Brookhaven National Laboratory

# Biosciences Seminar

## *"Metallomics: A Whole-Genome Approach to the Study of Intracellular Metal Trafficking"*


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Tuesday, March 18, 2014
11:00 a.m.
Biosciences John Dunn Seminar Room
Bldg. 463, Room 157

Host: David Schlyer
Served 10:45


Abstract: All organisms are dependent upon the availability of transition metals, which either participate directly in catalysis or serve structural roles in proteins. Because of the nutrient-toxin dichotomy, the cell tightly regulates uptake, distribution and storage of these trace elements. Numerous pathways have evolved to ensure that the right metal, at the correct concentration, makes its way to a specific protein. When faced with a suboptimal trace element concentration, metallo-enzyme activity is negatively impacted by lack of cofactor, which is exacerbated by potential binding of the wrong cofactor. Using transcriptome sequencing of a unicellular green alga under various metal-deficiency situations, we are revealing strategies that widen the window of metal concentrations in which a plant can survive. These strategies include sparing and salvaging of the limiting nutrient, sequestration of non-limiting metals, and cross-talk between metal-responsive transcription factors.