Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information for

Synthesis, biological evaluation of novel quinolone derivatives dual targeting histone deacetylase and tubulin polymerization as antiproliferative agents

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PART I. Analytical techniques

^{1}H NMR and ^{13}C NMR spectra were recorded on a Bruker AV400 spectrometer (400 MHz, ^{1}H NMR; 101 MHz, ^{13}C NMR) at room temperature. NMR spectra were calibrated to the solvent signals of $CDCl_3$ (δ 7.26 and 77.00), Acetone-d_6 (δ 2.05 and 29.84, 206.26). The chemical shifts are provided in ppm and the coupling constants in Hz. The following abbreviations for multiplicities are used: s, singlet; d, doublet; t, triplet; m, multiplet. Glassware was oven-dried, assembled while hot, and cooled under an inert atmosphere. Unless otherwise noted, all reactions were conducted in an inert atmosphere. Reaction progress was monitored using analytical thin-layer chromatography (TLC). Visualization was achieved by UV light (254 nm). Chromatography was performed with silica gel (0.040-0.063 mm) packing. High resolution mass spectra (HRMS) were measured on an IonSpec 4.7 Tesla FTMS using MALDI/DHB. Melting points were obtained on an X-4 melting point apparatus (Beijing TECH Instruments, Co.,Ltd.) and are uncorrected.

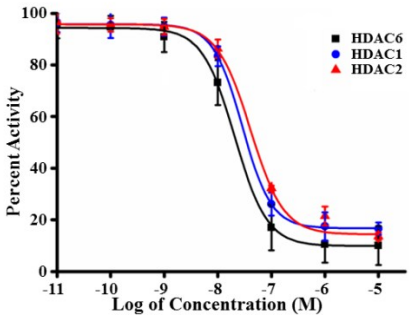


Figure S1 Dose-response curves and derived IC_{50} value for **9b** in HDACs inhibition assay.

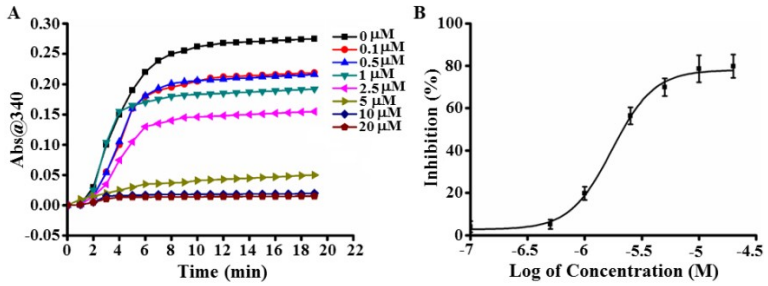


Figure S2 (A) Tubulin polymerization time-course plots following changes in OD_{340} of reaction mixtures in the presence of increasing concentrations of **9b**. (B) Dose-response curves and derived IC_{50} value for **9b** in the tubulin polymerization assay. Data from three independent experiments was plotted as individual data points, as shown, and fit globally.

