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Supplemental Figures and Tables

Dynamics of GCN4 Facilitate DNA Interaction: A Model-Free Analysis of an Intrinsically Disordered Region

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Figure S2. ¹H-¹⁵N HSQC spectrum of U-[¹⁵N, ²H] GCN4. Unlabeled peaks correspond to small amounts of proteolysis during expression and purification in the basic region of GCN4.



Figure S3. Comparison of Model-free parameters (**A**) S^2 , (**B**) τ_M , (**C**) S_s^2 , (**D**) τ_s , (**E**) S_f^2 , and (**F**) τ_f determined from spectral density calculations (blue) and from analysis using the program relax with a fixed τ_M for disordered residues in the basic and C-terminal domains (black). The mean τ_M (16.9 ns) is indicated with a straight, black line.

Experiment	B0 Field (T)	Time Points (s)
	14.1	0.02 , 0.06, 0.14 , 0.23, 0.34 , 0.47, 0.69, 0.98 , 1.50
в	16.45	0.02 , 0.14, 0.23 , 0.47, 0.98 , 1.50, 1.75
n 1	18.8	0.02 , 0.06, 0.08 , 0.14, 0.23 , 0.47, 0.98 , 1.50, 1.75
	21.1	0.02 , 0.14, 0.23, 0.47 , 0.98 , 1.50
	14.1	0.004, 0.008 , 0.024 , 0.064 , 0.096, 0.144 , 0.208
в	16.45	0.004, 0.008 , 0.024, 0.064 , 0.096, 0.144 , 0.208
h 2	18.8	0.004, 0.008 , 0.024 , 0.064 , 0.096, 0.144 , 0.208
	21.1	0.004, 0.008 , 0.024, 0.064 , 0.096, 0.144 , 0.208

Table S1. Time points used for measuring R_1 and R_2 relaxation rate constants of GCN4¹

¹Time points that were collected in duplicate for error analysis are shown in bold.

Resid	Residue		¹⁵ N (ppm)	Re	Residue		¹ H (ppm)	¹⁵ N (ppm)
1	М				30	L	8.14	120.5
2	К				31	E		
3	D	8.40	122.6		32	D	8.51	119.3
4	Р				33	К		
5	А	8.23	121.8		34	V		
6	А	7.85	121.6		35	E	7.75	116.7
7	L	7.84	119.9		36	Е		
8	К	7.92	120.6		37	L	8.66	120.7
9	R	7.97	120.2		38	L	8.91	121.7
10	A	8.07	123.7		39	S	7.71	114.2
11	R	8.17	119.3		40	К		
12	N	8.35	119.4		41	Ν	8.80	119.4
13	Т	8.13	115.3		42	Y	8.22	120.1
14	E	8.31	122.5		43	Н	7.93	116.9
15	Α	8.19	122.5		44	L	8.65	120.9
16	Α	7.99	121.7		45	Е	8.79	118.9
17	R	8.06	119.5		46	Ν	7.72	118.7
18	R	8.21	120.3		47	E		
19	S	8.13	115.5		48	V	8.59	119.6
20	R	8.09	122.2		49	А	7.71	119.8
21	Α	8.05	122.2		50	R	7.82	118.8
22	R	8.02	120.7		51	L	8.39	120.1
23	К	8.02	119.9		52	К	8.85	118.1
24	L	8.09	120.6		53	К	7.30	117.7
25	Q	8.10	120.1		54	L	7.49	118.9
26	R	8.15	120.9		55	V	7.80	114.7
27	М	8.33	118.7		56	G	7.79	108.5
28	К	7.82	119.0		57	E	7.89	120.0
29	Q	7.92	117.7		58	R	7.88	126.3

Table S2. Amide chemical shifts for U-[¹⁵N, ²H] GCN4

¹Resonance assignments were determined from a ¹H, ¹⁵N, ¹⁵N HSQC-NOESY-HSQC with 600 ms mixing time.

