

Description of Additional Supplementary Files

Supplementary Data 1 contains information of the 3490 detectable differentially degraded transcripts in *E. coli* PNP-essential *fbp*-deletion and the isogenic parental strains, including gene name, database identifier, common function, differential degradation, maSigPro degradation group, RNA half-life, and log2 fold-change in RNA-half-life and binding by PNPase D492G or PNPase inhibited by tungstate in a prior publication. NA indicates not applicable.

Supplementary Data 2 contains information about the TBLASTN search.

Supplementary Data 3 contains the list of bacterial strains and plasmids used in this study.

Supplementary Data 4 contains the sequences of all oligonucleotides used in this study.

Supplementary Data 5 contains the initial configuration of unbound PNPase for molecular dynamics trajectories in plain text format

Supplementary Data 6 contains the final configuration of unbound PNPase for molecular dynamics trajectories in plain text format

Supplementary Data 7 contains the initial configuration of F16dP-bound PNPase for molecular dynamics trajectories in plain text format

Supplementary Data 8 contains the final configuration of F16dP-bound PNPase for molecular dynamics trajectories in plain text format

Supplementary Data 9 contains the initial configuration of 3PG-bound PNPase for molecular dynamics trajectories in plain text format

Supplementary Data 10 contains the final configuration of 3PG-bound PNPase for molecular dynamics trajectories in plain text format