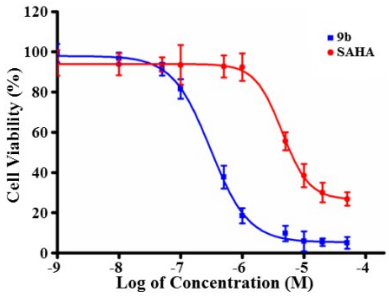
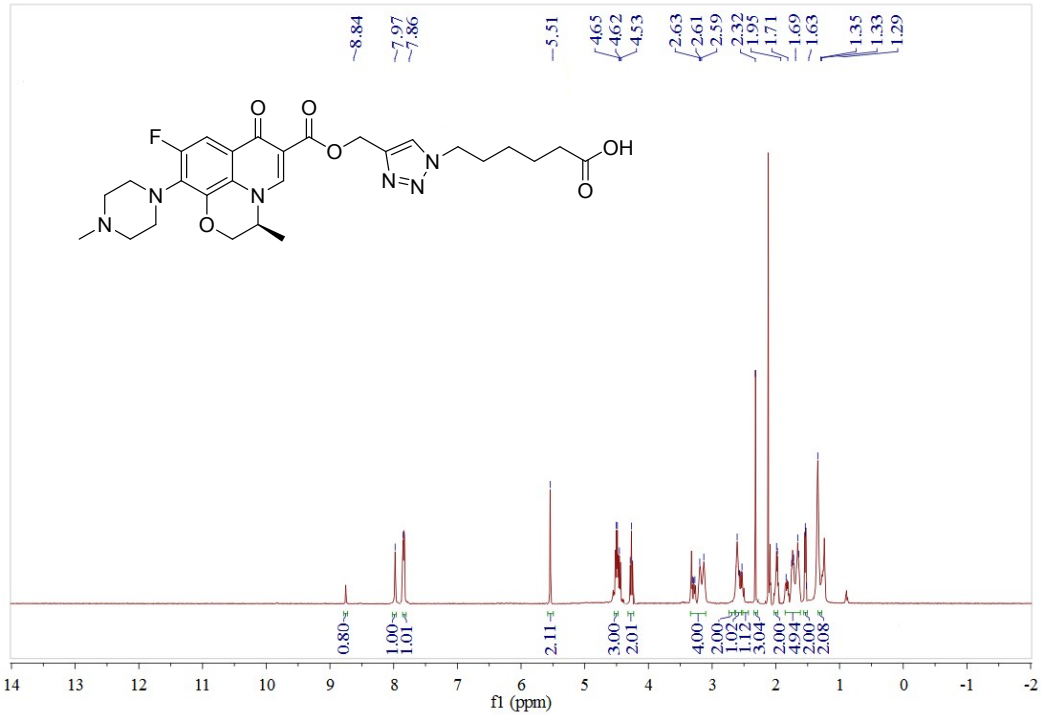


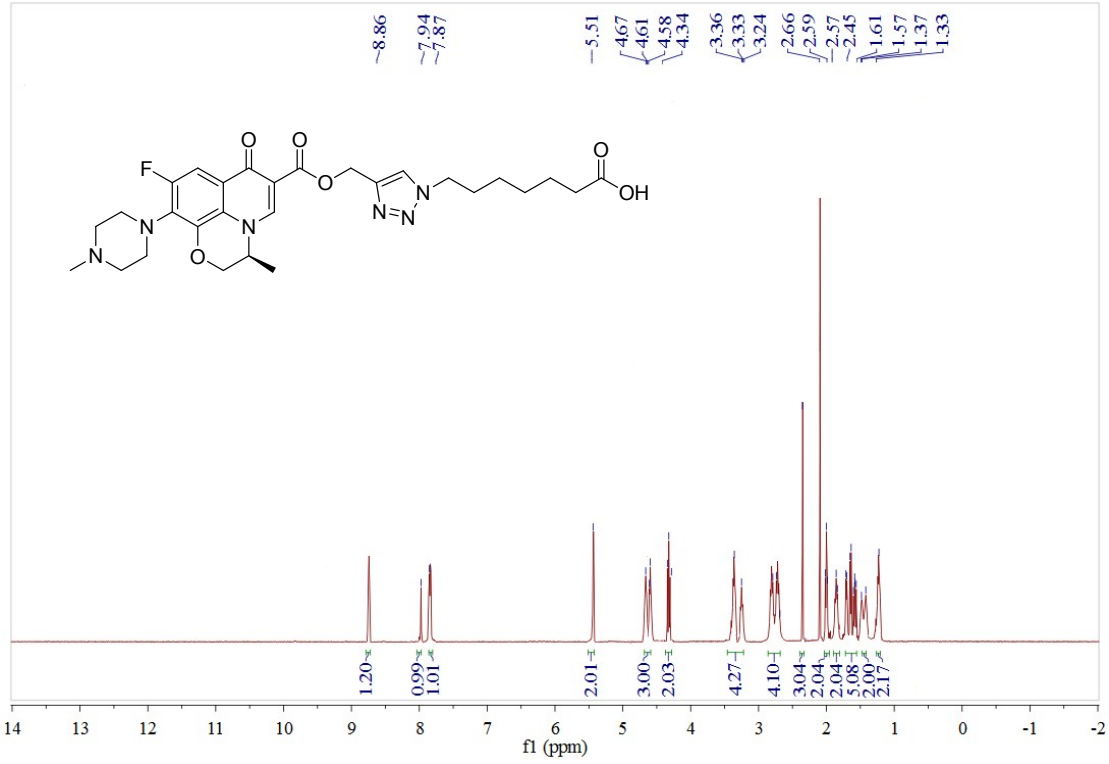
Figure S3 Dose-response curves for antiproliferative activity of **9b** and SAHA against MCF-7 cells.