Desides		14.1 T		16.45 T						
Residue	R ₁ (s ⁻¹)	$R_2 (s^{-1})$	NOE	R ₁ (s ⁻¹)	$R_2 (s^{-1})$	NOE				
3	1.11 ± 0.0	2 3.05 ± 0.38	-0.76 ± 0.01	1.07 ± 0.03	1.48 ± 0.11	-0.41 ± 0.01				
5	1.38 ± 0.0	5 4.97 ± 0.84	-0.14 ± 0.01	1.35 ± 0.07	5.84 ± 0.31	0.06 ± 0.01				
6	1.39 ± 0.0	4 5.80 ± 1.15	-0.01 ± 0.01	1.27 ± 0.07	6.02 ± 0.33	0.13 ± 0.01				
7	1.37 ± 0.0	3 6.01 ± 0.97	-0.05 ± 0.01	1.32 ± 0.07	5.72 ± 0.29	0.10 ± 0.01				
8	1.38 ± 0.0	3 6.09 ± 1.07	-0.03 ± 0.01	1.31 ± 0.07	8.34 ± 0.37	0.11 ± 0.01				
9	1.39 ± 0.0	4 6.69 ± 1.23	0.02 ± 0.01	1.33 ± 0.09	7.58 ± 0.38	0.17 ± 0.01				
10	1.39 ± 0.0	5 7.05 ± 1.56	0.06 ± 0.01	1.25 ± 0.10	7.50 ± 0.52	0.18 ± 0.01				
11	1.36 ± 0.0	4 7.02 ± 1.30	0.06 ± 0.01	1.25 ± 0.08	7.54 ± 0.40	0.19 ± 0.01				
12	1.36 ± 0.0	6 7.66 ± 2.04	0.14 ± 0.01	1.26 ± 0.11	7.75 ± 0.61	0.32 ± 0.01				
13	1.27 ± 0.0	1 9.96 ± 0.29	0.18 ± 0.01	1.18 ± 0.03	10.26 ± 0.24	0.26 ± 0.01				
14	1.28 ± 0.0	1 10.75 ± 0.33	0.26 ± 0.01	1.12 ± 0.04	12.00 ± 0.32	0.42 ± 0.01				
15	1.20 ± 0.0	2 12.48 ± 0.54	0.27 ± 0.01	1.10 ± 0.05	12.39 ± 0.47	0.26 ± 0.01				
16	1.17 ± 0.0	1 12.72 ± 0.55	0.27 ± 0.01	0.99 ± 0.04	14.19 ± 0.50	0.36 ± 0.01				
17	1.18 ± 0.0	1 11.27 ± 0.33	0.27 ± 0.01	1.06 ± 0.02	12.20 ± 0.27	0.35 ± 0.01				
18	1.18 ± 0.0	1 13.45 ± 0.53	0.34 ± 0.01	1.01 ± 0.03	14.61 ± 0.47	0.43 ± 0.01				
19	1.14 ± 0.0	2 13.95 ± 0.87	0.28 ± 0.01	0.98 ± 0.06	14.68 ± 0.73	0.36 ± 0.02				
20	1.10 ± 0.0	2 13.53 ± 0.67	0.35 ± 0.01	1.12 ± 0.05	12.94 ± 0.46	0.29 ± 0.01				
21	1.09 ± 0.0	2 14.66 ± 1.09	0.34 ± 0.01	1.06 ± 0.08	15.45 ± 0.94	0.42 ± 0.02				
22	1.04 ± 0.0	2 15.11 ± 1.08	0.35 ± 0.01	0.96 ± 0.06	16.94 ± 0.87	0.38 ± 0.02				
23	1.01 ± 0.0	2 16.26 ± 1.27	0.36 ± 0.01	0.94 ± 0.07	19.13 ± 1.30	0.43 ± 0.02				
24	1.01 ± 0.0	3 16.50 ± 1.96	0.52 ± 0.01	0.86 ± 0.09	18.84 ± 1.77	0.53 ± 0.03				
25	1.01 ± 0.0	3 15.74 ± 1.85	0.49 ± 0.01	0.87 ± 0.09	17.97 ± 1.63	0.52 ± 0.03				
26	0.82 ± 0.0	4 19.83 ± 2.78	0.58 ± 0.01	0.77 ± 0.09	22.63 ± 2.48	0.40 ± 0.03				
27	0.71 ± 0.0	5 23.08 ± 4.40	0.68 ± 0.01	0.62 ± 0.09	28.91 ± 4.47	0.67 ± 0.03				
28	0.77 ± 0.0	5 21.53 ± 3.67	0.69 ± 0.01	0.67 ± 0.07	24.54 ± 2.52	0.74 ± 0.03				
29	0.75 ± 0.0	6 23.27 ± 5.89	0.72 ± 0.01	0.60 ± 0.12	27.36 ± 5.67	0.77 ± 0.04				

