Supporting information

Enzyme-Responsive Nanoparticles and Coatings Made from Alginate/Peptide Ciprofloxacin Conjugates as Drug Release System

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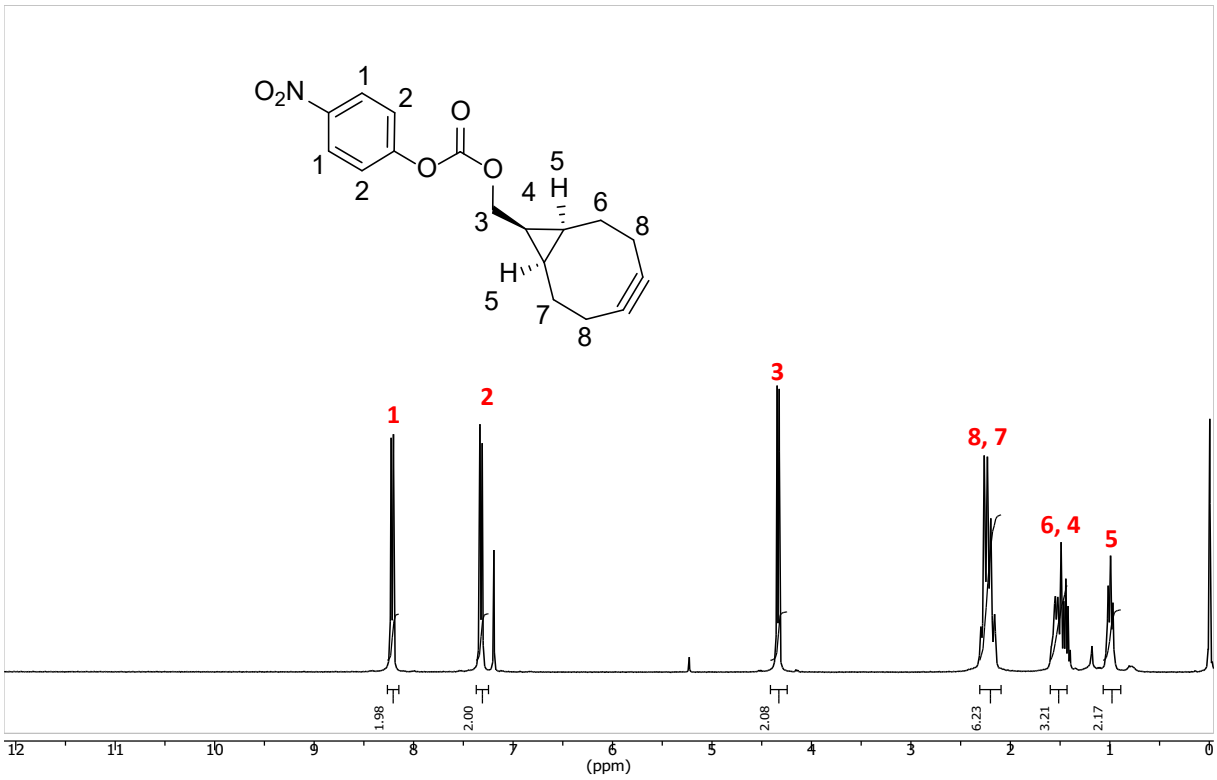

*Figure S1: [1]H-NMR spectrum and peak assigment for BCN-O(CO)O(4-NO_2-Ph) **1** in deuterated $CDCl_3$*

