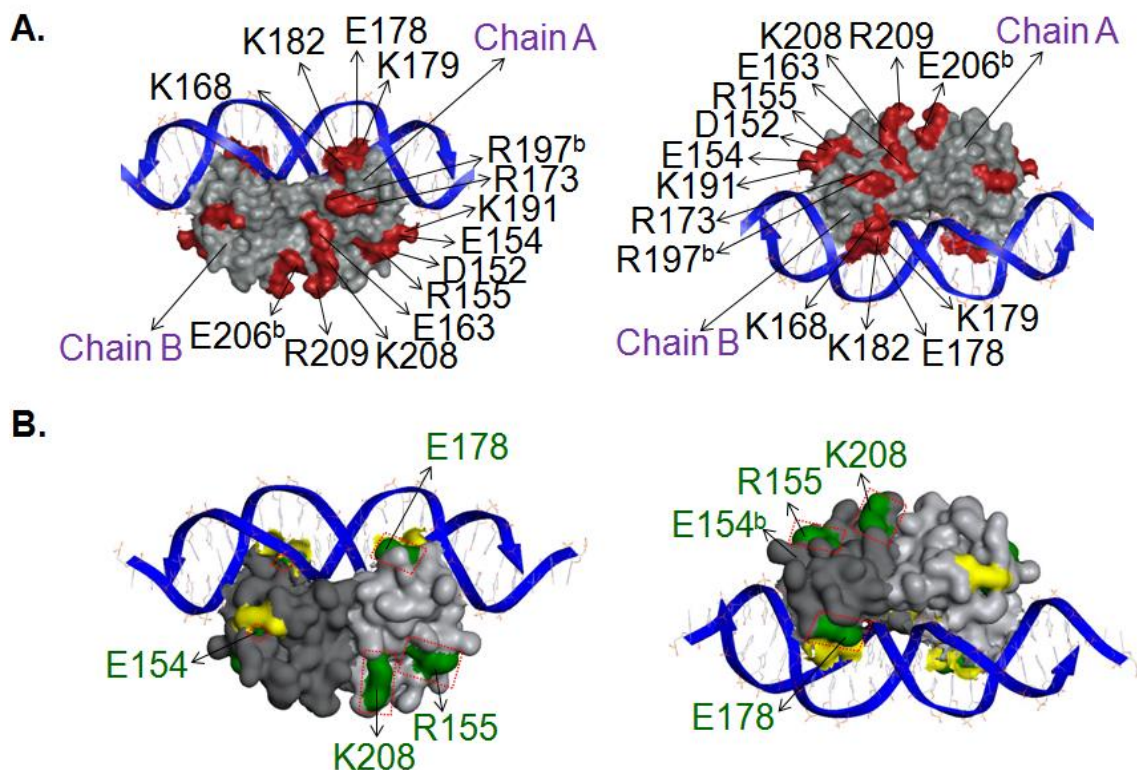# SUPPLEMENTAL FIG S1

FIG S1 Location of amino acids important for DevR-mediated activation. A. All amino acids mutated in this study are colored in red. **B**. pc mutants (pc) are in dark green and boxed in red rectangles. Alanine substitution mutants defective in DNA binding are in yellow (K191, R197 and K179). The molecular surface representation of both chains of DevR$_C$ (chains A and B in light grey and dark grey) was created from data in PDB file 3C3W (Wisedchaisri *et al.,* 2008) using a marching cubes algorithm of Discovery Studio 3.1 and probe radius of 1.4Å. Individual surfaces of amino acid atoms were depicted by custom colors to highlight the mutations studied. The blue arrows represent the backbone of double stranded DNA, 'b' suffix for some residues (e.g. E154^{b}) indicates that this residue is located at the back.