Table S3. Relaxation parameters determined for GCN4 at 300 K¹

0.75	±	0.06	19.95	±	3.30	0.80	±	0.01	0.63	±	0.07	23.50	±	2.22	0.72	±	0.02
0.76	±	0.07	22.55	±	3.82	0.78	±	0.01	0.63	±	0.07	25.54	±	2.90	0.83	±	0.02
0.75	±	0.06	23.96	±	3.43	0.78	±	0.01	0.64	±	0.05	26.17	±	1.99	0.80	±	0.02
0.69	±	0.06	25.06	±	4.19	0.74	±	0.01	0.61	±	0.06	29.23	±	3.15	0.78	±	0.02
0.73	±	0.07	24.45	±	4.07	0.86	±	0.01	0.64	±	0.06	26.73	±	2.61	0.75	±	0.02
0.77	±	0.06	22.04	±	3.40	0.71	±	0.01	0.69	±	0.06	24.83	±	2.30	0.71	±	0.02
0.69	±	0.07	27.21	±	5.27	0.80	±	0.01	0.58	±	0.07	27.47	±	3.12	0.85	±	0.03
0.78	±	0.05	20.88	±	2.58	0.73	±	0.01	0.72	±	0.06	22.46	±	1.72	0.75	±	0.02
0.75	±	0.05	23.21	±	2.98	0.77	±	0.01	0.66	±	0.05	25.80	±	1.79	0.74	±	0.02
0.70	±	0.06	24.40	±	3.37	0.72	±	0.01	0.61	±	0.05	28.37	±	2.67	0.77	±	0.02
0.73	±	0.05	25.51	±	3.26	0.72	±	0.01	0.68	±	0.05	26.32	±	1.90	0.77	±	0.02
0.78	±	0.06	22.15	±	2.76	0.75	±	0.01	0.71	±	0.05	24.22	±	1.69	0.75	±	0.02
0.68	±	0.06	23.91	±	3.37	0.76	±	0.01	0.60	±	0.05	26.94	±	2.38	0.71	±	0.02
0.77	±	0.06	23.39	±	2.95	0.75	±	0.01	0.69	±	0.05	25.44	±	1.96	0.73	±	0.02
0.76	±	0.05	22.68	±	2.33	0.69	±	0.01	0.66	±	0.04	24.53	±	1.52	0.74	±	0.01
0.74	±	0.06	21.50	±	2.04	0.74	±	0.01	0.59	±	0.05	22.85	±	1.55	0.76	±	0.02
0.75	±	0.06	23.70	±	2.73	0.74	±	0.01	0.62	±	0.05	25.92	±	1.71	0.78	±	0.01
0.82	±	0.04	20.12	±	1.67	0.68	±	0.01	0.69	±	0.03	22.32	±	0.97	0.70	±	0.01
0.73	±	0.04	22.90	±	2.12	0.65	±	0.01	0.76	±	0.04	24.13	±	1.36	0.65	±	0.01
0.74	±	0.05	21.63	±	2.08	0.63	±	0.01	0.68	±	0.04	22.34	±	1.23	0.61	±	0.01
1.04	±	0.02	13.71	±	0.52	0.54	±	0.01	1.03	±	0.02	14.69	±	0.29	0.56	±	0.01
1.13	±	0.07	10.12	±	2.17	0.36	±	0.01	1.10	±	0.05	11.33	±	0.44	0.42	±	0.01
1.10	±	0.03	6.74	±	0.53	-0.01	±	0.01	0.99	±	0.02	6.31	±	0.10	0.08	±	0.01
	0.75 0.76 0.75 0.69 0.73 0.77 0.69 0.78 0.75 0.70 0.73 0.73 0.73 0.73 0.73 0.74 0.75 0.74 0.75 0.74 0.75 0.82 0.73 0.74 1.04 1.13 1.10	0.75 ± 0.76 ± 0.75 ± 0.69 ± 0.73 ± 0.74 ± 0.75 ± 0.76 ± 0.77 ± 0.78 ± 0.75 ± 0.76 ± 0.77 ± 0.78 ± 0.78 ± 0.76 ± 0.77 ± 0.76 ± 0.77 ± 0.78 ± 0.77 ± 0.78 ± 0.77 ± 0.78 ± 0.77 ± 0.76 ± 0.75 ± 0.74 ± 1.04 ± 1.13 ±	0.75 \pm 0.06 0.76 \pm 0.07 0.75 \pm 0.06 0.69 \pm 0.07 0.73 \pm 0.07 0.77 \pm 0.06 0.69 \pm 0.07 0.77 \pm 0.06 0.78 \pm 0.05 0.70 \pm 0.06 0.73 \pm 0.06 0.73 \pm 0.06 0.74 \pm 0.06 0.75 \pm 0.06 0.76 \pm 0.06 0.76 \pm 0.06 0.74 \pm 0.06 0.73 \pm 0.06 0.74 \pm 0.06 0.73 \pm 0.06 0.74 \pm 0.06 0.73 \pm 0.06 0.74 \pm 0.06 0.74 \pm 0.06 0.74 \pm 0.02 1.04 \pm 0.02 1.13 \pm 0.07	0.75 ± 0.06 19.95 0.76 ± 0.07 22.55 0.75 ± 0.06 23.96 0.69 ± 0.06 25.06 0.73 ± 0.07 24.45 0.77 ± 0.06 22.04 0.69 ± 0.07 27.21 0.78 ± 0.05 23.21 0.70 ± 