

# Earth Sciences Division Ecology Department

2005–2006

Abulencia, C.B., D.L. Wyborski, J. Garcia, M. Podar, W. Chen, S.H. Chang, H.W. Chang, D.B. Watson, E. Brodie, T.C. Hazen, and M. Keller, Environmental whole-genome amplification to access microbial diversity in contaminated sediments. *Applied and Environmental Microbiology*, **72** (5), 3291-3301, LBNL-60416, 2006.

Andersen, G.L., P. Hu, E. Brodie, and H.H. McAdams, Whole genome transcriptional analysis of toxic metal stresses in *Caulobacter crescentus*. Genomes-To-Life workshop. Washington D. C. Washington, D. C., DOE Genomes-to-Life program. LBNL-60665, 2005.

Balser, T.C., and M.K. Firestone, Linking microbial community composition and soil processes in a California annual grassland and mixed-conifer forest. *Biogeochemistry*, **73** (2), 395-415, LBNL-60675, 2005.

Brodie, E.L., T. DeSantis, D. Joyner, S.M. Baek, J.T. Larsen, G.L. Andersen, T.C. Hazen, P.M. Richardson, D.J. Herman, T.K. Tokunaga, J.M. Wan, and M.K. Firestone, Bacterial population dynamics during uranium reduction and re-oxidation: Application of a novel high density oligonucleotide microarray approach. *Appl. Environ. Microbiol.*, **72**(9), 6288-6298, LBNL-59761, 2006.

Burns, J.R., and N.W.T. Quinn, Use of geospatial technologies to compare environmental impacts of wetland delayed drawdown in California's San Joaquin Basin. LBNL-60747, 2006.

Chain, P.S.G., P. Hu, S.A. Malfatti, L. Radnedge, F. Larimer, L.M. Vergez, P.L. Worsham, M.C. Chu, and G.L. Andersen, Complete genome sequence of *Yersinia Pestis* Strains Antiqua and Nepal516: Evidence of gene reduction in an emerging pathogen. *Journal of Bacteriology*, **188** (12), 4453-4463, LBNL-60248, 2006.

Chhabra, S.R., Q. He, K. Huang, S.P. Gaucher, E. Alm, Z. He, M.Z. Hadi, T. Hazen, J. Wall, J. Zhou, A. Arkin, and A. Singh, Global analysis of heat shock response in *Desulfovibrio vulgaris* Hildenborough. *J. Bacteriol*, **188** (5), 1817-1828, LBNL-60298, 2006.

Clark, M. E., Q. He, Z. He, K. H. Huang, E. J. Alm, X. Wan, T. C. Hazen, A. P. Arkin, J. D. Wall, J. Zhou, and M. W. Fields, Temporal transcriptomic analysis of *Desulfovibrio vulgaris* Hildenborough transition into stationary phase growth during electron donor depletion. *Appl. Environ. Microbiol.* **72**, 5578-5588, LBNL-60466, 2006.

Clavijo, R.I., C. Loui, G.L. Andersen, W. Riley, and S.W. Lu, Identification of genes associated with survival of *Salmonella enterica* serovar Enteridis in chicken egg albumen. *Applied and Environmental Microbiology*, **72** (2), 1055-1064, LBNL-60807, 2006.

Codd, R., P. Lay, N.Y. Tsibakhashvili, T.L. Kalabegishvili, I.G. Murusidze, and H.-Y.N. Holman, Chromium(V) complexes generated in *Arthrobacter oxydans* by simulation analysis of EPR spectra. *J. Inorg. Biochem*, LBNL-61264, in press 2006.

DeAngelis, K.M., P.S. Ji, M.K. Firestone, and S.E. Lindow, Two novel bacterial biosensors for detection of nitrate availability in the rhizosphere. *Applied and Environmental Microbiology*, **71** (12), 8537-8547, LBNL-60817, 2005.

DeSantis, T., E. Brodie, J.P. Moberg, I.X. Zubieta, Y.M. Piceno, and G.L. Andersen, High-density universal 16S rRNA microarray analysis reveals broader diversity than typical clone library when sampling the environment. *Microbial Ecology*, LBNL-59763.

DeSantis, T., K. Hansen, E. Brodie, Y.M. Piceno, J. Bullard, P. Hu, and G.L. Andersen, Hybridization efficiency analysis of probes targeting 16S rRNA genes using the Affymetrix GeneChip Format. LBNL-61253 Abs.

DeSantis, T., P. Hugenholtz, N. Larsen, M. Rojas, E. Brodie, K. Keller, T. Huber, D. Dalevi, P. Hu, and G.L. Andersen, Greengenes: Chimera-checked 16S rRNA gene database and workbench compatible with ARB. *Applied and Environmental Microbiology*, **72** (7), 5069-5072, LBNL-59764, 2006.

