HARRY R. BELLER
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EDUCATION

Postdoctoral scholar. Civil Engineering (Environmental). **Stanford University**, Stanford, CA.

Ph.D. Civil Engineering (Environmental). **Stanford University**, Stanford, CA. 1995.

M.S. Chemical Oceanography. **Oregon State University**, Corvallis, OR. 1985.

B.A. Environmental Science. **Wesleyan University**, Middletown, CT. 1981.

PROFESSIONAL EXPERIENCE

12/11 - present	Senior Scientist, Lawrence Berkeley National Laboratory
10/07 - present	Director/Scientific Lead, Biofuels Pathways, DOE Joint BioEnergy Institute (JBEI)
4/09 - present	Adjunct Professor, Department of Chemical Engineering and Applied Chemistry, University of Toronto
9/07 - 12/11	Staff Scientist, Lawrence Berkeley National Laboratory
4/03 – 4/09	Adjunct Associate Professor, Department of Chemical Engineering and Applied Chemistry, University of Toronto
12/08; 7/04	Guest lecturer, Environmental Microbiology, Stanford University
11/98 – 8/07	Senior Environmental Scientist, Lawrence Livermore National Laboratory
6/95 – 11/98	Postdoctoral Scholar, Dept. of Civil Engineering, Stanford University
7/89 – 6/95	Research Assistant, Dept. of Civil Engineering, Stanford University
Summer 1993	Teaching Assistant, Dept. of Civil Engineering, Stanford University
8/87 – 6/89	Senior Environmental Chemist, PTI Environmental Services (Bellevue, WA)
6/85 – 8/87	Environmental Chemist, Tetra Tech, Inc. (Bellevue, WA)
8/82 – 6/85	Research Assistant, College of Oceanic and Atmospheric Sciences, Oregon State University

AWARDS AND HONORS

- Editorial Advisory Board of *Environmental Science & Technology* (2014 - 2016)
- Associate Editor of *BMC Biotechnology* (2015 - present)
- Editorial Board of *Applied and Environmental Microbiology* (2007-2012)
- Scientific Advisory Committee (SAC) for the Biosciences Division of the SLAC National Accelerator Laboratory (Menlo Park, CA) (2015 - present)
- Editorial Advisory Board of CRC Press Sustainable Energy Developments series (2016-)
- Expert panel on hydraulic fracturing for State of CA under Senate Bill 4 (SB4). 2015
- Included in *Who's Who in America* (Marquis) (2005, 2006, 2017, 2018)
- Industry and Entrepreneurial Excellence Award, JBEI (2017)
- Executive Committee, UC Toxic Substances Research & Teaching Program, 2006 - 2007
- Recognition award, LLNL Environmental Protection Department, December 2003
- American Chemical Society award for Grad. Students in Environmental Chemistry. 1994
- Switzer Foundation Environmental Fellow. 1991/2

PROFESSIONAL ORGANIZATIONS

American Society for Microbiology
American Chemical Society
American Geophysical Union
Sigma Xi, The Scientific Research Society

PEER-REVIEWED PUBLICATIONS

(h-index = 32, Web of Science)

Beller, H. R.*, A. V. Rodrigues, K. Zargar, Y.-W. Wu, A. K. Saini, R. M. Saville, J. H. Pereira, P. D. Adams, S. G. Tringe, C. J. Petzold, and J. D. Keasling. In press. Discovery of enzymes for toluene synthesis from anoxic microbial communities. *Nature Chemical Biology*. doi: 10.1038/s41589-018-0017-4

Wang, X., E.-B. Goh, and **H. R. Beller***. 2018. Engineering *E. coli* for simultaneous glucose-xylose utilization during methyl ketone production. *Microbial Cell Factories*. **17**:12 doi: 10.1186/s12934-018-0862-6

Goh, E.-B., Y. Chen, C. J. Petzold, J. D. Keasling, and **H. R. Beller***. 2018. Improving methyl ketone production in *E. coli* by heterologous expression of NADH-dependent FabG. *Biotechnology and Bioengineering* doi: 10.1002/bit.26558/pdf

Jewell, T. N. M., U. Karaoz, M. Bill, R. Chakraborty, E. L. Brodie, K. H. Williams, and **H. R. Beller***. 2017. Metatranscriptomic analysis reveals unexpectedly diverse microbial metabolism in a biogeochemical hot spot in an alluvial aquifer. *Frontiers in Microbiology* **8**: 40 doi: 10.3389/fmicb.2017.00040

Varadharajan, V., **H. R. Beller**, M. Bill, E. L. Brodie, M. E. Conrad, R. Han, C. Irwin, J. T. Larsen, H.-C. Lim, S. Molins, C. I. Steefel, A. Van Hise, L. Yang, and P. S. Nico. 2017. Re-oxidation of chromium(III) products formed under different biogeochemical regimes. *Environ. Sci. Technol.* **51**: 4918-4927. doi 10.1021/acs.est.6b06044

Yabusaki, S. B., M. J. Wilkins, Y. Fang, K. H. Williams, B. Arora, J. R. Bargar, **H. R. Beller**, et al. 2017. Water table dynamics and biogeochemical cycling in a shallow, variably saturated floodplain. *Environ. Sci. Technol.* **51**:3307-3317. doi 10.1021/acs.est.6b04873

Jardine, K. J., A. Jardine, J. A. Holm, D. L. Lombardozzi, R. I. Negron-Juarez, S. T. Martin, **H. R. Beller**, B. O. Gimenez, N. Higuchi, J. Q. Chambers. 2017. Monoterpene 'thermometer' of tropical forest-atmosphere response to climate warming. *Plant, Cell, and Environment* doi: 10.1111/pce.12879

Zargar, K., R. Saville, R. Phelan, S. G. Tringe, C. J. Petzold, J. D. Keasling, and **H. R. Beller**. 2016. *In vitro* characterization of phenylacetate decarboxylase, a novel enzyme catalyzing toluene biosynthesis in an anaerobic microbial community. *Scientific Reports* (*Nature*) **6**, 31362 doi: 10.1038/srep31362

Beller, H. R., P. Zhou, T. N. M. Jewell, E.-B. Goh, J. D. Keasling. 2016. Enhanced fatty acid production in engineered chemolithoautotrophic bacteria using reduced sulfur compounds as energy sources. *Metabolic Engineering Communications* **3**:211-215
doi: 10.1016/j.meteno.2016.07.001

Javidpour, P., S. Deutsch, V. K. Mutalik, N. J. Hillson, C. J. Petzold, J. D. Keasling, **H. R. Beller**. 2016. Investigation of proposed ladderane biosynthetic genes from anammox bacteria by heterologous expression in *E. coli*. *PLoS ONE* doi: 10.1371/journal.pone.0151087

Jewell, T. N. M., U. Karaoz, E. L. Brodie, K. H. Williams, and **H. R. Beller**. 2016. Metatranscriptomic evidence of pervasive and diverse chemolithoautotrophy relevant to C, S, N, and Fe cycling in a shallow alluvial aquifer. *ISME Journal* doi: 10.1038/ismej.2016.25

H. R. Beller, T. S. Lee, L. Katz. 2015. Natural products as biofuels and bio-based chemicals: fatty acids and isoprenoids. *Natural Product Reports* **32**:1508-1526.
[Voted Editor's Choice article for 2015]

Varadharajan, C., R. Han, **H. R. Beller,** L. Yang, M. A. Marcus, M. Michel, and Peter S. Nico. 2015. Characterization of chromium bioremediation products in flow-through column sediments using micro–X-ray fluorescence and X-ray absorption spectroscopy. *J. Environ. Qual.* **44**:729-738.

