

P011 Multiple Forms of Oxidised Nitric Oxide Reductase
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Nitric Oxide Reductase (NOR) is a bacterial membrane-bound protein complex which catalyses the reaction: $2\text{NO} + 2\text{e}^- + 2\text{H}^+ \rightarrow \text{N}_2\text{O} + \text{H}_2\text{O}$. It contains a high-spin heme non-heme iron, Fe_B , dinuclear active site and additional heme groups, hemes *b* and *c*, which channel electrons to the active site. Preparations of *Paracoccus denitrificans* NOR are often heterogeneous as judged by electronic absorption spectroscopy. This heterogeneity has been investigated by EPR and MCD spectroscopies and attributed to two major changes: 1) Loss of the coupling between $\text{Fe}_B(\text{III})$ and heme b_3 at the active site; 2) a change in the ligation of heme *c*. The uncoupled and coupled active sites have been termed 'open' and 'closed', respectively. The open form is sensitive to changes in external pH, the latter is not. The magnetic properties of the 'closed' active site have been probed using new variable temperature variable field (VTVF) MCD methods and it is concluded that the heme b_3 - $\text{Fe}_B(\text{III})$ pair are weakly spin-coupled.