Pfund, C. Pribbenow, and J. Handelsman. 2008. Scientific teaching in practice. *Science*. 322: 1329-1330.
- Cloud-Hansen, K., J. Kuehner, L. Tong, S. Miller, and J. Handelsman. 2008. Money, sex, and drugs: A case study to teach the genetics of antibiotic resistance. *CBE-Life Sciences Education*. 7(3): 302-309.
- Pfund, C., J. Handelsman, S. Miller Lauffer. 2006. The merits of training mentors. *Science*. 311: 473-474.
- Sheridan, J., P. Flatley Brennan, M. Carnes, and J. Handelsman. 2006. Discovering directions for change in higher education through the experiences of senior women faculty. *Journal of Technology Transfer*. 31(3): 387.
- Handelsman, J., N. Cantor, M. Carnes, D. Denton, E. Fine, B. Grosz, V. Hinshaw, C. Marrett, S. Rosser, D. Shalala, and J. Sheridan. 2005. More women in science. *Science*. 309: 1190-1191.
- Carnes, M., S. Geller, E. Fine, J. Sheridan, and J. Handelsman. 2005. NIH Director's Pioneer Awards: Could the selection process be biased against women? *Journal of Women's Health*. 14(8): 682-689.
- Carnes, M., J. Handelsman, and J. Sheridan. 2005. Diversity in academic medicine: The stages of change model. *Journal of Women's Health*. 14(6): 471-475.
- Wood, W.B. and J. Handelsman. 2004. Meeting Report: The 2004 National Academies Summer Institute on Undergraduate Education in Biology. *Cell Biology Education*. 3: 215-217.
- Handelsman, J., D. Ebert-May, R. Beichner, P. Bruns, A. Chang, R. DeHaan, J. Gentile, S.M. Lauffer, J. Stewart, S.M. Tilghman, and W.B. Wood. 2004. Scientific teaching. *Science*. 304: 521-522.
- Lauffer, S. and J. Handelsman. 2004. A new generation of scientific teachers. *Focus on Microbiology Education*. 10: 4-6.
- Handelsman, J. 2003. Teaching scientists to teach. *HHMI Bulletin*. 12: 31.

Handelsman, J. 2002. Microbiology as a change agent in science education. *ASM News*. 68: 163-167.

PUBLICATIONS: BOOKS

Pfund, C., J. Branchaw, and J. Handelsman. 2015. *Entering Mentoring* (2nd Edition). Part of the *Entering Mentoring Series*, C. Pfund and J. Handelsman, eds. W.H. Freeman, New York. 122 pp.

Fine, E., J. Sheridan, M. Carnes, J. Handelsman, C. Pribbenow, J. Savoy, and A. Wendt. 2014. Minimizing the influence of gender bias on the faculty search process. Eds. V. Demos and M. Segal, *Gender Transformation in the Academy*. Emerald Group Publishing, Bingley. pp. 267-289.

Kleinman, D.L., K.A. Cloud-Hansen, and J. Handelsman, eds. 2014. *Controversies in Science and Technology Volume 4: From Sustainability to Surveillance*. Oxford University Press, New York. 288 pp.

Pfund, C. and J. Handelsman, eds. 2012. *Mentor Training for Clinical and Translational Researchers*. Part of the *Entering Mentoring Series*, C. Pfund and J. Handelsman, eds. W.H. Freeman, New York. 144 pp.

Fine, E. and J. Handelsman, eds. 2012. *Searching for excellence & diversity: A guide for search committees*. WISELI. 126 pp.

Kleinman, D.L., J. Delborne, K.A. Cloud-Hansen, and J. Handelsman, eds. 2010. *Controversies in Science and Technology Volume 3: From Evolution to Energy*. Mary Ann Liebert, Inc., New York. 438 pp.

Kleinman, D.L., C. Matta, K. Cloud-Hansen, and J. Handelsman, eds. 2008. *Controversies in Science and Technology, Volume II: From Climate to Chromosomes*. Mary Ann Liebert, Inc., New York. 533 pp.

Handelsman, J., S. Miller, and C. Pfund. 2007. *Scientific Teaching*. W.H. Freeman and Company, New York, NY. 184 pp.

Handelsman, J., C. Pfund, S. Miller Lauffer, and C.M. Pribbenow. 2005. *Entering Mentoring: A Seminar to Train a New Generation of Scientists*. University of Wisconsin Press, Madison, WI. 141 pp.

Kleinman, D.L., A.J. Kinchy, and J. Handelsman, eds. 2005. *Controversies in Science and Technology, Volume I: From Maize to Menopause*. University of Wisconsin Press, Madison, WI. 341 pp.