0.06 24.40 0.73 ± 0.05 23.21 0.76 ± 0.06 24.40 0.78 ± 0.06 24.40 0.77 ± 0.06 22.15 0.68 ± 0.06 23.91 0.77 ± 0.06 23.39 0.76 ± 0.05 22.68 0.74 ± 0.06 23.70 0.82 ± 0.04 20.12 0.73 ± 0.04 22.90 0.74 ± 0.05 21.63 1.04 ± 0.02 13.71 1.13 ± 0.07 10.12 1.10 ± 0.03 6.74	0.75 ± 0.06 $19.95 \pm$ 0.76 ± 0.07 $22.55 \pm$ 0.75 ± 0.06 $23.96 \pm$ 0.69 ± 0.06 $25.06 \pm$ 0.73 ± 0.07 $24.45 \pm$ 0.77 ± 0.06 $22.04 \pm$ 0.69 ± 0.07 $27.21 \pm$ 0.78 ± 0.05 $23.21 \pm$ 0.70 ± 0.06 $24.40 \pm$ 0.77 ± 0.06 $24.40 \pm$ 0.78 ± 0.05 $23.21 \pm$ 0.70 ± 0.06 $24.40 \pm$ 0.77 ± 0.06 $22.15 \pm$ 0.78 ± 0.06 $23.91 \pm$ 0.78 ± 0.06 $23.91 \pm$ 0.78 ± 0.06 $23.91 \pm$ 0.77 ± 0.06 $23.39 \pm$ 0.76 ± 0.05 $22.68 \pm$ 0.75 ± 0.06 $23.70 \pm$ 0.74 ± 0.06 $21.50 \pm$ 0.73 ± 0.04 $20.12 \pm$ 0.74 ± 0.05 $21.63 \pm$ 0.74 ± 0.05 $21.63 \pm$ 1.04 ± 0.02 $13.71 \pm$ 1.13 ± 0.07 $10.12 \pm$ 1.10 ± 0.03 $6.74 \pm$	0.75 ± 0.06 19.95 ± 3.30 0.76 ± 0.07 22.55 ± 3.82 0.75 ± 0.06 23.96 ± 3.43 0.69 ± 0.06 25.06 ± 4.19 0.73 ± 0.07 24.45 ± 4.07 0.77 ± 0.06 22.04 ± 3.40 0.69 ± 0.07 27.21 ± 5.27 0.78 ± 0.05 20.88 ± 2.58 0.75 ± 0.05 23.21 ± 2.98 0.70 ± 0.06 22.15 ± 3.26 0.73 ± 0.05 25.51 ± 3.26 0.78 ± 0.06 22.15 ± 2.76 0.78 ± 0.06 23.91 ± 3.37 0.77 ± 0.06 23.39 ± 2.95 0.76 ± 0.06 23.39 ± 2.95 0.76 ± 0.06 21.50 ± 2.04 0.75 ± 0.06 23.70 ± 2.04 0.75 ± 0.06 23.70 ± 2.03 0.74 ± 0.06 23.70 ± 2.12 0.73 ± 0.04 20.12 ± 1.67 0.73 ± 0.04 22.90 ± 2.12 0.74 ± 0.05 21.63 ± 2.08 1.04 ± 0.02 13.71 ± 0.52 1.13 ± 0.07 10.12 ± 2.17	0.75 ± 0.06 19.95 ± 3.30 0.80 0.76 ± 0.07 22.55 ± 3.82 0.78 0.75 ± 0.06 23.96 ± 3.43 0.78 0.69 ± 0.06 25.06 ± 4.19 0.74 0.73 ± 0.07 24.45 ± 4.07 0.86 0.77 ± 0.06 22.04 ± 3.40 0.71 0.69 ± 0.07 27.21 ± 5.27 0.80 0.78 ± 0.05 20.88 ± 2.58 0.73 0.75 ± 0.05 23.21 ± 2.98 0.77 0.70 ± 0.06 24.40 ± 3.37 0.72 0.73 ± 0.05 25.51 ± 3.26 0.72 0.78 ± 0.06 22.15 ± 2.76 0.75 0.68 ± 0.06 23.91 ± 3.37 0.76 0.77 ± 0.06 23.39 ± 2.95 0.75 0.76 ± 0.05 22.68 ± 2.33 0.69 0.74 ± 0.06 23.70 ± 2.73 0.74 0.82 ± 0.04 20.12 ± 1.67 0.68 0.73 ± 0.04 22.90 ± 2.12 0.65 0.74 ± 0.05 21.63 ± 2.08 0.63 1.04 ± 0.02 13.71 ± 0.52 0.54 1.10 ± 0.03 6.74 ± 0.53 -0.01	0.75 ± 0.06 19.95 ± 3.30 $0.80 \pm$ 0.76 ± 0.07 22.55 ± 3.82 $0.78 \pm$ 0.75 ± 0.06 23.96 ± 3.43 $0.78 \pm$ 0.69 ± 0.06 25.06 ± 4.19 $0.74 \pm$ 0.73 ± 0.07 24.45 ± 4.07 $0.86 \pm$ 0.77 ± 0.06 22.04 ± 3.40 $0.71 \pm$ 0.69 ± 0.07 27.21 ± 5.27 $0.80 \pm$ 0.78 ± 0.05 23.21 ± 5.27 $0.80 \pm$ 0.75 ± 0.05 23.21 ± 2.98 $0.77 \pm$ 0.70 ± 0.06 24.40 ± 3.37 $0.72 \pm$ 0.73 ± 0.05 25.51 ± 3.26 $0.72 \pm$ 0.73 ± 0.05 25.51 ± 3.26 $0.72 \pm$ 0.73 ± 0.06 22.15 ± 2.76 $0.75 \pm$ 0.68 ± 0.06 22.15 ± 3.37 $0.76 \pm$ 0.77 ± 0.06 23.39 ± 2.95 $0.75 \pm$ 0.77 ± 0.06 23.39 ± 2.95 $0.74 \pm$ 0.74 ± 0.06 23.70 ± 2.04 $0.74 \pm$ 0.75 ± 0.06 23.70 ± 2.04 $0.74 \pm$ 0.75 ± 0.06 23.70 ± 2.03 $0.68 \pm$ 0.75 ± 0.06 23.70 ± 2.04 $0.74 \pm$ 0.74 ± 0.06 21.50 ± 2.04 $0.74 \pm$ 0.75 ± 0.06 23.70 ± 2.03 $0.68 \pm$ 0.74 ± 0.06 21.63 ± 2.08 $0.63 \pm$ 0.74 ± 0.05 21.63 ± 2.08 $0.63 \pm$ 0.74 ± 0.05 21.63 ± 2.07 $0.64 \pm$ 1.10 ± 0.03 6.74 ± 0.53 $-0.01 \pm$	0.75 ± 0.06 19.95 ± 3.30 0.80 ± 0.01 0.76 ± 0.07 22.55 ± 3.82 0.78 ± 0.01 0.75 ± 0.06 23.96 ± 3.43 0.78 ± 0.01 0.69 ± 0.06 25.06 ± 4.19 0.74 ± 0.01 0.73 ± 0.07 24.45 ± 4.07 0.86 ± 0.01 0.77 ± 0.06 22.04 ± 3.40 0.71 ± 0.01 0.69 ± 0.07 27.21 ± 5.27 0.80 ± 0.01 0.69 ± 0.07 27.21 ± 5.27 0.80 ± 0.01 0.78 ± 0.05 20.88 ± 2.58 0.73 ± 0.01 0.78 ± 0.05 23.21 ± 2.98 0.77 ± 0.01 0.70 ± 0.06 24.40 ± 3.37 0.72 ± 0.01 0.73 ± 0.05 25.51 ± 3.26 0.72 ± 0.01 0.73 ± 0.06 22.15 ± 2.76 0.75 ± 0.01 0.78 ± 0.06 23.91 ± 3.37 0.76 ± 0.01 0.78 ± 0.06 23.39 ± 2.95 0.75 ± 0.01 0.77 ± 0.06 23.39 ± 2.95 0.75 ± 0.01 0.77 ± 0.06 23.70 ± 2.33 0.69 ± 0.01 0.74 ± 0.06 23.70 ± 2.73 0.74 ± 0.01 0.74 ± 0.04 20.12 ± 1.67 0.68 ± 0.01 0.73 ± 0.04 22.12 ± 2.12 0.65 ± 0.01 0.73 ± 0.04 22.12 ± 2.12 0.65 ± 0.01 0.74 ± 0.05 21.63 ± 2.08 0.63 ± 0.01 0.74 ± 0.05 21.63 ± 2.08 0.63 ± 0.01 1.10 ± 0.03 6.74 ± 0.53 -0.01 ± 0.01	0.75 ± 0.06 19.95 ± 3.30 0.80 ± 0.01 0.63 0.76 ± 0.07 22.55 ± 3.82 0.78 ± 0.01 0.63 0.75 ± 0.06 23.96 ± 3.43 0.78 ± 0.01 0.64 0.69 ± 0.06 25.06 ± 4.19 0.74 ± 0.01 0.61 0.73 ± 0.07 24.45 ± 4.07 0.86 ± 0.01 0.64 0.77 ± 0.06 22.04 ± 3.40 0.71 ± 0.01 0.69 0.69 ± 0.07 27.21 ± 5.27 0.80 ± 0.01 0.58 0.78 ± 0.05 23.21 ± 2.98 0.77 ± 0.01 0.66 0.75 ± 0.05 23.21 ± 2.98 0.77 ± 0.01 0.61 0.75 ± 0.05 23.21 ± 3.37 0.72 ± 0.01 0.61 0.73 ± 0.06 24.40 ± 3.37 0.72 ± 0.01 0.61 0.73 ± 0.06 22.15 ± 2.76 0.75 ± 0.01 0.61 0.78 ± 0.06 23.91 ± 3.37 0.76 ± 0.01 0.69 0.77 ± 0.06 23.91 ± 2.95 0.75 ± 0.01 0.69 0.77 ± 0.06 23.91 ± 2.33 0.69 ± 0.01 0.69 0.77 ± 0.06 23.91 ± 2.33 0.69 ± 0.01 0.69 0.76 ± 0.05 22.68 ± 2.33 0.69 ± 0.01 0.69 0.75 ± 0.06 23.70 ± 2.73 0.74 ± 0.01 0.62 0.75 ± 0.06 23.70 ± 2.73 0.74 ± 0.01 0.69 0.75 ± 0.06 23.70 ± 2.73 0.74 ± 0.01 0.61 0.75 ± 0.04 22.90 ± 2.12 0.65 ± 0.01 0.68 0.74 ± 0.05 21.63 ± 2.08 0.63 ± 0.01 0.61 0.74 ± 0.05 21.6	0.75 ± 0.06 19.95 ± 3.30 0.80 ± 0.01 $0.63 \pm 0.76 \pm 0.07$ 0.76 ± 0.07 22.55 ± 3.82 0.78 ± 0.01 $0.63 \pm 0.75 \pm 0.06$ 0.75 ± 0.06 23.96 ± 3.43 0.78 ± 0.01 $0.64 \pm 0.69 \pm 0.06$ 0.69 ± 0.06 25.06 ± 4.19 0.74 ± 0.01 0.61 ± 0.01 0.73 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 $^1\text{R}_1$ and R_2 spin relaxation rates at 16.45 T are adjusted for temperature as noted in the text.

