

Supporting Information

for

Fluorescent Biaryl Uracils with C5-Dihydro- and Quinazolinone Heterocyclic Appendages in PNA

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General synthetic procedures

All chemicals were obtained from commercial sources and were of ACS reagent grade or higher and were used without further purification. Anhydrous and HPLC-grade solvents for PNA synthesis and chromatography were purchased from Caledon Laboratories. All other solvents were dried by passing through activated alumina columns. In all cases, sodium sulfate was used as the drying agent and solvent was removed by reduced pressure with Buchi Rotavapor. Thin-layer chromatography was performed on Silicycle Silica Gel TLC F-254 plates. Unless otherwise specified the R_f values are reported in the solvent system the reaction was monitored in. Flash chromatography was performed with Silicycle SiliaFlash® F60 230-400 mesh silica. All chemical shifts are reported in parts per million (δ), from tetramethylsilane (0 ppm), and are referenced to the residual proton in the respective solvent: CDCl_3 (7.26 ppm), $\text{DMSO-}d_6$ (2.49 ppm), $\text{methanol-}d_6$ (3.31 ppm) for ^1H NMR and CDCl_3 (77.0 ppm) and $\text{DMSO-}d_6$ (39.5 ppm) and $\text{methanol-}d_6$ (49.0 ppm) for ^{13}C NMR. Multiplicities are described as s (singlet), d (doublet), t (triplet), q (quartet), m (multiplet) and br s (broad singlet). Coupling constants (J) are reported in Hertz (Hz). Spectra were obtained on Bruker-400 and INOVA-400 and INOVA-600 instruments. The ^1H NMR and ^{13}C NMR for PNA monomers performed in CDCl_3 show the presence of rotamers. High-resolution mass spectra (HRMS) were obtained using electrospray ionization (ESI).

Quantum yield determination

Fluorescence quantum yields (Φ_F) of the quinazoline based monomer was determined using a Photon Technologies International Quanta Master 7/2005 spectrophotometer by the relative method using 9-10 diphenylanthracene ($\Phi_{\text{EtOH}} = 0.95$) [1] and tryptophan ($\Phi_{\text{water, pH 7.2}} = 0.14$) [2] as the reference standard in room temperature (**Table S2**). The quantum yields were determined using the integrated fluorescence intensity and an average of five emission scans for each compound and as a triplicate for each calculation. The quantum yield of the unknown $\Phi_{(x)}$ can be calculated by the following equation:

$$\Phi_s = \left(\frac{I_s}{I_{\text{ref}}} \right) \cdot \left(\frac{\text{Abs ref}}{\text{Abs } s} \right) \cdot \left(\frac{\eta^2 s}{\eta^2 \text{ ref}} \right) \cdot \Phi_{\text{ref}}$$

Where $\Phi(\text{ref})$ is the quantum yield of the standard, **Abs** is the absorbance at the excitation wavelength, **I** is the integrated area in the emission curve, the subscripts **s** and **ref** refer to unknown and standard respectively and η is the refractive index of the solvent. By measuring a series of diluted solutions with various absorbance readings the following equation may be used:

$$\Phi_s = \left(\frac{\text{Grad } s}{\text{Grad ref}} \right) \cdot \left(\frac{\eta^2 s}{\eta^2 \text{ ref}} \right) \cdot \Phi_{\text{ref}}$$

Where Grad is the gradient from the plot of the integrated area in the emission curve versus absorbance at the excitation wavelength.

Table S1. Observed high-resolution mass of synthesized PNA oligomers

Sequence ^a (N→C)	Molecular formula	Calculated [M+Na] ⁺	Observed [M+Na] ⁺
H-Lys-AGT GATCT AC-Lys-NH ₂	C ₁₂₀ H ₁₅₉ N ₆₁ O ₃₃ Na	3005.2536	3005.2929
H-Lys-GTAGAT CACT -Lys-NH ₂	C ₁₂₀ H ₁₅₉ N ₆₁ O ₃₃ Na	3005.2536	3005.2551
H-GTAGA ^Q U CACT-Lys-NH ₂	C ₁₂₁ H ₁₅₄ N ₆₄ O ₃₂ Na ₂	1530.6093 ^b	1530.6122
H-GTAGA ^Q U (NO ₂)CACT-Lys-NH ₂	C ₁₂₁ H ₁₅₃ N ₆₅ O ₃₄ Na ₂	1553.1018 ^b	1553.1120
H-GTAGA ^Q U (OMe)CACT-Lys-NH ₂	C ₁₂₂ H ₁₅₆ N ₆₄ O ₃₃ Na ₂	1545.6145 ^b	1545.6220

^a PNA sequences possess a free N-terminal amino group and C-terminal amide

^b Oligomer calculated and observed as the dicationic [M+2Na]²⁺

Oligomer synthesis

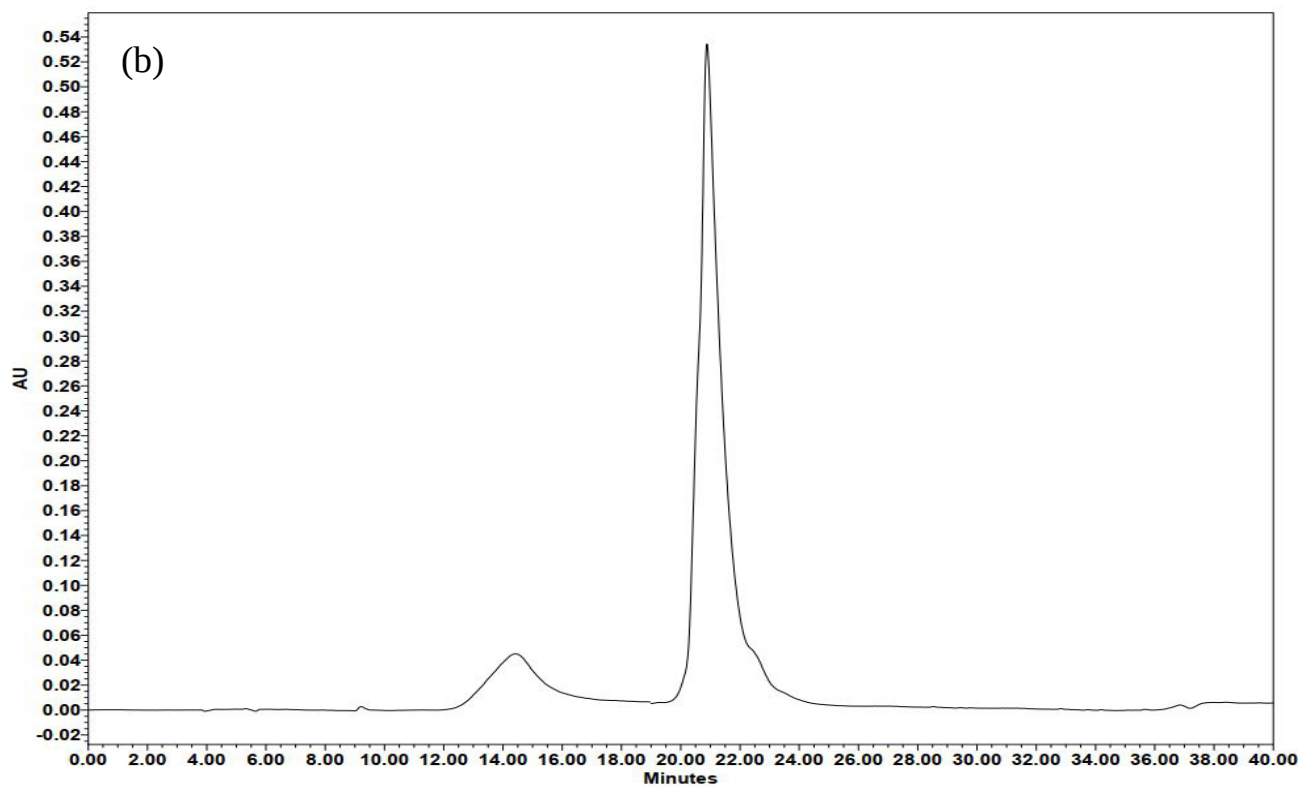
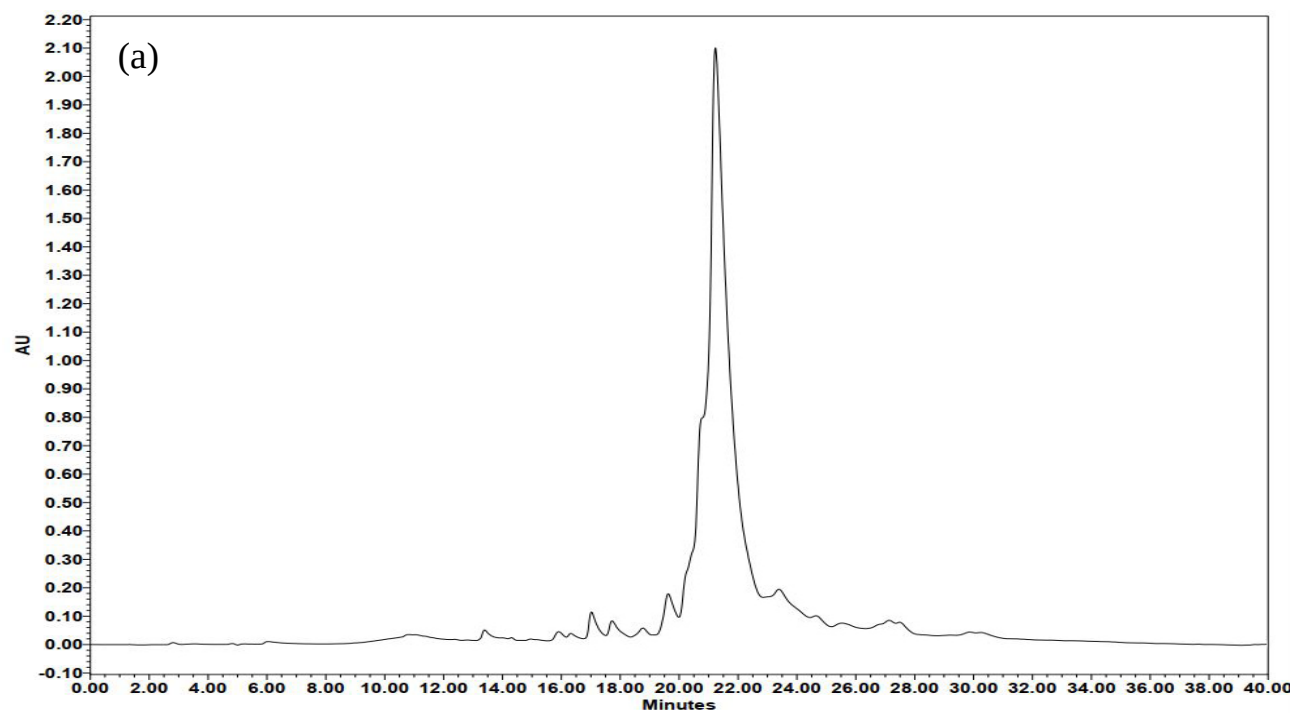
PNA oligomers were synthesized using the ABI 433A peptide synthesizer manufactured by Perkin Elmer Applied Biosystems. Oligomerization was carried out using newly synthesized ⁵U monomer, commercially available PNA monomers: Fmoc-A(Bhoc)-AEG-OH, Fmoc-G(Bhoc)-AEG-OH, and Fmoc-C(Bhoc)-AEG-OH, Fmoc-T(Bhoc)-AEG-OH (purchased from PolyOrg, Inc.), and *N*α-Fmoc-*N*ε-Boc-L-lysine (purchased from Chem-Impex Int'l Inc.), using standard Fmoc-based solid-phase synthesis protocol. Fmoc-RAM-PS was used as a solid support resin preloaded with lysine at 0.057 mmol/g. The synthesis was carried out on a 5.0 μmol scale. Monomers were prepared with 25 μmol dissolved in 110 μL. Solutions of 0.4 M diisopropylethylamine in *N*-methyl-2-pyrrolidone (NMP) and 0.19 M HBTU in NMP were prepared for monomer coupling. Fmoc deprotection was performed using a solution of 20% 4-methylpiperidine in dimethylformamide. Unreacted terminal amino groups were capped with acetic anhydride, using a solution of 1:25:25 acetic anhydride: pyridine: NMP. Following automated synthesis, the resin was treated with a solution of 95 % trifluoroacetic acid and 5% triethylsilane to cleave the oligomer from the resin and remove the protecting group from the nucleobases (Bhoc) and amino group (Boc). The solvent was then evaporated under a nitrogen stream, the resulting residue was washed twice with cold ether, dissolved in a solution of 0.05%

trifluoroacetic acid in water then purified by reverse-phase HPLC. Reverse-phase HPLC was performed on an Agilent Microsorb-MV 100-5 C18 250 × 4.6 mm column heated to 50 °C. The purified PNA oligomer was eluted using a gradient (water/0.1 % trifluoroacetic acid to acetonitrile/0.1 % trifluoroacetic acid).

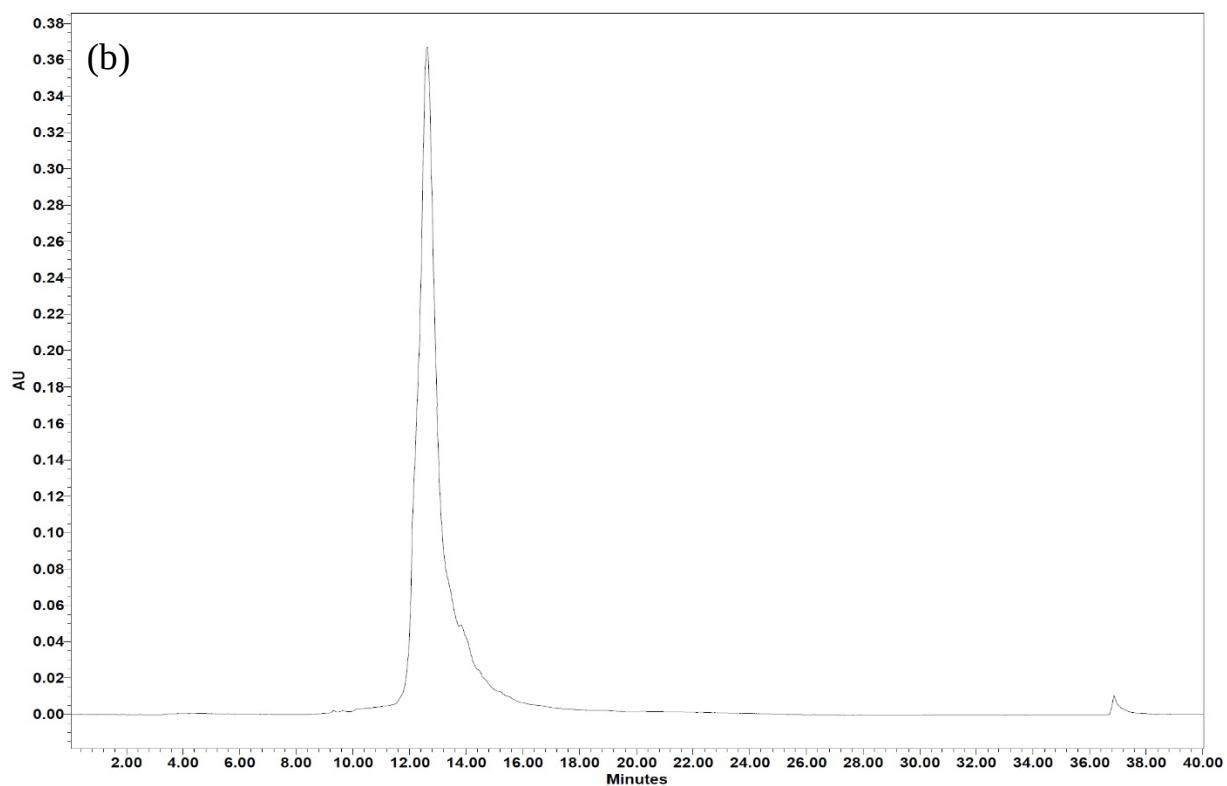
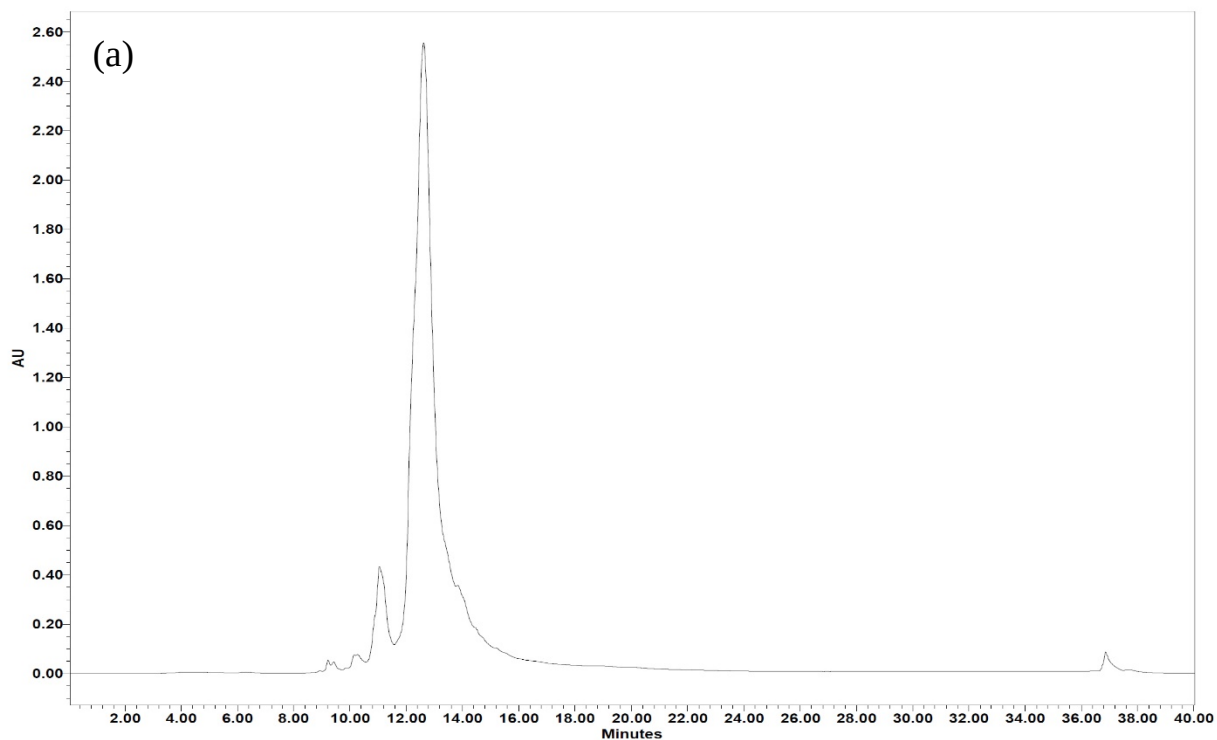
RP-HPLC conditions and chromatograms

For PNA oligomers: 0-50% B in 50 min and 50-100% B in 10 min (Mobile phase A: H₂O containing 0.1% TFA. Mobile phase B: acetonitrile containing 0.1% TFA) (unless otherwise stated). For DNA oligomers: 0-20% A in 20 min and 20-100% A in 10 min (Mobile phase A: Acetonitrile. Mobile phase B: 0.1 M TEAA buffer). The flow rate was 1 mL/min.

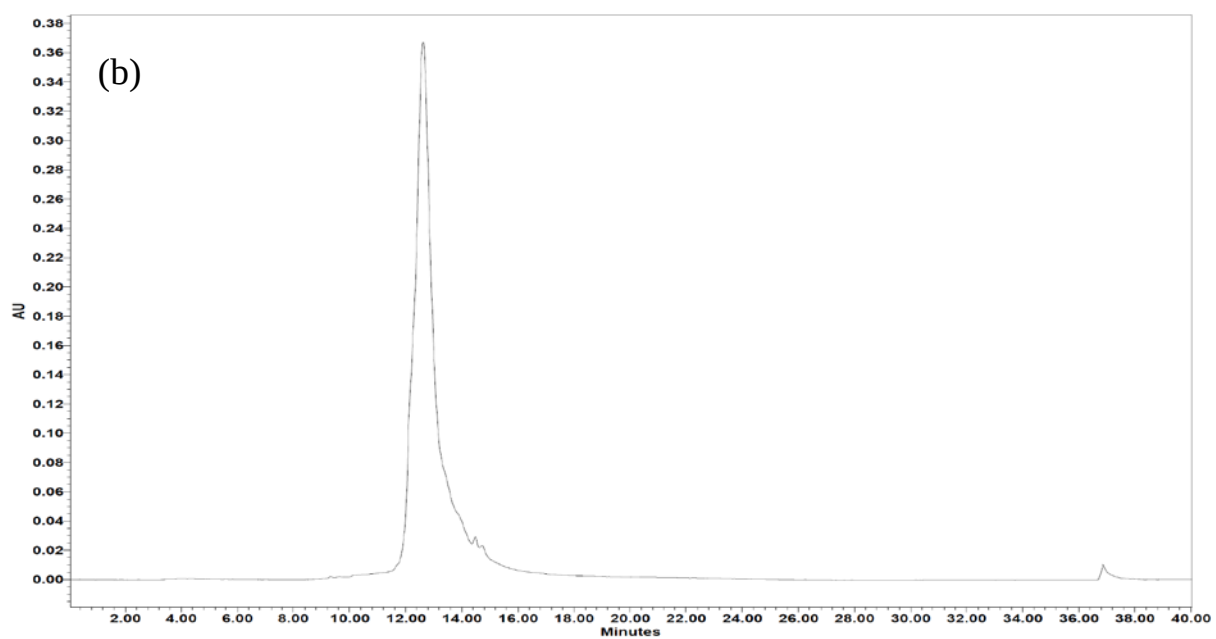
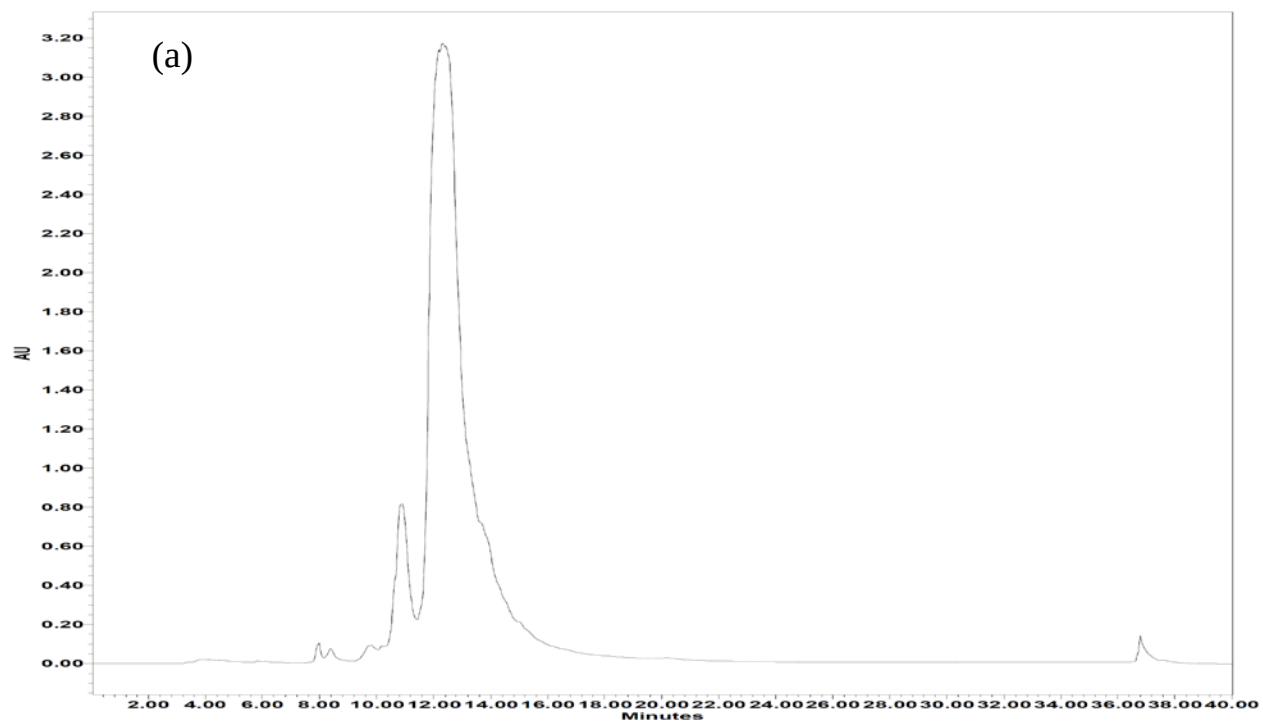
RP-HPLC chromatograms of the crude (a) and pure (b) PNA oligomer **H-Lys-AGTGATCTAC-Lys-NH₂**



