Supporting Information

Chemicals

Chloroquine and hydroxychloroquine sulfate were obtained from Spectrum Chemicals and Sigma, respectively. Chloroquine analogs were dissolved in H_2O and were stored at -20° C.

Materials and methods for the chemical syntheses

All chemical reagents and solvents were obtained from commercial sources (*Aldrich*, *Acros*, *Fisher*) and used without further purification. Anhydrous solvents (tetrahydrofurane and toluene,) were obtained using a *Pure Solv™* AL-258 solvent purification system. Dimethyl formamide was dried over activated 4 Å molecular sieves. Chromatography was performed on a *Teledyne ISCO CombiFlash R_f 200i* using disposable silica cartridges (4, 12, and 24 g). Solvent mixtures used for chromatography are: Ultra (75:22:3 CH_2Cl_2:MeOH:NH_4OH) and EEA (EtOAc:EtOH 3:1 + 2% NH_4OH). Analytical thin layer chromatography (TLC) was performed on *Silicycle* silica gel plates (250 μm film thickness, indicator F254). Compounds were visualized using a dual wave length (254 and 365 nm) UV lamp. NMR spectra were recorded on *Bruker DRX 300* and *DRX 600* spectrometers. ^1H and ^{13}C chemical shifts (δ) are reported relative to tetramethyl silane (TMS, 0.00/0.00 ppm) as internal standard or to residual solvent (CD_3OD: 3.31 ppm/49.00 ppm; $CDCl_3$: 7.26/77.16 ppm; DMSO-*d6*: 2.50/39.52 ppm). Low resolution mass spectra were recorded on a *Shimadzu LCMS 2010EV* (direct injection). High resolution electrospray ionization mass spectra (ESI-MS) were obtained at the Albert Einstein Laboratory for Macromolecular Analysis and Proteomics[1]. IR spectra were recorded on an *Agilent Cary 630 FTIR* on a ZnSe crystal. Wavenumbers are reported in cm^{-1}.

Cell lines. Human H460, HCC827, and BxPC3 cell lines were from ATCC (Manassas, VA), and were maintained in RPMI-1640 medium with 10% fetal bovine serum, penicillin and streptomycin, at 37° C in a humidified atmosphere with 5% CO_2.

Cell proliferation. Cells were seeded in 96 well plates in triplicate (2-4 x 10^3 / well) and allowed to attach for 24 hours before different concentrations of the drugs were added for an additional 48 or 72 hours. Cell proliferation was quantified by a sulforhodamine B (SRB) assay. Attached cells were fixed with 10% trichloroacetic acid and incubated for 1 hour at 5° C. The cells were stained with SRB (0.4% in 1% acetic acid) by incubating at room temperature for 30 min. The plate was rinsed 4x with 1% acetic acid and dried. The SRB was dissolved by adding 10 mM Tris-base. Absorbances were read at 510 nm on plate reader. Cell numbers were expressed relative to untreated controls, and IC50s were calculated from concentration-response graphs. Data are means ± SD of at least 3 experiments.

Cell growth inhibition was also assessed in a colony formation assay. H460 cells were plated at 250 cells per well in 24 well plates. After allowing for cell attachment overnight, HCQ and EAD1 were added at the indicated concentrations. After 24 hours, drug-containing medium was removed, and drug-free medium added. Cell colonies were stained with crystal violet after an additional 10-day growth in the absence of drug.

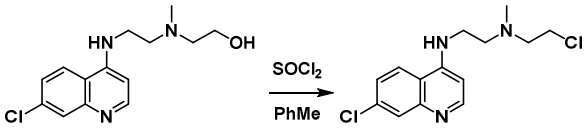
Apoptosis. The detection of apoptosis in was assessed using APC-conjugated Annexin V (ebioscience) to determine phosphatidylserine exposure, and DAPI staining to assess cell viability. H460 cells were

cultured in medium containing 5, 25, 50 or 75 μM of HCQ, CQ or EAD1 for 24 hours. For quantitative determination, cells were trypsinized, stained with Annexin V for 15 min at room temperature, and analyzed by flow cytometry. Each experiment was performed in triplicate.

Immunoblot analysis. Cells were scraped from culture dishes, cell lysates were prepared, and immunoblot analysis was performed. Cell extracts were prepared in cold lysis buffer (50 mM Tris pH 7.5, 100 mM NaCl, 50 mM NaF, 5 mM EDTA, 1% Triton X100, 200 μM Na orthovanadate and protease inhibitor cocktail (HALT; Thermo Scientific)). Protein concentrations were determined using the Lowry reagent (Bio-Rad), and normalized cell lysates were mixed with sample buffer (Bio-Rad) containing 2-mercaptoethanol and boiled for 5 mins. The samples were run on SDS-polyacrylamide gels and transferred to nitrocellulose or PVDF membranes. The membranes were incubated overnight with primary antibodies in TBS-T buffer containing 5% non-fat milk: LC3 (Cell Signaling LC3 A/B (D3U4C) #12741) and p62 (Sigma Anti-p62/SQSTM1 rabbit #P0067). After washing, the membranes were incubated with HRP-conjugated secondary antibody for 1 hour. The bands were detected with enhanced chemiluminescence reagent (Pierce).

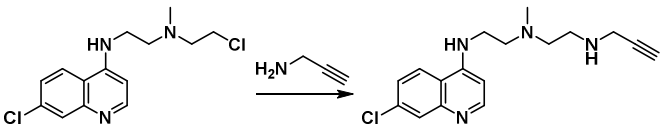
Generation of a stable cell line expressing mCherry-EGFP-LC3B. H3122 NSCLC cells were grown to 50% confluency and were then transfected with the pDest-mCherry-EGFP-LC3B plasmid (kindly provided by Dr. Ana Maria Cuervo) using Lipofectamine 2000 reagent (Invitrogen). Briefly, a mixture of plasmid DNA and Lipofectamine were diluted in 200 μl and added to cells in 3 ml of medium without antibiotics. Transfected cells were then expanded and fluorescent-positive clones isolated by two reiterated cycles of cell sorting by FACS. The steady-state expression level was confirmed with fluorescence microscopy.

Syntheses



N^1-(2-chloroethyl)-N^2-(7-chloroquinolin-4-yl)-N^1-methylethane-1,2-diamine (**SI1**)

2-((2-((7-chloroquinolin-4-yl)amino)ethyl)(methyl)amino)ethan-1-ol[1] (200 mg; 0.72 mmol) and toluene (5 mL) were added to a flask and thionyl chloride (0.16 mL; 2.15 mmol; 3 equiv) was added slowly. After stirring for 18 hours the reaction was quenched by careful addition of sat. aq. $NaHCO_3$ until no more gas-evolution was observed. The mixture was transferred to a separatory funnel and the pH was adjusted to 8 by addition of aq. $NaHCO_3$. Extraction with EtOAc (4 × 5 mL), drying of the combined organic phases ($MgSO_4$), and removal of the solvent gave the title compound (189 g; 0.63 mmol; 89%) which was used without further purification. The ^{1}H NMR spectrum is in agreement with the lit. values (Tukulula, M.; Sharma, R.-K.; Meurillon, M.; Mahajan, A.; Naran, K.; Warner, D.; Huang, J.; Mekonnen, B.; Chibale, K. ACS Med. Chem. Lett. 2013, 4, 128−131).



N^1-(7-chloroquinolin-4-yl)-N^2-methyl-N^2-(2-(prop-2-yn-1-ylamino)ethyl)ethane-1,2-diamine (**1**)

DMF (30 mL), propargylamine (0.92 mL; 14.4 mmol; 10 equiv.) and sodium iodide (43 mg; 0.29 mmol; 0.2 equiv.) were added to a flask containing **SI1** (428 mg; 1.44 mmol). After stirring for 18 hours, a distilation head was attached and the volatiles were distilled off *in vacuo*. The residue was purified by column chromatography (0-20% Ultra in CH_2Cl_2) to give **1** as a pale orange oil (300 mg; 0.947 mmol; 66%).

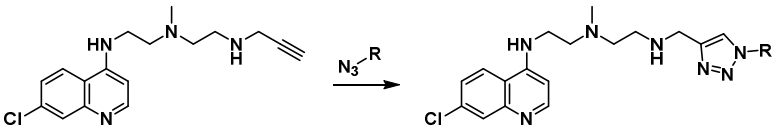
TLC: R_f = 0.29 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, $CDCl_3$) δ 8.49 (d, *J* = 5.5 Hz, 1H), 7.99 (d, *J* = 2.6 Hz, 1H), 7.86 (d, *J* = 8.9 Hz, 1H), 7.38 (dd, *J* = 8.8, 2.1 Hz, 1H), 6.38 (d, *J* = 5.5 Hz, 1H), 3.48 (d, *J* = 2.3 Hz, 2H), 3.37 – 3.28 (m, 2H), 2.89 (t, *J* = 5.9 Hz, 2H), 2.80 (t, *J* = 6.0, 2H), 2.65 (t, *J* = 5.9 Hz, 2H), 2.33 (s, 3H), 2.23 (t, *J* = 2.4 Hz, 1H).

^{13}C NMR (151 MHz, $CDCl_3$) δ 150.61, 135.45, 127.50, 125.53, 121.98, 117.14, 99.02, 81.82, 71.77, 56.51, 54.66, 45.78, 41.82, 40.19, 38.17.

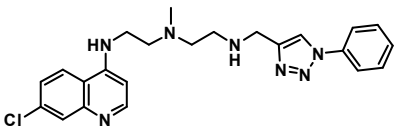
HRMS (ESI) calc'd for $C_{17}H_{22}ClN_4$ $(M+H)^+$ 317.1528 found 217.1559.

IR (Neat): 3300 (w), 2846 (w), 2804 (w), 1610 (w), 1578 (s), 1449 (m), 1329 (m).



General procedure for synthesis of triazole compounds (**3a**-**3v** and **6a**, **6b**):

The alkyne (**1**, **5a** or **5b**; 0.347 mmol), azide (0.69 mmol; 2 equiv.), acetone (5 mL), water (2.5 mL), sodium ascorbate (1 M in H_2O; 0.347 mL; 0.347 mmol; 1 equiv.) and copper(II) sulfate (1 M in H_2O; 0.035 mL; 0.035 mmol; 10 mol%) were added to a vial and stirred vigorously. When TLC analysis showed full conversion of the alkyne the acetone was remove under reduced pressure and the solution was made basic by addition of conc. ammonia. 5 mL brine was added and the product was extracted with CH_2Cl_2 (3 × 5 mL). The combined organic extracts were dried over $MgSO_4$, filtered and concentrated. Column chromatography gave the desired trizole. Treatment with HCl in Et_2O followed by evaporation of the volatiles have the corresponding HCl salt which showed improved water solubility.



N^1-(7-chloroquinolin-4-yl)-N^2-methyl-N^2-(2-(((1-phenyl-1*H*-1,2,3-triazol-4-yl)methyl)amino)ethyl)ethane-1,2-diamine (**3a**)

Column chromatography: 0-30% Ultra in CH_2Cl_2. Yield: 39%. White powder.

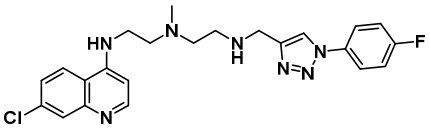
TLC: R_f = 0.34 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.57 (s, 1H), 8.38 (dd, 1H), 8.09 (dd, *J* = 9.1, 4.3 Hz, 1H), 7.75 – 7.66 (m, 1H), 7.66 – 7.59 (m, 1H), 7.58 – 7.48 (m, 1H), 6.88 (d, *J* = 7.2 Hz, 1H), 4.60 (s,21H), 4.09 (t, *J* = 6.3 Hz, 2H), 3.78 (dd, *J* = 9.2, 5.5 Hz, 2H), 3.76 – 3.68 (m, 3H), 3.13 (s, 1H).

^{13}C NMR (151 MHz, D_2O) δ 156.00, 142.87, 139.58, 138.00, 137.77, 135.71, 129.87, 129.75, 127.82, 124.74, 124.13, 120.66, 119.10, 115.35, 98.69, 54.20, 51.79, 41.75, 40.82, 40.48, 37.93.

HRMS (ESI) calc'd for $C_{23}H_{27}ClN_7$ $(M+H)^+$ 436.2011 found 436.2003;

IR: 3222 (w), 2922 (m), 2649 (m), 1610 (s), 1590 (s), 1451 (s).



N^1-(7-chloroquinolin-4-yl)-N^2-(2-(((1-(4-fluorophenyl)-1*H*-1,2,3-triazol-4-yl)methyl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3b**)

Column: 40-65% EEA in hexanes. Yield: 36%. White powder.

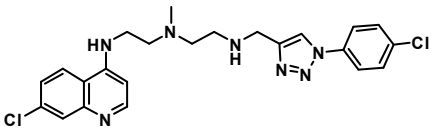
TLC: R_f = 0.16 (EtOAc:EtOH 3:1 + 2% NH_4OH; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.53 (s, 1H), 8.35 (d, *J* = 7.0 Hz, 1H), 8.00 (d, *J* = 9.1 Hz, 1H), 7.58 (d, *J* = 2.0 Hz, 1H), 7.54 (dd, *J* = 8.9, 4.6 Hz, 2H), 7.45 (dd, *J* = 9.1, 2.0 Hz, 1H), 7.17 (t, *J* = 8.7 Hz, 2H), 6.86 (d, *J* = 7.1 Hz, 1H), 4.61 (s, 2H), 4.08 (d, *J* = 6.3 Hz, 2H), 3.82 (dd, *J* = 9.1, 5.8 Hz, 2H), 3.77 – 3.62 (m, 4H), 3.16 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 162.48 (d, *J* = 247.6 Hz), 155.80, 142.87, 139.50, 137.93, 137.56, 131.98, 127.73, 124.87, 124.18, 122.68 (d, *J* = 9.2 Hz), 118.87, 116.58 (d, *J* = 23.6 Hz), 115.15, 98.75, 54.16, 51.83, 41.79, 40.78, 40.53, 37.88.

^{19}F NMR (282 MHz, D_2O) δ -111.78 (tt, *J* = 8.7, 4.6 Hz).

MS (ESI) calc'd for $C_{23}H_{26}ClFN_7$ $(M+H)^+$ 454.19 found 454.00



N^1-((1-(4-chlorophenyl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-(2-((7-chloroquinolin-4-yl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3c**)

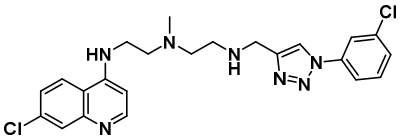
Column chromatography: 40-70% EEA in hexanes. Yield: 79%. White powder.

TLC: R_f = 0.11 (EtOAc:EtOH 3:1 + 2% NH_4OH; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.57 (s, 1H), 8.37 (d, *J* = 7.0 Hz, 1H), 8.05 (d, *J* = 9.1 Hz, 1H), 7.65 (d, *J* = 2.0 Hz, 1H), 7.50 (m, 3H), 7.41 (d, *J* = 8.6 Hz, 2H), 6.87 (d, *J* = 7.1 Hz, 1H), 4.62 (s, 2H), 4.08 (t, *J* = 6.2 Hz, 2H), 3.83 – 3.77 (m, 2H), 3.76 – 3.69 (m, 4H), 3.15 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 155.94, 142.87, 139.54, 138.06, 137.69, 134.68, 134.19, 129.72, 127.78, 124.64, 124.15, 121.70, 118.98, 115.28, 98.72, 54.10, 51.82, 41.71, 40.70, 40.55, 37.90.

MS (ESI) calc'd for $C_{23}H_{26}Cl_2N_7$ $(M+H)^+$ 470.16 found 470.10.



N^1-((1-(3-chlorophenyl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-(2-((7-chloroquinolin-4-yl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3d**)

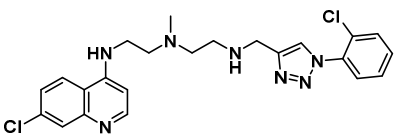
Column: 40-65% EEA in hexanes. Yield: 28%. White Powder.

TLC: R_f = 0.13 (EtOAc:EtOH 3:1 + 2% NH_4OH; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.58 (s, 1H), 8.39 – 8.36 (m, 2H), 8.07 (d, *J* = 9.1 Hz, 1H), 7.70 (s, 1H), 7.60 (s, 1H), 7.54 – 7.50 (m, 4H), 7.45 (s, 1H), 7.45 – 7.43 (m, 1H), 6.88 (d, *J* = 7.0 Hz, 1H), 4.62 (s, 2H), 4.08 (t, *J* = 6.1 Hz, 3H), 3.85 – 3.76 (m, 2H), 3.72 (dt, *J* = 14.3, 6.4 Hz, 7H), 3.14 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 156.01, 142.88, 139.58, 138.14, 137.76, 136.43, 134.73, 131.11, 129.52, 127.81, 124.65, 124.11, 120.37, 119.06, 118.71, 115.33, 98.70, 54.12, 51.81, 41.68, 40.73, 40.56, 37.92.

MS (ESI) calc'd for $C_{23}H_{26}Cl_2N_7$ $(M+H)^+$ 470.16 found 470.00.



N^1-((1-(2-chlorophenyl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-(2-((7-chloroquinolin-4-yl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3e**)

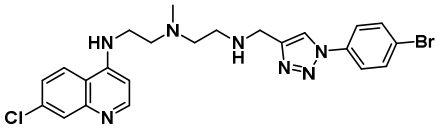
Column: 40-100% EEA in hexanes. Yield: 30%. White powder.

TLC: R_f = 0.10 (EtOAc:EtOH 3:1 + 2% NH_4OH; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.50 (s, 1H), 8.39 (d, *J* = 7.0 Hz, 1H), 8.11 (d, *J* = 9.1 Hz, 1H), 7.70 (s, 1H), 7.65 – 7.46 (m, 5H), 6.90 (d, *J* = 7.1 Hz, 1H), 4.63 (s, 2H), 4.11 (t, *J* = 6.2 Hz, 2H), 3.80 (dd, *J* = 8.6, 5.8 Hz, 2H), 3.78 – 3.69 (m, 4H), 3.14 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 156.01, 142.94, 139.62, 137.76, 137.28, 133.27, 132.08, 130.59, 128.64, 128.49, 128.26, 127.89, 127.58, 124.25, 119.07, 115.41, 98.74, 54.23, 51.80, 41.68, 40.76, 40.41, 37.85.

MS (ESI) calc'd for $C_{23}H_{26}Cl_2N_7$ $(M+H)^+$ 470.16 found 469.95.



N^1-((1-(4-bromophenyl)-1*H*-1,2,3-triazol-4-yl)methyl)-*N*^{2}-(2-((7-chloroquinolin-4-yl)amino)ethyl)-*N*^{2}-methylethane-1,2-diamine (**3f**)

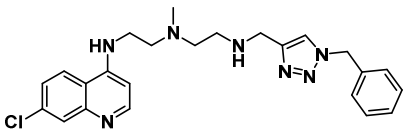
Column: 40-65% EEA in hexanes. Yield: 35%. White powder.

TLC: R_f = 0.18 (EtOAc:EtOH 3:1 + 2% NH_4OH; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.58 (d, *J* = 2.2 Hz, 1H), 8.37 (d, *J* = 6.9 Hz, 1H), 8.05 (d, *J* = 9.1 Hz, 1H), 7.64 (s, 1H), 7.61 – 7.52 (m, 2H), 7.49 (d, *J* = 9.1 Hz, 1H), 7.43 (dd, *J* = 8.9, 2.3 Hz, 2H), 6.87 (dd, *J* = 7.3, 2.1 Hz, 1H), 4.62 (s, 2H), 4.08 (t, *J* = 5.4 Hz, 2H), 3.84 – 3.76 (m, 2H), 3.72 (dt, *J* = 13.0, 6.7 Hz, 4H), 3.15 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 155.95, 142.87, 139.54, 138.08, 137.69, 134.63, 132.69, 127.78, 124.57, 124.16, 122.72, 121.81, 118.99, 115.29, 98.73, 54.08, 51.84, 41.70, 40.67, 40.57, 37.91.

MS (ESI) calc'd for $C_{23}H_{26}BrClN_7$ $(M+H)^+$ 514.11 found 514.10.



N^1-((1-benzyl-1*H*-1,2,3-triazol-4-yl)methyl)-*N*^{2}-(2-((7-chloroquinolin-4-yl)amino)ethyl)-*N*^{2}-methylethane-1,2-diamine (**3g**)

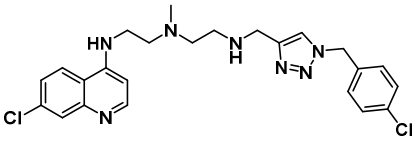
Column: 50-65% EEA in hexanes. Yield: 68%. Orange powder.

TLC: R_f = 0.28 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.41 (d, *J* = 7.1 Hz, 1H), 8.22 (s, 1H), 8.16 – 8.11 (m, 1H), 7.86 – 7.74 (m, 1H), 7.67 – 7.55 (m, 1H), 7.45 – 7.34 (m, 3H), 7.35 – 7.25 (m, 2H), 6.90 (d, *J* = 7.1 Hz, 1H), 5.61 (s, 2H), 4.50 (s, 2H), 4.10 (t, *J* = 6.3 Hz, 2H), 3.79 – 3.67 (m, 4H), 3.65 (dd, *J* = 9.1, 5.9 Hz, 2H), 3.10 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 156.08, 142.94, 139.65, 137.92, 137.49, 134.51, 129.10, 128.80, 128.03, 127.90, 126.62, 124.26, 119.14, 115.49, 98.74, 54.24, 54.04, 51.67, 41.79, 40.65, 40.25, 37.82.

MS (ESI) calc'd for $C_{24}H_{29}ClN_7$ $(M+H)^+$ 450.22 found 450.10



N^1-((1-(4-chlorophenyl)-1*H*-1,2,3-triazol-4-yl)methyl)-*N*^{2}-(2-((7-chloroquinolin-4-yl)amino)ethyl)-*N*^{2}-methylethane-1,2-diamine (**3h**)

Column: 50-70% EEA in hexanes. Yield: 22%. Pale orange powder.

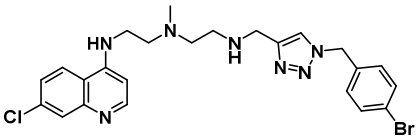
TLC: R_f = 0.27 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.44 (d, *J* = 7.1 Hz, 1H), 8.23 (s, 1H), 8.19 (dd, *J* = 9.1, 3.3 Hz, 1H), 7.87 (d, *J* = 2.2 Hz, 1H), 7.72 – 7.56 (m, 1H), 7.36 (dd, *J* = 8.6, 2.8 Hz, 2H), 7.26 (d, *J* = 8.5 Hz, 2H), 6.91 (d, *J* = 7.1 Hz, 1H), 5.61 (s, 2H), 4.51 (s, 2H), 4.09 (t, *J* = 6.3 Hz, 2H), 3.83 – 3.69 (m, 4H), 3.65 (dd, *J* = 9.3, 5.7 Hz, 2H), 3.10 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 156.16, 142.95, 139.70, 138.00, 137.56, 134.00, 133.13, 129.54, 128.99, 127.96, 126.66, 124.25, 119.27, 115.56, 98.70, 54.21, 53.32, 51.62, 41.73, 40.62, 40.26, 37.81.

HRMS (ESI) calc'd for $C_{24}H_{28}Cl_2N_7$ $(M+H)^+$ 484.1778 found 484.1760.

IR (Neat): 3226 (w), 2937 (m), 2625 (m), 1610 (s), 1591 (s), 1452 (s).



N^1-((1-(4-bromobenzyl)-1*H*-1,2,3-triazol-4-yl)methyl)-*N*^{2}-(2-((7-chloroquinolin-4-yl)amino)ethyl)-*N*^{2}-methylethane-1,2-diamine (**3i**)

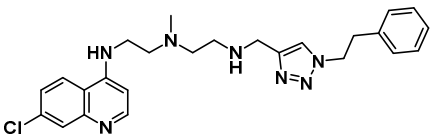
Column: 40-80% EEA in hexanes. Yield: 21%. White powder.

TLC: R_f = 0.06 (EtOAc:EtOH 3:1 + 2% NH_4OH; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.40 (d, *J* = 7.1 Hz, 1H), 8.23 (s, 1H), 8.12 (d, *J* = 9.2 Hz, 1H), 7.77 (d, *J* = 2.1 Hz, 1H), 7.57 (dd, *J* = 9.1, 2.1 Hz, 1H), 7.41 (d, *J* = 8.4 Hz, 2H), 7.13 (d, *J* = 8.4 Hz, 2H), 6.88 (d, *J* = 7.1 Hz, 1H), 5.55 (s, 2H), 4.51 (s, 2H), 4.08 (t, *J* = 6.2 Hz, 2H), 3.78 – 3.68 (m, 4H), 3.66 (dd, *J* = 9.0, 5.9 Hz, 2H), 3.10 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 155.99, 142.93, 139.63, 137.82, 137.52, 133.58, 131.90, 129.76, 127.88, 126.74, 124.26, 122.11, 119.13, 115.39, 98.75, 54.18, 53.33, 51.66, 41.76, 40.65, 40.35, 37.84.

