

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 pho 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

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