

Figure S1. Rates of false identification of gene expression reversion (RV) and reinforcement (RI) determined by computer simulation. The mean expression level (μ) used = 10. The coefficient of variation (CV) used is marked on the top of each column. Each row has a different combination of the cutoff (c), sample size at original stage (n_o), sample size at the plastic stage (n_p), and sample size at the adapted stage (n_a). Results shown are mean and standard errors estimated from 100 rounds of simulation, where each simulation contains 1000 hypothetical genes with the same μ and CV. See main text for definitions of RV and RI. **(A)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 6$, and $c = 0.2L_o$, where L_o is the observed mean expression level at stage o . **(B)** Simulation results under $n_o = 6$, $n_p = 1$, $n_a = 6$, and $c = 0.2L_o$. **(C)** Simulation results under $n_o = 1$, $n_p = 6$, $n_a = 6$, and $c = 0.2L_o$. **(D)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 1$, and $c = 0.2L_o$. **(E)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 6$, and $c = 0.5L_o$. **(F)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 6$, and $c = 0.05L_o$.

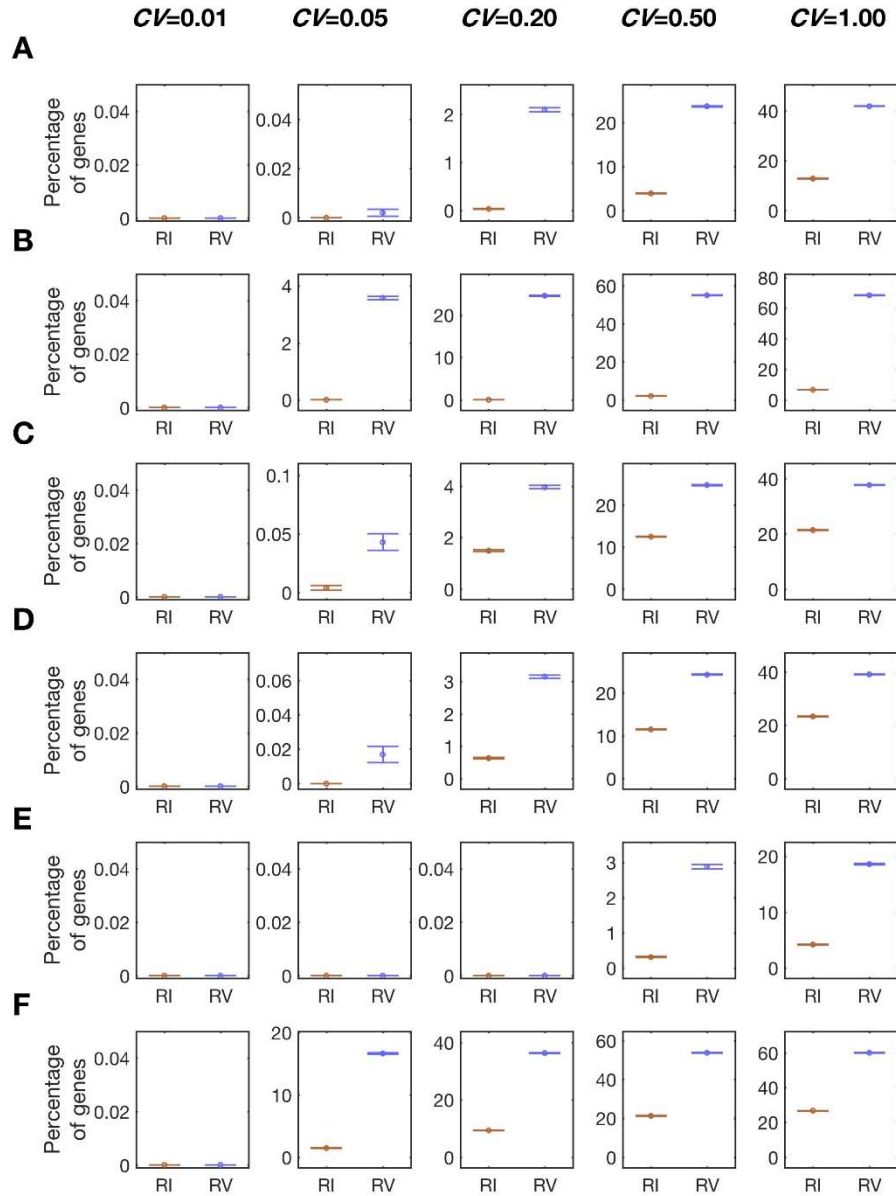


Figure S2. Rates of false identification of gene expression reversion (RV) and reinforcement (RI) determined by computer simulation. The mean expression level (μ) used = 1000. The coefficient of variation (CV) used is marked on the top of each column. Each row has a different combination of the cutoff (c), sample size at original stage (n_o), sample size at the plastic stage (n_p), and sample size at the adapted stage (n_a). Results shown are mean and standard errors estimated from 100 rounds of simulation, where each simulation contains 1000 hypothetical genes with the same μ and CV. See main text for definitions of RV and RI. **(A)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 6$, and $c = 0.2L_o$, where L_o is the observed mean expression level at stage o . **(B)** Simulation results under $n_o = 6$, $n_p = 1$, $n_a = 6$, and $c = 0.2L_o$. **(C)** Simulation results under $n_o = 1$, $n_p = 6$, $n_a = 6$, and $c = 0.2L_o$. **(D)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 1$, and $c = 0.2L_o$. **(E)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 6$, and $c = 0.5L_o$. **(F)** Simulation results under $n_o = 6$, $n_p = 6$, $n_a = 6$, and $c = 0.05L_o$.