Goh, E.-B., E. E. K. Baidoo, H. Burd, T. S. Lee, J. D. Keasling, **H. R. Beller**. 2014. Substantial improvements in methyl ketone production in *E. coli* and insights on the pathway from *in vitro* studies. *Metabolic Engineering* **26**:67-76.

Beller, H. R., Li Yang, C. Varadharajan, R. Han, H. C. Lim, U. Karaoz, S. Molins, M. A. Marcus, E. L. Brodie, C. I. Steefel, and Peter S. Nico. 2014. Divergent aquifer biogeochemical systems converge on similar and unexpected Cr(VI) reduction products. *Environ. Sci. Technol.* **48**:10699-10706.

Javidpour, P., J. H. Pereira, E.-B. Goh, R. P. McAndrew, S. M. Ma, G. D. Friedland, J. D. Keasling, S. R. Chhabra, P. D. Adams, and **H. R. Beller**. 2014. Biochemical and structural studies of NADH-dependent FabG used to increase the bacterial production of fatty acids under anaerobic conditions. *Appl. Environ. Microbiol.* **80**:497-505.

Bi, C., P. Su, J. Müller, Y.-C. Yeh, S. R. Chhabra, **H. R. Beller**, S. W. Singer, N. J. Hillson. 2013. Development of a broad-host synthetic biology toolbox for *Ralstonia eutropha* and its application to engineering hydrocarbon biofuel production. *Microbial Cell Factories* **12**:107 doi:10.1186/1475-2859-12-107

Beller, H. R., P. Zhou, T. C. Legler, A. Chakicherla, S. Kane, T. E. Letain, P. O'Day. 2013. Genome-enabled studies of anaerobic, nitrate-dependent iron oxidation in the chemolithoautotrophic bacterium *Thiobacillus denitrificans*. *Frontiers in Microbiology* **4:**249. doi: 10.3389/fmicb.2013.00249

Müller, J., D. MacEachran, H. Burd, N. Sathitsuksanoh, C. Bi, Y-C. Yeh, T. S. Lee, N. J. Hillson, S. R. Chhabra, S. W. Singer, and **H. R. Beller**. 2013. Engineering of *Ralstonia eutropha* H16 for autotrophic and heterotrophic production of methyl ketones. *Appl. Environ. Microbiol.* **79**:4433-4439.

Beller, H. R., R. Han, U. Karaoz, H. C. Lim, E. L. Brodie. 2013. Genomic and physiological characterization of the chromate-reducing, aquifer-derived firmicute *Pelosinus* sp. strain HCF1. *Appl. Environ. Microbiol.* **79**:63-73.

Yeh, Y.-C., J. Müller, C. Bi, N. J. Hillson, **H. R. Beller**, S. R. Chhabra, S. W. Singer. 2013. Functionalizing bacterial cell surfaces with a phage protein. *Chemical Communications* **49**:910-912.

Paap, S. M., T. H. West, D. K. Manley, E. J. Steen, **H. R. Beller**, J. D. Keasling, D. C. Dibble, S. Chang, B. A. Simmons. 2013. Biochemical production of ethanol and fatty acid ethyl esters from switchgrass: analysis of environmental and economic performance. *Biomass and Bioenergy* **49**:49-62.

Pereira, J. H., E.-B. Goh, J. D. Keasling, **H. R. Beller**, P. D. Adams. 2012. Structure of FabH and factors affecting the distribution of branched fatty acids in *Micrococcus luteus*. *Acta Crystallographica* **D68**:1320-1328.

Beller, H. R., T. C. Legler, and S. R. Kane. 2012 (Book chapter). "Genetic manipulation of the obligate chemolithoautotrophic bacterium *Thiobacillus denitrificans*", vol. 881, pp. 99-136, *In* Microbial Systems Biology: Methods and Protocols [Methods in Molecular Biology series], A. Navid (ed.), Springer Science. DOI 10.1007/978-1-61779-827-6_5.

Han, R., L. Qin, S. T. Brown, J. N. Christensen, **H. R. Beller**. 2012. Differential isotopic fractionation during Cr(VI) reduction under aerobic versus denitrifying conditions by an aquifer-derived bacterium. *Appl. Environ. Microbiol.* **78**:2462-2464.

Goh, E.-B., E. E. K. Baidoo, J. D. Keasling, and **H. R. Beller**. 2012. Engineering of bacterial methyl ketone synthesis for biofuels. *Appl. Environ. Microbiol.* **78**:70-80.

Beller, H. R., E.-B. Goh, and J. D. Keasling. 2011. Definitive alkene identification needed for *in vitro* studies with Ole (olefin synthesis) proteins. *Journal of Biological Chemistry* **286**(26):le11.

O. Chertkov, A. Copeland, S. Lucas, A. Lapidus, K. W. Berry, J. C. Detter, T. Glavina Del Rio, N. Hammon, E. Dalin, H. Tice, S. Pitluck, P. Richardson, D. Bruce, L. Goodwin, C. Han, R. Tapia, E. Saunders, J. Schmutz, T. Brettin, F. Larimer, M. Land, L. Hauser, S. Spring, M. Rohde, N. C. Kyrpides, N. Ivanova, M. Göker, **H. R. Beller**, H.-P. Klenk, and T. Woyke. 2011. Complete genome sequence of *Tolumonas auensis* type strain (TA 4T). *Standards in Genomic Sciences* 5(1), doi:10.4056/sigs.2184986

Chhabra, S. R., G. Butland, D. Elias, J-M. Chandonia, O-Y Fok, T. Juba, A. Gorur, S. Allen, C.M. Leung, K. Keller, S. Reveco, G. Zane, E. Semkiw, R. Prathapam, B. Gold, M. Singer, M. Ouellet, D. Sazakal, D. Jorgens, M.N. Price, E. Witkowska, **H. R. Beller**, A.P. Arkin, T.C. Hazen, M.D. Biggin, M. Auer, J.D. Wall, and J. D. Keasling. 2011. Generalized schemes for high-throughput manipulation of the *Desulfovibrio vulgaris* genome. *Appl. Environ. Microbiol.* **77**:7595-7604.

DeAngelis, K. M., C. H. Wu, **H. R. Beller** et al. 2011. PCR amplification-independent methods for detection of microbial communities by the high-density microarray PhyloChip. *Appl. Environ. Microbiol.* **77**: 6313 - 6322.

Han, R., J. T. Geller, L.Yang, E. L. Brodie, R. Chakraborty, J. T. Larsen, and **H. R. Beller**. 2010. Physiological and transcriptional studies of Cr(VI) reduction under aerobic and denitrifying conditions by an aquifer-derived pseudomonad. *Environ. Sci. Technol.* **44**:7491-7497.