A. DevR$_C$ (DosR$_C$)

B. NarL$_C$

C. SsrB$_C$

D. FixJ$_C$

E.
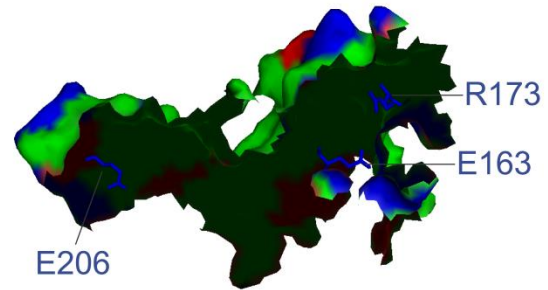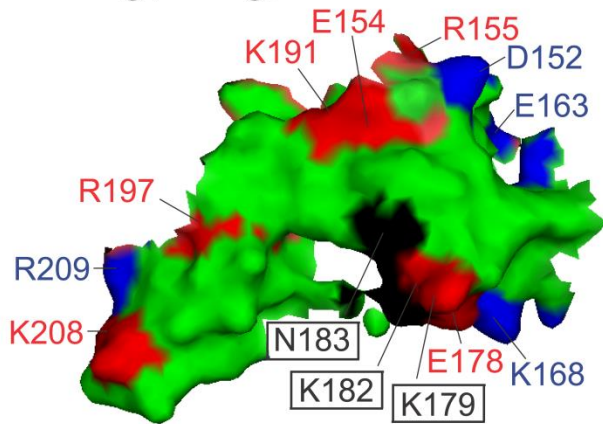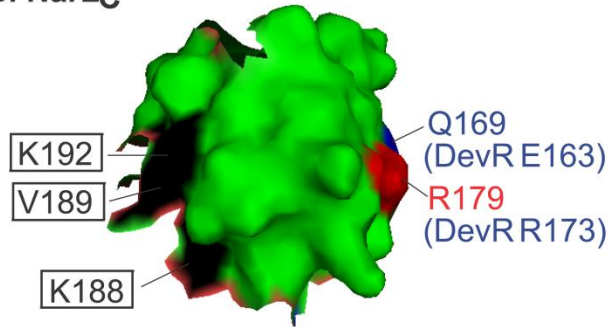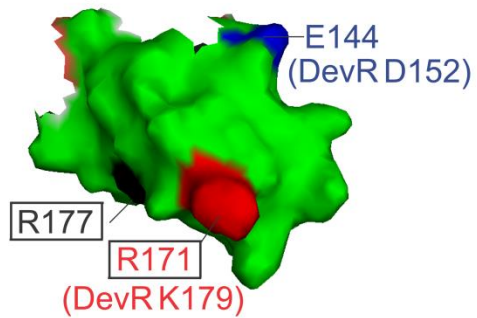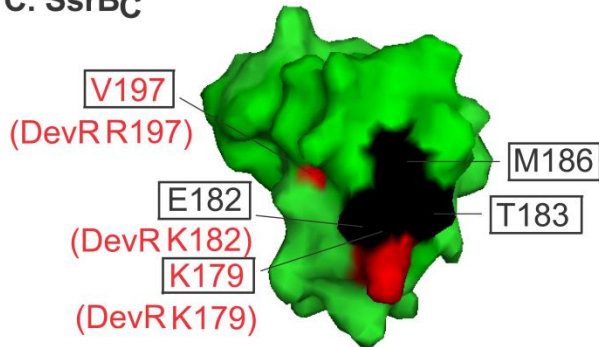
```
                    α7
DevR 152 DQERTLLGLLS 162
NarL 158 PRERDILKLIA 168
FixJ 144 ERERQVLSAVV 154
SsrB 152 LRERQVLKLID 162
```

