

## THE RC PROTREIN, A TRANSLATIONAL REPRESSOR THAT COORDINATES CARBON METABOLISM IN *PSEUDOMONAS*

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The Crc protein is a global regulator that coordinates carbon metabolism in Pseudomonads. It is involved in the catabolite repression response that inhibits the induction of the catabolic pathways for several non-preferred carbon sources in Pseudomonads when other preferred substrates are present in the growth medium. Crc binds to a short unpaired A-rich sequence located adjacent to the translation initiation codon of some mRNAs, inhibiting their translation. Using proteomic and transcriptomic approaches, we have analyzed the influence of Crc in *Pseudomonas putida* KT2442 cells growing in a complete medium, where amino acids are the main carbon source. Inactivation of the *crc* gene modified the expression of at least 134 genes. Most of them were involved in the transport and assimilation of amino acids or sugars, showing that Crc controls the sequential assimilation of these compounds. Inactivation of *crc* reduced growth rate, suggesting that Crc optimizes metabolism. A similar approach in *Pseudomonas aeruginosa* PAO1 showed that Crc affects as well genes involved in antibiotic resistance and virulence. Since the sequence recognized by Crc at the mRNAs should be in an unpaired configuration, and RNA conformation is affected by temperature, we analyzed whether reducing growth temperature affects Crc function. Proteomic, transcriptomic and functional analyses suggested that reducing temperature relieves Crc-dependent repression of some, but not all, genes.