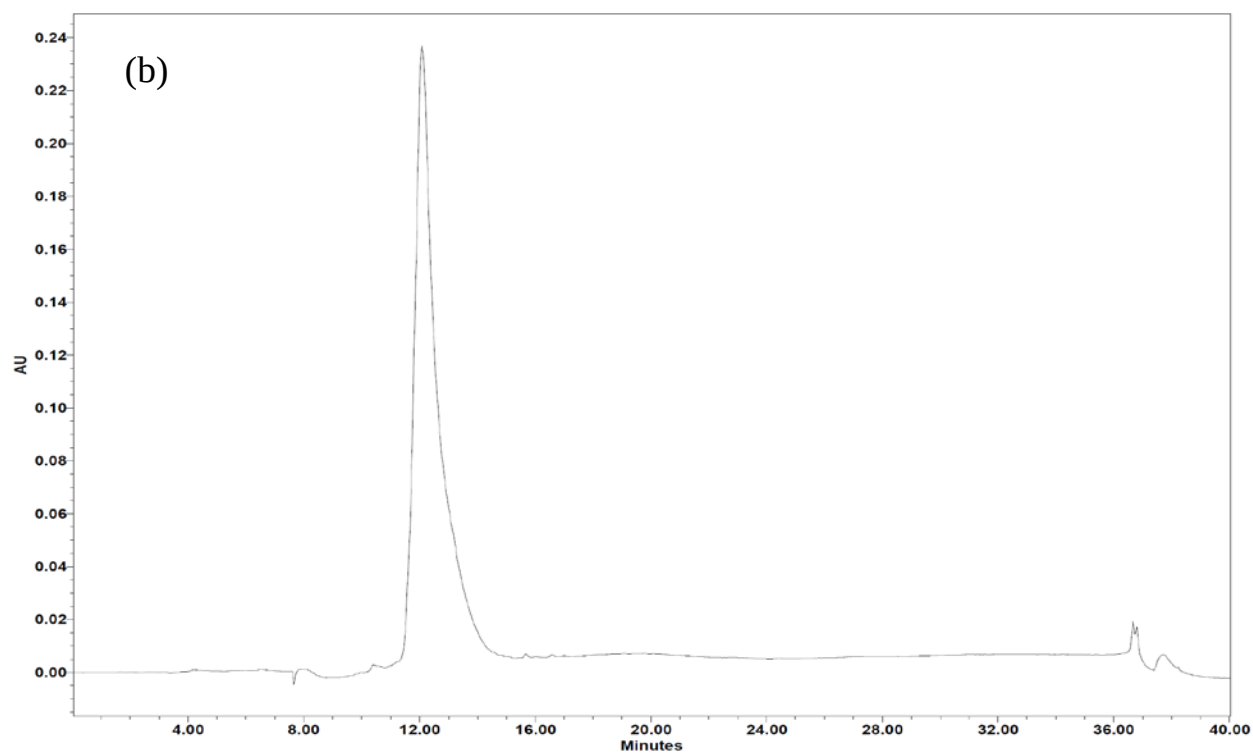
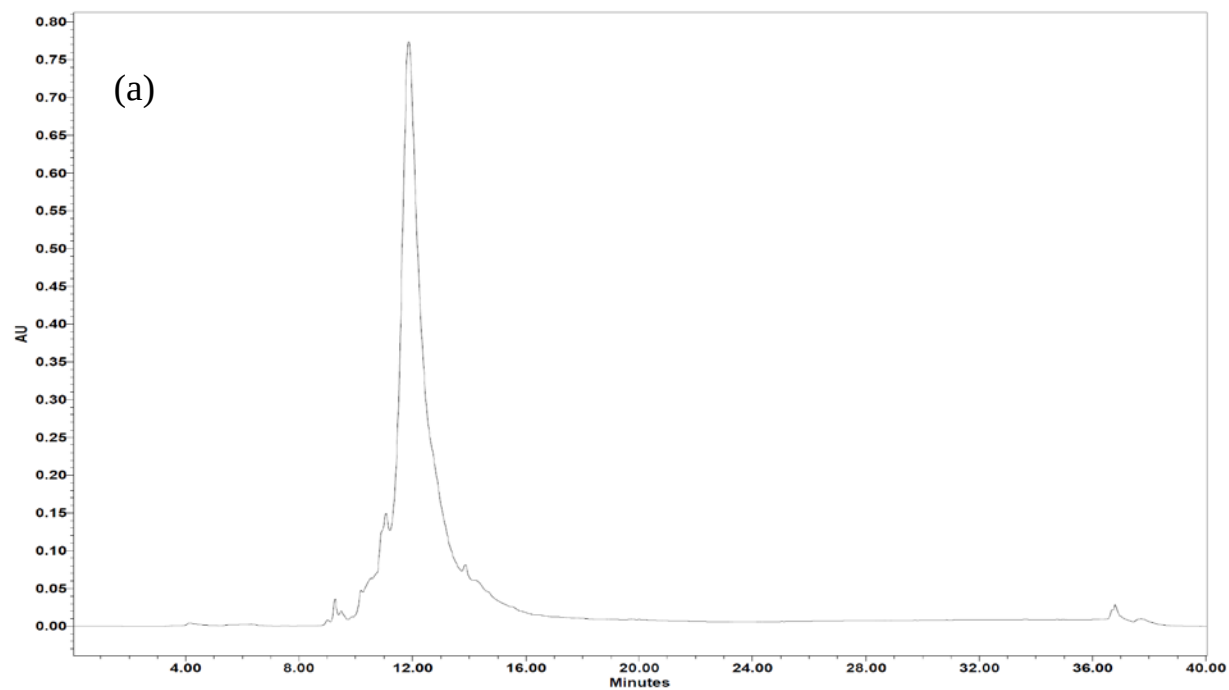
RP-HPLC chromatograms of the crude (a) and pure (b) PNA oligomer **H-GTAGA⁹U**CACT-Lys-NH₂



RP-HPLC chromatograms of the crude (a) and pure (b) PNA oligomer **H-GTAGA^{QU(OMe)}CACT-Lys-NH₂**



RP-HPLC chromatograms of the crude (a) and pure (b) PNA oligomer **H-GTAGA^{QU(NO₂)}CACT-Lys-NH₂**



RP-HPLC chromatograms of the (a) crude (DMT-on) and (b) pure (DMT-off) DNA oligomer 5' **AGTGATCTACCT** 3'

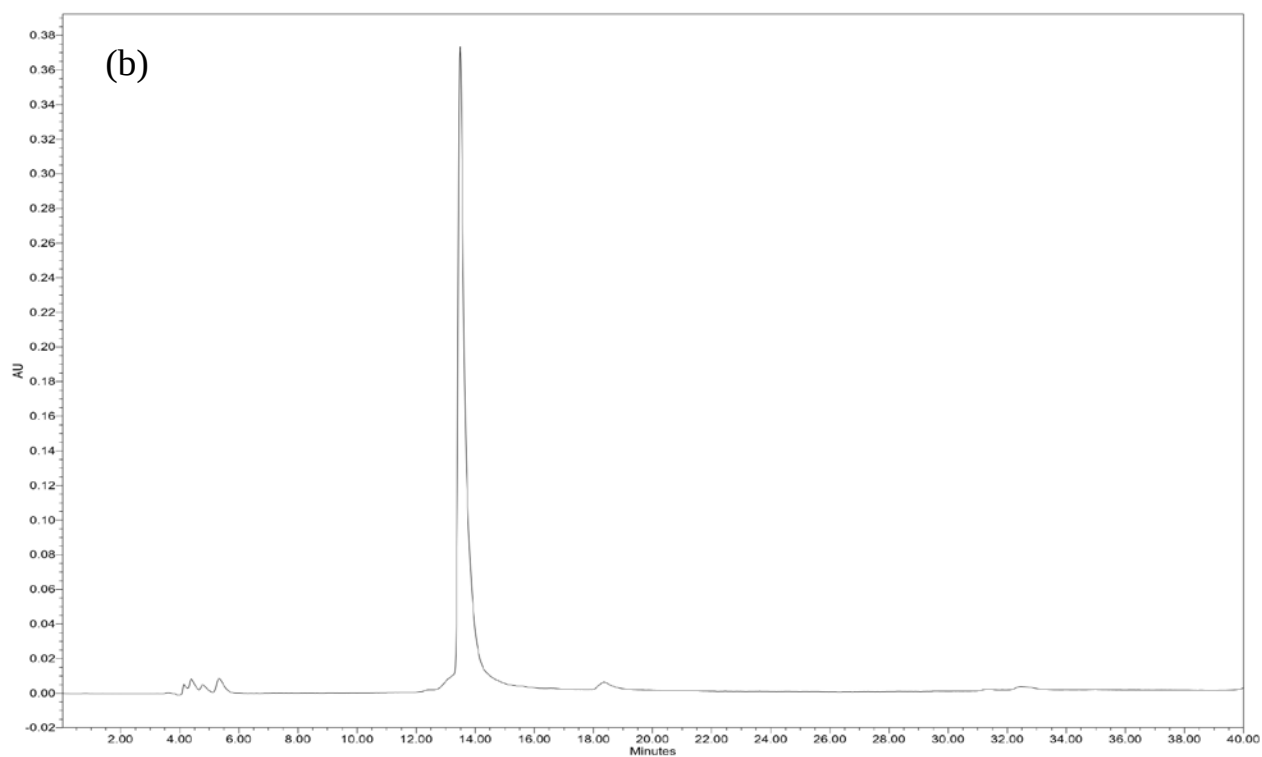
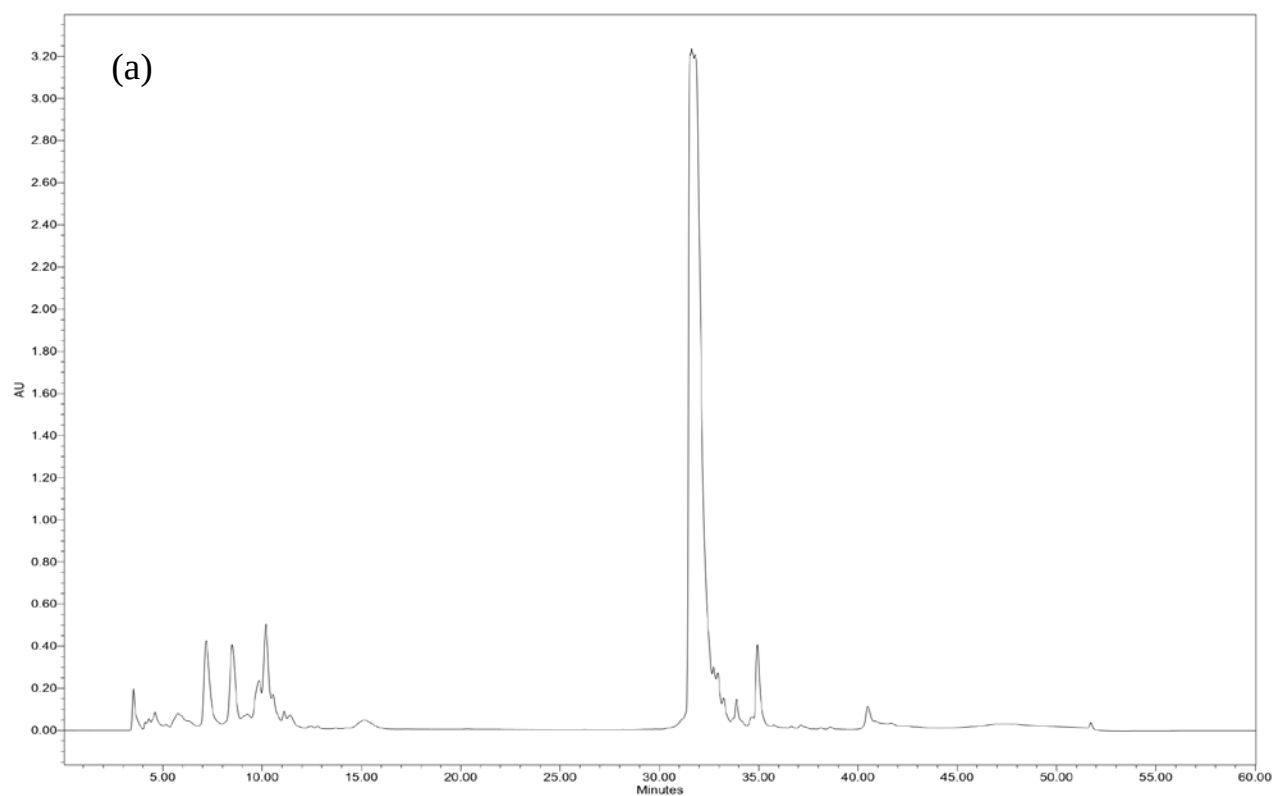


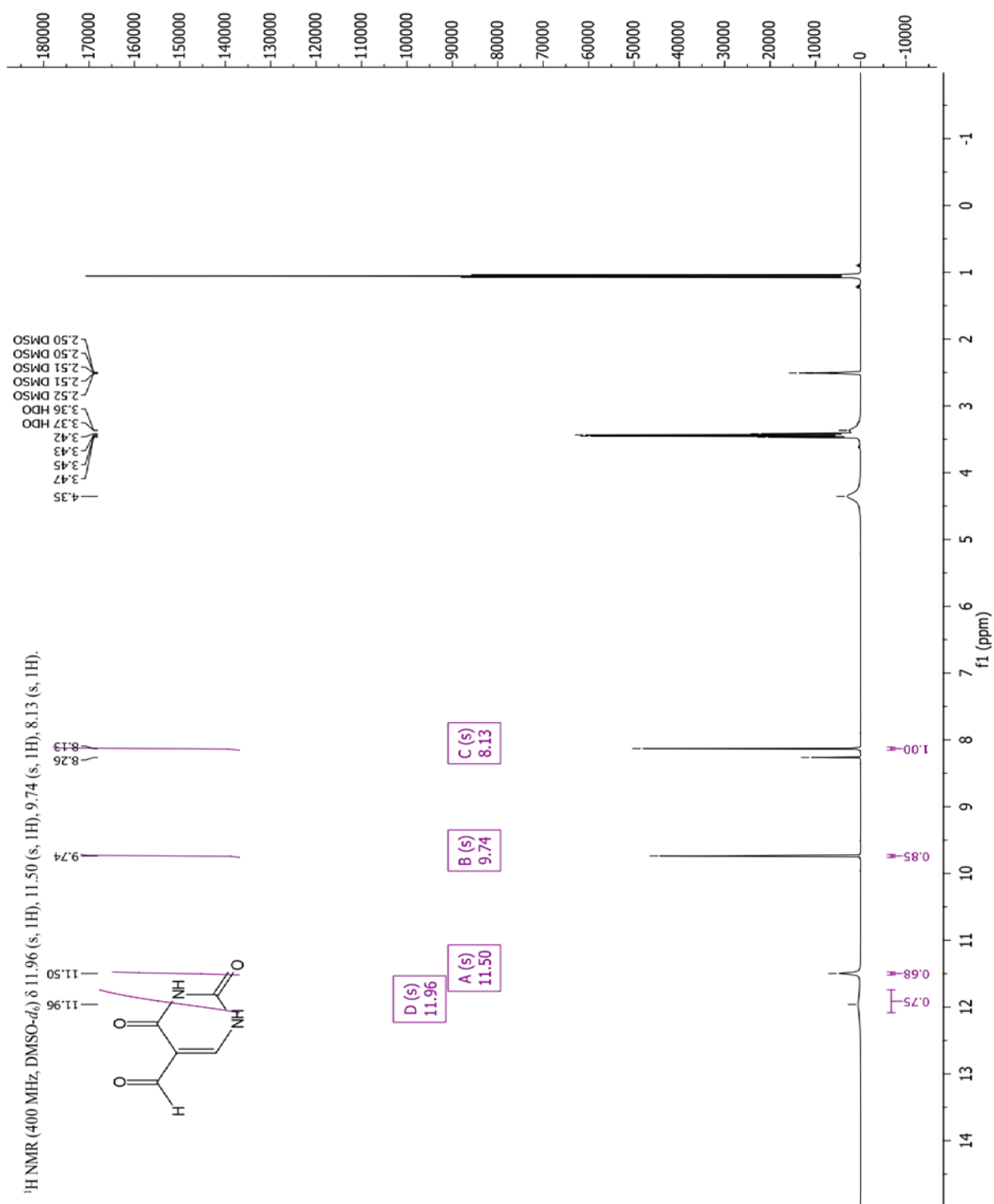
Table S2. Calculated quantum yield values for reference standards in different solvents and temperatures

Reference Fluorophore	Φ (EtOH)	Φ (DMSO)	Φ (THF)	Φ (Glycerol)	Φ (water, pH 7.2)	T (°C)
9,10-diphenylanthracene	0.95 ^a	0.27	0.42	0.89		23
	0.79	0.24		0.81		60
	0.95					15
		0.27	0.35	0.31	0.14 ^a	23
		0.28				60
Tryptophan						15

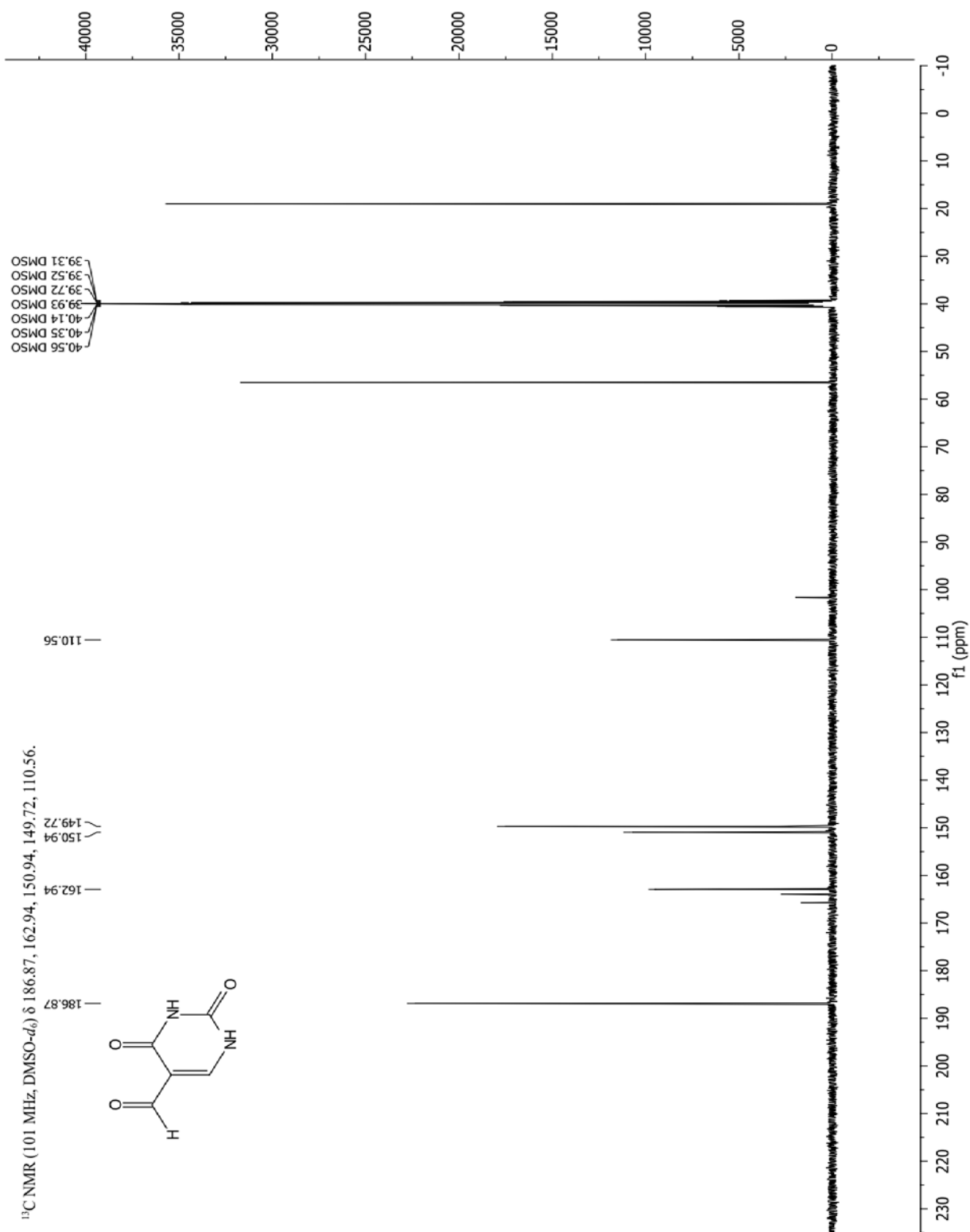
^a Values extracted from literature^{[1][2]}

NMR Spectra

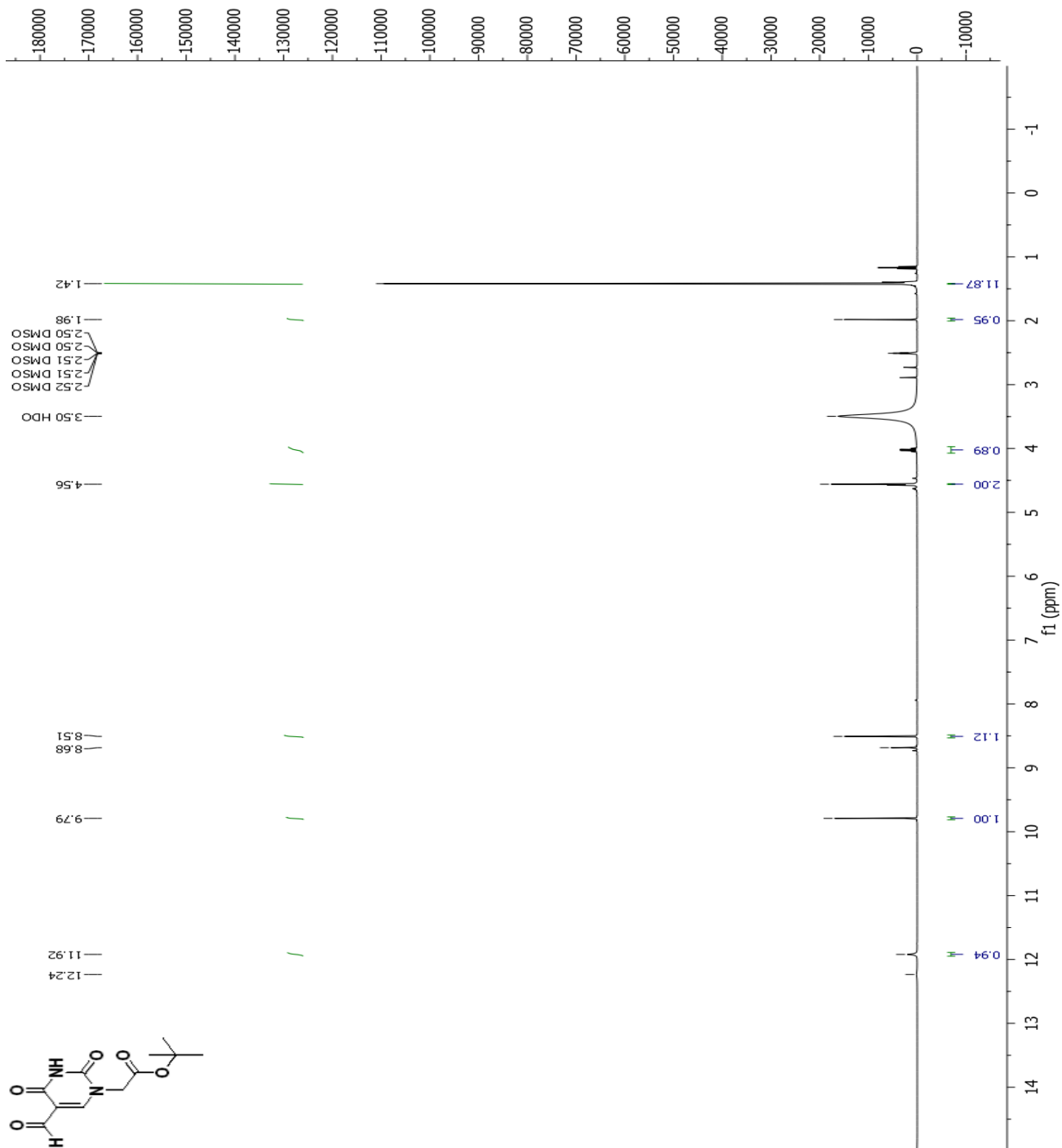
¹H NMR spectrum of 5-Formyluracil (1)



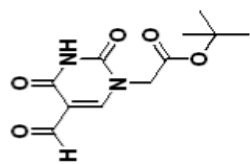
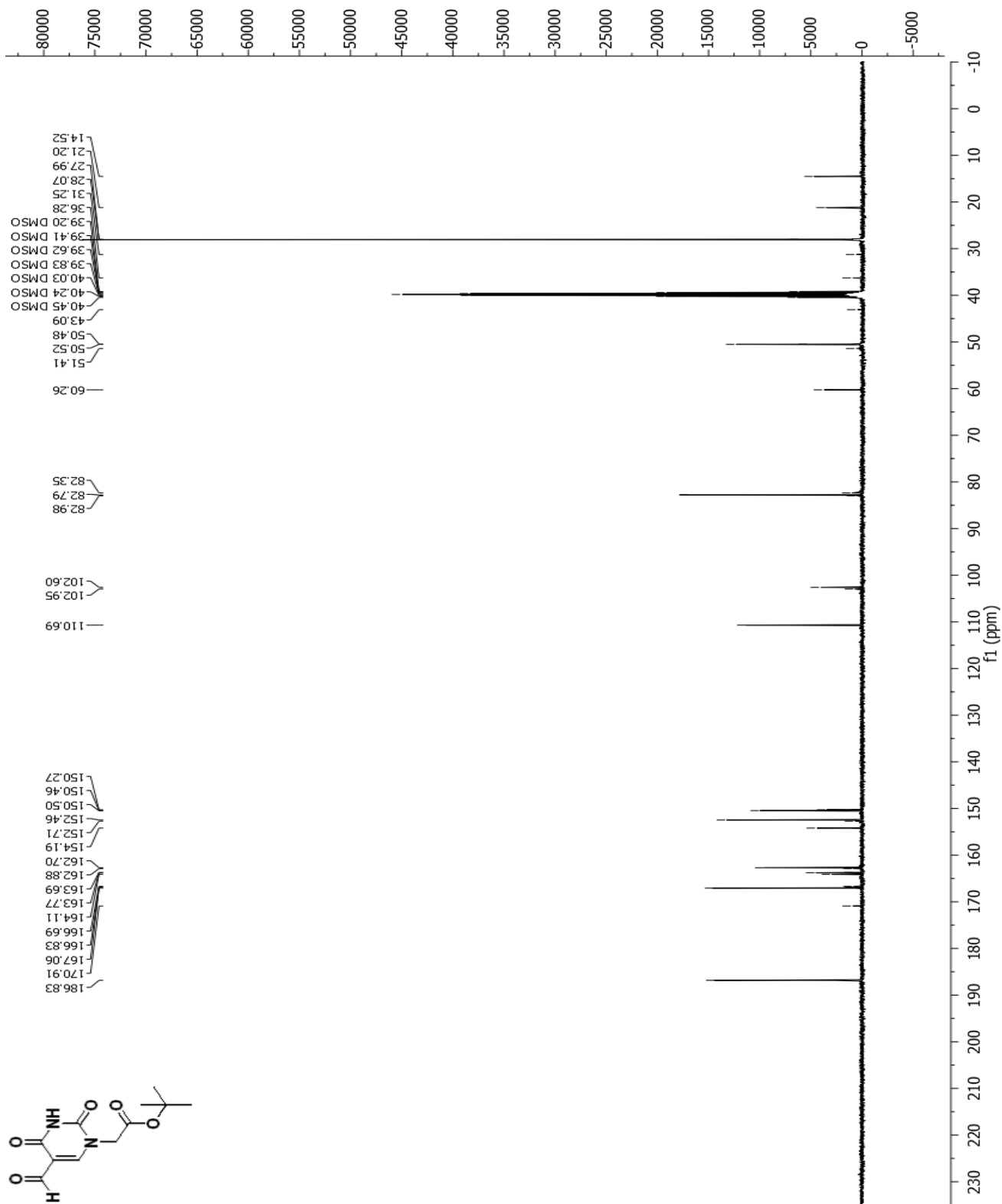
¹³C NMR spectrum of 5-Formyluracil (1)



