

Response to copper of *Acidithiobacillus ferrooxidans* ATCC 23270 grown in elemental sulfur

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© 2014 Institut Pasteur. The response of *Acidithiobacillus ferrooxidans* ATCC 23270 to copper was analyzed in sulfur-grown cells by using quantitative proteomics. Fortyseven proteins showed altered levels in cells grown in the presence of 50mM copper sulfate. Of these proteins, 24 were up-regulated and 23 down-regulated. As seen before in ferrous iron-grown cells, there was a notorious up-regulation of RND-type Cus systems and different RND-type efflux pumps, indicating that these proteins are very important in copper resistance. Copper also triggered the down-regulation of the major outer membrane porin of *A. ferrooxidans* in sulfur-grown bacteria, suggesting they respond to the metal by decreasing the influx of cations into the cell. On the contrary, copper in sulfur-grown cells caused an overexpression of putative TadA and TadB proteins known to be essential for biofilm formation in bacteria. Surprisingly, sulfur-grown microorganisms showed increased levels of proteins related with ene