Combined transcriptome and proteome analyses of adaptive response to alkylating agents in *Escherichia coli*

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Alkylation damage to DNA occurs when cells encounter alkylating agents in the environment or generate active alkylators in metabolic pathways. In *Escherichia coli*, adaptive response system, mainly controlled by Ada protein, activates DNA repair system in response to alkylation damages. In this study, we compared the adaptive response of *E. coli* wild-type and *ada* mutant strains using the integrated transcriptome and proteome analyses to elucidate the regulatory and physiological characteristics of the adaptive response. We also examined Ada-dependent induction of the adaptive responses genes and fine tuning of individual gene expression according to the growth phase for extended periods of exposure time to a methylating agent.

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