CRP homologues in sulphate reducing bacteria and their possible significance for the regulation of nitrate reduction by *Desulfovibrio desulfuricans* ATCC 27774. 

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The *Escherichia coli* cyclic AMP receptor protein, CRP is a global regulator of transcription modulating gene expression by activation or repression at a range of promoters in *E. coli*. A major function is to regulate the selection of nutrients required for growth. The anaerobic sulphate reducing bacterium *Desulfovibrio desulfuricans* is capable of utilising sulphate, nitrite, and nitrate as terminal electron acceptors. In the presence of both sulphate and nitrate, sulphate is reduced preferentially despite nitrate being the thermodynamically superior electron acceptor. Three inverted repeat sequences upstream of the *D. desulfuricans Nap* operon have high levels of identity to consensus sequence for the *E. coli* CRP binding site. The presence of CRP consensus sites within the *D. desulfuricans Nap* promoter prompted a search for CRP homologues in the genomes of sulphate reducing bacteria. This revealed the presence of genes for four potential CRP / FNR homologues in both *D. desulfuricans* and *D. vulgaris*. The cloning and expression of genes for two of these proteins and their possible roles in the regulation of *nap* operon expression will be discussed.