

# Migun Shakya

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## EDUCATION

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- Ph.D** Genome Sciences ◇ University of Tennessee ◇ Knoxville, TN 2008 - 2013
- B.S** Biology ◇ Southwestern Oklahoma State University ◇ Weatherford, OK 2008

## RESEARCH EXPERIENCE

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**Postdoctoral Associate** 2013 - Present

- Department of Biology, Dartmouth College, Hanover, NH
- Evolution of Gene Transfer Agents across Alphaproteobacteria

**Graduate Research Assistant** August 2009 - August 2013

- Genome Science and Technology Program
- University of Tennessee and Oak Ridge National Lab, Oak Ridge, TN
- Dissertation: Validating Approaches for Studying Microbial Diversity to Characterize Communities from Roots of *Populus deltoides*

## PUBLICATIONS

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Hurt, R.A., Robeson II M.S., **Shakya M.**, Moberly, J.G., Vishnivetskaya, T.A., Gu B., and Elias, D.A. Improved Yield of High Molecular Weight DNA Coincides with Increased Microbial Diversity Access from Iron Oxide Cemented Sub-Surface Clay Environments. *Plos ONE* 2014.

**Shakya, M.**, Gottel N., Castro H., Yang Z.K., Gunter L., Labbe J., Muchero W., Bonito G., Vilgalys R., Tuskan G., Podar M., Schadt C.W. A Multifactor Analysis of Fungal and Bacterial Community Structure in the Root Microbiome of Mature *Populus deltoides* Trees. *Plos ONE* 2013. doi:10.1371/journal.pone.0076382

**Shakya, M.**, Quince, C., Campbell, J., Yang, Z., Schadt, C.W., Podar, M. Comparative metagenomic and rRNA microbial diversity characterization using Archaea and Bacteria synthetic communities *Environmental Microbiology* 2013. doi:10.1111/1462-2920.12086

Flores E.G., **Shakya, M.**, Meneghin J., Podar, M., Seewald., J.S., Reysenbach A-L. Inter-field Variability in the Microbial Communities of Hydrothermal Vent Deposits from a Back-Arc Basin. *Geobiology* 2012. doi:10.1111/j.1472-4669.2012.00325.x

## HONORS AND AWARDS

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**University of Tennessee, Knoxville**

2011 Genomic Sciences Meeting Student Travel Grant

**Southwestern Oklahoma State University,**

In-State Tuition Waiver 2003-2008

Ottis and Buena Ballard Memorial Scholarship 2007

Who is Who Among American Universities 2008

## SCIENTIFIC CONFERENCES

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**Shakya M.** and Zhaxybayeva O. Distinguishing Gene Transfer Agent genes from their phage homologs. In: *Boston Bacterial Meeting 2014, Boston, MA*, June 12-13, 2014. Poster

Robeson II, M.S., **Shakya, M.**, Yang Z.K., Kerley M., Jun S.R., Gorin A.A., Podar M., Labbe J., Muchero W., Bonito G., Vilgalys R., Pelletier D.A., Tuskan G., Schadt C.W. Understanding the factors shaping microbial community structure within root and rhizosphere microbiome of *Populus* Species. In: *9th Annual DOE JGI User Meeting, Walnut Creek, CA*, March 18-20, 2014. Poster

Robeson II, M.S., Yang Z.K., Kerley M., Podar M., **Shakya, M.**, Bonito G., Vilgalys R., Tuskan G., Schadt C.W. *Populus deltoides* select for a unique microbiome?. In: *98th Annual Meeting: Ecological Society of America, Minneapolis, MN*, August 4-9, 2013. Poster

**Shakya M.**, Drivers of microbial community structure in rhizosphere and endosphere of *Populus deltoides*. In: *American Society for Microbiology KY-TN Branch Meeting*, October 26-27, 2012. Talk

**Shakya M.**, Gottel, N.R., Castro, H.F., Yang Z.K., Kerley M., Podar M., Doktycz, M.J., Schadt, C.W. Archaea associated with *Populus* and its surrounding soil and trees. In: *International Society of Microbial Ecology 14, Copenhagen, Denmark*, August 19-24, 2012. Poster.

Schadt, C.W., **Shakya M.**, Gottel, N.R., Castro, H.F., Yang Z.K., Kerley M., Bonito G., Labbe J., Muchero W., Vilgalys R., Tuskan G., Podar M., Doktycz, M.J. Roles of genotype-by-environment interactions in shaping the root-associated microbiome of *Populus*. In: *Ecological Society of America 97, Portland, Oregon* August 5-10, 2012.

**Shakya M.**, Gottel, N.R., Castro, H.F., Yang Z., Kerley M., Podar M., Doktycz, M.J., Schadt, C.W. Plant-Microbe Interface: Dynamics of Bacterial Microbiome of *Populus deltoides* In: *2012 Department of Energy Genomic Science Awardee Meeting X*, February 26-29, 2012. Poster

Graham, E.D., **Shakya M.**, Xu X., Phelps, T.J., Thornton, P.E., Elias D.A., Characterization and Modeling Of Microbial Carbon Metabolism In Thawing Permafrost. In: *American Society of Microbiology, San Francisco, CA*, June 16 - 19, 2012. Poster.

Bonito, G., Schadt, C., Hameed, K., **Shakya, M.**, Chen, K. H., Tuskan, G., Vilgalys, R. (2012). Rhizospheric mycobiota associated with *Populus deltoides*. In: *Mid-Atlantic States Mycological Conference, University of Tennessee, Knoxville* April 13-15, 2012.

**Shakya M.**, Gottel, N.R., Castro, H.F., Yang Z., Kerley M., Podar M., Doktycz, M.J., Schadt, C.W. Plant-Microbe Interface: Dynamics of Bacterial Microbiome of *Populus deltoides* In: *2012 Department of Energy Genomic Science Awardee Meeting X*, February 26-29, 2012. Poster.

**Shakya M.**, Campbell, J.C., Schadt, C.W., Podar M. Experimental and Computational Approaches for Microbial Diversity Characterization Using Artificial Communities. In: *2011 Genomic Science Awardee Meeting IX*, April 10-13, 2011. Poster and Talk.

**Shakya M.**, Campbell, J.C., Yang, Z.K., Podar M. Experimental and Computational Approaches for Microbial Diversity Characterization Using Artificial Communities In: *International Society of Microbial Ecology 13*, August 22-27, 2010. Poster.

## TEACHING EXPERIENCE

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### University of Tennessee, Knoxville

Teaching Assistant for BCMB 230 : Human Physiology Fall 2009 (2 sections)

Teaching Assistant for BIO 140 : Organization and Function of the Cell Spring 2010 (2 sections)

### Southwestern Oklahoma State University

Teaching Assistant for Biological Sciences Fall 2007-Spring 2008

Grader for College Algebra and Trigonometry Spring 2007-Spring 2008

### **PEER REVIEW ACTIVITIES**

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Reviewer for: FEMS Microbiology Ecology, Canadian Journal of Microbiology, Frontiers in Microbiology, Molecular Biology and Evolution