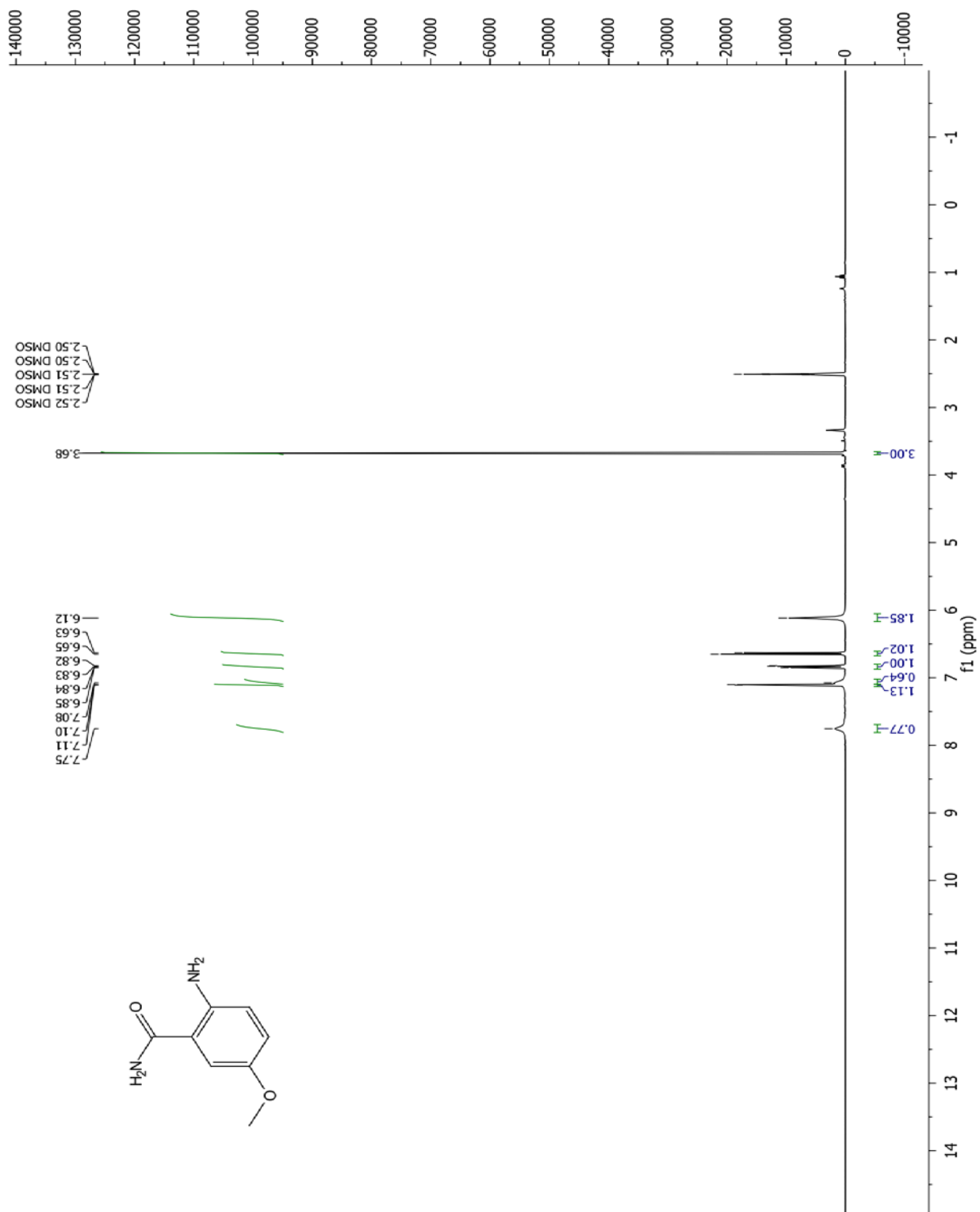
¹H NMR spectrum of *tert*-Butyl (uracil-5-formaldehyde-1-yl) acetate (2)



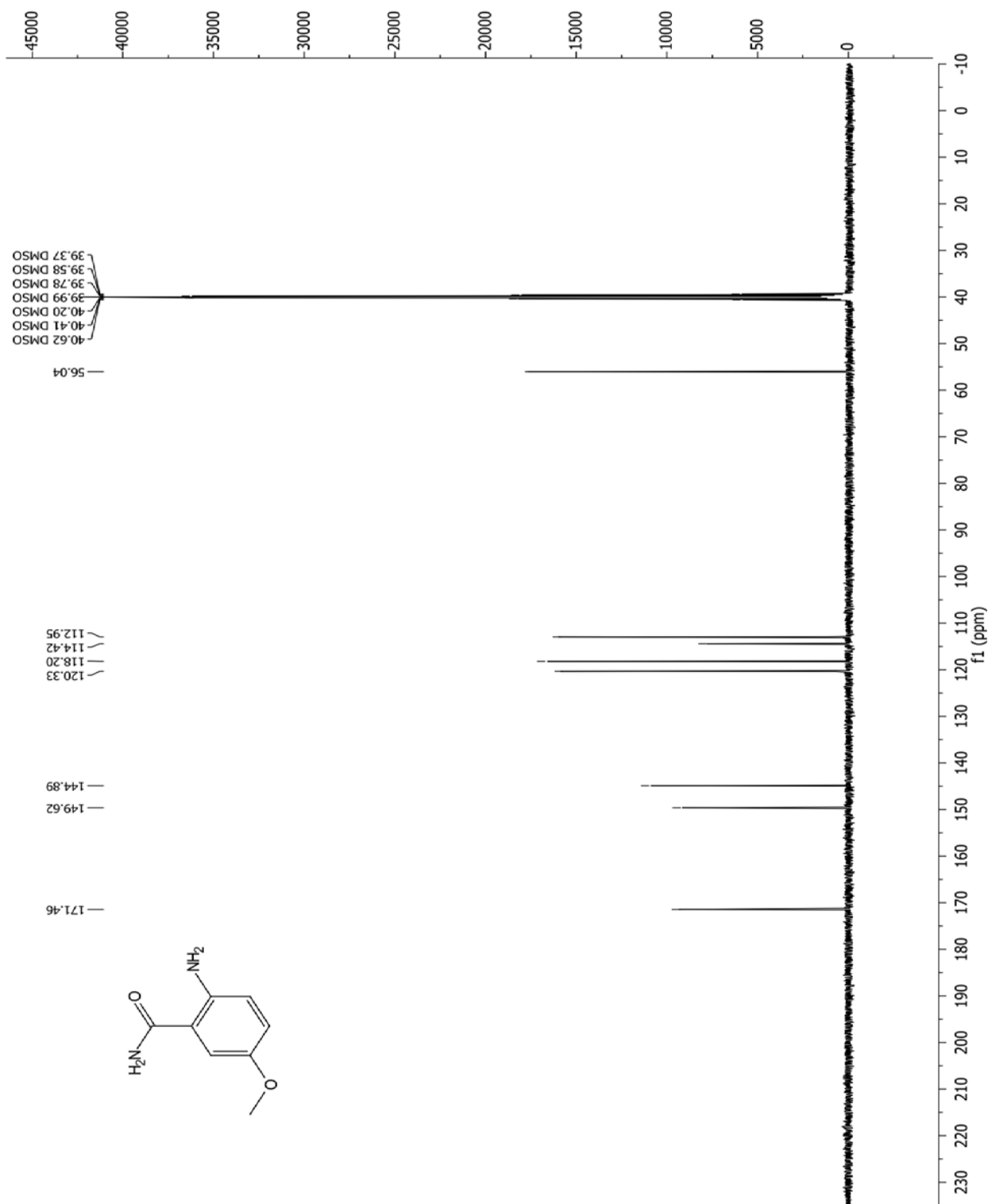
^{13}C NMR spectrum of *tert*-Butyl (uracil-5-formaldehyde-1-yl) acetate (2)



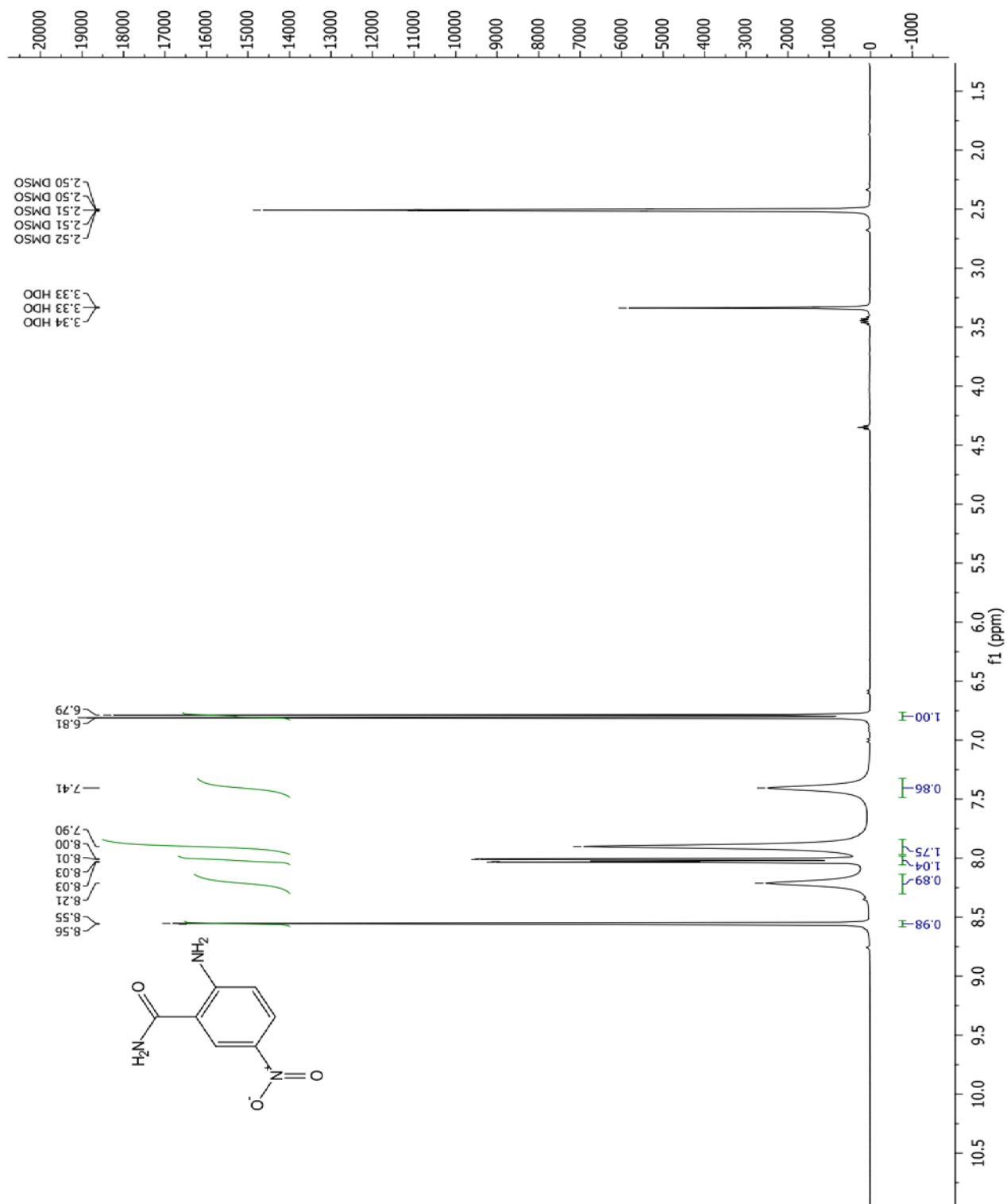
¹H NMR spectrum of 2-Amino-5-methoxybenzamide (3)



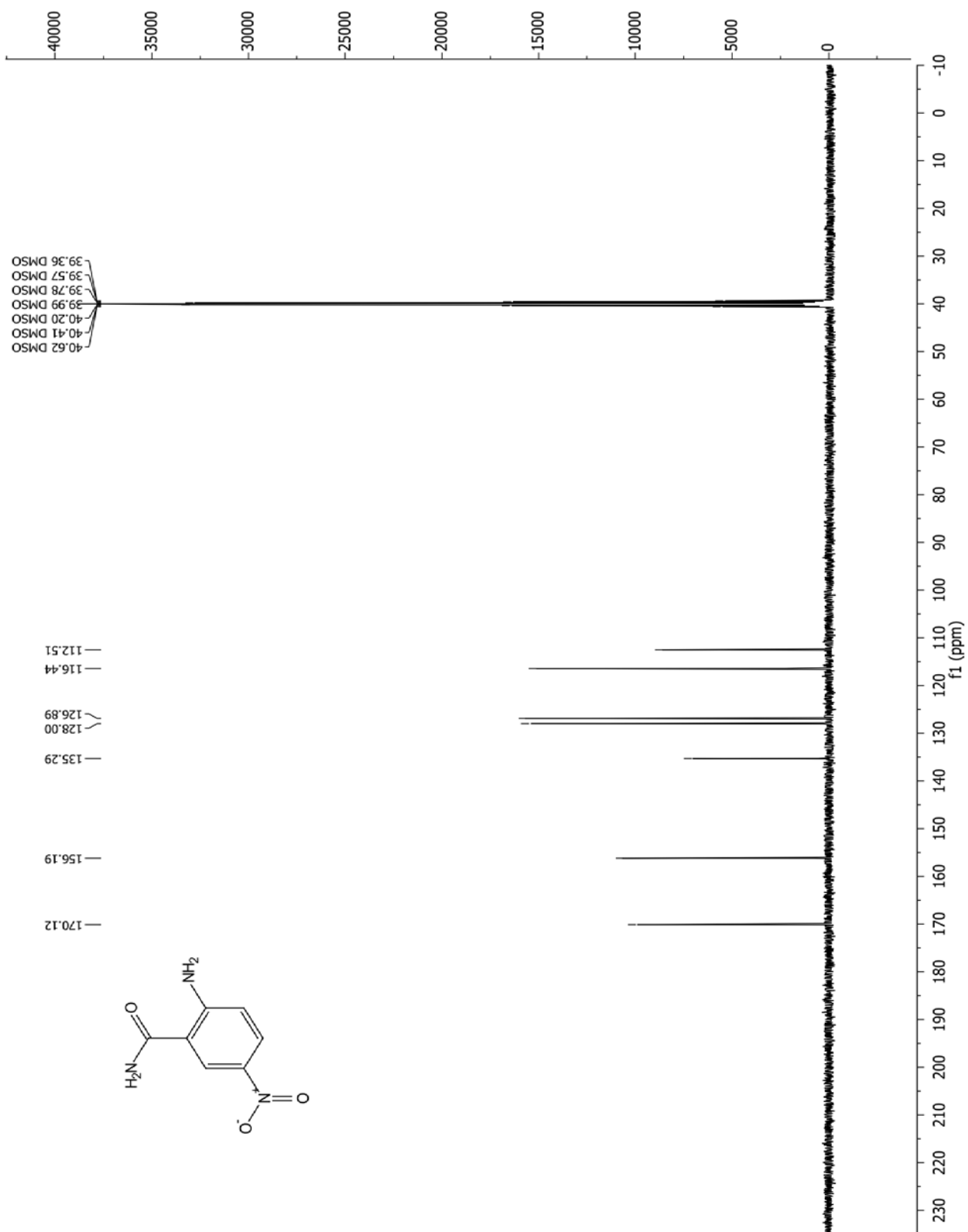
¹³C NMR spectrum of 2-Amino-5-methoxybenzamide (3)



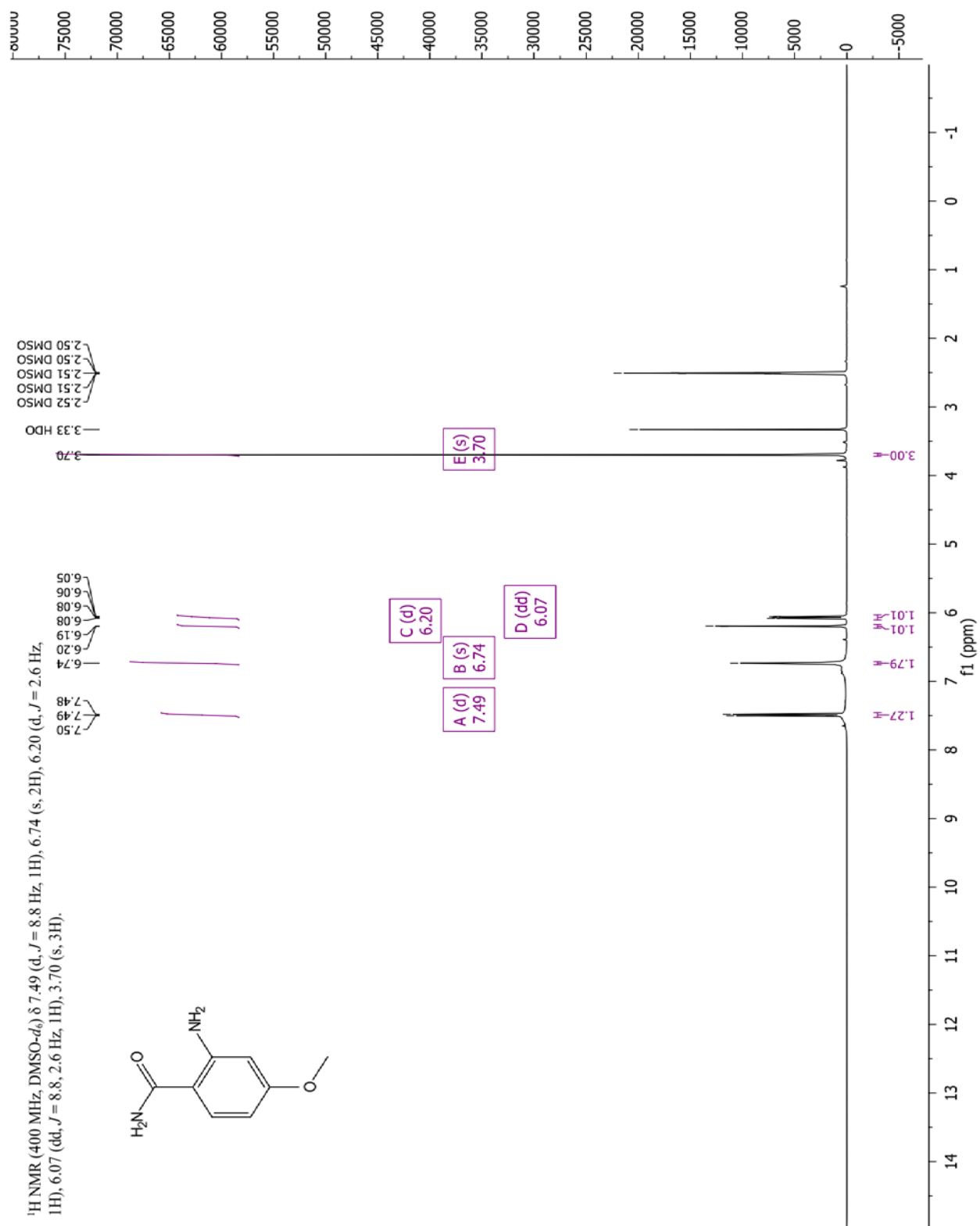
¹H NMR spectrum of 2-Amino-5-nitrobenzamide (4)



¹³C NMR spectrum of 2-Amino-5-nitrobenzamide (4)



¹H NMR spectrum of 2-Amino-4-methoxybenzamide (5)



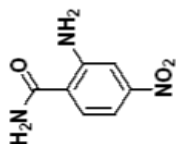
NC(=O)c1ccc([N+](=O)[O-])cc1

Chemical Structure: 4-aminobenzoic acid (p-aminobenzoic acid)

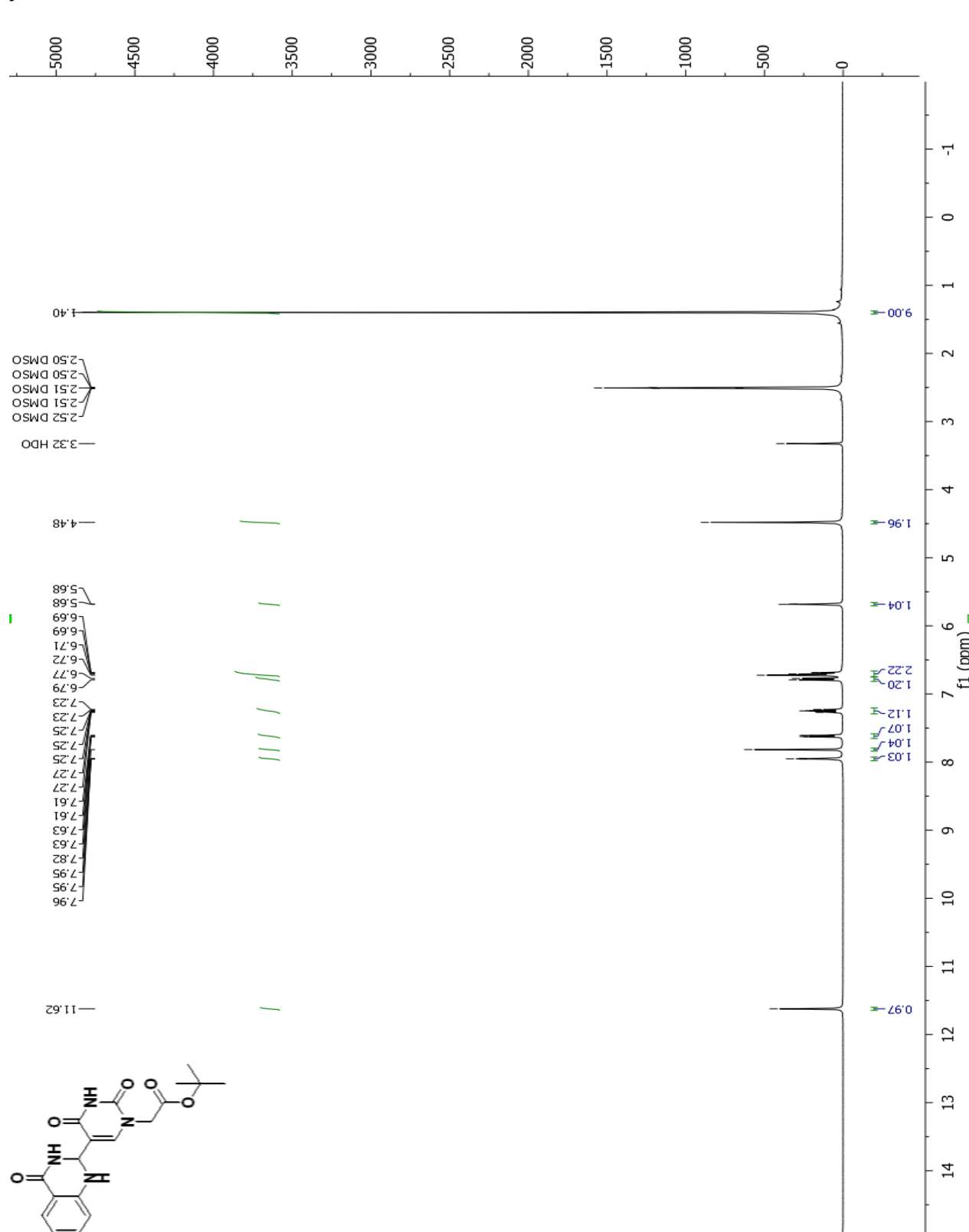
¹H NMR Data (DMSO-d₆):

Peak Label	Chemical Shift (ppm)	Multiplicity	Integration
A	8.03	s (1H)	0.75
B	7.74	d (2H)	1.24
C	7.26	d (2H)	1.20
D	7.46	s (1H)	0.76
E	7.25	dd (2H)	2.00
F	7.02	s (1H)	1.23

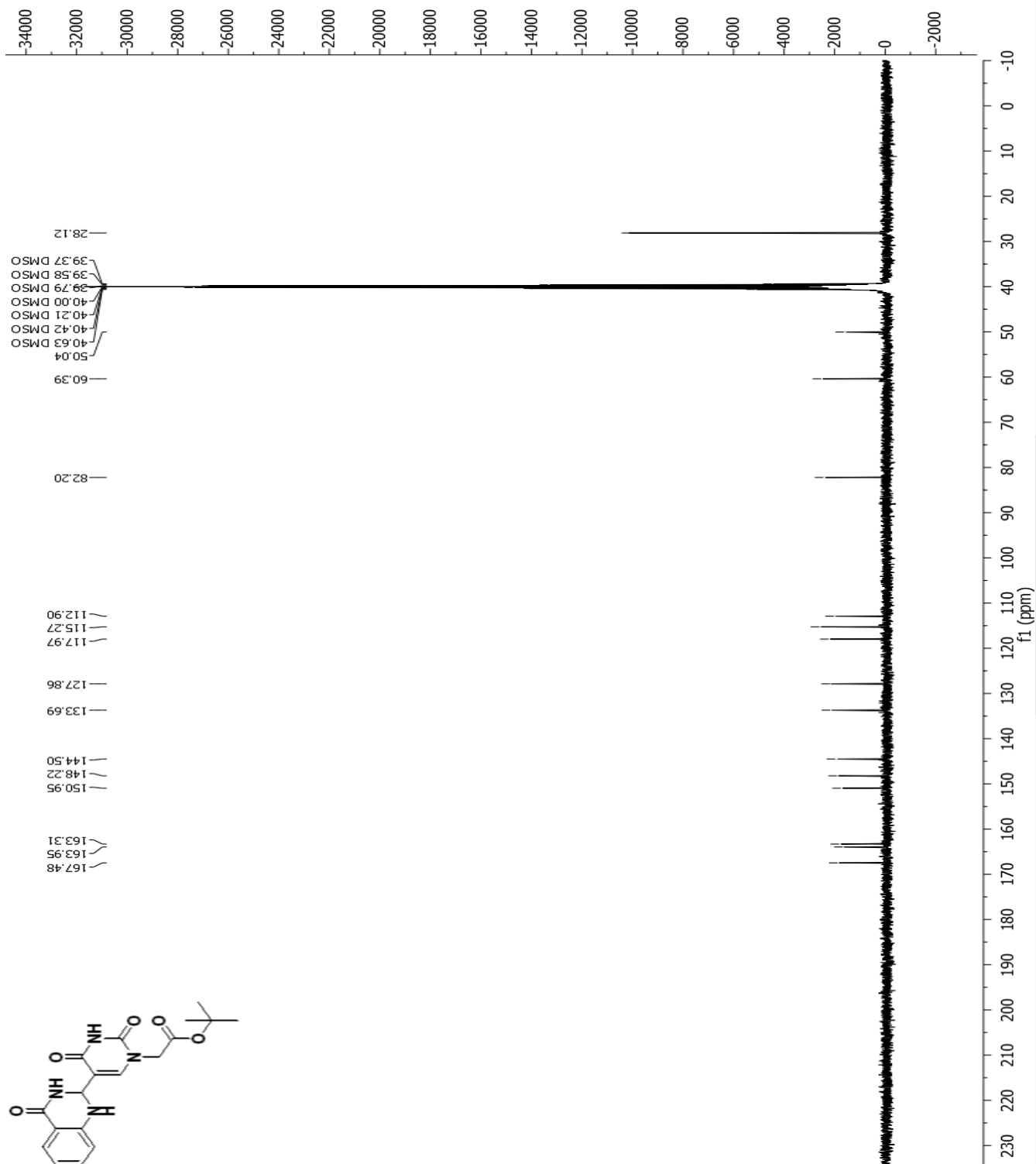
Solvent Peaks: DMSO (2.50 ppm), H₂O (3.34 ppm)