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                       α9
DevR 178 EKTVKNYVSRLLAK 191
NarL 184 ESTVKVHVKHMLKK 197
FixJ 170 PRTVEVHRANVMAK 183
SsrB 178 IKTVETHRMNMMRK 191
```


FIG S2 Comparison of DevR$_C$/DosR$_C$ with NarL family members. A. Left panel:

DevR$_C$/DosR$_C$ structure was generated from PDB file 3C3W (Wisedchaisri *et al.*, 2008) using

PyMol. Amino acid mutations that are proficient (in blue) and defective (in red) in transcription

activation are indicated. Right panel: Back view of DevR$_C$/DosR$_C$. **B-D.** The amino acids in the DevR orthologs corresponding to amino acids with known phenotypes in DevR are indicated using the same color code as in panel A. The residues with probable or confirmed DNA binding function are boxed. PDB files 3C3W, 1RNL, 1X3U and 2JPC were used to generate protein structures for DosR/ DevR, NarL, FixJ and SsrB, respectively using PyMol. **E.** Protein sequence alignment of DevR and orthologs for α 7 and α 9 helices. Three residues that are conserved among all regulators and display a pc phenotype (E, R and K) in DevR are in bold. The residues implicated in binding to DNA are underlined.

Supplemental Table S1. Primers used in this study

Primer name		Sequence (5'-3')	Application
hsp60BstBI f		CCGTTCGAAGGTGACCACAACGACGCGCCCGC	Cloning of *hsp60* promoter into pJFR19
hsp60NdeI r		CCGCATATGTGCGAAGTGATTCCTCCGGATCG	(This study)
FLNdeI f		GCCCATATGGTAAAGGTCTTCTTGGTCGAT	Cloning of *devR* into plasmid pUS P*hsp60* (This study)
FLNdeI r		CCGCATATGCTATCATGGTCCATCACCGGGTGG	
pJFRNew f		TCTTTCGACTGAGCCTTTCG	Orientation check of *hsp60* promoter and *devR* cloned in pJFR19 (This study)
pJFR-r		CCCCTGATTCTGTGGATAACCGTATTACC	
UGSTdevR f		GCC<u>GGATCC</u>ATGGTAAAGGTCTTCTTGGTC	Cloning of *devR or devR*mut into pGEX4T1 (This study)
UGSTdevR r		CCG<u>GGATCCC</u>TATCATGGTCCATCACCGG	
FL100B f		GCGCTGGATCCGATGGTAAAGGTCTTCTTGGTCGAT	*devR* coding region cloned at BamHI and ClaI sites in pUAB100 as *devR*-mDHFR F[1,2] fusion, under *hsp60* promoter
FL100B r		GCGCTCATCGATTCCTGGTCCATCACCGGGTGGCCG	
SigA200 f		GCGCTCCAATTGTTGTGGCAGCGACCAAAGCAAGCA	SigA coding region cloned at MfeI and ClaI sites in pUAB200 as *sigA*DHFR F[3] fusion, under *hsp60* promoter
SigA200 r		GCGCTCATCGATTCCGTCCAGGTAGTCGCGCAGGAC	
D152 (G<u>A</u>C to G<u>C</u>C)	D152A-f	TCAGGCCTTACC**G**<u>**C**</u>**C**CAGGAGCGGACG	Site Directed Mutagenesis [SDM]
	D152A-r	CGTCCGCTCCTG**GG**C**GG**TAAGGCCTGA	(This study)
E154 (G<u>A</u>G to G<u>C</u>G)	E154A-f	CTTACCGACCAGG**C**<u>**C**</u>**G**CGGACGCTACTG	SDM (This study)
	E154A-r	CAGTAGCGTCCG**C**<u>**G**</u>**C**CTGGTCGGTAAG	
R155 (<u>C</u>GG to <u>G</u>CG)	R155A-f	ACCGACCAGGAG**GC**<u>**G**</u>ACGCTACTGGGCCTG	SDM (This study)
	R155A-r	CAGGCCCAGTAGCGT**C**<u>**G**</u>**C**CTCCTGGTCGGT	
