Supporting Information for:

Proton Association Constants of His-37 in the Influenza-A $M2_{18-60}$ Dimer-of-Dimers

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Table S1. Ratio of protonated nitrogens to unprotonated nitrogen as a function of pH at the temperatures indicated.

pH	I_{NH}/I_N (-6°C)	His/His^+ (-6°C)	I_{NH}/I_N (37°C)	His/His^+ (37∘C)
3.5	inf	0.00	inf	0.00
4.5	6.33	0.61	29.75	0.10
5.5	3.28	1.40	4.91	0.85
6.5	3.05	1.64	4.10	1.10
7.5	2.15	2.96	3.51	1.43
8.5	1.464	52.2	1.88	5.67

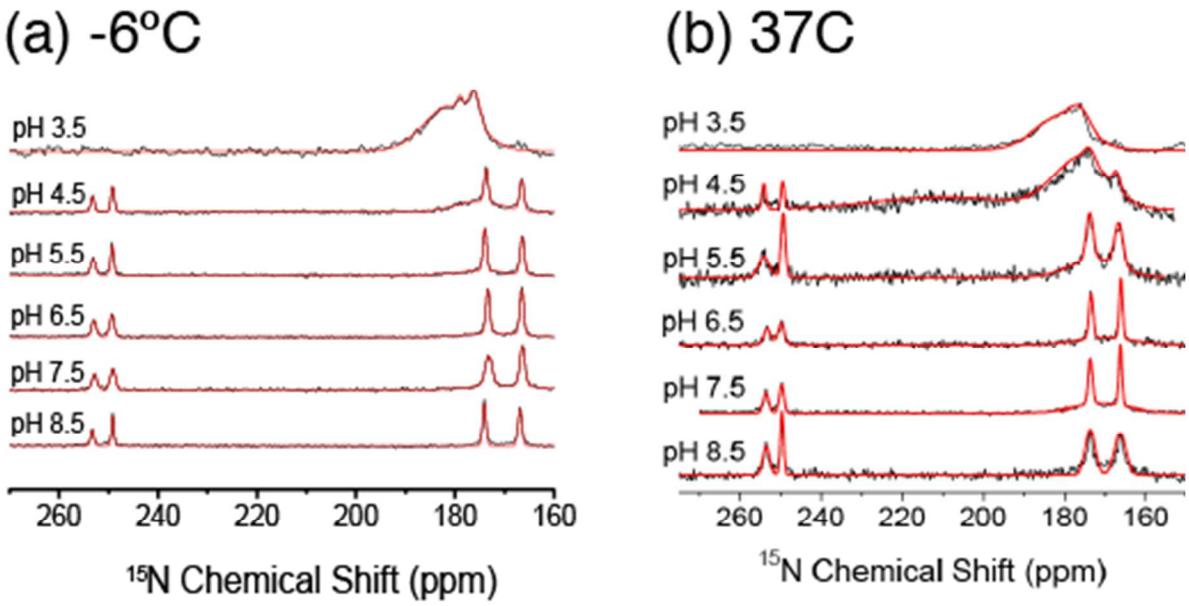

Figure S1. ^{15}N MAS NMR spectra of $M2_{18\text{-}60}$ $H_{57}Y$ ILFY reverse labeled at pH indicated. (a) at -6°C, and (b) at 37°C.

