

Exploding the Myth of Intracellular Free Metal Ion Pools\_ A Reading Guide for  
**Transition Metal Speciation in the Cell: Insights from the Chemistry of Metal Ion Receptors**  
Lydia A. Finney, *et al.* *Science* **300**, 931 (2003);  
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Reading questions for *Science*, **300**, (1993), 931 (Finney and O'Halloran)

1. What are the names of the “metal sponges” that protect against excess iron, zinc and copper?
2. Of all structurally characterized proteins, what fraction are metalloproteins?
3. The article talks about both thermodynamic and kinetic considerations governing the buffering of free metal concentrations in the cell. Briefly summarize both.
4. **The authors write:** It is becoming clear that both the transporters and the metallochaperone proteins employ atypical coordination chemistry relative to the enzymes that ultimately incorporate the metal as a cofactor.

Why might this be a useful trait in transporters/chaperones?