PART II. ^{1}H NMR Spectra of final compounds

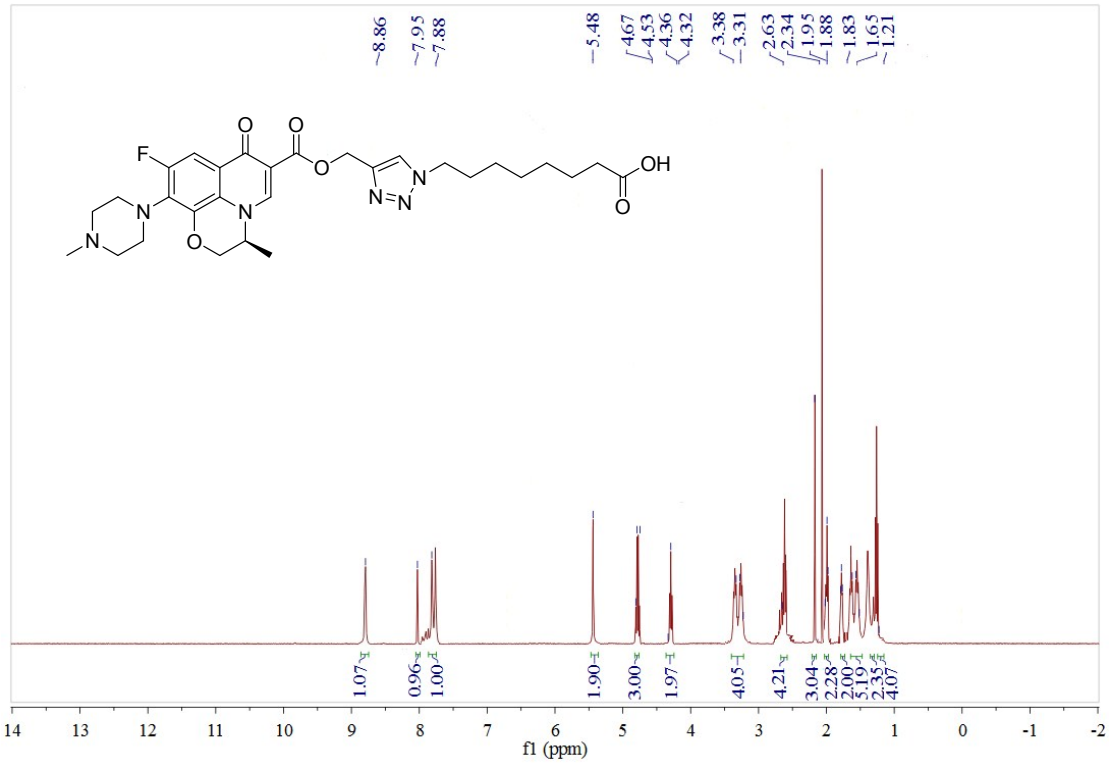
^{1}H NMR of compound 6a