Beller, H. R., E.-B. Goh, and J. D. Keasling. 2010. Genes involved in long-chain alkene biosynthesis in *Micrococcus luteus*. *Appl. Environ. Microbiol.* **76**:1212-1223.

Young, M., V. Artsatbanov, **H. R. Beller**, et al. 2010. Genome sequence of the Fleming strain of *Micrococcus luteus*, a simple free-living actinobacterium. *J. Bacteriol.* **192**:841-860.

Beller, H. R., T. C. Legler, F. Bourguet, T. E. Letain, S. R. Kane, and M. A. Coleman. 2009. Identification of *c*-type cytochromes involved in anaerobic, bacterial U(IV) oxidation. *Biodegradation* **20**:45-53.

Beller, H. R., S. R. Kane, T. C. Legler, J. R. McKelvie, B. Sherwood Lollar, F. Pearson, L. Balser, and D. M. Mackay. 2008. Comparative assessments of benzene, toluene, and xylene natural attenuation by quantitative polymerase chain reaction analysis of a catabolic gene, signature metabolites, and compound-specific isotope analysis. *Environ. Sci. Technol.* **42**:6065-6072.

Kunapuli, U., C. Griebler, **H. R. Beller**, and R. U. Meckenstock. 2008. Identification of intermediates formed during anaerobic benzene degradation by an iron-reducing enrichment culture. *Environmental Microbiology* **10**:1703-1712.

Letain, T. E., S. R. Kane, T. C. Legler, E. P. Salazar, P. G. Agron, and **H. R. Beller**. 2007. Development of a genetic system for the chemolithoautotrophic bacterium *Thiobacillus denitrificans*. *Appl. Environ. Microbiol.* **73**:3265-3271.

Beller, H. R., T. E. Letain, A. Chakicherla, S. R. Kane, T. C. Legler, and M. A. Coleman. 2006. Whole-genome transcriptional analysis of chemolithoautotrophic thiosulfate oxidation by *Thiobacillus denitrificans* under aerobic vs. denitrifying conditions. *J. Bacteriol.* **188**:7005-7015.

Beller, H. R., P. S. G. Chain, T. E. Letain, A. Chakicherla, F. W. Larimer, P. M. Richardson, M. A. Coleman, A. P. Wood, and D. P. Kelly. 2006. The genome sequence of the obligately chemolithoautotrophic, facultatively anaerobic bacterium *Thiobacillus denitrificans*. *J. Bacteriol.* **188**:1473-1488.

Beller, H. R. 2005. Anaerobic, nitrate-dependent oxidation of U(IV) oxide minerals by the chemolithoautotrophic bacterium *Thiobacillus denitrificans*. *Appl. Environ. Microbiol.* **71**:2170-2174.

McKelvie, J. R., J. E. Lindstrom, **H. R. Beller,** S. A. Richmond, and B. Sherwood Lollar. 2005. Analysis of anaerobic BTX biodegradation in a subarctic aquifer using isotopes and benzylsuccinates. *Journal of Contaminant Hydrology* **81**:167-186.

Ulrich, A. C., **H. R. Beller,** and E. A. Edwards. 2005. Metabolites detected during biodegradation of $^{13}C_6$-benzene in nitrate-reducing and methanogenic enrichment cultures. *Environ. Sci. Technol.* **39**:6681-6691.

Beller, H. R., V. Madrid, G. B. Hudson, W. W. McNab, and T. Carlsen. 2004. Biogeochemistry and natural attenuation of nitrate in groundwater at an explosives test facility. *Applied Geochemistry* **19**:1483-1494.

Beller, H. R., S. R. Kane, T. C. Legler, and P. J. J. Alvarez. 2002. A real-time polymerase chain reaction method for monitoring anaerobic, hydrocarbon-degrading bacteria based on a catabolic gene. *Environ. Sci. Technol.* **36**:3977-3984.

Beller, H. R. 2002. Anaerobic biotransformation of RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) by aquifer bacteria using hydrogen as the sole electron donor. *Water Research* **36**: 2533-2540.

Beller, H. R., and K. Tiemeier. 2002. Use of liquid chromatography/tandem mass spectrometry to detect distinctive indicators of *in situ* RDX transformation in contaminated groundwater. *Environ. Sci. Technol.* **36**: 2060-2066.

Beller, H. R. 2002. Analysis of benzylsuccinates in groundwater by liquid chromatography/ tandem mass spectrometry and its use for monitoring *in situ* BTEX biodegradation. *Environ. Sci. Technol.* **36**: 2724-2728.

Kane, S. R., **H. R. Beller**, T. C. Legler, and R. T. Anderson. 2002. Biochemical and genetic evidence of benzylsuccinate synthase in toluene-degrading, ferric iron-reducing *Geobacter metallireducens*. *Biodegradation* **13**: 149-154.

Reusser, D. E., J. D. Istok, **H. R. Beller**, and J. A. Field. 2002. *In situ* transformation of deuterated toluene and xylene to benzylsuccinic acid analogs in BTEX-contaminated aquifers. *Environ. Sci. Technol.* **36**: 4127-4134.

Beller, H. R. 2000. Metabolic indicators for detecting *in situ* anaerobic alkylbenzene degradation. *Biodegradation* **11**: 125-139.

Beller, H. R., and E. A. Edwards. 2000. Anaerobic toluene activation by benzylsuccinate synthase in a highly enriched methanogenic culture. *Appl. Environ. Microbiol.* **66**: 5503-5505.

Kane, S. R., **H. R. Beller**, T. C. Legler, C. J. Koester, H. C. Pinkart, R.U. Halden, A.M. Happel. 2001. Aerobic biodegradation of methyl *tert*-butyl ether by aquifer bacteria from leaking underground storage tank sites. *Appl. Environ. Microbiol.* **67**: 5824-5829.

Koester, C. J., **H. R. Beller**, and R. U. Halden. 2000. Analysis of perchlorate in groundwater by electrospray ionization mass spectrometry/mass spectrometry. *Environ. Sci. Technol.* **34**: 1862-1864.

Beller, H. R., and A. M. Spormann. 1999. Substrate range of benzylsuccinate synthase from *Azoarcus* sp. strain T. *FEMS Microbiol. Letters* **178:** 147-153.

Krieger, C. J., **H. R. Beller**, M. Reinhard, and A. M. Spormann. 1999. Initial reactions in anaerobic oxidation of *m*-xylene by the denitrifying bacterium *Azoarcus* sp. strain T. *J. Bacteriol*. **181**: 6403-6410.

Heider, J., A. M. Spormann, **H. R. Beller**, and F. Widdel. 1998. Anaerobic bacterial metabolism of hydrocarbons. *FEMS Microbiol. Reviews* **22**: 459-473.

Beller, H. R., and A. M. Spormann. 1998. Analysis of the novel benzylsuccinate synthase reaction for anaerobic toluene activation based on structural studies of the product. *J. Bacteriol*. **180**: 5454-5457.

Beller, H. R., and A. M. Spormann. 1997. Benzylsuccinate formation as a means of anaerobic toluene activation by sulfate-reducing strain PRTOL1. *Appl. Environ. Microbiol*. **63**: 3729-3731.

Beller, H. R., and A. M. Spormann. 1997. Anaerobic activation of toluene and *o*-xylene by addition to fumarate in denitrifying strain T. *J. Bacteriol*. **179**: 670-676.

