Table S1. Steady-state parameters for activation of various isoleucine samples by WT EcLeuRS[a]
[a] Measured by ATP-PP$_i$ exchange assay.

AA	% Leu[b]	K_m (AA)	k_{cat}	k_{cat}/K_m	Discrimination factor[c]
		mM	s^{-1}	mM^{-1}s^{-1}	
commercial Ile (Sigma BioUltra lot 1)	0.38 ± 0.03	5.0 ± 0.4	65 ± 2	13	102
commercial Ile (Sigma BioUltra lot 2)	$(19 \pm 2) \times 10^{-4}$	23	3.8	0.17	7765
purified Ile (Sigma BioUltra lot 2)	$(3.5 \pm 0.7) \times 10^{-4}$	26 ± 7	1.1 ± 0.1	0.042	31429

[b] Determined kinetically- see Supplementary Materials and Methods.
[c] Discrimination factor is defined as $(k_{cat}/K_m)_{cognate}/(k_{cat}/K_m)_{non-cognate}$.
The values represent the best fit value ± S.E. of at least two independent experiments.