multiple origins of replication skew gene dosage in favor of additional ribosomes

(A) $\langle\# \text{ ori}\rangle = 2^{t_{cyc} \times \lambda/\ln(2)}$

t_{cyc} [min] vs growth rate [hr^{-1}]

(B) ribosomes per cell vs estimated $\langle\# \text{ ori}\rangle$

(C) growth rate [hr^{-1}]

ori
ter

(D) ori

ribosomal protein loci

ter

growth rate [hr^{-1}]
0   1   2

$\langle\# \text{ ori}\rangle$
3   7   11