

Molecular cloning of the gene encoding flavoredoxin, a flavoprotein from *Desulfovibrio gigas*

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Abstract: Sulfate-reducing bacteria are rich in unique redox proteins and electron carriers that participate in a variety of essential pathways. Several studies have been carried out to characterize these proteins, but the structure and function of many are poorly understood. Many *Desulfovibrio* species can grow using hydrogen as the sole energy source, indicating that the oxidation of hydrogen with sulfite as the terminal electron acceptor is an energy-conserving mechanism. Flavoredoxin is an FMN-binding protein isolated from the sulfate-reducing bacteria *Desulfovibrio gigas* that participates in the reduction of bisulfite from hydrogen. Here we report the cloning and sequencing of the flavoredoxin gene. The derived amino acid sequence exhibits similarity to several flavoproteins which are members of a new family of flavin reductases suggested to bind FMN in a novel mode. (C) 2000 Academic Press.

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