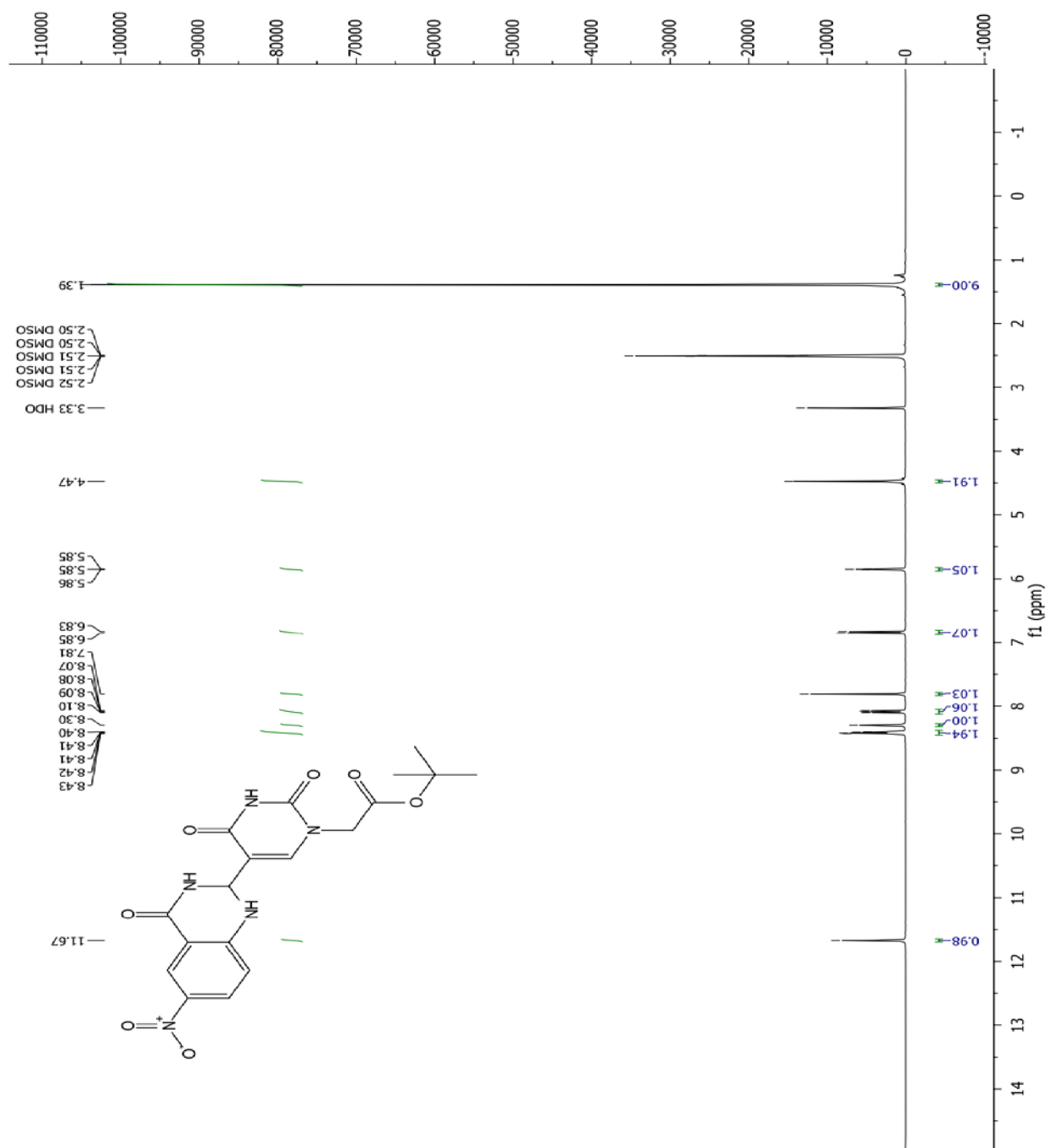
¹H NMR spectrum of *tert*-Butyl 2-(5-(4-oxo-1,2,3,4-tetrahydroquinazolin-2-yl)uracil-1-yl)acetate (7)



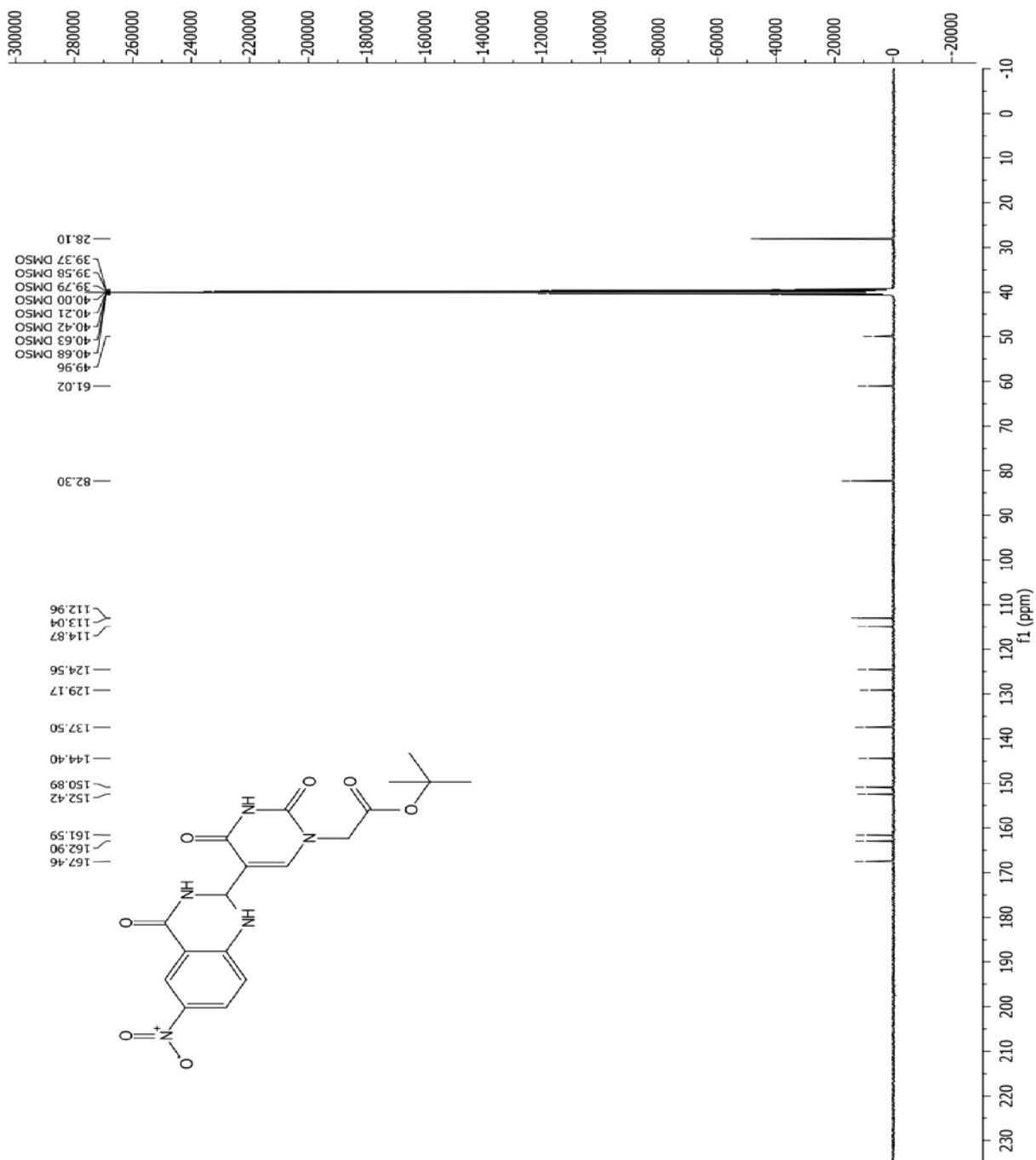
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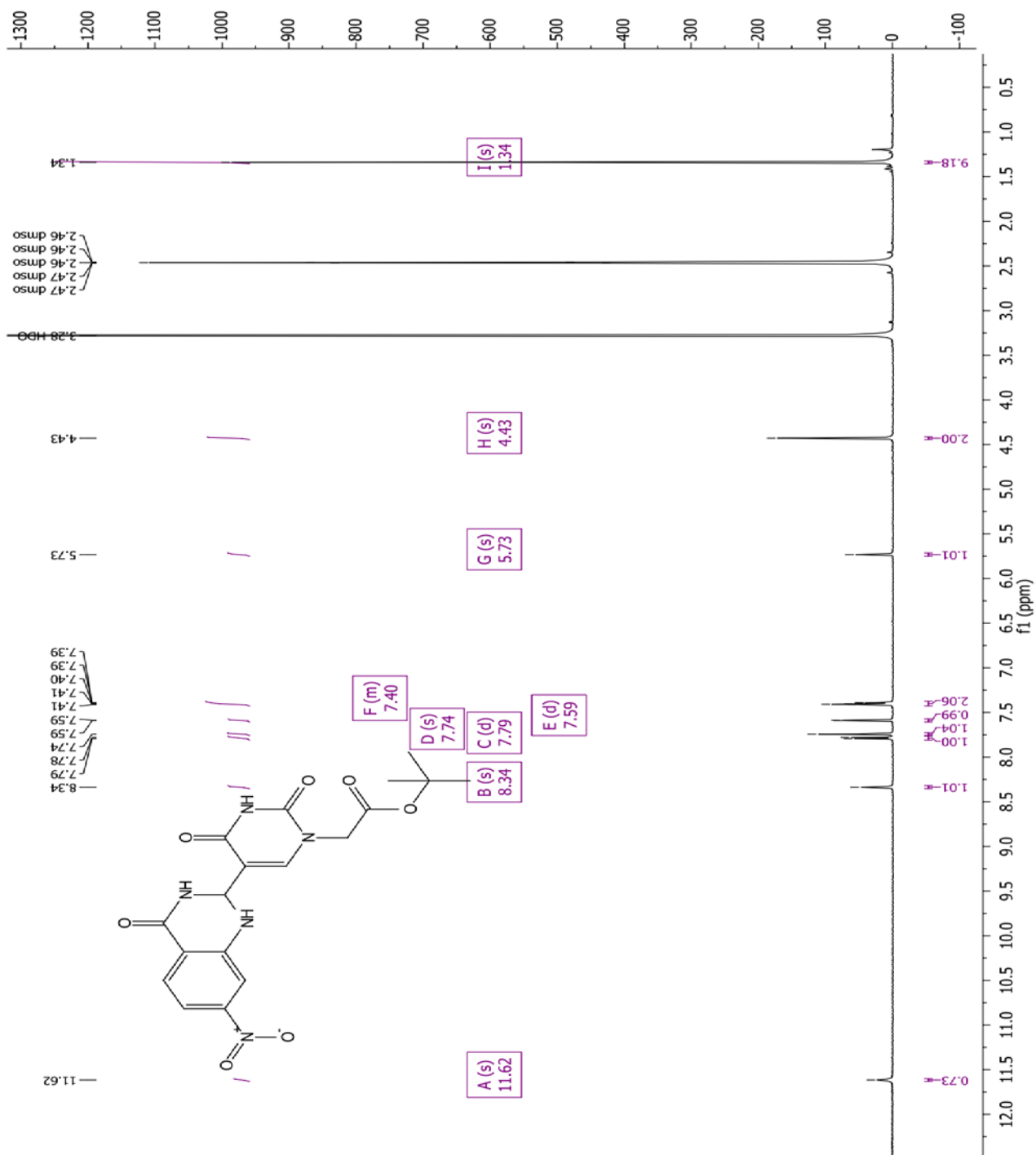
¹H NMR spectrum of *tert*-Butyl 2-(5-(6-nitro-4-oxo-1,2,3,4-tetrahydroquinazolin-2-yl)uracil-1-yl) acetate (8)



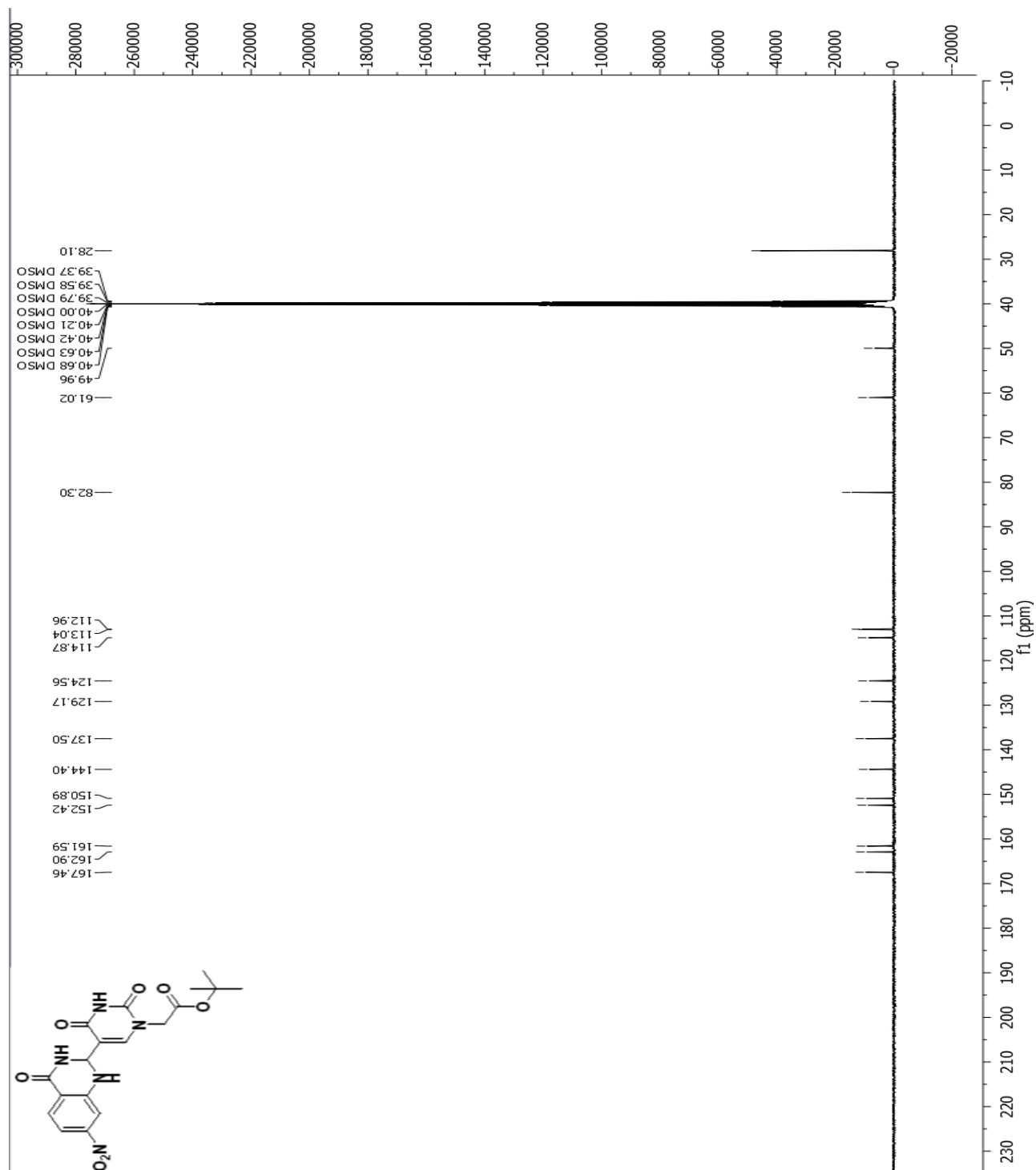
¹³C NMR spectrum of *tert*-Butyl 2-(5-(6-nitro-4-oxo-1,2,3,4-tetrahydroquinazolin-2-yl)uracil-1-yl) acetate (8)



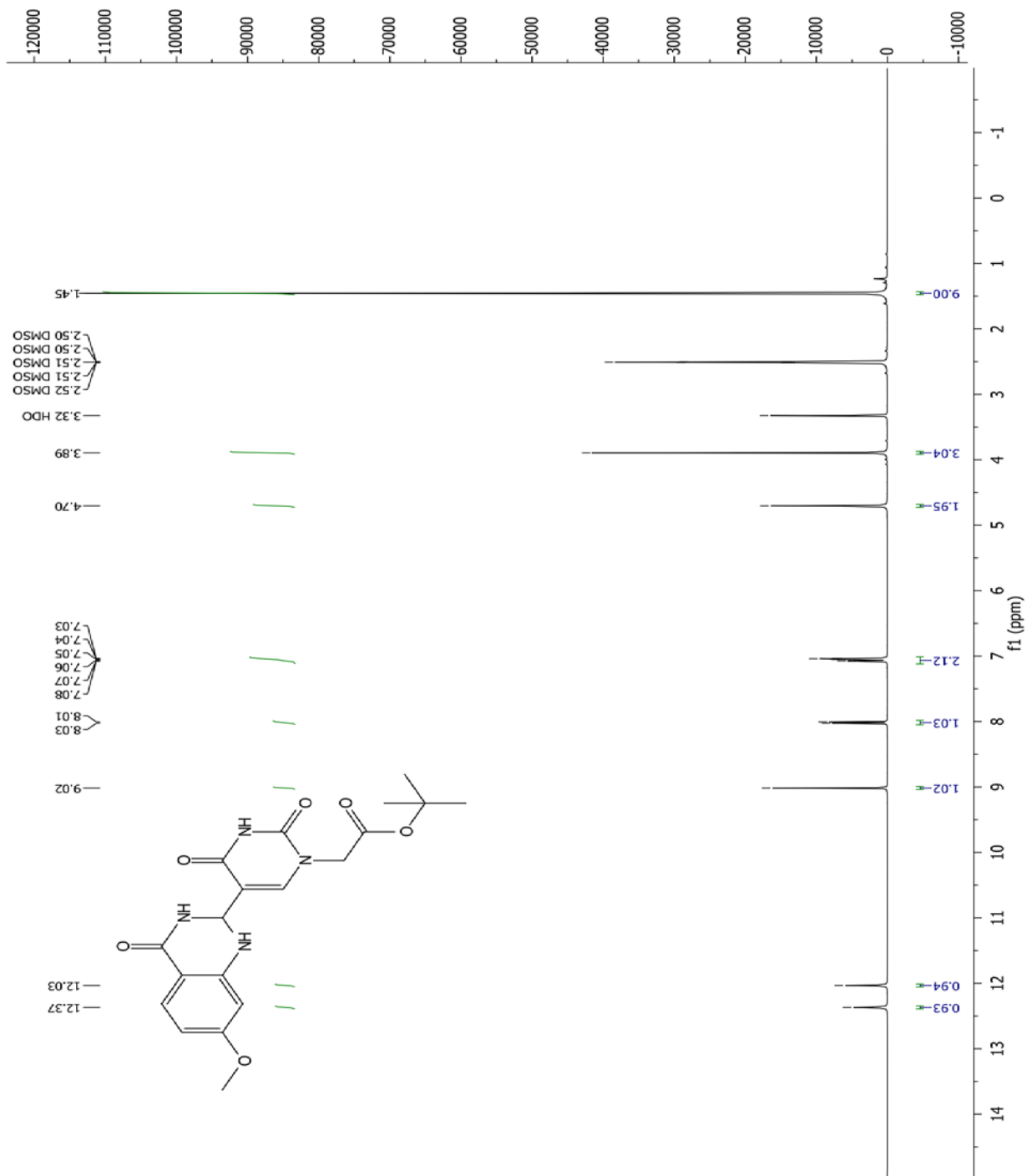
¹H NMR spectrum *tert*-Butyl 2-(5-(7-nitro-4-oxo-1,2,3,4-tetrahydroquinazolin-2-yl)uracil-1-yl)acetate (9)



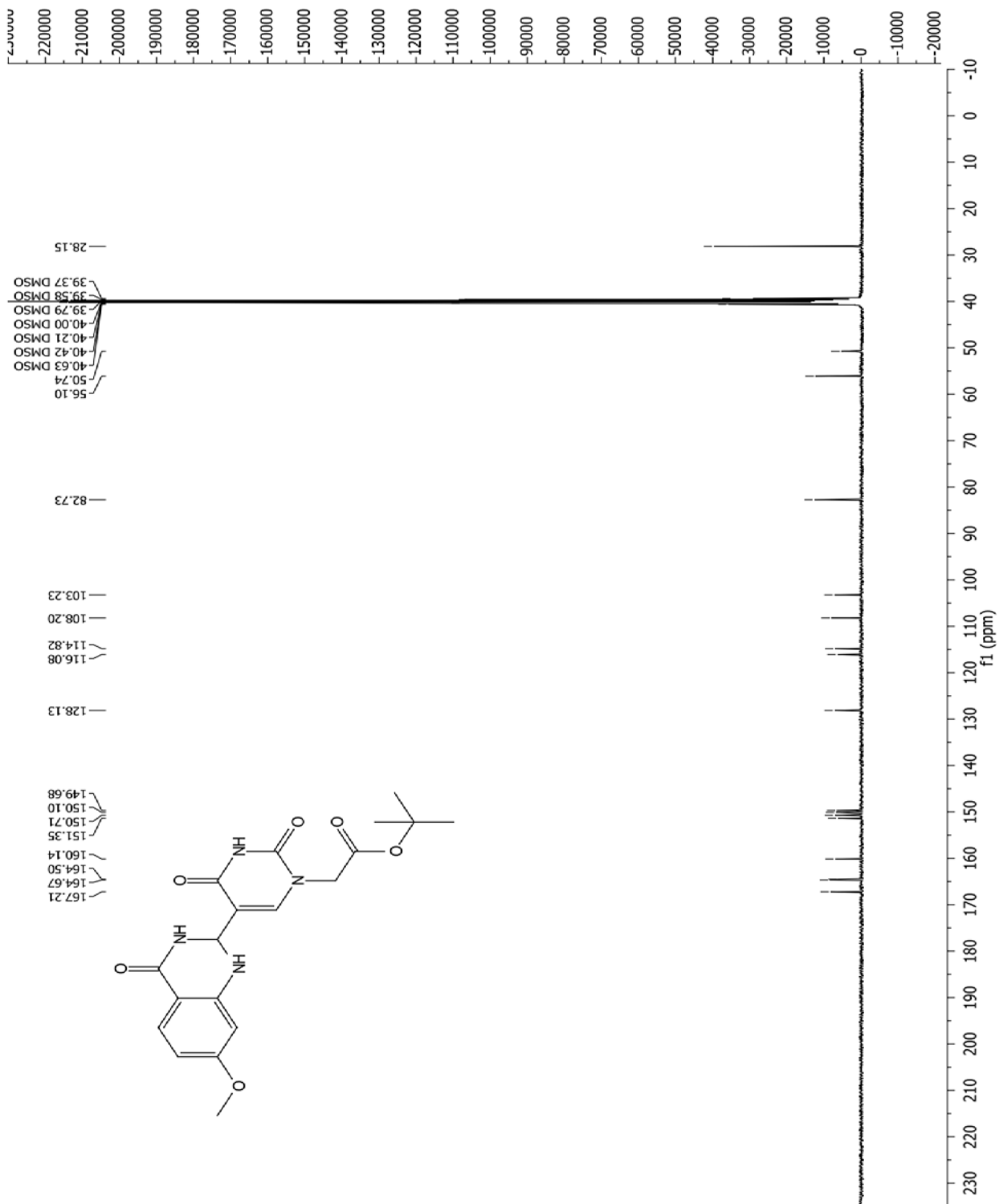
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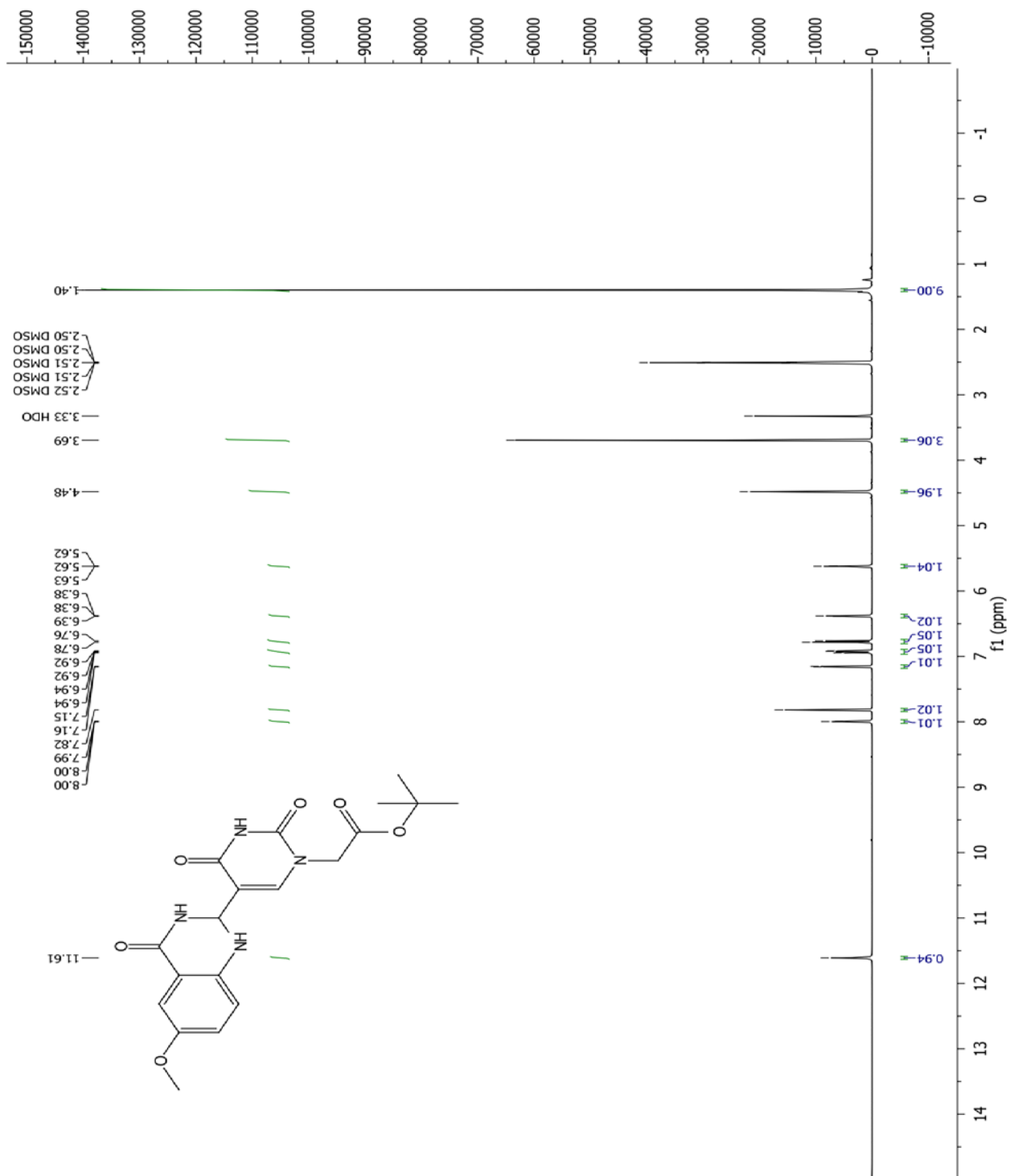
¹H NMR spectrum of *tert*-Butyl 2-(5-(7-methoxy-4-oxo-1,2,3,4-tetrahydroquinazolin-2-yl)uracil-1-yl)acetate (10)