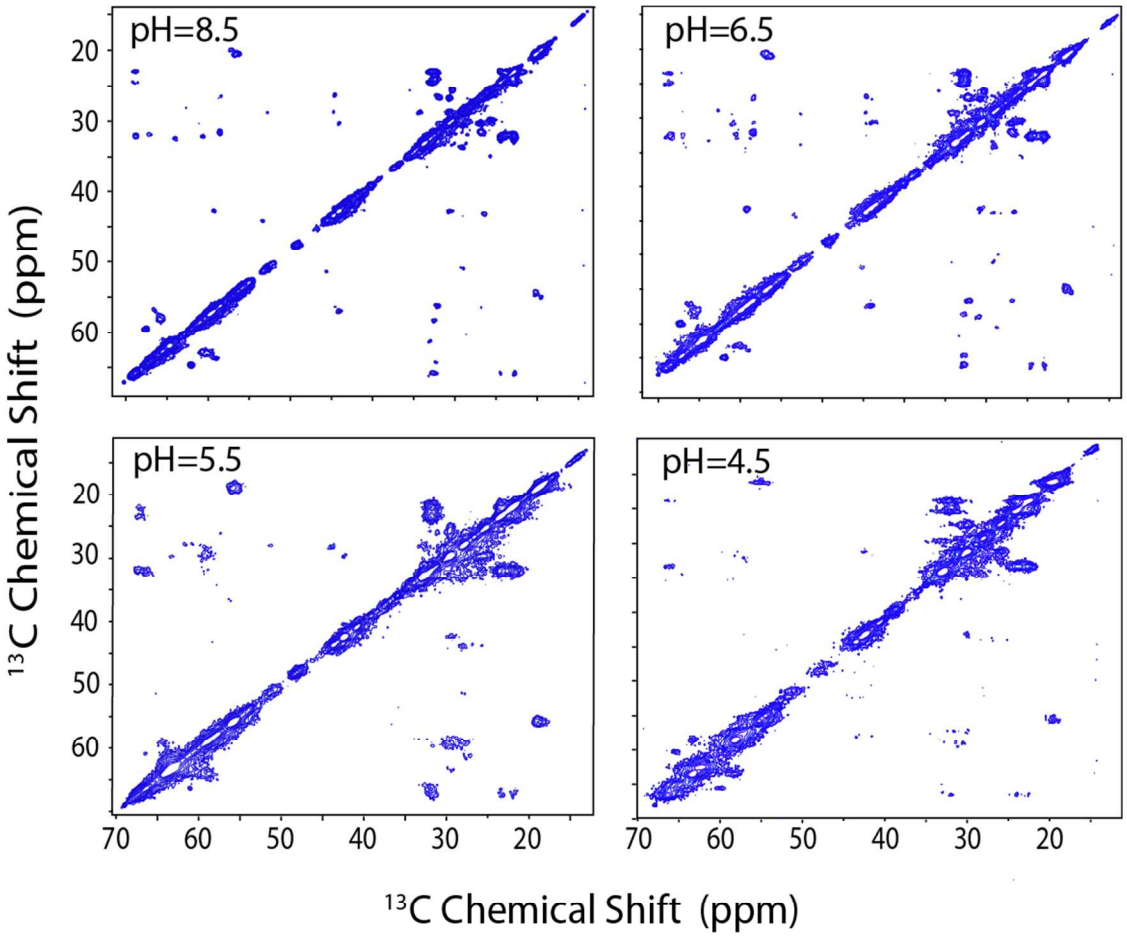

Figure S2. 2D ^{13}C-^{13}C 20 ms PDSD spectra of $M2_{18\text{-}60}$ -6°C,$\omega_r/2\pi$=12.5 kHz, 700 MHz ^{1}H frequency at pH indicated.

