Supplementary Text S1: Strains and plasmids[a]

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The *E. coli* strains used in this study are all derived from the wild-type strain BW25113.In particular, we used the Δ*rpoS*, Δ*cpxR* and Δ*csgD* deletion strains of BW25113 taken from the Keio collection [1]. The mutants were reconstructed in our laboratory [2] in order to eliminate the kanamycin resistance gene present in the original deletion strains (Table 1 in this text).

Strain	Characteristics	Reference or source
WT	*E. coli* BW25113	[1]
WTpRM	*E. coli* BW25113 pRM-*gfp*::*intS*	This study
Δ*rpoS*	*E. coli* BW25113 Δ*rpoS*	[2]
Δ*cpxR*	*E. coli* BW25113 Δ*cpxR*	[2]
Δ*csgD*	*E. coli* BW25113 Δ*csgD*	[2]

Table 1. Strains used in this study.

The wild-type and mutant strains were transformed with plasmids bearing a *gfp* reporter gene, encoding the stable GFPmut2 reporter (Table 2 in this text). The reporter plasmids for the genes *tar*, *fliA*, *flgM*, and *flgA* were selected from the plasmid library developed at the Weizmann Institute [3]. These low-copy pUA66*gfp* plasmids are kanamycin-resistant and have the origin of replication of the pSC101 plasmid. The reporter plasmids are transcriptional fusions of the promoter regions of the genes of interest and the *gfp* sequence. The same vector was used to construct a reporter for the constitutive promoter pRM of λ phage, by cloning the pRM promoter region from the pZE1RM*gfp* plasmid used in [4] into the pUA66*gfp* plasmid backbone. Table 3 in this text lists the primer sequences used for the construction of this pUA66pRM-*gfp* plasmid. The above-mentioned plasmids were transformed into the wild-type and deletion strains of Table 2 in this text. We verified that the plasmids do not modify the growth of the transformed strains. All strains and plasmids were verified by PCR.

The pRM promoter fused with the *gfp* reporter gene was also inserted into the chromosome of the BW25113 wild-type strain as reference for the qRT-PCR assays. The WTpRM strain was constructed according to the linear DNA recombination protocole of Sharan *et al.* [5]. The pRM promoter region along with the gene encoding the GFPmut3 reporter were introduced into the *intS* locus on the chromosome of BW25113 WT strain, by means of the λ Red system. The pRM-*gfpmut3* sequence was recovered from the pZE1RM*gfp* plasmid used in [4]. The recombineering protocols use the bacteriophage λ Red system that includes the phage recombination genes *gam*, *bet* and *exo*. The protein encoded by *gam*, Gam, prevents *E. coli* nuclease from degrading linear DNA fragments [6, 7] thus allowing preservation of transformed linear DNA *in vivo*. The *bet* gene product, Beta, is a ssDNA binding protein that promotes annealing of two complementary DNA molecules [8], and the *exo* gene product, Exo, has a 5 to 3dsDNA exonuclease

[a] This text contains supplementary information for the paper "Inference of quantitative models of bacterial promoters from time-series reporter gene data".

activity [9]. Working together these latter two proteins insert linear DNA at the desired target, creating genetic recombinants.

Plasmid	Characteristics	Reference or source
pUA66*gfp*	Kan^r, pSC101 *o*ri, *g*fpmut2	[3]
pUA66*fliA-gfp*	Kan^r, pSC101 *ori*, *fliA-gfpmut2*	[3]
pUA66*flgM-gfp*	Kan^r, pSC101 *ori*, *flgM-gfpmut2*	[3]
pUA66*flgA-gfp*	Kan^r, pSC101 *ori*, *flgA-gfpmut2*	[3]
pUA66*tar-gfp*	Kan^r, pSC101 *ori*, *tar-gfpmut2*	[3]
pUA66pRM-*gfp*	Kan^r, pSC101 *ori*, p*RM-gfpmut2*	This study

Table 2. Plasmids used in this study.

Plasmid	Primer sequence
pUA66pRM-*gfp*	pRM-fw: GAGGC CCTTT CGTCT TCACC TCGAG CCTAT CACCG CCAGA
	pRM-re: TTCTT AAATC TAGAG GATCC GGTTT CTTTT TTGTG CTGAT
	gfp-fw: ATCAG CACAA AAAAG AAACC GGATC CTCTA GATTT AAGAA
	gfp-re: TCTGG CGGTG ATAGG CTCGA GGTGA AGACG AAAGG GCCTC

Table 3. Primers used for the construction of pUA66pRM-*gfp* plasmid. The pUA66pRM-*gfp* plasmid was constructed with the Gibson Assembly method [10]. The pUA66*gfp* plasmid backbone was amplified using the primers gfp-fw and gfp-re. The pRM promoter region was amplified from the pZE1RM*gfp* plasmid [4] using the primers pRM-fw and pRM-re. pRM-fw and pRM-re contain the XhoI and BamHI restriction sites, respectively.

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