

2 . 일반 학술 발표 요지

Molecular Cloning and Sequencing of the *Bacillus subtilis* *cdd* Gene Encoding Dooxycytindine-Cytidine Deaminase.

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The *cdd* gene of *Bacillus subtilis*, encoding the deoxycytidinecytidine deaminase of pyrimidine nucleotide biosynthesis has been cloned into the EcoRI site of pBR322. The recombinant plasmid, pSol, promoted the synthesis of 100-140 fold elevated levels of the enzyme. A comparison of the polypeptides encoded by *cdd* complementing and non-complementing plasmids in the mini cell showed the gene product to have a molecular mass of approximately 14 kDa. The nucleotide sequence of the gene and 460 base pairs upstream from the coding region was determined. An open-reading frame, encoding a protein with a calculated molecular mass of 14337 Da, was deduced to be the coding region for *cdd*. However, the enzyme has an apparent molecular mass of 54 kDa as determined by gel filtration, whereas sucrose density gradient centrifugation shows 58 kDa. It means that the enzyme could be forming a tetramer in a physiological state. About 28 amino acids of the N-tetramer in a physiological state. About 28 amino acids of the N-terminal presumably form a signal for membrane translocation and six cystein residues are contained in the structure. S1 nuclease mapping indicated that transcription of *cdd* is initiated 17 base pairs upstream from the translational start. The structural characterization of the *cdd* gene was performed.

Chromosomal Mapping of the Gene Encoding Deoxycytidine-Cytidine Deaminase in *Bacillus subtilis*

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A mutant of *bacillus subtilis* with a defective *cdd* gene encoding deoxycytidine-cytidine deaminase (EC 3.5.4.5.) has been characterized genetically. The genetic lesion causing the altered deoxycytidine-cytidine deaminase, *cdd*, was mapped at 225 min on the linkage map of *B.subtilis* by AR9 transduction. Transductional analysis of the *cdd* region established the gene order as *trp-lys-dnaE-cdd-aroD*. The *cdd* gene was linked 72% with the *aroD* and 20% with the *lys*.