

Supporting Information

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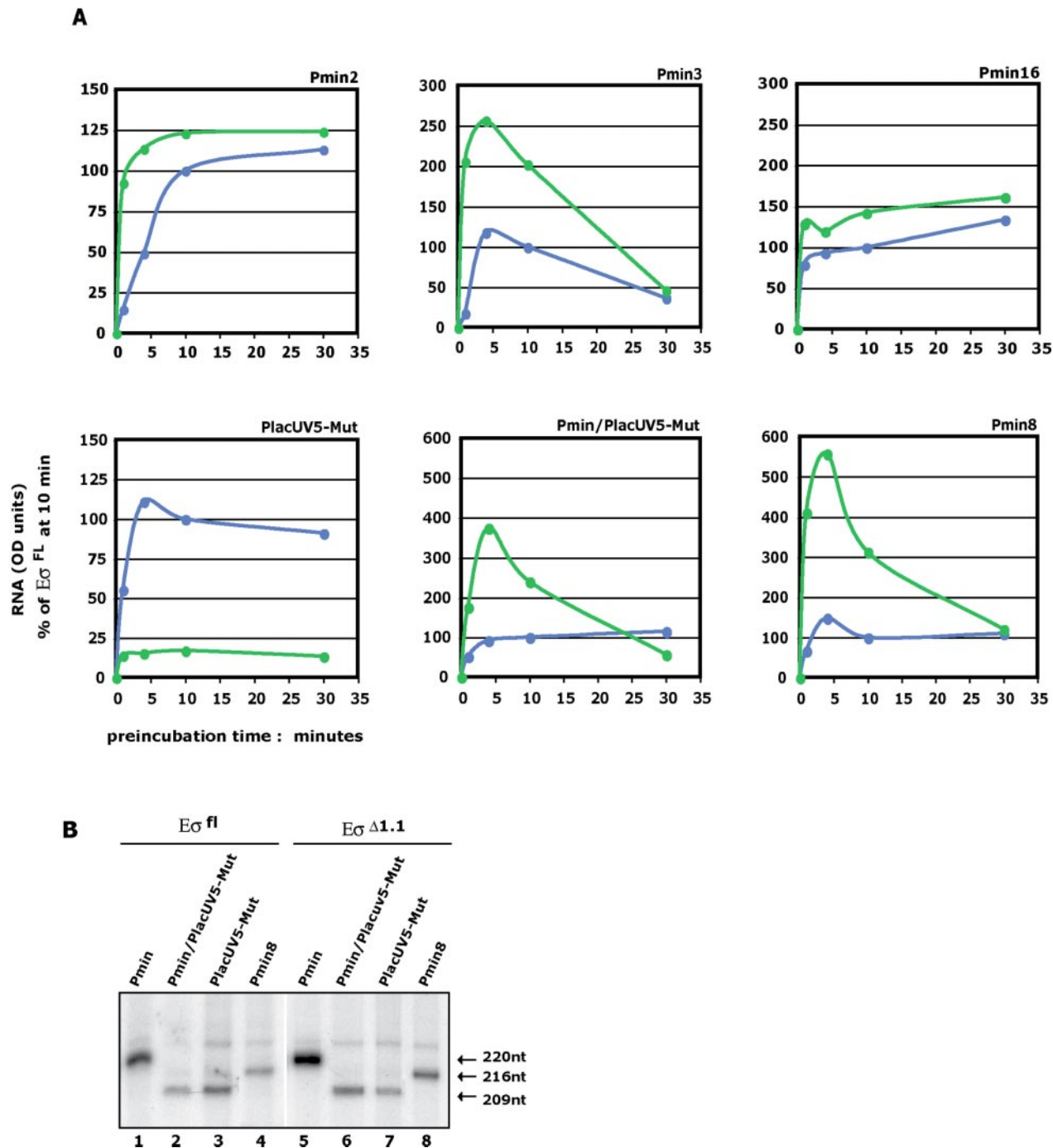


Fig. S1. Region 1.1 inhibition of P_{min} is not determined by the promoter recognition elements, sequences downstream of the -10 element, or a short polymerase/promoter half-life. (A) Plots showing the relative amount of RNA versus the length of incubation of polymerase [$E\sigma^{fl}$ (blue) or $E\sigma^{\Delta 1.1}$ (green)] with the DNA (in min) before the addition of rNTPs and heparin. The amount of RNA obtained with $E\sigma^{fl}$ at 10 min is set to 100. Note that scales vary, depending on the activity of promoter with $E\sigma^{fl}$. (B) Denaturing acrylamide gel showing the products of single-round transcription reactions using $E\sigma^{fl}$ (lanes 1–4) or $E\sigma^{\Delta 1.1}$ (lanes 5–8) and the indicated promoters. Reactions were incubated for 10 min before the addition of rNTPs and heparin. The P_{min8} mutation eliminates the stutter start seen with P_{min} . Thus, P_{min8} RNA migrates slightly faster than RNA from P_{min} . The $P_{lacUV5-Mut}$ template yields an even shorter transcript of 209 nt.

		-35	spacer	-10	+1
Prefers $E\sigma^{fl}$	λP_R	TTGACT	ATTTTACCTCTGGC	GGTGATAAT	GGTTGCA
	$P_{lacUV5-Mut}$	TTTACA	CTTTATGCTTCCGGC	TCGCATAAT	GTGTCTGA
	P_{tac}	TTGACA	ATTAATCATCGGC	TCGTATAAT	GTGTGGA
	P_{RNAI}	TTGAAG	TGGTGGCCTAACTAC	GGCTACACT	AGAAGGA
No Preference	$P_{uvsX}^{-\sigma}$	TTGACA	TAATAATCCATAT	GGTTATAAT	AGAAATA
	P_{uvsX}	TTTGCT	TAATAATCCATAT	GGTTATAAT	AGAAATA
Prefers $E\sigma^{\Delta 1.1}$	P_{min}	TTGAAA	AGATTAAAGAAATA	TGGGAAAAC	TCTGGAA
	P_{min2}	TTGACA	AGATTAAAGAAATA	TGGGAAAAC	TCTGGAA
	P_{min3}	TTGAAA	AGATTAAAGAAATA	TAATAAAAAC	TCTGGAA
	P_{min7}	TTGAAA	AGATTAAAGAAATA	TGATATAAT	TCTGGAA
	P_{min8}	TTGAAA	AGATTAAAGAAATA	TGGGAAAAC	TCTGGACA
	P_{min11}	TTGAAA	AGATTAAAGAAATA	TGGGAAAAC	TGTGGAA
	P_{min16}	TTGACA	AGATTAAAGAAATA	TAATATAAT	TCTGGAA

Fig. S2. Sequences of promoters and their preference for $E\sigma^{fl}$ or $E\sigma^{\Delta 1.1}$. The σ^{70} -dependent -35 elements, TGN, -10 elements, and transcription start sites (+1) are shaded in gray. The spacer region, with A or T bases shown in blue, is indicated. Sigma preference as determined in this work and refs. 1 and 2 is indicated.

1. Vuthoori S, Bowers CW, McCracken A, Dombroski AJ, Hinton DM (2001) Domain 1.1 of the sigma(70) subunit of *Escherichia coli* RNA polymerase modulates the formation of stable polymerase/promoter complexes. *J Mol Biol* 309:561-572.
2. Wilson C, Dombroski AJ (1997) Region 1 of sigma70 is required for efficient isomerization and initiation of transcription by *Escherichia coli* RNA polymerase. *J Mol Biol* 267:60-74.