Beller, H. R., A. M. Spormann, P. K. Sharma, J. R. Cole, and M. Reinhard. 1996. Isolation and characterization of a novel toluene-degrading, sulfate-reducing bacterium. *Appl. Environ. Microbiol*. **62**: 1188-1196.

Beller, H. R., W.-H. Ding, and M. Reinhard. 1995. Byproducts of anaerobic alkylbenzene metabolism useful as indicators of *in situ* bioremediation. *Environ. Sci. Technol*. **29**: 2864-2870.

Beller, H. R., and M. Reinhard. 1995. The role of iron in enhancing anaerobic toluene degradation in sulfate-reducing enrichment cultures. *Microb. Ecol*. **30**:105-114.

Beller, H. R., M. Reinhard, and D. Grbic-Galic. 1992. Metabolic by-products of anaerobic toluene degradation by sulfate-reducing enrichment cultures. *Appl. Environ. Microbiol*. **58**: 3192-3195.

Beller, H. R., D. Grbic-Galic, and M. Reinhard. 1992. Microbial degradation of toluene under sulfate-reducing conditions and the influence of iron on the process. *Appl. Environ. Microbiol*. **58**:786-793.

Beller, H. R., E. A. Edwards, D. Grbic-Galic, and M. Reinhard. 1991. Microbial degradation of alkylbenzenes under sulfate-reducing and methanogenic conditions. EPA/600/2-91/027. Final Report prepared for U.S. Environmental Protection Agency. National Technical Information Service (publication #PB91-212324), Springfield, VA.

Beller, H. R., and B. R. T. Simoneit. 1988. Hexachlorophene distributions in estuarine sediments. *Bull. Environ. Contam. Toxicol*. **41**:645-650.

Beller, H. R., and B. R. T. Simoneit. 1986. "Polychlorinated biphenyls and hydrocarbons: distributions among bound and unbound lipid fractions of estuarine sediments," pp. 198-214. In: Organic Marine Geochemistry. M.L. Sohn (ed). ACS Symposium Series No. 305, American Chemical Society, Washington, DC.

Simoneit, B. R. T., and **H. R. Beller**. 1987. "Lipid geochemistry of Cretaceous/Tertiary boundary sediments, Hole 605, Deep Sea Drilling Project Leg 93, and Stevns Klint, Denmark," pp. 1211-1221. In: Initial Reports of the Deep Sea Drilling Project, Vol. 93, pt. 2. J.E. van Hinte, S. W. Wise, Jr., et al. (eds). U.S. Government Printing Office, Washington, DC.

Simoneit, B. R. T., and **H. R. Beller**. 1985. "Lipid geochemistry of the Cretaceous/Tertiary boundary sediments, Hole 577, Deep Sea Drilling Project Leg 86," pp. 671-674. In: Initial Reports of the Deep Sea Drilling Project, Vol. 86. G.R. Heath, L.H. Burckle, et al. (eds). U.S. Government Printing Office, Washington, DC.

ISSUED PATENTS

Beller, H. R., and E.-B. Goh. 2017. U.S Patent US 9,556,458 B2. Bacterial Production of Methyl Ketones. **Issued** January 31, 2017.

Yeh, Y.-C., S. W. Singer, S. R. Chhabra, **H. R. Beller**, J. Stumpe. 2017. U. S. Patent 9,777,300. Hybrid organic-inorganic system for producing biofuels. **Issued** October 3, 2017.

PRESENTATIONS (2006 - present)

Rodrigues, A.V., K. Zargar, Y.-W. Wu, A. Saini, R. Saville, J. H. Pereira, P. Adams, S. G. Tringe, C. J. Petzold, J. D. Keasling, **H. R. Beller**. "Discovery of phenylacetate decarboxylase, a new glycyl radical enzyme enabling first-time biochemical production of toluene". Poster, 2018 Genomic Sciences Program PI Meeting, Tysons, VA, February 26, 2018

Beller, H. R. "Discovery of bacterial enzymes for toluene synthesis / degradation to support biofuels / bioremediation." **Invited talk** at the Department of Biology, Sonoma State University, Rohnert Park, CA, August 29, 2017.

Beller, H. R., A. Rodrigues, K. Zargar,A. Saini, S. G. Tringe, J. D. Keasling, and C. J. Petzold. 2017. "Discovery of a novel bacterial enzyme, phenylacetate decarboxylase, enabling bio-based toluene production". Talk at the Symposium on Biotechnology for Fuels and Chemicals, SIMB, San Francisco, CA, May 2, 2017.

Beller, H. R., A. Rodrigues, K. Zargar,A. Saini, S. G. Tringe, J. D. Keasling, and C. J. Petzold. 2017. "Omics-enabled discovery of a novel bacterial enzyme, phenylacetate decarboxylase, enabling bio-based toluene production". Talk at American Chemical Society 253rd National Meeting, San Francisco, CA, April 4, 2017.

Beller, H. R., A. Rodrigues, K. Zargar,A. Saini, S. G. Tringe, J. D. Keasling, and C. J. Petzold. 2017. "Omics-enabled discovery of a novel bacterial enzyme enabling first-time bio-based toluene production". **Invited talk** at the 12th Annual DOE JGI Genomics of Energy & Environment Meeting, Walnut Creek, CA, March 23, 2017.

Beller, H. R., A. Rodrigues, K. Zargar, A. Saini, S. G. Tringe, J. D. Keasling, and C. J. Petzold. 2017. Discovery of a novel bacterial enzyme enabling first-time biochemical production of toluene. Poster at the DOE Genomic Sciences Program Meeting, Crystal City, VA, February 5-8, 2017.

Beller, H. R., T. N. M. Jewell, U. Karaoz, M. Bill, E. L. Brodie, K. H. Williams. 2016. Strain-resolved metatranscriptomic analysis reveals unexpectedly diverse heterotrophic and lithoautotrophic microbial metabolism in naturally reduced aquifer sediments. Talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 12, 2016.

Beller, H. R. 2016. Discovery of a novel toluene synthase from a complex microbial community. **Invited talk** at the LBNL Environmental Genomics and Systems Biology Retreat, Lafayette, CA, November 18, 2016.

Beller, H. R. 2016. How chemolithoautotrophic bacteria can modulate biogeochemical cycling and water quality in aquifers. **Invited talk** at the University of California, Merced, November 2, 2016.

Beller, H. R. 2016. Discovery of a novel toluene synthase from a complex microbial community. **Invited talk** for the LBNL Microbial Ecology Department, Berkeley, CA, October 27, 2016.

Yan, J., F. Xu, L. Liang, Q. He, T. Luong, C. Li, V. S. Thompson, E.-B. Goh, M. Konda, **H. R. Beller**, B. A. Simmons, T. R. Pray, S. Singh, N. Sun. 2016. Conversion of municipal solid waste to methyl ketones using an ionic liquid-based process. Talk at the AIChE Annual Meeting, San Francisco, CA, November 16, 2016.

Beller, H. R., E.-B. Goh, E. Baidoo, H. Burd, T. S. Lee, H. Garcia Martin, and J. D. Keasling. 2016. Advances in engineering of bacterial methyl ketone synthesis for biofuels. Poster at the Metabolic Engineering 11 Conference, Kobe, Japan, June 26-30, 2016.

