

**THE STUDY OF MUTATION SPECTRUM IN *lac I* GENE  
OF TRANSGENIC BIG BLUE<sup>®</sup> CELL LINE FOLLOWING  
SHORT-TERM EXPOSURE TO 4-NITROQUINOLINE  
N-OXIDE**

Ji-Youn Youn<sup>o</sup>, Kyung-Hea Cho<sup>\*</sup>, and Jae-Chun Ryu

Toxicology Laboratory, KIST, P.O. Box 131, Cheongryang, Seoul, 130-650.

<sup>\*</sup>Department of Biology, Seoul Woman's University, San 228-32

Kongneung-dong Nowon-gu, Seoul, 139-744, Korea

4-Nitroquinoline N-Oxide(4-NQO) is potent mutagen and carcinogen which widely used as positive control in many mutagenic and carcinogenic studies.

To investigate the mutational spectrum of 4-NQO in mammalian system, we used the transgenic Big Blue cell line, derived from a Rat2 embryonic fibroblast. Transgenic Big Blue cell line used in this study harbor very useful lambda shuttle vector containing *lac I* gene as a mutational target. This assay using transgenic cell line is performed by treatment with 0, 0.03125, 0.0625, 0.125ug/ml of 4-NQO, isolation of genomic DNA from cells, exposure the DNA to *in vitro* packaging extract, plating and sequencing.

Our results indicated that 4-NQO induced mutant frequencies increased with dose-dependency about 3 - 7 folds. DNA sequence analysis of *lac I* mutants from the control and 4-NQO treatment group demonstrated that 4-NQO is a base substitution mutagen(93.9% out of entire mutations) and induces increase of transversion(68.8%) of G:C -> T:A(43.8%) compared to control(5% of 35%transversion). From these results, we could assume mutagenic effect of 4-NQO in cancer related genes and confirm that this assay system is very powerful to understand the mechanisms of specific chemical carcinogenesis involved.

포스터발표

책임연구자

성명 : 류재천

주소 : 서울시 성북구 하월곡동 39-1 KIST. Tox. Lab.

전화번호 : 02-958-5070

Fax. : 958-5059