MS (ESI) calc'd for $C_{24}H_{28}BrClN_7$ $(M+H)^+$ 528.13 found 528.05.



N^1-(7-chloroquinolin-4-yl)-N^2-methyl-N^2-(2-(((1-phenethyl-1*H*-1,2,3-triazol-4-yl)methyl)amino)ethyl)ethane-1,2-diamine (**3j**)

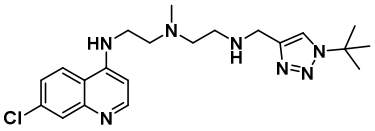
Column: 40-70% EEA in hexanes. Yield: 26%. White powder.

TLC: R_f = 0.08 (EtOAc:EtOH 3:1 + 2% NH_4OH; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.41 (d, *J* = 7.0 Hz, 1H), 8.14 (d, *J* = 9.1 Hz, 1H), 7.98 (s, 1H), 7.79 (t, *J* = 1.6 Hz, 1H), 7.61 (dt, *J* = 9.1, 1.6 Hz, 1H), 7.27 – 7.17 (m, 3H), 7.04 (d, *J* = 7.3 Hz, 2H), 6.90 (d, *J* = 7.2 Hz, 1H), 4.68 (t, *J* = 6.7 Hz, 2H), 4.43 (s, 2H), 4.10 (t, *J* = 6.3 Hz, 2H), 3.75 – 3.69 (m, 4H), 3.59 (dd, *J* = 9.1, 6.0 Hz, 2H), 3.16 (t, *J* = 6.7 Hz, 2H), 3.09 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 156.01, 142.94, 139.66, 137.86, 137.24, 136.98, 128.67, 127.90, 126.91, 126.57, 124.25, 119.16, 115.42, 98.74, 54.22, 51.76, 51.66, 41.70, 40.55, 40.25, 37.81, 35.59.

MS (ESI) calc'd for $C_{25}H_{31}ClN_7$ $(M+H)^+$ 464.23 found 464.10.



N^1-((1-(tert-butyl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-(2-((7-chloroquinolin-4-yl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3k**)

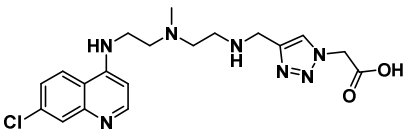
Column: 50-70% EEA in hexanes. Yield: 55%. Colorless syrup.

TLC: R_f = 0.25 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.45 (d, *J* = 7.1 Hz, 1H), 8.27 (s, 1H), 8.21 (d, *J* = 9.1 Hz, 1H), 7.89 (d, *J* = 2.0 Hz, 1H), 7.67 (dd, *J* = 9.1, 2.1 Hz, 1H), 6.94 (d, *J* = 7.1 Hz, 1H), 4.51 (s, 2H), 4.13 (t, *J* = 6.3 Hz, 2H), 3.78 – 3.72 (m, 4H), 3.67 (dd, *J* = 9.2, 5.9 Hz, 2H), 3.11 (s, 3H), 1.66 (s, 9H).

^{13}C NMR (151 MHz, D_2O) δ 156.17, 142.96, 139.70, 138.02, 136.74, 127.96, 124.25, 123.97, 119.26, 115.57, 98.73, 60.95, 54.30, 51.65, 41.88, 40.59, 40.20, 37.83, 28.85.

MS (ESI) calc'd for $C_{21}H_{31}ClN_7$ $(M+H)^+$ 416.23 found 416.05.



2-(4-(((2-((2-((7-chloroquinolin-4-yl)amino)ethyl)(methyl)amino)ethyl)amino)methyl)-1*H*-1,2,3-triazol-1-yl)acetic acid (**3l**)

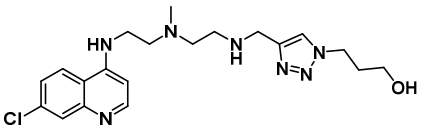
Chromatography: 0-100% Ultra in CH_2Cl_2. Yield: 45%. White powder.

TLC: R_f = 0.16 (100% Ultra; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.40 (d, *J* = 6.9 Hz, 1H), 8.31 (s, 1H), 8.07 (s, 1H), 7.67 (s, 1H), 7.52 (s, 1H), 6.91 (d, *J* = 7.0 Hz, 1H), 5.41 (s, 2H), 4.58 (s, 2H), 4.11 (m, 2H), 3.81 – 3.70 (m, 4H) 3.14 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 170.27, 155.84, 143.01, 139.59, 137.55, 128.08, 127.84, 124.37, 118.99, 115.24, 98.93, 54.33, 51.79, 51.16, 50.25, 41.99, 40.92, 40.52, 37.98.

MS (ESI) calc'd for $C_{19}H_{25}ClN_7O_2$ $(M+H)^+$ 418.18 found 418.05.



3-(4-(((2-((2-((7-chloroquinolin-4-yl)amino)ethyl)(methyl)amino)ethyl)amino)methyl)-1*H*-1,2,3-triazol-1-yl)propan-1-ol (**3m**)

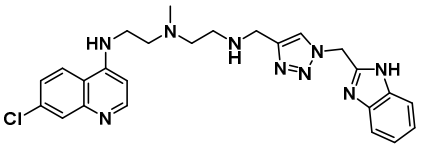
Chromatography: 0-50% Ultra in CH_2Cl_2. Yield: 60%. Yellow solid.

TLC: R_f = 0.06 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.35 (d, *J* = 6.8 Hz, 1H), 8.17 (s, 1H), 8.00 (d, *J* = 10.1 Hz, 1H), 7.64 (d, *J* = 15.3 Hz, 1H), 7.47 (d, *J* = 10.2 Hz, 1H), 6.85 (d, *J* = 7.0 Hz, 1H), 4.48 (s, 4H), 4.07 (t, *J* = 5.7 Hz, 2H), 3.72 (d, *J* = 7.1 Hz, 4H), 3.67 – 3.61 (m, 2H), 3.52 (t, *J* = 6.0 Hz, 2H), 3.07 (s, 3H), 2.07 (p, *J* = 6.1 Hz, 1H).

^{13}C NMR (151 MHz, D_2O) δ 155.80, 142.92, 139.58, 137.57, 137.18, 127.77, 126.60, 124.22, 118.90, 115.20, 98.80, 58.16, 54.26, 51.71, 47.55, 41.92, 40.76, 40.32, 37.87, 31.67.

MS (ESI) calc'd for $C_{20}H_{29}ClN_7O$ $(M+H)^+$ 418.21 found 418.05.



N^1-((1-((1*H*-benzo[d]imidazol-2-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-(2-((7-chloroquinolin-4-yl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3n**)

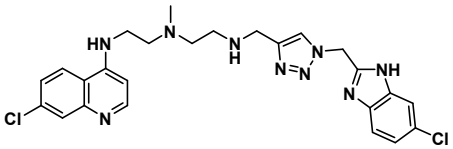
Column: 50-70% EEA in hexanes. Yield: 55%. White powder.

TLC: R_f = 0.14 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.49 (s, 1H), 8.41 (d, *J* = 7.1 Hz, 1H), 8.16 (d, *J* = 9.1 Hz, 1H), 7.77 (d, *J* = 2.0 Hz, 1H), 7.73 (dd, *J* = 6.3, 3.2 Hz, 2H), 7.62 – 7.52 (m, 3H), 6.90 (d, *J* = 7.1 Hz, 1H), 6.34 (s, 2H), 4.59 (s, 2H), 4.10 (t, *J* = 6.3 Hz, 2H), 3.82 – 3.66 (m, 6H), 3.11 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 156.12, 144.96, 142.92, 139.57, 138.14, 137.89, 130.56, 127.88, 127.82, 126.93, 124.28, 119.14, 115.49, 114.05, 98.75, 54.26, 51.68, 45.01, 41.77, 40.86, 40.31, 37.84.

MS (ESI) calc'd for $C_{25}H_{29}ClN_9$ $(M+H)^+$ 490.22 found 490.10.



N^1-((1-((6-chloro-1*H*-benzo[*d*]imidazol-2-yl)methyl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-(2-((7-chloroquinolin-4-yl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3o**)

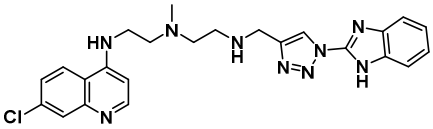
Column: 5-40% MeOH in EEA. Yield: 43%. Pale red solid

TLC: R_f = 0.10 (EEA:MeOH 3:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.51 (s, 1H), 8.35 (d, *J* = 7.1 Hz, 1H), 7.98 (d, *J* = 9.1 Hz, 1H), 7.53 (d, *J* = 20.5 Hz, 2H), 7.50 (d, *J* = 8.7 Hz, 1H), 7.41 (dt, *J* = 9.1, 1.7 Hz, 1H), 7.30 (dt, *J* = 8.9, 1.7 Hz, 1H), 6.85 (d, *J* = 7.2 Hz, 1H), 6.30 (s, 2H), 4.61 (s, 2H), 4.07 (t, *J* = 6.5 Hz, 2H), 3.82 – 3.77 (m, 2H), 3.74 (dd, *J* = 7.9, 4.8 Hz, 4H), 3.12 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 155.80, 146.34, 142.89, 139.35, 138.07, 137.51, 131.65, 131.57, 129.71, 128.06, 127.58, 126.99, 124.19, 118.78, 115.24, 115.10, 113.85, 98.80, 54.07, 51.73, 45.18, 41.77, 40.84, 40.50, 37.90.

MS (ESI) calc'd for $C_{25}H_{28}Cl_2N_9$ $(M+H)^+$ 524.18 found 524.10.



N^1-((1-(1*H*-benzo[*d*]imidazol-2-yl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-(2-((7-chloroquinolin-4-yl)amino)ethyl)-N^2-methylethane-1,2-diamine (**3p**)

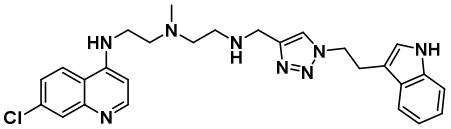
Chromatography: 100% EEA. Yield: 55%. Orange powder.

TLC: R_f = 0.22 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.55 (s, 1H), 8.14 (d, J = 7.0 Hz, 1H), 7.69 (d, J = 9.5 Hz, 1H), 7.14 – 7.10 (m, 4H), 7.13 – 7.04 (m, 2H), 6.65 (d, J = 7.1 Hz, 1H), 4.66 (s, 2H), 3.95 (t, J = 6.5 Hz, 2H), 3.81 (dd, J = 9.3, 6.0 Hz, 2H), 3.72 – 3.64 (m, 4H), 3.17 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 155.41, 142.52, 140.54, 138.91, 138.20, 137.01, 135.10, 127.14, 124.13, 123.88, 123.71, 118.21, 114.81, 114.64, 98.54, 53.79, 52.04, 41.49, 40.62, 40.37, 37.66.

MS (ESI) calc'd for $C_{24}H_{27}ClN_9$ $(M+H)^+$ 476.21 found 476.10.



N^1-((1-(2-(1*H*-indol-3-yl)ethyl)-1*H*-1,2,3-triazol-4-yl)methyl)-*N*^{2}-(2-((7-chloroquinolin-4-yl)amino)ethyl)-*N*^{2}-methylethane-1,2-diamine (**3q**)

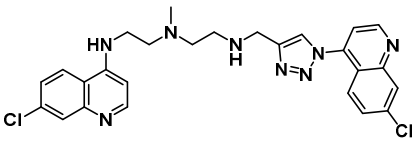
Column: 40-70% EEA in hexanes. Yield: 20%. Orange solid.

TLC: R_f = 0.08 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.38 (d, *J* = 7.1 Hz, 1H), 8.18 (d, J = 9.1 Hz, 1H), 7.99 – 7.83 (m, 2H), 7.68 (dd, J = 9.1, 2.1 Hz, 1H), 7.38 (d, J = 8.2 Hz, 1H), 7.30 (d, J = 8.0 Hz, 1H), 7.21 – 7.09 (m, 2H), 7.08 – 6.97 (m, 1H), 6.83 (d, J = 7.1 Hz, 1H), 4.73 (t, J = 6.5 Hz, 2H), 4.37 (s, 2H), 4.01 (t, J = 6.4 Hz, 2H), 3.74 – 3.52 (m, 4H), 3.49 – 3.39 (m, 2H), 3.32 (t, J = 6.5 Hz, 2H), 3.01 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 156.12, 142.81, 139.66, 138.03, 136.91, 135.86, 127.93, 126.57, 126.55, 124.08, 123.80, 121.76, 119.28, 119.05, 117.78, 115.56, 111.68, 110.05, 98.51, 54.00, 51.65, 51.54, 41.35, 40.30, 40.22, 37.82, 25.51.

MS (ESI) calc'd for $C_{27}H_{32}ClN_8$ $(M+H)^+$ 503.24 found 503.15



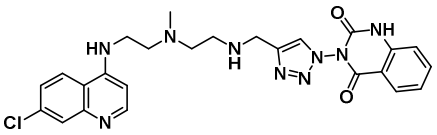
N^1-(7-chloroquinolin-4-yl)-*N*^{2}-(2-(((1-(7-chloroquinolin-4-yl)-1*H*-1,2,3-triazol-4-yl)methyl)amino)ethyl)-*N*^{2}-methylethane-1,2-diamine (**3r**)

Chromatography: 20-50% Ultra in CH_2Cl_2. Yield: 53%.White solid.

TLC: R_f = 0.13 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (300 MHz, D_2O) δ 9.12 (d, *J* = 5.5 Hz, 1H), 8.85 (s, 1H), 8.33 (d, *J* = 7.1 Hz, 1H), 8.05 (d, *J* = 2.0 Hz, 1H), 7.98 (d, *J* = 3.6 Hz, 1H), 7.96 – 7.91 (m, 2H), 7.64 (dd, *J* = 9.2, 2.0 Hz, 1H), 7.44 (d, *J* = 2.0 Hz, 1H), 7.31 (dd, *J* = 9.1, 2.1 Hz, 1H), 6.86 (d, *J* = 7.2 Hz, 1H), 4.73 (s, 2H), 4.08 (t, *J* = 6.2 Hz, 2H), 3.89 – 3.60 (m, 6H), 3.16 (s, 3H).

MS (ESI) calc'd for $C_{26}H_{27}Cl_2N_8$ $(M+H)^+$ 521.17 found 521.10



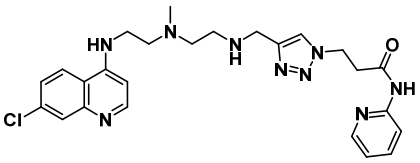
3-(4-(((2-((2-((7-chloroquinolin-4-yl)amino)ethyl)(methyl)amino)ethyl)amino)methyl)-1*H*-1,2,3-triazol-1-yl)quinazoline-2,4(1*H*,3*H*)-dione (LN-2013-temp-029; **3s**)

Chromatogtaphy: 0-50% Ultra in CH_2Cl_2. Yield: 49%. White solid.

TLC: R_f = 0.09 (CH_2Cl_2:Ultra 2:1; UV);

^{1}H NMR (300 MHz, D_2O) δ 8.36 (s, 1H), 8.24 (d, *J* = 7.1 Hz, 1H), 7.87 (d, *J* = 9.0 Hz, 1H), 7.61 – 7.46 (m, 2H), 7.44 – 7.32 (m, 2H), 7.10 (t, *J* = 7.6 Hz, 1H), 6.84 (d, *J* = 8.2 Hz, 1H), 6.80 (d, *J* = 7.1 Hz, 1H), 4.51 (s, 2H), 4.03 (t, *J* = 6.5 Hz, 2H), 3.86 – 3.61 (m, 4H), 3.52 (dd, *J* = 10.0, 5.7 Hz, 2H), 3.15 (s, 3H).

MS (ESI) calc'd for $C_{27}H_{31}ClN_9O_2$ $(M+H)^+$ 548.23 found 548.15.



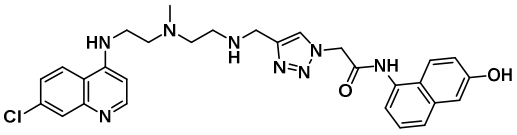
3-(4-(((2-((2-((7-chloroquinolin-4-yl)amino)ethyl)(methyl)amino)ethyl)amino)methyl)-1*H*-1,2,3-triazol-1-yl)-*N*-(pyridin-2-yl)propanamide (**3t**)

Column: 0-100% Ultra in CH_2Cl_2. Yield: 39%. White solid.

TLC: R_f = 0.50 (100% Ultra; UV).

^{1}H NMR (300 MHz, D_2O) δ 8.46 – 8.31 (m, 3H), 8.27 (s, 1H), 8.19 (d, *J* = 9.2 Hz, 1H), 7.87 (d, *J* = 2.0 Hz, 1H), 7.65 (dd, *J* = 9.2, 2.0 Hz, 1H), 7.60 (t, *J* = 7.5 Hz, 1H), 7.46 (d, *J* = 8.7 Hz, 1H), 6.91 (d, *J* = 7.2 Hz, 1H), 4.86 (t, *J* = 6.3 Hz, 2H), 4.49 (s, 2H) 4.10 (t, *J* = 6.2 Hz, 2H), 3.84 – 3.58 (m, 6H), 3.32 (t, *J* = 6.2 Hz, 2H), 3.08 (s, 3H).

MS (ESI) calc'd for $C_{25}H_{31}ClN_9O$ $(M+H)^+$ 508.23 found 508.10.



2-(4-(((2-((2-((7-chloroquinolin-4-yl)amino)ethyl)(methyl)amino)ethyl)amino)methyl)-1*H*-1,2,3-triazol-1-yl)-*N*-(6-hydroxynaphthalen-1-yl)acetamide (**3u**)

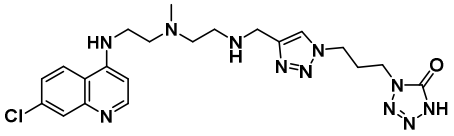
Column: 0-100% Ultra in CH_2Cl_2. Yield: 56%. Pale yellow powder.

TLC: R_f = 0.16 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 8.48 (s, 1H), 8.20 (d, J = 7.0 Hz, 1H), 7.61 (d, J = 9.0 Hz, 1H), 7.60 (d, J = 2.0 Hz, 1H), 7.48 (d, J = 8.8 Hz, 1H), 7.42 (d, J = 8.2 Hz, 1H), 7.40 – 7.26 (m, 2H), 7.14 (t, J = 7.8 Hz, 1H), 6.96 (d, J = 2.4 Hz, 1H), 6.93 (dd, J = 8.8, 2.4 Hz, 1H), 6.56 (d, J = 7.1 Hz, 1H), 5.74 (s, 2H), 4.63 (s, 2H), 3.71 (t, J = 6.4 Hz, 2H), 3.55 (dd, J = 9.5, 5.8 Hz, 2H), 3.49 – 3.36 (m, 4H), 2.93 (s, 3H).

^{13}C NMR (151 MHz, D_2O) δ 167.26, 155.54, 154.16, 142.28, 139.37, 137.55, 137.38, 130.12, 129.52, 129.32, 128.80, 128.66, 127.48, 127.44, 124.06, 123.71, 122.64, 118.80, 118.01, 114.88, 103.45, 98.52, 53.75, 52.51, 51.61, 41.59, 40.39, 40.18, 37.89.

MS (ESI) calc'd for $C_{29}H_{32}ClN_8O_2$ $(M+H)^+$ 559.23 found 559.10.



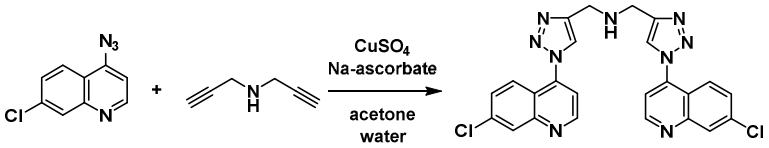
1-(3-(4-(((2-((2-((7-chloroquinolin-4-yl)amino)ethyl)(methyl)amino)ethyl)amino)methyl)-1*H*-1,2,3-triazol-1-yl)propyl)-1,4-dihydro-5*H*-tetrazol-5-one (**3v**)

Column: 0-100% Ultra in CH_2Cl_2. Yield: 57%. Pale yellow powder.

TLC: R_f = 0.50 (100% Ultra; UV).

1H NMR (300 MHz, D_2O) δ 8.44 (d, *J* = 7.1 Hz, 1H), 8.21 (s, 1H), 8.19 (d, *J* = 8.7 Hz, 1H), 7.89 (d, *J* = 2.0 Hz, 1H), 7.67 (dd, *J* = 9.1, 2.1 Hz, 1H), 6.92 (d, *J* = 7.1 Hz, 1H), 4.54 (t, *J* = 6.5 Hz, 2H), 4.50 (s, 2H), 4.11 (t, *J* = 6.2 Hz, 2H), 3.96 (t, *J* = 6.5 Hz, 2H), 3.82 – 3.68 (m, 4H), 3.69 – 3.57 (m, 2H), 3.11 (s, 3H), 2.48 (p, *J* = 6.5 Hz, 2H).

MS (ESI) calc'd for $C_{21}H_{29}ClN_{11}O$ $(M+H)^+$ 486.22 found 486.05



bis((1-(7-chloroquinolin-4-yl)-1H-1,2,3-triazol-4-yl)methyl)amine (**5**)

4-azido-7-chloroquinoline (519 mg, 2.53 mmol, 2 equiv.) and dipropargylamine (118 mg, 1.27 mmol, 1 equiv.) was suspended in acetone (10 mL) and water (5 mL). Aqueous solutions of copper sulfate (0.127 M, 2 mL, 0.253 mmol, 0.2 equiv.) and sodium L-ascorbate (0.317 M, 2 mL, 0.634 mmol, 0.5 equiv.) were then added and the heterogeneous mixture was stirred for 40 hours at room temperature. At this point the reaction mixture had solidified. The solids were treated with 100 mL 1 M HCl and extracted with Et_2O (30 mL). Conc. NH_4OH was added to the aqueous phase to cause precipitation. The precipitate was filtered off and washed with dilute (1 M) NH_4OH. After air drying, the solid residue was recrystalized from MeOH:H_2O (1:1, ca 20 mL) to give the amine product (337 mg, 0.67 mmol, 53%). This was

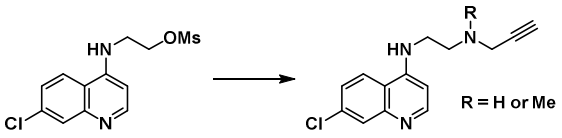
transformed into the ammonium chloride salt by treatment with 0.5 M HCl in MeOH. 53% Yield as a white powder.

^{1}H NMR (600 MHz, DMSO-*d6*) δ 9.20 (d, *J* = 4.6 Hz, 2H), 8.97 (s, 2H), 8.33 (d, *J* = 2.2 Hz, 2H), 7.98 (d, *J* = 9.1 Hz, 2H), 7.86 (d, *J* = 4.7 Hz, 2H), 7.81 (dd, *J* = 9.1, 2.2 Hz, 2H), 4.70 – 4.47 (m, 4H).

^{13}C NMR (151 MHz, DMSO-*d6*) δ 152.44, 149.31, 140.19, 139.23, 135.50, 129.05, 128.23, 128.22, 125.02, 120.32, 117.34, 40.66.

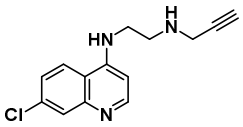
HRMS (ESI) calc'd for $C_{24}H_{18}Cl_2N_9$ $(M+H)^+$ 502.1057 found 502.1044.

IR (Neat): 3343 (m), 2752 (m), 2598 (m), 1592 (s), 1455 (s), 1363 (m).



General procedure for synthesis of **SI2a** and **SI2b**.

2-((7-chloroquinolin-4-yl)amino)ethyl methanesulfonate[1] (1 equiv.) was added to a flask along with THF (5 mL), triethylamine (10 equiv.) and propargylamine (3 equiv.). The reaction mixture was heated to 60 °C and stirred for 48 hours. After cooling to room temperature, the volatiles were removd *in vacuo* and the residue underwent column chromatography to give the desired alkyne.



N^1-(7-chloroquinolin-4-yl)-N^2-(prop-2-yn-1-yl)ethane-1,2-diamine (**SI2a**)

Chormatography: 0-5% MeOH in CH_2Cl_2. Yield: 52%. Pale orange powder.

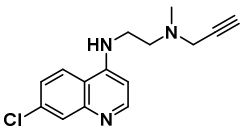
TLC: R_f: 0.5 (CH_2Cl_2:MeOH 7:3; UV).

^{1}H NMR (600 MHz, $CDCl_3$) δ 8.54 (d, *J* = 5.3 Hz, 1H), 7.96 (d, *J* = 2.2 Hz, 1H), 7.71 (d, *J* = 8.9 Hz, 1H), 7.37 (dd, *J* = 8.9, 2.2 Hz, 1H), 6.41 (d, *J* = 5.3 Hz, 1H), 5.71 (s, 1H), 3.51 (d, *J* = 2.4 Hz, 2H), 3.40 – 3.34 (m, 2H), 3.18 – 3.13 (m, 2H), 2.27 (t, *J* = 2.4 Hz, 1H).