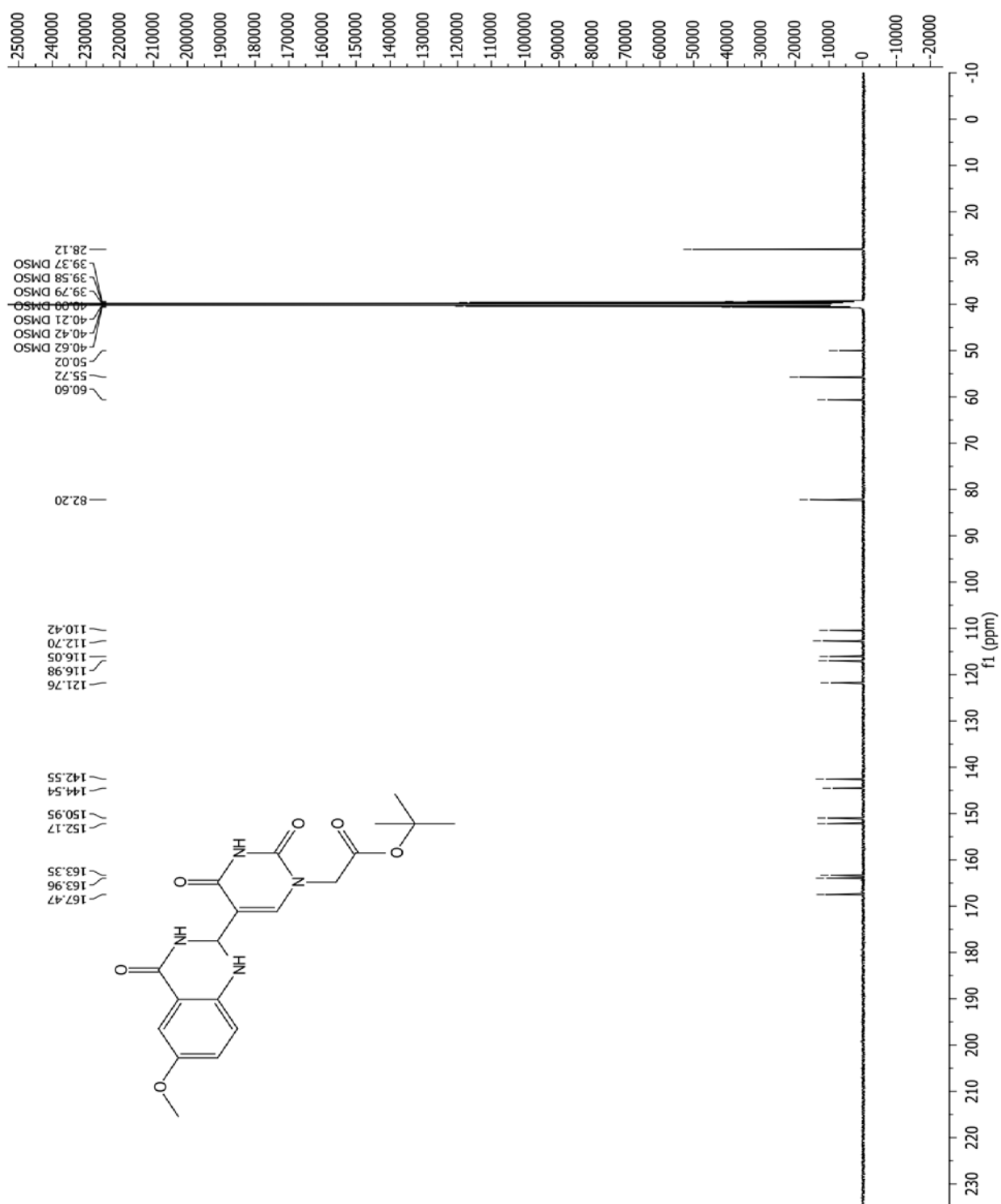
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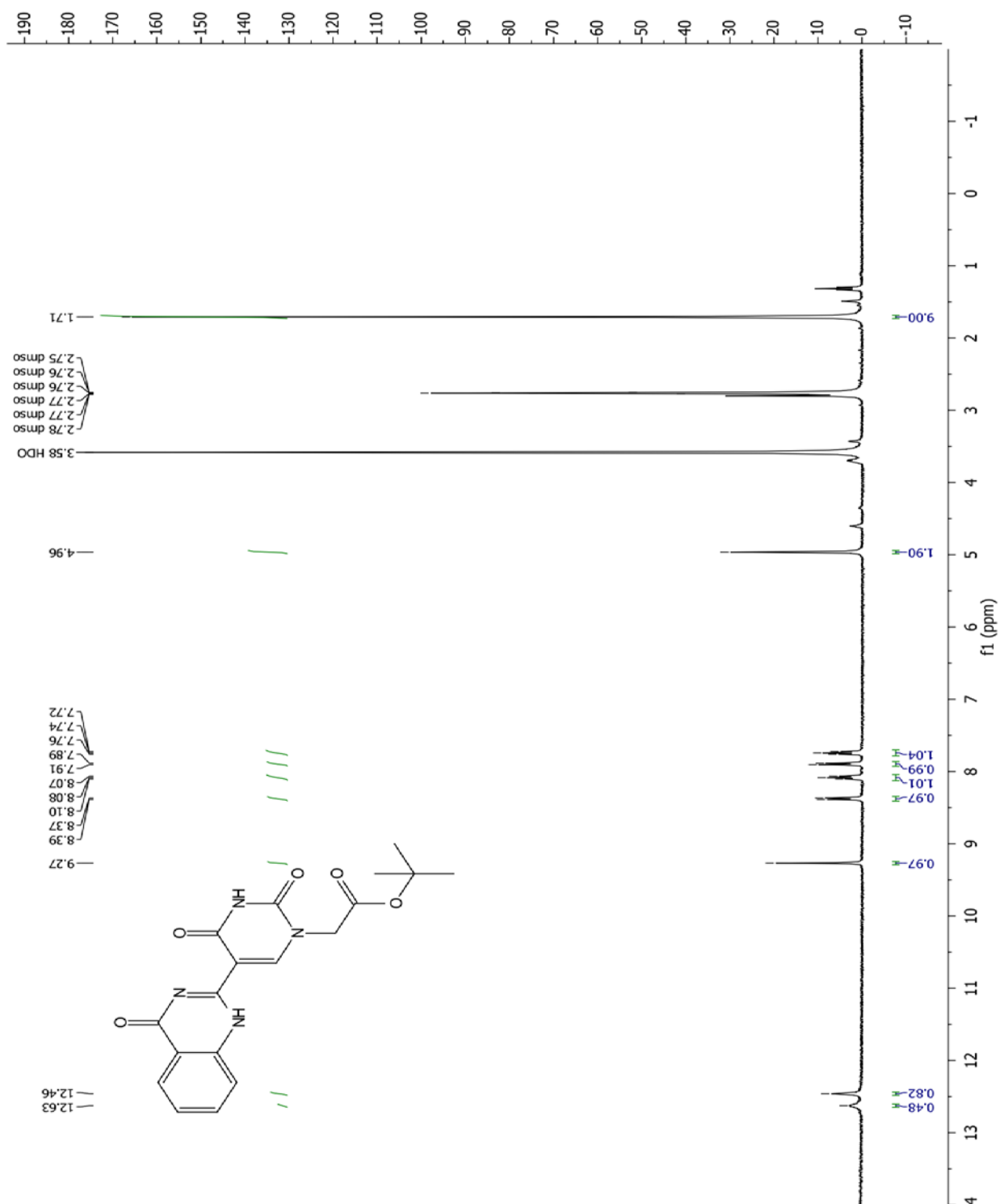
^1H NMR spectrum of *tert*-Butyl 2-(5-(6-methoxy-4-oxo-1,2,3,4-tetrahydroquinazolin-2-yl)uracil-1-yl)acetate (**11**)



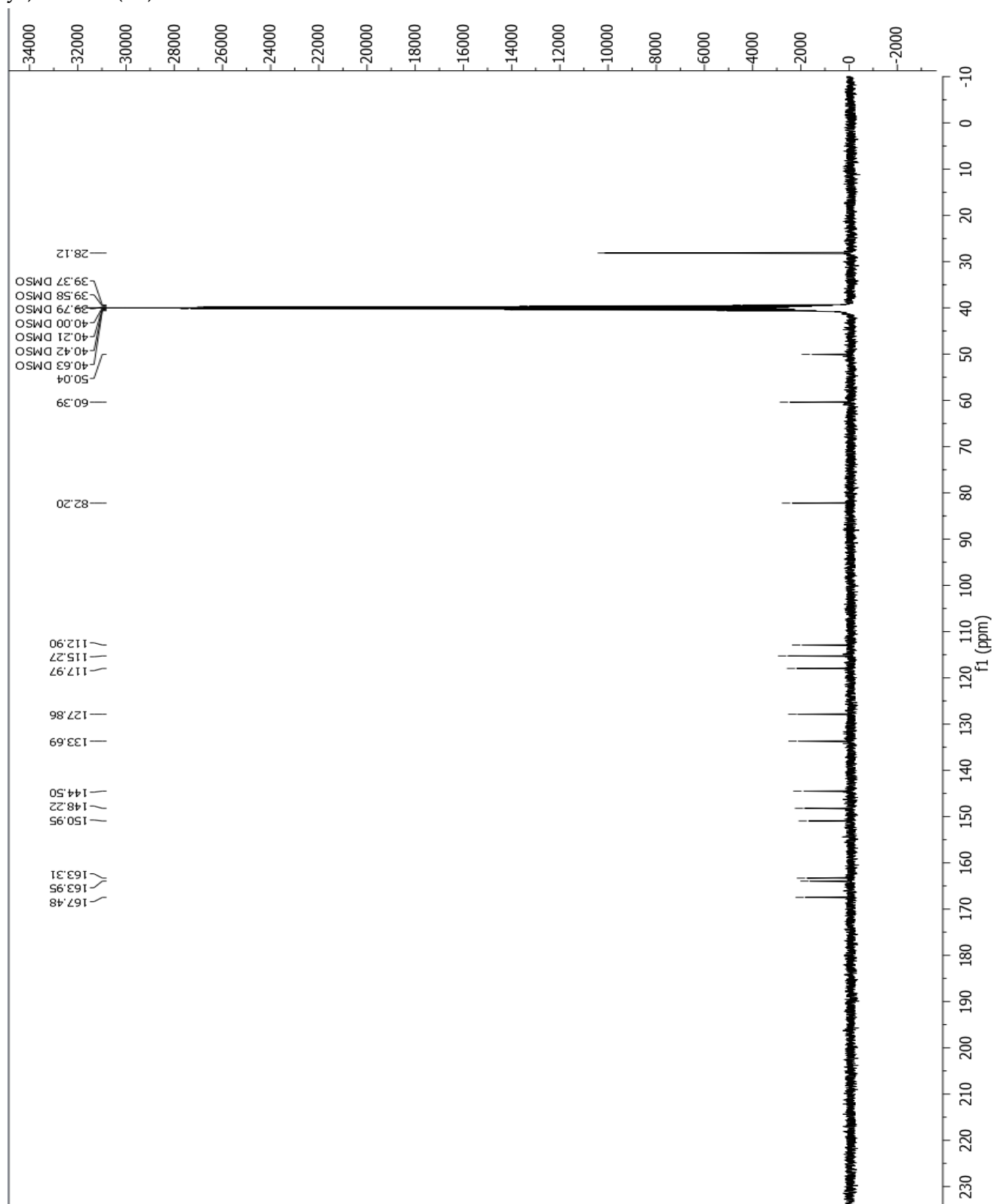
^{13}C NMR spectrum of *tert*-Butyl 2-(5-(6-methoxy-4-oxo-1,2,3,4-tetrahydroquinazolin-2-yl)uracil-1-yl)acetate (**11**)



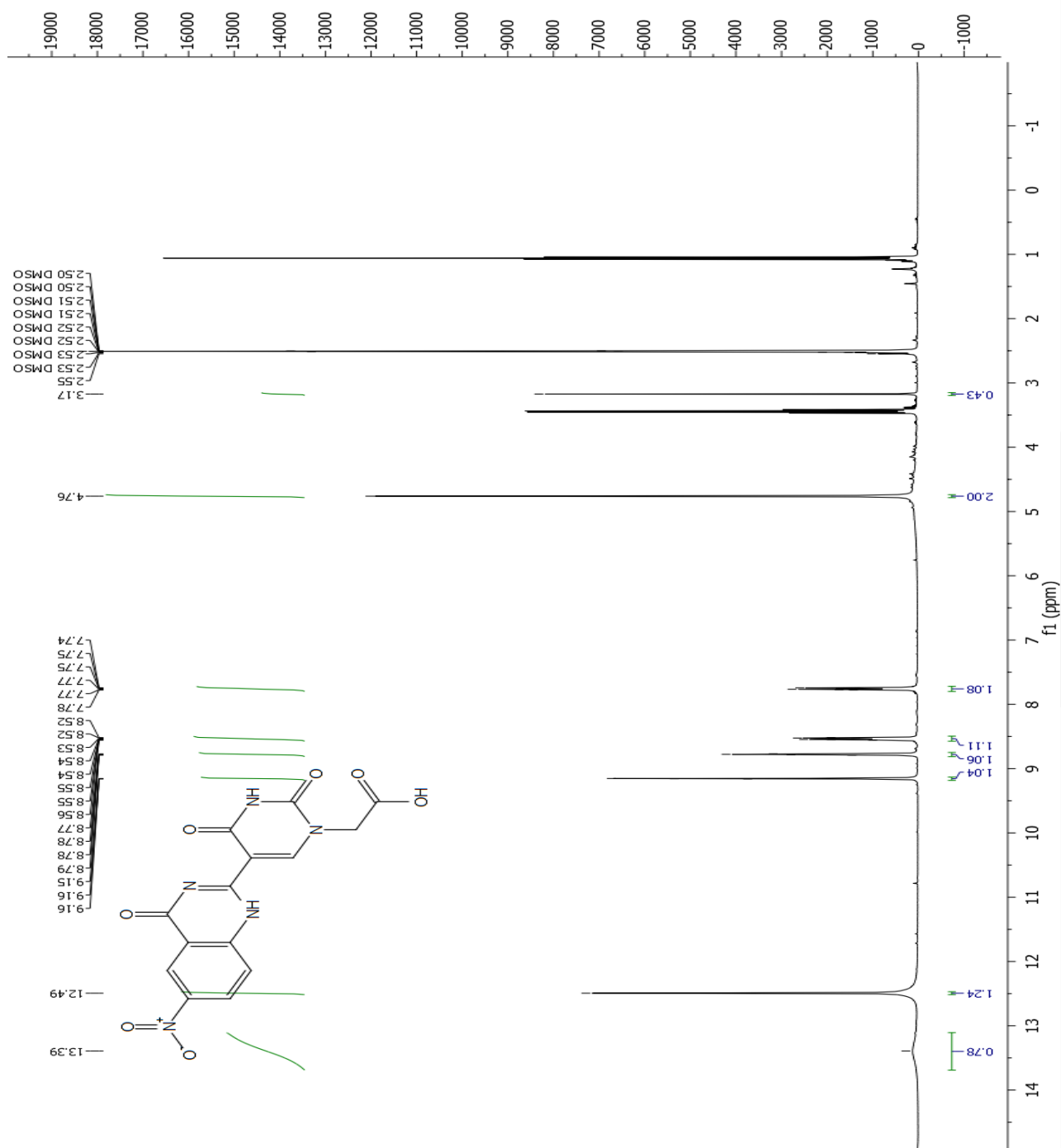
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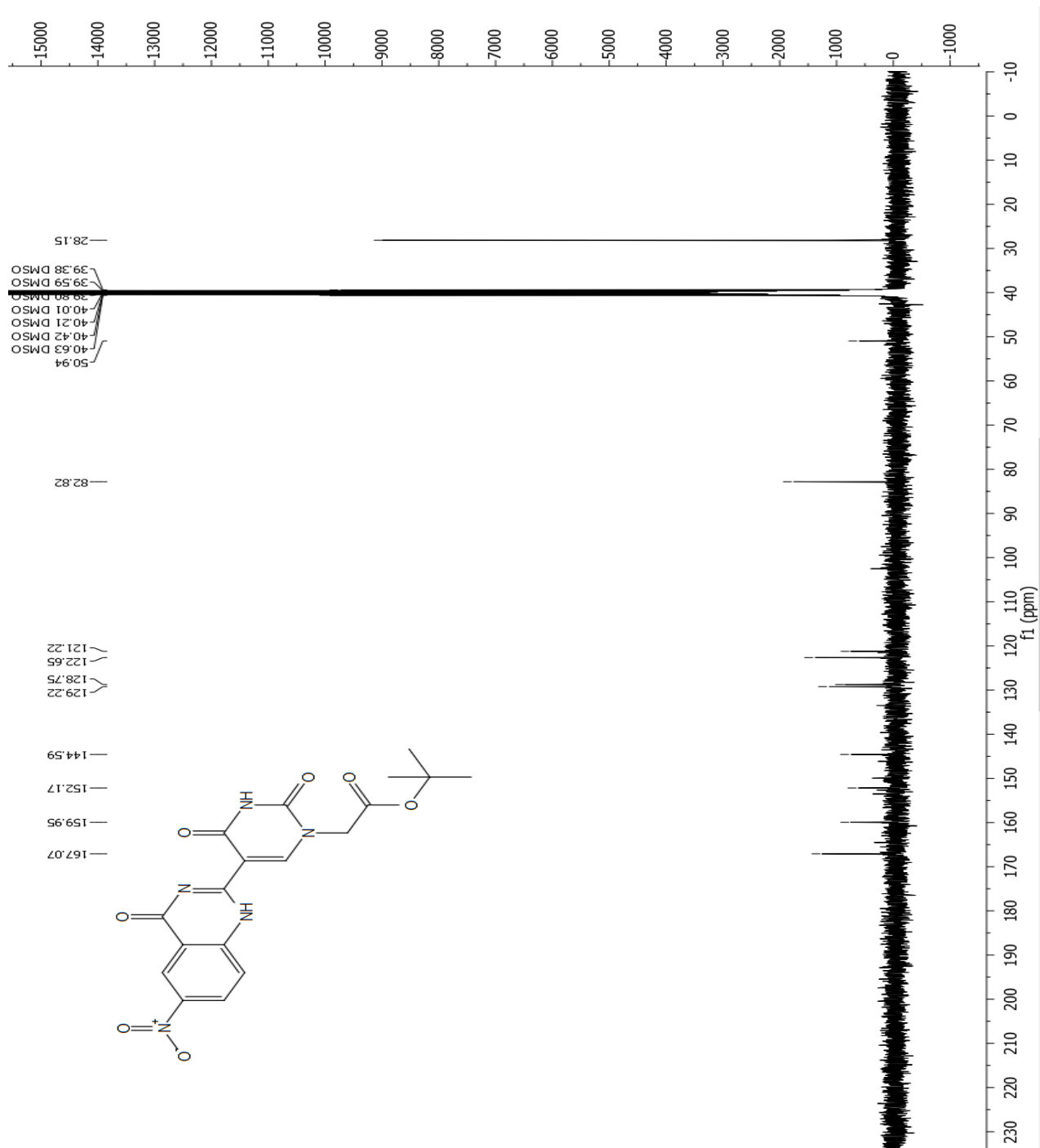
^{13}C NMR spectrum of *tert*-Butyl 2-(5-(4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetate (**12**)



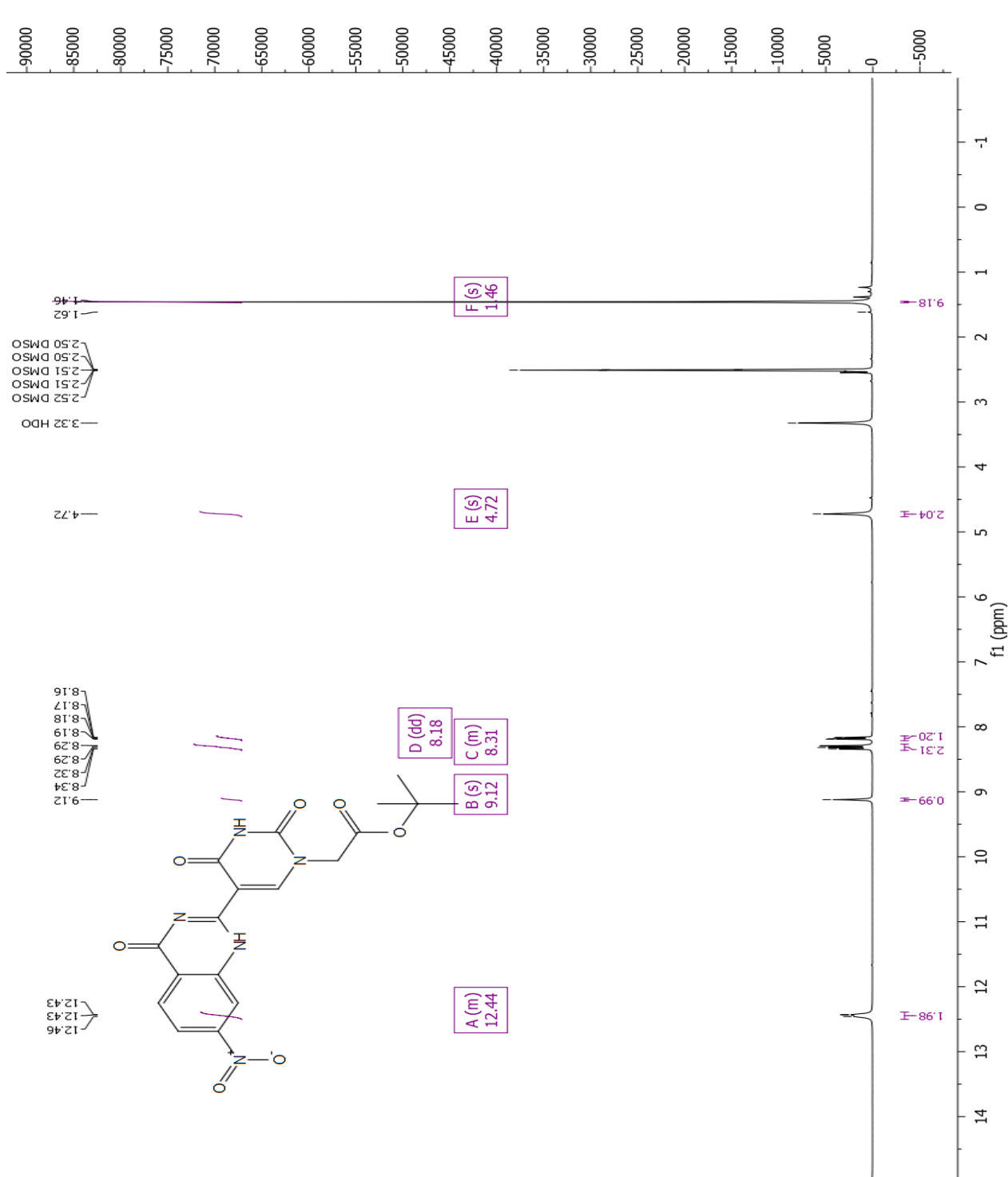
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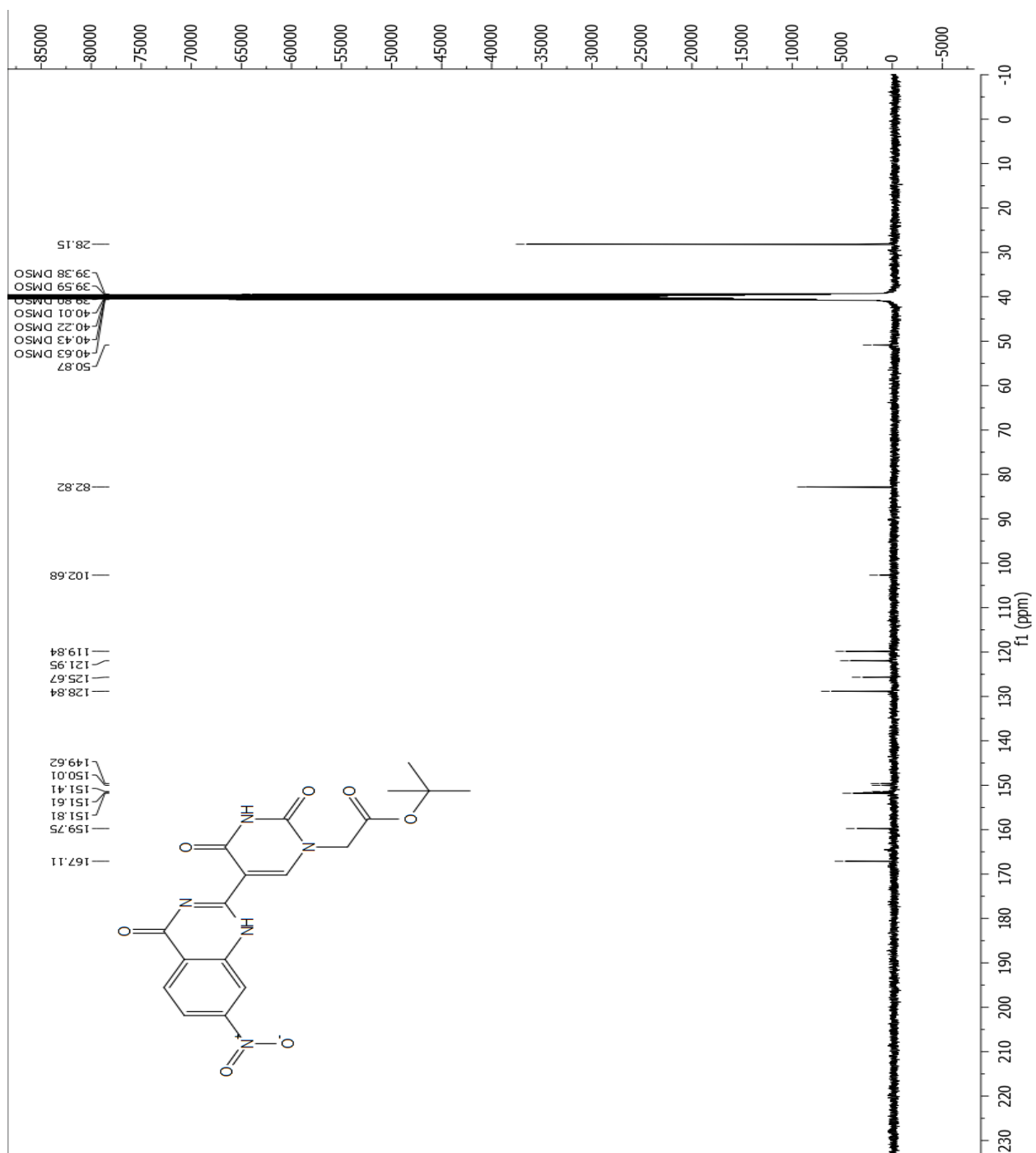
^{13}C NMR spectrum of tert-butyl 2-(5-(6-nitro-4-oxo-1,4-dihydroquinazolin-2-yl)uracil-1-yl) acetate (**13**)