		lueu)															
Desides	18.8 T							21.1 T									
Residue	R₁ (s ^{−1})	R2	<u>a</u> (s¯	¹)	N	OE		R	ı (s⁻	^{.1})	R2	(s⁻	¹)	Ν	IOE	
3	1.09 ±	£ 0.07	3.59	±	0.04	-0.18	±	0.01	1.18	±	0.01	2.16	±	0.07	-0.02	±	0.01
5	1.24 ±	± 0.14	6.91	±	0.11	0.14	±	0.01	1.34	±	0.01	5.92	±	0.04	0.29	±	0.01
6	1.25 ±	± 0.16	6.20	±	0.13	0.27	±	0.01	1.28	±	0.02	6.33	±	0.05	0.33	±	0.01
7	1.26 ±	± 0.13	7.42	±	0.12	0.20	±	0.01	1.25	±	0.01	6.70	±	0.04	0.34	±	0.01
8	1.27 ±	± 0.15	7.40	±	0.13	0.22	±	0.01	1.29	±	0.01	7.71	±	0.05	0.35	±	0.01
9	1.22 ±	⊧ 0.17	8.12	±	0.16	0.29	±	0.01	1.24	±	0.02	8.41	±	0.06	0.39	±	0.01
10	1.26 ±	± 0.22	8.46	±	0.22	0.32	±	0.01	1.22	±	0.02	8.09	±	0.08	0.35	±	0.01
11	1.24 ±	⊧ 0.18	8.28	±	0.15	0.31	±	0.01	1.19	±	0.01	8.22	±	0.06	0.39	±	0.01
12	1.13 ±	⊧ 0.22	8.97	±	0.23	0.32	±	0.01	1.18	±	0.02	9.04	±	0.09	0.42	±	0.01
13	1.10 ±	⊧ 0.04	11.00	±	0.08	0.35	±	0.01	1.02	±	0.01	11.71	±	0.06	0.42	±	0.02
14	1.04 ±	⊧ 0.05	13.18	±	0.13	0.40	±	0.01	1.07	±	0.01	14.13	±	0.09	0.48	±	0.02
15	1.00 ±	⊧ 0.07	14.92	±	0.20	0.41	±	0.01	0.98	±	0.01	15.47	±	0.13	0.47	±	0.02
16	0.98 ±	⊧ 0.06	14.61	±	0.22	0.36	±	0.01	0.94	±	0.01	15.41	±	0.13	0.47	±	0.02
17	1.07 ±	⊧ 0.04	13.89	±	0.14	0.38	±	0.01	0.95	±	0.01	14.73	±	0.09	0.49	±	0.01
18	0.91 ±	⊧ 0.05	16.16	±	0.20	0.39	±	0.01	0.94	±	0.01	17.23	±	0.14	0.50	±	0.02
19	0.99 ±	⊧ 0.07	16.54	±	0.33	0.39	±	0.01	0.85	±	0.01	17.03	±	0.21	0.56	±	0.03
20	0.96 ±	⊧ 0.05	16.57	±	0.26	0.37	±	0.01	0.89	±	0.01	17.39	±	0.18	0.49	±	0.02
21	0.89 ±	⊧ 0.09	18.14	±	0.44	0.43	±	0.01	0.82	±	0.01	19.13	±	0.29	0.57	±	0.03
22	0.81 ±	± 0.07	18.94	±	0.39	0.41	±	0.01	0.79	±	0.01	19.39	±	0.25	0.52	±	0.03
23	0.83 ±	± 0.09	19.29	±	0.55	0.44	±	0.01	0.80	±	0.01	20.93	±	0.40	0.48	±	0.03
24	0.84 ±	⊧ 0.16	20.88	±	0.81	0.49	±	0.01	0.74	±	0.02	21.54	±	0.55	0.55	±	0.05
25	0.80 ±	± 0.12	20.06	±	0.79	0.57	±	0.01	0.74	±	0.02	21.32	±	0.59	0.69	±	0.05
26	0.68 ±	£ 0.12	27.08	±	1.53	0.60	±	0.01	0.56	±	0.02	26.10	±	1.01	0.68	±	0.06
27	0.62 ±	± 0.14	29.90	±	2.37	0.67	±	0.01	0.51	±	0.03	31.83	±	2.04	0.77	±	0.06
28	0.62 ±	0.08	27.40	±	1.94	0.70	±	0.01	0.49	±	0.02	29.19	±	1.43	0.80	±	0.04

