

**P015** Cytochrome c Nitrite Reductase – An Enzyme Chameleon  
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Cytochrome c nitrite reductase catalyses the six electron reduction of nitrite to ammonium. It crystallises as a homo-dimer with each monomer binding 5 c-type haems. In a previous study, using protein film voltammetry (PFV) at pH7, our group revealed that the onset of catalysis under nitrite limited conditions was triggered by the coordinated reduction of two haems, one of which is the site of nitrite coordination. At lower potentials an attenuation of activity was observed and this was attributed to the reduction of the haems lying near the dimer interface. We have now exploited PFV to define how this activity-potential profile responds to a change of pH as well as to the presence of the potent inhibitor cyanide.

As the pH is changed the onset of catalysis is displaced across the potential domain and changes in the magnitude and scan rate dependence of the low potential attenuation are observed. In the presence of cyanide the enzyme shows activity, all be it of a lower magnitude than in its presence. At low potentials a boost of activity was observed where, in the absence of cyanide, the attenuation was noted. Thus the activity-potential profile of cytochrome c nitrite reductase reveals how the enzyme dramatically modulates its activity in response to its environment – truly a chameleon of the enzyme world!