The bchC Gene in Bacteriochlorophyll Biosynthesis in Rhodobacter Capsulatus

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This project was designed to test the hypothesis that the \textit{bchC} gene of \textit{R. capsulatus} contributes to bacteriochlorophyll biosynthesis and encodes the 2-hydroxyethyl bacteriochlorophyllide dehydrogenase. The gene was cloned and inserted into \textit{E. coli}, and overexpression of the BchC protein was induced. A mutant strain that accumulates 2-hydroxyethyl bacteriochlorophyllide \textit{a}, an intermediate in bacteriochlorophyll synthesis, provided a substrate for BchC assays. Activity of the BchC protein was indicated by presence of bacteriochlorophyllide \textit{a}, as detected by fluorescence analysis. It was demonstrated that the BchC enzyme requires NADPH to perform its catalytic role.