

## ULAS KARAOZ

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### EDUCATION

**Postdoctoral Fellow, Ecology. Lawrence Berkeley National Laboratory, CA**

**Ph.D. Bioinformatics and Systems Biology.** Boston University, MA 2008

**B.S. Electrical and Computer Engineering.** Bilkent University, Ankara, Turkey 2001

### RESEARCH AND PROFESSIONAL EXPERIENCE

Scientist, Lawrence Berkeley National Lab	2013-present
Lawrence Berkeley National Lab, Postdoctoral Research Fellow	2008-2013
Boston University, Research Assistant	2001-2008

### PROFESSIONAL ORGANIZATIONS

American Society for Microbiology (ASM)  
American Geophysical Union (AGU)  
International Society for Computational Biology (ISCB)

### PEER-REVIEWED PUBLICATIONS

- Bober M.B., Delmar P., Szak S.T., **Karaoz, U.**, White J.A., Hudson J., Boguski M., Tomaselli G. & Winslow R.L. Gene expression in human heart failure: Microarray analysis of dilated cardiomyopathy. *Currents in Computational Molecular Biology*. Montreal, Les Publications CRM: 171-172.
- **Karaoz, U.** Murali T.M., Letovsky S., Zheng Y., Ding C., Cantor C.R. & Kasif S. Whole-genome annotation by using evidence integration in functional-linkage networks. *PNAS*, 101: 2888-2893, 2004.
- Logan B.T., **Karaoz, U.**, Moreno P.J., Weng Z. & Kasif S. Protein seer: a Web server for protein homology detection. *Engineering in Medicine and Biology Society*, 2004. IEMBS '04. 26th Annual International Conference of the IEEE.
- The ENCODE Project Consortium. The ENCODE (ENCyclopedia Of DNA Elements) Project. *Science*, 306: 636-640, 2004.

- The ENCODE Project Consortium (**Karaoz, U.** was a member of Integrated Analysis and Manuscript Preparation and Transcriptional Regulatory Elements analysis groups). *The ENCODE pilot project: Identification and analysis of functional elements in 1% of the human genome*. Nature 447, 799-816 2007.
- Koch, C. M., Andrews, R. M., Flicek, P., Dillon, S. C., **Karaoz, U.**, Clelland, G. K., Wilcox, S. Beare, D. M., Fowler, J. C., Couttet, P., James, K. D., Lefebvre, G., C., Bruce, A. W., Dovey, O. M., Ellis, P. D., Dhami, P., Langford, C. F., Weng, Z., Birney, E., Carter, N. P., Vetric, D. & Dunham, I. *The landscape of activating histone modifications across 1% of the human genome*. Genome Res. 2007 17: 691-707.
- Trinklein, N. D.\*, **Karaoz, U.\***, Wu, J.\*, Halees, A.\*, Aldred, S. F., Collins, P. J., Zheng, D. Zhang, Z. D., Gerstein, M., Snyder, M., Myers, R. M. & Weng, Z. *Integrated analysis of experimental datasets reveals many novel promoters in 1% of the human genome*. Genome Res. 2007 17: 720-731. \*Authors contributed equally.
- Yu L., Coelho J., Zhang X., Fu Y., Tillman A. **Karaoz U.**, Fredholm BB., Weng Z., Chen JF. *Uncovering multiple molecular targets for caffeine by a drug target validation strategy of combined A2A receptor knockouts and microarray profiling*. Physiol Genomics 2009 37:199-210.
- Ivanov I. I., Atarashi K., Manel N., Brodie E. L., Shima T, **Karaoz U.**, Wei D., Goldfarb K. C., Santee C. A., Lynch S. V., Tanoue T., Imaoka A., Itoh K., Takeda K., Umesaki Y., Honda K. & Littman, D. R. *Induction of Intestinal Th17 Cells by Segmented Filamentous Bacteria*. Cell 2009.
- Cox M.J., Allgaier M., Taylor B., Baek M.S., Huang Y.J., Daly R.A., **Karaoz U.**, Andersen G.L., Brown R., Fujimura K.E., Wu B., Tran D., Koff J., Kleinhenz M.E., Nielson D., Brodie E.L., Lynch S.V. *Airway microbiota and pathogen abundance in age-stratified cystic fibrosis patients*. PLoS One. 2010 Jun 23;5(6).
- Maldonado-Contreras A., Goldfarb K.C., Godoy-Vitorino F., **Karaoz U.**, Blaser M.J., Brodie E., Dominguez-Bello M.G. *Structure of the human gastric bacterial community in relation to Helicobacter pylori status*. ISME 2010 Oct 7.
- DeSantis T.Z, Keller K., **Karaoz U.**, Alekseyenko A., Singh N.S., Brodie E., Pei Z., Andersen G.L., Larsen N. *Simrank: Rapid and sensitive general-purpose k-mer search tool*. BMC Ecology 11(1), 11.
- Goldfarb K.C., **Karaoz U.**, Hanson C.A., Santee C.A., Bradford M.A., Treseder K.K., Wallenstein M.D., Brodie E.L., *Differential growth responses of soil bacterial taxa to carbon substrates of varying chemical recalcitrance*. Frontiers in Microbiology 2011, 2(74).