Jewell, T. N. M., U. Karaoz, E. L. Brodie, K. H. Williams, **H. R. Beller**. 2016. Strain-specific metatranscriptomic evidence of pervasive and diverse chemolithoautotrophy relevant to C, S, N, and Fe cycling in a shallow alluvial aquifer. Poster at the 116th General Meeting of the American Society for Microbiology, Boston, MA, June 16-20, 2016.

Goh, E.-B., E. Baidoo, J. D. Keasling, H. Garcia Martin, and **H. R. Beller**. 2016. Substantial improvement in methyl ketone production in *E. coli* using metabolic engineering and metabolic modeling. Poster at the 116th General Meeting of the American Society for Microbiology, Boston, MA, June 16-20, 2016.

Jewell, T. N. M., U. Karaoz, J. F. Banfield, E. L. Brodie, K. H. Williams, and **H. R. Beller**. 2016. Using strain-resolved metatranscriptomic evidence to highlight active biogeochemical processes in the subsurface. Poster at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 26-27, 2016.

Brodie, E. L., H. Steltzer, **H. R. Beller**, et al. 2016. Ecohydrological controls on watershed function. Poster at the DOE Subsurface Biogeochemical Research review of LBL Scientific Focus Area, Potomac, MD, April 28, 2016.

Hubbard, S. S., D. Agarwal, J. F. Banfield, **H. R. Beller**, et al. 2016. Berkeley Lab Watershed Function SFA: Biogeochemical Dynamics from Genome to Watershed Scales. Poster at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 26-27, 2016.

King, E., S. Molins, U. Karaoz, N.J. Bouskill, K. Anantharaman, **H.R. Beller**, T. N. M., Jewell, K.H. Williams, J.F. Banfield, C.I. Steefel, E.L. Brodie. 2016. Genome-enabled modeling of microbial biogeochemistry using a trait-based approach. Does increasing metabolic complexity increase predictive capabilities? Invited talk at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 26-27, 2016.

Banfield, J. F., **H. R. Beller**, et al. 2016. Floodplain and shale controls on riparian zone biogeochemistry. Poster at the DOE Subsurface Biogeochemical Research review of LBL Scientific Focus Area, Potomac, MD, April 28, 2016.

Yabusaki, S., M. Wilkins, Y. Fang, K. Williams, B. Arora, J. Bargar, **H. R. Beller**, N. Bouskill, E. Brodie, J. Christensen, M. Conrad, R. Danczak, E. King, N. Spycher, C. Steefel, T. Tokunaga, R. Versteeg, S. Waichler, . Wainwright. 2016. Rifle floodplain water table dynamics: biogeochemical cycling and uranium mobility. Poster at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 26-27, 2016.

Goh, E.-B, R. Haushalter, H. Burd, T. S. Lee, H. Garcia Martin, J. D. Keasling, **H. R. Beller**. 2016. Fatty acid-related research at JBEI: methyl ketones and branched fatty acids in *E. coli.* Poster at the DOE Genomic Sciences Contractor-Grantee Meeting, Tysons, VA, March 6-9, 2016.

King, E. L., S. Molins, U. Karaoz, K. Anantharaman, N. J. Bouskill, **H. R. Beller**, J. F. Banfield, C. I. Steefel, and E. L. Brodie. 2016. Development of a stochastic genome-informed trait based model for biogeochemical processes. Invited talk at the Computational Methods in Water Resources conference, Toronto, Ontario.

Beller, H. R., T. N. M. Jewell, U. Karaoz, J. F. Banfield, E. L. Brodie, K. H. Williams. 2015. Metatranscriptome analysis of aquifer samples reveals unexpected metabolic lifestyles relevant to active biogeochemical cycling. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

King, E. L., S. Molins, U. Karaoz, K. Anantharaman, N. J. Bouskill, **H. R. Beller**, J. F. Banfield, C. I. Steefel, and E. L. Brodie. 2016. Development of a stochastic genome-informed trait based model for biogeochemical processes. Invited talk at the Computational Methods in Water Resources conference, Toronto, Ontario.

Jewell, T. N. M., U. Karaoz, E. L. Brodie, K. H. Williams, M. Bill, **H. R. Beller**. 2015. Linked metatranscriptomic and geochemical data indicate microbial succession in naturally reduced aquifer sediments dominated by H_2-oxidizing Comamonadaceae. Talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

Brodie, E. L., E. King, S. Molins, U. Karaoz, C. Steefel, J. Banfield, **H. R. Beller**, K. Anantharaman, T. Ligocki, D. Trebotich. 2015. Genome-enabled modeling of biochemical process predicts dependencies that connectthe relative fitness of functional guilds and the importance of microbial functional guilds. Invited talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

E. L. King, S. Molins, U. Karaoz, N. J. Bouskill, K. Anantharaman, **H. R. Beller**, J. F. Banfield, C. I. Steefel, and E. L. Brodie. 2015. Genome-enabled modeling of microbial biogeochemistry using a trait-based approach. Does increasing metabolic complexity increase predictive capabilities? Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

Yabusaki, S., M. Wilkins, Y. Fang, K. Williams, B. Arora, J. Bargar, **H. R. Beller**, et al. 2015. Floodplain water table dynamics: biogeochemical cycling and uranium mobility. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.

Beller, H. R., T. N. M. Jewell, U. Karaoz, B. C. Thomas, J. F. Banfield, E. L. Brodie, K. H. Williams. 2015. Metatranscriptomic evidence of diverse chemolithoautotrophy in the Rifle (CO) subsurface relevant to C, S, N, and Fe cycling. Poster at the 115th General Meeting of the American Society for Microbiology, New Orleans, LA, June 2, 2015.

Brodie, E. L., E. King, S. Molins, U. Karaoz, N.J. Bouskill, L.A. Hug, B.C. Thomas, K. Anantharaman, C.J. Castelle, K.H. Williams, **H. R. Beller**, J.F. Banfield, and C.I. Steefel. 2015. Development of a genome-informed trait-based model for microbial biogeochemistry within terrestrial and aquatic ecosystems Invited talk at the 115th General Meeting of the American Society for Microbiology, New Orleans, LA, June 2, 2015.

Jewell, T. N. M., U. Karaoz, B. C. Thomas, J. F. Banfield, E. L. Brodie, K. H. Williams, **H. R. Beller**. 2015. Metatranscriptomic analysis of a Rifle, CO aquifer reveals an active anammox bacterial population. Poster at the 115th General Meeting of the American Society for Microbiology, New Orleans, LA, June 2, 2015.

Goh, E.-B., E. Baidoo, X. Cheng, H. Burd, T. S. Lee, J. D. Keasling, T. R. Northen, and **H. R. Beller**. 2015. Substantial methyl ketone production in *E. coli* using rational metabolic engineering and random mutagenesis approaches. Poster at the 115th General Meeting of the American Society for Microbiology, New Orleans, LA, May 31, 2015.

Goh, E.-B., E. E. K. Baidoo, J. Müller, H. Burd, T.S. Lee, S. Singer, J. D. Keasling, and **H. R. Beller***. 2015. Development and optimization of a novel pathway for bacterial overproduction of medium-chain methyl ketones. Invited poster at the Exxon event at EBB, Berkeley, CA, May 12, 2015.

