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Starvation-Mediated Acid and Base Resistance in *Escherichia coli*Byoung Guk Kim*, Ju Sung Kim, Sang Hee Na and Ho Gun Rhie
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Escherichia coli K12 strain and its some mutant such as katF, pta, ackA and ackApta strains are challenged to acidic pH and alkaline pH after grown to stationary phase for 17 hours. Wild type K12 showed higher viability than katF at pH 3.5. pta and ackApta strains survived poorly but showed higher viability than katF mutant. But ackA mutant exhibited nearly same viability as wild type for 2hours at pH 3.5. This results showed certain component in the acetate activation pathway may has a role in the growth arrest and the acidic condition. At pH 9.0, they exhibited difference a little. To investigate what regulators are activated in the cell in response to growth arrest and in the acidic condition, ackA multicopy plasmid was transformed into katF::lacZ mutant. And β -galactosidase assay was performed.

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Purification and properties of D-(-)- β -hydroxybutyrate dehydrogenase from *Alcaligenes eutrophus* H16.

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D-(-)- β -hydroxybutyrate dehydrogenase (EC 1.1.1.30) which is participated in poly- β -hydroxybutyrate degradation pathway was purified from *Alcaligenes eutrophus* H16 to electrophoretic homogeneity. The molecular weight of the enzyme determined by polyacrylamide gel electrophoresis in the presence of sodium dodecylsulfate was 29,000. The enzyme showed a pH optimum at 8.0 in the oxidation reaction. The km values for D-(-)- β -hydroxybutyrate and NAD in the oxidation reaction were 1×10^{-3} M and 1.5×10^{-4} M, respectively. The km values for acetoacetate in the reduction reaction was 4×10^{-4} M and that for NADH was 3.8×10^{-5} M. Divalent cations such as Mg²⁺ and Mn²⁺ were effective stimulator for the oxidation of D-(-)- β -hydroxybutyrate, whereas there was no inhibitory effect by PMSF and dithiothreitol. N-terminal amino acid sequence showed that the enzyme is one of the short chain alcohol dehydrogenase family.