Supplemental information

Supplemental figure legends

Figure S1. Purified PhoP-His6, His6-H-NS and His6-SlyA proteins used in the *in vitro* experiments.

Shown are Coomassie-blue-stained gels after SDS-PAGE of 3 µg of purified His-tagged proteins.

Figure S2. The *slyA* gene is dispensable for transcription of the ancestral PhoP-regulated *pagP*, *rstA*, and *slyB* genes.

A-C. Transcript levels corresponding to the *pagP* (A), *rstA* (B) and *slyB* (C) genes as determined by quantitative real-time PCR in wild-type (14028s), *phoPQ* (EG15598) and *slyA* (EG14078) cells grown in N-minimal medium containing 10 mM (H) or 10 μ M (L) MgCl₂. Shown are the mean values and standard deviations of at least three independent experiments.

Quantitative real-time PCR was performed as described in the main text. Primers 4487 (5'-CAGTCTCTGCGGCGGATAAA-3') and 4488 (5'-AGGCTGTCGCCACGTTTCT-3'); 4125 (5'-GCATGACGATATGTCGCGATT-3') and 4126 (5'-AGCGAGGTGAGCAGGACAA-3'); 4493 (5'-CAAGTTCAGAATGTAACGTACGGTACT-3') and 4494 (5'-

GAATCATCACCGCCCTGAAT-3') were used to quantify the *pagP*, *rstA*, and *slyB* transcripts, respectively.

Figure S3. Point mutations in the PhoP binding site of the *pagC* promoter region abolish PhoP-dependent *pagC* transcription *in vitro*.

Run-off *in vitro* transcription assays with linear templates corresponding to the wild-type pagC promoter region (-178 to +122 nt with respect to the transcription start site) (top) or an equivalent DNA fragment harboring point mutations in the PhoP binding site (Fig. 3A) (bottom), RNA polymerase and increasing amounts of the PhoP protein (0, 1, 2, 3, and 4 μ M). The *pagC* transcript (lower band) is indicated by an arrow. The upper band in both panels corresponds to a ~150 nt run-off transcript resulting from spurious transcription going in the reverse orientation.

Figure S4. PhoP and SlyA counteract H-NS-promoted repression.

Single round *in vitro* transcription assay with supercoiled plasmid template harboring the *ugtL* promoter region (-180 to +125 nt with respect to the transcription start site). Reactions contained RNA polymerase alone or in combination with PhoP (2 μ M), H-NS (1.25 μ M), and SlyA (0.3 μ M) as indicated on top of the figure.

The plasmid template for *in vitro* transcription was constructed as follows: A fragment corresponding to the *ugtL* promoter region was PCR amplified with primers 7359 (5'-CGGAATTCCTCCTGGCCATGAAATATG-3') and 7360 (5'-

AACTGCAGCCGTCAGCTAATCGTTACAA-3') and genomic DNA from wild-type *Salmonella* as template and cloned into the EcoRI and PstI sites of pSA508 (S1).

Figure S5. H-NS and SlyA can bind simultaneously to the *pagC* promoter region. Gel-shift analysis of a DNA fragment corresponding to the *pagC* promoter region (-178 to +122 nt with respect to the transcription start site) with increasing amounts of SlyA and H-NS proteins. Gel-shifts were carried out as described in the main text. After electrophoresis, gels were dried and analyzed with a Fuji phosphorimager.

Figure S6. Mutation in a shared SlyA/H-NS binding site does not affect SlyA binding to other sites of the *pagC* promoter region.

Gel-shift analysis of a DNA fragment corresponding to the pagC promoter region (-178 to +122 nt with respect to the transcription start site) containing wild-type sequence (top) or harboring a 12 nt deletion in a SlyA/H-NS binding site (bottom) with increasing amounts of SlyA protein. Gel-shifts were carried out as described in the main text. After electrophoresis, gels were dried and analyzed with a Fuji phosphorimager.

Reference

S1. Lewis, D.E. (2003) Methods Enzymol. 370, 618-645.