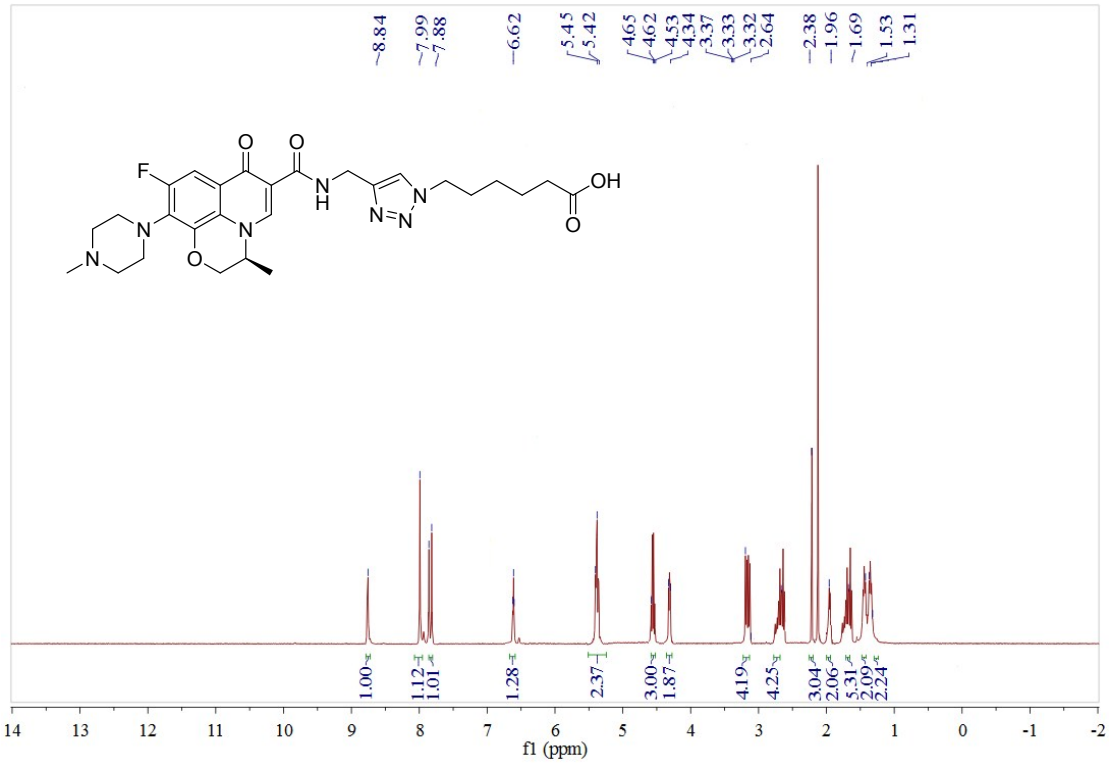
^{1}H NMR of compound 6b



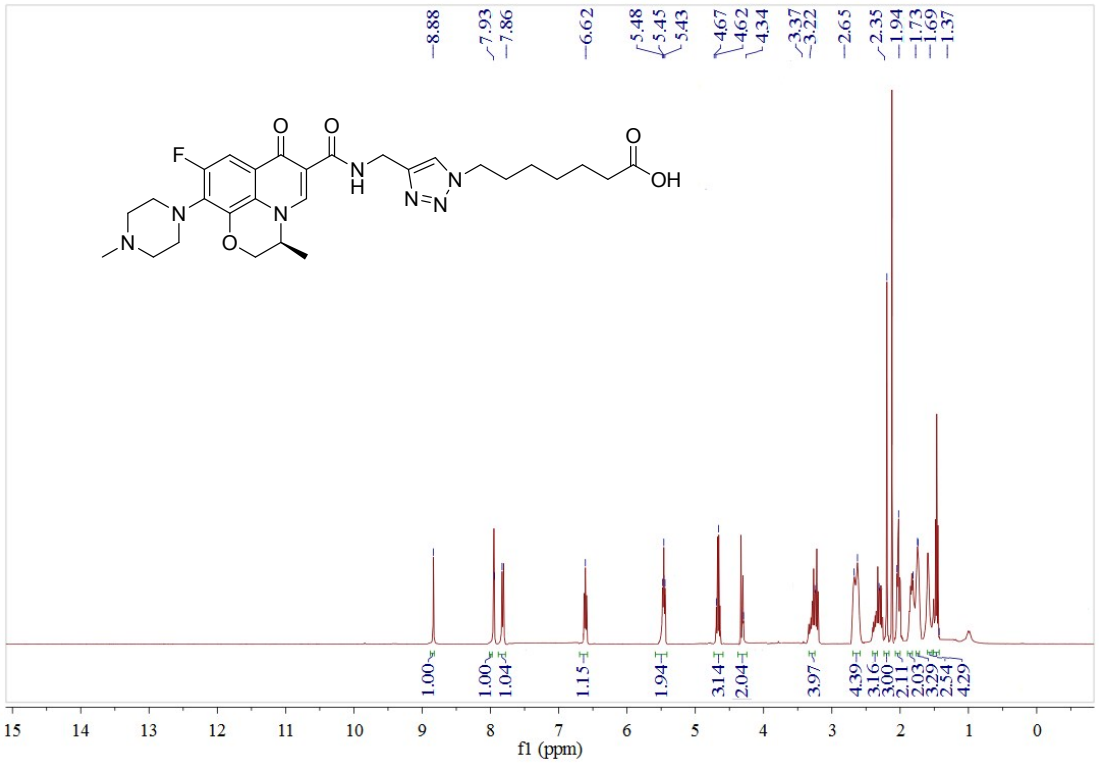
^{1}H NMR of compound 6c



^{1}H NMR of compound 7a



