Poster Presentation P57

EFFECTS OF DOSEC DELETION MUTANTS

Mai Nguyen and Laura Moore*
Chemistry Department, Illinois Wesleyan University

Escherichia coli is a facultative anaerobic bacterium that utilizes different metabolic pathways when the oxygen concentration changes. Among many enzymes that regulate these pathways, DosEC is a purported direct oxygen sensor and a heme-regulated phosphodiesterase. When the central heme is at the +2 oxidation state, the conformation of the N-terminal domain changes, resulting in the activation of the C-terminal domain in DosEC . When activated, this domain breaks down cAMP, an important secondary messenger in the cell signaling pathway. In this study, we investigate the role of DosEC in the metabolism of Escherichia coli by comparing the growth rate of wild type and deletion mutants of dosEC in minimum media and/or oxidative stress conditions. We will also monitor the activity of DosEC by examining cAMP level. We expect to see a difference in the cAMP level between the wide type and the dosEC deletion mutant strains.