Table S1. Primers used in this study.

number 0.0000 Construction of Salmonella strains 5 Stander 5 <th>Primer</th> <th>Sequence</th> <th>Gene</th>	Primer	Sequence	Gene
Construction of Salmonella strains SCAATGACGCCAGGAAAGGGAATACTTTCTCCAGAACATAAGTG TAGGCTGGAGCTGCTTC-3' 7885 TAGGCTGGAGCGCTGCTC-3' 7886 S-GCTAAAAGTAGTCGTTCGGCACCATTGTAGATAAATAACACACAT AATAATTCGACACGCG-3' 2896 S-AAAGGCGTTAGTCGGCCTGTGC-3' 7978 S'-TATTTTTTTGGAATGACTATATCTCTCTTATCACAGGTGATATTT 7978 ATGTTGG-3' 7984 S'-GCTAAAAGTAGTCGTTCGGCACCATTGTAGATAAATAACACT CTAATGCGCTGTTAATCACT-3' 7888 S'-TAGAATCAACCCACAATTCCAACATAAATAACACCT CTAATGCGCTGTTAATCACT-3' 7888 S'-TAGAATCAACCCACAAATTCCAACATAAATAACACGT 7897 TGGAAAAGTAGTCGTTCGGCACCATTGTAGATAAATAACACT 7068 S'-GCTCAACAACCCACAATTCCAACATAAATAACCACGCGA TAAAAAAGTC-3' 7068 S'-GCTCAACAACCACCCCCAATATAAGTTTGAGATTACTACAGT 7069 S'-CCGCCCAGCGGCGGGGATTTTAAGCATCCAGGAAGTAAATCA TATGAATATCCTCCTTAG-3' 7129 S'-CGGCAATGCACCACCACCACCACCACCACCAGGAAGGAAG	number	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	00110
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TAAAAAGTC-3'70685'-GCTCAACAAACCACCCCAATATAAGTTTGAGATTACTACAGT GTAGGCTGGAGCTGCTTC-3'70695'-TCCCGCCAGCGGCGGGATTTTAAGCATCCAGGAAGTAAATCA TATGAATATCCTCCTTAG-3'72395'-CGGCATATGCACCACCACCACCACCACCACGGGAAGCACTTAAA ATTCTG-3'72525'-CGCAAGCTTATTCCTTGATCAGGAAATCTTCC-3'70705'-CGCCATGCACCACCACCACCACCACCACCACAAATTGGAATCGCCA CTAGG-3'70855'-CGCAAGCTTTCAATCGTGAGAGAGTGCAATT-3'70865'-CGCAAGCTTTCAATCGTGAGAGAGTGCAATT-3'70855'-CGCAAGCTTTCAATCGTGAGAGAGTGCAATT-3'70865'-TAAAGCGTGCTAAGCATCATCG-3'70865'-TAAAGCGTGCTAAGCATCATCG-3'7085'-CGGGTCTGTTGAGCCTGAAG-3'71085'-CGGTTGGTGACGGCTT-3'71145'-GATTACTGCACCACGAGGGT-3'71145'-GATTCATCGCAGGGCTAGCTGAACCT-3'71145'-TAATGCCACACAGCGCTGAACCT-3'71145'-TAATTGCCACAAACCTATGG-3'69705'-CCAGCAGCGCGGAGGGGTGGGTT-3'69715'-TTTGGCCAAGCGCTGAAT-3'69715'-TTATGCCCCAGTAATCCGATT-3'71505'-TTTGGCCAAATCATCG-3'71515'-TTTGGCCAAAATGATGCT-3'71515'-TTTGGCCAAAACTTATG-3'71525'-CGGGGAAAGGGGTGGGTG-3'71535'-CTCGCGGAAATGATGCT-3'71535'-CCGGTAAGCACCTTATCTG-3'71535'-CTCGGCAAATGGCCTTATTCG-3'71535'-CTCGGCAAATGGCCTTATTGC-3'71535'-ATCGCGTGTTCAATATTTGC-3'71545'-ATCGCGTGTTCAATATTTGC-3'71545'-ATCGCGTGTTCAATATTTGC-3'71545'-ATCGCGTGTTCAATATTTGC-3'71545'-ATCGCGTGTTCAAT	8293	TAGAGAGAATTTACATTCCAAAAAAATAATAACTGAACACGCGA	