^{13}C NMR (151 MHz, $CDCl_3$) δ 152.11, 149.75, 149.14, 134.87, 128.82, 125.32, 121.18, 117.32, 99.26, 81.63, 71.95, 46.09, 41.72, 37.53.

HRMS (ESI) calc'd for $C_{14}H_{15}ClN_3$ $(M+H)^+$ 260.0949 found 260.0968.

IR (Neat): 3217 (w), 2963 (w), 2835 (w), 1579 (s), 1457 (m), 1371 (m).



N^1-(7-chloroquinolin-4-yl)-N^2-methyl-N^2-(prop-2-yn-1-yl)ethane-1,2-diamine (**SI2b**)

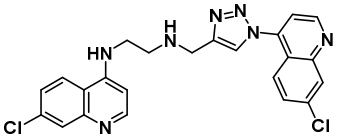
Chromatography: 0-15% MeOH in CH_2Cl_2.Yield: 49%. Pale yellow oil.

^{1}H NMR (600 MHz, $CDCl_3$) δ 8.54 (d, *J* = 5.3 Hz, 1H), 7.96 (d, *J* = 2.1 Hz, 1H), 7.70 (d, *J* = 9.0 Hz, 1H), 7.37 (dd, *J* = 8.9, 2.1 Hz, 1H), 6.39 (d, *J* = 5.3 Hz, 1H), 5.78 (s, 1H), 3.44 (d, *J* = 2.4 Hz, 2H), 3.31 (q, *J* = 5.3 Hz, 2H), 2.88 (t, *J* = 6.0 Hz, 2H), 2.40 (s, 3H), 2.29 (t, *J* = 2.4 Hz, 1H).

^{13}C NMR (151 MHz, $CDCl_3$) δ 152.09, 149.71, 149.08, 134.86, 128.76, 125.27, 121.25, 117.29, 99.25, 78.04, 73.69, 52.98, 45.44, 41.31, 39.72.

HRMS (ESI) calc'd for $C_{15}H_{17}ClN_3$ $(M+H)^+$ 274.1106 found 274.1130.

IR ($CHCl_3$): 3220 (w), 2943 (w), 2800 (w), 1611 (m), 1578 (s), 1451 (m), 1329 (m).



N^1-(7-chloroquinolin-4-yl)-N^2-((1-(7-chloroquinolin-4-yl)-1*H*-1,2,3-triazol-4-yl)methyl)ethane-1,2-diamine (**6a**)

Prepared following the general procedure for triazole formation (*vide supra*)

Chromatography: 100% EEA. Yield: 60% White powder.

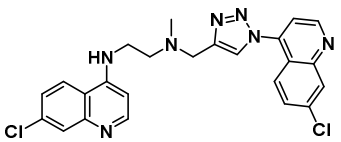
TLC: R_f = 0.50 (CH_2Cl_2:Ultra 2:1; UV).

^{1}H NMR (600 MHz, D_2O) δ 9.05 (d, *J* = 4.9 Hz, 1H), 8.75 (s, 1H), 8.38 (d, *J* = 7.1 Hz, 1H), 8.19 (d, *J* = 2.1 Hz, 1H), 8.08 (d, *J* = 9.1 Hz, 1H), 7.84 (d, *J* = 9.2 Hz, 1H), 7.72 (d, *J* = 5.0 Hz, 1H), 7.67 (dd, *J* = 9.1, 2.1 Hz, 1H), 7.65 (d, *J* = 2.0 Hz, 1H), 7.53 (dd, *J* = 9.1, 2.1 Hz, 1H), 6.86 (d, *J* = 7.0 Hz, 1H), 4.72 (s, 2H), 4.06 (t, *J* = 5.8 Hz, 2H), 3.69 (t, *J* = 5.8 Hz, 2H).

^{13}C NMR (151 MHz, D_2O) δ 155.93, 150.68, 147.19, 142.79, 139.57, 138.68, 137.75, 130.01, 129.75, 128.02, 127.90, 126.18, 124.53, 123.89, 119.94, 119.02, 116.54, 115.26, 99.99, 98.53, 44.57, 41.50, 39.44.

HRMS (ESI) calc'd for $C_{23}H_{20}Cl_2N_7$ $(M+H)^+$ 464.1152 found 464.1143.

IR (neat): 3214 (w), 2936 (m), 2768 (m), 2630 (m), 1612 (s), 1593 (s), 1563 (s), 1453 (s).



N^1-(7-chloroquinolin-4-yl)-N^2-((1-(7-chloroquinolin-4-yl)-1*H*-1,2,3-triazol-4-yl)methyl)-N^2-methylethane-1,2-diamine (**6b**)

Prepared following the general procedure for triazole formation (*vide supra*)

Chromatography: 100% EEA. Yield: 65%. White powder.

TLC: R_f = 0.48 (CH_2Cl_2:Ultra 2:1; UV).

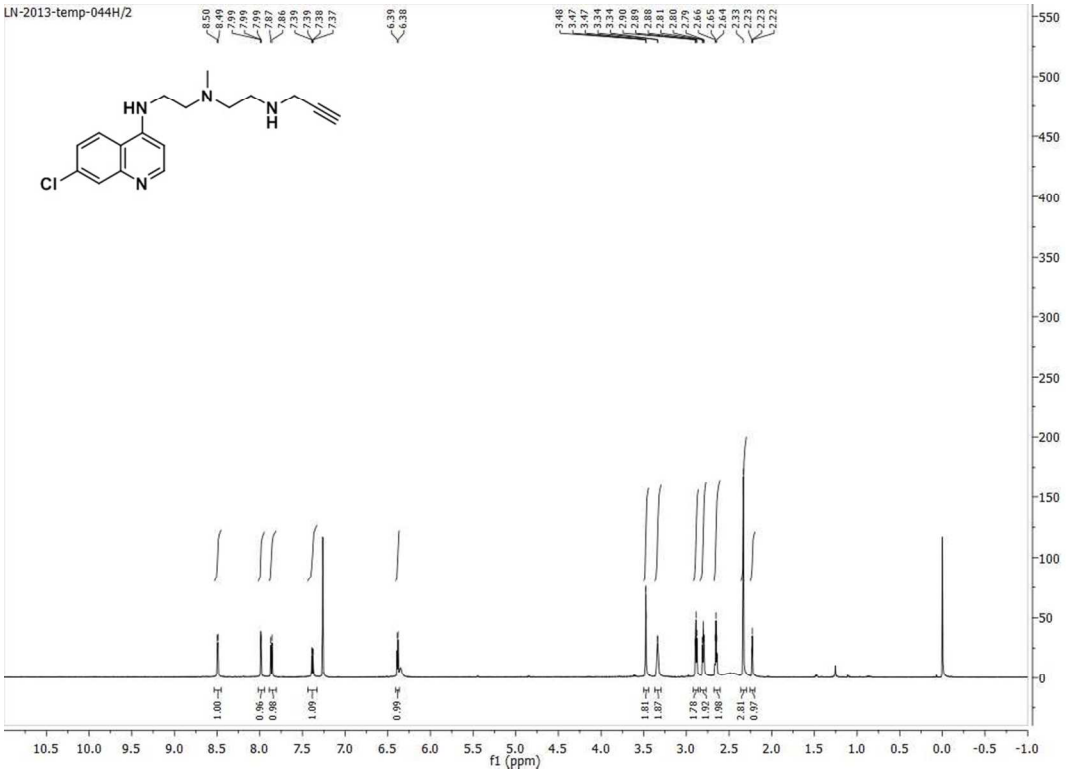
^{1}H NMR (600 MHz, D_2O) δ 9.03 (d, *J* = 4.9 Hz, 1H), 8.75 (s, 1H), 8.36 (d, *J* = 7.1 Hz, 1H), 8.24 (d, *J* = 2.1 Hz, 1H), 8.03 (dd, *J* = 8.5, 1.1 Hz, 1H), 7.78 (d, *J* = 9.1 Hz, 1H), 7.66 (dd, *J* = 9.1, 2.1 Hz, 1H), 7.60 (d, *J* = 4.9 Hz, 1H), 7.49 (s, 1H), 7.48 (d, *J* = 2.1 Hz, 1H), 6.82 (d, *J* = 7.1 Hz, 1H), 4.83 (s, 2H), 4.11 (t, *J* = 5.6 Hz, 2H), 3.77 (s, 2H), 3.24 (s, 3H).

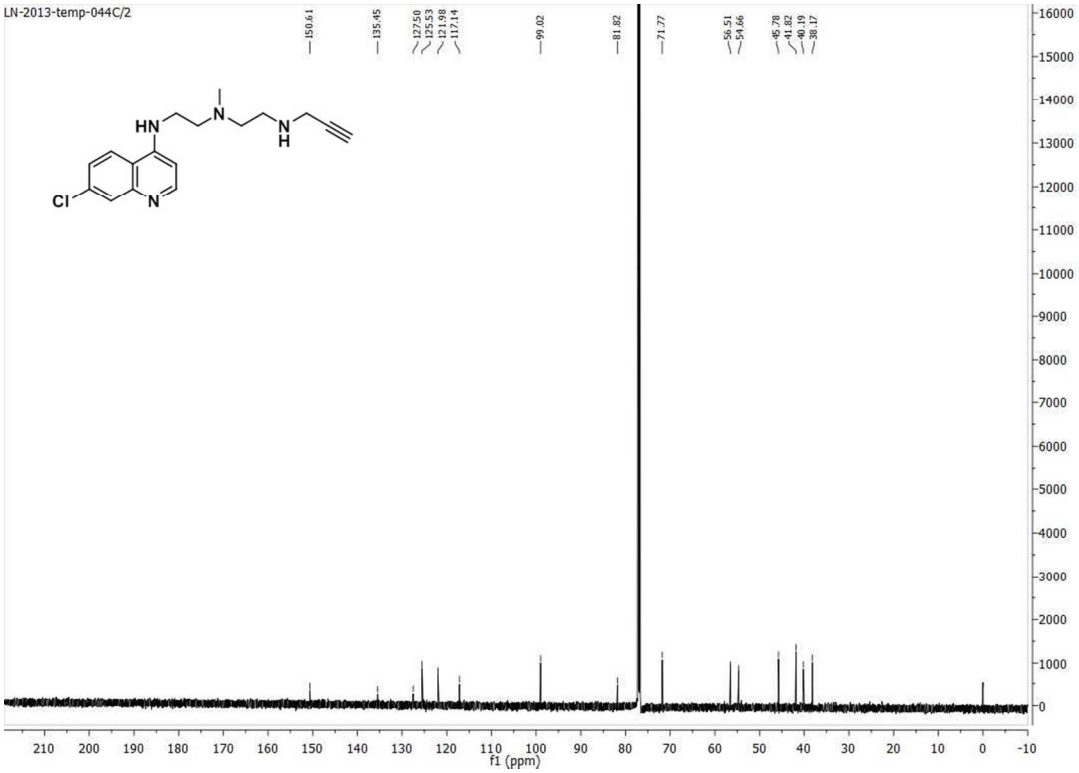
^{13}C NMR (151 MHz, D_2O) δ 155.64, 150.94, 147.76, 142.88, 139.62, 137.71, 137.52, 129.88, 128.55, 128.06, 126.74, 124.30, 123.69, 119.44, 118.91, 116.00, 115.15, 100.00, 98.58, 52.85, 50.51, 41.70, 38.05.

HRMS (ESI) calc'd for $C_{24}H_{22}Cl_2N_7$ $(M+H)^+$ 478.1308 found 478.1289.

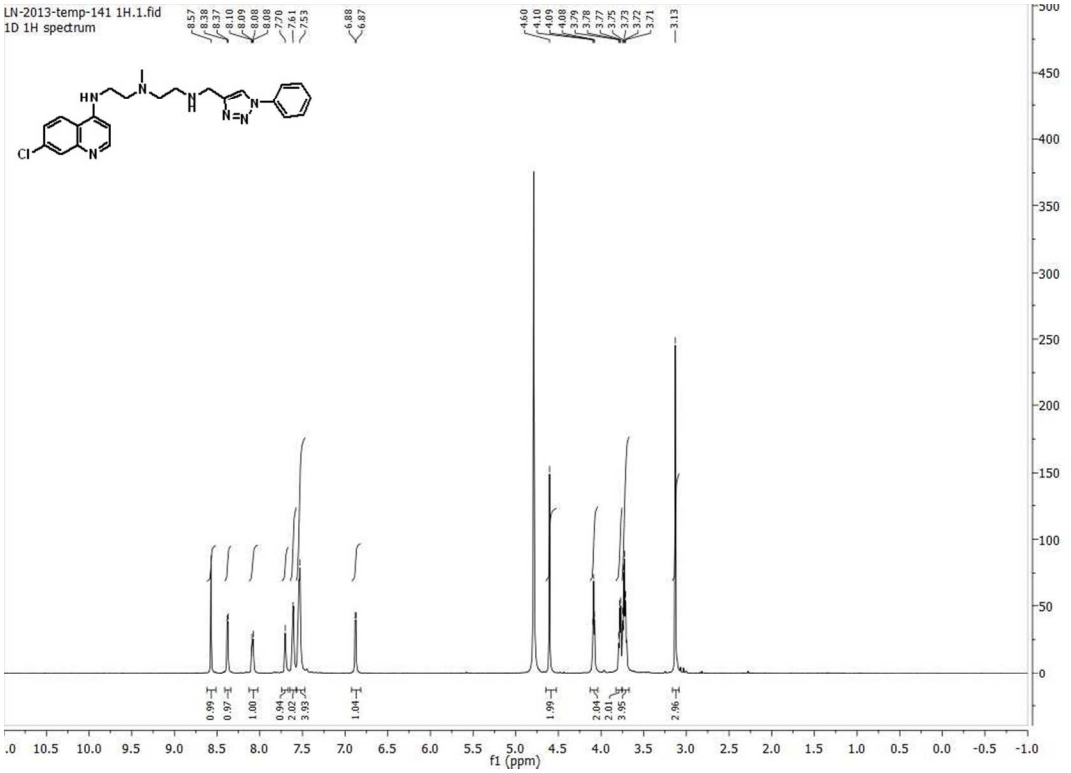
IR: (Neat): 3366 (m), 3240 (m), 2634 (m), 1609 (s), 1591 (s), 1453 (s).

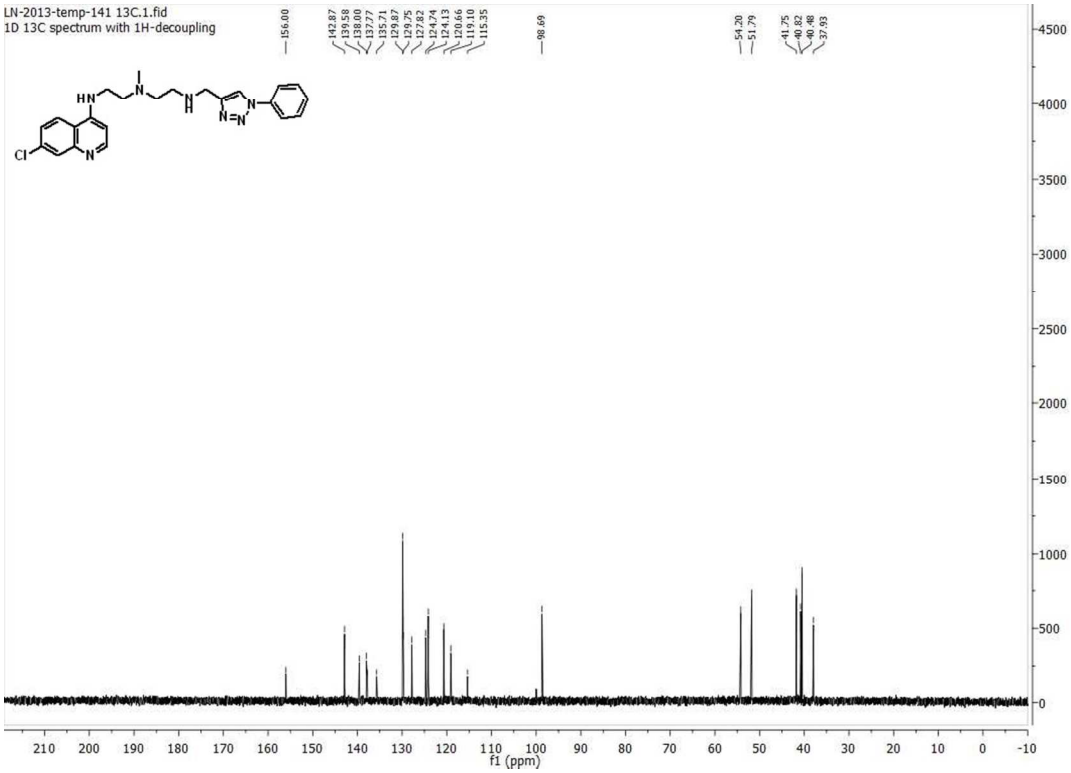
1



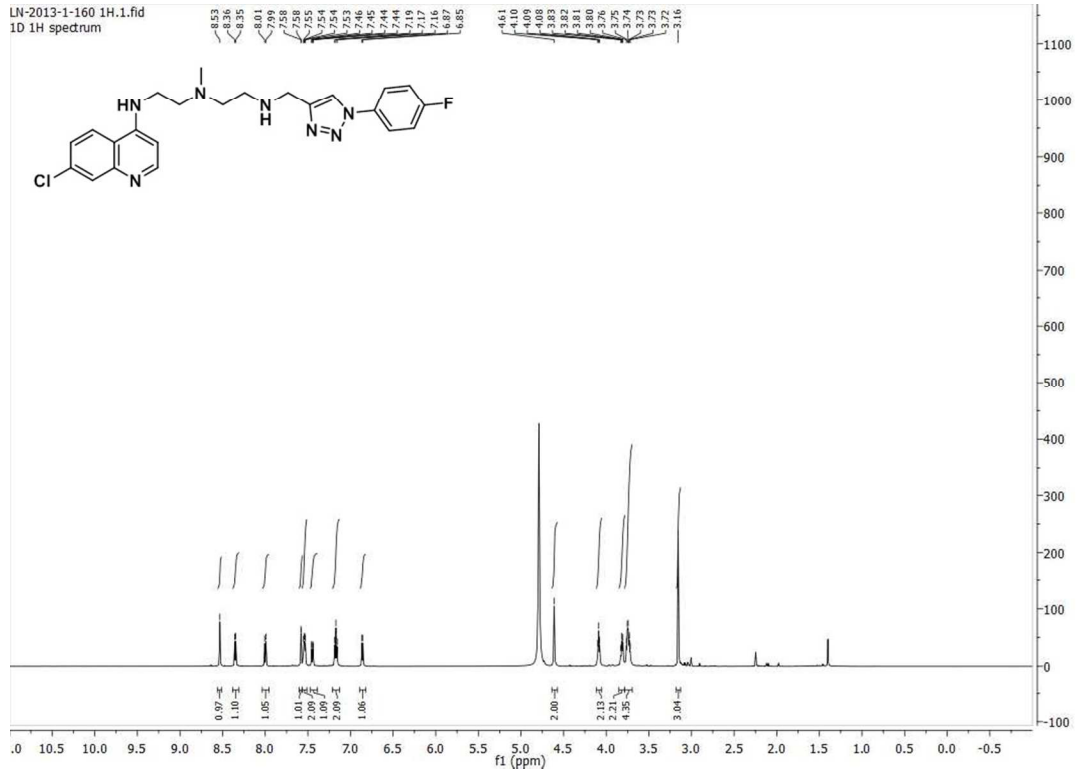


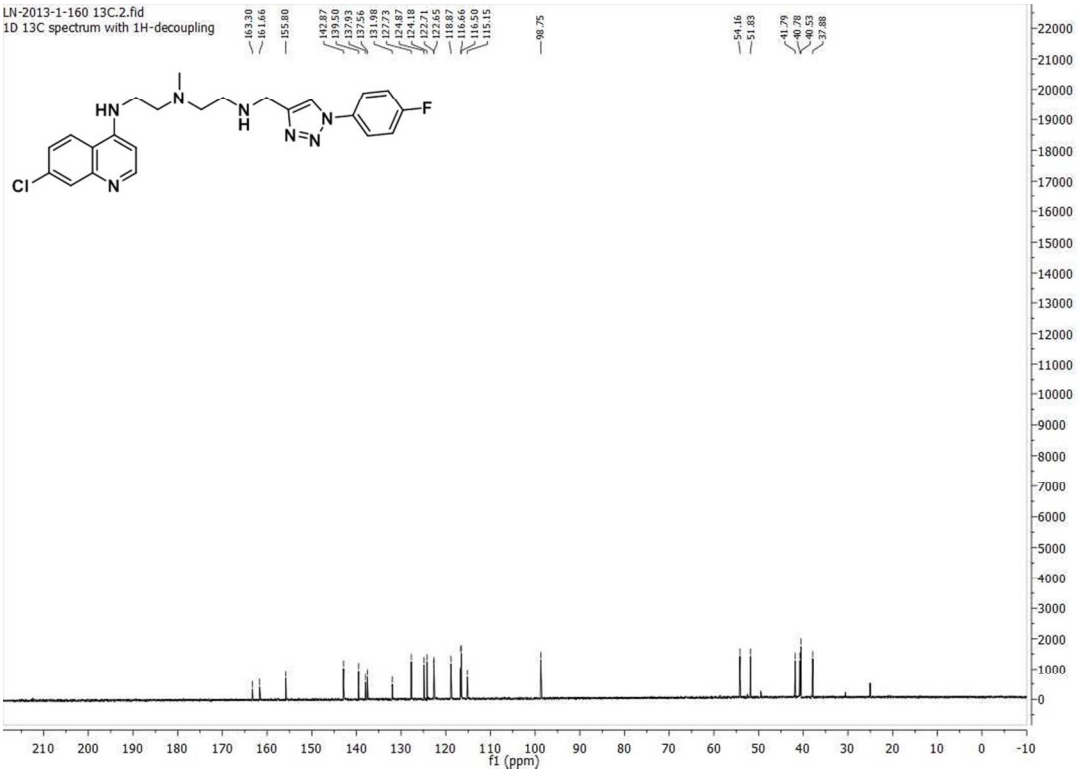
3a


LN-2013-temp-141 1H.1.fid
1D 1H spectrum
f1 (ppm)