Beller, H. R. 2015. Genome-scale characterization of subsurface microbial activity relevant to the nitrogen cycle. **Invited talk** at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 28-9, 2015.

Jewell, T. N. M., U. Karaoz, B. C. Thomas, J. F. Banfield, E. L. Brodie, K. H. Williams, **H. R. Beller**. 2015. Metatranscriptomic evidence of diverse chemolithoautotrophy in the Rifle (CO) subsurface relevant to C, S, N, and Fe cycling. Poster at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 28-9, 2015.

Hubbard, S. S., D. Agarwal, J. Banfield, **H. R. Beller**, et al. 2015. Genomes-to-Watershed predictive understanding of terrestrial environments. Poster at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 28-9, 2015.

E. King, S. Molins, U. Karaoz, N.J. Bouskill, L.A. Hug, B.C. Thomas, C.J. Castelle, **H.R. Beller**, J.F. Banfield, C.I. Steefel, E.L. Brodie. 2015. Genomes to Watershed LBNL SFA 2.0: Modeling microbial community dynamics with genome-informed trait-based models. Poster at the DOE Environmental System Science Principal Investigator Meeting, Potomac, MD, April 28-9, 2015.

Goh, E.-B., E. Baidoo, X. Cheng, H. Burd, T. S. Lee, J. D. Keasling, T. R. Northen, and **H. R. Beller**. 2015. Substantial improvements in methyl ketone production in *E. coli* from rational metabolic engineering and random mutagenesis. Poster at the DOE Genomic Sciences Contractor-Grantee Meeting XII, Vienna, VA, February, 2015.

Beller, H, R. 2015. Exploring microbial metabolic potential of natural systems. Invited talk, LBNL BioSciences Expert Advisory Committee, Berkeley, CA, January 29, 2015.

Beller, H, R., T. N. M. Jewell, U. Karaoz, B. C. Thomas, J. F. Banfield, E. L. Brodie, K. H. Williams. 2014. Metatranscriptomic evidence of chemolithoautotrophy in the Rifle (CO) subsurface relevant to C, S, N, and Fe cycling. Talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.

Jewell, T.N.M., U. Karaoz, J. F. Banfield, E. L. Brodie, K. H. Williams, and **H. R. Beller**. 2014. Metatranscriptomic analysis of groundwater reveals an active anammox bacterial population. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.

E.L. Brodie, E. King, S. Molins, U. Karaoz, J. Johnson, N.J. Bouskill, L.A. Hug, B.C. Thomas, C.J. Castelle, **H.R. Beller**, J.F. Banfield, C.I. Steefel. 2014. Beyond the blueprint: development of genome-informed trait-based models for prediction of microbial dynamics and biogeochemical rates. Talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.

Hubbard, S. S., D. Agarwal, J. F. Banfield, **H. R. Beller**, E. Brodie, P. Long, P. Nico, C. Steefel, T. Tokunaga, K. H. Williams. 2014. Genome-to-Watershed Predictive Understanding of Terrestrial Environment Functioning: Sustainable Systems 2.0. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.

E. King, S. Molins, U. Karaoz, J. Johnson, N.J. Bouskill, L.A. Hug, B.C. Thomas, C.J. Castelle, **H.R. Beller**, J.F. Banfield, C.I. Steefel, E.L. Brodie. 2014. Modeling microbial biogeochemistry from terrestrial to aquatic ecosystems using trait-based approaches. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2014.

Beller, H, R., E.-B.Goh, E. E. K. Baidoo, and J. D. Keasling. 2014. Engineering of bacterial methyl ketone synthesis for biofuels: recent advances. Talk at the 248th National Meeting of the American Chemical Society, San Francisco, CA, August 11, 2014.

Beller, H. R., P. Zhou, T. C. Legler, A. Chakicherla, P. A. O'Day. 2014. Genome-enabled studies of anaerobic, nitrate-dependent iron oxidation in *Thiobacillus denitrificans*. Poster at the 114th General Meeting of the American Society for Microbiology, Boston, MA, May 2014.

Goh, E.-B., E. E. K. Baidoo, J. D. Keasling, and **H. R. Beller**. 2014. Engineering of bacterial methyl ketone synthesis for biofuels: recent advances. **Invited talk** at the 114th General Meeting of the American Society for Microbiology, Boston, MA, May 2014.

Javidpour, P., V. Mutalik, S. Deutsch, and **H. R. Beller**. 2014. Exploring the ladderane biosynthetic pathway through heterologous gene expression in *Escherichia coli*. Poster at the 114th General Meeting of the American Society for Microbiology, Boston, MA, May 2014.

Yilmaz, S. U. Karaoz, K. Zargar, **H. R. Beller**, E. Brodie, A. Arkin, A. Singh. 2014. A single-cell approach to identification of bioaggregate composition. Poster at the 114th General Meeting of the American Society for Microbiology, Boston, MA, May 2014.

Beller, H.R., T. N. Jewell, U. Karaoz, H. C. Lim, P. Zhou, R. Chakraborty, R. Sharma, C. J. Castelle, L. A. Hug, K. C. Wrighton, R. L. Hettich, M. J. Wilkins, J. F. Banfield, K. H. Williams, and E. L. Brodie. 2014. Chemolithoautotrophy in the Rifle subsurface relevant to C, S, and Fe cycling. Poster at the 2014 TES SBR PI Meeting, Potomac, MD, May, 2014.

O'Day, P. A., J. Chorover, C. Steefel, **H. R. Beller**, M. Kanematsu, N. Perdrial, E. Reinoso-Maset, A. Vazquez-Ortega. 2014. Scaling of molecular processes to quantify biogeochemical reaction and transport of uranium in subsurface systems. Oral presentation at the 2014 TES SBR PI Meeting, Potomac, MD, May, 2014.

Castelle, C.J., L. A. Hug, I. Sharon, C. Brown, K. C. Wrighton, B. C. Thomas, M. J. Wilkins, S. G. Tringe, A. Singh, **H. R. Beller**, E. Brodie, K. H. Williams, J. F. Banfield. 2014. Extensive genome-resolved analyses reveal roles for uncultivated archaea and bacteria in subsurface biogeochemical cycling. Poster at the 2014 TES SBR PI Meeting, Potomac, MD, May, 2014.

Nico, P.S., P. Fox, R. Tinnacher, J. Davis, C. Cismasu, W. Moses, N. Vandehey, J. O'Neil, B. Gilbert, T. Jewell, **H. R. Beller**. 2014. Sediment associated organic matter dynamics. Poster at the 2014 TES SBR PI Meeting, Potomac, MD, May, 2014.

King, E., S. Molins, U. Karaoz, N. Bouskill, L. Hug, B. Thomas, C. Castelle, **H.R. Beller**, J. Banfield, C.I. Steefel, E.L. Brodie. 2014. LBNL Sustainable Systems SFA 2.0: Genome-enabled watershed simulation capability (GEWaSC). Poster at the 2014 TES SBR PI Meeting, Potomac, MD, May, 2014.