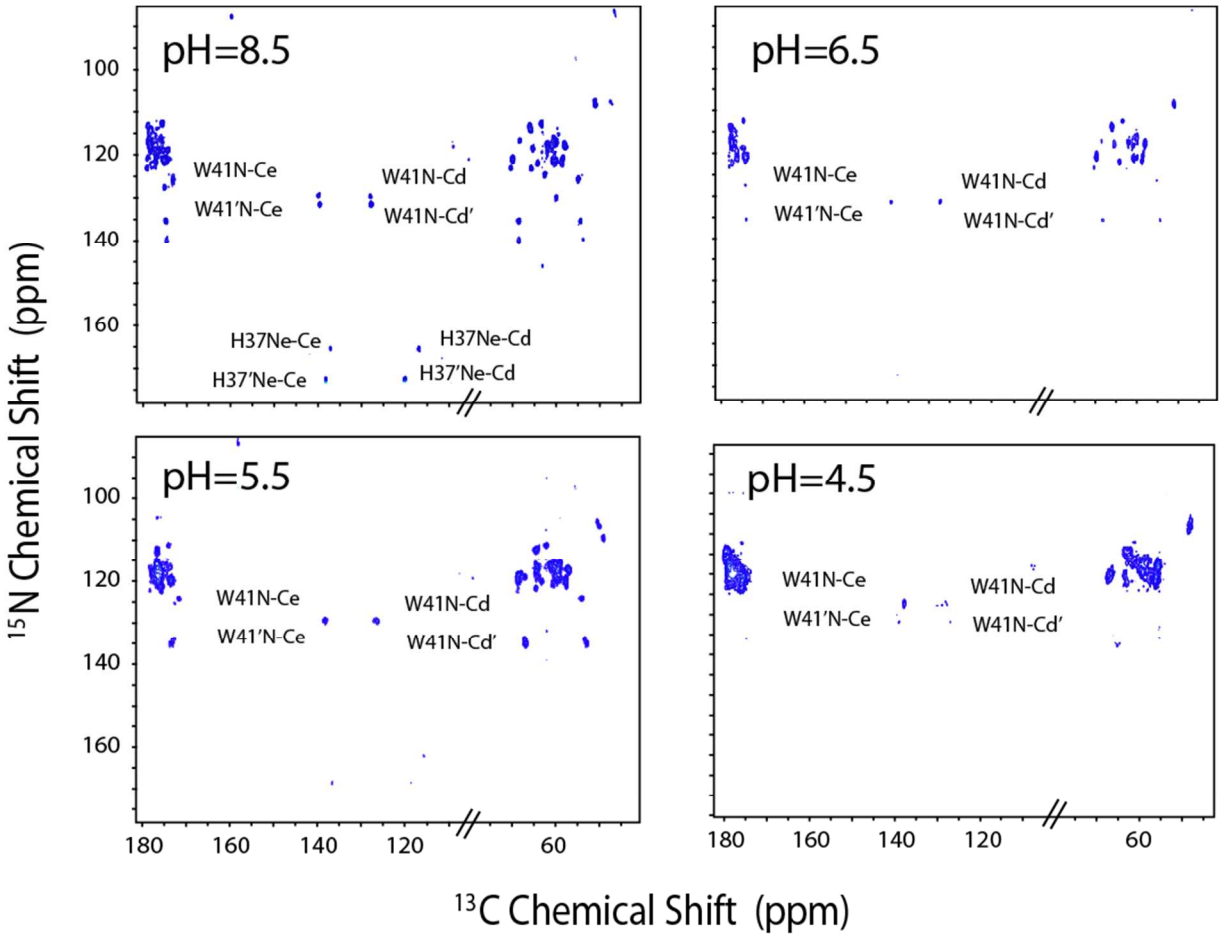

Figure S3. 2D ^{13}C-^{15}N 3.2 ms zf-TEDOR spectra of $M2_{18-60}$ -6°C, $\omega_r/2\pi$ =12.5 kHz 700 MHz ^{1}H frequency at pH indicated.

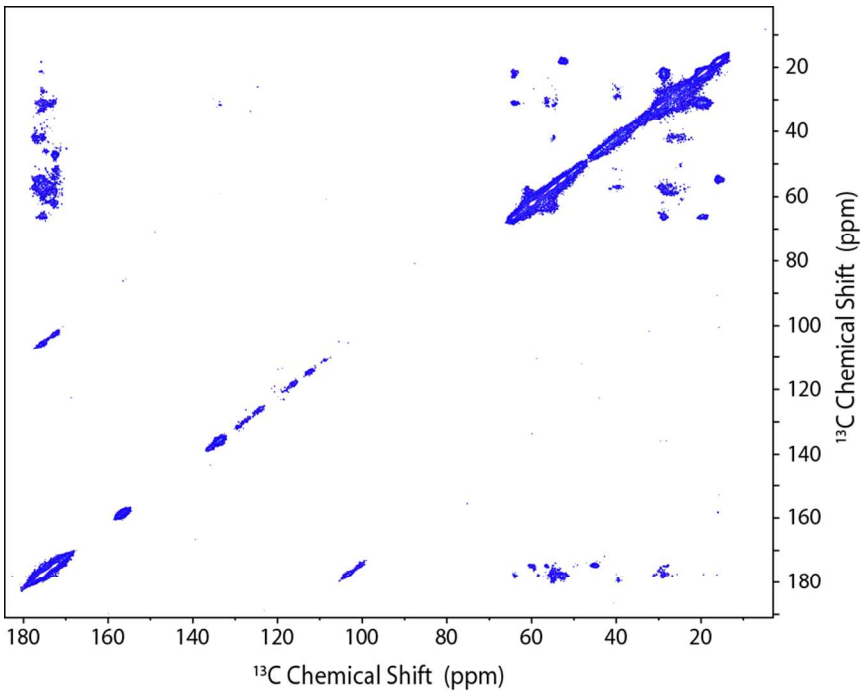

Figure S4. 2D 20 ms ^{13}C-^{13}C PDSD spectrum of $M2_{18\text{-}60}$ at $\omega_{0H}/2\pi$=700 MHz , $\omega_r/2\pi$==12.5 kHz, pH =6.5 at T=-45°C.

References:

(1) Andreas, L. B.; Eddy, M. T.; Chou, J. J.; Griffin, R. G. *J Am Chem Soc* **2012**, *134*, 7215.

(2) Andreas, L. B.; Eddy, M. T.; Pielak, R. M.; Chou, J.; Griffin, R. G. *J Am Chem Soc* **2010**, *132*, 10958.

(3) Jaroniec, C. P.; Filip, C.; Griffin, R. G. *J Am Chem Soc* **2002**, *124*, 10728.