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Cover photograph (Copyright © 2012, American Society for Microbiology. All Rights Reserved.): False-color transmission electron microscope image of an engineered silver-tolerant *Escherichia coli* cell grown in the presence of $AgNO_3$. The silver tolerance of these cells is due to the expression of a combinatorially selected silver-binding dodecapeptide, fused to the periplasmic maltose-binding protein, which allows growth and maintenance of viability in the presence of toxic concentrations of Ag ions for several hours in batch culture. Electron-dense particles accumulate in the cell envelope and are visible around the periphery of the cell; some of these particles are nanocrystalline Ag particles (inset). This silver-binding peptide lacks both Cys and His residues yet binds to the metal with nanomolar affinity. The ability of short peptide motifs to manipulate bacterial interactions with heavy metals has potential implications for diverse activities, including nanomaterial synthesis and remediation. Photos by Ruth Hall Sedlak, Mehmet Sarikaya, Candan Tamerler, and Beth Traxler, University of Washington. (*See related article on page 2289.*)