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Expression and Isolation of the BCHE Protein from *Dinoroseobacter Shibae* in *Rhodobacter Capsulatus*

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Poster Presentation P6

EXPRESSION AND ISOLATION OF THE BCHE PROTEIN FROM *DINOROSEOBACTER SHIBAE* IN *RHODOBACTER CAPSULATUS*

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Photosynthetic bacteria rely on photosynthesis to get energy. Bacteriochlorophylls harvest the light energy in photosynthesis and are important to these bacteria, but several enzymes used to synthesize this macromolecule are not completely understood. The gene *bchE*, from the marine bacterium *Dinoroseobacter shibae*, has been proposed to code for a protein used to help catalyze the formation of the bacteriochlorophyll structure. Isolation of polypeptide encoded by the *bchE* gene was performed to better understand this enzyme. Using conjugation, ST18 *E. coli* cells with plasmids containing the *bchE* gene were mated with a *Rhodobacter capsulatus* strain lacking functional BchE to allow expression. The Brp4 strains containing plasmids were grown to produce the BchE protein. GST tag column chromatography was used to isolate the BchE protein and associated proteins. Protein gel electrophoresis and Western blot techniques were used to ensure that the protein had been expressed in and isolated from the *Rhodobacter capsulatus* strain. The use of a photosynthetic bacterial host to express proteins is a new approach and will hopefully allow identification of proteins that interact with the BchE polypeptide.