

THE JOHN LAWRENCE SEMINARS



"FUNCTIONAL GENOMICS IN STUDYING MICROBIAL SIGNALING AND SOLVENT TOLERANCE"

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For the past decade, many large and small programs in Berkeley Lab's Biosciences Area have relied on systems biology and functional genomics for discovery and applied microbiology projects. One of these programs examined extensively the stress response of environmentally important bacteria towards a variety of factors. We had a unique opportunity to comprehensively study the primary mode of signaling for *Desulfovibrio vulgaris* Hildenborough, a sulfate- and metal-reducing bacterium, and we successfully assigned targets to all two-component response regulators that functioned via transcription regulation. These studies allowed us to identify many novel features of such bacteria, and may have a bearing on future practices in these environments. Another large program focused on developing new phenotypes in microbes, with biomanufacturing in mind. Here systems biology plays a crucial role in resolving the sources of bottlenecks and inhibition that occur after metabolic pathway modification and during bio-conversion of renewable carbon sources to final products. Discoveries from the functional genomics studies are followed by host, protein, and metabolic pathway engineering. I will describe a few examples from these functional genomics studies.

TUES., OCT. 6TH
4:00 P.M.

717 POTTER STREET
ROOM 141
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HOST:
MARK LABARGE

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