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Expression, Purification, and Characterization of Porphobilinogen Synthase in *Clostridium perfringens*

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Poster Presentation P12

EXPRESSION, PURIFICATION, AND CHARACTERIZATION OF PORPHOBILINOGEN SYNTHASE IN *CLOSTRIDIUM PERFRINGENS*

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Clostridium perfringens is the most common cause of gas gangrene, a deadly tissue infection around a skin injury or surgical wound. It also is an agent of foodborne illness in the United States. Analysis of porphobilinogen synthase (PBGS) in *C. perfringens* may reveal useful information about an important control point in the metabolism of this human pathogen. PBGS plays a major role in the biosynthesis of natural tetrapyrrole pigments essential to most life forms. Also known as δ-aminolevulinic acid dehydratase, it catalyzes the condensation of two molecules of δ-aminolevulinic acid (ALA) to form porphobilinogen (PBG). This tetrapyrrole pigment is a precursor to heme, a molecule important to cellular respiration. In this study, host *Escherichia coli* cells were transformed with an expression plasmid containing the *C. perfringens* PBGS gene. Gene expression was induced and various purification techniques were used to isolate the enzyme. Activity assays lead to initial steps in characterization.