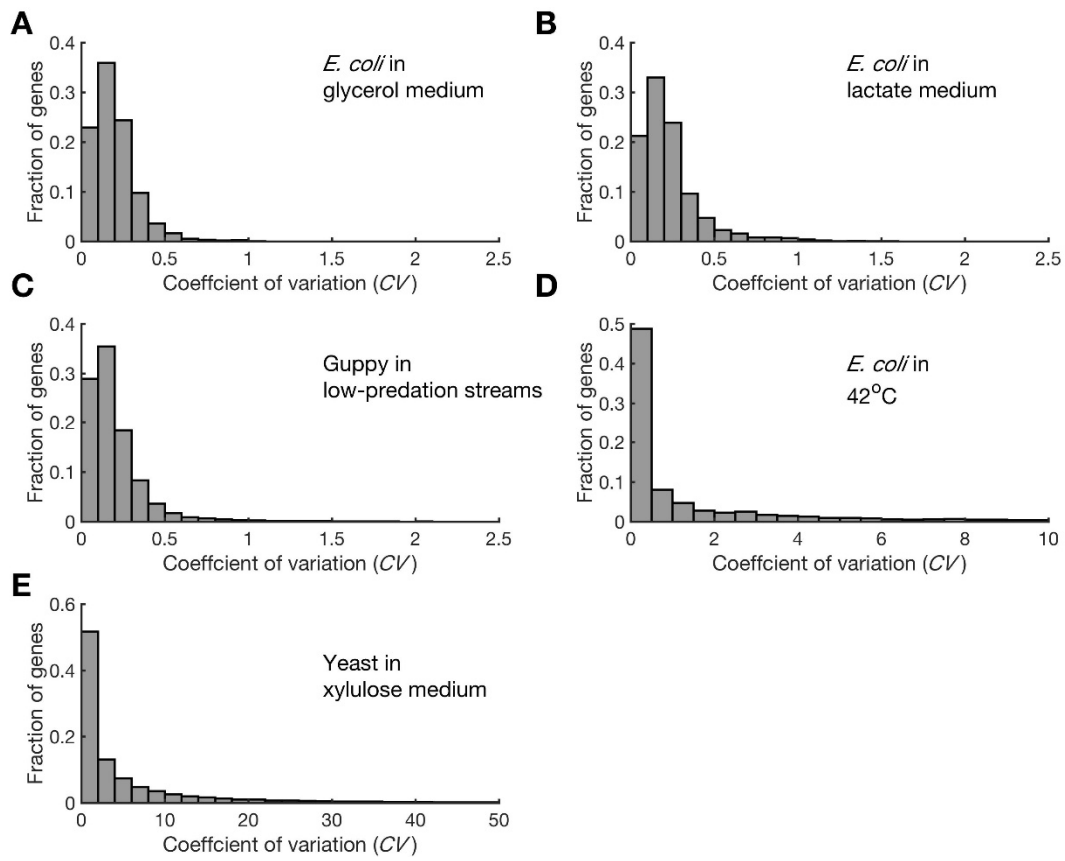


Figure S3. Distributions of coefficients of variation (CV) in the five datasets of experimental evolutions.

