

**Design, synthesis and evaluation of novel tacrine–rhein hybrids as
multifunctional agents for the treatment of Alzheimer’s disease**

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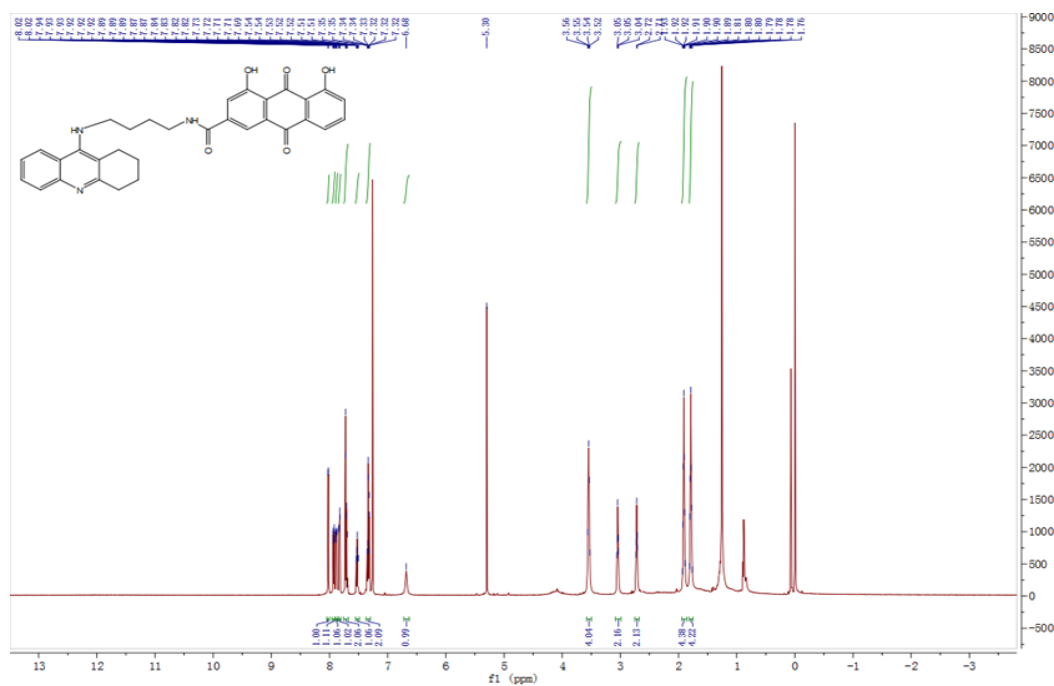
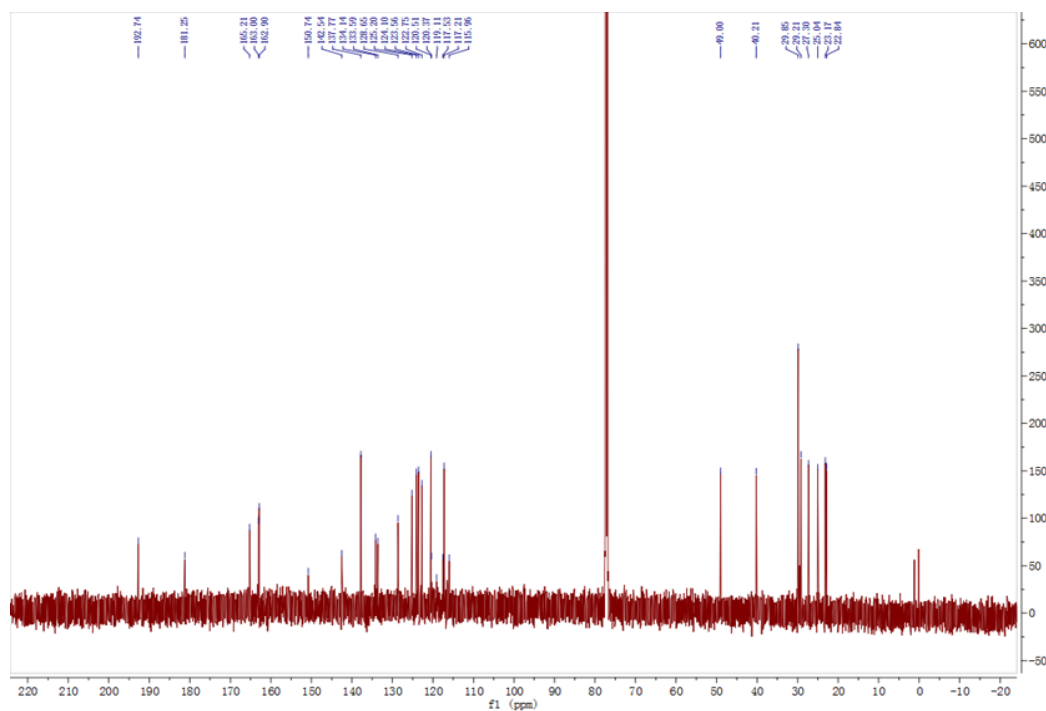
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(Ling-Yi Kong); xbwang@cpu.edu.cn (Xiao-Bing Wang).*

