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Converting CooA from a Carbon Monoxide to an Oxygen-Sensing Heme Protein Transcription Factor: Investigations into the Structure and Mechanism of Gas Binding

Amanda Sedoris

Valparaiso University, amanda.sedoris@valpo.edu

Josh Wagoner

Valparaiso University, josh.wagoner@valpo.edu

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Converting CooA from a Carbon Monoxide to an Oxygen-Sensing Heme Protein Transcription Factor: Investigations into the Structure and Mechanism of Gas Binding

Amanda Sedoris, Josh Wagoner

Departmental Affiliation: Chemistry
College of Arts and Sciences

CooA is a carbon monoxide-sensing (CO-sensing) heme protein transcription factor that regulates gene activation in several bacteria and, importantly, is a convenient model for studying analogous proteins in the human body. In the present study, the specificity and mechanism of gas-binding of CooA have been investigated by efforts to convert CooA from a CO to an oxygen (O₂) sensor through site directed mutagenesis of residues in the gas binding pocket of the heme group. The resulting mutated proteins were then isolated and characterized with spectroscopy. The results of this research project will provide further insight into the current model for the specificity and mechanisms of gas binding in heme proteins.

Information about the Authors:

Amanda Sedoris is currently a senior looking to pursue a career in the health field. Josh Wagoner is currently a junior who will be finishing his chemistry degree at VU before hopefully attending graduate school in chemistry.

Faculty Sponsor: Dr. Robert Clark

Student Contact: josh.wagoner@valpo.edu