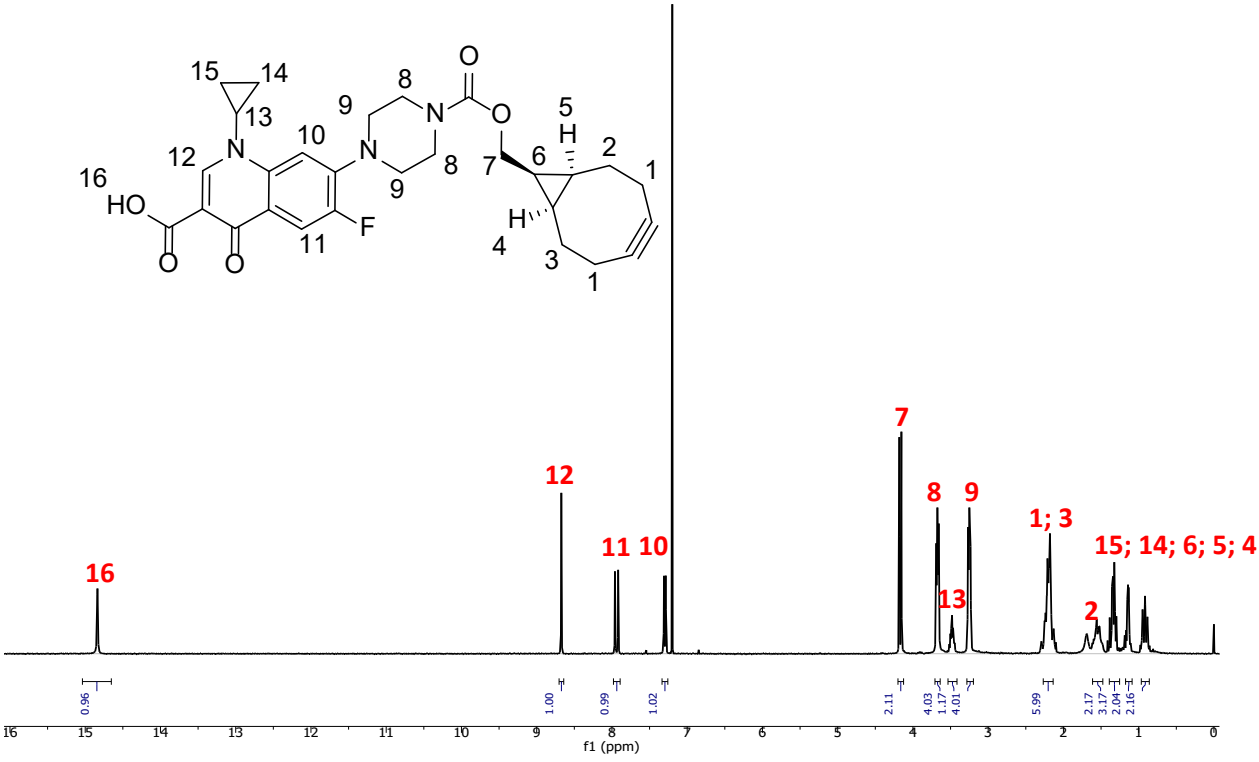

*Figure S2: [1]H-NMR spectrum and peak assignment for BCN-O(CO)HN-Ciprofloxacin **2** in deuterated $CDCl_3$.*

Signals at 8.67, 7.92, and 7.29 ppm were found, which represent the quinolone framework protons of ciprofloxacin. The presence of a doublet at 4.17 ppm confirmed the presence of the BCN moiety. Moreover, four protons of the nitrophenyl leaving group, disappeared.