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1006GTAGGCTGGAGCTGCTTC-3'70695'-TCCCGCCAGCGGCGGGATTTTAAGCATCCAGGAAGTAAATCA TATGAATATCCTCCTTAG-3'Plasmid construction72395'-CGGCATATGCACCACCACCACCACCACCACCAGCGAAGCACTTAAA ATTCTG-3'72525'-CGCAAGCTTATTCCTTGATCAGGAAATCTTCC-3'70705'-CGGCATATGCACCACCACCACCACCACCACCACAAATTGGAATCGCCA CTAGG-3'70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'70655'-CGGCATCGCTAGCATCATCG-3'70655'-CGGGTCTGTTGAGCCTGAAGCATCATCG-3'70655'-CGGGTCTGTTGAGCCTGAAGCA3'70655'-CGGGTCTGTTGAGCCTGAAGC-3'7066915'-TAAGCGTGCCCAACCATTAA-3'7070649266845'-TAAAGCGTGCCCAACCATTAA-3'7085'-CGATTAGCTGACGGCTTTGTT-3'71085'-CGATTAGCTGACGGCTGAACG-3'71085'-CGATTAGCTGACGGCTGAACCT-3'64945'-TACGGTATCATCGCAGGGCTTA-3'64955'-TTTGGACAAGCGCTGAACCT-3'64945'-TACGGTATCATCGCAGGGCTT-3'64955'-TTTGGACAAGCGCTGAACCT-3'64965'-TCCGGGGAGAGGGGGGGGGGT-3'69705'-CCAGCAGCCGCGGTAAT-3'69715'-TTACGCCAGTAATTCCGATT-3'69715'-TTTACGCCCAGTAATCCGCGT-3'71145'-ACCGTGGCACAAATGATGCT-3'71145'-ACCGTGGCACAAATGATGCT-3'71145'-CCAGCAGCGGGTAAT-3'71155'-TTTACGCCCAGTATTCCGATT-3'71165'-TTTACGCCCAGCAGTTACTCGCAT-3'71175'-TTTACGCCAGCAGTTACTCGCAT-3'71185'-CCCGGGAGAGGGCGGGGTC-3'71195'-TTTACGCCC	7068	5'-GCTCAACAAACCACCCCAATATAAGTTTGAGATTACTACAGT	
70695'-TCCCGCCAGCGGCGGGATTTTAAGCATCCAGGAAGTAAATCA TATGAATATCCTCCTTAG-3'Plasmid construction72395'-CGGCATATGCACCACCACCACCACCACCACGCGAAGCACTTAAA ATTCTG-3'72525'-CGCAAGCTTATTCCTTGATCAGGAAATCTTCC-3'70705'-CGGCATATGCACCACCACCACCACCACCACAAATTGGAATCGCCA CTAGG-3'70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'70665'-TAAAGCGTGCTAAGCATCATCG-3'7070 <i>c</i> TAGGCTGCCCAACCATCAACG-3'7085'-CAGGTCTGTTGAGCCTGAAGCAT'709 <i>s</i> '-TAAGCCTGGCCCAACCATTAA-3'709 <i>s</i> '-CGGGTCTGTCGACGGCTTTGTT-3'71085'-CGGTATGCCCAACGAGCGTTGATT-3'71145'-GATTAGCTGACGGCGTGAACCT-3'71145'-GATTAGCCACAAAGCGCTGAACCT-3'71145'-TACGGGAGAGGGGGGGGGGGGGTGGGT-3'71145'-TAGGCGGGAGAGGGGGGGGGGGGGGGTG-3'71145'-TAGCGGGGAGAGGGGGGGGGGGGGGGGGT-3'71145'-TAGCGCGGGAAAGCGCGGAACCT-3'71145'-TAGCGCGGGGAGAGGGGGGGGGGGGGGGGGGGGGGGGGG	/008	GTAGGCTGGAGCTGCTTC-3'	
1009TATGAATATCCTCCTTAG-3'Plasmid construction72395'-CGGCATATGCACCACCACCACCACCACCAGCGAAGCACTTAAA ATTCTG-3'72525'-CGGCATATGCACCACCACCACCACCACCACCACCACCACCACCACCAC	7060	5'-TCCCGCCAGCGGCGGGGATTTTAAGCATCCAGGAAGTAAATCA	
Plasmid constructionf>'CGGCATATGCACCACCACCACCACCACCACGAGGAAGCACTTAAA ATTCTG-3'hns72395'-CGGCATATGCACCACCACCACCACCACCACCAGCGAAGCACTTAAA ATTCTG-3'hns70705'-CGGCATATGCACCACCACCACCACCACCACCACAAATTGGAATCGCCA CTAGG-3'slyA70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'slyAQuantification of transcripts by real-time