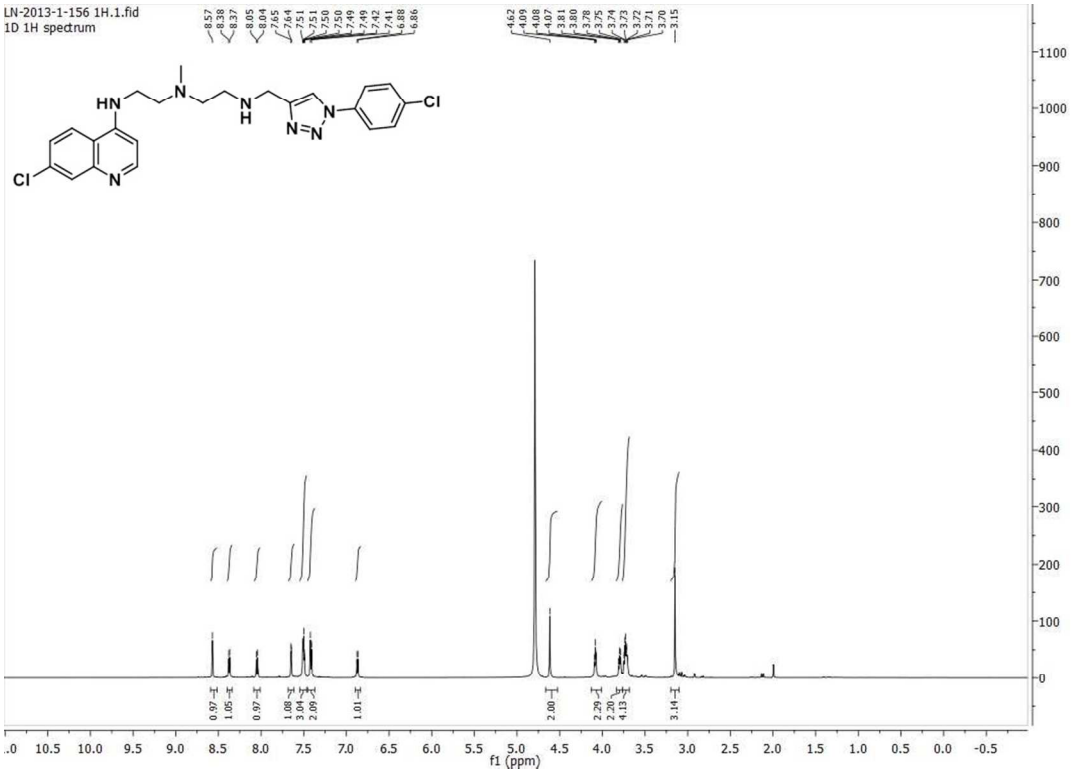

LN-2013-temp-141 13C.1.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

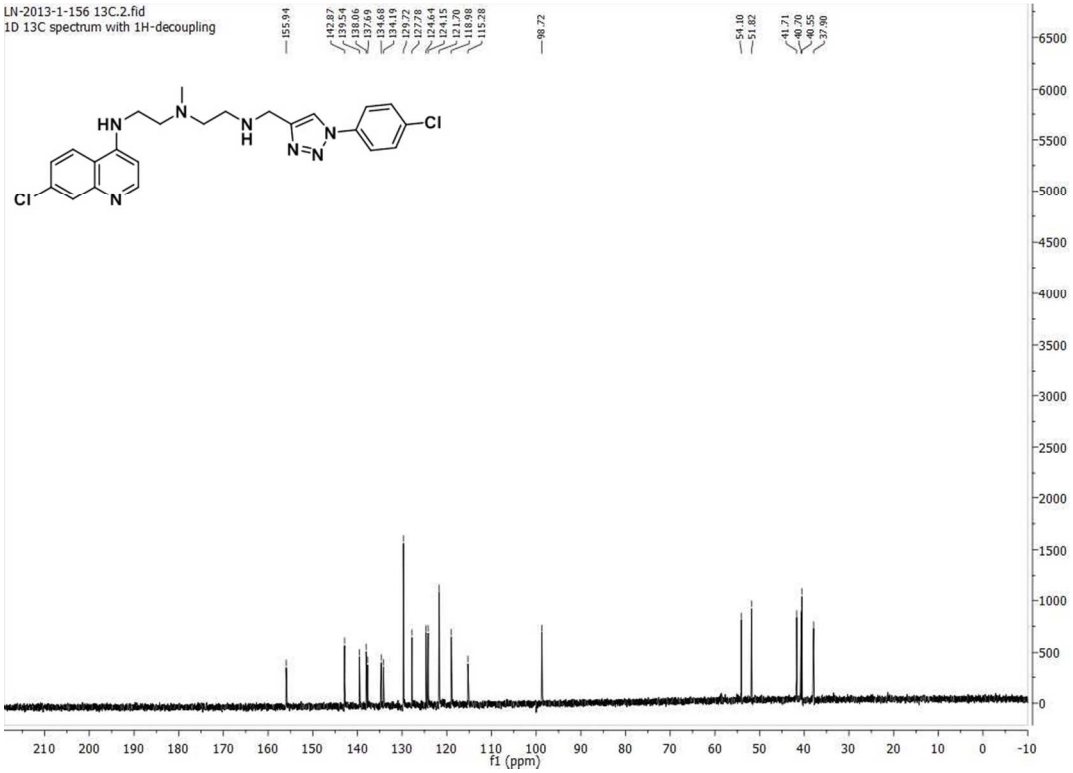
3b


LN-2013-1-160 1H.1.fid
1D 1H spectrum
f1 (ppm)

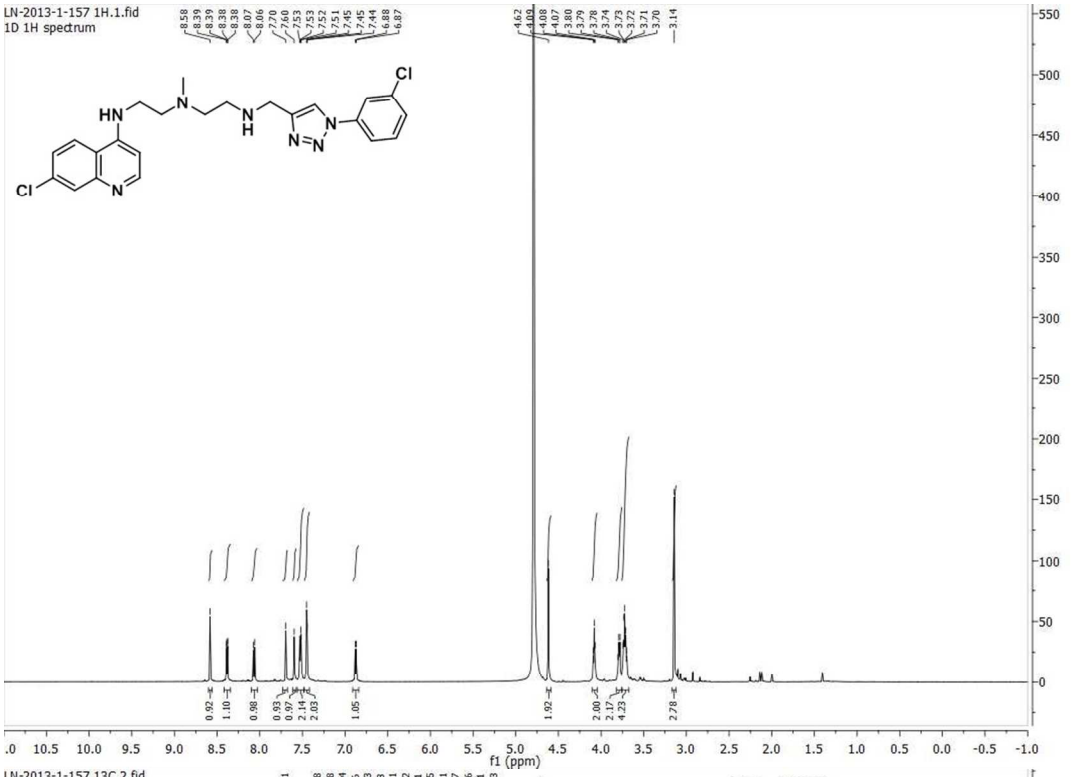

LN-2013-1-160 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

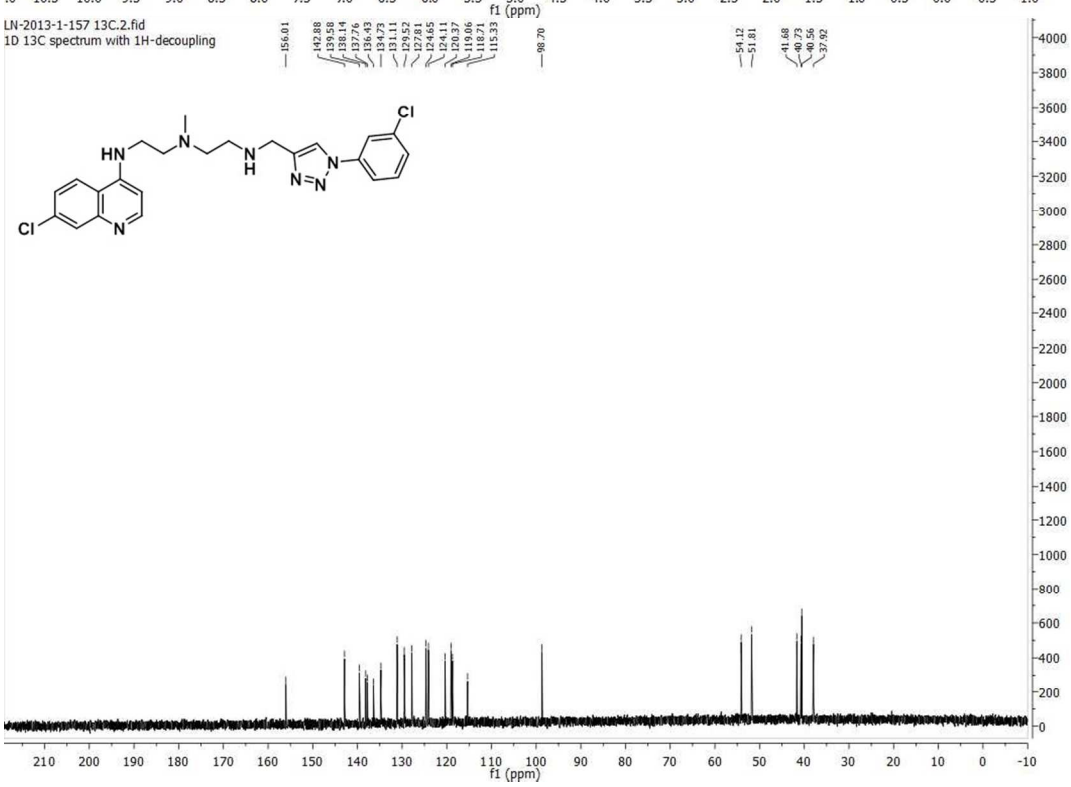
3c


LN-2013-1-156 1H.1.fid
1D 1H spectrum
f1 (ppm)

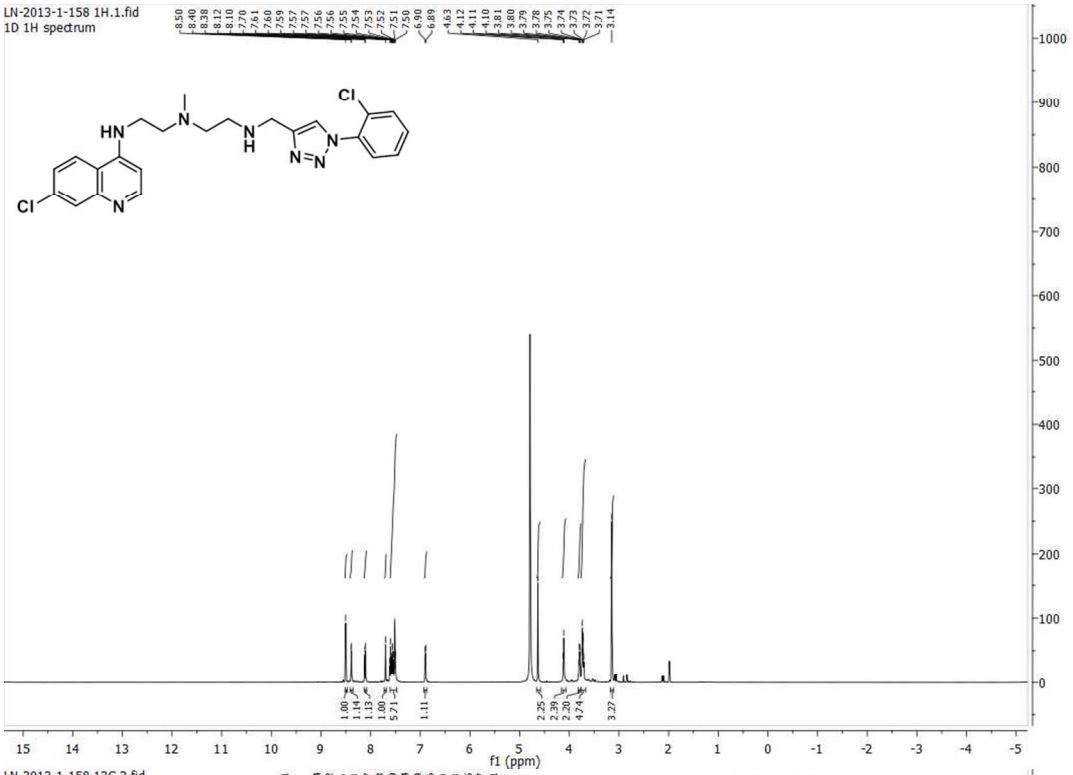

LN-2013-1-156 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

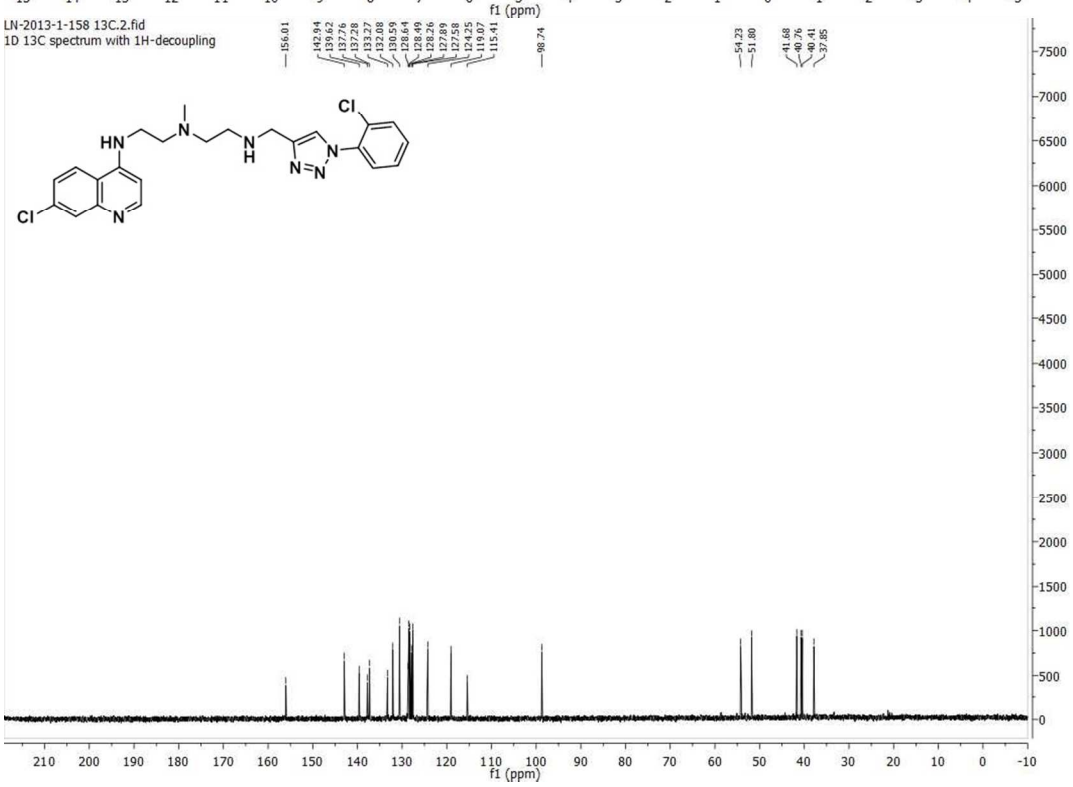
3d


LN-2013-1-157 1H.1.fid
1D 1H spectrum
f1 (ppm)

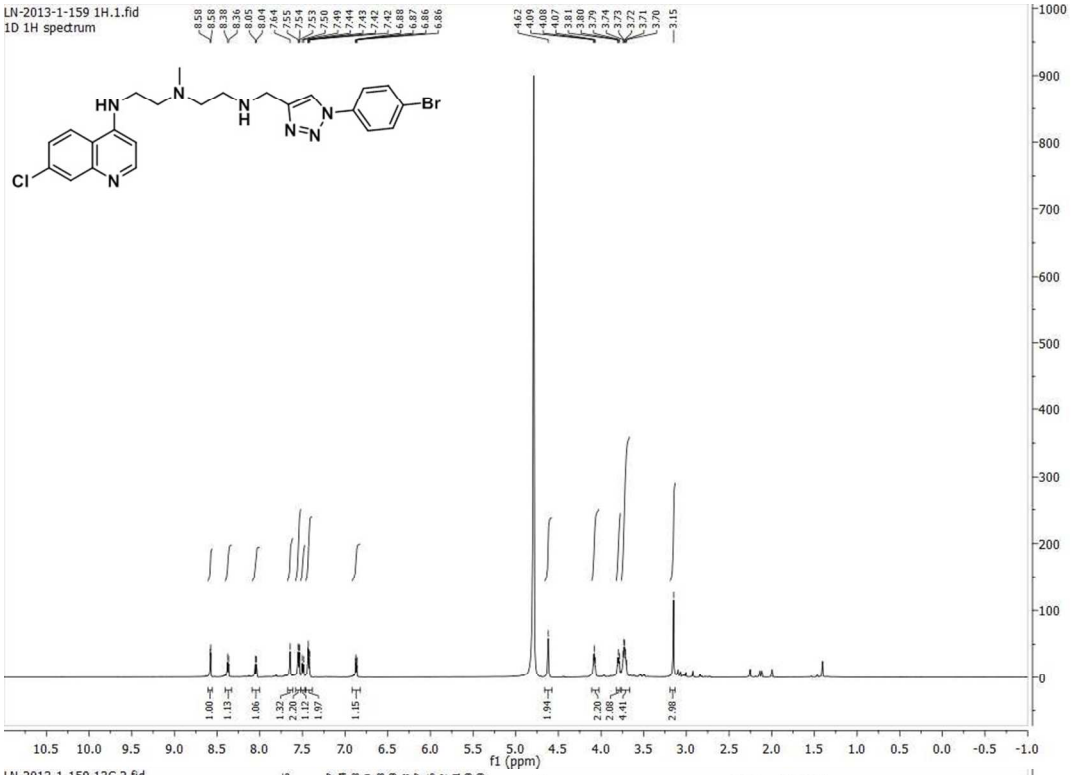

LN-2013-1-157 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

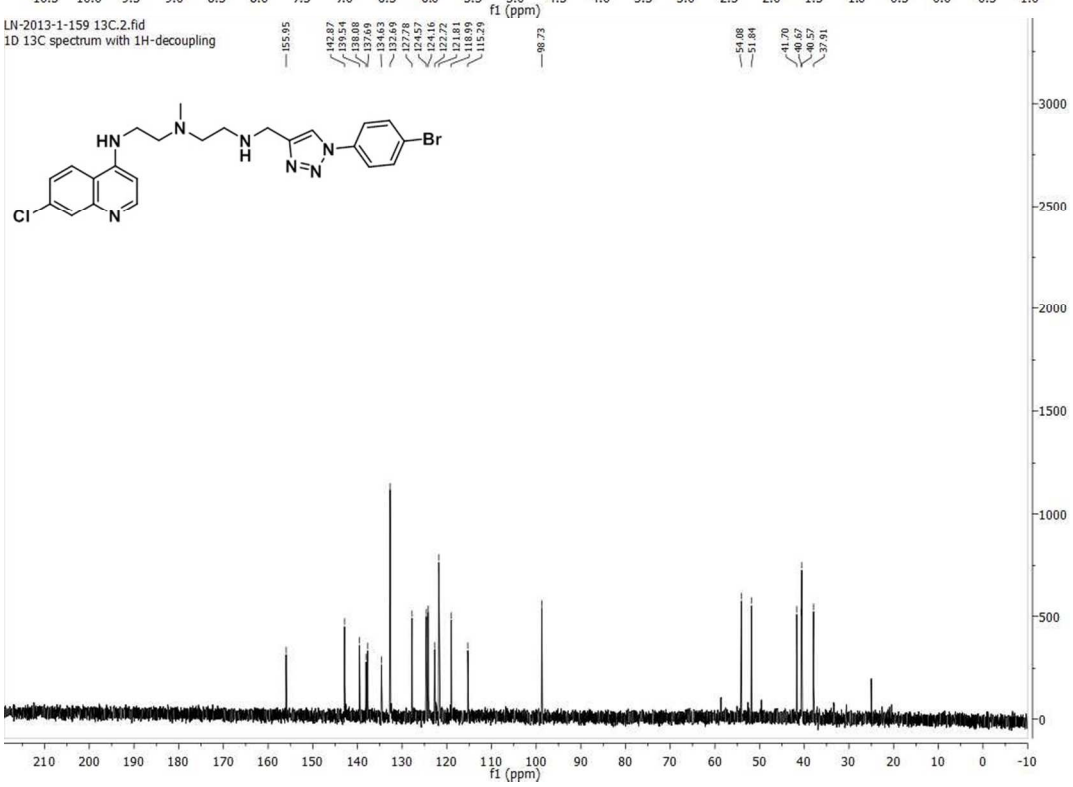
3e


LN-2013-1-158 1H.1.fid
1D 1H spectrum
f1 (ppm)

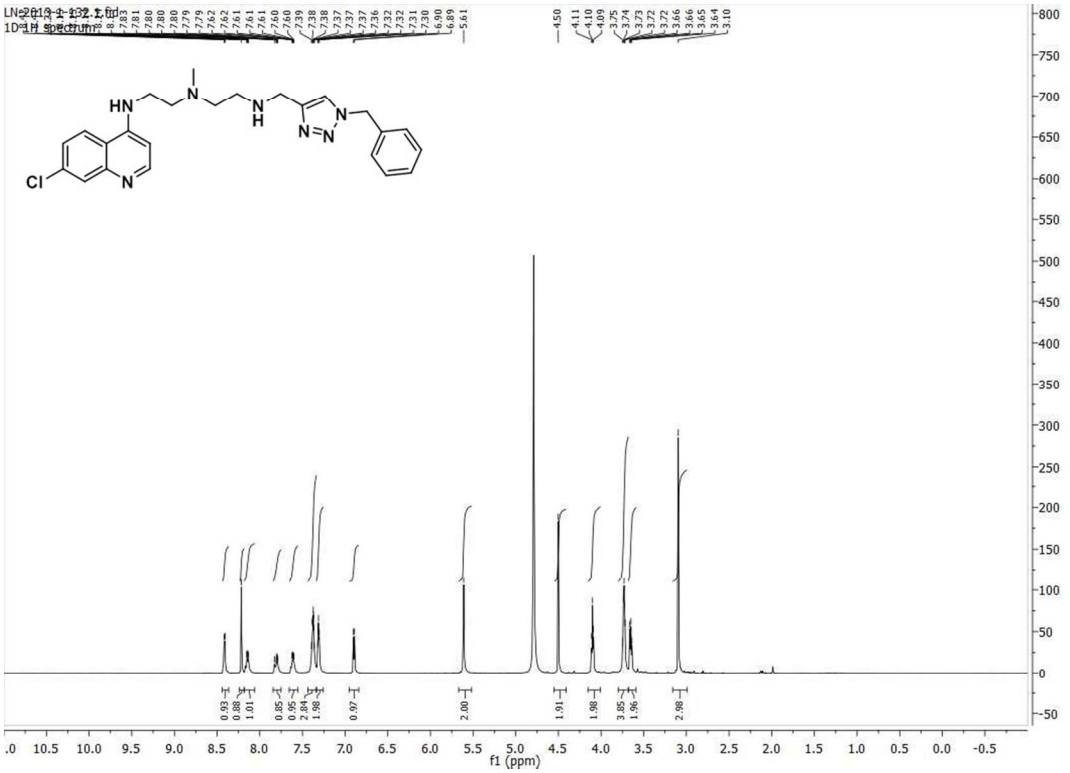

LN-2013-1-158 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

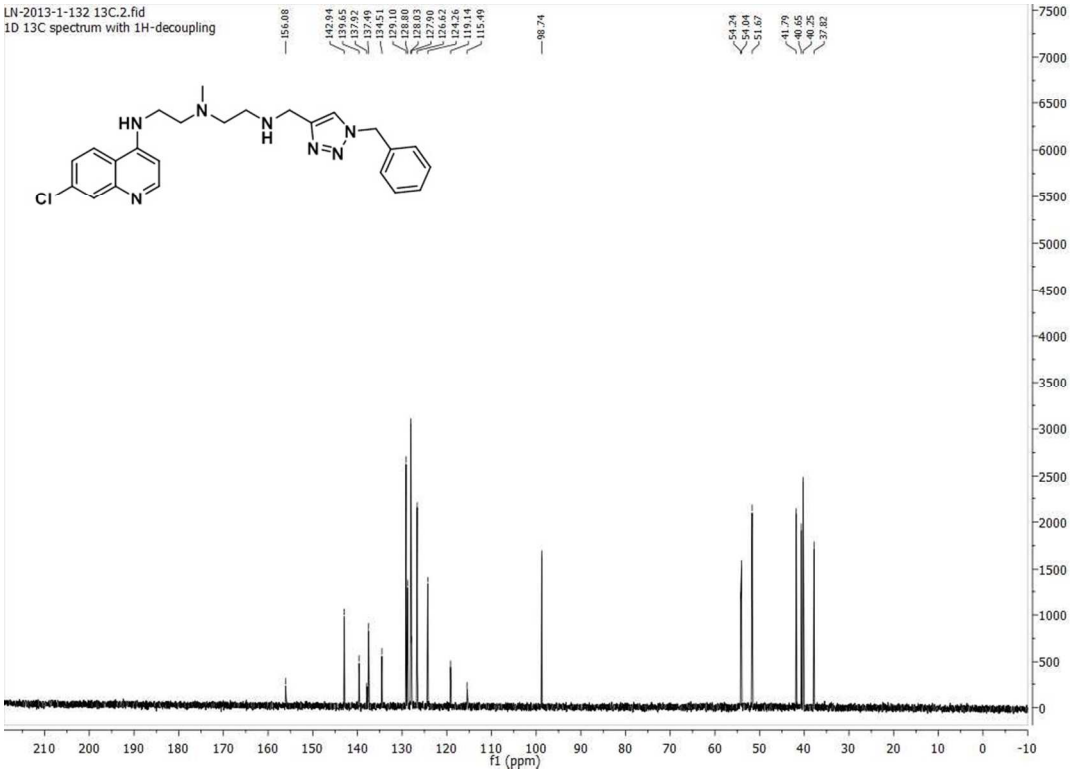
3f


LN-2013-1-159 1H.1.fid
1D 1H spectrum
f1 (ppm)