DeSantis, T., P. Hugenholtz, N. Larsen, M. Rojas, E. Brodie, K. Keller, T. Huber, D. Dalevi, P. Hu, Y.M. Piceno, R. Phan, and G.L. Andersen, Greengenes, The ARB-compatible Chimera-checked 16S rRNA Gene Database, introduces new online tools including NAST, A flexible massive multiple sequence alignment tool. LBNL-61252 Abs., 2006.

DeSantis, T.Z., P. Hugenholtz, K. Keller, E.L. Brodie, N. Larsen, Y.M. Piceno, R. Phan, and G.L. Andersen, NAST: A multiple sequence alignment server for comparative analysis of 16S rRNA genes. *Nucleic Acids Research*, **34** (Supplement 2) W394-W399, LBNL-59765, 2006.

DeSantis, T.Z., C.E. Stone, S.R. Murray, J.P. Moberg, and G.L. Andersen, Rapid quantification and taxonomic classification of environmental DNA from both prokaryotic and eukaryotic origins using a microarray. *FEMS Microbiology Letters*, **245** (2), 271-278, LBNL-57331, 2005.

Dunphy Guzman, K.A., M. Taylor, and J.F. Banfield, Environmental risks of nanotechnology: National nanotechnology initiative funding, 2000-2004. *Environmental Science & Technology*, **40** (5), 1401-1407, LBNL-59431, 2006.

Ferre, T.P.A., A. Binley, J. Geller, E. Hill, and T. Illangasekare, Hydrogeophysical methods at the laboratory scale. in *Hydrogeophysics*, Springer, Dordrecht, The Netherlands, 2005. LBNL-60929. 2005.

Fields, M., C.E. Bagwell, S.L. Carroll, T. Yan, X. Liu, P.M. Jardine, C.S. Criddle, T.C. Hazen, and J. Zhou, Polyphasic characterization of microbial communities under stressful conditions and the identification of different relationships based upon geochemical data or multiple gene sequences. *Environ. Sci. Technol.*, **40**, 2601-2607, LBNL-60460, 2006.

- Hazen, T., and H. Tabak, Developments in bioremediation of soils and sediments polluted with metals and radionuclides: 2. Field research on bioremediation of metals and radionuclides. *Environmental Science & Bio/Technology*, **4** (3), 157-183, LBNL-60264, 2005.
- Hazen, T.C., and D. Stahl, Process control in natural and engineered systems by monitoring microbial stress response. *Current Opinions in Biotechnology*, **17**, 285-290, LBNL-60297, 2006.
- He, Q., K. Huang, Z. He, E. Alm, M. Fields, T. Hazen, A. Arkin, J. Wall, and J. Zhou, Energetic consequences of nitrite stress in *Desulfovibrio vulgaris* Hildenborough inferred from global transcriptional analysis. *Applied and Environmental Microbiology*, **72** (6), 4370-4381, LBNL-60422, 2006.
- Hengpraprom, S., C.M. Lee, and R.T. Coates, Sorption of humic acids and alpha-endosulfan by lay minerals. *Environmental Toxicology And Chemistry* (25), 11-17, LBNL-60933, 2006.
- Holman, H.-Y., K. Bjornstad, M. Martin, E.A. Blakely, and F.G. Blankenberg, Mid-infrared reflection-absorption spectromicroscopy (MIRAS) of Atherosclerosis in ApoE(-/-) knockout mice. *Nature Medicine*, LBNL-61263, submitted 2006.
- Holman, H.-Y.N., Synchrotron radiation infrared spectromicroscopy: a non-invasive molecular probe for biogeochemical processes. *Advances in Agronomy*, **90**, 79-127, LBNL-60323, 2006.
- Hu, P., D. Ballinger, C. Pthiyagoda, K. Pant, T. Torok, and G.L. Andersen, Genome-wide single nucleotide polymorphism analysis of salmonella enterica. American Society for Microbiology Annual Conference. Orlando, FL, American Society for Microbiology. LBNL-60879 Poster. 2005.
- Hu, P., E. Brodie, Y. Suzuki, H.H. McAdams, and G.L. Andersen, Whole-genome transcriptional analysis of heavy metal stresses in *Caulobacter crescentus*. *Journal of Bacteriology*, **187** (24), LBNL-59011, 2005.
- Kalabegishvili, T.L., N.Y. Tsibakhashvili, I.G. Murusidze, D.T. Pataraya, M.A. Gurielidze, and H.-Y. Holman, Formation of Cr(V) and Cr(III) in *Arthrobacter oxydans* exposed to high concentrations of Cr(VI). in *Modern Multidisciplinary Applied Microbiology*, Wiley-VCH Verlag GmbH & Co., Germany, 2006. LBNL-61265. 2006.
- Koenigsberg, S., T. Hazen, and A.D. Peacock, Environmental biotechnology: A bioremediation perspective. *Remediation* (Autumn), 5, LBNL-60459, 2005.
- Lin, L.-H., P.-L. Wang, D. Rumble, J. Lippmann-Pipke, B. Sherwood Lollar, E. Boice, L. Pratt, E. Brodie, T.C. Hazen, G.L. Andersen, T. DeSantis, D.P. Moser, D. Kershaw, and T. Onstott, Long term biosustainability in a high energy, low diversity crustal biotome. *Science*, LBNL-60468, Submitted 2006.
- Lin, Z., Y. Zhu, T.L. Kalabegishvili, N.Y. Tsibakhashvili, and H.-Y. Holman, Effect of chromate action on morphology of basalt-inhabiting bacteria. *Materials Science and Engineering*, **26** (4), 610-612, LBNL-61266, 2006.

