

P012 Studies of ResA, a protein involved in cytochrome *c* assembly in *Bacillus subtilis*

Christopher Hodson¹, Allison Lewin¹, Lars Hedersedt² and Nick Le Brun¹

¹*School of Chemical Sciences and Pharmacy, University of East Anglia, Norwich, NR4 7TJ, UK;* ²*Department of Cell and Organism Biology, Lund University, Lund SE-22362, Sweden,*

C-type cytochromes are distinct from other cytochromes in that their heme group(s) are covalently attached to the protein via (usually) two thioether bonds between the heme vinyl groups and the side chains of two cysteine residues located within a conserved CXXCH sequence motif. The structure and function of many *c*-type cytochromes have been characterised in detail but much less is known about heme attachment, a post-translational process commonly referred to as cytochrome *c* maturation (CCM). We are studying System II CCM in *B. subtilis* and have identified three proteins, ResA, ResB and ResC as essential components of CCM. ResB and ResC are integral membrane proteins that likely function in transmembrane heme transport and in catalysing the covalent attachment reaction. ResA is an extra-cytoplasmic membrane-anchored thioredoxin-like protein which is believed to specifically reduce apo-cytochromes *c* prior to heme attachment. Here we report *in vivo* studies of the functional importance of the active site cysteinyls and two residues, Glu80 and Pro141, located in a near-active site hydrophobic cavity. We show that the active site cysteines and Glu80 are very important for CCM, while Pro141 is shown to be important for the stability of ResA.