

Supporting Information

Catalysis by Ribonuclease A is Limited by the Rate of Substrate Association

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Table S1: pH Dependence of $k_{\text{cat}}/K_{\text{M}}$ Values for the Cleavage of 6-FAM~dArU(dA)₂~4-DABCYL by Ribonuclease A at 0.010, 0.20 and 1.0 M NaCl^a

0.010 M NaCl		0.20 M NaCl		1.0 M NaCl	
pH	$k_{\text{cat}}/K_{\text{M}}$ ($10^9 \text{ M}^{-1}\text{s}^{-1}$)	pH	$k_{\text{cat}}/K_{\text{M}}$ ($10^7 \text{ M}^{-1}\text{s}^{-1}$)	pH	$k_{\text{cat}}/K_{\text{M}}$ ($10^5 \text{ M}^{-1}\text{s}^{-1}$)
3.59	1.2 ± 0.2	3.54	0.25 ± 0.03		
3.85	1.1 ± 0.1	3.77	0.77 ± 0.09		
4.23	2.1 ± 0.1	4.13	2.6 ± 0.2	3.99	1.3 ± 0.0
4.68	2.3 ± 0.4	4.54	3.6 ± 0.2	4.37	3.6 ± 0.3
5.09	3.2 ± 0.4	4.94	5.3 ± 0.5	4.79	6.8 ± 0.2
5.61	2.2 ± 0.3	5.44	5.0 ± 0.1	5.30	9.7 ± 0.1
5.87	2.8 ± 0.2	5.91	4.1 ± 0.1	5.99	12 ± 1
6.53	3.0 ± 0.3	6.59	2.1 ± 0.1	6.66	8.3 ± 0.9
7.00	2.2 ± 0.5	6.93	1.4 ± 0.1	6.97	6.1 ± 0.5
7.43	1.2 ± 0.1	7.40	0.56 ± 0.03	7.48	2.9 ± 0.0
7.85	0.90 ± 0.05	7.89	0.26 ± 0.03	7.93	1.4 ± 0.0
		8.33	0.088 ± 0.010		
		8.71	0.047 ± 0.002		

^a Assays were performed at 23 °C in 1.0 mM buffer containing NaCl. Buffers were sodium formate–HCl (pH 3.54–4.23), sodium acetate–HCl (pH 4.37–5.61), Bistris–NaOH (pH 5.87–6.66), MOPS–NaOH (pH 6.93–7.48), and Tris–HCl (pH 7.85–8.71). Errors are standard deviations of triplicate determinations.