^{1}H NMR of compound 7b



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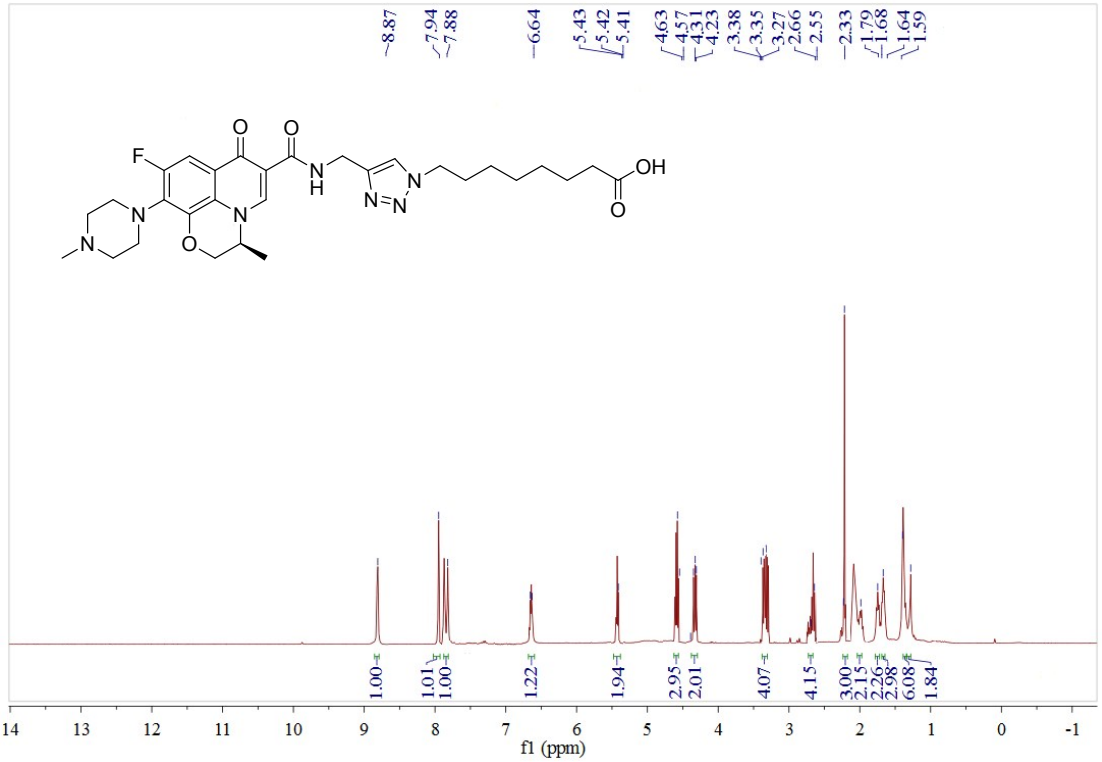

