

Toxin-antitoxin systems in the mobile genome of *Acidithiobacillus ferrooxidans*

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Copyright © 2014 Bustamante et al. Toxin-antitoxin (TA) systems are genetic modules composed of a pair of genes encoding a stable toxin and an unstable antitoxin that inhibits toxin activity. They are widespread among plasmids and chromosomes of bacteria and archaea. TA systems are known to be involved in the stabilization of plasmids but there is no consensus about the function of chromosomal TA systems. To shed light on the role of chromosomally encoded TA systems we analyzed the distribution and functionality of type II TA systems in the chromosome of two strains from *Acidithiobacillus ferrooxidans* (ATCC 23270 and 53993), a Gram-negative, acidophilic, environmental bacterium that participates in the bioleaching of minerals. As in other environmental microorganisms, *A. ferrooxidans* has a high content of TA systems (28-29) and in twenty of them the toxin is a putative ribonuclease. According to the genetic context, some of these systems are encoded near or within mobile genetic elemen