PCRggC66845'-TAAAGCGTGCTAAGCATCATCG-3'pagC66855'-TTATATGCCATCGCAGGCG-3'pagC64925'-CGGGTCTGTTGAGCCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTGTT-3'ugtL64945'-TACGGTATCATCGCAGGGGTTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64945'-TACGGGACAGCGCTGAACCT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64965'-TCGCGGGAGAGGGGTGGGTT-3'mgtA64975'-CCAGCAGCCGCGGGTAAT-3'rrs69705'-CCAGCAGCCGCGGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRtras41495'-ACCGTGGCAAAATGATGCT-3'rpoD8525'-GTGAGCCGGTTTGCATC-3'mgtA8535'-CTCCGGTAAGTAATAATTTGCG-3'mgtA8535'-CTCCGGTAAATAATATTTGC-3'mgtA	/009	TATGAATATCCTCCTTAG-3'	
72395'-CGGCATATGCACCACCACCACCACCACGAGCGAAGCACTTAAA ATTCTG-3'hns72525'-CGCAAGCTTATTCCTTGATCAGGAAATCTTCC-3'hns70705'-CGGCATATGCACCACCACCACCACCACCACAAATTGGAATCGCCA CTAGG-3'slyA70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'slyA <i>Quantification of transcripts by real-time PCR</i> 66845'-TAAAGCGTGCTAAGCATCATCG-3'66845'-TAAAGCGTGCTAAGCATCATCG-3'pagC66855'-TAAAGCGTGCCCAACCATTAA-3'pagC64925'-CGGGTCTGTTGAGCCTGAAGCATCTGT-3'ugtL71145'-GATTACGCAGCGCTTTGTT-3'ugtL64945'-TACGGTATCATCGACGGCTTAATG-3'ugtL64945'-TACGGTATCATCGCAGGGGTT-3'ugtL64945'-TACGGTATCATCGACGGCTTAATG-3'ugtL64945'-TACGGCAAGCGCTGAACCT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64945'-TCGCGGGAGAGGGGTGGGTT-3'mgtA64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64945'-TCGCGGGAGAGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTAACGCCCAGTAATTCCGATT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rpoD75-CCGGCAATCGCCTTATCTG-3'mgtA61495'-ACCGTGGCACAAATGATACTGCG-3'mgtA6555'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'mgtA	Plasmid cons	truction	
1239ATTCTG-3'Ints72525'-CGCAAGCTTATTCCTTGATCAGGAAATCTTCC-3'hns70705'-CGGCATATGCACCACCACCACCACCACCACAAATTGGAATCGCCAslyA70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'slyAQuantification of transcripts by real-time PCR66845'-TAAAGCGTGCTAAGCATCATCG-3'66845'-TATATGCCATCGCAGGCG-3'pagC66855'-TATATAGCCATCGCAGGCG-3'pagC64925'-CGGGTCTGTTGAGCGCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGGTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64955'-TTTGGCACAAGCGCTGAACCT-3'ugtL64955'-TTTACGCCACAAAACTTATG-3'mgtA69705'-CCAGCAGCGCGGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'mgtA69705'-CCGGGGACGAGAGGGGTGGGTT-3'rpoD71505'-TCGGCGAACCGCGCGGTAAT-3'rpoD71505'-TCGGCAATCGCCTTATCTG-3'mgtA69715'-TCGGCAATCGCCTTATCTG-3'rpoD75-7CGGCAATCGCCTTATCGC-3'mgtA75505'-GTGAGCCGGTTTTGCATC-3'mgtA78575'-ATCGCGGTGTTAGATAATTTGCG-3'mgtA	7220	5'-CGGCATATGCACCACCACCACCACCACCAGCGAAGCACTTAAA	haa