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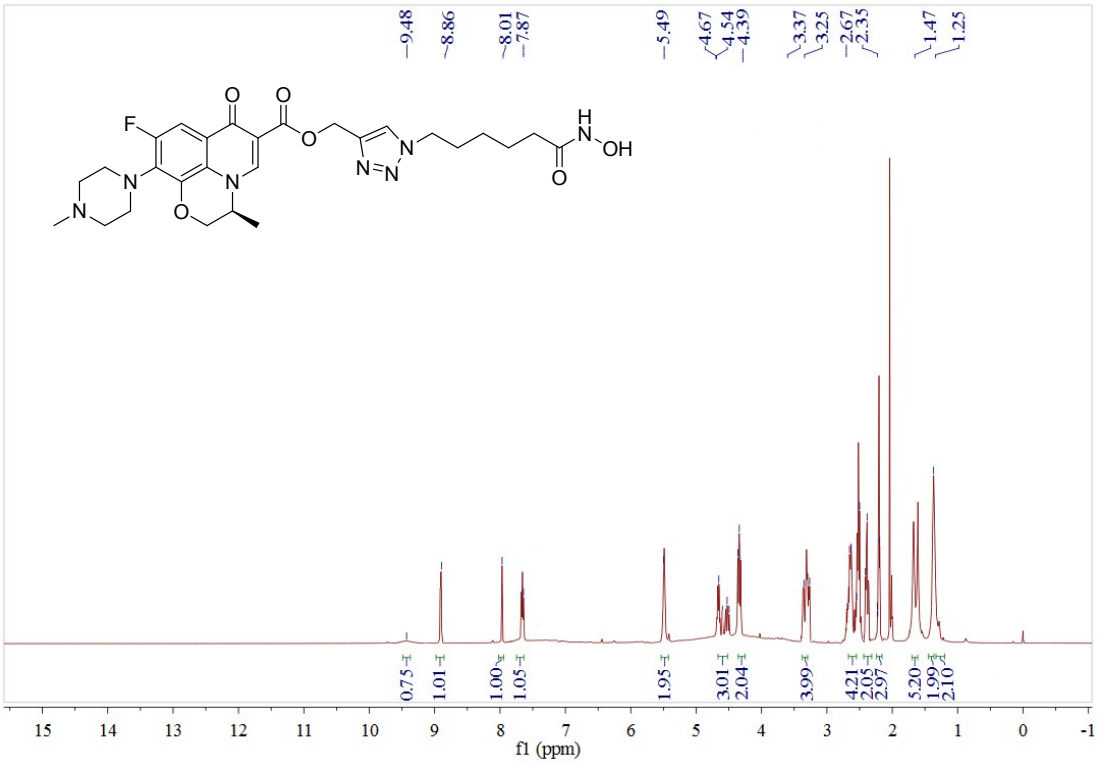

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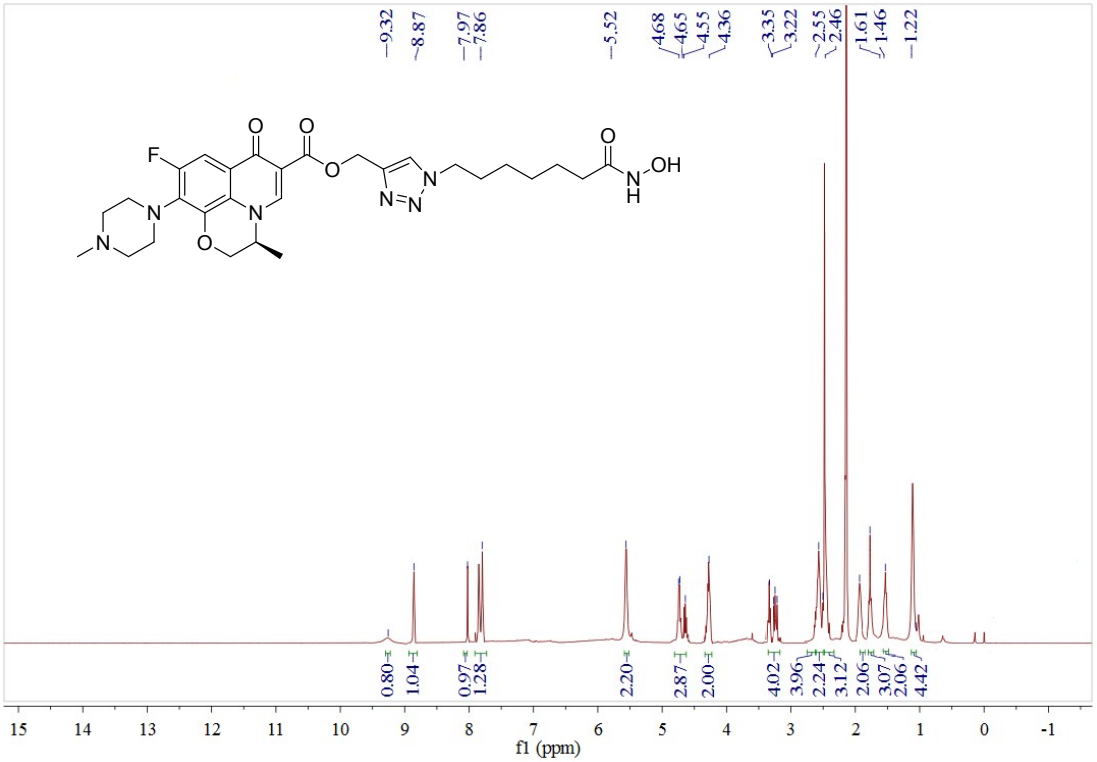

