***Supplementary Material for***
**Unexpected coregulator range in the global regulator Lrp of *Escherichia coli* and *Proteus mirabilis***

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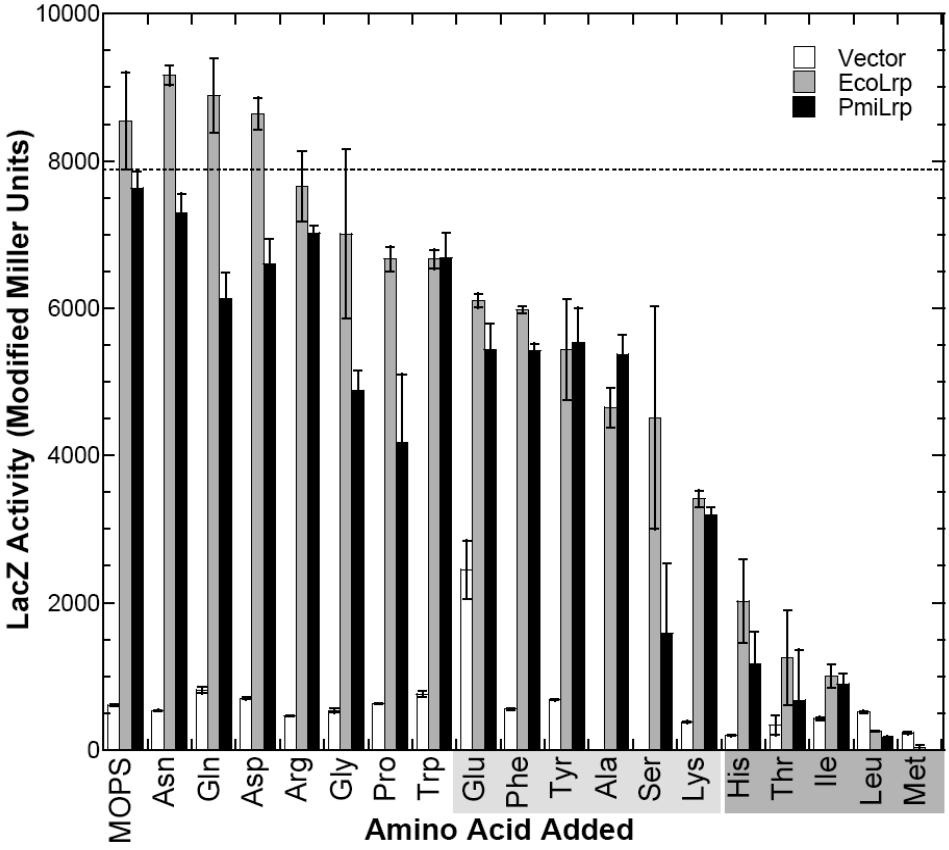


**Figure S1. Full amino acid screen for Lrp-dependent effects on P*livK-lacZ*.** Strains with plasmids shown in Fig. 1A were grown in MOPS-glucose medium with the indicated L-amino acid present at 10 mM (except for Trp at 5 mM, and Val or Cys not shown as there was complete growth inhibition). The bars indicate mean LacZ activity from triplicate single-time assays (mid-logarithmic growth), with standard errors shown, and bar colors represent vector control (no Lrp, white), EcoLrp (gray), and PmiLrp (black). Shading of amino acid names distinguishes those having <25% effect on P*livK-lacZ* (white), 25-75% effect (light gray), and >75% effect (dark gray). The dotted line indicates the approximate level of activity for both EcoLrp and PmiLrp when no amino acid is added to the medium (bars marked “MOPS”).