72525'-CGCAAGCTTATTCCTTGATCAGGAAATCTTCC-3'hns70705'-CGGCATATGCACCACCACCACCACCACAAATTGGAATCGCCA CTAGG-3'slyA70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'slyAQuantification of transcripts by real-time PCR66845'-TAAAGCGTGCTAAGCATCATCG-3'pagC66845'-TATATGCCATCGCAGGCG-3'pagC64925'-CGGGTCTGTTGAGCCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64955'-TACGGGAGAGGGGTGGGGTT-3'mgtA69705'-CCAGCAGCCGGGAAACCTA-3'mgtA69715'-TTACGCCCAGTAATTCCGATCAT'rrs69715'-TCGGCGAACAAACTTATCG-3'mgtA14195'-ACCGTGGCACAAATGATGCT-3'rpoD15055'-CTGGGCAACAAGCGCTTATCTG-3'mgtA78575'-ATCGCGGTAAGTAAATAATTTGCG-3'mgtA	1239	ATTCTG-3'	nns
70705'-CGGCATATGCACCACCACCACCACCACCACAAATTGGAATCGCCA CTAGG-3' $slyA$ 7065 5'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3' $slyA$ $Quantification of transcripts by real-time PCR$ 6684 5'-TAAAGCGTGCTAAGCATCATCG-3' $pagC$ 6685 5'-TTATATGCCATCGCAGGCG-3' $pagC$ 6492 5'-CGGGTCTGTTGAGCCTGAAG-3' $pagC$ 6493 5'-TAGGCTGGCCCAACCATTAA-3' $pagC$ 7108 5'-CGATTAGCTGACGGCTTTGTTT-3' $ugtL$ 7114 5'-GATTTCTTCATTTGAGCCTCCTC-3' $ugtL$ 6494 5'-TACGGTATCATCGCAGGGGTTT-3' $ugtL$ 6495 5'-TTTGGACAAGCGCTGAACCT-3' $ugtL$ 6495 5'-TAATTGCCACAAAACTTATG-3' $ugtA$ 6970 5'-CCAGCAGCGGGGAAAT-3' $mgtA$ 6970 5'-CCAGCAGCCGCGGTAAT-3' rrs 6971 5'-TTTACGCCAGTAATTCCGATT-3' rrs 6971 5'-TCGGCAATCGCCTTATCTG-3' $rpoD$ 150 5'-TCGGCAATCGCCTTATCTG-3' $mgtA$ 149 5'-ACCGTGGCACAAATGATGCT-3' $rpoD$ 852 5'-GTGAAGCCGGTTTGCAT-3' $mgtA$ 7857 5'-ATCGCGTGTCAATATTGC-3' $mgtA$	7252	5'-CGCAAGCTTATTCCTTGATCAGGAAATCTTCC-3'	hns
1070CTAGG-3'StyA70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'slyAQuantification of transcripts by real-time PCR66845'-TAAAGCGTGCTAAGCATCATCG-3'pagC66855'-TTATATGCCATCGCAGGCG-3'pagC64925'-CGGGTCTGTTGAGCCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGGTTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64435'-TAATTGCCACAAAACTTATG-3'mgtA64945'-TCGCGGGAGAGGGGGGGGGGTT-3'mgtA64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64445'-TCGCGGGAGAGGGGGGGGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrpoD41495'-ACCGTGGCACAAATGATGCT-3'mgtA41505'-TCGGCGAGCGGTTTTGCATC-3'mgtA58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTGC-3'mgtA	7070	5'-CGGCATATGCACCACCACCACCACAAATTGGAATCGCCA	1.4
70655'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'slyAQuantification of transcripts by real-time PCR66845'-TAAAGCGTGCTAAGCATCATCG-3'pagC66855'-TTATATGCCATCGCAGGCG-3'pagC64925'-CGGGTCTGTTGAGCCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64955'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TAATTGCCACAAAGCGCTGAACCT-3'ugtL64435'-TAATTGCCACAAAACCTTATG-3'ugtL64945'-TACGGGAGAGGGGGGGGGGTGGGTT-3'ugtL64955'-TATGGCACAAAGCGCTGAACCT-3'ugtL64445'-TACGGGGAGAGGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrpoD41495'-ACCGTGGCACAAATGATGCT-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'mgtA	/0/0	CTAGG-3'	SIYA
