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Phylogenetic Analysis of a Catalase Gene from the Isolated Organic Solvent Tolerant *Pseudomonas* Strain

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Pseudomonas strains conserves a defense mechanism for the oxidative stress including the catalase system. One of the genes involved in the mechanism, the catalase gene (*katA*) from an organic solvent tolerant *Pseudomonas* isolate was cloned into the pGEM-T easy vector and sequenced. Of interesting, the *katA* sequence was highly homologous to the catalase gene sequence of *Aeromonas hydrophila* subsp. *Hydrophila*, scoring 90% identity. Based on the nucleotide sequence, the catalase gene showed approximately 80-86% homology to the catalse gene from *P. putida* F1, *P. entomophila*, *P. fluorescens*, and *P. syringae*, respectively. The comparison of the KatA amino acid sequence showed that it was significantly homologous to catalase from *P. putida*, *P. entomophila*, *P. fluorescens*, and *P. syringae*, respectively. High level expression and purification of the protein, catalase A using the expression vector system is under the study.

Key words: Catalase gene, organic solvent tolerance, *Pseudomonas* isolate, oxidative stress

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Screening of the Proteins that Interact with *O*-GlcNAcase from a Human Brian cDNA Library Using a Yeast Two-Hybrid System

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The enzyme N-Acetyl-β-D glucosaminidase (*O*-GlcNAcase) encoded by *MGEA5* gene catalyzes the cleavage of N-acetylglucosamine from *O*-GlcNAcylated proteins. It is a key enzyme in the post-translational modification of intracellular proteins by *O*-linked N-acetylglucosamine(*O*-GlcNAc). In order to identify the *O*-GlcNAcase-related proteins, we screened a human brain cDNA library. The *MGEA5* gene was cloned into a bait plasmid, pGBKT7, and was transformed into *Saccharomyces cerevisiae* AH109. Then, the transformants were mated with *S. cerevisiae* Y187 pre-transformed with human brain cDNA library. 81 positive clones showing blue colonies were primarily selected on SD(-Trp-Leu-Ade-His)/X-α-Gal agar plates. Finally, we chose 10 clones with high β-galactosidase activity for further analysis. The plasmid DNAs were isolated and nucleotide sequences were analyzed. Now, we are analyzing the screened proteins.

Key words: β-galactosidase activity, *O*-GlcNAcase, yeast two-hybrid system