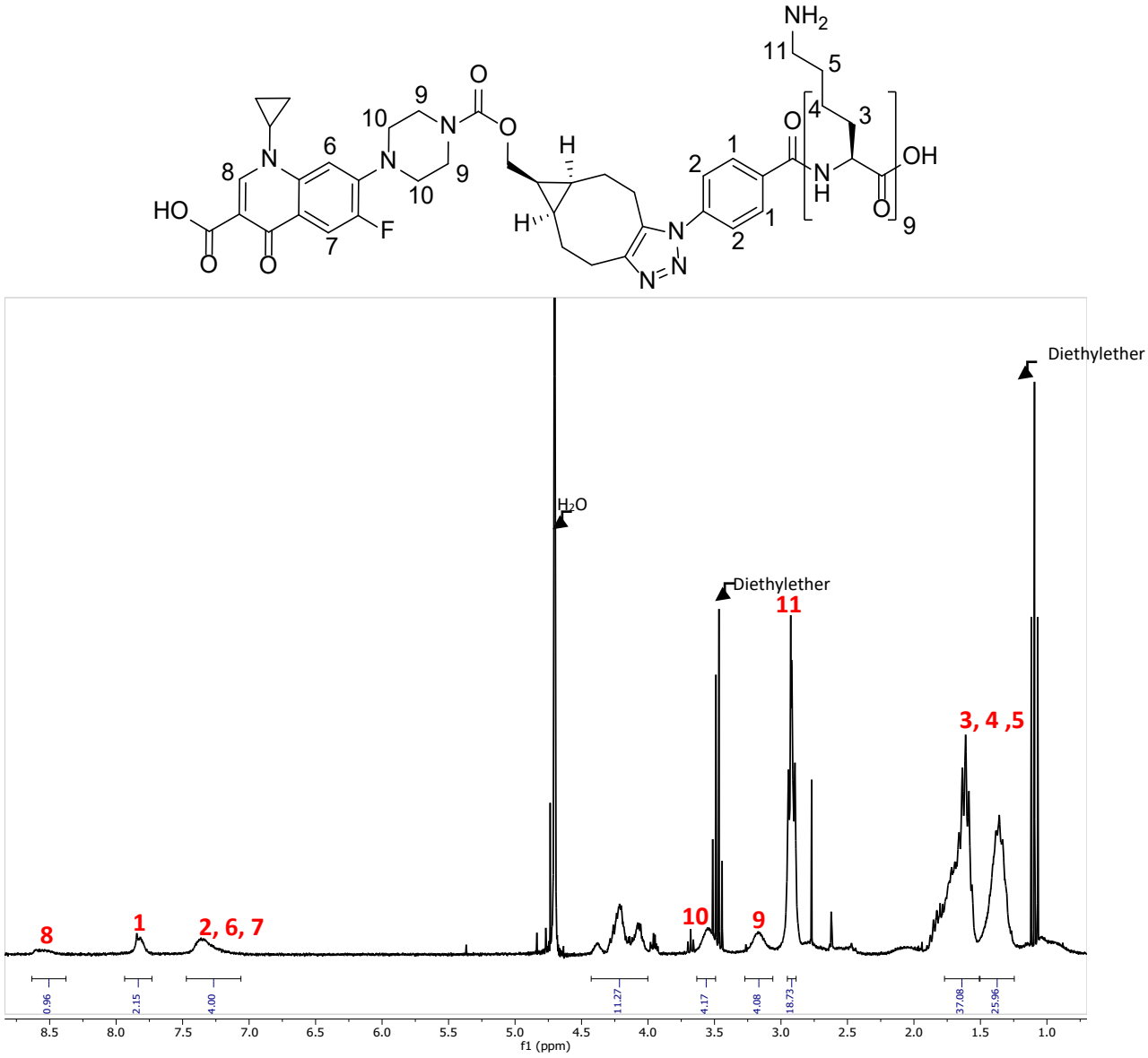

*Figure S3: ^{1}H-NMR spectrum and peak assignment for Ciprofloxacin-poly-L-lysine **4** in deuterated H_2O.*

