Mechanisms for the Reduction of Radionuclides

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Microbial bioremediation of radionuclides is of paramount importance to the development of new strategies and technologies to protect the environment. Microbial processes can affect the environmental behavior of redox sensitive radionuclides, and understandings of the reactions are essential for the safe management of radioactive wastes. Many dissimilatory metal-reducing microorganisms can reduce the key radioactive contaminants, U and Tc from soluble high oxidation state forms to insoluble, low oxidation states forms. Little is known about the enzymatic mechanisms for these bioreductions. An understanding of these mechanisms is needed if these microorganisms are to be exploited in bioremediation technologies effectively and modeled accurately.