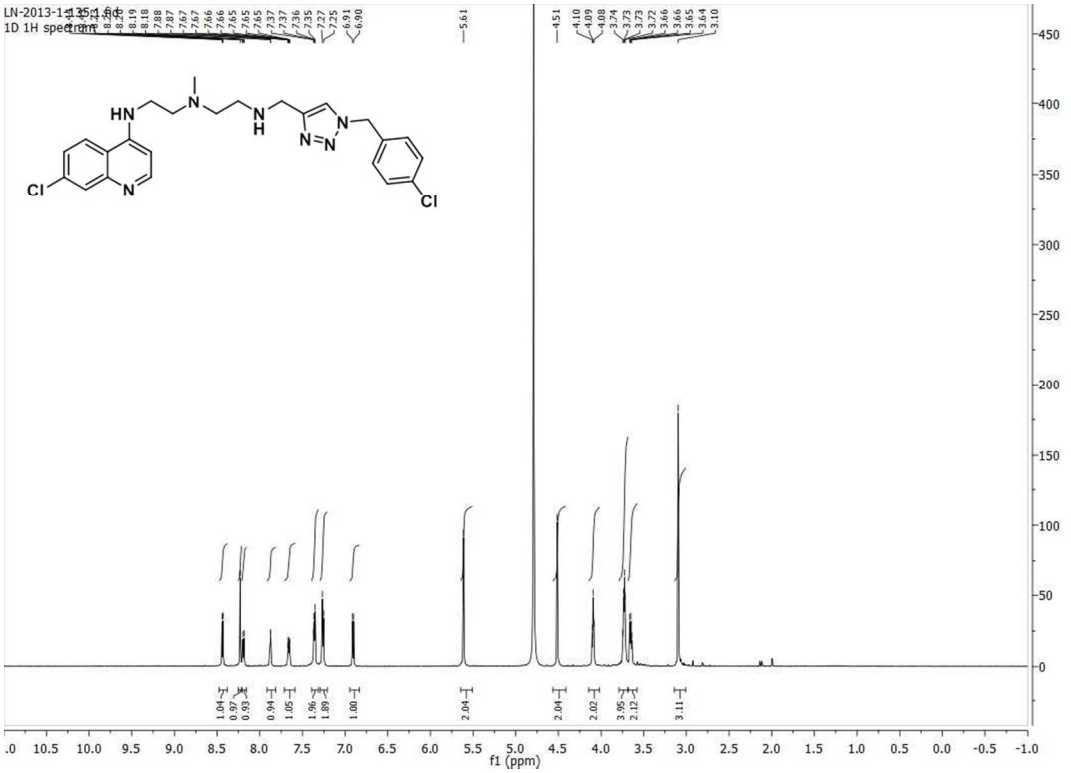

LN-2013-1-159 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

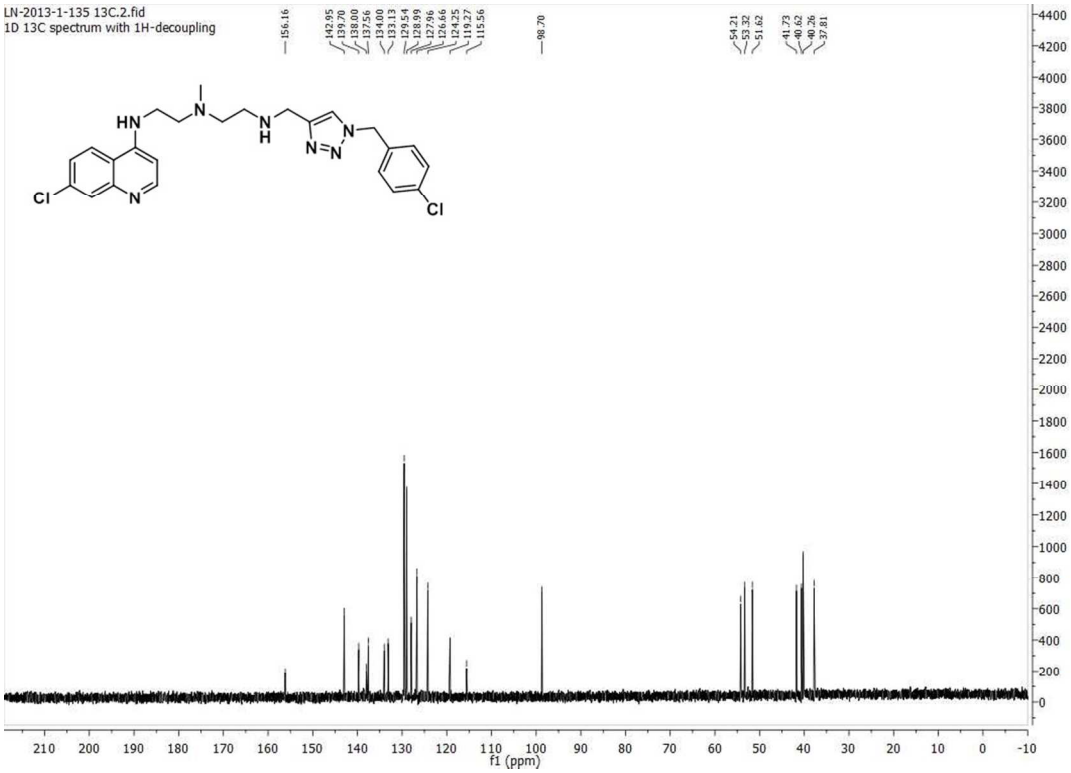
3g


HN
N
N
H
N
N
Cl
N
f1 (ppm)

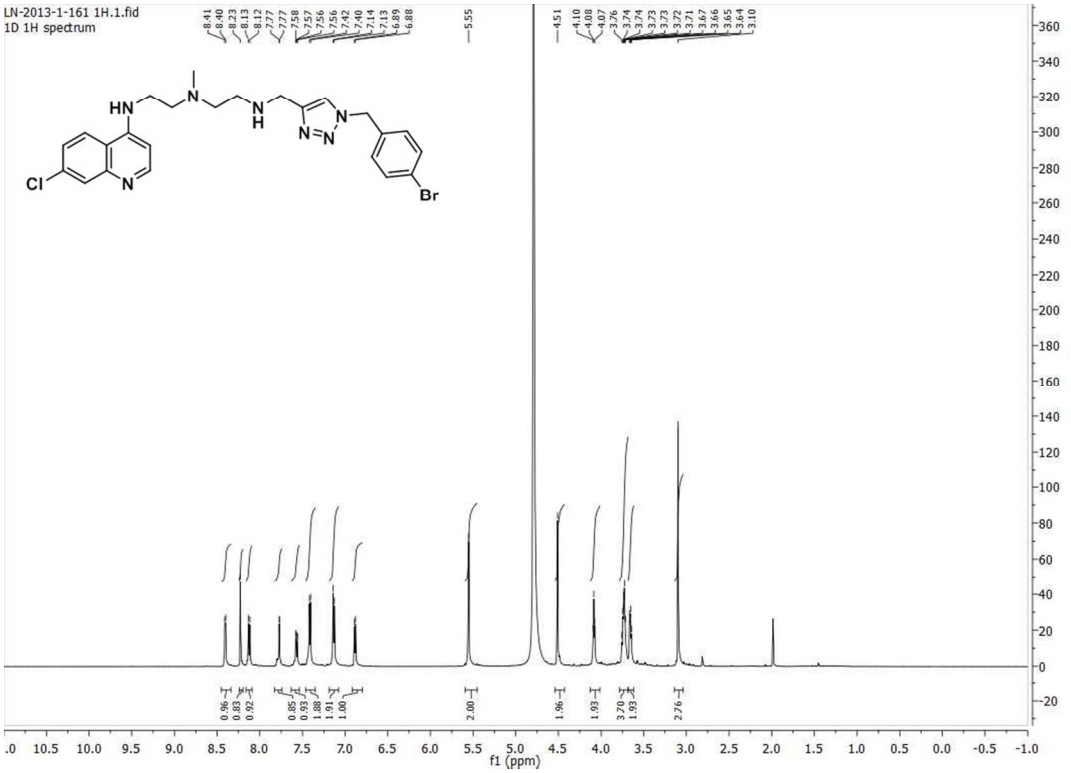

LN-2013-1-132 13C.2.fid
1D 13C spectrum with 1H-decoupling
HN
N
N
H
N
N
Cl
N
f1 (ppm)

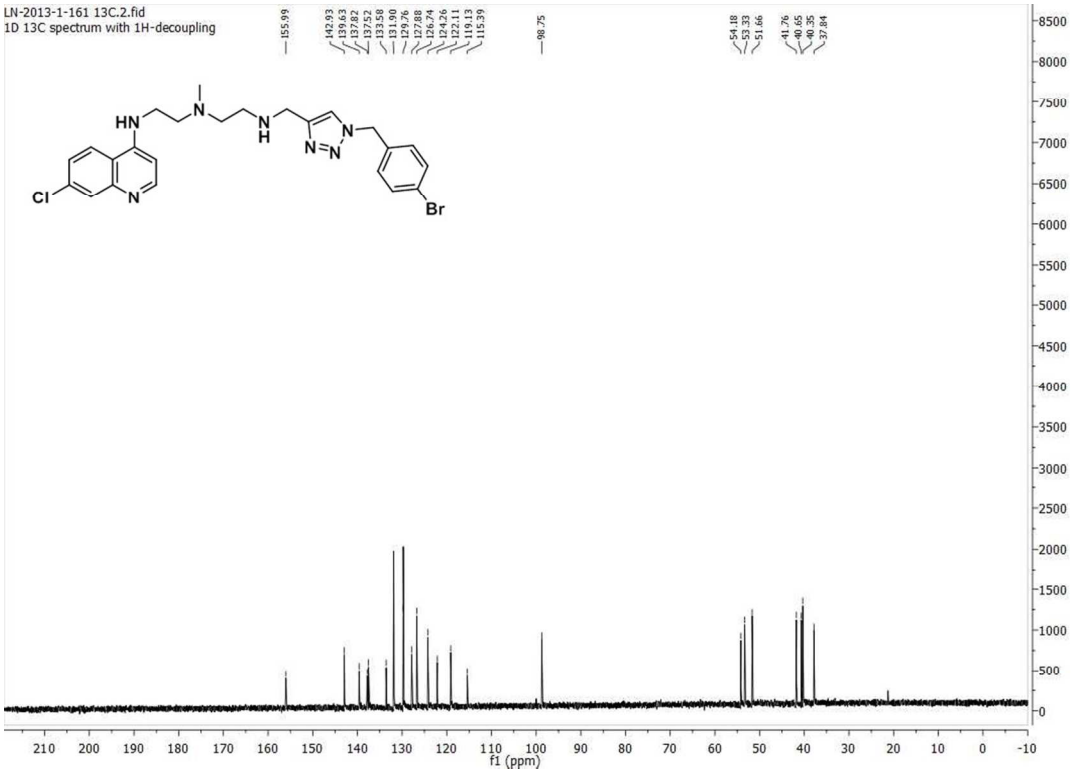
3h


LN-2013-1-135 1.fid
1D 1H spectrum
HN
N
N
N
N
Cl
Cl
f1 (ppm)

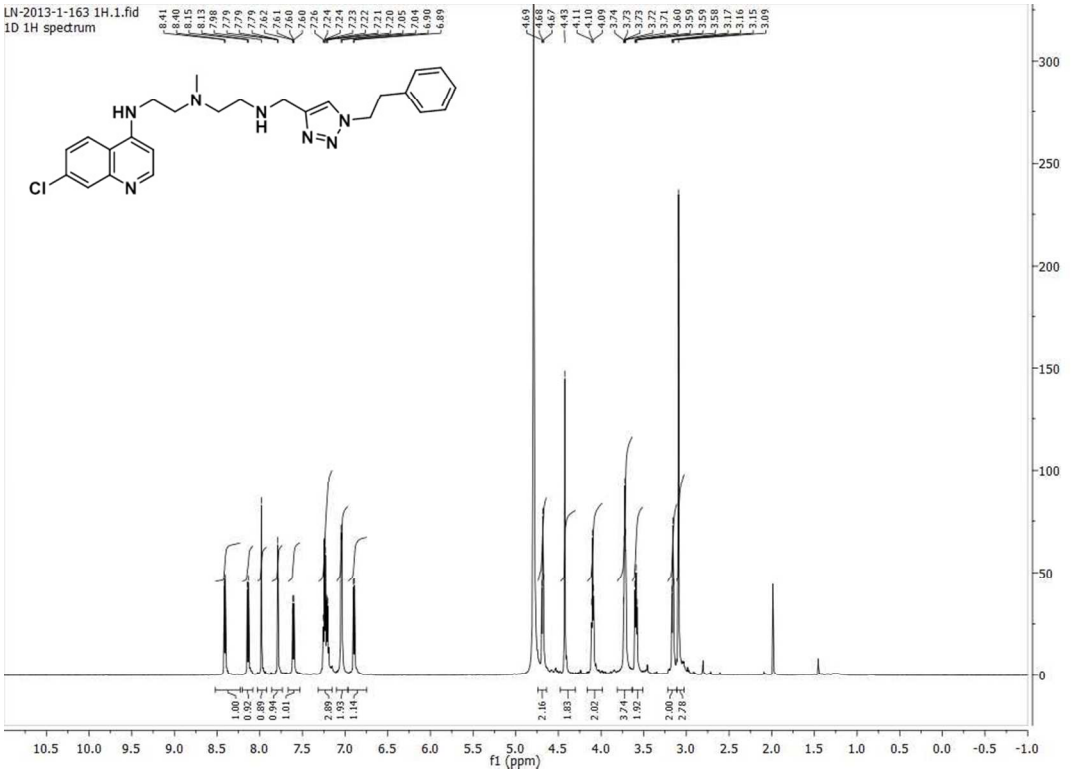

LN-2013-1-135 13C.2.fid
1D 13C spectrum with 1H-decoupling
HN
N
N
N
N
Cl
Cl
f1 (ppm)

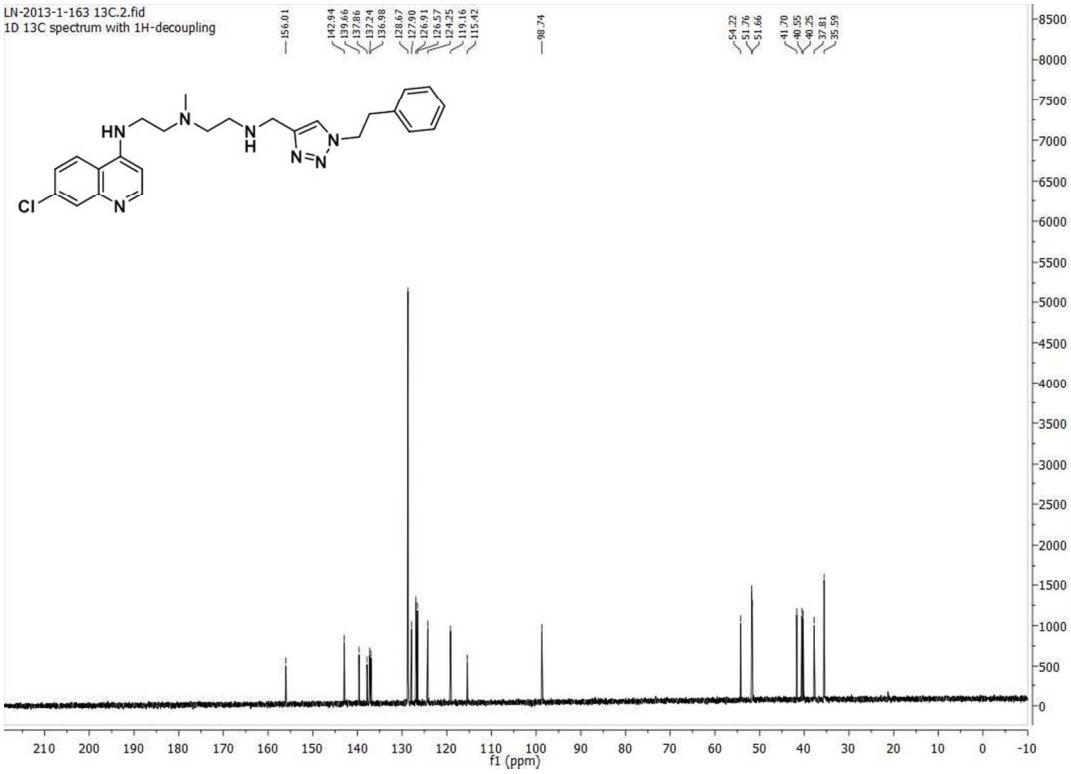
3i


LN-2013-1-161 1H.1.fid
1D 1H spectrum
f1 (ppm)

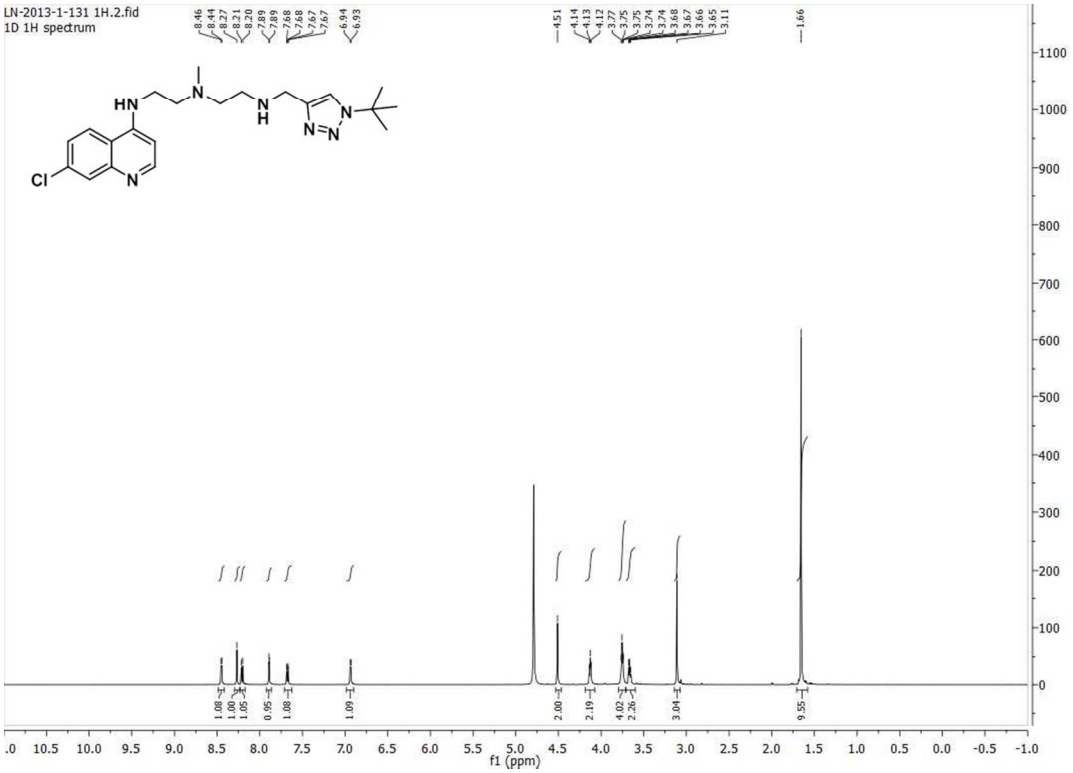

LN-2013-1-161 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

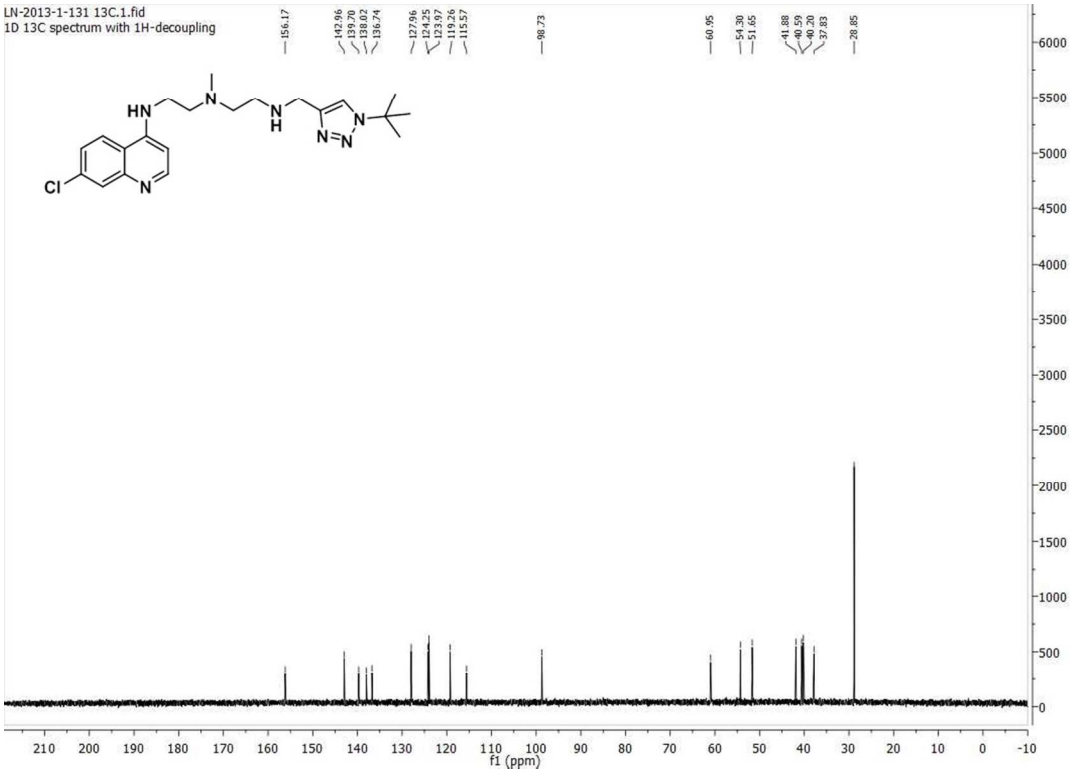
3j


LN-2013-1-163 1H.1.fid
1D 1H spectrum
f1 (ppm)

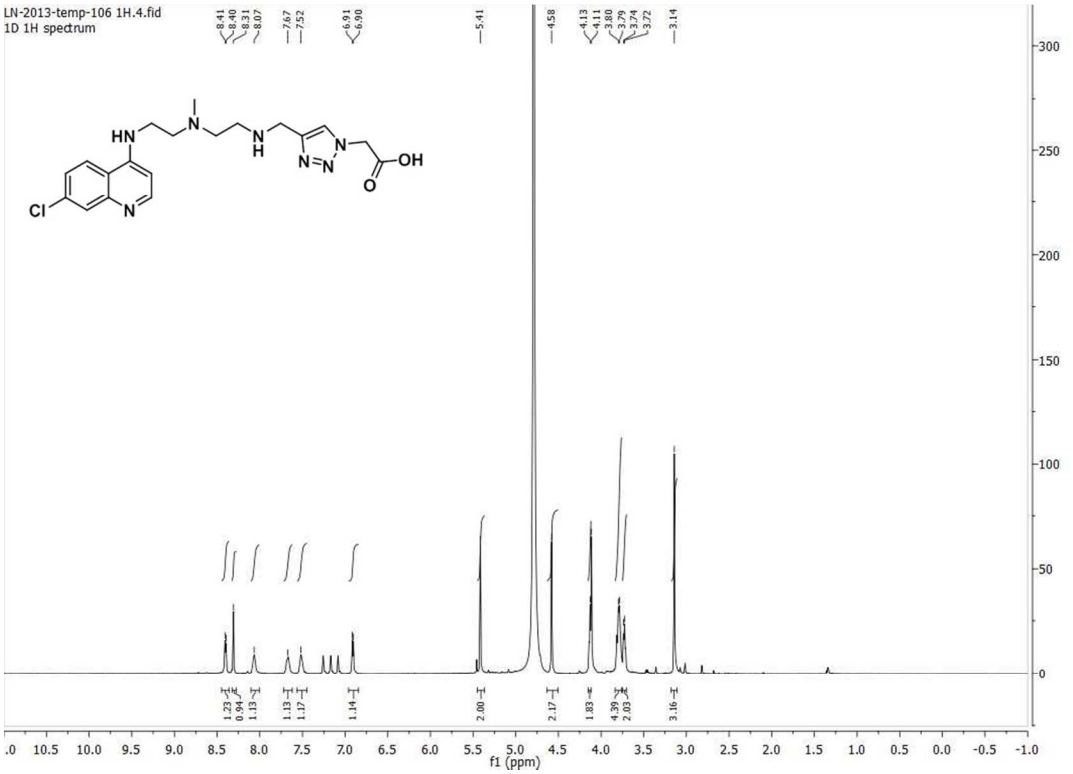

LN-2013-1-163 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

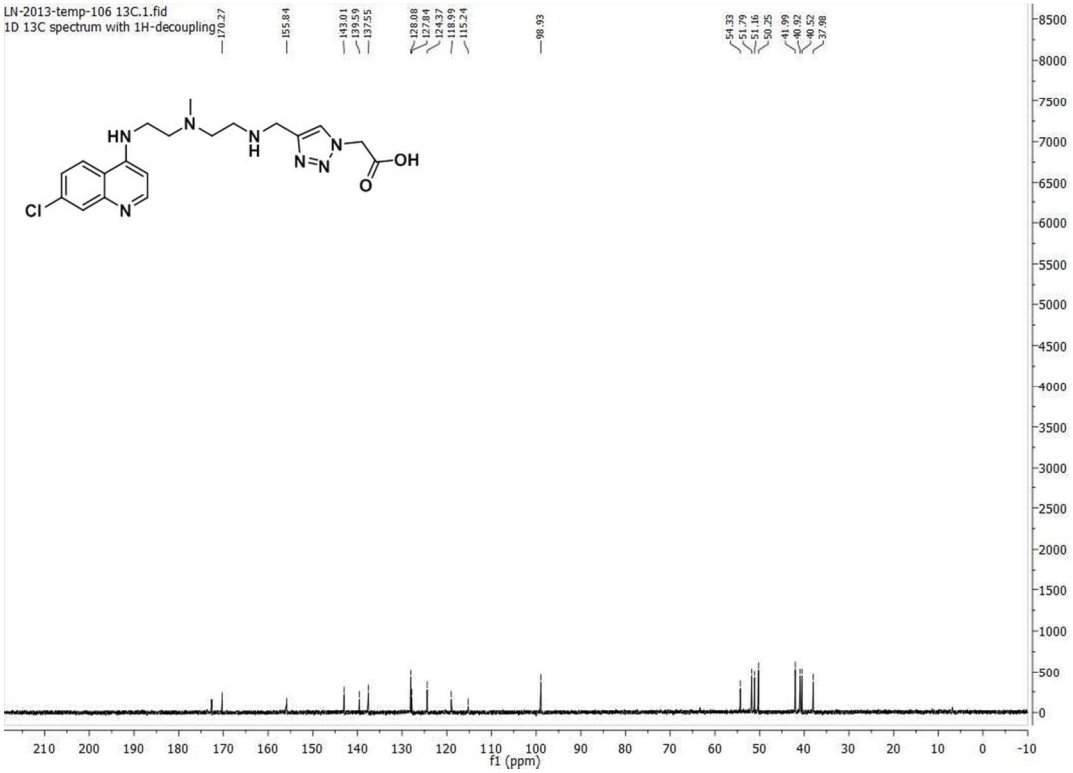
3k


LN-2013-1-131 1H.2.fid
1D 1H spectrum
f1 (ppm)