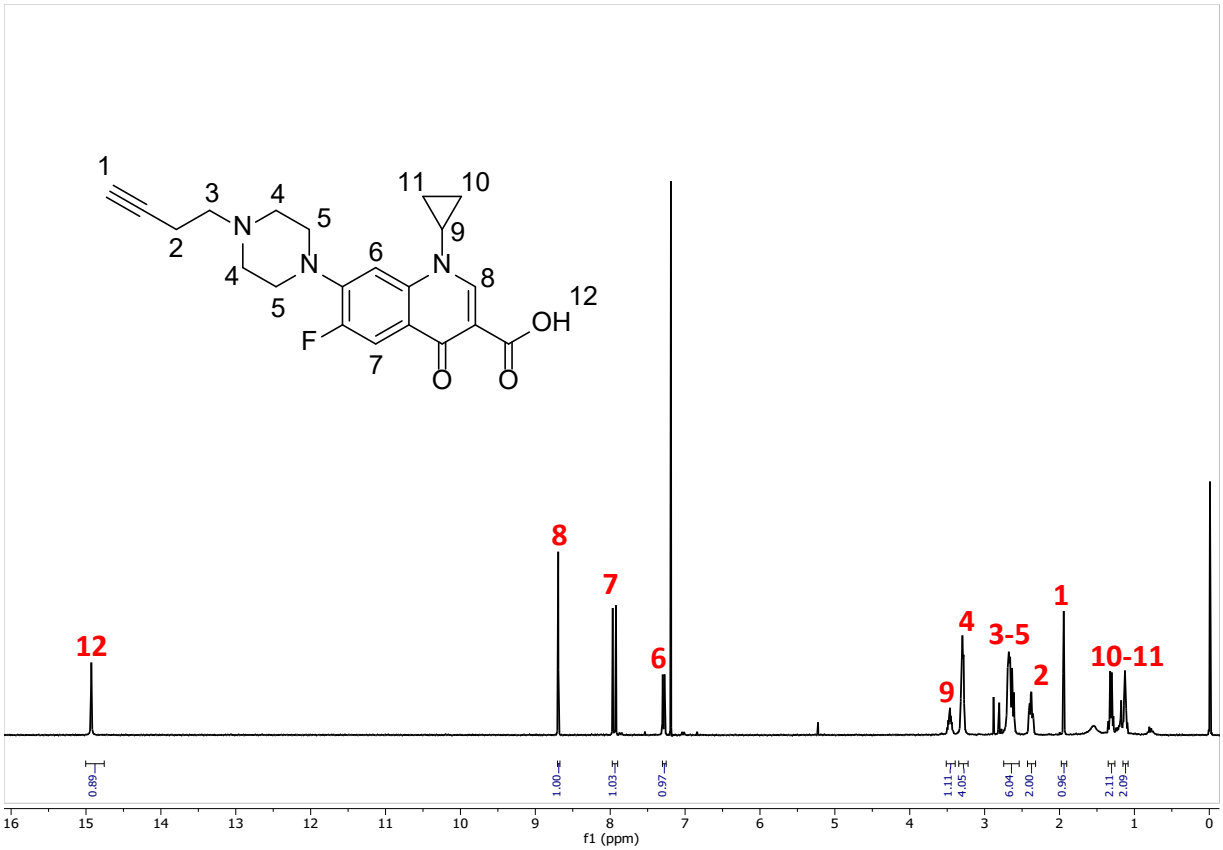

*Figure S4: ^{1}H-NMR spectrum of propargyl modified Ciprofloxacin **6** in deuterated $CDCl_3$*