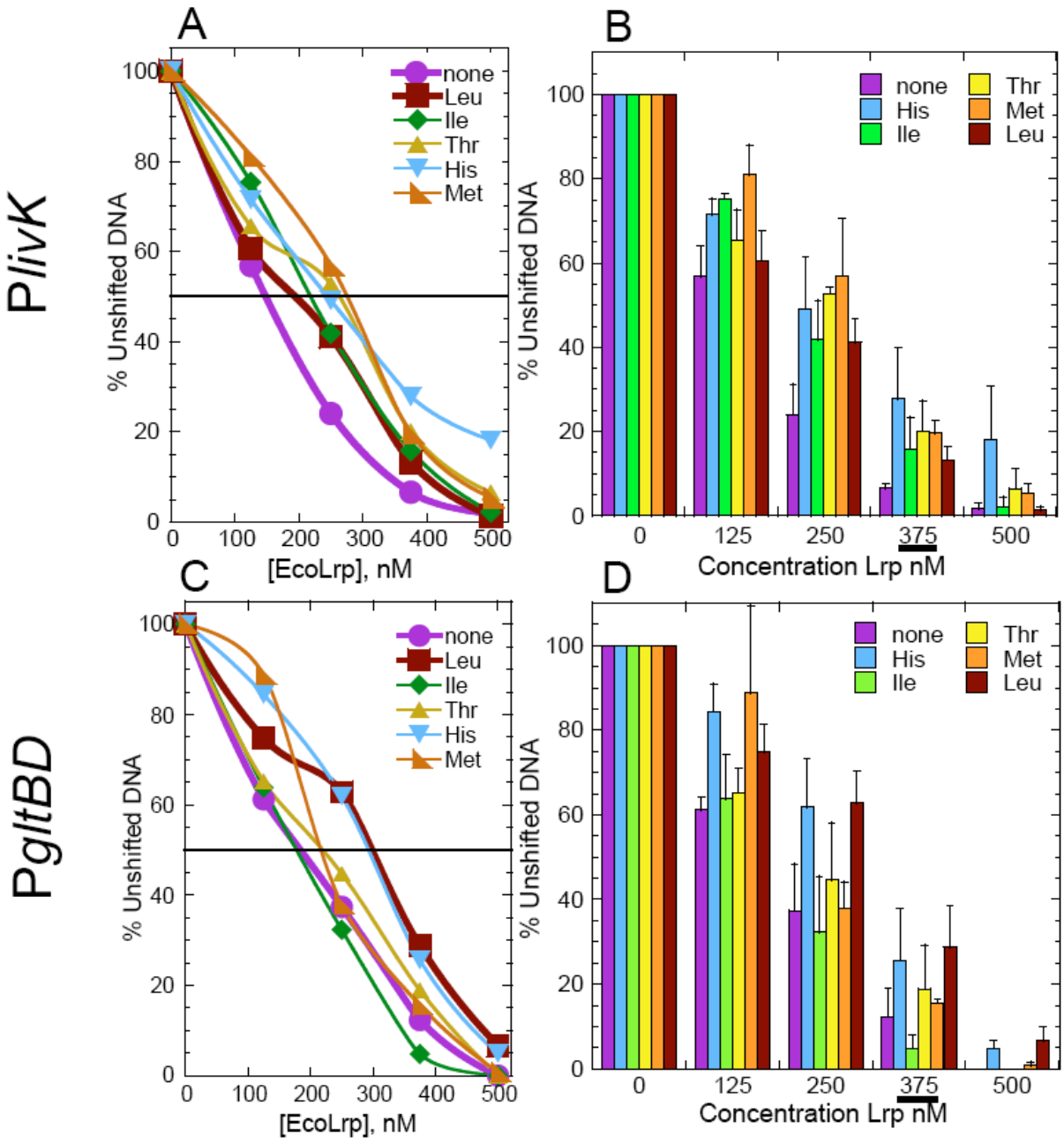


**Figure S2. Quantitation of electrophoretic mobility shift analysis (EMSA) effects of strong coregulators.** Quantitative densitometry of representative image set, from experiments shown in Fig. 6. Panels **A** and **B** show results with P*livK*, while **C** and **D** show results with P*gltB*. **A, C** highlight comparison between control (no AA added) and +Leu (known coregulator; thicker lines). **B, D** show quantitative densitometry of triplicate EMSAs (including the set shown in A and C), carried out using NIH Image J. Standard errors are shown.