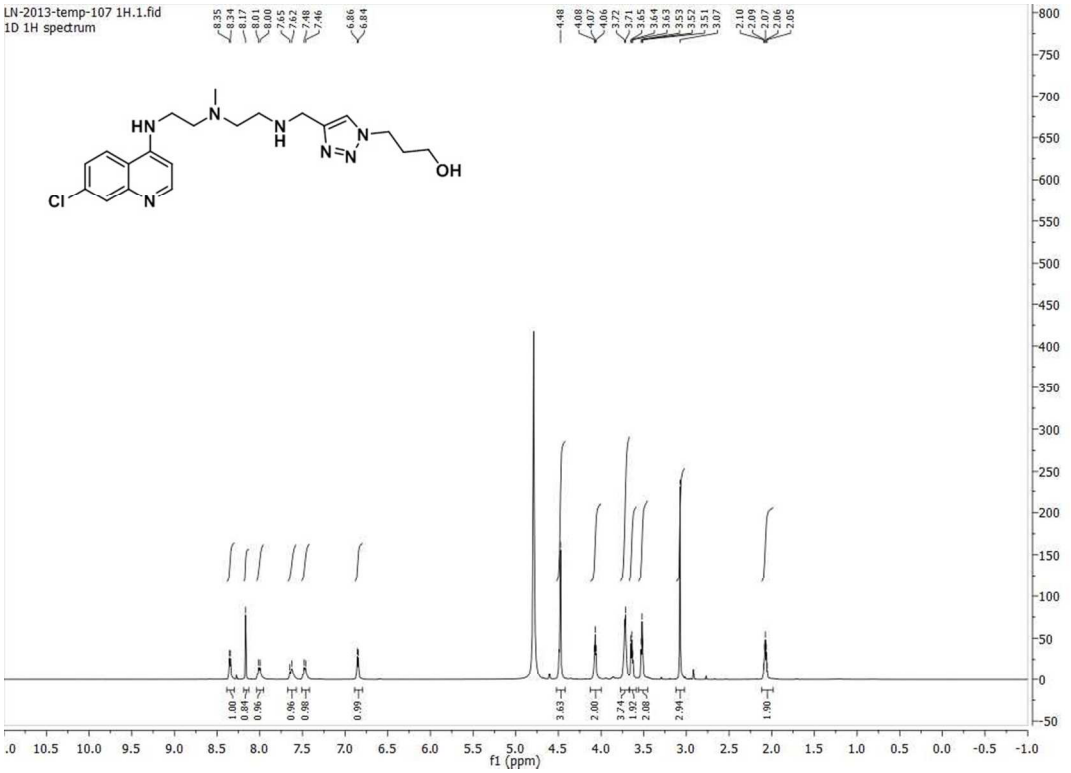

LN-2013-1-131 13C.1.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

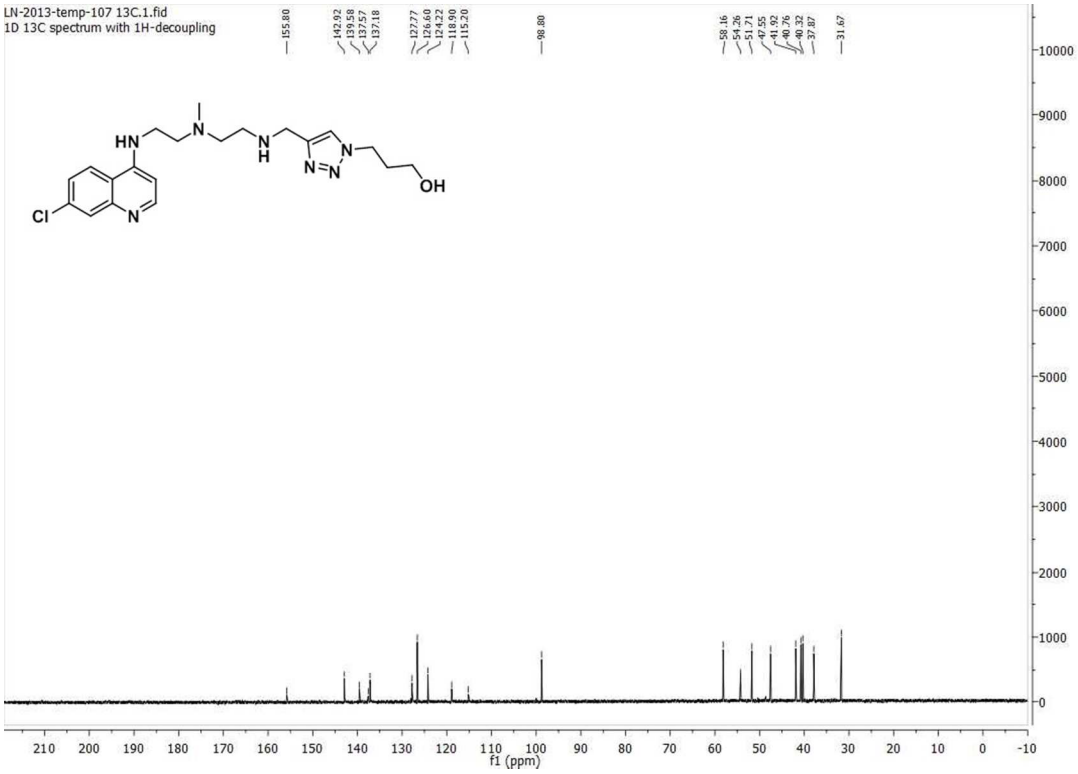
31


LN-2013-temp-106 1H.4.fid
1D 1H spectrum
8.41
8.40
8.31
8.07
7.67
7.52
6.91
6.90
5.41
4.58
4.13
4.11
3.80
3.79
3.74
3.72
3.14
1.23
0.94
1.13
1.13
1.17
1.14
2.00
2.17
1.83
4.39
2.03
3.16
HN
N
N
H
N
N
N
OH
O
Cl
N
f1 (ppm)

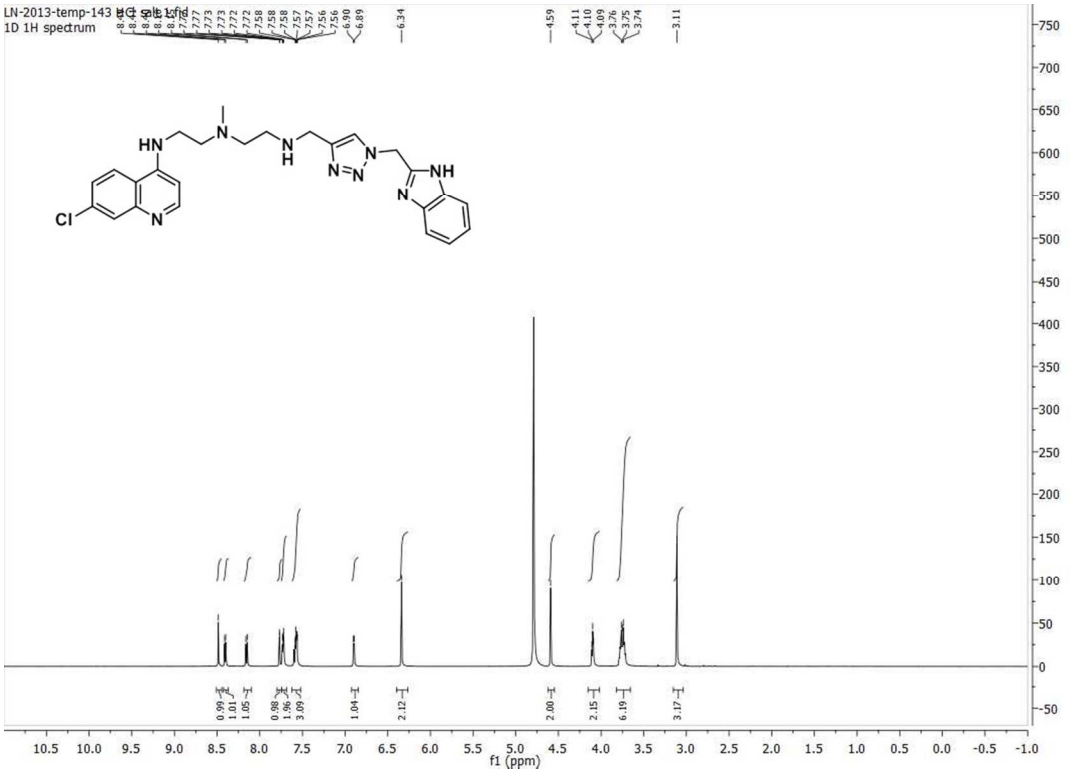

LN-2013-temp-106 13C.1.fid
1D 13C spectrum with 1H-decoupling
170.27
155.84
143.01
139.59
137.55
128.08
127.84
124.37
118.99
115.24
98.93
54.33
51.79
51.16
50.25
41.99
40.92
40.52
37.98
HN
N
N
H
N
N
N
OH
O
Cl
N
f1 (ppm)

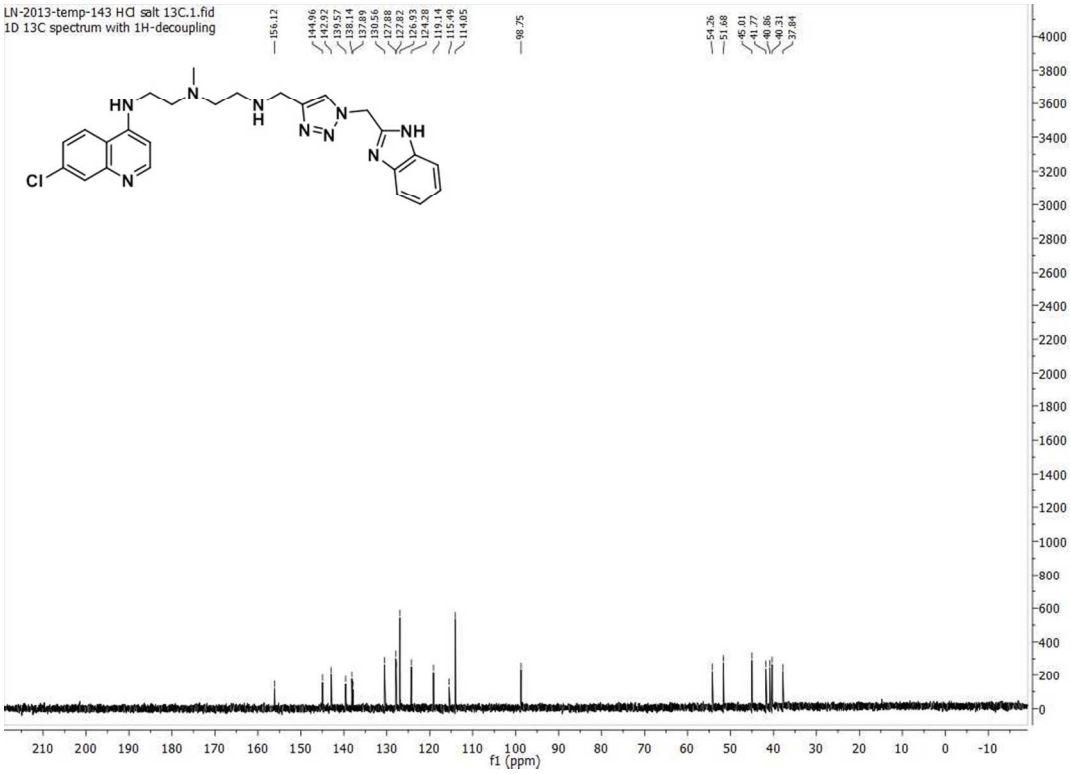
3m


LN-2013-temp-107 1H.1.fid
1D 1H spectrum
f1 (ppm)

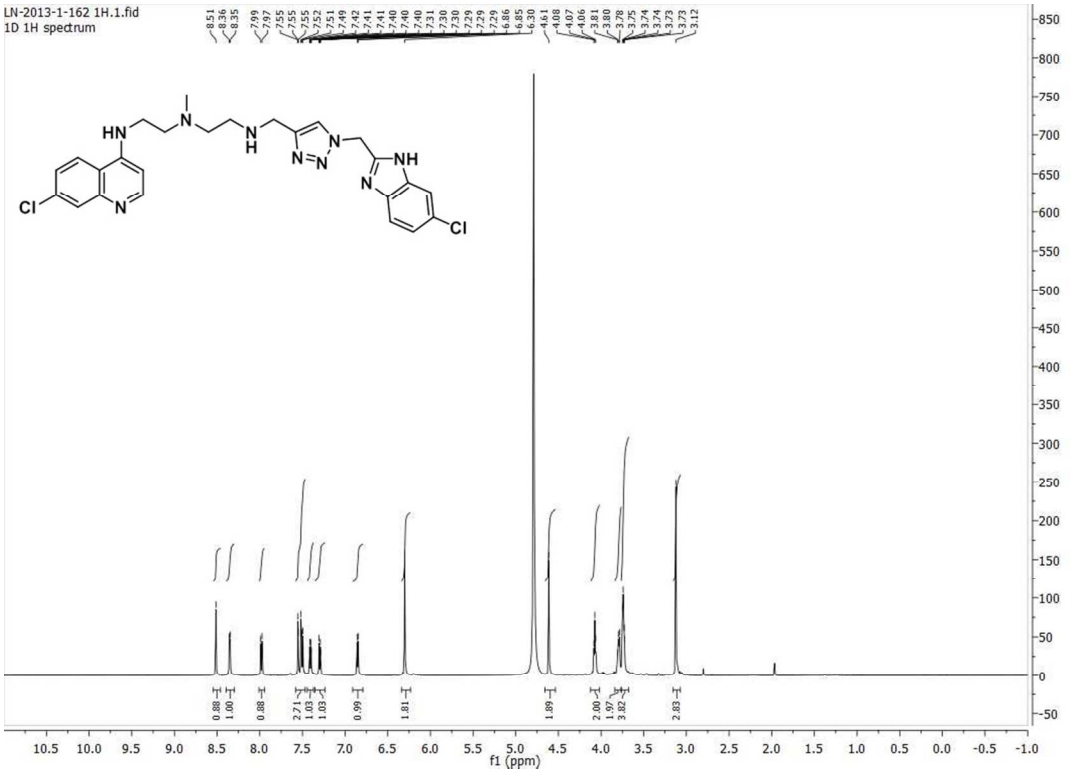

LN-2013-temp-107 13C.1.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

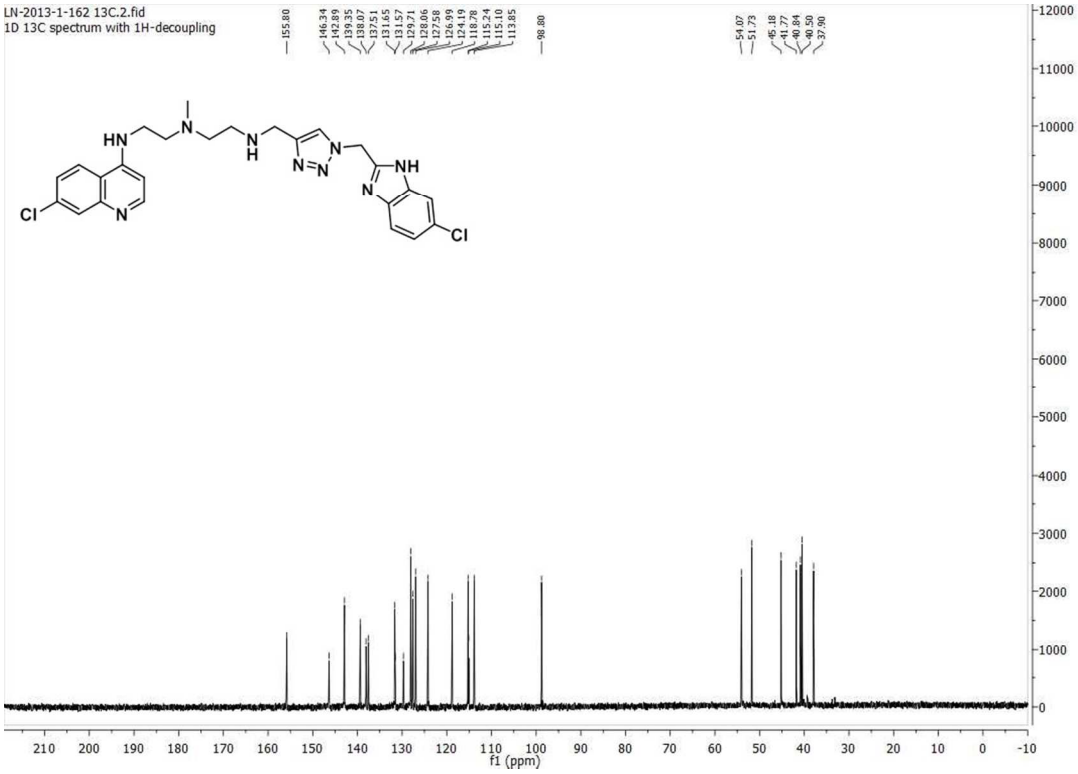
3n


LN-2013-temp-143 HCl salt 1.fid
1D 1H spectrum
f1 (ppm)

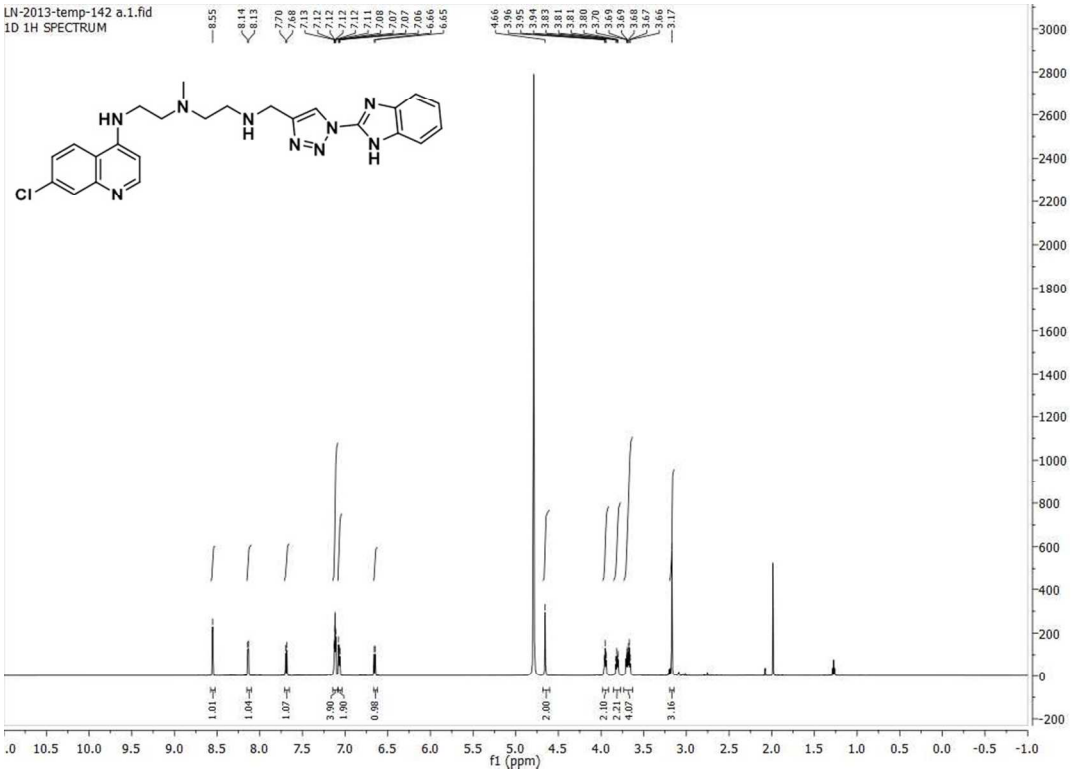

LN-2013-temp-143 HCl salt 13C.1.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

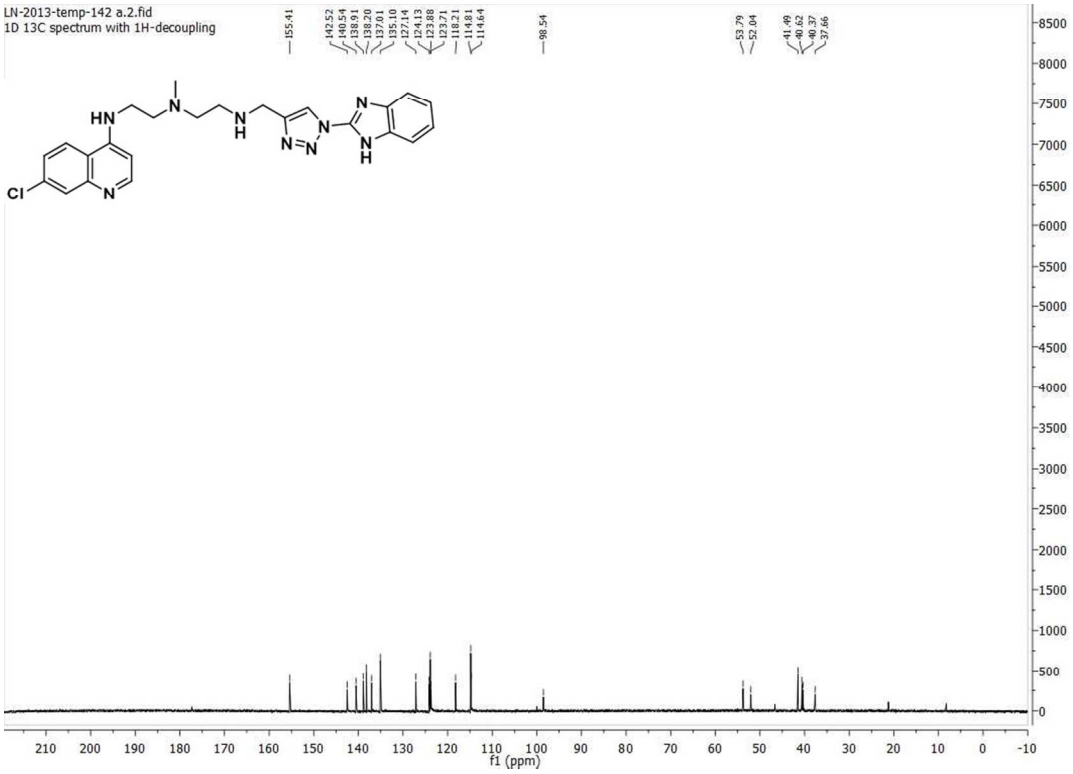
3o


LN-2013-1-162 1H.1.fid
1D 1H spectrum
f1 (ppm)