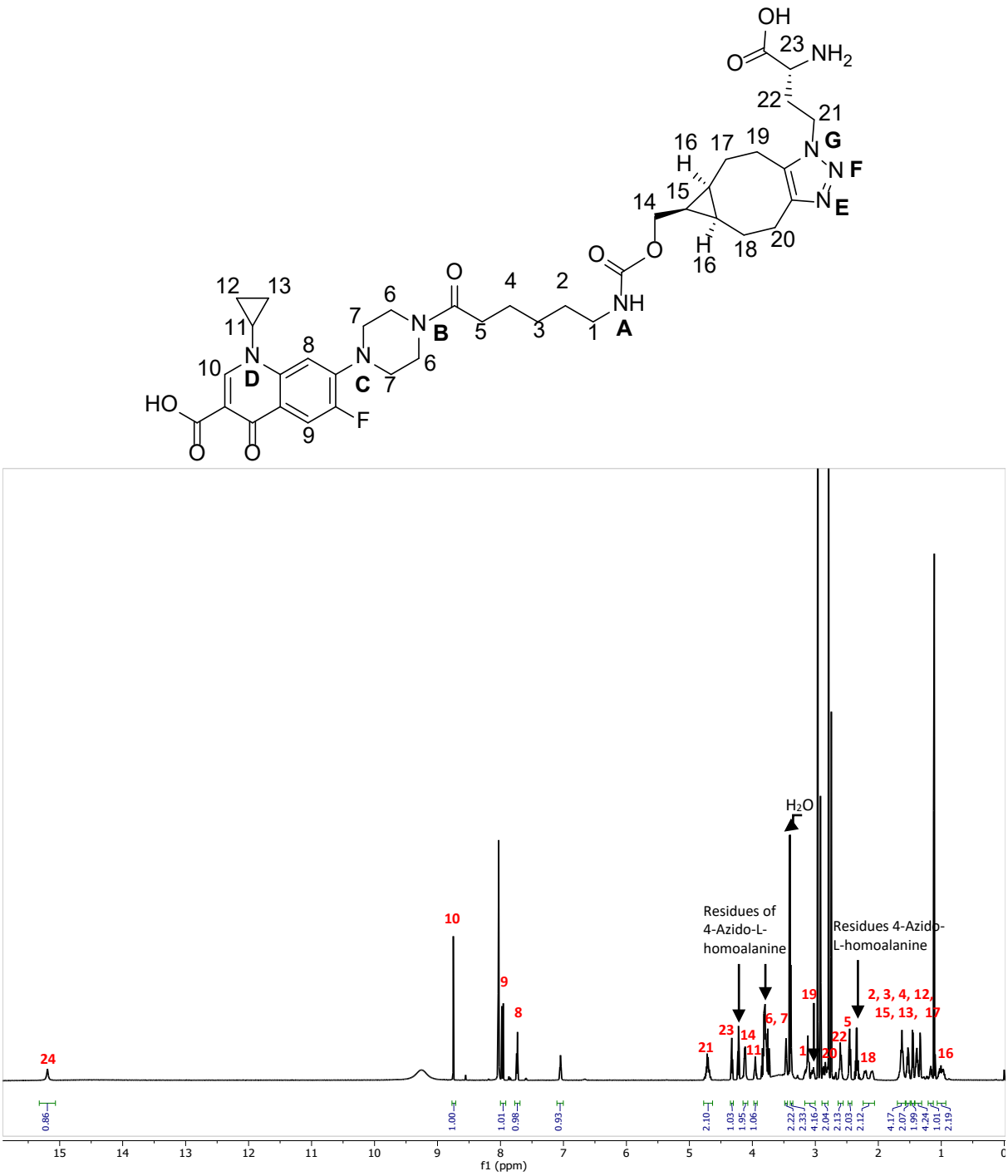

*Figure S5: ^{1}H-NMR spectrum of substance **5** in deuterated DMF.*

The spectrum shows some remains of the reagent 4-azido-homoalanine, which could not be removed completely by precipitation of the polymer. With the help of 2D- and NH-HMBC spectra the coupling of the ciprofloxacin was established. For 4-azido-homoalanine no antibacterial effect was observed in preliminary tests, therefore, **5** was used for the experiments.

NH-HMBC and 2D-COSY (s. Figure S 7 and Figure S 6) spectrum of **5** and 4-azido-homoalanine were performed and used to highlight 4-azido-homoalanine as residue.

^{14}N-NMR (DMF, 600 MHz): -26.63 (F), -132.59 (4-azido-homoalanine) -135.18 (G), -230.03 (D), -298.01 (A), -310.22 (4-azido-homoalanine), -314.38 (C).

Morevoer, 2D-HMBC (s. Figure S8) analysis highlighted the disappearance of the triple bond signal at 100.25 ppm and the appearance of C=C double bond signals of 1,2,3-triazoles bond at 135.34 and 144.93 ppm.