Table S3 (continued)

		18.8 T		21.1 T						
Residue	R₁ (s ⁻¹)	$R_{2} (s^{-1})$	NOE	$R_1 (s^{-1}) R_2 (s^{-1})$	NOE					
29	0.57 ± 0.14	29.82 ± 2.92	0.76 ± 0.01	0.49 ± 0.03 31.86 ± 2.30	0.72 ± 0.06					
30	0.59 ± 0.09	28.01 ± 2.33	0.80 ± 0.01	0.52 ± 0.03 28.66 ± 1.64	0.71 ± 0.04					
32	0.59 ± 0.08	27.60 ± 2.09	0.78 ± 0.01	0.49 ± 0.03 28.80 ± 1.47	0.78 ± 0.03					
35	0.61 ± 0.05	30.14 ± 1.68	0.84 ± 0.01	0.48 ± 0.02 31.46 ± 1.33	0.67 ± 0.03					
37	0.54 ± 0.07	32.60 ± 2.59	0.80 ± 0.01	0.41 ± 0.03 32.06 ± 1.80	0.74 ± 0.03					
38	0.54 ± 0.08	31.31 ± 2.55	0.66 ± 0.02	0.47 ± 0.03 33.63 ± 1.89	0.84 ± 0.04					
39	0.58 ± 0.06	27.78 ± 1.66	0.73 ± 0.01	0.48 ± 0.02 30.13 ± 1.39	0.73 ± 0.03					
41	0.56 ± 0.10	32.03 ± 3.14	0.74 ± 0.02	0.46 ± 0.03 31.65 ± 1.99	0.81 ± 0.05					
42	0.64 ± 0.07	27.32 ± 1.56	0.76 ± 0.01	0.46 ± 0.02 29.93 ± 1.30	0.81 ± 0.03					
43	0.62 ± 0.05	27.94 ± 1.50	0.72 ± 0.01	0.50 ± 0.02 32.34 ± 1.26	0.76 ± 0.03					
44	0.55 ± 0.07	31.77 ± 2.56	0.76 ± 0.01	0.46 ± 0.03 31.86 ± 1.56	0.78 ± 0.03					
45	0.57 ± 0.06	29.53 ± 1.93	0.70 ± 0.01	0.46 ± 0.02 30.57 ± 1.34	0.76 ± 0.03					
46	0.62 ± 0.05	26.86 ± 1.38	0.72 ± 0.01	0.51 ± 0.02 29.44 ± 1.07	0.79 ± 0.03					
48	0.53 ± 0.06	29.54 ± 2.06	0.74 ± 0.01	0.44 ± 0.02 33.06 ± 1.51	0.79 ± 0.03					
49	0.58 ± 0.05	30.17 ± 1.56	0.73 ± 0.01	0.50 ± 0.02 30.91 ± 1.27	0.79 ± 0.02					
50	0.59 ± 0.04	26.73 ± 1.20	0.72 ± 0.01	0.48 ± 0.01 28.73 ± 0.89	0.75 ± 0.02					
51	0.58 ± 0.05	23.31 ± 0.76	0.68 ± 0.01	0.50 ± 0.02 25.49 ± 0.58	0.80 ± 0.03					
52	0.61 ± 0.06	28.16 ± 1.71	0.75 ± 0.01	0.47 ± 0.02 32.43 ± 1.33	0.77 ± 0.02					
53	0.61 ± 0.03	24.76 ± 0.77	0.72 ± 0.01	0.55 ± 0.01 27.28 ± 0.67	0.72 ± 0.02					
54	0.59 ± 0.04	27.07 ± 0.92	0.66 ± 0.01	0.47 ± 0.01 28.20 ± 0.82	0.65 ± 0.02					
55	0.59 ± 0.04	26.59 ± 1.07	0.61 ± 0.01	0.50 ± 0.02 29.02 ± 0.84	0.69 ± 0.02					
56	0.90 ± 0.02	16.14 ± 0.26	0.55 ± 0.01	0.74 ± 0.01 17.18 ± 0.18	0.59 ± 0.01					
57	0.94 ± 0.07	12.25 ± 0.36	0.44 ± 0.01	0.83 ± 0.02 12.85 ± 0.14	0.53 ± 0.01					
58	0.96 ± 0.03	9.37 ± 0.11	0.14 ± 0.01	0.93 ± 0.01 8.46 ± 0.03	0.26 ± 0.01					

Residue	Model	χ ²	τ _M (ns)	S ²	τ _f (ps)	S _f ²	τ _s (ns)	$S_{s}^{2} (S^{2}/S_{f}^{2})$
3	6	588.33		0.06 ± 0.01	41.93 ± 0.70	0.60 ± 0.01	0.75 ± 0.01	0.09 ± 0.01
5	6	268.30		0.13 ± 0.01	66.59 ± 1.71	0.59 ± 0.01	1.30 ± 0.01	0.23 ± 0.01
6	6	30.69		0.14 ± 0.01	44.14 ± 1.24	0.60 ± 0.01	1.30 ± 0.01	0.24 ± 0.01
7	6	171.52		0.16 ± 0.01	55.22 ± 1.24	0.58 ± 0.01	1.37 ± 0.01	0.27 ± 0.01
8	6	54.33		0.19 ± 0.01	59.86 ± 1.54	0.62 ± 0.01	1.35 ± 0.01	0.30 ± 0.01
9	6	30.64		0.21 ± 0.01	45.71 ± 1.40	0.64 ± 0.01	1.28 ± 0.01	0.33 ± 0.01
10	6	50.12		0.20 ± 0.01	41.34 ± 1.48	0.62 ± 0.01	1.33 ± 0.01	0.33 ± 0.01
11	6	35.97		0.21 ± 0.01	41.21 ± 1.10	0.61 ± 0.01	1.35 ± 0.01	0.34 ± 0.01
12	6	122.29		0.23 ± 0.01	48.03 ± 1.75	0.61 ± 0.01	1.59 ± 0.01	0.38 ± 0.01
13	6	189.80		0.32 ± 0.01	41.98 ± 0.73	0.64 ± 0.01	1.49 ± 0.01	0.51 ± 0.01
14	6	74.95		0.40 ± 0.01	49.84 ± 1.16	0.71 ± 0.01	1.60 ± 0.02	0.56 ± 0.01
15	6	68.07		0.45 ± 0.01	45.37 ± 1.56	0.72 ± 0.01	1.47 ± 0.03	0.62 ± 0.01
16	6	55.95		0.45 ± 0.01	52.62 ± 1.25	0.69 ± 0.01	1.79 ± 0.04	0.65 ± 0.01
17	6	69.38		0.42 ± 0.01	45.51 ± 0.95	0.68 ± 0.01	1.66 ± 0.03	0.62 ± 0.01
18	6	59.28		0.50 ± 0.01	60.45 ± 1.43	0.73 ± 0.01	2.06 ± 0.05	0.69 ± 0.01
19	6	59.24		0.51 ± 0.01	44.81 ± 1.84	0.73 ± 0.01	1.44 ± 0.04	0.70 ± 0.01
20	6	76.92		0.50 ± 0.01	59.67 ± 1.65	0.71 ± 0.01	2.31 ± 0.07	0.71 ± 0.01
21	6	30.72		0.57 ± 0.01	48.09 ± 2.48	0.76 ± 0.01	1.50 ± 0.05	0.75 ± 0.01
22	6	26.61		0.59 ± 0.01	48.77 ± 2.17	0.76 ± 0.01	1.53 ± 0.06	0.78 ± 0.01
23	6	3.34		0.63 ± 0.01	49.78 ± 3.48	0.80 ± 0.01	1.33 ± 0.06	0.79 ± 0.02
24	6	6.39		0.64 ± 0.02	56.41 ± 6.37	0.79 ± 0.01	3.71 ± 0.93	0.82 ± 0.02
25	6	6.77		0.65 ± 0.01	28.78 ± 3.17	0.80 ± 0.01	1.48 ± 0.09	0.81 ± 0.02
26	5	60.71	16.04 ± 0.36	0.88 ± 0.02		0.94 ± 0.02	0.27 ± 0.04	0.94 ± 0.03
27	2	9.87	18.21 ± 0.56	0.96 ± 0.01			0.16 ± 0.06	
28	5	15.94	17.13 ± 0.47	0.90 ± 0.02		0.93 ± 0.02	0.28 ± 0.10	0.97 ± 0.03
29	2	4.43	18.22 ± 0.74	0.98 ± 0.01			0.35 ± 0.21	
30	2	66.30	16.59 ± 0.49	0.91 ± 0.03	22.51 ± 28.86			