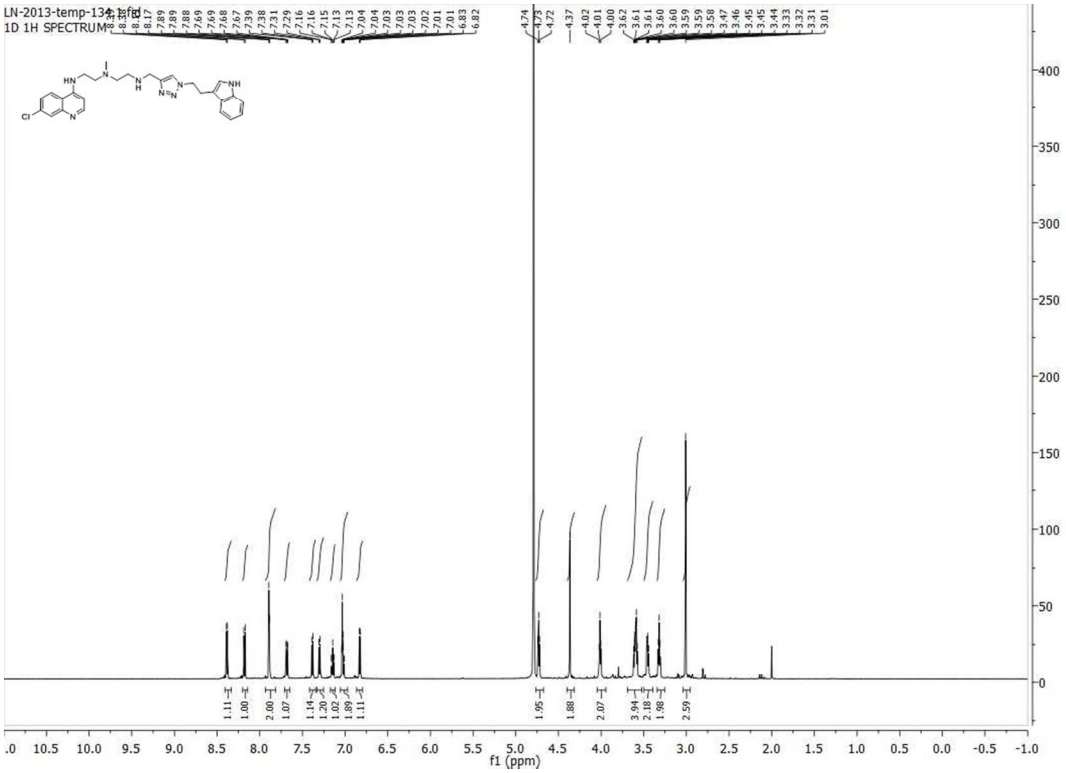

LN-2013-1-162 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

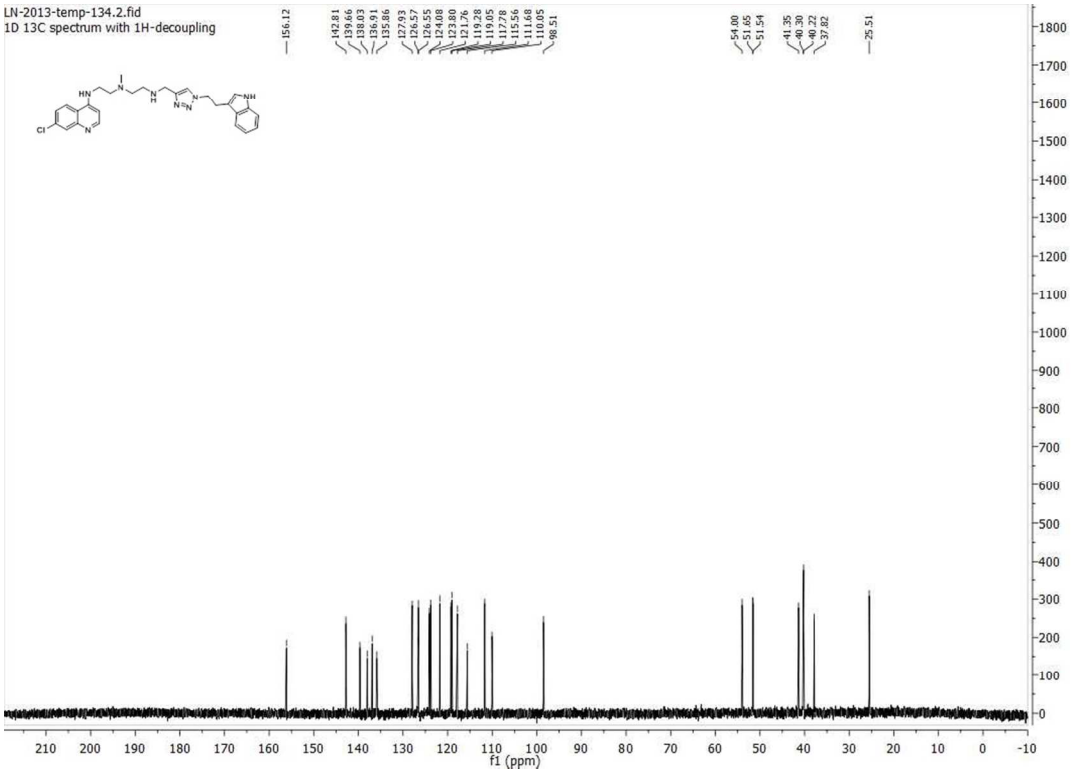
3p


LN-2013-temp-142 a.1.fid
1D 1H SPECTRUM
f1 (ppm)

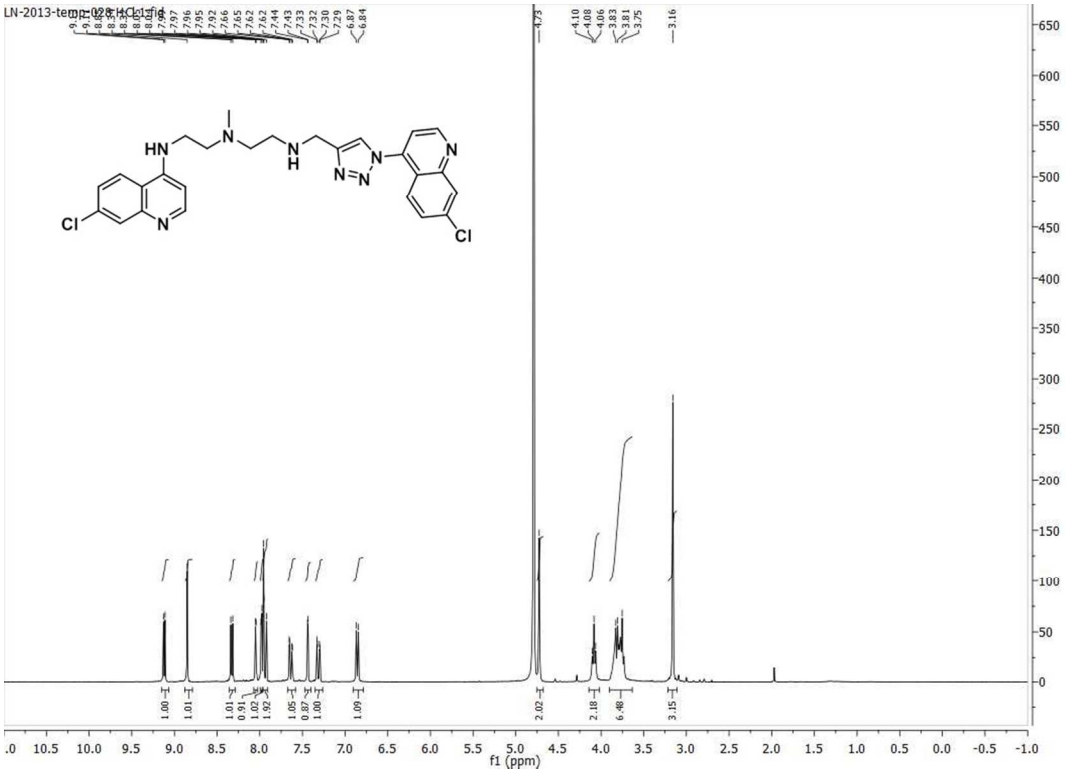

LN-2013-temp-142 a.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

3q

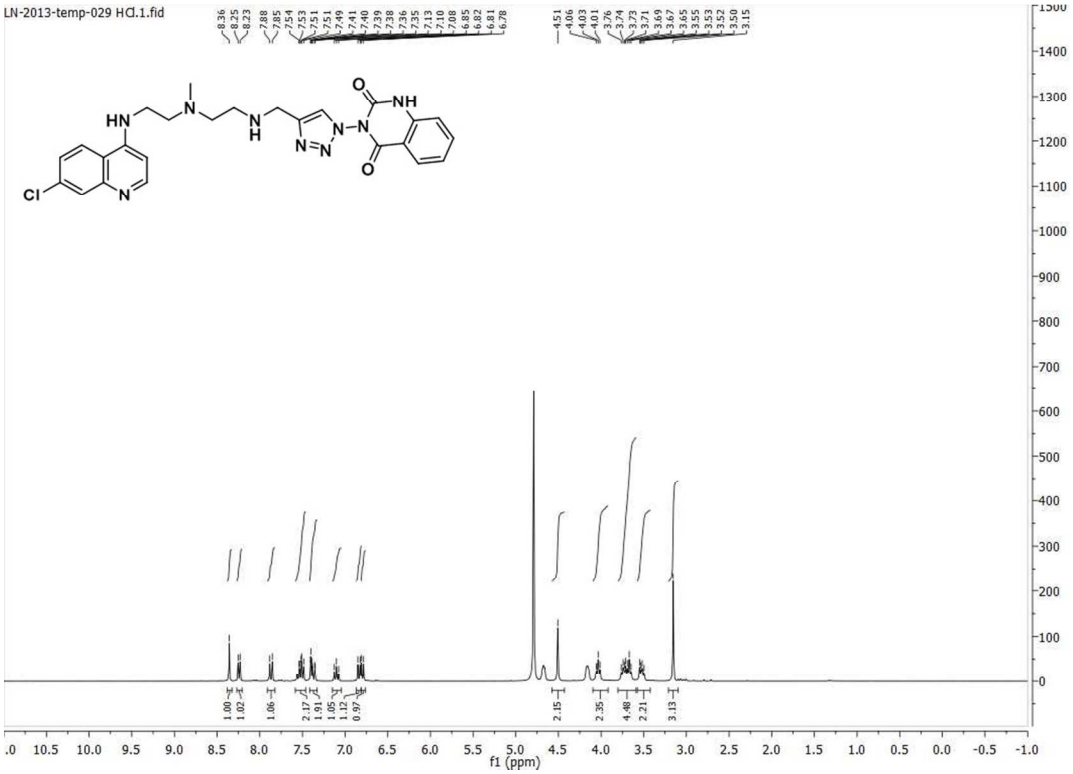

LN-2013-temp-134.1.fid
1D 1H SPECTRUM
f1 (ppm)


LN-2013-temp-134.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

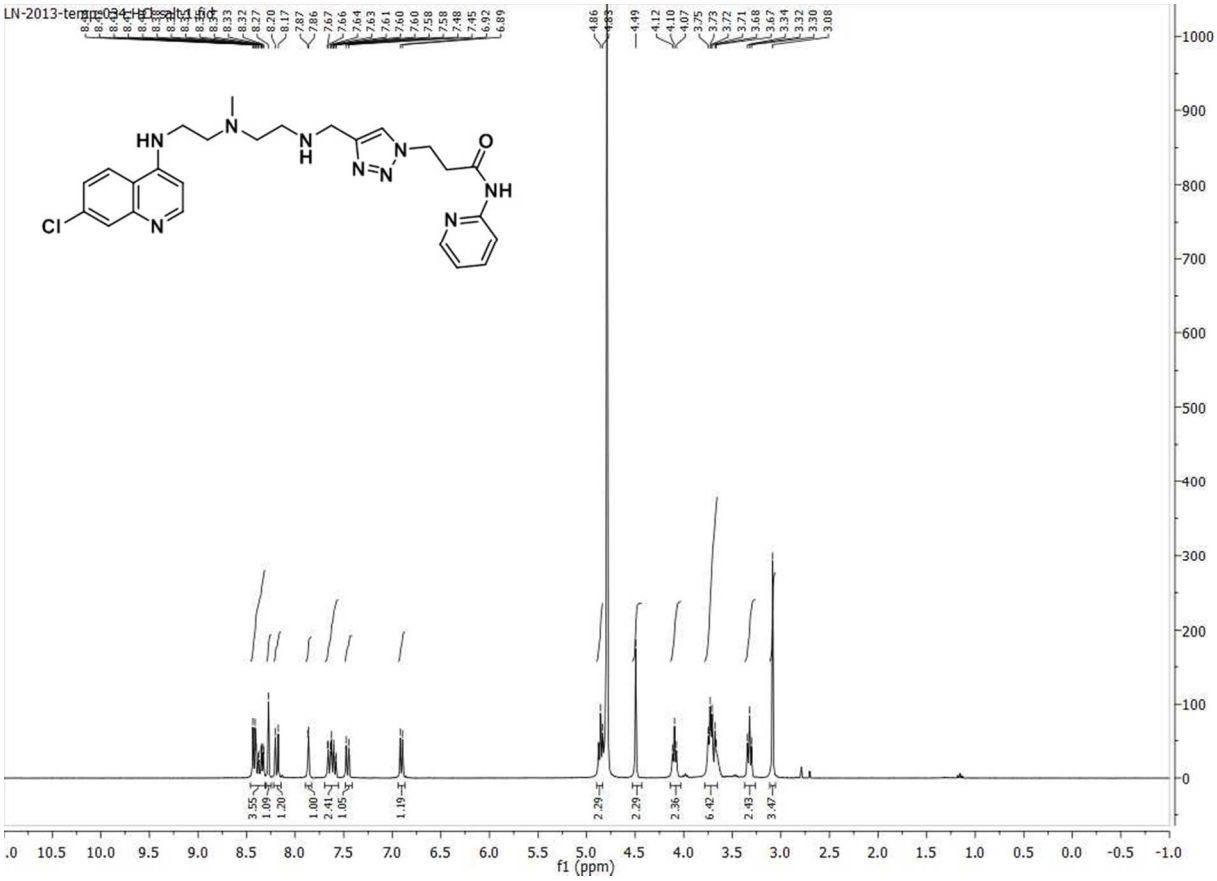
3r



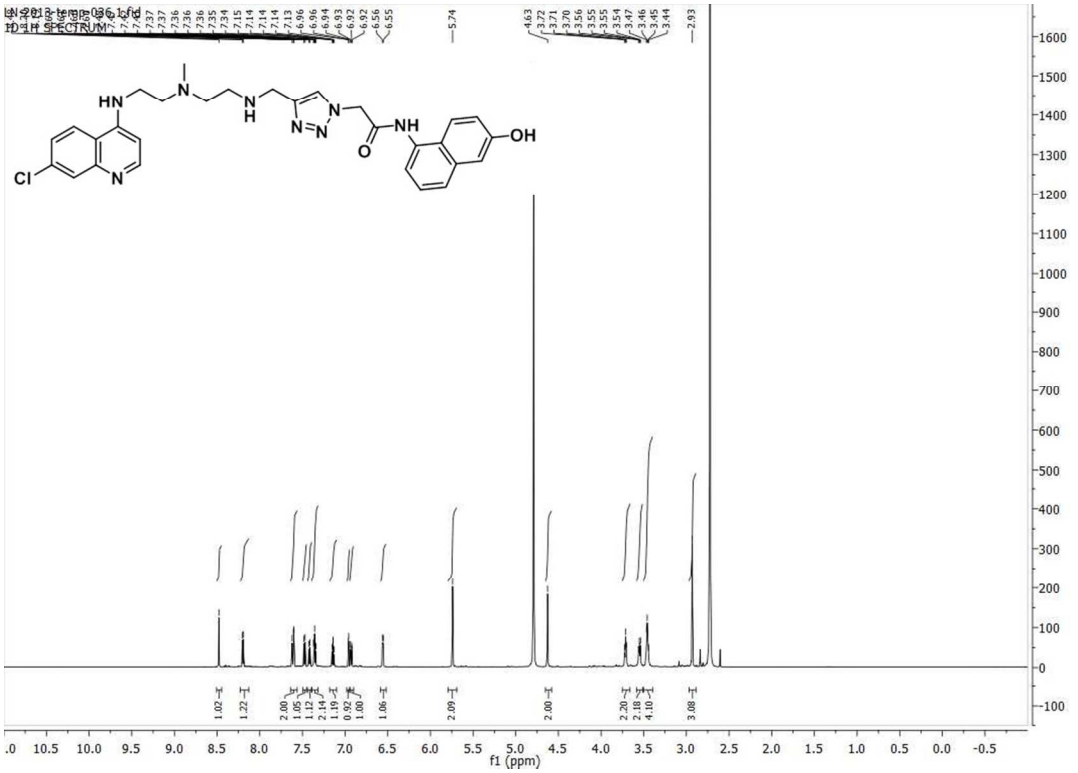
3s

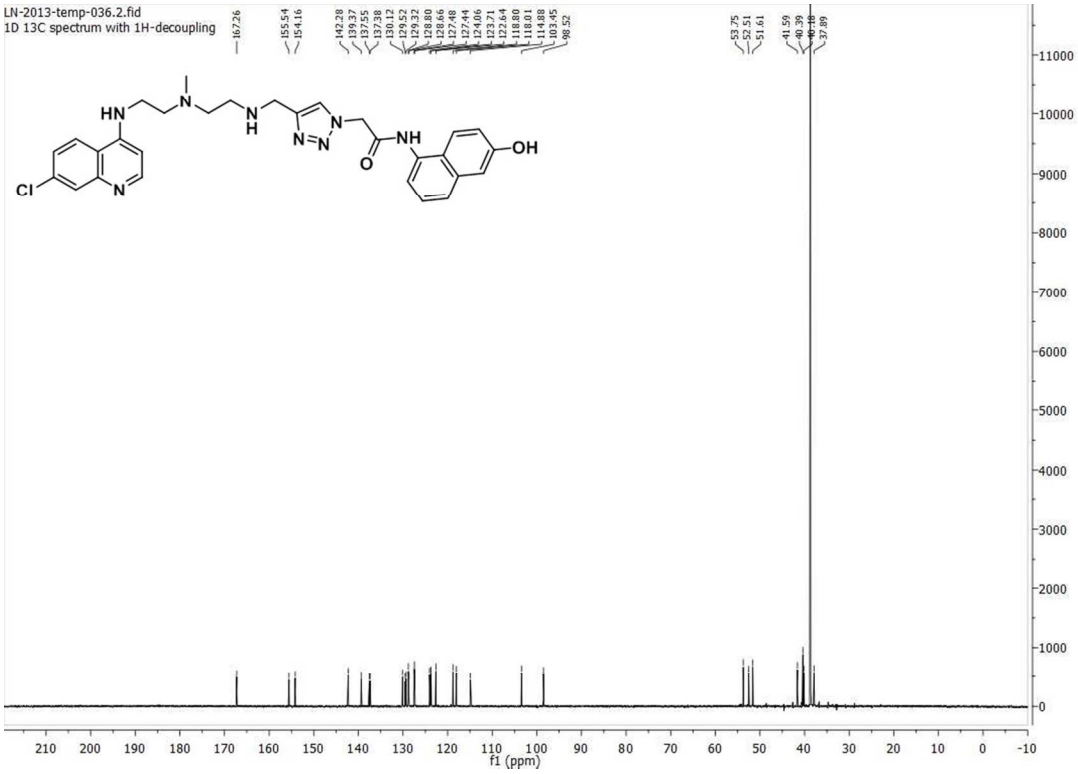


3t

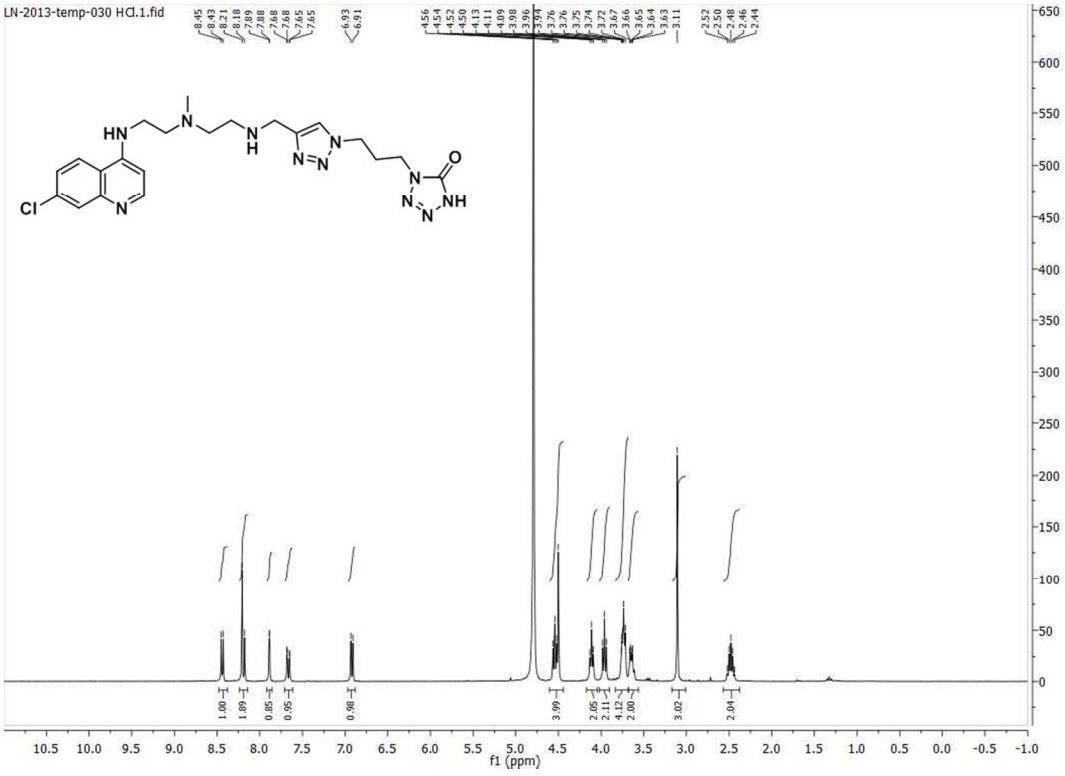


3u

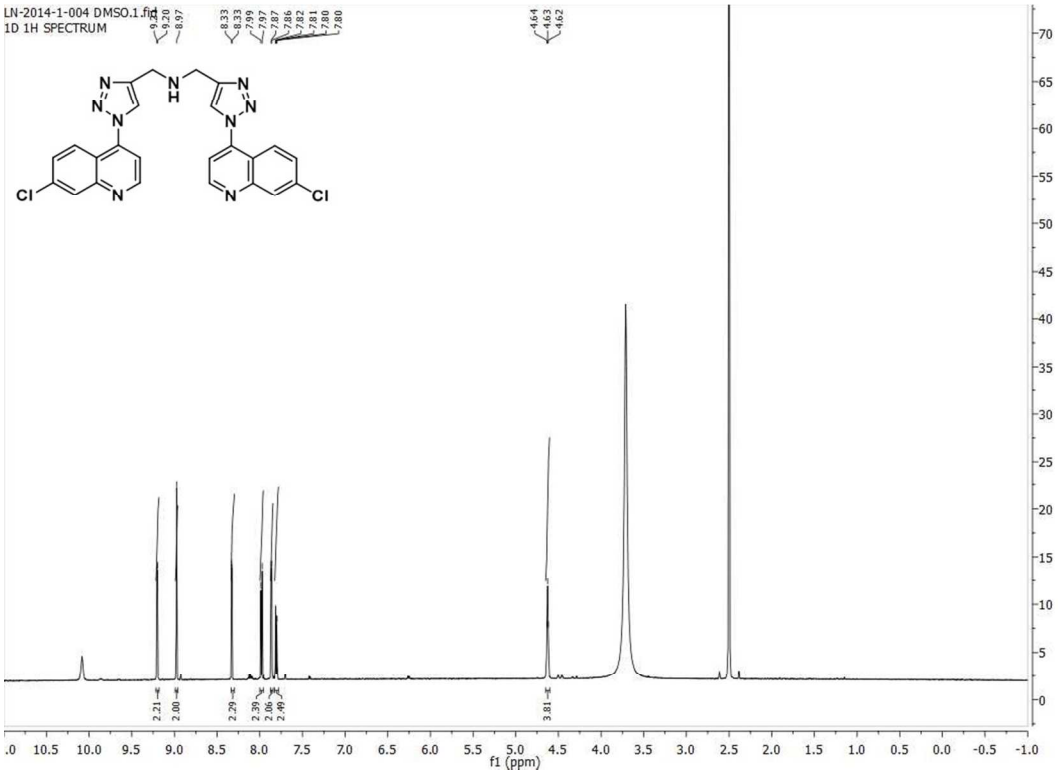

HN
N
N
N
N
NH
O
OH
Cl
N
f1 (ppm)

