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**Study of protoporphyrin IX as a possible photosensor for
carotenoid synthesis of *Myxococcus xanthus***

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The heme biosynthesis is essential for the proper light responses in many bacteria. Protoporphyrin IX is an intermediate molecule in the heme biosynthetic pathway. Light itself strongly inhibits the protoporphyrin IX synthesis and sporulation in *M. xanthus*, hypothesizing that protoporphyrin IX concentration may be reversely proportional to carotenogenesis, and its lower concentration may induce carotenogenesis in the dark. Effect of protoporphyrin IX on carotenogenesis was examined by measuring β -galactosidase activities from a *carQRS-lacZ* transcriptional fusion. Synthesis of protoporphyrin IX was inhibited by succinylacetone added to a final concentration of 500 mM. Unfortunately, it appears that artificial reduction of protoporphyrin IX neither trigger carotenogenesis in the dark, nor block sporulation.