

The Function and Characteristics of Phz E in the Biosynthesis of Phenazine by *Pseudomonas fluorescens*

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The antibiotic phenazine 1-carboxylic acid (PCA) produced by *Pseudomonas* species is biologically active metabolite that functions in the suppression of soilborne plant pathogens. Seven gene clusters, phzABCDEFG, were identified to be responsible for the biosynthesis of phenazine in *P. aeruginosa* and *P. fluorescens* 2-79. In this study the function and characteristics of phzE were investigated. Blast analysis showed that the protein phzE showed a strong similarity to anthranilate synthase. The phzE complemented TrpE(anthranilate synthase)-defective mutants and it converted chorismate into ADIC. Although phzE shares the common properties with AS, it showed no ADIC lyase activity and no inhibition by anthranilate or a slight inhibition by L-tryptophan in contrast to anthranilate synthase. The Km values and the catalytic efficiency (kcat/Km) of phzE for chorismate and L-glutamine were 10-times and 100-times lower than those of anthranilate synthase of *S. typhimurium*, respectively. Here we propose that phz E is involved in the first step for the biosynthesis of PCA.