Transcript and Protein Level Analysis of Cross-regulation in Phosphate Starvation Response in *Escherichia coli*

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**Abstract**

Phosphorus is the essential cellular element as major building blocks of various biomolecules, and its metabolism is closely related with diverse metabolic pathways including central carbon metabolism. *Escherichia coli* has a PhoR-PhoB two-component regulatory system to detect and respond to environmental phosphate concentration. Additionally, this system is connected to other regulatory systems and cross-regulated with them. In this study, the multiple controls of phosphor regulon and cross-regulation were investigated at transcript and protein levels using DNA microarray followed by real-time PCR analysis and fluorescence resonance energy transfer (FRET) analysis. From this study, the interactions among PhoB, PhoR, PhoU, and CreC could be revealed in phosphate limiting condition in E. coli, and this is valuable to understand the cellular physiology relating to the cross-regulation of phosphate starvation response.

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References