E163 (G<u>A</u>G to G<u>C</u>G)	E163A-f	GGCCTGCTTAGC**G**<u>**C**</u>**G**GGCCTGACCAAC	SDM (This study)
	E163A-r	GTTGGTCAGGCCC**G**<u>**C**</u>GCTAACCAGGCC	
K168 (<u>A</u>AG to <u>G</u>CG)	K168A-f	GGCCTGACCAAC**GC**<u>**G**</u>CAGATCGCCGACCGA	SDM (This study)
	K168A-r	TCGGTCGGCGATCTG**C**<u>**GC**</u>GTTGGTCAGGCC	
R173 (<u>C</u>GA to <u>G</u>CA)	R173A-f	CAGATCGCCGAC**GCA**ATGTTCCTAGCCGAA	SDM (This study)
	R173A-r	TTCGGCTAGGAACATT**GC**GTCGGCGATCTG	
E178 (G<u>A</u>A to G<u>C</u>A)	E178A-f	ATG TTCCTAGCC**G**<u>**C**</u>**A**AAGACGGTGAAG	SDM (This study)
	E178A-r	CTTCACCGTCTT**TGC**GGCTAGGAACAT	
K179 (<u>A</u>AG to <u>G</u>CG)	K179A-f	TTCCTAGCCGAA**GC**<u>**G**</u>ACGGTGAAGAACTAC	SDM (This study)
	K179A-r	GTAGTTCTTCACCGT**C**<u>**GC**</u>TTCGGCTAGGAA	
K191 (<u>A</u>AG to <u>G</u>CG)	K191A-f	CGGTTGCTGGCC**GC**<u>**G**</u>CTGGGCATGGAACGT	SDM (This study)
	K191A-r	ACGTTCCATGCCCAG**C**<u>**GC**</u>GGCCAGCAACCG	
R197 (<u>C</u>GG to <u>G</u>CG)	R197A-f	GGCATGGAACGT**GCG**ACGCAAGCCGCGGTA	SDM (This study)
	R197A-r	TACCGCGGCTTGCGT**C**<u>**GC**</u>ACGTTCCATGCC	
E206 (G<u>A</u>G to G<u>C</u>G)	E206A-f	GTATTCGCGACG**GC**<u>**G**</u>TTGAAGCGCTCG	SDM (This study)
	E206A-r	CGAGCGCTTCAAC**CGC**CGTCGCGAATAC	
K208 (<u>A</u>AG to <u>G</u>CG)	K208A-f	GCGACGGAGTTG**GC**<u>**G**</u>CGCTCGCGGCCACCC	SDM (This study)
	K208A-r	GGGTGGCCGCGAGCG**C**<u>**GC**</u>CAACTCCGTCGC	
R209 (<u>C</u>GC to <u>G</u>CC)	R209A-f	ACGGAGTTGAAG**GCC**TCGCGGCCACCCGGT	SDM (This study)
	R209A-r	ACCGGGTGGCCGCGA**G**<u>**GC**</u>CTTCAACTCCGT	
D215 (G<u>A</u>T to G<u>C</u>T)	D215A-f	CGGCCACCCGGT**GCT**GGACCATGACAA	SDM (This study)
	D215A-r	TTGTCATGGTCC**A**<u>**GC**</u>ACCGGGTGGCCG	
LH1		CGAGTCGACAGAGCACGAAGGCTCGCCAGCGGAGGACCTTTGGCCCTGCGTCGACCGA	Gel shift assays (P+S box) (Chauhan *et al.,*2009)
LH2		TCGGTCGACGCAGGGCCAAAGGTCCTCCGCTGGCGAGCCTTCGTGCTCTGGTCGACTCG	

RT16S f	ATGACGGCCTTCGGGTTGTAA	Real Time RT PCR (Gautam *et al.,* 2011b)
RT16S r	CGGCTGCTGGCACGTAGTTG	
RT3134c f	CTGGCTGGGTCGGCCTTA	Real Time RT PCR (Gautam *et al.,* 2011b)
RT3134c r	GCTGACCTGGGAGGTTGTCG	
devR f4	CCGATCTGCGCTGTCTGATC	Real Time RT PCR (Taneja *et al.,* 2010)
devR r3	GTCCAGCGCCCACATCTTT	
RTnarK2 f	CGGTTTGTACGGTGGTTCGGC'	Real Time RT PCR (Gautam *et al.,* 2011a)
RTnarK2 r	TCACGAAGCACGACCATGGCC	
RT1738 f	CGACGAACACGAAGGATTGA	Real Time RT PCR (Gautam *et al.,* 2011a)
RT1738 r	ACACCCACCAATTCCTTTTCC	
fdxA f	TGTCCGGTCGACTGTATCTATGA	Real Time RT PCR (Gupta *et al.,* 2011)
fdxA r	GGCAGG CCG GTTTGC	
RT2031c f	CGCACCGAGCAGAAGGA	Real Time RT PCR (Gautam *et al.,* 2011a)
RT2031c r	ACCGTGCGAACGAAGGAA	
RTTtgs1 f	CAGTGATTTGCGTCGCTACAG	Real Time RT PCR (Gautam *et al.,* 2011b)
RTtgs1 r	ACATCATTGATGGTGACGTCG	

GCT, GCC, GCA, GCG codes for Alanine; SDM- site directed mutagenesis; BamHI sites are underlined; Bold and underline represents nucleotide substitution; Bold represents substituted codon.