

## **Romy Chakraborty**

Research Scientist, Ecology Department, Earth Sciences Division  
Lawrence Berkeley National Lab

### **Education:**

- PhD in Microbiology, University of California at Berkeley, 2005
- Master of Science in Life Sciences, University of Mumbai (Bombay), India, 1997
- Bachelor of Science in Microbiology, University of Bombay, India, 1995

### **Research Appointments:**

- Research Scientist. April 2012-current, Ecology Dept., LBNL
- Scientific and Engineering Associate. Sept 2008- Mar2012. Ecology Dept., LBNL.
- Post Doctoral Scholar. August 2005- Aug 2008. Ecology Dept., Lawrence Berkeley National Lab.
- Post Doctoral Researcher. February 2005 – August 2005. Dept. of Plant and Microbial Biology, University Of California at Berkeley.

### **Professional Organizations:**

- Associate Faculty Member, Faculty of 1000 Biology
- American Society of Microbiology
- International Society for Microbial Ecology
- American Geophysical Union

### **Professional Activities:**

- Session Chair, AGU Fall meeting, San Francisco, Dec 2008: Geochemical Controls and Microbial Response in Metal-Contaminated Environments II.
- Session Chair, ASM 110<sup>th</sup> General meeting, San Diego, May 2010: Causes of complexity in microbial stress response: the role of evolution, memory, stochasticity and physiological state.
- Session Chair, AGU Fall meeting, San Francisco, Dec 2012: Biogeochemistry of the Deepwater Horizon Oil Spill.

### **Reviewer:**

- Environmental Microbiology
- Environmental Science and Technology
- ISME
- National Science Foundation
- Frontiers in Microbial Biotechnology
- FEMS Microbiology
- Microbial Biotechnology

### **Publications:**

- 1) Coates J.D, **Chakraborty R**, Lack, J.G, O'Connor, S.M, Cole, K.A, Bender K.S, and Achenbach, L.A. (2001) Anaerobic benzene oxidation coupled to nitrate reduction in pure culture by two novel organisms. Nature 411:1039-1043.
- 2) Coates J.D, **Chakraborty R**, O'Connor, S.M, and Thieme, J. (2001) The geochemical effects of microbial humic substances reduction. Acta hydrochimica et hydrobiologica 28(7): 420-427.
- 3) Coates J.D, Cole K.A, **Chakraborty R**, O'Connor S.M, Achenbach L.A. (2002). The diversity and ubiquity of bacteria utilizing humic substances as an electron donor for anaerobic respiration. Applied and Environmental Microbiology 68(5): 2445-2452.

- 4) Lack J.G, Chaudhuri S. K, **Chakraborty R**, Achenbach L.A, Coates J.D. (2002) Anaerobic biooxidation of Fe (II) by *Dechlorosoma suillum*. Microbial Ecology 43: 424-431.
- 5) Bender K.S, **Chakraborty R**, O'Connor S.M, Coates J.D, Achenbach L.A. (2002) Sequencing and Transcriptional Analysis of the Chlorite Dismutase Gene of *Dechloromonas agitata* and Its Use as a Metabolic Probe. Applied and Environmental Microbiology 68(10): 4820-4826.
- 6) Coates J.D, **Chakraborty R**, McInerney M.J, (2002) Anaerobic benzene biodegradation- a new era. Research in Microbiology 153: 621-628.
- 7) Coates J.D and **Chakraborty R**. (2003) Anaerobic Bioremediation - An Emerging Resource for Environmental Cleanup. In, Bioremediation: A Critical Review. Horizon Scientific Press (Editors: I.M. Head, I. Singleton and M. Milner University of Newcastle, UK).
- 8) **Chakraborty R** and Coates, J.D. (2004) Anaerobic degradation of monoaromatic hydrocarbons. Applied Microbiology and Biotechnology 64: 437-446.
- 9) **Chakraborty R** and Coates J.D. (2005). Hydroxylation and carboxylation – two crucial steps of anaerobic benzene degradation by *Dechloromonas* strain RCB. Applied and Environmental Microbiology 71(9): 5427-5432.
- 10) Bender K. S, Shang C, **Chakraborty R**, Belchik S.M, Coates J.D, and Achenbach L.A (2005). Identification, characterization, and classification of genes encoding perchlorate reductase. Journal Of Bacteriology. 187: 5090-5096.
- 11) **Chakraborty R**, O'Connor S.M, Chan E, and Coates J. D (2005) Anaerobic degradation of BTEX compounds by *Dechloromonas* strain RCB. Applied and Environmental Microbiology 71(12): 8649-8655.
- 12) **Chakraborty R\***, Tang Y.J\*, Martin H.G, Chu J, Hazen T.C, Keasling J.D (2007) Flux analysis of central metabolic pathways in the Fe (III)-reducing organism *Geobacter metallireducens* via <sup>13</sup>C isotopic labeling. Applied and Environmental Microbiology 73(12): 3859-3864.
- 13) Mukhopadhyay A, Redding A.M, Joachimiak M.P, Arkin A.P, Borglin S.E, Dehal P.S, **Chakraborty R**, Geller J.T, Hazen T.C, He Q, Joyner D.C, Martin V.J.J, Wall J.D, Yang Z.K, Zhou J, Keasling J.D (2007). Cell wide responses to low oxygen exposure in *Desulfovibrio vulgaris* Hildenborough. Journal Of Bacteriology 189(16): 5996-6010.
- 14) Faybishenko, B., Hazen T.C, Long P.E, Brodie E.L, Conrad M.E, Hubbard S.S, Joyner D.C, Borglin S.E, **Chakraborty R**, Williams K.H, Peterson J.E, Chen J, Tokunaga T.K, Wan J, Firestone M, Newcomer D.L, Resch C.T, Cantrell K.J, Willett A, Koenigsberg S. (2008). In Situ Long-Term Reductive Bioimmobilization of Cr(VI) in Groundwater Using Hydrogen release compound. Environmental Science and Technology. 42(22): 8478-8485.
- 15) Hazen T.C, **Chakraborty R**, Gregory I.R, Bowman J.P, Jimenez L, Zhang D, Fleming J.M, Saylor G.S, Pfiffner S.M, Brockman F.J. (2009) Use of Gene Probes to Assess the Impact and Effectiveness of Aerobic In Situ Bioremediation of TCE and PCE. Archives of Microbiology 191:221-232.
- 16) Hazen T.C, Dubinsky E.A, DeSantis T.Z, Andersen G.L, Piceno Y.M, Singh N, Janssen J.R, Probst A, Borglin S.E, Fortney J.L, Stringfellow W.T, Bill M, Conrad M.S, Tom L.M, Chavarria K.L, Alusi T.R, Lamendella R, Joyner D.C, Spier C, Baelum J, Auer M, Zemla M.L, **Chakraborty R**, Sonnenthal E.L, D'haeseleer P, Holman H.Y.N, Osman S, Lu Z, Van Nostrand J.D, Deng Y, Zhou J, and Mason O.U. (2010). Deep-sea oil plume enriches psychrophilic oil-degrading bacteria causing rapid disappearance of oil. Science. 330(6001): 2004-2008.
- 17) Han R, Geller J.T, Yang L, Brodie E.L, **Chakraborty R**, Larsen J.T, Beller H.R. (2010). Physiological and transcriptional studies of Cr(VI) reduction under aerobic and denitrifying conditions by an aquifer-derived pseudomonad. Environmental Science and Technology 44(19): 7491-7497.
- 18) **Chakraborty R**, Hazen T.C, Joyner D. C., Kossel K, Singer M. E., Site J, Torok T. (2011). Use of immunomagnetic separation for the detection of *Desulfovibrio vulgaris*. Journal of Microbiological Methods. 86(2):204-209.