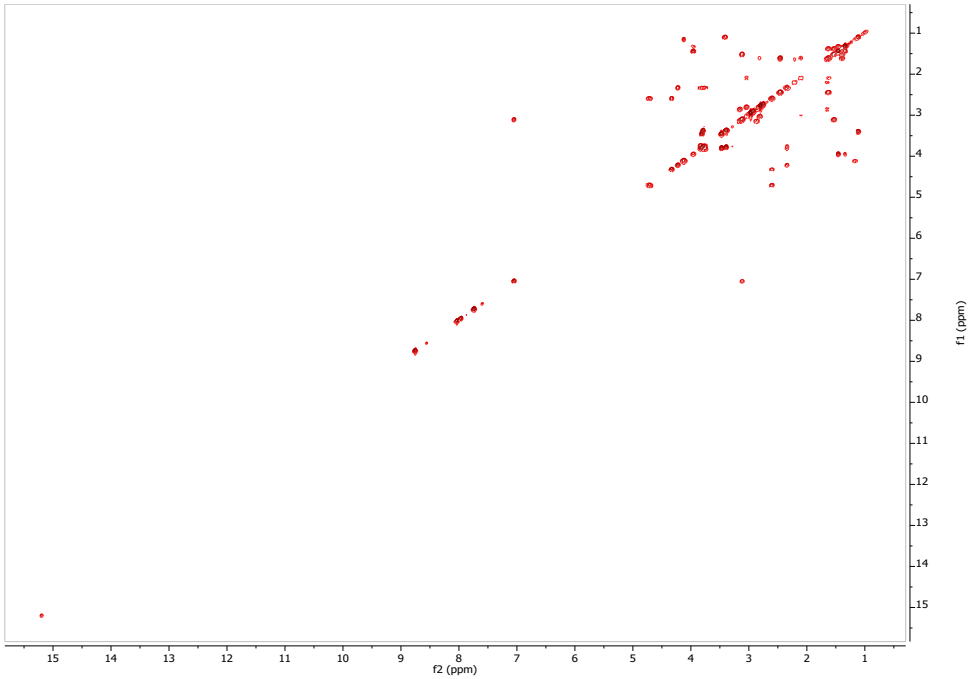

*Figure S6: 2D-COSY spectrum of substance **5** in deuterated DMF*

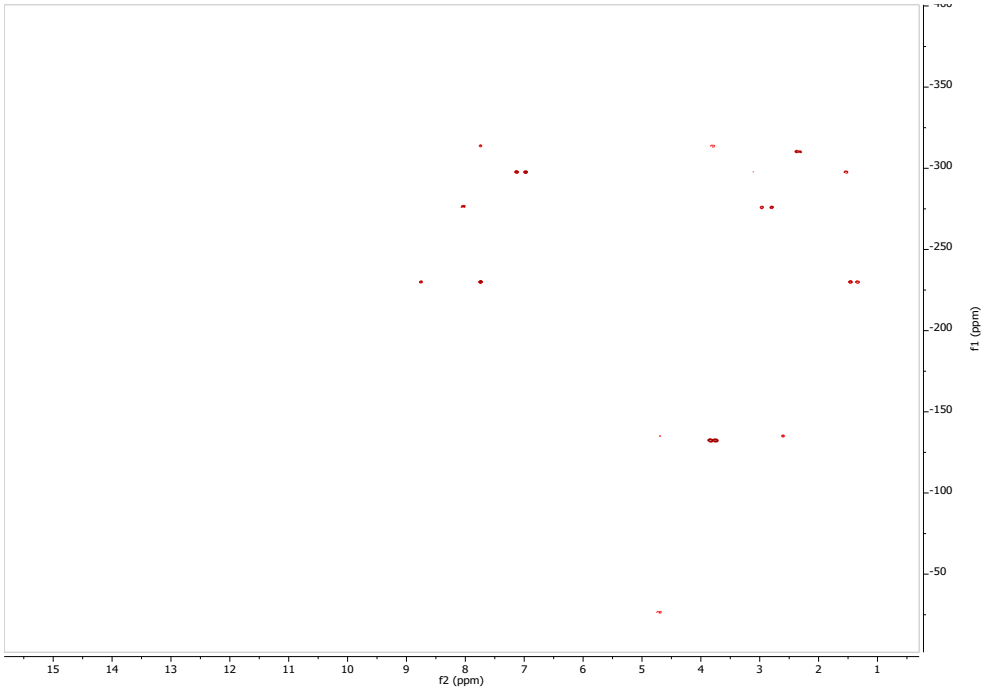

*Figure S7:NH-HMBC spectrum of substance **5** in deuterated DMF*