Quantification of transcripts by real-time PCR66845'-TAAAGCGTGCTAAGCATCATCG-3'66855'-TTATATGCCATCGCAGGCG-3'64925'-CGGGTCTGTTGAGCCTGAAG-3'64935'-TAGGCTGGCCCAACCATTAA-3'71085'-CGATTAGCTGACGGCTTTGTT-3'71145'-GATTTCTTCATTTTGAGCCTCCTC-3'64945'-TACGGTATCATCGCAGGGTTT-3'64955'-TTTGGACAAGCGCTGAACCT-3'64955'-TATGCCACAAAACTTATG-3'64955'-TAATTGCCACAAAACTTATG-3'64965'-CCAGCAGCGCGGAGAGGGGTGGGTT-3'69705'-CCAGCAGCCGCGGTAAT-3'69715'-CCAGCAGCCGCGGTAAT-3'778Quantification of ChIP DNA by real-time PCR41495'-ACCGTGGCACAAATGATGCT-3'41505'-TCGGGCAATCGCCTTATCTG-3'78525'-GTGAGCCGGTTTTGCATC-3'78575'-ATCGCGTGTCAATATTGC-3'	7065	5'-CGCAAGCTTTCAATCGTGAGAGTGCAATT-3'	slyA
66845'-TAAAGCGTGCTAAGCATCATCG-3'pagC66855'-TTATATGCCATCGCAGGCG-3'pagC64925'-CGGGTCTGTTGAGCCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTGTTT-3'ugtL71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64955'-TAATTGCCACAAAACTTATG-3'ugtL64445'-TCGCGGGAGAGGGGTGGGTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL64445'-TCGCGGGAGAGGGGTGGGTT-3'ugtL69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrpoD41495'-ACCGTGGCACAAATGATGCT-3'rpoD58525'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	Quantificatio	n of transcripts by real-time PCR	-
66855'-TTATATGCCATCGCAGGCG-3'pagC64925'-CGGGTCTGTTGAGCCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TATTGGCACAAGCGCTGAACCT-3'ugtL64435'-TAATTGCCACAAAACTTATG-3'ugtL644435'-TCGCGGGAGAGGGGGGGGGGTGGGTT-3'ugtL64955'-TCGCGGGAGAGGGGGGGGGGGGGT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'mgtA	6684	5'-TAAAGCGTGCTAAGCATCATCG-3'	pagC
64925'-CGGGTCTGTTGAGCCTGAAG-3'pagC64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL44435'-TAATTGCCACAAAACTTATG-3'mgtA44465'-TCGCGGGAGAGGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrs0uantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'mgtA	6685	5'-TTATATGCCATCGCAGGCG-3'	pagC
64935'-TAGGCTGGCCCAACCATTAA-3'pagC71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TATGGACAAGCGCTGAACCT-3'ugtL44435'-TAATTGCCACAAAACTTATG-3'ugtL44465'-TCGCGGGAGAGGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'mgtA	6492	5'-CGGGTCTGTTGAGCCTGAAG-3'	pagC
71085'-CGATTAGCTGACGGCTTTGTTT-3'ugtL71145'-GATTTCTTCATTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL44435'-TAATTGCCACAAAACTTATG-3'ugtA44465'-TCGCGGGAGAGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTCCAATATTTGC-3'mgtA	6493	5'-TAGGCTGGCCCAACCATTAA-3'	pagC
