

Supporting Information

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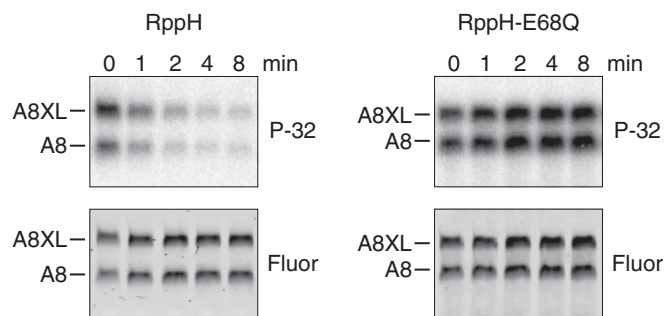


Fig. S1. Phosphate removal from A8 and A8XL by *Bacillus subtilis* RppH. In vitro transcribed A8 bearing a γ - ^{32}P radiolabel and an internal fluorescein label was mixed with labeled A8XL and treated with purified RppH or RppH-E68Q (8 nM), and the radioactivity (P-32) and fluorescence (Fluor) of each RNA were monitored as a function of time by gel electrophoresis.

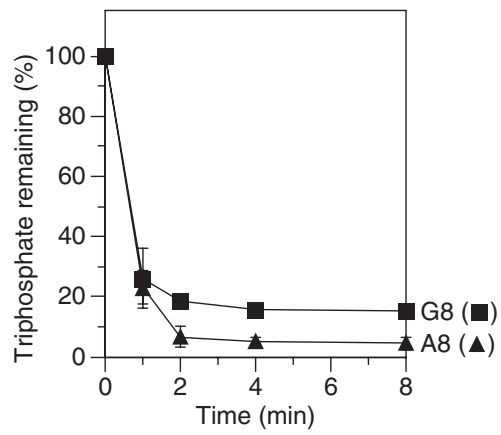


Fig. S3. Relative reactivity of A8 and G8. Phosphate removal from A8 and G8 by equal amounts of RppH was monitored as in Fig. 2A and quantified by normalizing the radioactivity remaining in each RNA to the corresponding fluorescence intensity. Each time point is the average of two or more independent measurements.

Table S1. DNA oligonucleotides used in these studies

Name	Sequence	Purpose
A8-5	<u>AATTCCTGCAGTAATACGACTCACTATTAGAACAAACGGCG</u>	Template for A8XL and A8
A8XL-3	mUmCCCCTGGTTTCCCCTGGTTCGCGTTTCCGCGTGGCGCCGCGTTACCGC <u>GGGCGCGTTGTCT</u>	Template for A8XL
A8-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCGTTGTTCT	Template for A8
A4-5	<u>AATTCCTGCAGTAATACGACTCACTATTAGAAGGCGC</u>	Template for A4 _{AGAA}
A4-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTCTAATA	Template for A4 _{AGAA}
A3-5	<u>AATTCCTGCAGTAATACGACTCACTATTAGAGGCGC</u>	Template for A3
A3-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTCTAATAG	Template for A3
A2-5	<u>AATTCCTGCAGTAATACGACTCACTATTAGGCGCG</u>	Template for A2
A2-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCCTAATAGT	Template for A2
A1-5	<u>AATTCCTGCAGTAATACGACTCACTATTAGGCGC</u>	Template for A1 and A1+3
A1-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTAATAGTG	Template for A1
A1+3-3	mUmUCTCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTAATAGTG	Template for A1+3
A4 _{ACAA} -5	<u>AATTCCTGCAGTAATACGACTCACTATAACAAGGCGC</u>	Template for A4 _{ACAA}
A4 _{ACAA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTGTATA	Template for A4 _{ACAA}
A4 _{AUAA} -5	<u>AATTCCTGCAGTAATACGACTCACTATAAAGGCGC</u>	Template for A4 _{AUAA}
A4 _{AUAA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTATTATA	Template for A4 _{AUAA}
A4 _{AGGA} -5	<u>AATTCCTGCAGTAATACGACTCACTATTAGAGGCGC</u>	Template for A4 _{AGGA}
A4 _{AGGA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTCCTAATA	Template for A4 _{AGGA}
A4 _{AGCA} -5	<u>AATTCCTGCAGTAATACGACTCACTATTAGCAGGCGC</u>	Template for A4 _{AGCA}
A4 _{AGCA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTGCTAATA	Template for A4 _{AGCA}
A4 _{AGUA} -5	<u>AATTCCTGCAGTAATACGACTCACTATTAGTAGGCGC</u>	Template for A4 _{AGUA}
A4 _{AGUA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTACTAATA	Template for A4 _{AGUA}
G8-5	<u>AATTCCTGCAGTAATACGACTCACTATAGGAACAACGGCG</u>	Template for G8
G8-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTGTTC	Template for G8
G4-5	<u>AATTCCTGCAGTAATACGACTCACTATAGGAAGGCGC</u>	Template for G4 _{GGAA}
G4-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTCTATA	Template for G4 _{GGAA}
G3-5	<u>AATTCCTGCAGTAATACGACTCACTATAGGAGGCGC</u>	Template for G3
G3-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTCCTATAG	Template for G3
G2-5	<u>AATTCCTGCAGTAATACGACTCACTATAGGGGCGC</u>	Template for G2
G2-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCCTATAGT	Template for G2
G1-5	<u>AATTCCTGCAGTAATACGACTCACTATAGGGGCGC</u>	Template for G1
G1-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTATAGTG	Template for G1
G0-5	<u>AATTCCTGCAGTAATACGACTCACTATAGGCGC</u>	Template for G0
G0-3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTATAGTGAG	Template for G0
G4 _{GAAA} -5	<u>AATTCCTGCAGTAATACGACTCACTATAGAAAAGGCGC</u>	Template for G4 _{GAAA}
G4 _{GAAA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTCTATA	Template for G4 _{GAAA}
G4 _{GCAA} -5	<u>AATTCCTGCAGTAATACGACTCACTATAGCAAAGGCGC</u>	Template for G4 _{GCAA}
G4 _{GCAA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTGCTATA	Template for G4 _{GCAA}
G4 _{GUAA} -5	<u>AATTCCTGCAGTAATACGACTCACTATAGTAAGGCGC</u>	Template for G4 _{GUAA}
G4 _{GUAA} -3	mUmCGCGTTTCCGCGTGGCGCCGCGTTACCGCGCGCCTTACTATA	Template for G4 _{GUAA}
YG-DELN R	CCGTCAAAAAGTTTCTGGGCTATCAGGCTG	Northern blot probe for mini <i>yhxA-glpP</i> mRNA
tRNA _{Cys}	GGATTCCAACCGGGATAAAGG	Northern blot probe for tRNA ^{Cys} (internal standard)
RACE 1	CGACTGGAGCACGAGGACACTGACATGGACTGAAGGAGTAGrArArA	DNA-RNA chimera used for RACE ligation
PRB233	TCCGAGTTCTCCATCACAAATGTATT	Reverse transcription and first round of nested PCR
RACEplus	CGACTGGAGCACGAGGACACTGA	First round of nested PCR
PRB232	AGTGCAATTGTATCAGTGCATGAAA	Second round of nested PCR and DNA sequencing
RACenest	GGACTGACATGGACTGAAGGAGTA	Second round of nested PCR

All sequences are in the 5'-to-3' orientation. mU or mC, 2'-O-methyl nucleotide; rA, ribonucleotide. Complementary regions in the oligonucleotide pairs used to prepare each in vitro transcription template are underlined.