Madrid, V.M., M. Singleton, B.K. Esser, and **H.R. Beller**. 2014. An Interdisciplinary Monitored Natural Attenuation Study of Groundwater Nitrate at a High-Explosive Test Facility in California. Poster at the 9th International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, May, 2014.

Javidpour, P., E.-B. Goh, E. Baidoo, V. Mutalik, S. Deutsch, J. D. Keasling, and **H. R. Beller**. 2014. Developing new fatty acid-derived biofuels at JBEI: methyl ketones and ladderanes. Poster at the DOE Genomic Sciences Contractor-Grantee Meeting XII, Crystal City, MD, February, 2014.

Beller, H. R., P. Zhou, T. C. Legler, A. Chakicherla, P. O'Day. 2013. Genome-enabled studies of anaerobic, nitrate-dependent iron oxidation in the chemolithoautotrophic bacterium *Thiobacillus denitrificans*. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.

Karaoz, U., Y. Cheng, N. Bouskill, J. Tang, **H. R. Beller**, E. Brodie, W. J. Riley. Genome-informed trait-based models. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.

Beller, H. R., and E.-B. Goh. Engineering of bacterial methyl ketone synthesis for biofuels: recent advances. **Invited talk** at the American Institute of Chemical Engineering (AIChE) Annual Meeting, San Francisco, CA, November 5, 2013.

Beller, H. R. Developing new biofuels at the Joint BioEnergy Institute (JBEI). **Invited talk** in the Stanford University Civil and Environmental Engineering Department seminar series, May 31, 2013.

Goh, E.-B., and **H. R. Beller**. New developments in engineering *Escherichia coli* to produce methyl ketones. Poster at the 113th General Meeting of the American Society for Microbiology, Denver, CO, May 2013.

Beller, H. R., R. Han, U. Karaoz, H. C. Lim, E. L. Brodie. Genomic and physiological characterization of the chromate-reducing, firmicute *Pelosinus* sp. strain HCF1 and its importance in aquifer metatranscriptomes. Poster at the 113th General Meeting of the American Society for Microbiology, Denver, CO, May 2013.

Beller, H. R., E.-B. Goh, P. Javidpour, F. Zhang, J. D. Keasling. New developments in fatty acid-derived fuels at JBEI. Poster at the DOE Genomic Sciences Contractor-Grantee Meeting XI, Bethesda, MD, February, 2013.

Beller, H. R., J.F. Banfield, E.L. Brodie, R. Chakraborty, R.L. Hettich, M.J. Wilkins. Characterizing Metabolic Potential of the subsurface for SFA 2.0. Poster at the Joint DOE-TES/DOE-SBR PI Meeting, Potomac, MD, May 2013.

O'Day, P. A., M. Pilar Asta, M. Kanematsu, R. Pokharel, S. Traina, **H. R. Beller**, P. Zhou, C. Steefel. Molecular mechanisms and kinetics of microbial anaerobic nitrate-dependent U(IV) and Fe(II) oxidation. Poster at the Joint DOE-TES/DOE-SBR PI Meeting, Potomac, MD, May 2013.

Beller, H. R. Development of advanced biofuels at the Joint BioEnergy Institute (JBEI). **Invited talk** at the Northern California American Society for Microbiology, 30th Annual Spring meeting, Pleasanton, CA, March 2013.

Beller, H. R., R. Han, U. Karaoz, H. C. Lim, E. L. Brodie. Genomic and physiological characterization of the chromate-reducing, aquifer-derived firmicute *Pelosinus* sp. strain HCF1. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2012.

Beller, H. R., T. C. Legler, S. R. Kane, P. O'Day, P. Zhou. Genome-enabled studies of anaerobic, nitrate dependent U(IV) oxidation. **Invited talk** at the 22nd Goldschmidt Conference, Montreal, Canada, June 29, 2012.

Goh, E.-B., and **H. R. Beller**. Engineering of bacterial methyl ketone synthesis for biofuels. Poster at the 112th General Meeting of the American Society for Microbiology, San Francisco, CA, June 2012.

J. Mueller, Y.-C. Yeh, S. Chhabra, S. W. Singer and **H. R. Beller**. Metabolic engineering of *Ralstonia eutropha* H16 to produce fatty-acid derived biofuels from CO_2. Poster at the 112th General Meeting of the American Society for Microbiology, San Francisco, CA, June 2012.

Brodie, E. L., U. Karaoz, H.-C. Lim, R. Han, L. Yang and **H. R. Beller**. Metagenomic and meta-transcriptomic analysis of chromate-reducing flow-through columns. Poster at the 112th General Meeting of the American Society for Microbiology, San Francisco, CA, June 2012.

Han, R., J. Cabugao, U. Karaoz, E. L. Brodie, C. Varadharajan, P. S. Nico, L. Yang, **H. R. Beller**. Diverse aquifer bacterial isolates implicated in both direct Cr(VI) reduction and linked Fe(III) and Cr(VI) reduction. Poster at the 112th General Meeting of the American Society for Microbiology, San Francisco, CA, June 2012.

Zhou, P., and **H. R. Beller.** Investigation of genes involved in anaerobic, nitrate-dependent Fe(II) oxidation in *Thiobacillus denitrificans*. Poster at the 112th General Meeting of the American Society for Microbiology, San Francisco, CA, June 2012.

Yeh, Y.-C., J. W. Jurss, J. Mueller, C. Bi, **H. R. Beller,** C. J. Chang, S. W. Singer, and S. Chhabra. Tethering H_2-producing electrocatalysts to the outer membrane of biofuel-producing *Ralstonia eutropha* H16. Poster at the 112th General Meeting of the American Society for Microbiology, San Francisco, CA, June 2012.

Bi, C., J. Muller, Y.-C. Yeh, J. Vroom, P. Su, N. J. Hillson, **H. R. Beller**, S. Chhabra, and S. Singer. Developing a toolbox and engineering *Ralstonia eutropha* for biofuel production. Poster at the 112th General Meeting of the American Society for Microbiology, San Francisco, CA, June 2012.

Beller, H. R., R. Han, U. Karaoz, H. C. Lim, L. Yang, B. Faybishenko, E. L. Brodie. Use of metagenomic and meta-transcriptomic analysis to interpret biogeochemical processes mediated by Hanford 100H aquifer bacteria (lab and field studies). Poster at the DOE Subsurface Biogeochemical Research 7th Annual PI Meeting, Washington, DC, April 2012.

O'Day, P. A., M. P. Asta, S. Traina, P. Zhou, C. Steefel, **H. R. Beller**. Molecular mechanisms and kinetics of microbial anaerobic nitrate-dependent U(IV) and Fe(II) oxidation. Poster at the DOE Subsurface Biogeochemical Research 7th Annual PI Meeting, Washington, DC, April 2012.

Sonnenthal, E. L., S. Molins, C. Wanner, C.I. Steefel, **H.R. Beller.** Reactive transport modeling of Hanford 100H lab- and field-scale experiments. Poster at the DOE Subsurface Biogeochemical Research 7th Annual PI Meeting, Washington, DC, April 2012.

Varadharajan, C., R. Han, S. Molins, M. Conrad, J. Christensen, M. Bill, C. Steefel, J. Larsen, L. Yang, E. L. Brodie, **H. R. Beller**, P. S. Nico. Competing evidence for enzymatic versus abiotic reduction of Cr(VI) in Hanford 100H flow-through columns. Poster at the DOE Subsurface Biogeochemical Research 7th Annual PI Meeting, Washington, DC, April 2012.