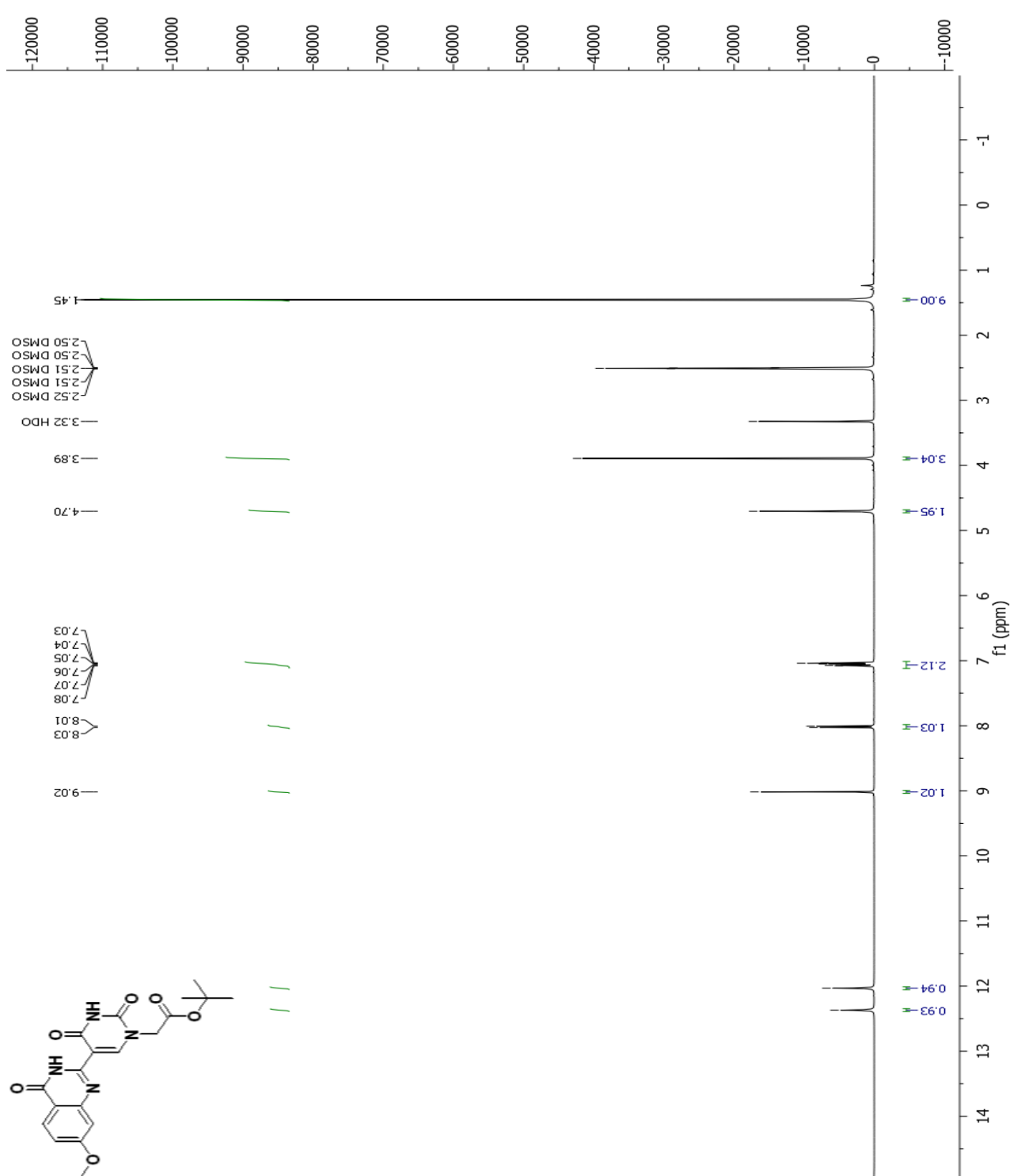
^1H NMR spectrum of *tert*-Butyl 2-(5-(7-nitro-4-oxo-1,4-dihydroquinazolin-2-yl)uracil-1-yl)acetate (**14**)



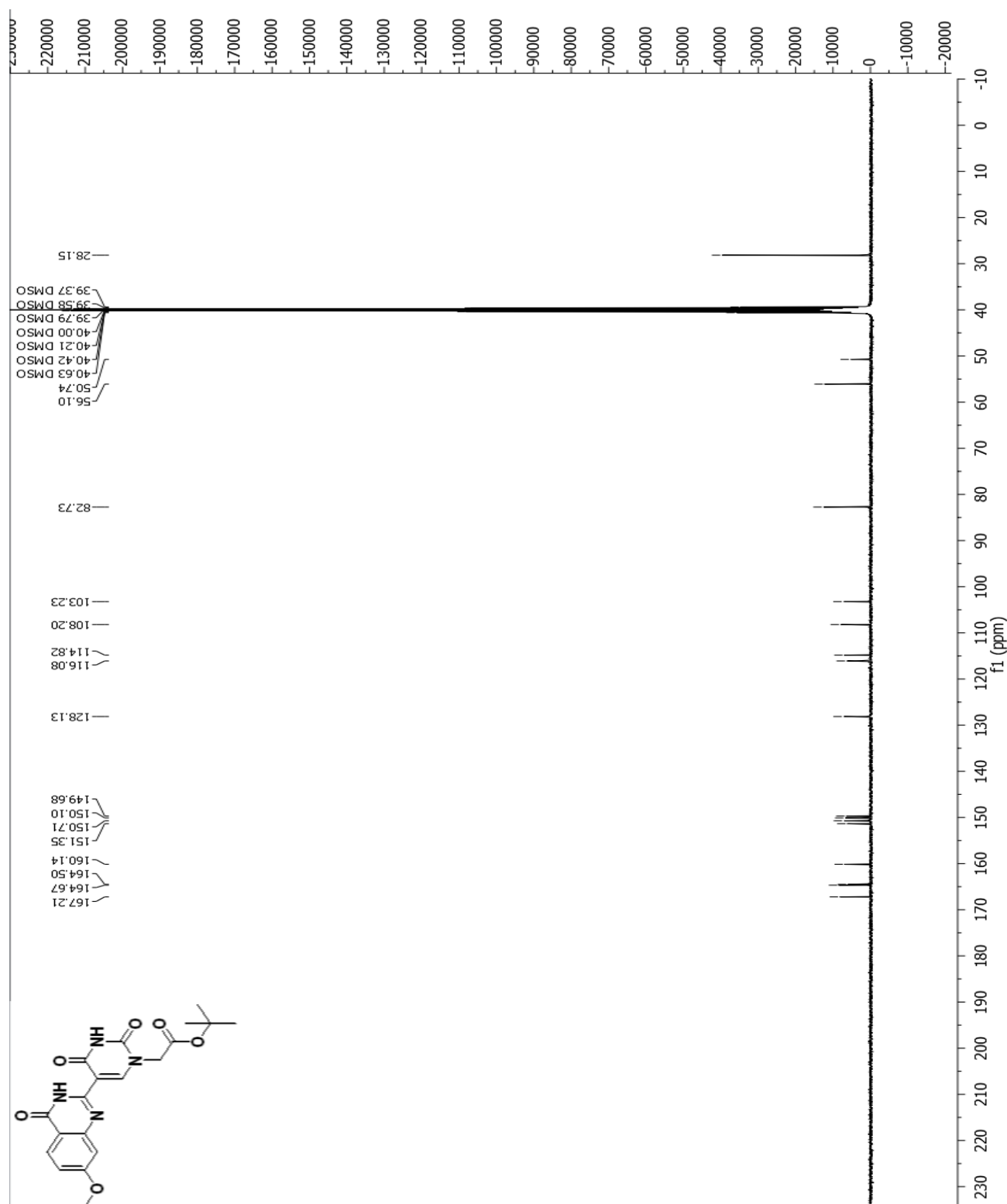
^{13}C NMR spectrum of *tert*-Butyl 2-(5-(7-nitro-4-oxo-1,4-dihydroquinazolin-2-yl)uracil-1-yl)acetate (**14**)



^1H NMR spectrum of *tert*-Butyl 2-(5-(7-methoxy-4-oxo-1,4-dihydroquinazolin-2-yl)uracil-1-yl)acetate (**15**)



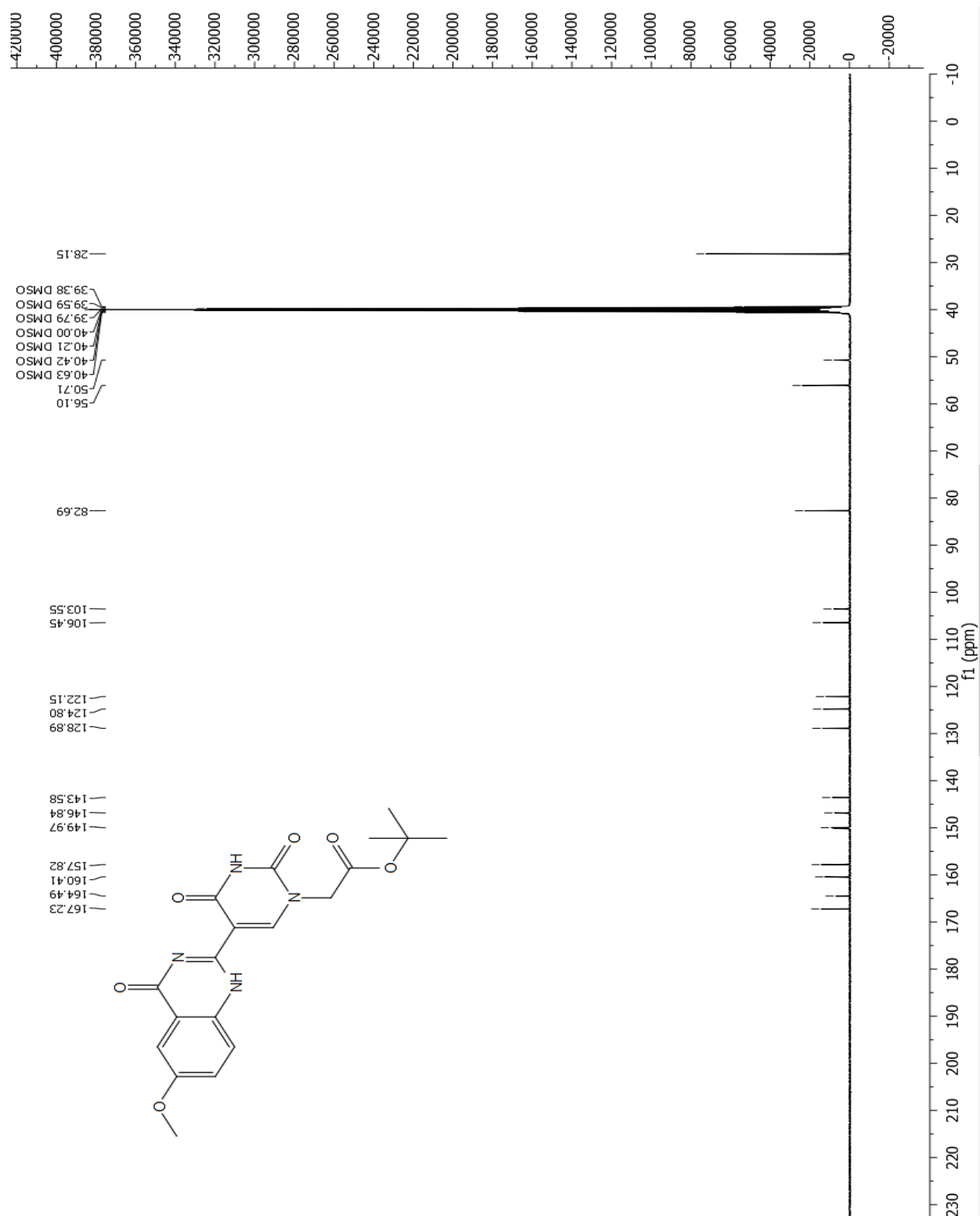
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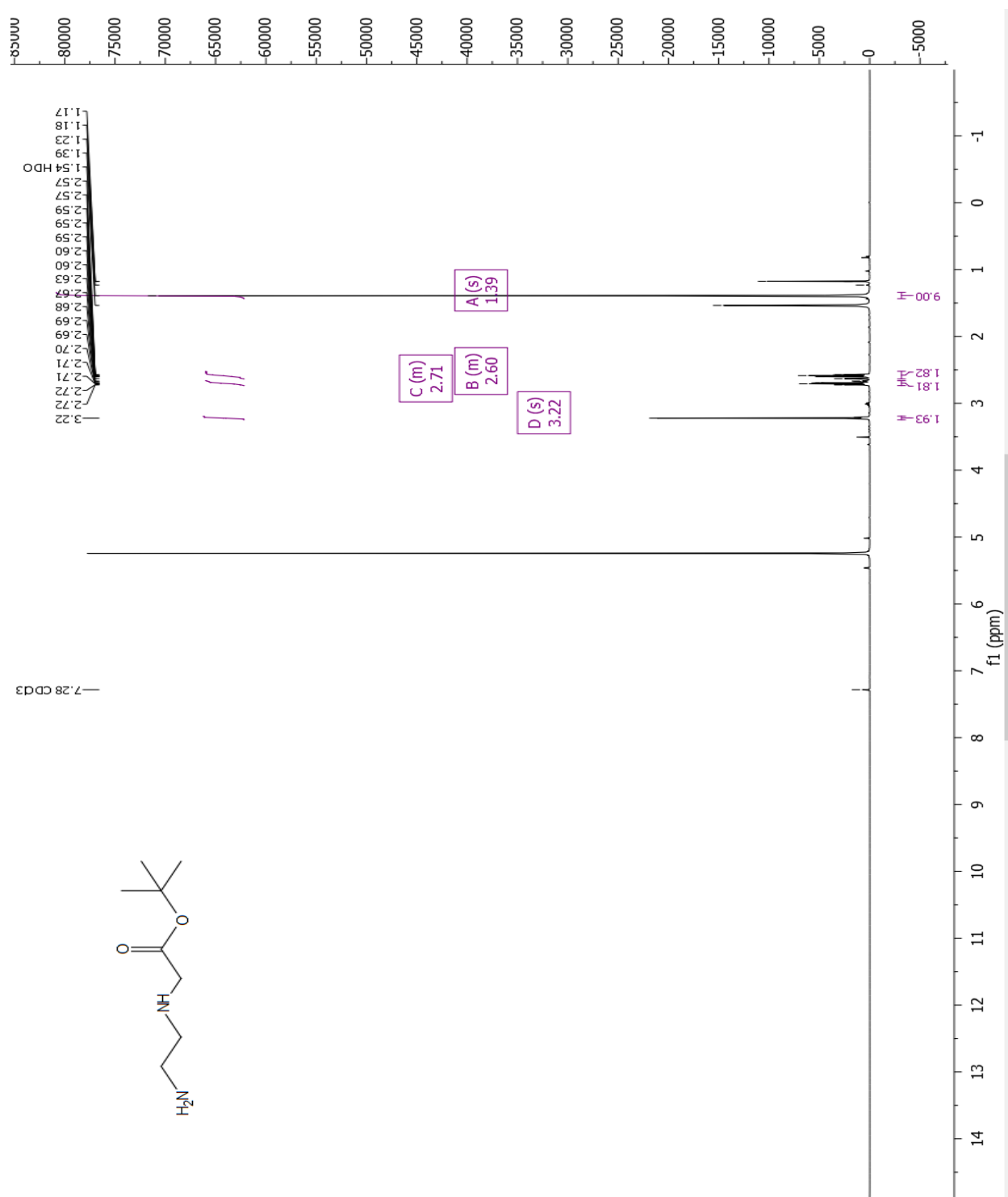
^1H NMR spectrum of *tert*-Butyl 2-(5-(6-methoxy-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetate (**16**)



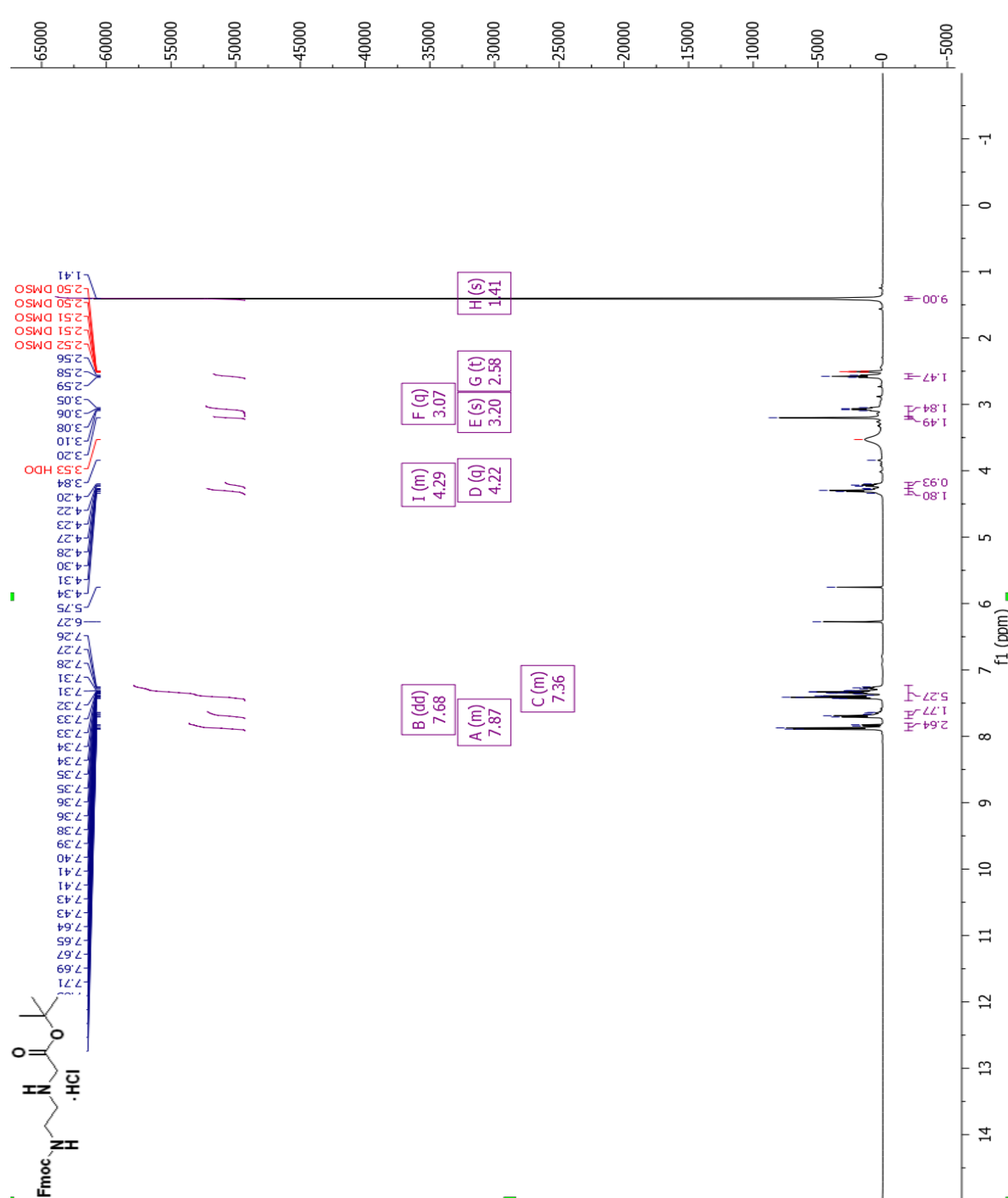
^{13}C NMR spectrum of *tert*-Butyl 2-(5-(6-methoxy-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetate (**16**)



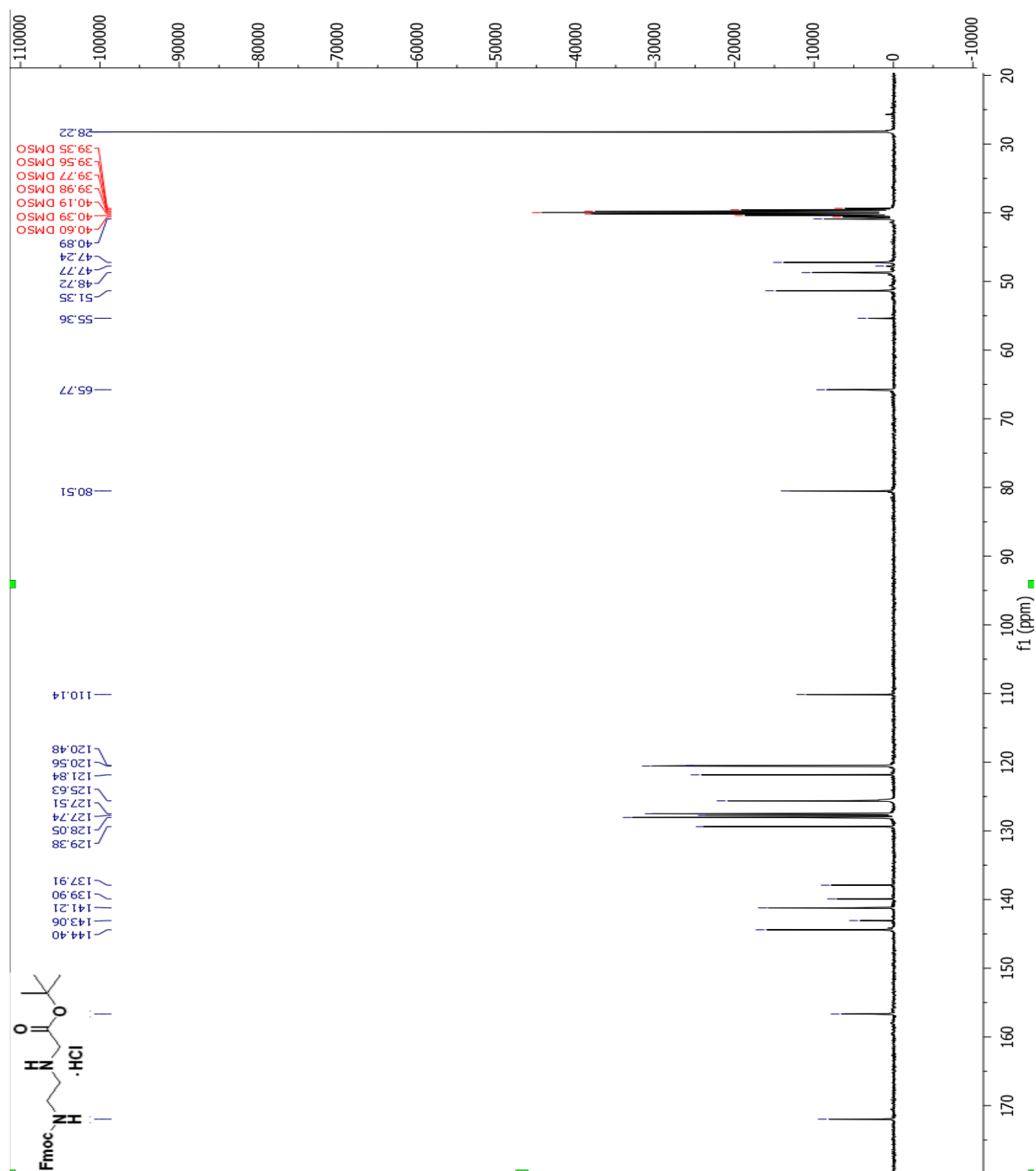
^1H NMR spectrum of *tert*-Butyl (2-aminoethyl)glycinate (**17**)



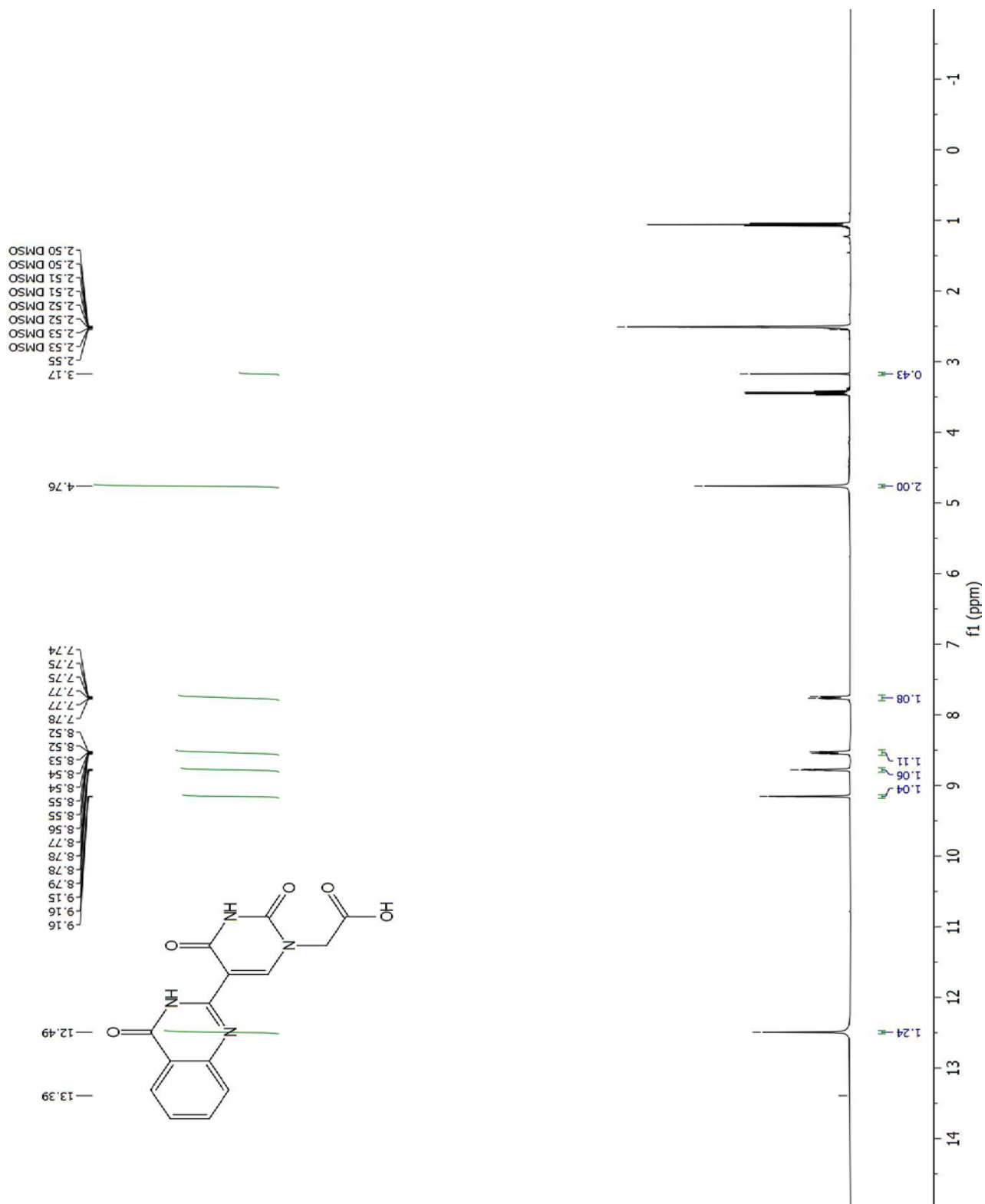
^1H NMR spectrum of *tert*-Butyl (2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-glycinate (**18**)



