

**P044** Investigating NarR, the third FNR-type Regulator of *Paracoccus*  
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NarR is the third transcriptional regulator of the FNR-family to be identified in *Paracoccus*. The other homologues that have been studied are the oxygen sensing FnrP and the nitric oxide sensing NNR. NarR and FnrP regulate expression of the *nar* operon (coding for the membrane bound nitrate reductase) in response to nitrate and/or nitrite, and both regulators are required for maximal *nar* expression. The promoter region contains two FNR-consensus sites, which may bind each of the FNR homologues. Data from promoter fusion constructs suggest that both FNR sites are required for maximum *nar* expression. This work aims to characterise NarR, its mechanism of nitrate and/or nitrite sensing and how it activates transcription. NarR has been purified as a fusion protein coupled to the maltose binding protein (MBP). This fusion has been cleaved and the NarR protein purified, however we have encountered problems of aggregation with purified NarR. Using gel-shift assays we have shown that the NarR-MBP fusion can interact with a synthetic FNR consensus site. In this assay, DNA binding by the fusion protein occurs irrespective of the presence of nitrite. The mechanism of NarR-dependent activation is discussed in light of our findings.