- 19) Liu P, Meagher R.J, Light Y.K, Yilmaz S, **Chakraborty R**, Arkin A.P, Hazen T.C, Singh A.K. (2011). Integrated microfluidic fluorescence *in situ* hybridization ( $\mu$ FISH) and flow cytometry for environmental bacterial detection. Lab on a Chip. 11(16):2673-9.
- 20) DeAngelis K.M, Wu C.H, Beller H.R, Brodie E.L, **Chakraborty R**, DeSantis T.Z, Fortney J.L, Hazen T.C, Osman S.R, Singer M.E, Tom L.M, Andersen G.L. (2011). PCR amplification-independent methods for detection of microbial communities by high-density microarray. Applied and Environmental Microbiology 77(18): 6313-6322.
- 21) **Chakraborty R**, Wu C.H, Hazen T.C. (2012). Systems Biology Approach Used in Bioremediation. Current Opinions in Biotechnology. 23:1-8.
- 22) Bælum J, Borglin S.E., **Chakraborty R**, Fortney J.L, Lamendella R, Mason O.U, Auer M, Zemla M, Bill M, Conrad M.E, Malfatti S.A, Tringe S.G, Holman H.Y, Hazen T.C, Jansson J.K. (2012). Deep-sea bacteria enriched by oil and dispersant from the Deepwater Horizon spill. Environmental Microbiology. doi:10.1111/j.1462-2920.2012.02780.x
- 23) **Chakraborty R\***, Borglin S.E, Dubinsky E.L, Andersen G.L, Hazen T.C. (2012). Microbial response to the MC252 Oil and Corexit 9500 in the Gulf of Mexico. Frontiers in Microbiology. doi: 10.3389/fmicb.2012.00357

### Manuscripts in preparation:

- 1) **Chakraborty R**, Fortney J. L, Zhou A, Joachimiak M, Borglin S. E, He Z, Arkin A. P, Zhou J, Hazen T. C. Investigation of Stress Response in Metal-Reducing Organism *Geobacter metallireducens* Strain GS15 (In prep).
- 2) Lamendella R, Borglin S.E, Hultman J, Mason O.U, Reid F, Fortney J.L, Wetmore K, Kuehl J, Lim H.C, **Chakraborty R**, Hazen T.C, Jansson J. Intertidal Beach Microbial Community Dynamics Associated with the Deepwater Horizon Oil Spill (In prep).
- 3) Timberlake S.C, **Chakraborty R**, Mukhopadhyay A, Huang K.H, Joyner D.C, Joachimiak M.P, Baumohl J.K, Dehal P.S, He Z, Zhou A, Zhou J, Arkin A.P, Hazen T.C, Alm E.J. Conservation of modules but not phenotype in bacterial gene regulatory networks. *Genome Biology* (In prep).