

## Probing Zn(II) Transport in *E. coli*

Allen Easton, Tara K. Sigdel, Pete Thompson, Stacy Sugarbaker, and Michael W. Crowder

*Department of Chemistry and Biochemistry, Miami University*

Zn(II) is an essential metal required by all cells. In fact, Zn(II) serves as a catalytic cofactor in members of all six major functional classes of enzymes and a structural cofactor for many other proteins. Despite the importance of Zn(II), very little is known about the intracellular transport of this transition metal ion. In an effort to probe Zn(II) transport in bacteria, *E. coli* cells were stressed with Zn(II) overload and deficiency, and the resulting cells were analyzed with proteomic and genomic techniques. We reasoned that the levels of any proteins involved in Zn(II) homeostasis would be affected by Zn(II) stress. 2D gels and protein ID's reveal a number of Zn(II) responsive proteins that exhibit differential protein expression in response to Zn(II) stress. DNA arrays were used to identify proteins that exhibit differential RNA (protein) expression under the same Zn(II) stress conditions. These proteins are currently being over-expressed and purified to determine whether they bind Zn(II). Pulldown experiments are being used to probe protein-protein interactions in an effort to understand intracellular Zn(II) transport.

MW Markers/kDa (B)