Handelsman, J., B.J. Houser, and H. Kriegel. 1997. *Biology Brought to Life: A guide to teaching students to think like scientists*. Wm. C. Brown Publishers, Inc., Dubuque, Iowa. 256 pp.

Handelsman, J. 1997. *Biology Brought to Life: Laboratory Guidebook*. Wm. C. Brown Publishers, Inc., Dubuque, Iowa. 53 pp.

PUBLICATIONS: EDITORIALS

Wichmann, F., N. Udikovic-Kolic, S. Andrew, and J. Handelsman. 2014. Reply to “The Natural Environment May Be the Most Important Source of Antibiotic Resistance Genes”. *mBio*. 5(4): e01421-14.

Handelsman, J. 2012. Dedicated to winning the future through undergraduate research. *DNA and Cell Biology*. 31(6): 891-892.

Handelsman, J. 2011. Stemming the tide. *DNA and Cell Biology*. 30(9): 631.

Handelsman, J. 2011. Highlights from the July 2011 issue of *DNA and Cell Biology*. *DNA and Cell Biology*. 30(7): 431.

Handelsman, J. 2011. Call for papers: special issue on undergraduate research. *DNA and Cell Biology*. 30(6): 891-892.

Handelsman, J. 2011. Highlights from the March 2011 issue of *DNA and Cell Biology*. *DNA and Cell Biology*. 30(3): 135.

Handelsman, J. 2011. Highlights from the February 2011 issue of *DNA and Cell Biology*. *DNA and Cell Biology*. 30(2): 69.

Handelsman, J. 2011. A New Year of *DNA and Cell Biology*. *DNA and Cell Biology*. 30(1): 1.

Handelsman, J. 2010. Highlights from the November 2010 issue of *DNA and Cell Biology*. *DNA and Cell Biology*. 29(11): 647.

Handelsman, J. 2010. Not science fiction: Undergraduates productive in research. *DNA and Cell Biology*. 29(9): 465.

Handelsman, J. 2010. Highlights from the August 2010 issue of *DNA and Cell Biology*. *DNA and Cell Biology*. 29(8): 397.

Handelsman, J. 2010. Highlights from the July 2010 issue of *DNA and cell biology*. *DNA and Cell Biology*. 29(7): 337.

Handelsman, J. 2010. Highlights from the May 2010 issue of *DNA and Cell Biology: Unusual systems and techniques*. *DNA and Cell Biology*. 29(5): 213.

Handelsman, J. 2010. Highlights from the March 2010 issue of *DNA and Cell Biology*. *DNA and Cell Biology*. 29(3): 101.

Handelsman, J. 2009. Highlights from the November 2009 issue of *DNA and Cell*

- Biology. DNA and Cell Biology. 28(11): 541.
- Handelsman, J. 2009. Highlights from the October 2009 issue of DNA and Cell Biology. DNA and Cell Biology. 28(10): 479.
- Handelsman, J. 2009. News from DNA and cell biology. DNA and Cell Biology. 28(9): 423.
- Handelsman, J. 2009. Microbial symbiosis: in sickness and in health. DNA and Cell Biology. 28(8): 359-360.
- Handelsman, J. 2009. Highlights from the May 2009 issue of DNA and Cell Biology. DNA and Cell Biology. 28(5): 221.
- Handelsman, J., Highlights from the March 2009 issue of DNA and Cell Biology. DNA Cell Biol, 2009. 28(3): 101.
- Handelsman, J. 2009. Odd, weird, and bizarre: Model systems issue. DNA and Cell Biology. 28(2): 49.
- Handelsman, J. 2008. Call for papers: Symbiosis special issue. DNA and Cell Biology. 27(11): 587.
- Handelsman, J. and R.A. Grymes. 2008. Looking for a few good women? DNA and Cell Biology. 27(9): 463-465.
- Felnagle, E. and Handelsman, J. 2008. Commonalities in sickness and in health. DNA and Cell Biology. 27(7): 345-346.
- Handelsman, J. 2008. Call for papers: Unique model systems. DNA and Cell Biology. 27(6): 287.
- Handelsman, J. 2008. Metagenomics is not enough. DNA and Cell Biology. 27(5): 219-221.
- Handelsman, J. 2008. Youth matters. DNA and Cell Biology. 27(3): 115.
- Handelsman, J. 2008. The gray zone: Scientific misconduct comes in many shades. DNA and Cell Biology. 27(2): 63-64.
- Handelsman, J. 2008. DNA and Cell Biology 2008 New Year's resolutions. DNA and Cell Biology. 27(1): 1.
- Handelsman, J. 2007. Help wanted: Newspapers seek Ph.D.'s in biomedical sciences. DNA and Cell Biology. 26(12): 809-810.
- Handelsman, J. and Birgeneau, R. 2007. Women advancing science. DNA and Cell Biology. 26(11): 763-764.