- Godoy-Vitorino F, Goldfarb K.C., **Karaoz U.**, Leal S., Garcia-Amado M.A., Hugenholtz P., Tringe S.G., Brodie E.L., Dominguez-Bello M.G. Comparative analyses of foregut and hindgut bacterial communities in hoatzins and cows. *ISME J.* 2012 Mar; 6(3): 531-41.
- Ganz HH., **Karaoz U.**, Getz WM., Versfeld W., Brodie EL. Diversity and structure of soil bacterial communities associated with vultures in an African savanna. *Ecosphere* 3 (6). 2012.
- Beller H.R., Han R., **Karaoz U.**, Lim H., Brodie E.L. Genomic and physiological characterization of the chromate-reducing, aquifer-derived firmicute *Pelosinus* sp. Strain HCF1. *Applied and Environmental Microbiology* 79 (1), 63-73. 2013.
- Nyssönen M, Tran HM, **Karaoz U.**, Weihe C. Hadi MZ, Martiny JB, Martiny AC, Brodie EL. Coupled high-throughput functional screening and next generation sequencing for identification of plant polymer decomposing enzymes in metagenomic libraries. *Front Microbiol.* 2013 Sep 23;4:282.
- Ceja-Navarro J.A., Nguyen N.H., **Karaoz U.**, Gross S.R., Herman D.J., Andersen G.L., Bruns T.D., Pett-Ridge J., Blackwell M. Brodie E.L. Compartmentalized microbial composition, oxygen gradients and nitrogen fixation in the gut of *Odontotaenius disjunctus*. *The ISME Journal* (2014) 8, 6–18.
- Beller, H., L. Yang, C. Varadharajan, R. Han, H.C. Lim, **Karaoz U.**, Molins S., Marcus M., E. Brodie, C. Steefel, and P. Nico (2014), Divergent aquifer biogeochemical systems converge on similar and unexpected Cr(VI) reduction products. *Environmental Science & Technology*, 48 (18), 10669–10706. 2014.
- Ma Y, Madupu, R., **Karaoz U.**, Nossa CW., Yang L., Yooseph S., Yachimski PS, Brodie E.L., Nelson KE, Pei Z. Human Papillomavirus community in healthy persons, defined by metagenomics analysis of HMP (human microbiome project) shotgun sequencing datasets. *Journal of virology* 88 (9), 4786-4797. 2014.

## PATENTS

- Using Phylogenetic Probes for Quantification of Stable Isotope Labeling and Microbial Community Analysis. US 8,906,610 issued on December 9 2014.
- Systems and Methods for Detecting Antibiotic Resistance. U.S. Patent 13/773,631; filed February 21 2013.

## **Synergistic activities**

### **(1) Workshops:**

- “Next Generation Amplicon and Metagenomic Sequencing Data Analysis”, 4 day workshop given at The Institute of Infectious Disease and Molecular Medicine, University of Cape Town.
- “Metagenomics Workshop Course”, 3 day workshop given at Arizona State University

**(2) Reviewer:** *ISMB conference, PSB, Frontiers Microbiology, BMC Bioinformatics*