S3-4

TRANSCRIPTION REPRESSION MEDIATED BY PROTEIN-PROTEIN INTERACTION

Hyon E. Choy
Department of Biochemistry, Dankook University Medical College

It has been conventionally perceived that bacterial transcription repression is established by steric hindrance mechanism. Whereas, transcription activation is via protein-protein interaction between RNA polymerase and transcription activator. However, there has been increasing number of findings suggesting that the transcription repression is also via the same protein-protein interaction between the repressor and RNA polymerase. In this case, the interaction should result in the conformational change in RNA polymerase leading to transcription repression. In this talk, I present evidence 1) Gal repressor interacts with the α subunit of RNA polymerase at *galP*1 (in *E. coli*) and the repression is at a step prior to open promoter complex formation (RPo) but not at the RNA polymerase binding step (RPc); 2) CytR repressor alters the transcription activator, CRP, binding next to *cytO*, which then represses transcription initiation from *deoP*2 (in *E. coli*) at a step subsequent to RPc formation. It, therefore, is likely that the protein-protein should be important mode of regulation for not only the transcription activation but also the transcription repression.

S4-1 BIODEGRADATION OF BIPHENYL AND CATECHOLIC COMPOUNDS BY A GEM STRAIN, *PSEDOMONAS* SP. DJP-120

Chi-Kyung Kim
Department of Microbiology, Chungbuk National University

There was a bacterial strain which was called the DJP strain, before the so-called DJP joint-government of Korea was inaugurated in 1998. The strain newly made by genetic engineering techniques was reported in the International Symposium on Environmental Engineering (Wm-S06) organized by Pohang University of Science and Technology in September 28 to October 1, 1997. The name of the new GEM strain was originated from its parents names as a result of molecular recombination of their degradation genes. They were *Pseudomonas* sp. DJ-12 (Kor. J. Microbiol. 25:122-128, 1987) and *Pseudomonas* sp. P20 (Kor. J. Microbiol. 30:53-59, 1992) which were isolated from the wastewaters of Daejon and Cheongju industrial complexes, respectively. The 2,3-dihydroxybiphenyl dioxygenase gene of *Pseudomonas* sp. P20 was cloned to construct pKK1 recombinant plasmid. The pKK1 in the cloned cells of *E. coli* KK1 was transferred into *Pseudomonas* sp. DJ-12 by conjugation. The resulting transconjugant, *Pseudomonas* sp. DJP-120, revealed higher biodegradability and survival stability. Its specific activity for biphenyl degradation was increased by 23.7 folds over its mother strain. Its degradation activities to catechol and 3-methylcatechol were also increased by 3.5 and 4.8 folds, respectively.