71145'-GATTTCTTCATTTTGAGCCTCCTC-3'ugtL64945'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL44435'-TAATTGCCACAAAACTTATG-3'mgtA44465'-TCGCGGGGAGAGGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrpoD41495'-ACCGTGGCACAAATGATGCT-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATTATTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'mgtA	7108	5'-CGATTAGCTGACGGCTTTGTTT-3'	ugtL
64945'-TACGGTATCATCGCAGGGTTT-3'ugtL64955'-TTTGGACAAGCGCTGAACCT-3'ugtL44435'-TAATTGCCACAAAACTTATG-3'mgtA44465'-TCGCGGGGAGAGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	7114	5'-GATTTCTTCATTTTGAGCCTCCTC-3'	ugtL
64955'-TTTGGACAAGCGCTGAACCT-3'ugtL44435'-TAATTGCCACAAAACTTATG-3'mgtA44465'-TCGCGGGAGAGGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	6494	5'-TACGGTATCATCGCAGGGTTT-3'	ugtL
44435'-TAATTGCCACAAAACTTATG-3'mgtA44435'-TCGCGGGAGAGGGGGTGGGTT-3'mgtA44465'-TCGCGGGAGAGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	6495	5'-TTTGGACAAGCGCTGAACCT-3'	ugtL
44465'-TCGCGGGAGAGGGGGGGGGGGGTGGGTT-3'mgtA69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	4443	5'-TAATTGCCACAAAACTTATG-3'	mgt A
69705'-CCAGCAGCCGCGGTAAT-3'rrs69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCRrrs41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	4446	5'-TCGCGGGAGAGGGGGGGGGTG-3'	mgtA
69715'-TTTACGCCCAGTAATTCCGATT-3'rrsQuantification of ChIP DNA by real-time PCR70D41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	6970	5'-CCAGCAGCCGCGGTAAT-3'	rrs
Quantification of ChIP DNA by real-time PCRrpoD41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	6971	5'-TTTACGCCCAGTAATTCCGATT-3'	rrs
41495'-ACCGTGGCACAAATGATGCT-3'rpoD41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	Ouantificatio	n of ChIP DNA by real-time PCR	
41505'-TCGGCAATCGCCTTATCTG-3'rpoD58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	4149	5'-ACCGTGGCACACATGATGCT-3'	rnoD
58525'-GTGAGCCGGTTTTGCATC-3'mgtA58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	4150	5'-TCGGCAATCGCCTTATCTG-3'	rpoD
58535'-CTCCGGTAAGTAAATAATTTGCG-3'mgtA78575'-ATCGCGTGTTCAATATTTGC-3'pagC	5852	5'-GTGAGCCGGTTTTGCATC-3'	mgt A
7857 5'-ATCGCGTGTTCAATATTTGC-3' pagC	5853	5'-CTCCGGTAAGTAAATAATTTGCG-3'	mgtA
	7857	5'-ATCGCGTGTTCAATATTTGC-3'	pagC

7858	5'-TCAACACCACAATTCCAACA-3'	pagC
7855	5'-TTGCTCAACCGTGTAGAAATTG-3'	ugtL
7856	5'-CTGCCCTACCGCTAAACATC-3'	ugtL
Templates	for in vitro transcription, DNase I footprinting, and EMSA	
7756	5'-CAACGAAGAGTTAACCACTC-3'	pagC
7758	5'-GACGCTCCATCCGCAATACGG-3'	pagC
7193	5'-CCTCCTGGCCATGAAATATG-3'	ugtL
7194	5'-GCCGTCAGCTAATCGTTACAA-3'	ugtL



Figure S2