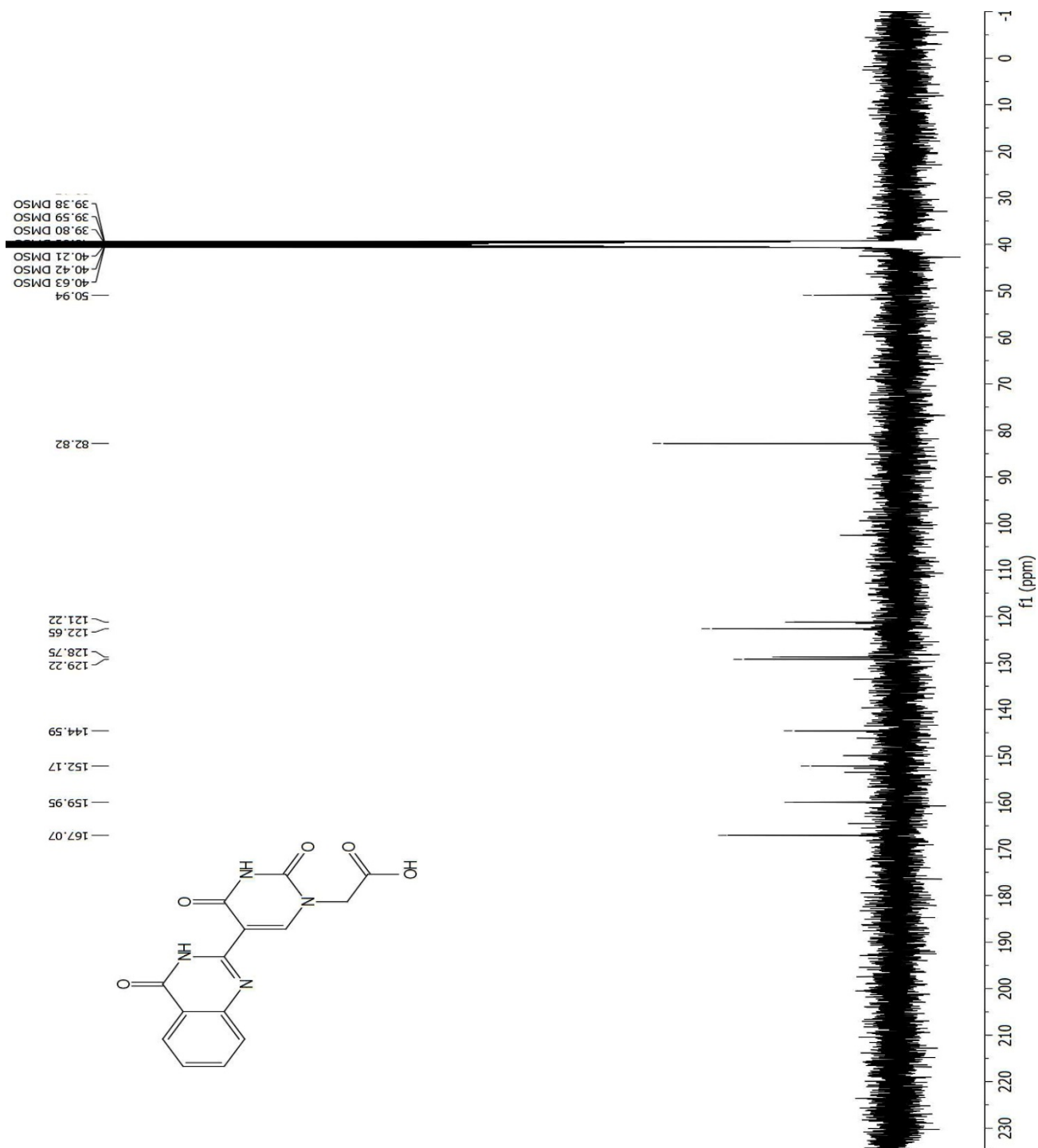
^{13}C NMR spectrum of *tert*-Butyl (2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-glycinate (**18**)



^1H NMR spectrum of 2-(2,4-dioxo-5-(4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetic acid (**19**)

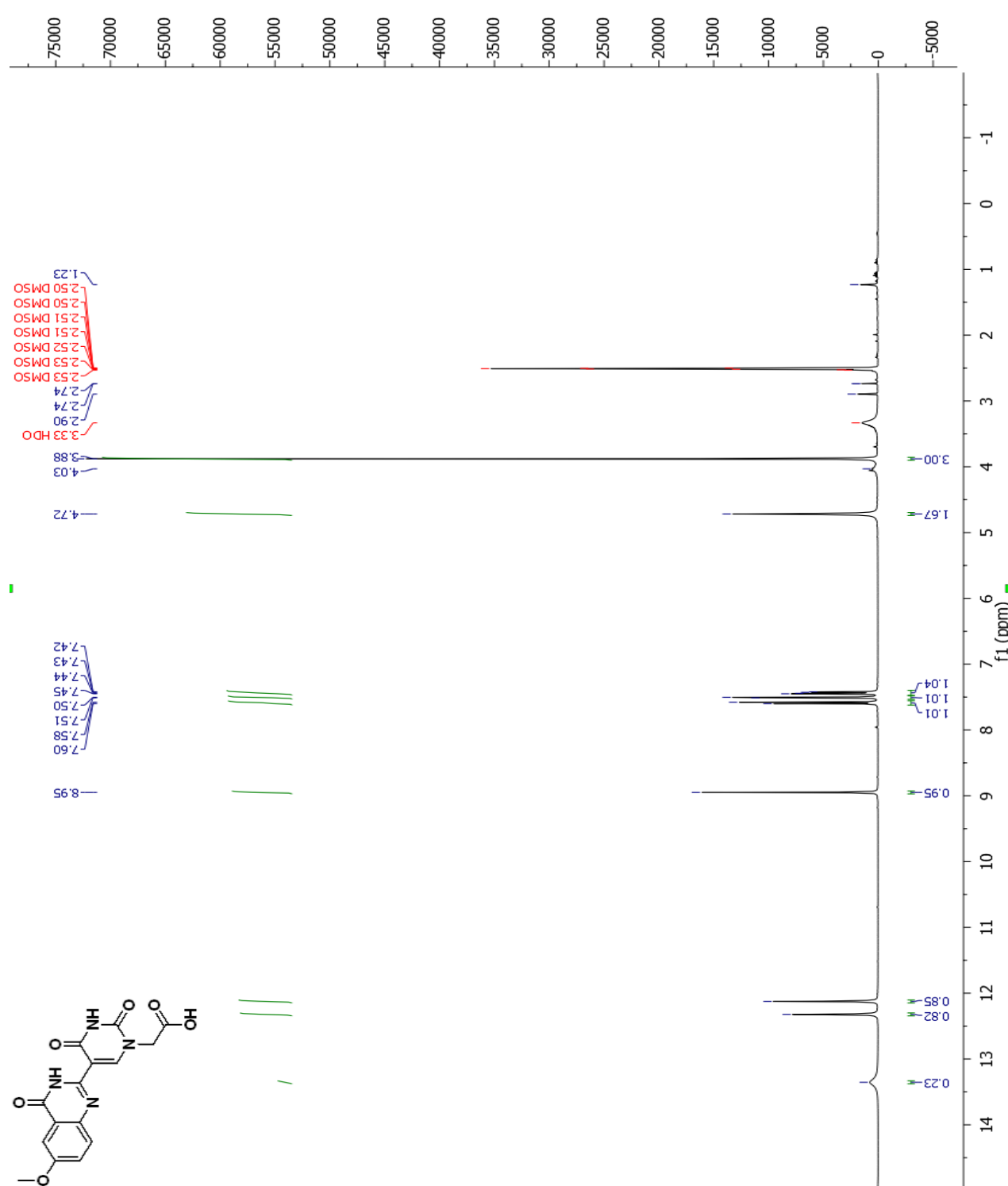


^{13}C NMR spectrum of 2-(2,4-dioxo-5-(4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetic acid (**19**)

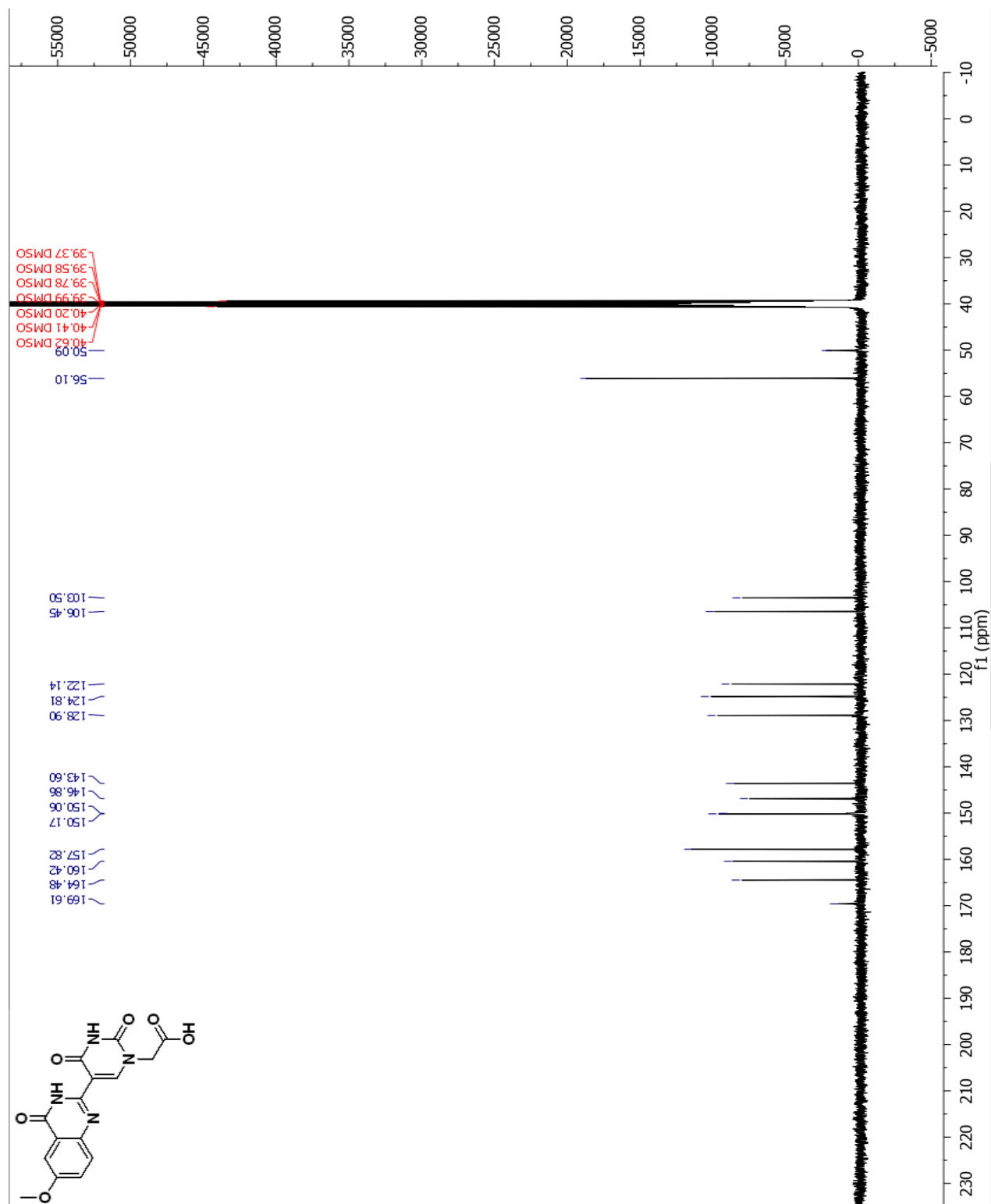


Chemical structure of 2-(4-nitrophenyl)-2,6-dioxo-1,2,3,4-tetrahydropyrimidin-5-ylideneacetic acid is shown in the top left corner. The ^1H NMR spectrum (DMSO- d_6) is displayed below, showing peaks from 0 to 14 ppm. The x-axis is labeled δ (ppm) and the y-axis is labeled intensity. The spectrum shows several peaks, with integration values indicated above the peaks: 0.72, 10.72, 9.01, 9.17, 9.21, 9.38, 4.10, 17.29, 4.76. The chemical structure is a pyrimidine derivative with a 4-nitrophenyl group and a carboxylic acid side chain.

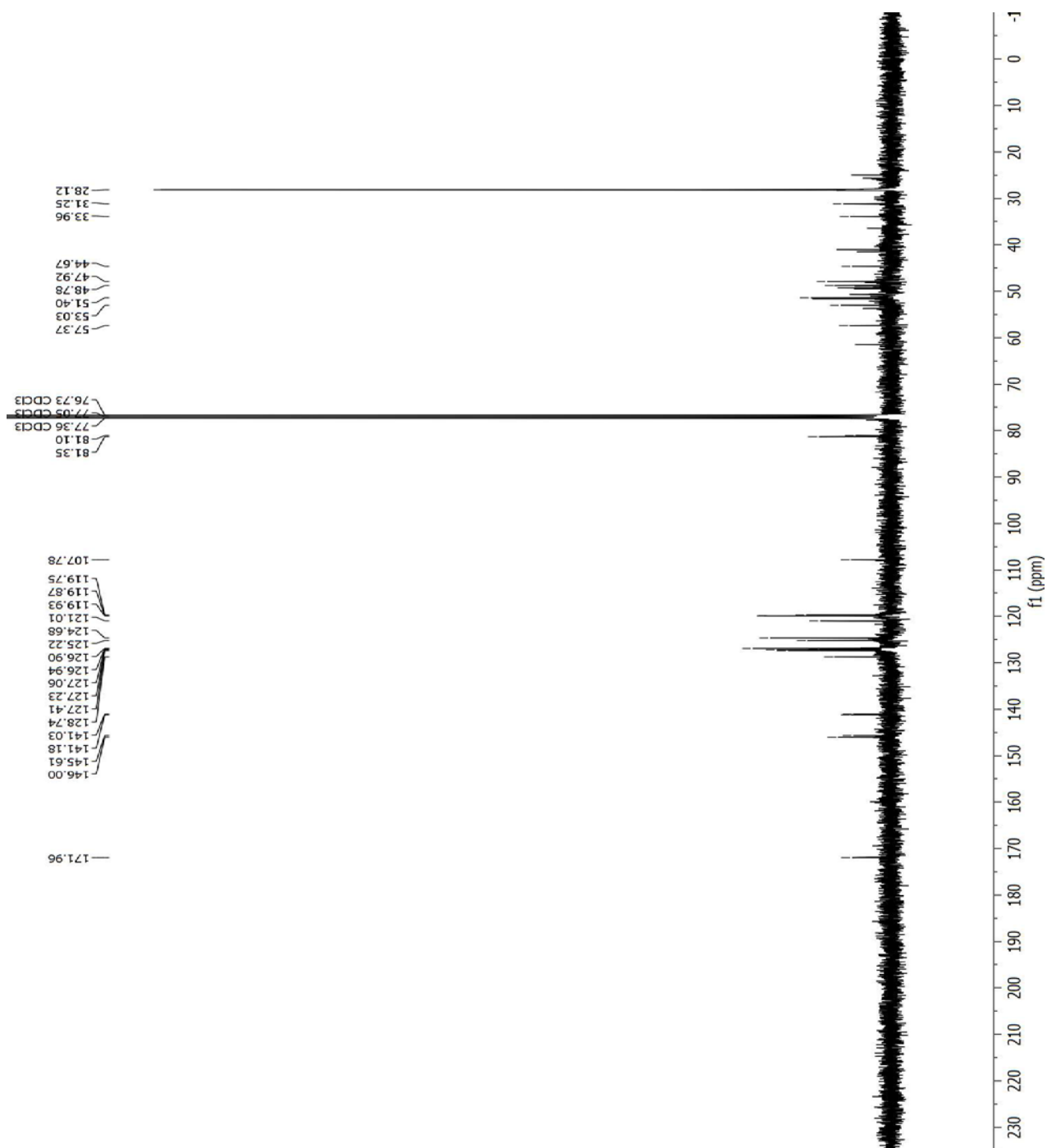
^1H NMR spectrum of 2-(5-(6-methoxy-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetic acid (**21**)



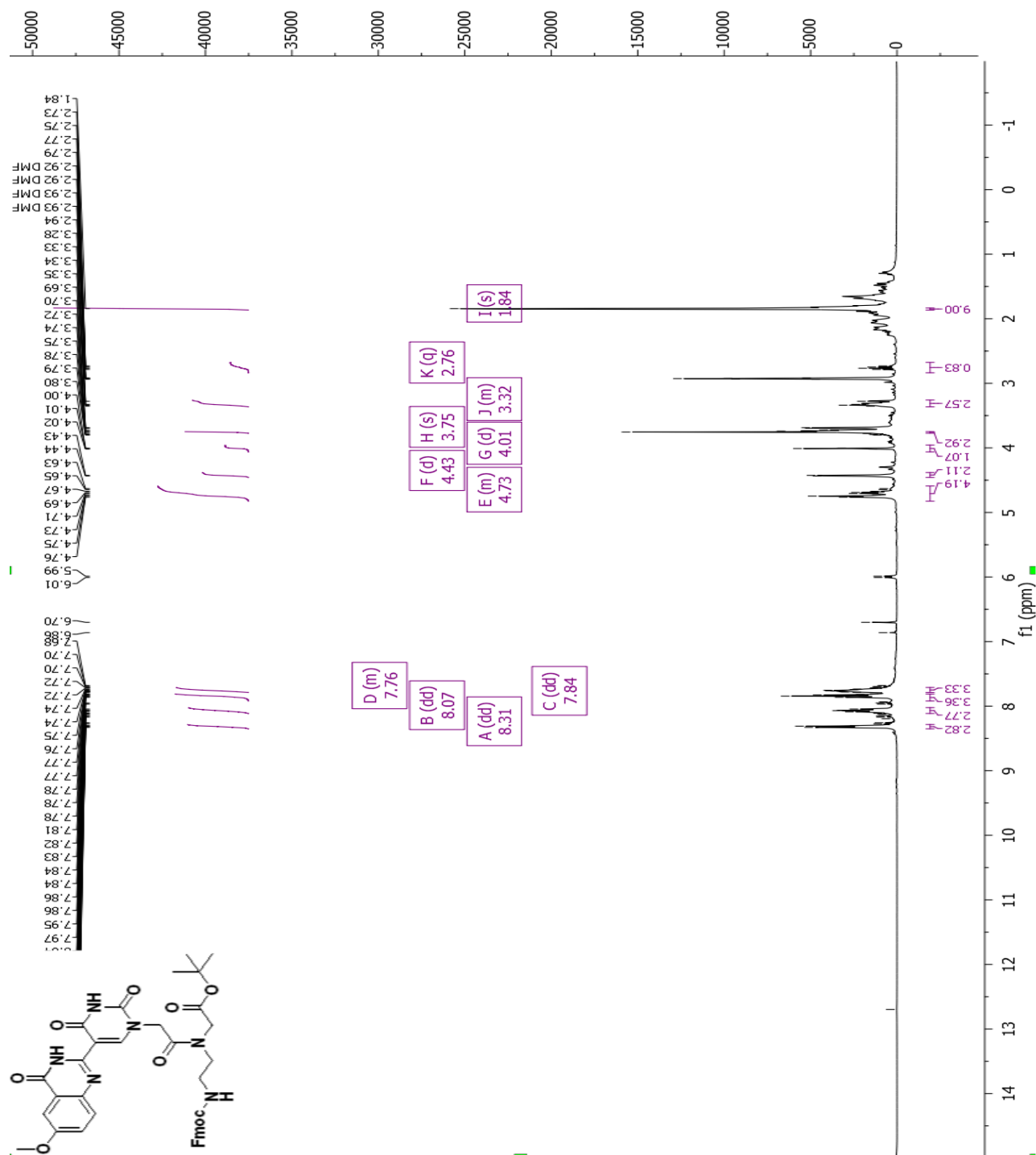
^{13}C NMR spectrum of 2-(5-(6-methoxy-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetic acid (**21**)



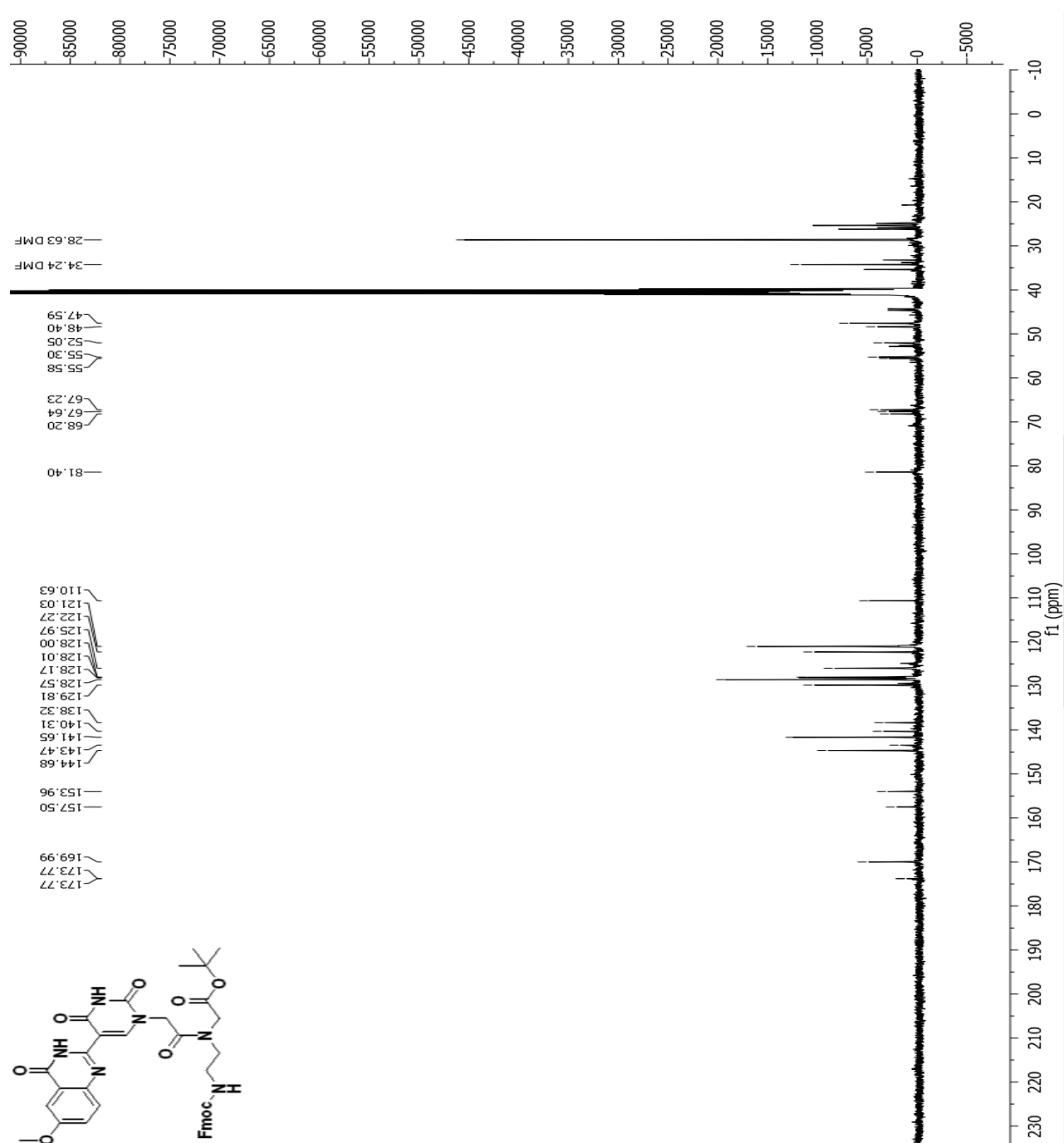
^{13}C NMR spectrum of *tert*-Butyl N-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-N-(2-(2,4-dioxo-5-(4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycinate (**22**)



¹H NMR spectrum of *tert*-Butyl *N*-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)-ethyl)-*N*-(2-(5-(6-methoxy-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycinate (23)