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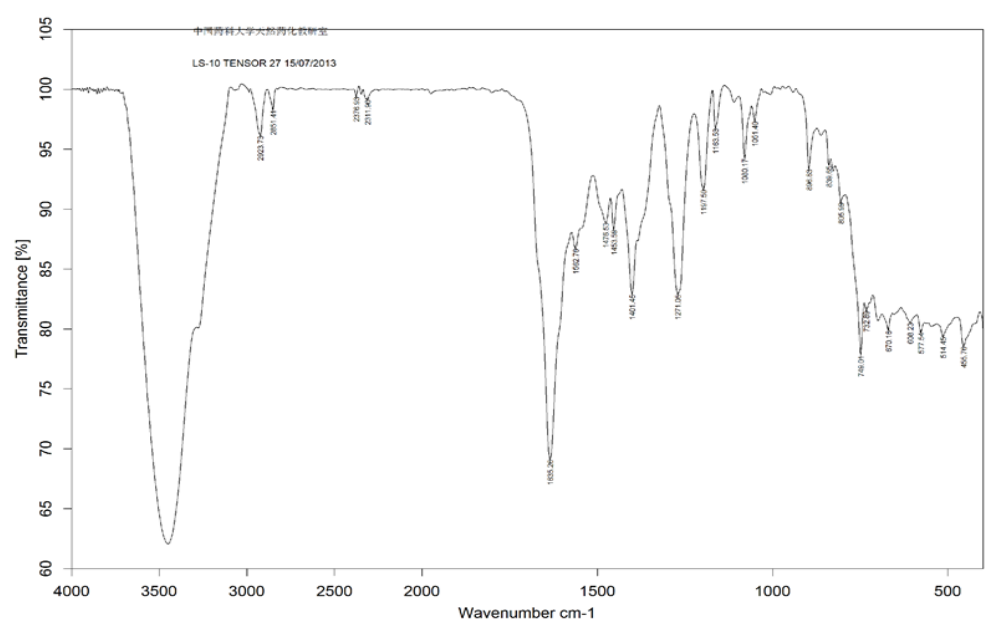
1. **Table S1.** UV data used for determining stoichiometry of **10b**-Cu²⁺

Mole fraction of 10b	Δ Abs at 250 nm
0.0000	0.0000
0.0625	0.0400
0.1250	0.0520
0.1875	0.0721
0.2500	0.1252
0.3125	0.1928
0.3750	0.2147
0.4375	0.2386
0.5000	0.2863
0.5625	0.2847
0.6250	0.2613
0.6875	0.2450
0.7500	0.2020
0.8125	0.1912
0.8750	0.1406
0.9375	0.0900
1.0000	0.0342

