

## Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: *E. coli* global regulators known to be involved in metabolism control in *E. coli* and their corresponding PhTAC125 ortholog.

File Name: Supplementary Data 2

Description: List of differentially expressed PhTAC125 TFs identified. All differentially expressed TS were identified following the T1-T3 transition, except \* that was identified following the T3-T5 one. Adjusted p-values were calculated using Deseq2 default approach, i.e. correcting for multiple testing using the Benjamini and Hochberg method.

File Name: Supplementary Data 3

Description: List of differentially expressed PhTAC125 TCSRs identified. All differentially expressed TS were identified following the T1-T3 transition, except \* that was also identified following the T3-T5 one ( $\log_2FC$  and p-value are provided in the same line). Adjusted p-values were calculated using Deseq2 default approach, i.e. correcting for multiple testing using the Benjamini and Hochberg method.

File Name: Supplementary Data 4

Description: List of genes responsible for the first assimilation step of amino acids in *PhTC125*.