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Use of a Glutathione S-Transferase (GST) Tag For Isolation of the *BCHE* Encoded Protein of *Rhodobacter Capsulatus* in *Rhodobacter Capsulatus*

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Poster Presentation P20

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Bacteriochlorophyll plays an essential role in the process of photosynthesis in photosynthetic bacteria, but several of the enzymes involved in the synthesis of this tetrapyrrole are yet to be entirely understood. The step in which the ring structure of the tetrapyrrole is formed is catalyzed by the enzyme Mg-protoporphyrin IX monomethyl ester cyclase (MPE-cyclase) which converts the substrate MPE into protochlorophyllide (Pchlide) and incorporates an oxygen atom from water. The gene *bchE* has been suggested to encode a protein required for MPE-cyclase activity in the photosynthetic bacterium *Rhodobacter capsulatus.* In order to study the cyclase enzyme, we attempted to isolate the polypeptide encoded by *bchE* by first expressing the protein using pRho expression vectors in *R. capsulatus.* With column chromatography we hoped to isolate the BchE protein for further studies and co-purify any strongly associated partners. Previous attempts to purify the BchE protein using a StrepII-tag were unsuccessful due to the presence of biotin utilizing enzymes in *R. capsulatus* which out-competed the StrepII-tag of BchE for binding to the streptactin column. In order to fix this problem, a GST-tag was fused with BchE protein as well and a glutathione chromatography column was used for purification.