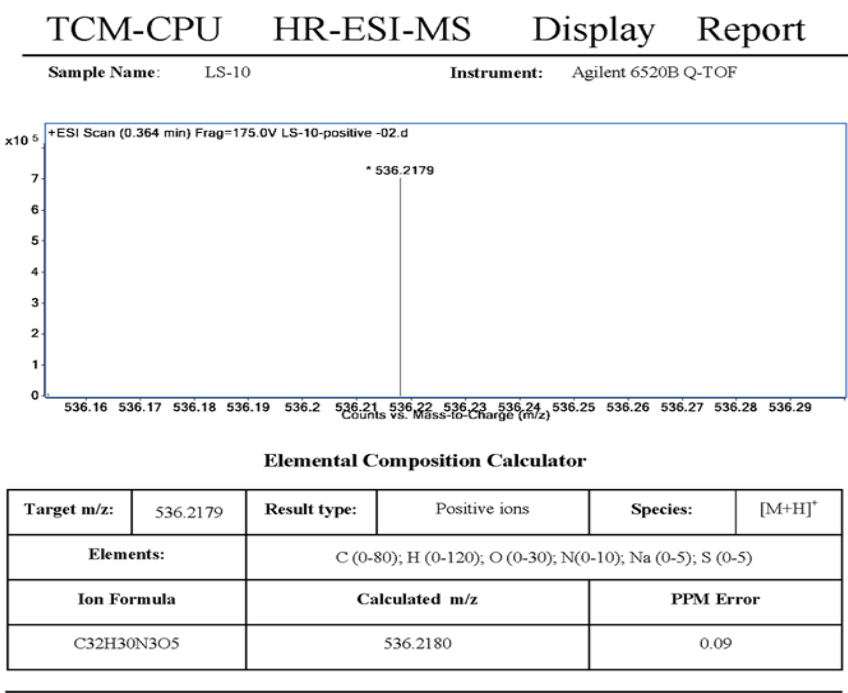
2. The representative ^1H NMR, ^{13}C NMR spectra, IR spectra and HRMS spectra of compounds.