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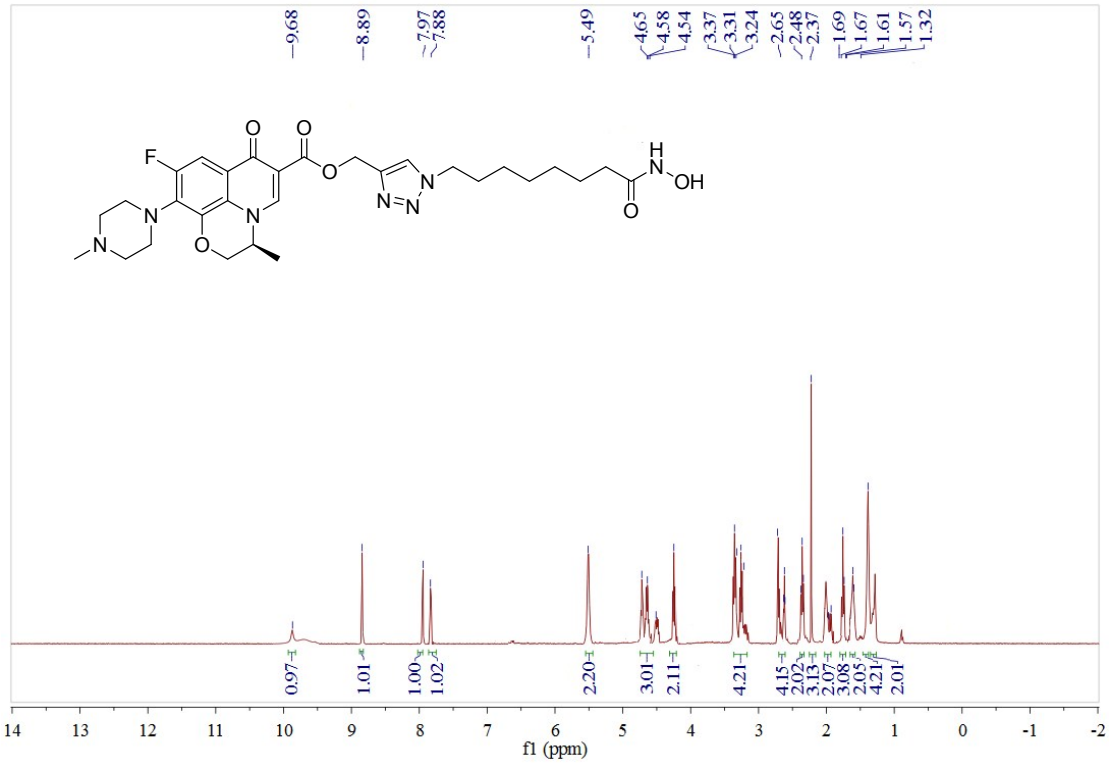
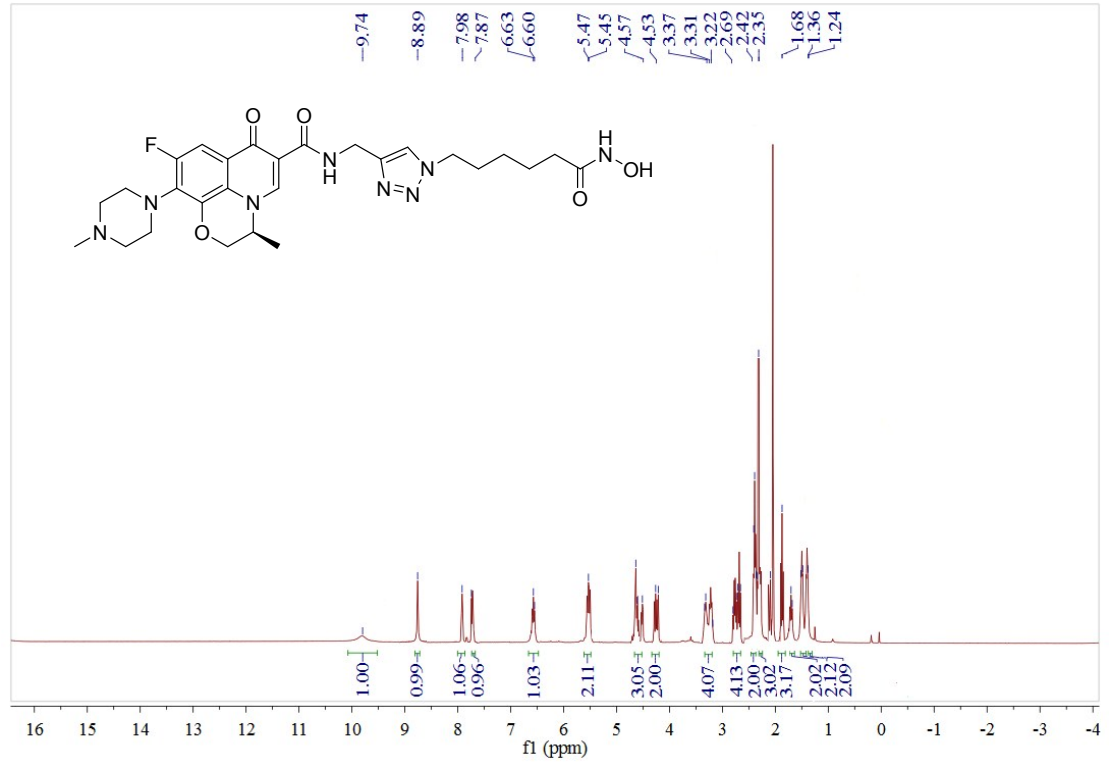