Table S4. Model-free parameters for GCN4 determined using the program $relax^1$

Residue	Model	χ²	τ _M (ns)	S ²	τ _f (ps)	S _f ²	τ _s (ns)	$S_{s}^{2} (S^{2}/S_{f}^{2})$	
32	2	3.05	16.89 ± 0.50	0.91 ± 0.03	19.37 ± 27.00				
35	2	48.38	17.55 ± 0.39	0.95 ± 0.02	28.02 ± 45.44				
37	5	9.60	19.74 ± 1.26	0.88 ± 0.05		0.91 ± 0.04	0.59 ± 0.36	0.98 ± 0.06	
38	2	102.63	18.43 ± 0.58	0.94 ± 0.03	30.83 ± 83.09				
39	5	1.34	17.37 ± 0.48	0.91 ± 0.02		0.93 ± 0.02	0.29 ± 0.13	0.97 ± 0.04	
41	2	11.34	18.60 ± 0.65	0.92 ± 0.03	21.42 ± 57.64				
42	5	9.45	17.12 ± 0.49	0.89 ± 0.03		0.91 ± 0.02	0.39 ± 0.18	0.98 ± 0.04	
43	2	15.37	17.47 ± 0.39	0.94 ± 0.02	49.78 ± 29.10				
44	5	3.10	18.98 ± 0.81	0.90 ± 0.04		0.93 ± 0.03	0.50 ± 0.25	0.97 ± 0.05	
45	2	23.27	17.82 ± 0.42	0.92 ± 0.02	40.50 ± 21.86				
46	2	11.43	16.52 ± 0.33	0.93 ± 0.02	43.96 ± 22.27				
48	2	7.37	18.78 ± 0.47	0.91 ± 0.02	28.12 ± 16.06				
49	2	15.65	17.30 ± 0.36	0.95 ± 0.02	58.11 ± 43.61				
50	5	5.26	17.18 ± 0.35	0.88 ± 0.02		0.91 ± 0.02	0.38 ± 0.09	0.97 ± 0.03	
51	2	23.44	15.88 ± 0.28	0.84 ± 0.01	22.90 ± 3.15				
52	2	8.56	17.85 ± 0.40	0.93 ± 0.02	36.95 ± 20.08				
53	5	8.18	15.95 ± 0.26	0.89 ± 0.01		0.92 ± 0.01	0.41 ± 0.08	0.96 ± 0.02	
54	5	26.87	17.19 ± 0.26	0.88 ± 0.01		0.92 ± 0.01	0.23 ± 0.04	0.96 ± 0.02	
55	5	15.15	16.99 ± 0.29	0.88 ± 0.01		0.93 ± 0.02	0.18 ± 0.03	0.95 ± 0.02	
56	6	55.91		0.50 ± 0.01	30.34 ± 0.99	0.69 ± 0.01	3.13 ± 0.16	0.72 ± 0.01	
57	6	102.05		0.36 ± 0.01	28.05 ± 0.99	0.60 ± 0.01	1.91 ± 0.03	0.61 ± 0.01	
58	6	598.91		0.22 ± 0.01	43.53 ± 0.54	0.49 ± 0.01	1.55 ± 0.01	0.45 ± 0.01	

¹Relaxation data were analyzed with a fixed τ_M for the basic and disordered C-terminal regions. Input data were from R₁, R₂, and {¹H}-¹⁵N heteronuclear NOE rate constants determined at 14.1, 16.45, 18.8, and 21.1 T.