Monaselidze, J., M. Abuladze, N. Asatiani, E. Kiziria, S. Barbakadze, G. Majagaladze, M. Iobadze, L. Tabatadze, H.-Y.N. Holman, and N. Sapojnikova, Characterization of chromium-induced apoptosis in cultured mammalian cells: A differential scanning calorimetry study. *Thermochimica Acta*, **441** (1), 8-15, LBNL-60739, 2006.

Mukhopadhyay, A., Z. He, E. Alm, A. Arkin, E.E. Baidoo, S.C. Borglin, W. Chen, T.C. Hazen, Q. He, H.-Y. Holman, K. Huang, R. Huang, D. Joyner, N. Katz, M. Keller, P. Oeller, A. Redding, J. Sun, Z. Yang, J. Wall, J. Wei, H.-C. Yen, J. Zhou, and J. Keasling, Salt stress in *Desulfovibrio vulgaris* Hildenborough: An integrated genomics approach. *Genome Research*, **188** (11), 4068-4078, LBNL-59862, 2006.

Pfiffner, S.M., A.V. Palumbo, T.J. Phelps, J.J. Beauchamp, D.B. Ringelberg, H.C. Pinkart, D.C. White, and T.C. Hazen, Microbial monitoring as a measure of success for in situ TCE bioremediation. *FEMS Microbiology Ecology*, LBNL-45232 JArt, In Review, 2006.

Quinn, N.W.T., Qualitative analysis/discussion of increased contractual deliveries - San Luis Unit. LBNL, Berkeley, CA, 36 pp., LBNL-60612. 2006.

Quinn, N.W.T., M.W. Hanna, J.S. Hanlon, J.R. Burns, C.M. Taylor, D. Marciochi, S. Lower, V. Woodruff, D. Wright, and T. Poole, Real-time water quality management in the Grassland Water District. LBNL, Berkeley, CA, 192 pp., LBNL-56825. 2005.

Quinn, N.W.T., and A. Tulloch, San Joaquin River diversion data assimilation, drainage estimation and installation of diversion monitoring stations. LBNL, Berkeley, CA. LBNL-56940. 2005.

Redding, A., A. Mukhopadhyay, D. Joyner, T.C. Hazen, and J. Keasling, Study of nitrate stress in *Desulfovibrio vulgaris* Hildenborough using iTRAQ proteomics. *Briefings in Functional Genomics and Proteomics*, **5** (2), 133-143, LBNL-59867, 2006.

Shepler, C.G., S.E.H. Gallaher, T.E. Letain, T.C. Hazen, H. Nitsche, and S.B. Clark, The effect of *Bacillus sphaericus* on the transformation of the U(VI) oxyhydroxide metaschoepite to secondary U(VI) solids. *Radiochemica Acta.*, LBNL-60469, Submitted 2005.

Stroo, H.F., D.V. Nakles, J.P. Kreitinger, R.C. Lohehr, S.B. Hawthorn, R.G. Luthy, and H.-Y.N. Holman, Improving risk assessments for manufactured gas plant soils by measuring PAH availability. *Integrated Environmental Assessment and Management*, **1** (3), 259-266, LBNL-58445, 2005.

Tsibakhashvili, N.Y., M.V. Frontasyeva, T.I. Kirkesali, N.G. Aksenova, T.L. Kalabegishvili, I.G. Murusidze, L.M. Mosulishvili, and H.-Y.N. Holman, Epithermal neutron activation analysis of Cr(VI)-reducer basalt-inhabiting bacteria. *Analytical Chemistry*, **78** (18), 6285-6290, LBNL-60810, 2006.

Wozei, E., S.W. Hermanowicz, and H.-Y. Holman, Developing a biosensor for estrogens in water samples: Study of the real-time response of live cells of the estrogen-sensitive yeast strain RMY/ER-ERE using fluorescence microscopy. *Biosensors and Bioelectronics*, **21** (8), 1654-1658, LBNL-58194, 2006.