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**Biochemical Analysis of the BHP Protein Believed to be Involved
in the Reductive Maturation of BHL A_{GG} to BHL A_P in
*Rhodobacter Capsulatus***

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Poster Presentation 42

BIOCHEMICAL ANALYSIS OF THE BChP PROTEIN BELIEVED TO BE INVOLVED IN THE REDUCTIVE MATURATION OF BChl *agg* TO BChl *ap* IN *RHODOBACTER CAPUSLATUS*

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Photosynthetic bacteria contain bacteriochlorophyll (BChl) which has two major portions, a magnesium tetrapyrrole and an esterifying alcohol. Bacteriochlorophyll plays a key role in photosynthesis which is necessary for converting radiant energy into energy that can be used in cellular processes. The esterifying alcohol portion affects the function of the BChl in photosynthesis, but its role is not well understood. *Rhodobacter capuslatus* typically produces BChl α that is esterified with phytol (BChl a_p), but site-directed mutational analysis has shown that a mutation in *bchP* results in the accumulation of a BChl α esterified with geranylgeraniol (BChl agg) indicating that the product of the *bchP* locus, the BchP polypeptide is necessary for the reductive maturation of BChl agg to BChl a_p . In order to determine if BchP is sufficient for this process, the gene has been amplified using polymerase chain reaction and restriction endonuclease sites have been created flanking the gene so that it can be cloned into a plasmid known as pT7-7 downstream of a promoter that can be regulated. This construct was then transformed into a strain of *E. coli* (C600) which contains the pGP1-2 plasmid with the gene for T7 RNA polymerase which is under the control of the λp_L promoter. When the strain containing both plasmids is incubated at 42°C, T7 RNA polymerase is produced which can transcribe *bchP* producing BchP. Future work will include *in vitro* assays to determine if BchP is sufficient for the maturation of BChl agg to BChl a_p .