

Molecular regulatory network involved in biofilm structure development by acidithiobacillus thiooxidans includes pel exopolysaccharide machinery

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© 2017 Trans Tech Publications, Switzerland. The Acidithiobacillus genus plays a relevant role in bioleaching. The molecular understanding of biofilm formation has been pointed out to design biological strategies to improve the efficiency of this industrial process and to prevent environmental damages caused by acid mine/rock drainages. In Acidithiobacillus spp., the molecular mechanisms involved in biofilm formation are currently emerging. The second messenger cyclic diguanylate (c-di-GMP) appears as a key player for biofilm formation by Acidithiobacillus sp. Here, results obtained from genomic analysis to characterize c-di-GMP pathway in At. thiooxidans are reported. Intracellular levels of c-di-GMP have been previously measured and data indicated that they are higher in adhered cells than planktonic ones. During the course of characterization of c-di-GMP effectors, a complete pel-like gene cluster has been identified in At. thiooxidans. By using total RNA obtained from planktonic an