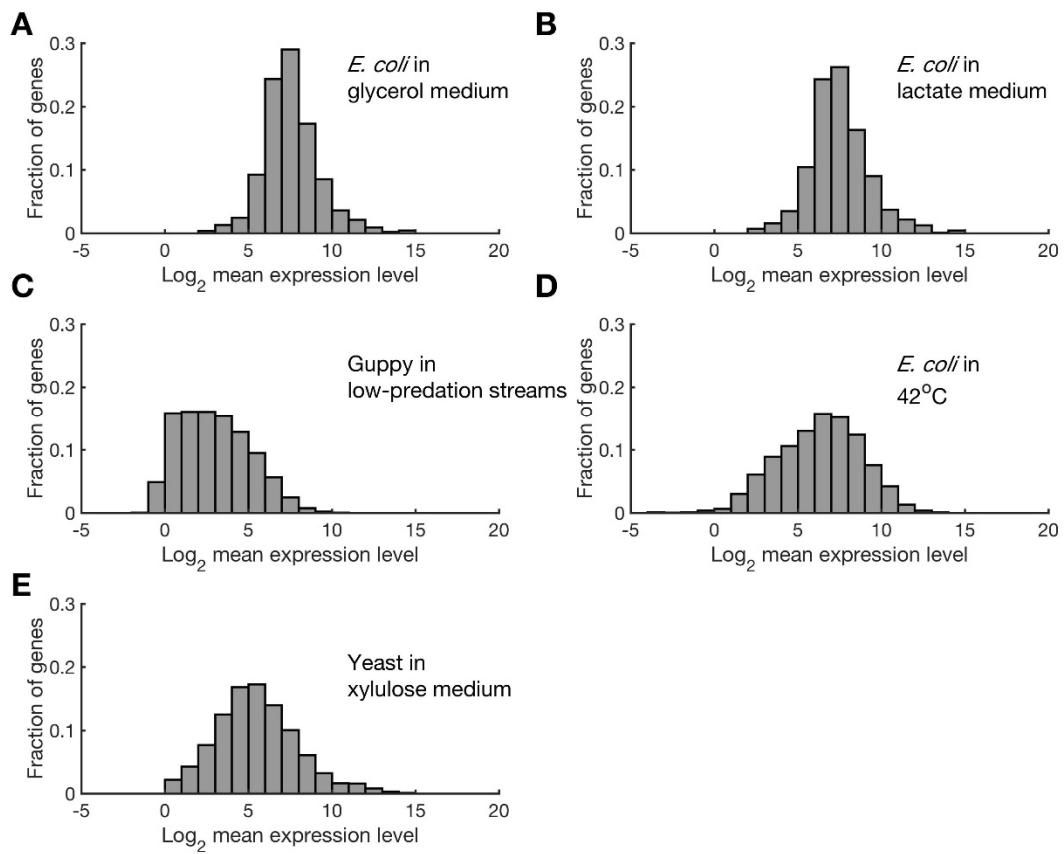


Figure S4. Distributions of mean expression levels in the five datasets of experimental evolution.