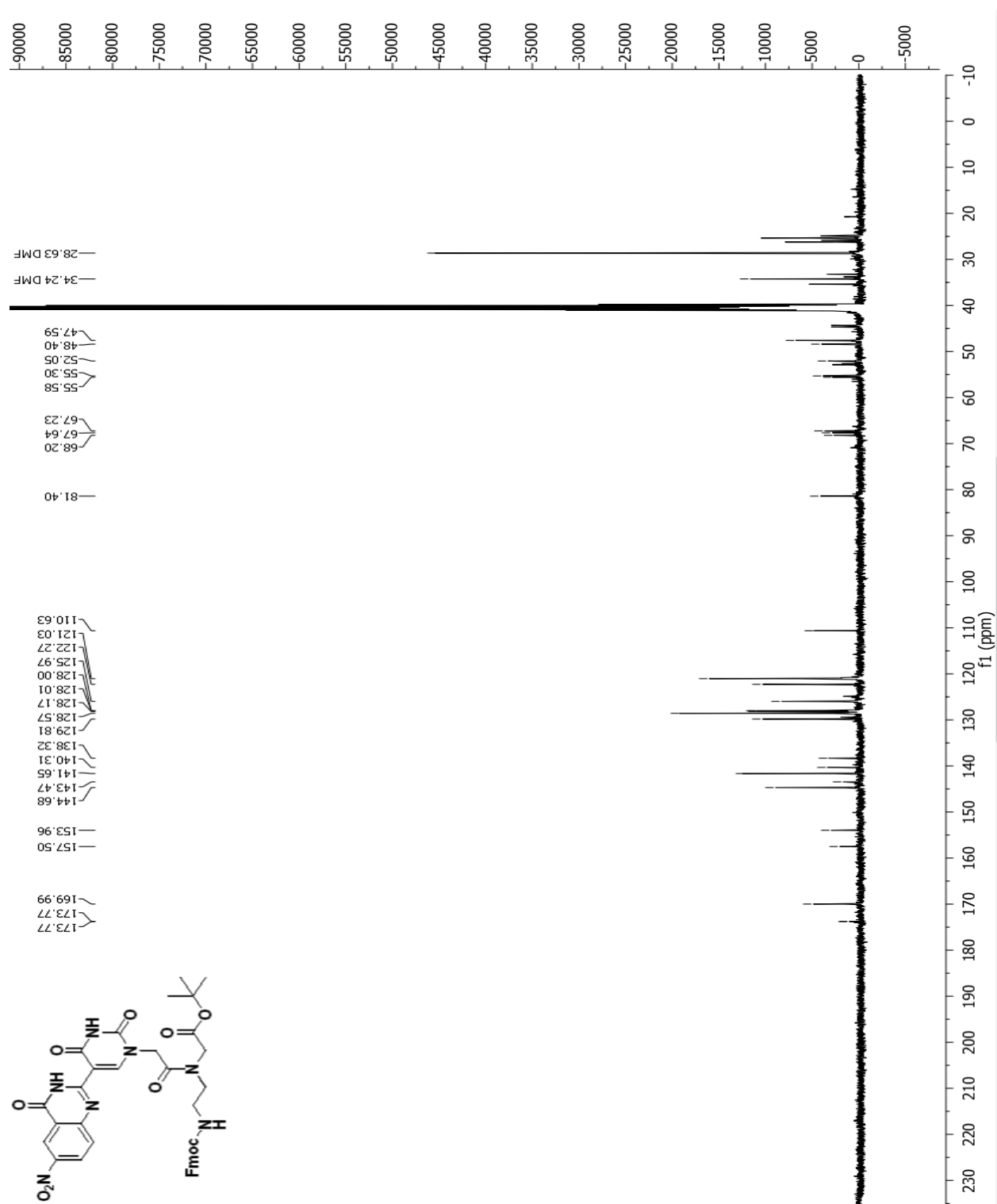


^{13}C NMR spectrum of *tert*-butyl *N*-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)-ethyl)-*N*-(2-(5-(6-methoxy-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycinate (23)

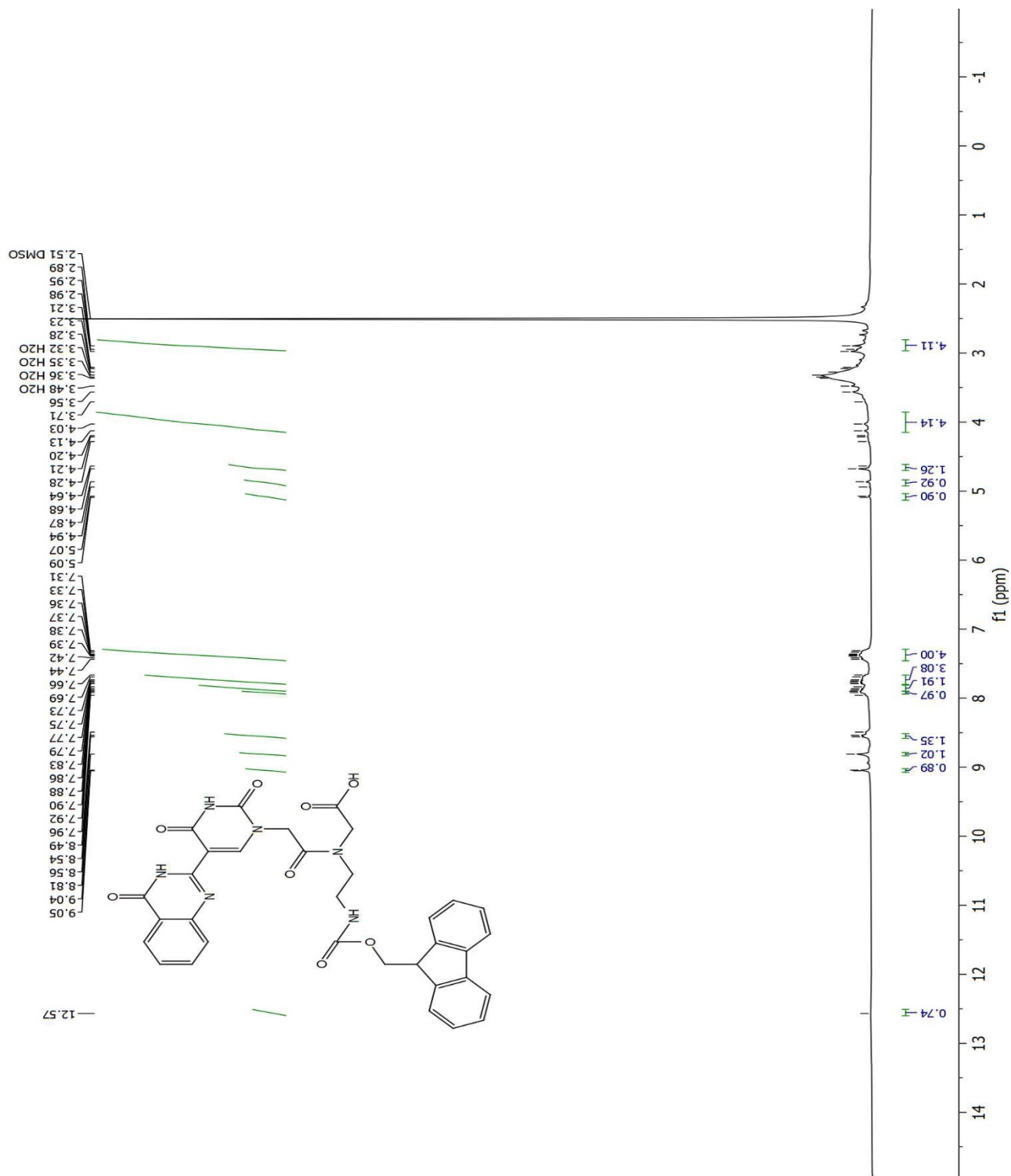


[illegible]

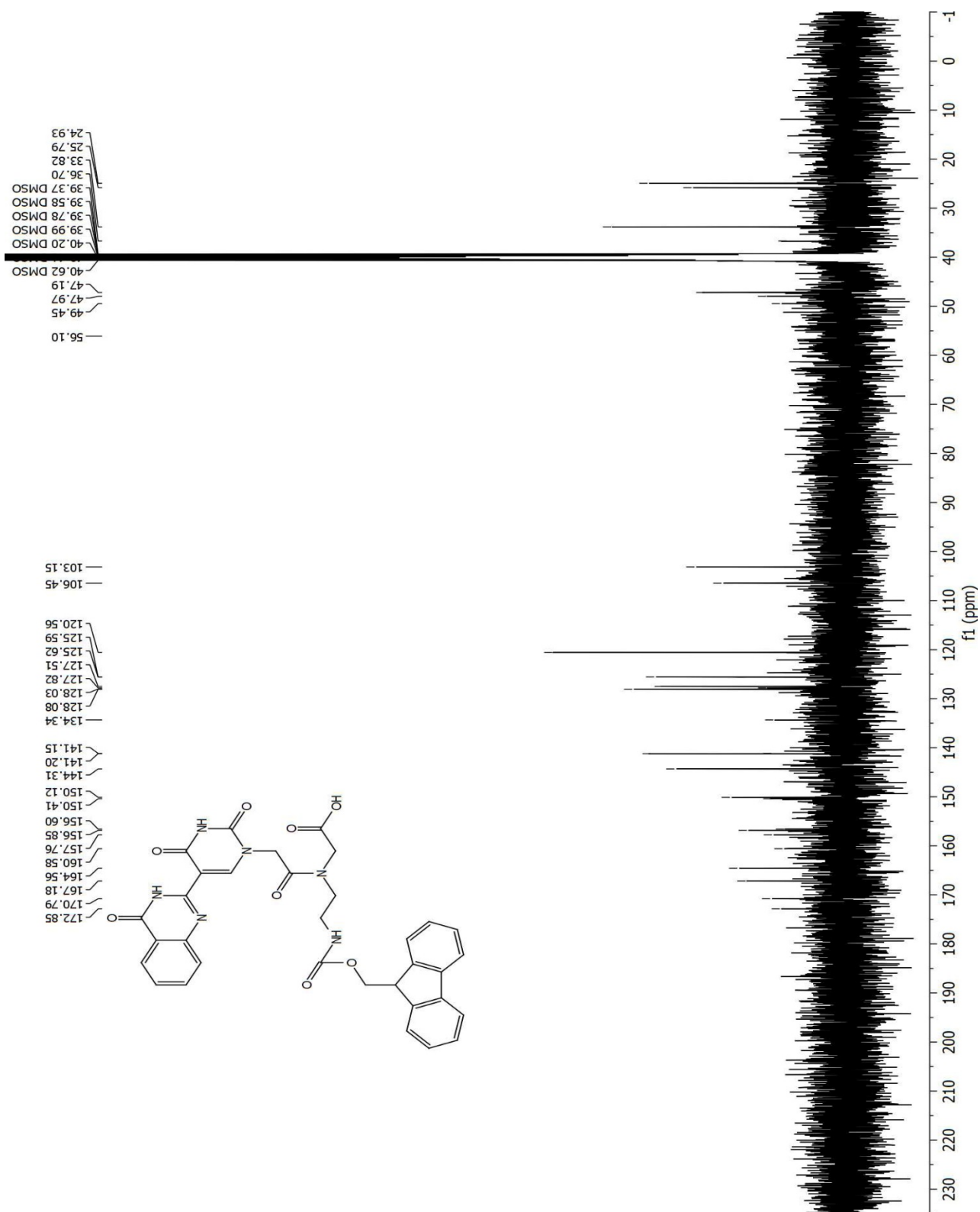
^{13}C NMR spectrum of tert-butyl N-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)-ethyl)-N-(2-(5-(6-nitro-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycinate (**24**)



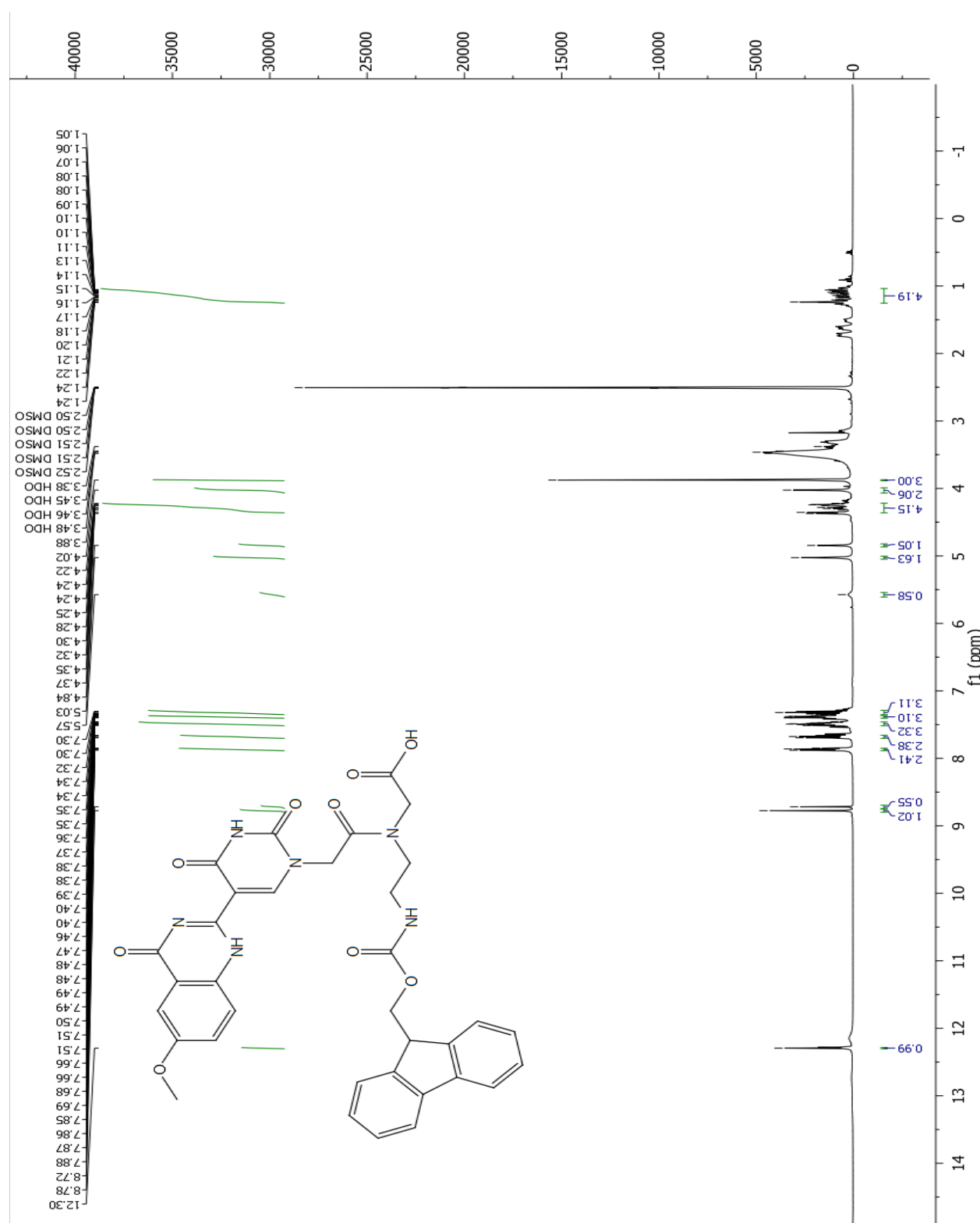
^1H NMR spectrum of N-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-N-(2-(2,4-dioxo-5-(4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycine (**25**)



^{13}C NMR spectrum of N-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-N-(2-(2,4-dioxo-5-(4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycine (**25**)

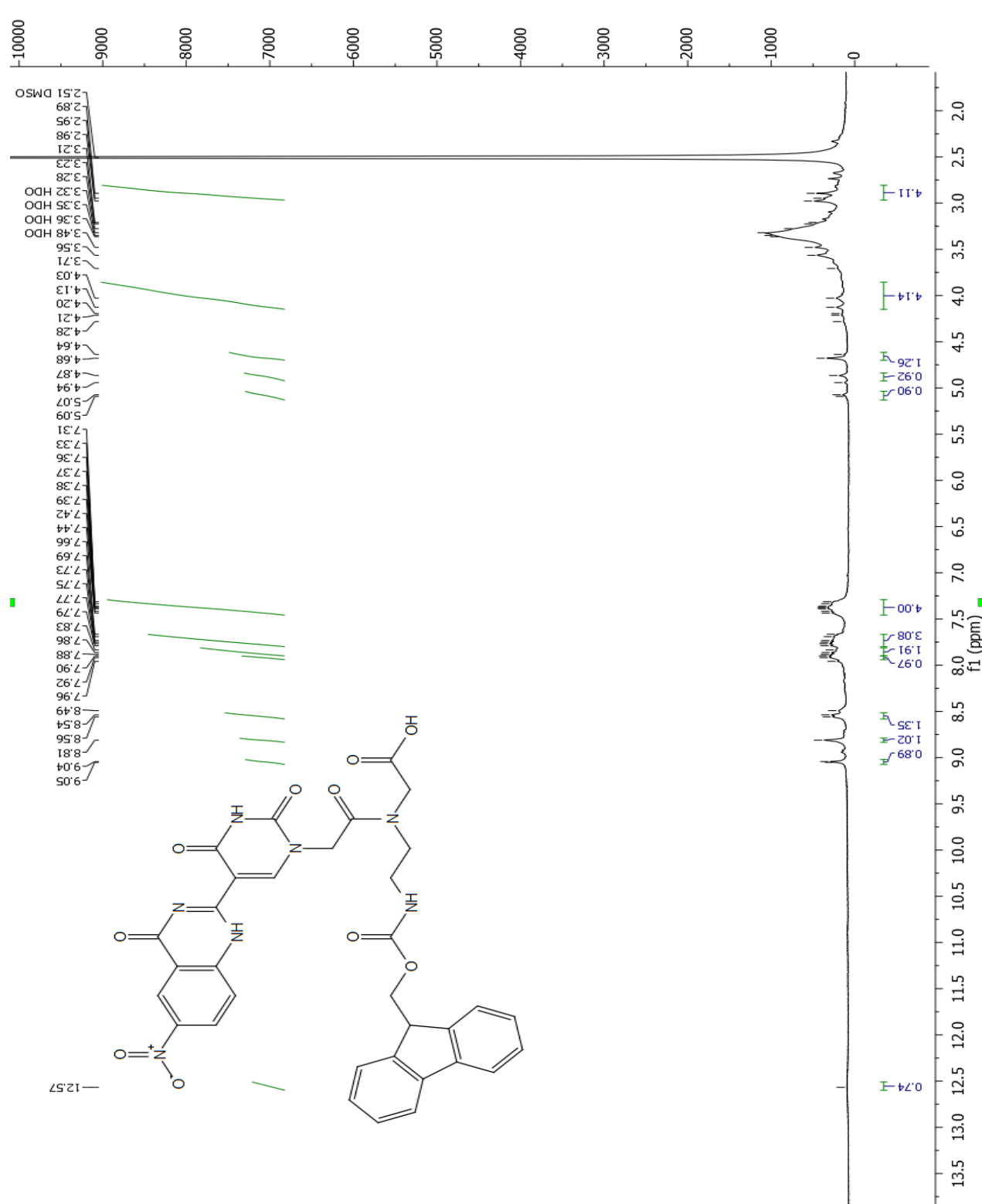


^1H NMR spectrum of *N*-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-*N*-(2-(5-(6-methoxy-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycine (**26**)



Chemical structure of compound 10 is shown on the left. The ^1H NMR spectrum (top) is recorded in $\text{DMSO}-d_6$ at 400 MHz, and the ^{13}C NMR spectrum (bottom) is recorded in $\text{DMSO}-d_6$ at 100 MHz. The ^1H NMR spectrum shows peaks at 10.33, 10.25, 10.19, 10.17, 10.15, 10.13, 10.11, 10.09, 10.07, 10.05, 10.03, 10.01, 9.99, 9.97, 9.95, 9.93, 9.91, 9.89, 9.87, 9.85, 9.83, 9.81, 9.79, 9.77, 9.75, 9.73, 9.71, 9.69, 9.67, 9.65, 9.63, 9.61, 9.59, 9.57, 9.55, 9.53, 9.51, 9.49, 9.47, 9.45, 9.43, 9.41, 9.39, 9.37, 9.35, 9.33, 9.31, 9.29, 9.27, 9.25, 9.23, 9.21, 9.19, 9.17, 9.15, 9.13, 9.11, 9.09, 9.07, 9.05, 9.03, 9.01, 8.99, 8.97, 8.95, 8.93, 8.91, 8.89, 8.87, 8.85, 8.83, 8.81, 8.79, 8.77, 8.75, 8.73, 8.71, 8.69, 8.67, 8.65, 8.63, 8.61, 8.59, 8.57, 8.55, 8.53, 8.51, 8.49, 8.47, 8.45, 8.43, 8.41, 8.39, 8.37, 8.35, 8.33, 8.31, 8.29, 8.27, 8.25, 8.23, 8.21, 8.19, 8.17, 8.15, 8.13, 8.11, 8.09, 8.07, 8.05, 8.03, 8.01, 7.99, 7.97, 7.95, 7.93, 7.91, 7.89, 7.87, 7.85, 7.83, 7.81, 7.79, 7.77, 7.75, 7.73, 7.71, 7.69, 7.67, 7.65, 7.63, 7.61, 7.59, 7.57, 7.55, 7.53, 7.51, 7.49, 7.47, 7.45, 7.43, 7.41, 7.39, 7.37, 7.35, 7.33, 7.31, 7.29, 7.27, 7.25, 7.23, 7.21, 7.19, 7.17, 7.15, 7.13, 7.11, 7.09, 7.07, 7.05, 7.03, 7.01, 7.99, 7.97, 7.95, 7.93, 7.91, 7.89, 7.87, 7.85, 7.83, 7.81, 7.79, 7.77, 7.75, 7.73, 7.71, 7.69, 7.67, 7.65, 7.63, 7.61, 7.59, 7.57, 7.55, 7.53, 7.51, 7.49, 7.47, 7.45, 7.43, 7.41, 7.39, 7.37, 7.35, 7.33, 7.31, 7.29, 7.27, 7.25, 7.23, 7.21, 7.19, 7.17, 7.15, 7.13, 7.11, 7.09, 7.07, 7.05, 7.03, 7.01, 6.99, 6.97, 6.95, 6.93, 6.91, 6.89, 6.87, 6.85, 6.83, 6.81, 6.79, 6.77, 6.75, 6.73, 6.71, 6.69, 6.67, 6.65, 6.63, 6.61, 6.59, 6.57, 6.55, 6.53, 6.51, 6.49, 6.47, 6.45, 6.43, 6.41, 6.39, 6.37, 6.35, 6.33, 6.31, 6.29, 6.27, 6.25, 6.23, 6.21, 6.19, 6.17, 6.15, 6.13, 6.11, 6.09, 6.07, 6.05, 6.03, 6.01, 5.99, 5.97, 5.95, 5.93, 5.91, 5.89, 5.87, 5.85, 5.83, 5.81, 5.79, 5.77, 5.75, 5.73, 5.71, 5.69, 5.67, 5.65, 5.63, 5.61, 5.59, 5.57, 5.55, 5.53, 5.51, 5.49, 5.47, 5.45, 5.43, 5.41, 5.39, 5.37, 5.35, 5.33, 5.31, 5.29, 5.27, 5.25, 5.23, 5.21, 5.19, 5.17, 5.15, 5.13, 5.11, 5.09, 5.07, 5.05, 5.03, 5.01, 4.99, 4.97, 4.95, 4.93, 4.91, 4.89, 4.87, 4.85, 4.83, 4.81, 4.79, 4.77, 4.75, 4.73, 4.71, 4.69, 4.67, 4.65, 4.63, 4.61, 4.59, 4.57, 4.55, 4.53, 4.51, 4.49, 4.47, 4.45, 4.43, 4.41, 4.39, 4.37, 4.35, 4.33, 4.31, 4.29, 4.27, 4.25, 4.23, 4.21, 4.19, 4.17, 4.15, 4.13, 4.11, 4.09, 4.07, 4.05, 4.03, 4.01, 3.99, 3.97, 3.95, 3.93, 3.91, 3.89, 3.87, 3.85, 3.83, 3.81, 3.79, 3.77, 3.75, 3.73, 3.71, 3.69, 3.67, 3.65, 3.63, 3.61, 3.59, 3.57, 3.55, 3.53, 3.51, 3.49, 3.47, 3.45, 3.43, 3.41, 3.39, 3.37, 3.35, 3.33, 3.31, 3.29, 3.27, 3.25, 3.23, 3.21, 3.19, 3.17, 3.15, 3.13, 3.11, 3.09, 3.07, 3.05, 3.03, 3.01, 2.99, 2.97, 2.95, 2.93, 2.91, 2.89, 2.87, 2.85, 2.83, 2.81, 2.79, 2.77, 2.75, 2.73, 2.71, 2.69, 2.67, 2.65, 2.63, 2.61, 2.59, 2.57, 2.55, 2.53, 2.51, 2.49, 2.47, 2.45, 2.43, 2.41, 2.39, 2.37, 2.35, 2.33, 2.31, 2.29, 2.27, 2.25, 2.23, 2.21, 2.19, 2.17, 2.15, 2.13, 2.11, 2.09, 2.07, 2.05, 2.03, 2.01, 1.99, 1.97, 1.95, 1.93, 1.91, 1.89, 1.87, 1.85, 1.83, 1.81, 1.79, 1.77, 1.75, 1.73, 1.71, 1.69, 1.67, 1.65, 1.63, 1.61, 1.59, 1.57, 1.55, 1.53, 1.51, 1.49, 1.47, 1.45, 1.43, 1.41, 1.39, 1.37, 1.35, 1.33, 1.31, 1.29, 1.27, 1.25, 1.23, 1.21, 1.19, 1.17, 1.15, 1.13, 1.11, 1.09, 1.07, 1.05, 1.03, 1.01, 0.99, 0.97, 0.95, 0.93, 0.91, 0.89, 0.87, 0.85, 0.83, 0.81, 0.79, 0.77, 0.75, 0.73, 0.71, 0.69, 0.67, 0.65, 0.63, 0.61, 0.59, 0.57, 0.55, 0.53, 0.51, 0.49, 0.47, 0.45, 0.43, 0.41, 0.39, 0.37, 0.35, 0.33, 0.31, 0.29, 0.27, 0.25, 0.23, 0.21, 0.19, 0.17, 0.15, 0.13, 0.11, 0.09, 0.07, 0.05, 0.03, 0.01, 0.99, 0.97, 0.95, 0.93, 0.91, 0.89, 0.87, 0.85, 0.83, 0.81, 0.79, 0.77, 0.75, 0.73, 0.71, 0.69, 0.67, 0.65, 0.63, 0.61, 0.59, 0.57, 0.55, 0.53, 0.51, 0.49, 0.47, 0.45, 0.43, 0.41, 0.39, 0.37, 0.35, 0.33, 0.31, 0.29, 0.27, 0.25, 0.23, 0.21, 0.19, 0.17, 0.15, 0.13, 0.11, 0.09, 0.07, 0.05, 0.03, 0.01, 0.99, 0.97, 0.95, 0.93, 0.91, 0.89, 0.87, 0.85, 0.83, 0.81, 0.79, 0.77, 0.75, 0.73, 0.71, 0.69, 0.67, 0.65, 0.63, 0.61, 0.59, 0.57, 0.55, 0.53, 0.51, 0.49, 0.47, 0.45, 0.43, 0.41, 0.3

^1H NMR spectrum of *N*-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-*N*-(2-(5-(6-nitro-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycine (**27**)



^{13}C NMR spectrum of *N*-(2-((((9H-fluoren-9-yl)methoxy)carbonyl)amino)ethyl)-*N*-(2-(5-(6-nitro-4-oxo-3,4-dihydroquinazolin-2-yl)uracil-1-yl)acetyl)glycine (**27**)

