



## Illinois Wesleyan University Digital Commons @ IWU

John Wesley Powell Student Research  
Conference

1997, 8th Annual JWP Conference

Apr 12th, 1:30 PM - 2:30 PM

# Biochemical Analysis of the BChP Protein Believed to be Involved in the Reductive Maturation of BChL $A_{GG}$ to BChL $A_P$ in *Rhodobacter Capsulatus*

Thaddeus R. Hoening  
*Illinois Wesleyan University*

David W. Bollivar, Faculty Advisor  
*Illinois Wesleyan University*

Follow this and additional works at: <http://digitalcommons.iwu.edu/jwprc>

Hoening, Thaddeus R. and Bollivar, Faculty Advisor, David W., "Biochemical Analysis of the BChP Protein Believed to be Involved in the Reductive Maturation of BChL  $A_{GG}$  to BChL  $A_P$  in *Rhodobacter Capsulatus*" (1997). *John Wesley Powell Student Research Conference*. 38.  
<http://digitalcommons.iwu.edu/jwprc/1997/posters/38>

This Event is brought to you for free and open access by The Ames Library, the Andrew W. Mellon Center for Curricular and Faculty Development, the Office of the Provost and the Office of the President. It has been accepted for inclusion in Digital Commons @ IWU by the faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).  
©Copyright is owned by the author of this document.

## 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***

Thaddeus R. Hoening and David W. Bollivar\*, Department of Biology, IWU

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 *a* that is esterified with phytol (BChl *ap*), but site-directed mutational analysis has shown that a mutation in *bchP* results in the accumulation of a BChl *a* 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 *ap*. 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  $\lambda p_L$  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 *ap*.