Interaction between uranium and four *Microbacterium* strains isolated from metal and radionuclide-rich environments.

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Four *Microbacterium* strains have been isolated from radionuclide- and metal-rich environments. Two of the strains exhibited high uranium-tolerance capabilities, another was sensitive to uranium, and the fourth strain had an intermediary tolerance level. For the latter, we have described multiple detoxification mechanisms involved in U(VI) tolerance using an original experimental procedure. We have demonstrated that after an initial step of uranium and phosphate release via an active efflux mechanism, the bacteria accumulates U(VI) as intracellular, needle-like structures composed of an autunite group mineral [1]. We compared the 4 *Microbacterium* strains using the same experimental procedure. Interestingly, while the strains were all able to mineralize U(VI), the efflux mechanism was observed only in the 3 most uranium-tolerant strains and not in the uranium-sensitive strain. In order to identify the molecular mechanisms involved in uranium efflux and biomineralization, the genomes of the 4 strains were sequenced. A genomic analysis revealed a positive correlation between candidate metal transporter genes number, in particular potential PIB-ATPases and the uranium tolerance level.

[1] Theodorakopoulos N. *et al*. (2015) *J Hazard Mater*. **285**: 285-93.