Table S1: Backbone chemical shifts of the extra peaks in the folded P protein HSQC spectrum.

Residue	^{1}H (ppm)	$^{1}H_{\alpha}$ (ppm)	^{15}N (ppm)	$^{13}C_{\alpha}$ (ppm)	$^{13}C_{\beta}$ (ppm)	^{13}CO (ppm)
Leu 4	8.42	4.27	124.68	55.11	42.35	176.92
Lys 5	8.40	4.23	123.25	56.04	32.93	176.33
Lys 6	8.38	4.18	123.55	56.15	32.92	176.43
Arg 7	8.45	4.26	122.78	56.02	30.75	175.95
Asn 8	8.53	4.62	120.66	53.21	38.83	175.04
Arg 9	8.38	4.23	121.97	56.10	30.59	176.02
Leu 10	8.23	4.24	123.17	55.09	42.16	177.12
Lys 11	8.25	4.24	122.73	56.04	32.92	176.25
Lys 12	8.37	4.20	123.03	56.21	32.92	176.24
Asn 13	8.50	4.56	120.16	53.50	38.60	175.25
Glu 14	8.43	4.18	121.41	56.66	30.12	175.96
Asp 15	8.25	4.46	121.18	54.47	40.84	176.21
Phe 16	8.07	4.47	120.61	58.04	39.18	175.82
Gln 17	8.17	4.17	120.65	55.91	29.16	175.76
Lys 18	8.08	4.09	121.91	56.39	32.82	176.18
Val 19	7.89		120.61	62.03	32.79	175.59
Gly 23	8.45		110.18	45.19		
Thr 24	8.12		113.70	61.65	69.74	174.10
Lys 52	8.15		121.82	61.96	32.58	175.56
Lys 53	8.30	4.56	124.33	57.36	39.54	175.37
Ile 54	8.20		123.39	55.99	33.05	175.86
Ala 91	8.47	4.27	124.59	52.83	18.90	178.03
Ser 92	8.24	4.31	114.30	58.30	63.51	174.54
Gln 93	8.31	4.28	122.09	55.79	29.27	175.86
Leu 94	8.14	4.31	123.06	55.43	42.28	177.62
Thr 95	8.16		114.01	61.65	69.85	174.71

Glu 98	8.21	4.11	121.16	57.52	30.09	177.73
Thr 99	8.18	4.09	115.73	63.62	69.19	175.32
Lys 100	8.10	4.08	122.92	57.32	32.29	177.37
Lys 101	8.03	4.09	120.92	57.33	32.59	177.34
Ser 102	8.11		115.70	59.02	63.27	175.07
Leu 103	8.07	4.25	123.14	55.53	41.99	177.71
Gln 104	8.04		119.27	56.67	28.96	176.23
Leu 106	7.94	4.09	122.12	55.43	42.10	177.07
Phe 107	8.13	4.44	120.48	57.75	39.25	175.73
Arg 108	8.06		122.59	55.99	30.75	175.95
Lys 109	8.30		124.19	54.21	30.81	175.97
Leu 112	8.04	4.18	123.32	55.53	42.14	176.93
Tyr 113	7.93	4.46	120.35	57.69	38.60	175.30
Lys 114	7.99	4.18	123.83	55.84	33.22	175.84
Lys 115	8.28	4.23	123.54	56.29	33.02	176.59
Ser 116	8.28		116.62	58.39	63.63	174.80
Und1	8.09		121.45	62.27	32.64	176.21
Und2	8.12		120.04	54.50	40.90	175.88
Und3	8.41		121.29	57.54	30.06	177.19
Und4	8.25		128.08	52.31	19.11	177.22
Und5	7.87		119.73	57.90	38.59	175.45
Und6	7.82		119.57	55.21	31.69	175.27
Und7	7.86		122.28	61.13	38.41	175.46
Und8	8.30		127.71	52.14	19.27	

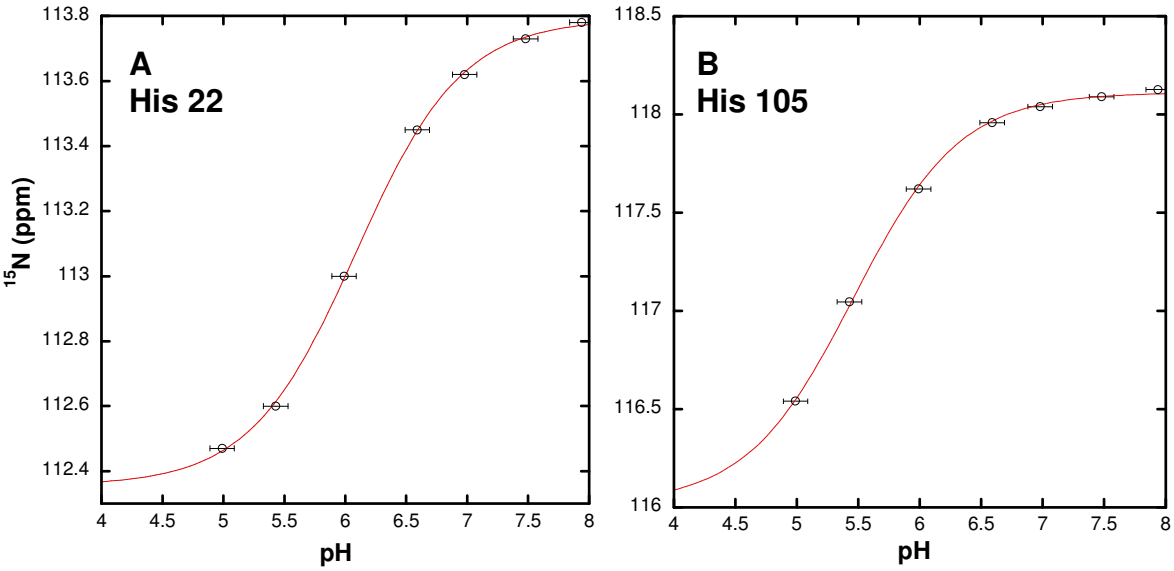

Figure S1: The titration curves of (A) His 22 and (B) His 105 residues in the P protein. Titration range is between pH 5 and pH 8. The nitrogen chemical shifts were obtained by ^{15}N HSQC spectra. The red lines are the best fitting results using Henderson–Hasselbalch equation. The estimated pKa of His 22 and His 105 are 6.08±0.16 and 5.65±0.17, respectively.