^{1}H NMR of compound 9a



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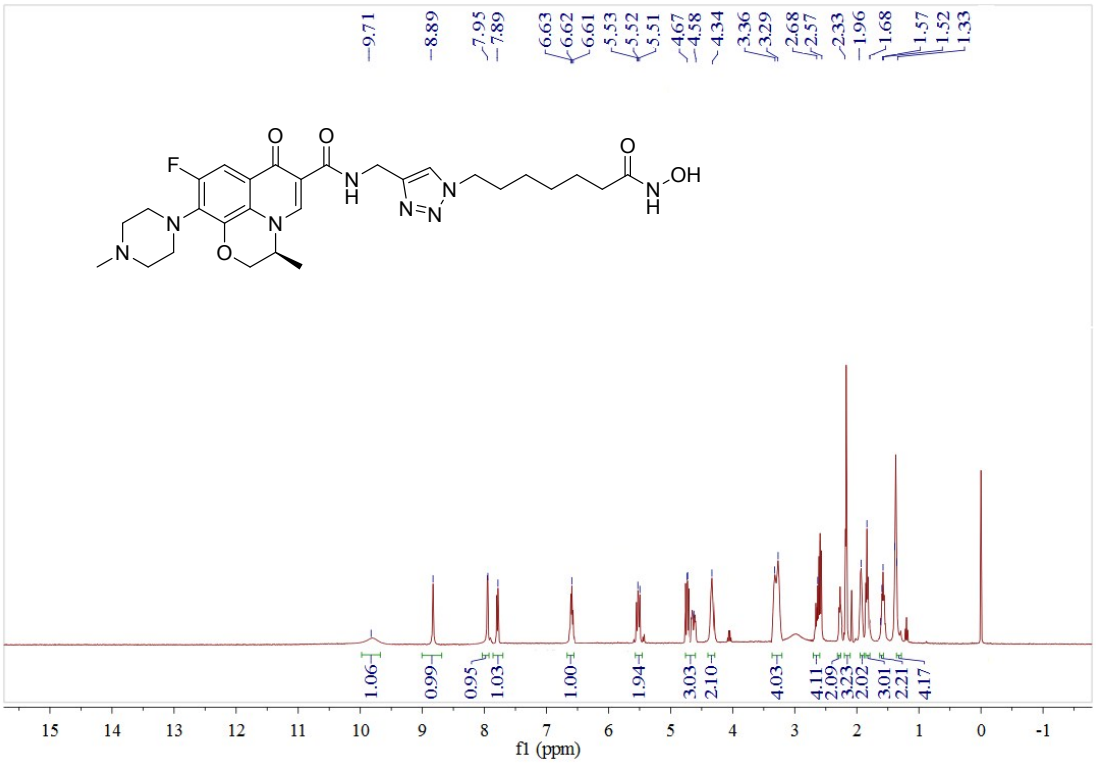

^{1}H NMR of compound 9c