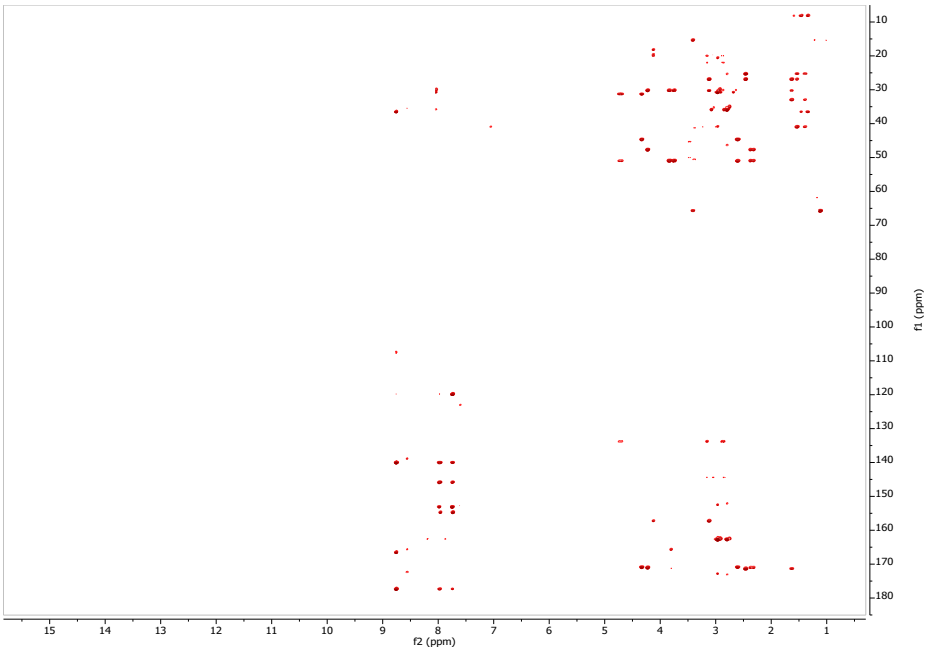

*Figure S8: 2D-HMBC spectrum of substance **5** in deuterated DMF*

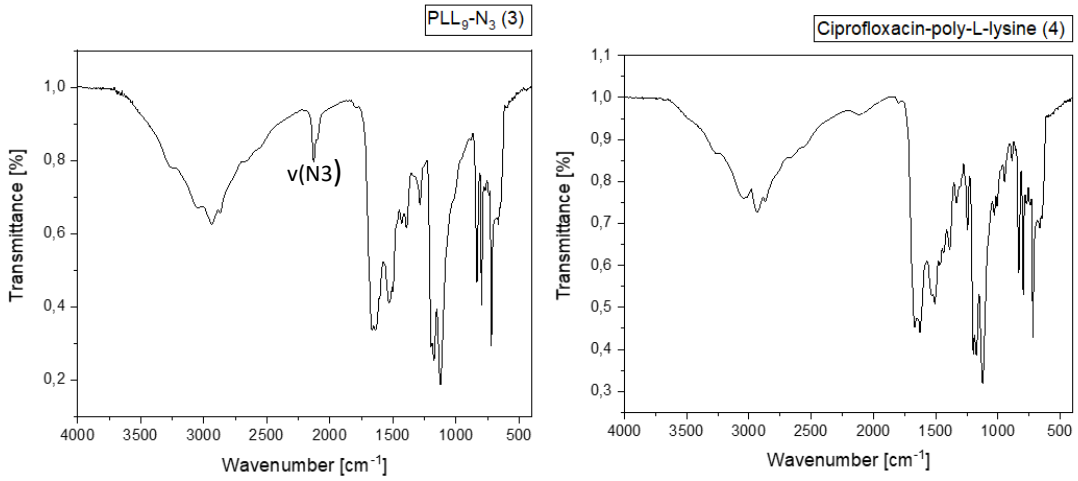

*Figure S9: FT-IR spectra of PLL9-N3 (**3**) and Ciprofloxacin-poly-L-lysine (**4**)*