Beller, H. R. Exploiting the benzylsuccinate synthase reaction for biomolecular and mass spectrometric monitoring of *in situ* alkylbenzene degradation. **Invited talk** at the American Chemical Society 243rd National Meeting, San Diego, CA, March, 2012.

Beller, H. R., E. L. Brodie, R. Han, U. Karaoz, H. C. Lim, S. Molins Rafa, P. S. Nico, C. I. Steefel, C. Varadharajan, L. Yang. Competing evidence for enzymatic versus abiotic reduction of Cr(VI) in flow-through columns containing Hanford 100H aquifer sediment. **Invited talk** at the American Chemical Society 243rd National Meeting, San Diego, CA, March, 2012.

Zhou, P., and **H. R. Beller.** Investigation of genes involved in anaerobic, nitrate-dependent Fe(II) oxidation in *Thiobacillus denitrificans*. Poster at the American Chemical Society 243rd National Meeting, San Diego, CA, March, 2012.

Goh, E.-B., J. D. Keasling, and **H. R. Beller**. Engineering of bacterial methyl ketone synthesis for biofuels. Poster at the DOE Genome Sciences Workshop, Washington, DC, February, 2012.

Beller, H. R., H. C. Lim, R. Han, U. Karaoz, and E. L. Brodie. Metagenomic and meta-transcriptomic analysis of a chromate-reducing aquifer microbial community. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Zhou, P., and **H. R. Beller.** Different enzymes are involved in anaerobic, nitrate-dependent U(IV) and Fe(II) oxidation in *Thiobacillus denitrificans*. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Molins, S., C.I. Steefel, L. Yang, and **H.R. Beller.** Modeling of Cr(VI) bioreduction under fermentative and denitrifying conditions. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Han, R., L. Qin, J. Geller, R. Chakraborty, J. N. Christensen, and **H. R. Beller**. Biomolecular and isotopic signatures related to Cr(VI) reduction by a sulfate-reducing bacterium isolated from the Hanford 100H aquifer. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Varadharajan, C., P. S. Nico, L. Yang , R. Han, M. Bill, J. Larsen, A. Van Hise, S. Molins, C. Steefel, M. Conrad, H.-C. Lim, E. L. Brodie, and **H. R. Beller**. Evaluating the risk for chromium reoxidation in aquifer sediments following a reductive bioremediation treatment. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

T. Hazen, B. Faybishenko, **H. R. Beller**, E. Brodie, E. Sonnenthal, C. Steefel, J. Larsen, M. Conrad, M. Bill, J. Christensen, S. Brown, D. Joyner, S. Borglin, J. Geller, R. Chakraborty, P. Nico, P. Long, D. Newcomer, E. Arntzen. Comparison of field groundwater biostimulation experiments using polylactate and lactate solutions at the chromium-contaminated Hanford 100H site. Oral presentation at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Beller, H. R., and E.-B. Goh. 2011. Development of alkene biofuels. **Invited talk** at the American Institute of Chemical Engineering (AIChE) Annual Meeting, Minneapolis, MN, October 2011.

Beller, H. R., E. L. Brodie, R. Han, and U. Karaoz. 2011. Metagenomic and meta-transcriptomic analysis of a chromate-reducing aquifer microbial community. Poster at the 111th General Meeting of the American Society for Microbiology, New Orleans, LA, May 2011.

Goh, E.-B., and **H. R. Beller**. 2011. Evidence that *Micrococcus luteus* OleA initiates alkene synthesis by catalyzing decarboxylative condensation. Poster at the 111th General Meeting of the American Society for Microbiology, New Orleans, LA, May 2011.

Han, R., J. T. Geller E. L. Brodie, R. Chakraborty, J. Larsen, **H. R. Beller**. 2011. Physiological and transcriptional studies of Cr(VI) reduction by *Desulfovibrio vulgaris* strain RCH1 under sulfate-reducing conditions. Poster at the 111th General Meeting of the American Society for Microbiology, New Orleans, LA, May 2011.

Beller, H. R., H.C. Lim, R. Han, U. Karaoz, E. L. Brodie. 2011. Metagenomic and meta-transcriptomic analysis of chromate-reducing aquifer microbial communities from Hanford 100H. Poster at the DOE Subsurface Biogeochemical Research 6th Annual PI Meeting, Washington, DC, April 2011.

O'Day, P.A., M. P. Asta, S. Traina, **H. R. Beller**, P. Zhou, and C. Steefel. 2011. Molecular mechanisms and kinetics of microbial anaerobic nitrate-dependent U(IV) and Fe(II) oxidation. Poster at the DOE Subsurface Biogeochemical Research 6th Annual PI Meeting, Washington, DC, April 2011.

Yang, L., C. Varadharajan, R. Han, S. Molins, P. Nico, M. Conrad, J. Christensen, M. Bill, C. Steefel, J. Larsen, E. Brodie, **H. R. Beller**. 2011. Flow-through column experiments and modeling of Cr(VI) reduction under various electron-accepting conditions at Hanford 100H. Poster at the DOE Subsurface Biogeochemical Research 6th Annual PI Meeting, Washington, DC, April 2011.

Conrad, M.E., J. N. Christensen, L. Qin, M. Bill, S. T. Brown, L. Yang, R. Han, B. A. Faybishenko, T. C. Hazen, **H. R. Beller**. 2011. Isotopic studies of microbial processes affecting chromate reduction in groundwater at the Hanford 100H site. Poster at the DOE Subsurface Biogeochemical Research 6th Annual PI Meeting, Washington, DC, April 2011.

Goh, E.-B., E. J. Steen, N. J. Hillson, J. W. Thorne, **H. R. Beller***, and J. D. Keasling. 2011. Development of fatty acid-based fuels at JBEI: alkenes and fatty acid ethyl esters. Poster at the DOE Genome Sciences Workshop, Washington, DC, April 2011.

Müller, J., Y.-C. Yeh, **H. R. Beller**, C. Chang, S. W. Singer, and S. Chhabra. 2011. Development of an integrated Microbial-ElectroCatalytic (MEC) system for liquid biofuel production from CO_2. Poster at the American Chemical Society 241st National Meeting, Anaheim, CA, March 2011.

Beller, H. R. 2011. Genome-enabled studies of uranium biogeochemistry: new insights into anaerobic U(IV) oxidation. **Invited talk** at the University of California, Merced, February 2011.

Beller, H. R., R. Han, U. Karaoz, and E. L. Brodie*. Meta-transcriptomic analysis of a chromate-reducing aquifer microbial community. Talk at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2010.

Varadharajan, C., P. S. Nico, L. Yang, M. Marcus, C. Steefel, J. Larsen, **H. R. Beller**, E. L. Brodie, 2010. Spectroscopic analysis of chromium bioremediation products. Poster at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2010.

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Beller, H. R. 2008. Genome-enabled studies of uranium biogeochemistry: new insights into anaerobic U(IV) oxidation. **Invited talk** at the Subsurface Biosphere Initiative and NSF IGERT Workshop, Newport, OR, June 2008.

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