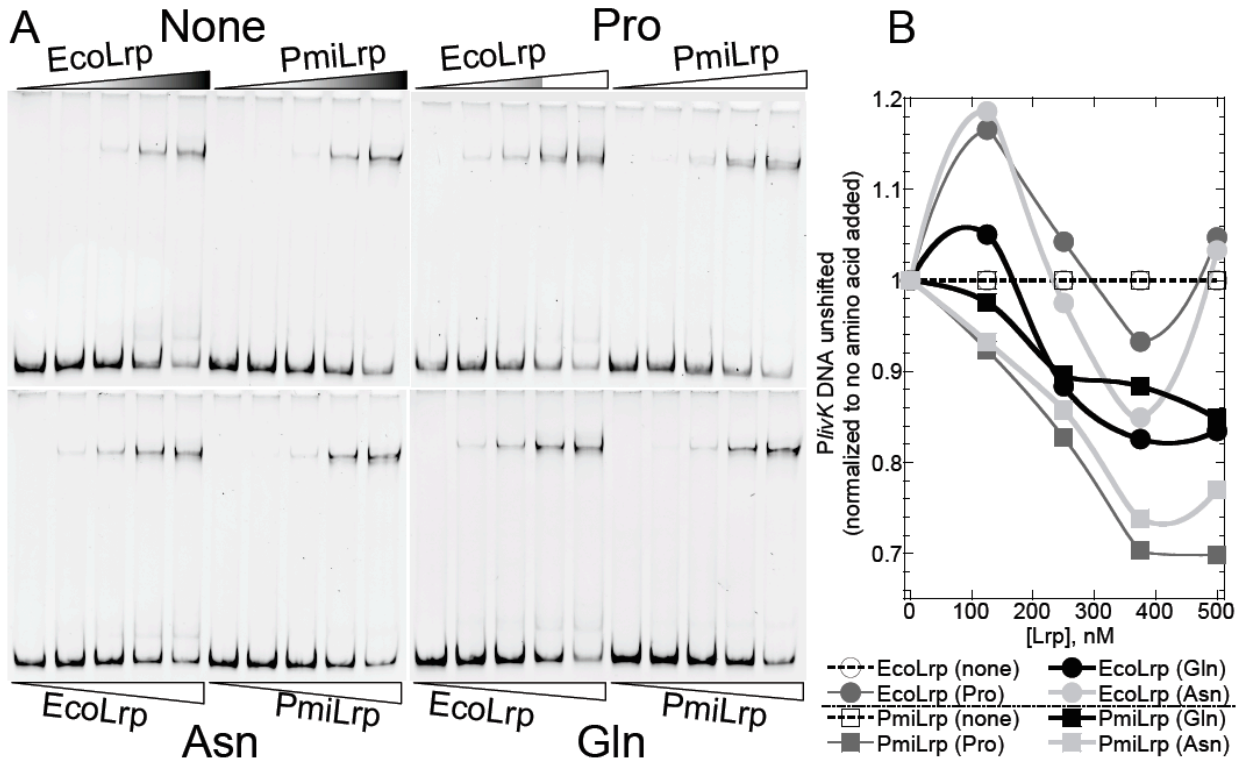


**Figure S3. Electrophoretic mobility shift analysis (EMSA) effects of Pro, Gln and Asn.** P*livK* DNA (23 nM) was incubated with purified EcoLrp or PmiLrp as described in Materials and Methods, prior to resolution on a nondenaturing gel. The indicated AA were included in the loading buffer and the gel, to maintain their concentration during electrophoresis. Concentrations of Lrp protein used, calculated as the monomer, were 0, 125, 250, 375, and 500 nM. The 500 nM concentration corresponds to 250 nM if entirely as dimers, 62 nM as octamers, and 31 nM as hexadecamers. **A.** Gel images (negative image, stained after electrophoresis with ethidium bromide and viewed under UV illumination). **B.** Densitometric analysis of unshifted bands in gel images, normalized at each concentration to the result with no added AA.