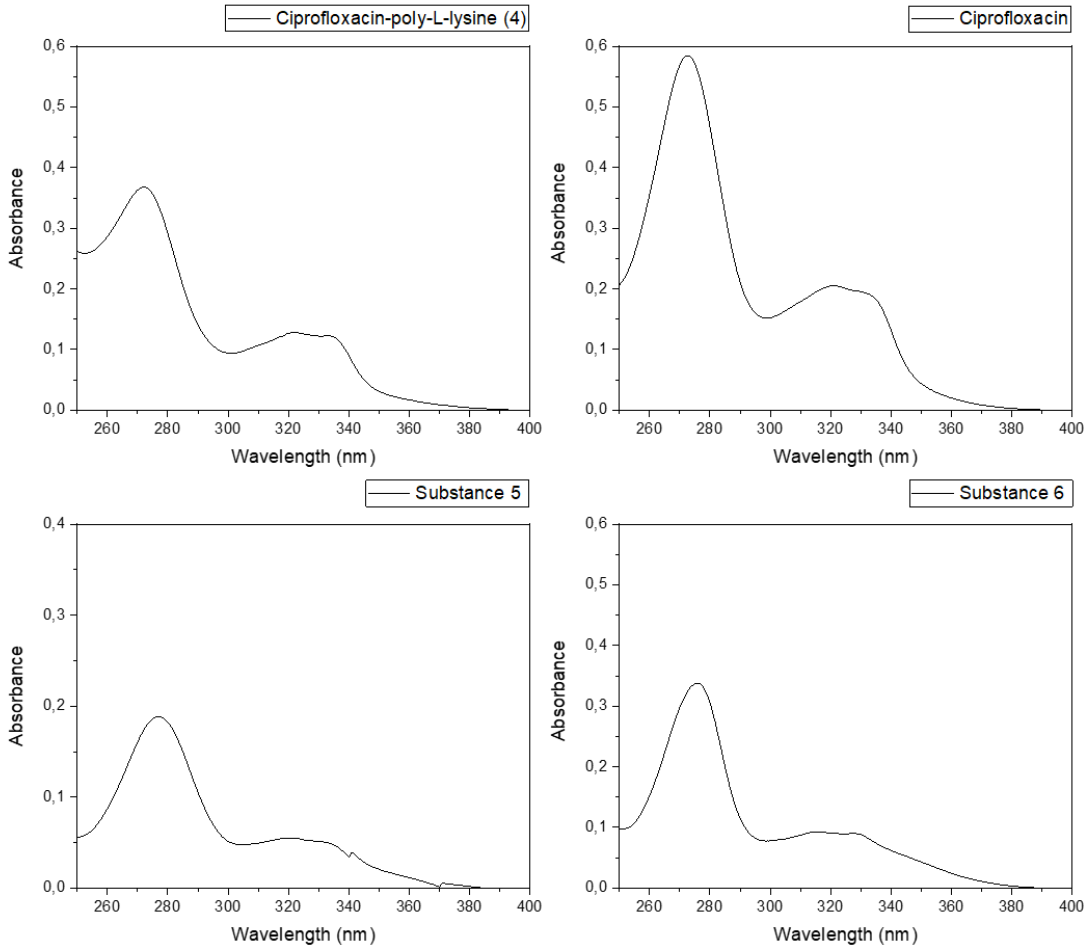

*Figure S10: UV-Vis absorbance spectra of Ciprofloxacin-L-lysine, substance **5**, substance **6** and commercial Ciprofloxacin*