

# Global transcriptomic analysis uncovers a switch to anaerobic metabolism in tellurite-exposed *Escherichia coli*

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© 2014 Institut Pasteur. Tellurite ( $\text{TeO}_3^{2-}$ ) is harmful for most microorganisms, especially Gram-negative bacteria. Even though tellurite toxicity involves a number of individual aspects, including oxidative stress, malfunctioning of metabolic enzymes and a drop in the reduced thiol pool, among others, the general mechanism of toxicity is rather complex and not completely understood to date. This work focused on DNA microarray analysis to evaluate the *Escherichia coli* global transcriptomic response when exposed to the toxicant. Confirming previous results, the induction of the oxidative stress response regulator *soxS* was observed. Upregulation of a number of genes involved in the global stress response, protein folding, redox processes and cell wall organization was also detected. In addition, downregulation of aerobic respiration-related genes suggested a metabolic switch to anaerobic respiration. The expression results were validated through oxygen consumption experiments, which corrob