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Poster Presentation P30

**CLONING AND TRANSFORMATION OF THE *BCHC* GENE FOR UNDERSTANDING
THE ACTIVITY OF BACTERIOCHLOROPHYLLIDE HYDRATASE**

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The process of photosynthesis is critical to the maintenance of life on Earth. This process is the source of energy that is utilized by all biological systems. Central to the process of photosynthesis is the pigment chlorophyll in plants, and bacteriochlorophyll in photosynthetic bacteria. The experiments reported in this poster relate to understanding the process by which bacteria make bacteriochlorophyll. The *bchC* gene is a protein coding gene responsible for the bacteriochlorophyll biosynthetic pathway. It is thought to encode the enzyme bacteriochlorophyllide hydratase. This enzyme has never been assayed *in vitro*. The genomic DNA of *Rhodobacter sphaeroides* was isolated and used as a template for Polymerase Chain Reaction (PCR). The PCR reaction was successful, and the PCR product was cloned into the Topo Cloning vector and transformed into *E. coli*. The plasmid containing the *bchC* gene is being used to construct an expression strain of *E. coli* to make significant quantities of the enzyme. The ultimate goal of the project is to demonstrate *in vitro* activity for the first time and then characterize the bacteriochlorophyllide hydratase in detail.