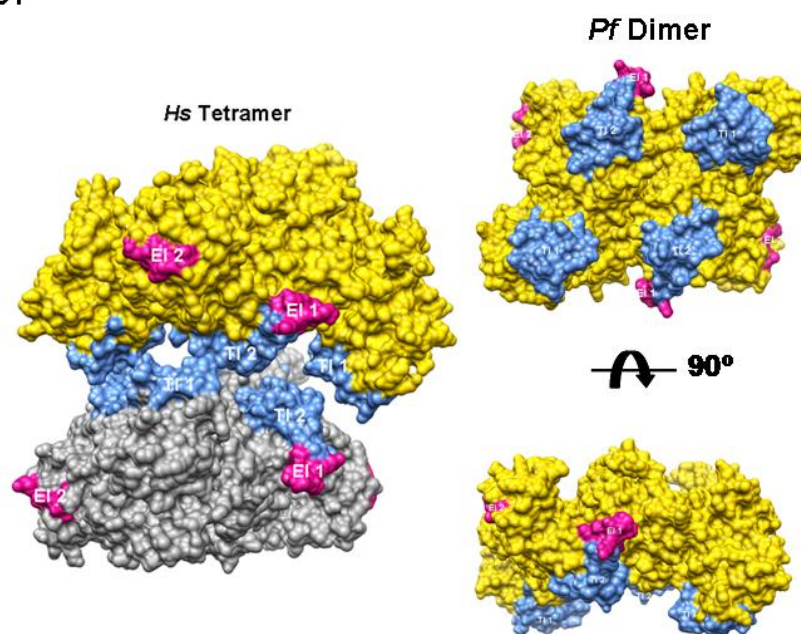


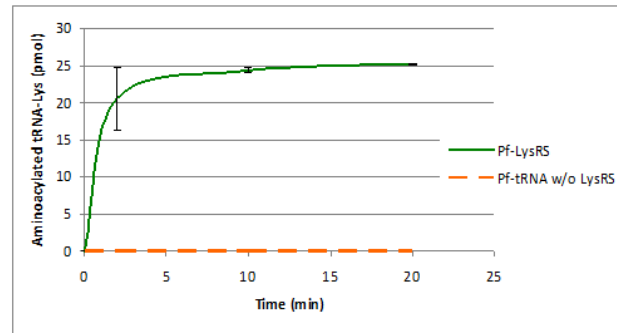
Supplementary Material

S1



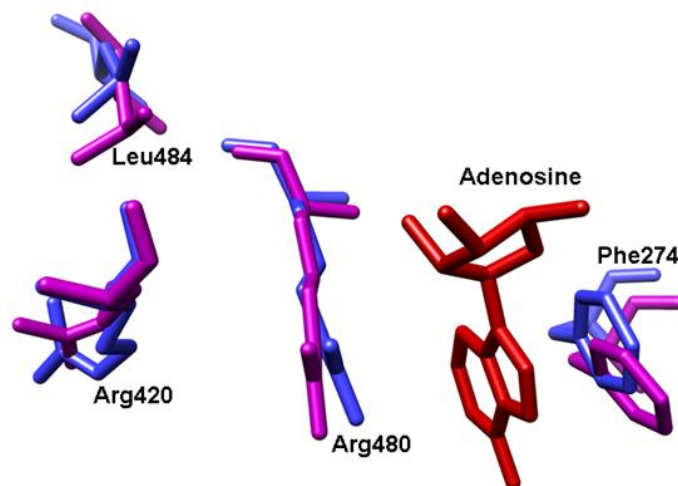
Supplementary Figure S1. Surface representation of *Hs*LysRS tetramer and *Pf*LysRS dimer. The tetramer interface 1 and 2 residues (T1 and T2) along with specific eukaryotic insertion residues 1 and 2 (E1 and E2) are shown in both *Hs*LysRS tetramer and *Pf*LysRS dimer.

S2



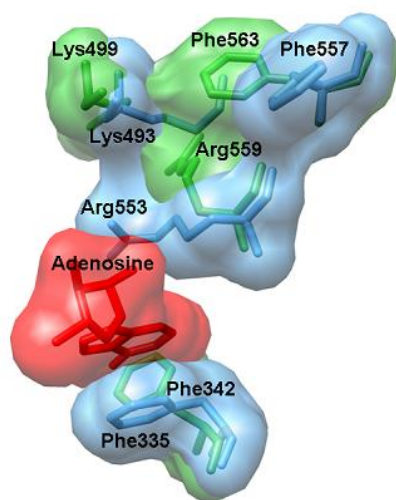
Supplementary Figure S2. Aminoacylation curves with (green line) and without (orange line) added truncated *Pf*LysRS and using *Pf*-tRNA^{Lys}.

S3



Supplementary Figure S3. Superposition of *E-coli* apo-form LysRS (1BBW, magenta) and ATP-bound form (1E1T, navy blue) with a view of four key side chains where there are no conformational changes.

S4



Supplementary Figure S4. Molecular surface view of *HsLysRS* (closed, blue) and *PfLysRS* (open, green) forms with adenine ring of ATP.