Expression of Hem Agene of *RhodobacterSpharoidesin Streptomyces coelicolor*

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The Rhodohbactersphaeroides hem A gene codes for 5-aminolevulinate (ALA) synthase. This emzyme catalyzes the condensation of succunyl coenzyme A and glycine to form ALA. ALA has medical applications for photodynamic cancer theraphy and tumor diagnosis. It can be also utilized as a biodegradable herbicide or insecticide in agriculture. Currently, ALA is produced by chemical synthesis but is difficult to satisfy increasing various commercial applications due to the numerious reaction step required, relatively low yield, and its noxious byproducts. Recently, recombinantE.Coli cells have been developed for the mass production of ALA. In this study,Hem A gene ofRhodohbactersphaeroideswere expressed in Streptomyces cells. Hem Agenewere amplified by PCR, sequenced and cloned into intergration vector pWUX12A. The recombinant DNA was introduced into Streptomyces coelicolor by conjugal transformation. Expression of this gene was analyzed by using SDS-PAGE and its activity was determined by enzyme assay, in which reaction between succinyl-CoA and glycine was perfomed using cell-free extract of recombinant strain as enzyme catalyst. Flask cultureswere performed in different media and then productivities were evaluated.