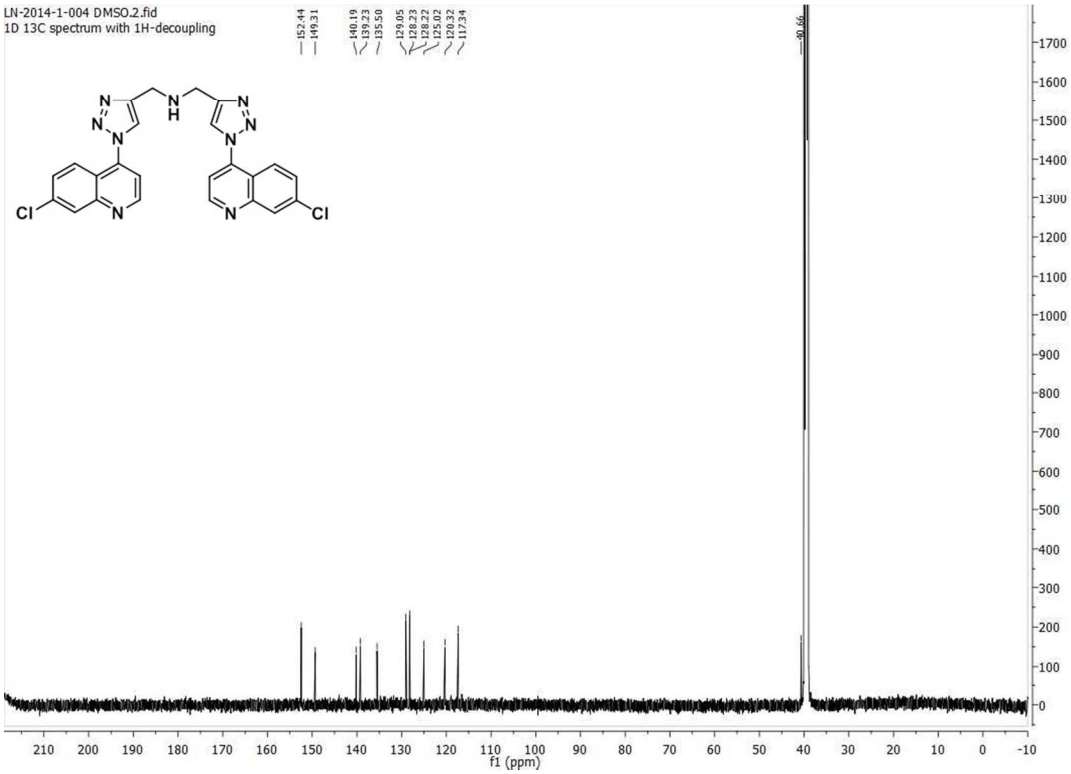

LN-2013-temp-036.2.fid
1D 13C spectrum with 1H-decoupling
HN
N
N
N
N
NH
O
OH
Cl
N
f1 (ppm)

3v

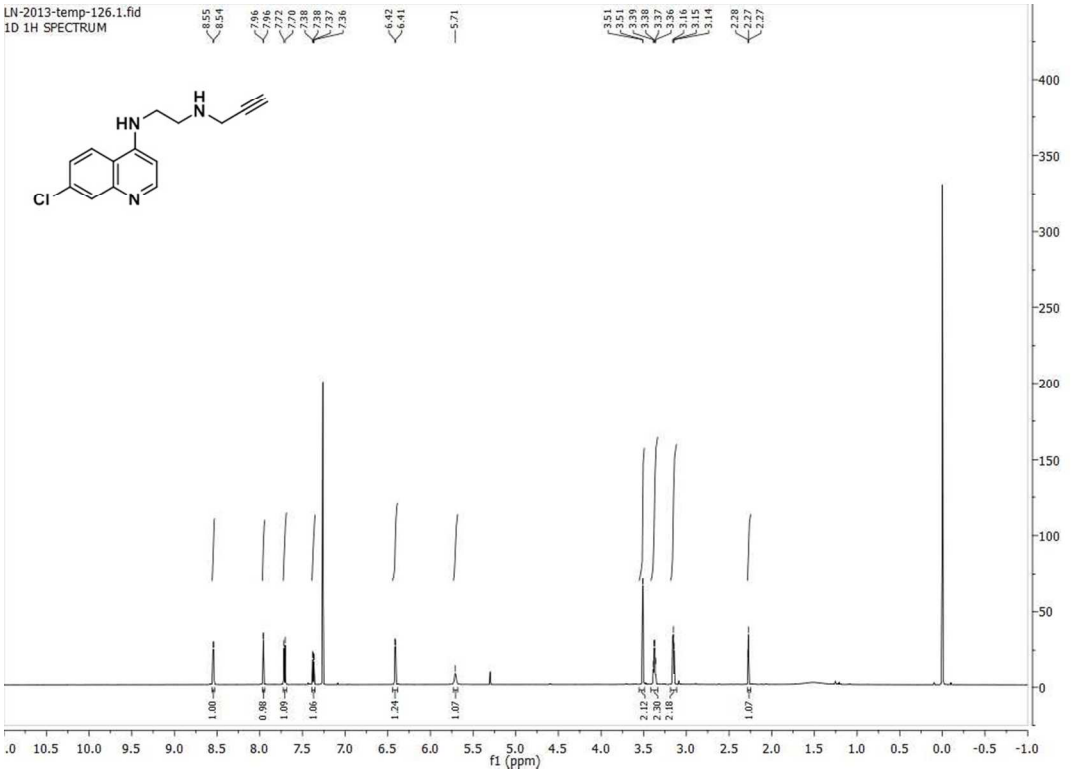


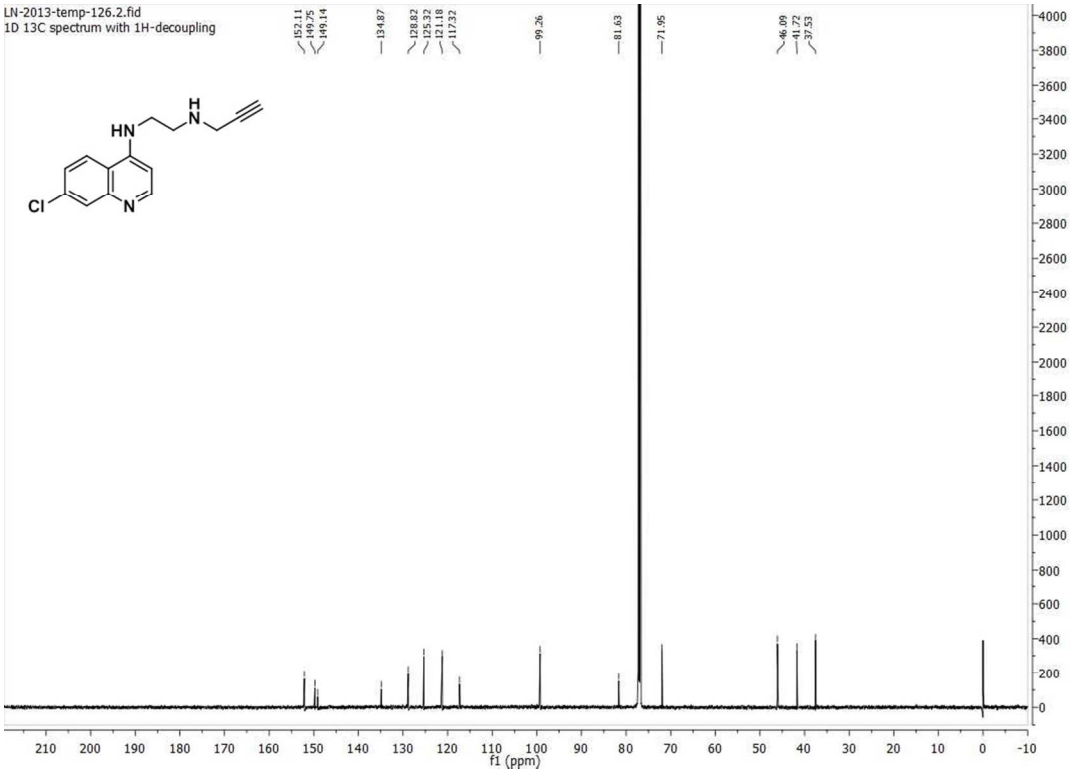
5


LN-2014-1-004 DMSO.1.fid
1D 1H SPECTRUM
f1 (ppm)

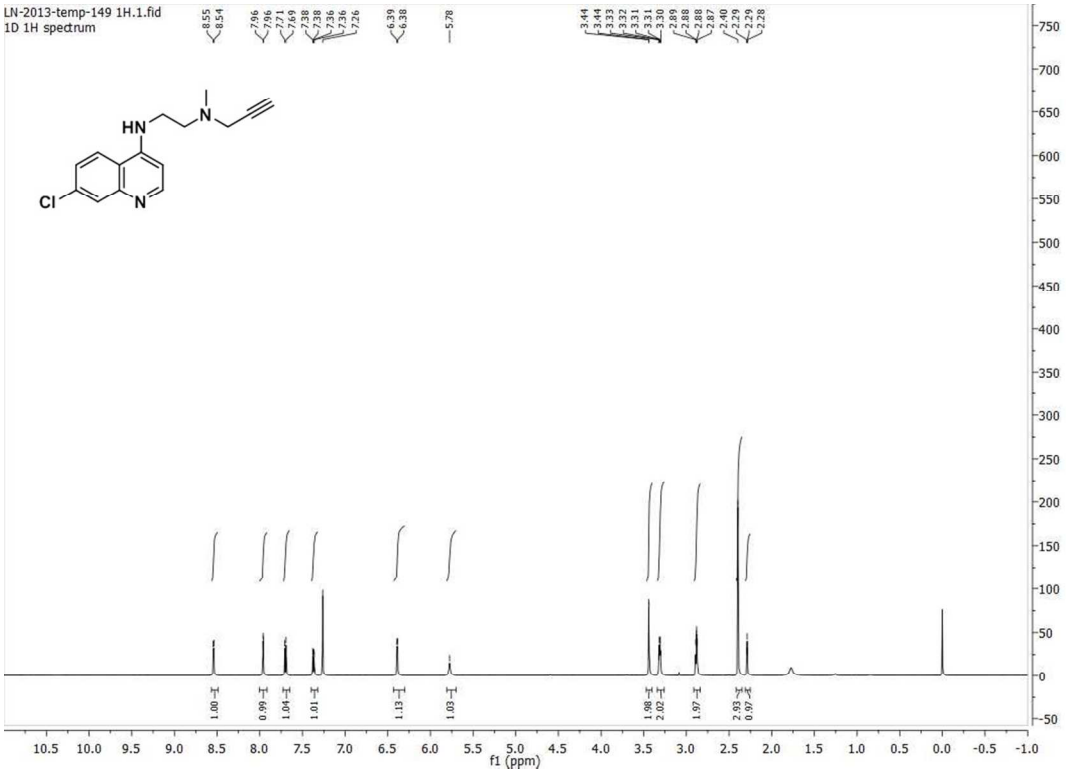

LN-2014-1-004 DMSO.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

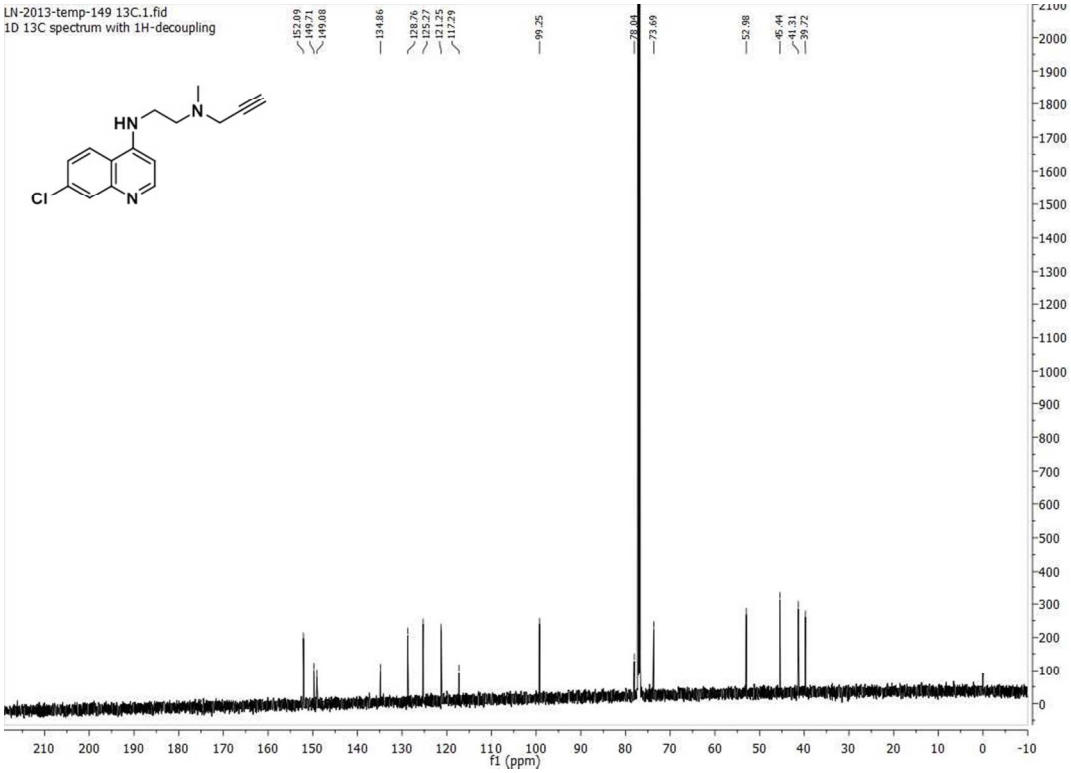
SI2a


LN-2013-temp-126.1.fid
1D 1H SPECTRUM
f1 (ppm)

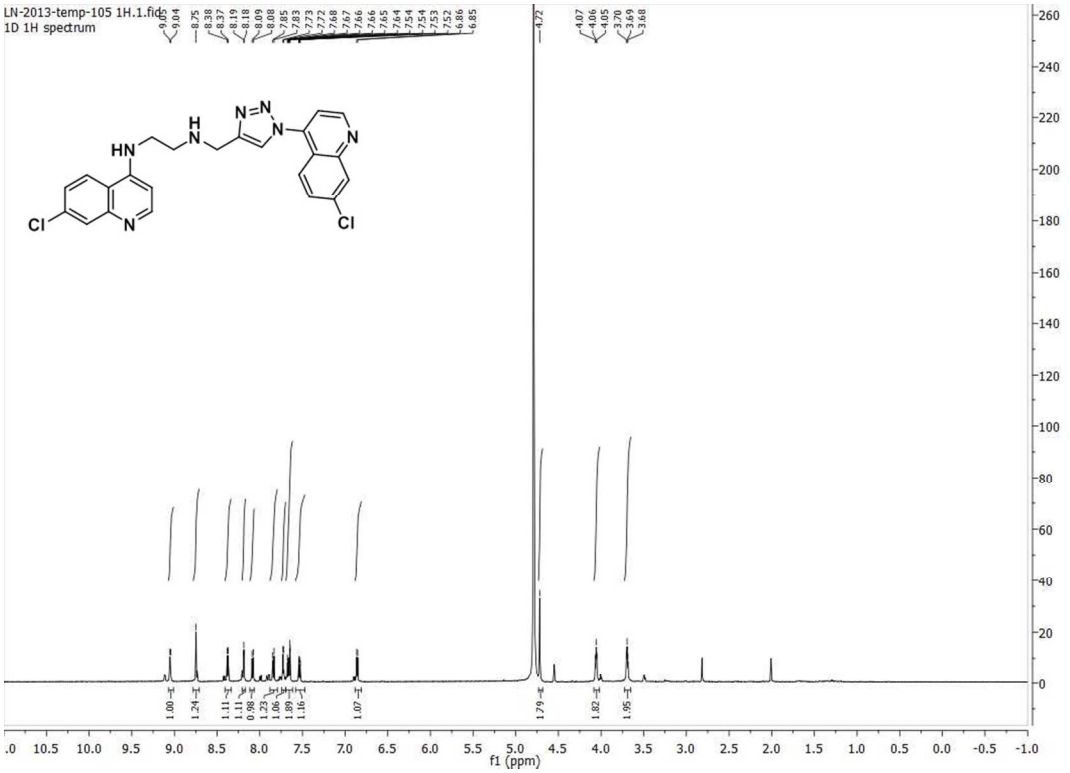

LN-2013-temp-126.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

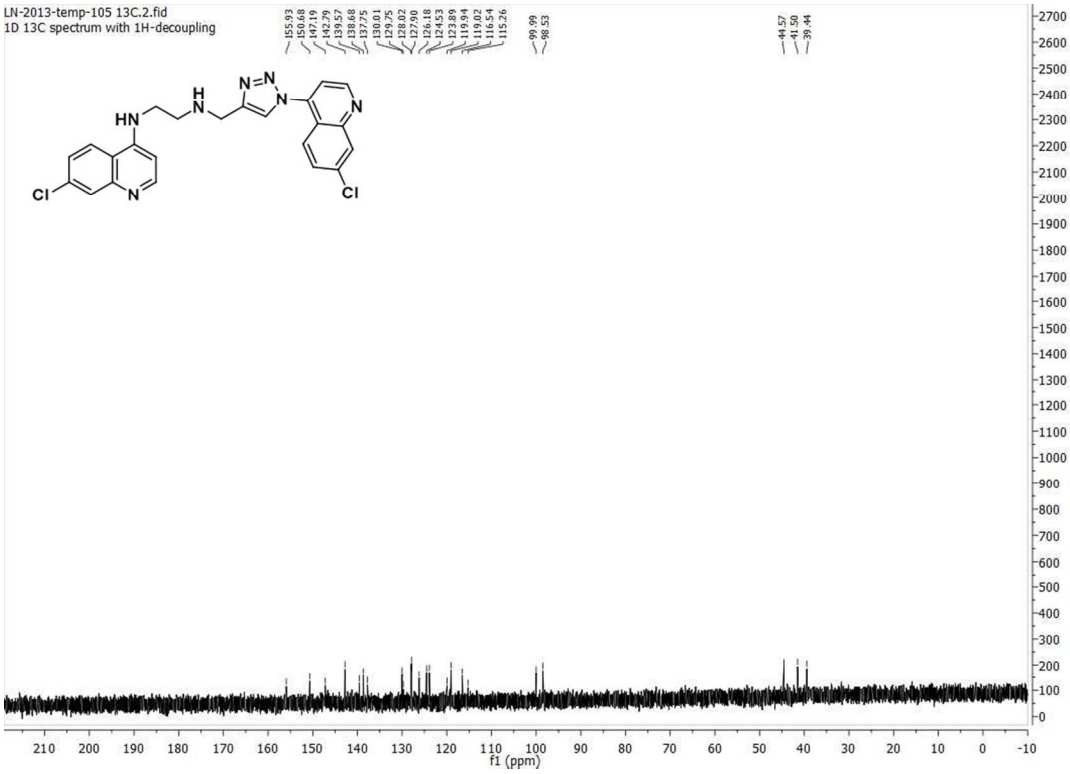
SI2B


LN-2013-temp-149 1H.1.fid
1D 1H spectrum
HN
N
Cl
N
f1 (ppm)

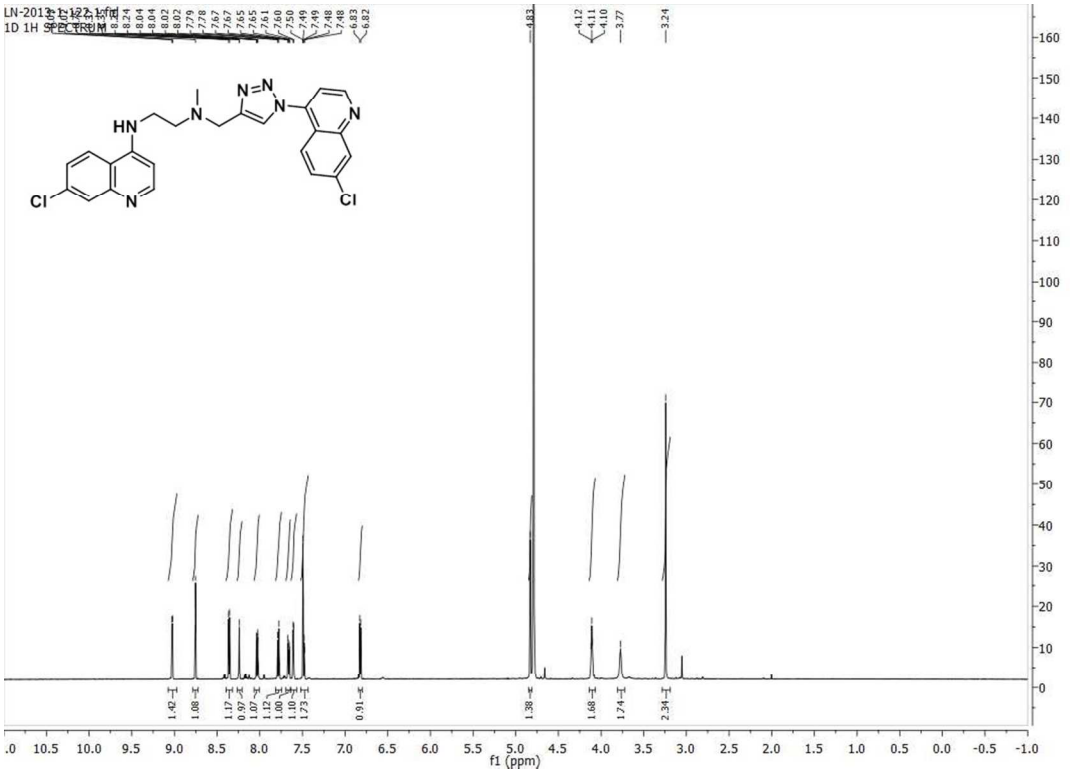

LN-2013-temp-149 13C.1.fid
1D 13C spectrum with 1H-decoupling
HN
N
Cl
N
f1 (ppm)

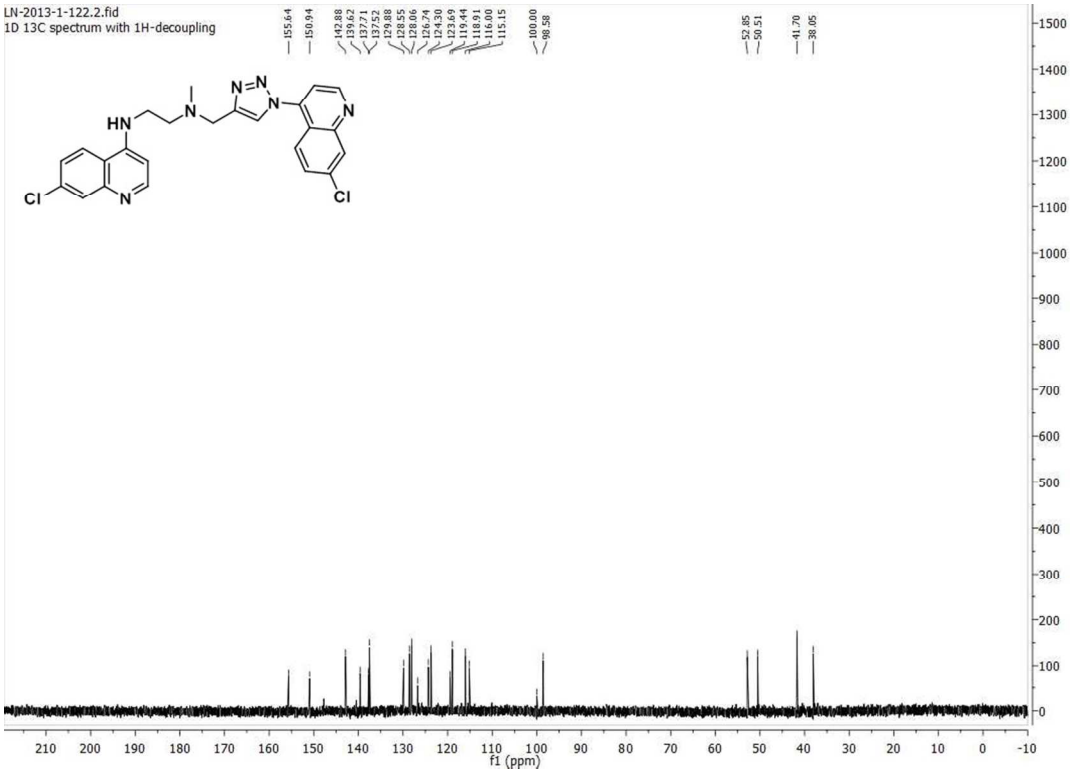
6a


LN-2013-temp-105 1H.1.fid
1D 1H spectrum
f1 (ppm)


LN-2013-temp-105 13C.2.fid
1D 13C spectrum with 1H-decoupling
f1 (ppm)

6b


HN
N
N
N
N
Cl
Cl
f1 (ppm)


LN-2013-1-122.2.fid
1D 13C spectrum with 1H-decoupling
HN
N
N
N
N
Cl
Cl
f1 (ppm)