¹H NMR of compound **10a** in CDCl₃ ^{13}C NMR of compound **10a** in CDCl_3 

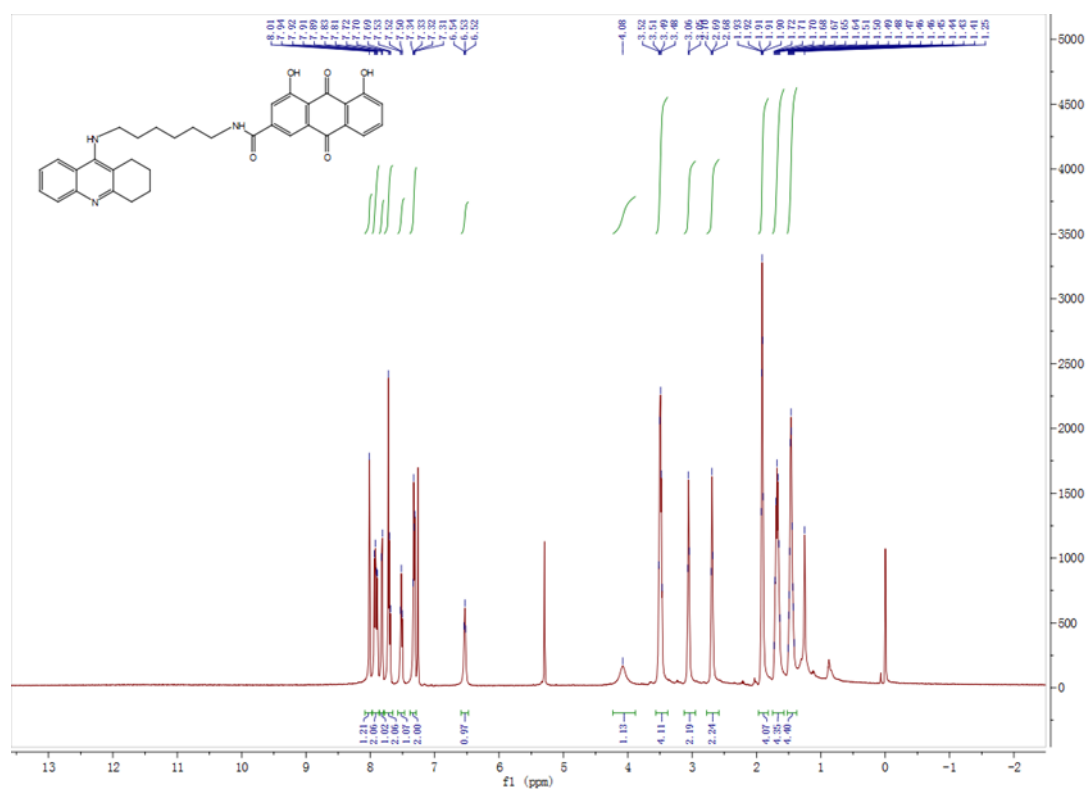
IR of compound **10a**



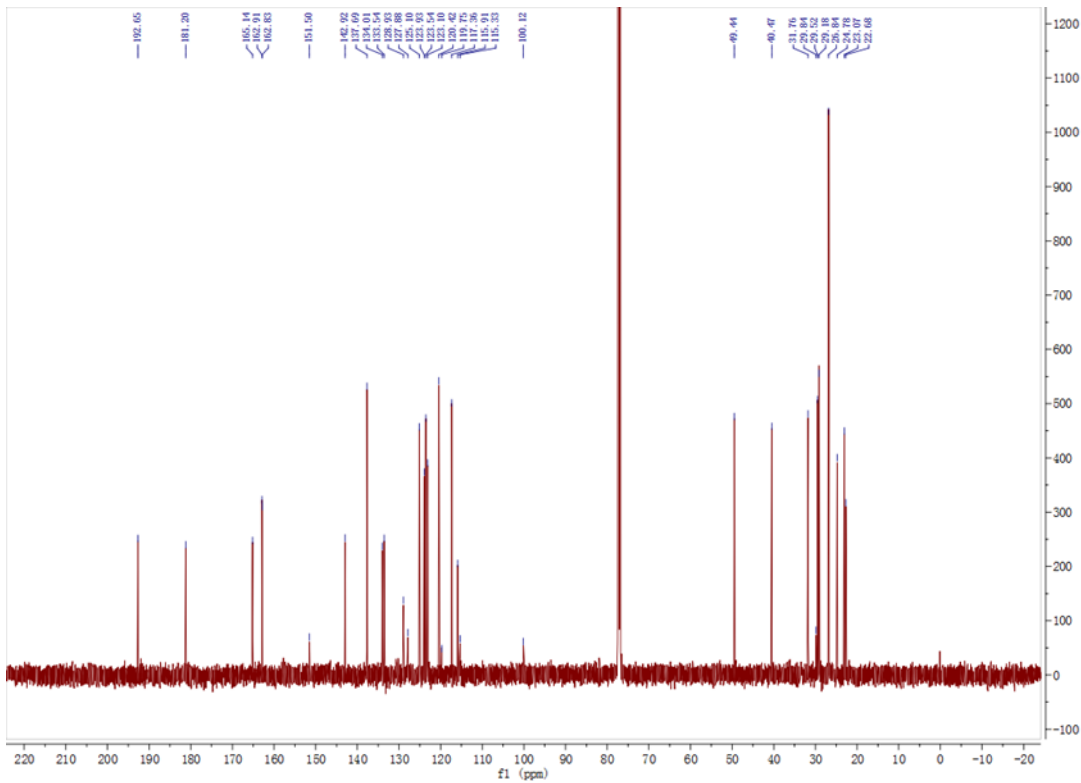
HRMS of compound **10a**



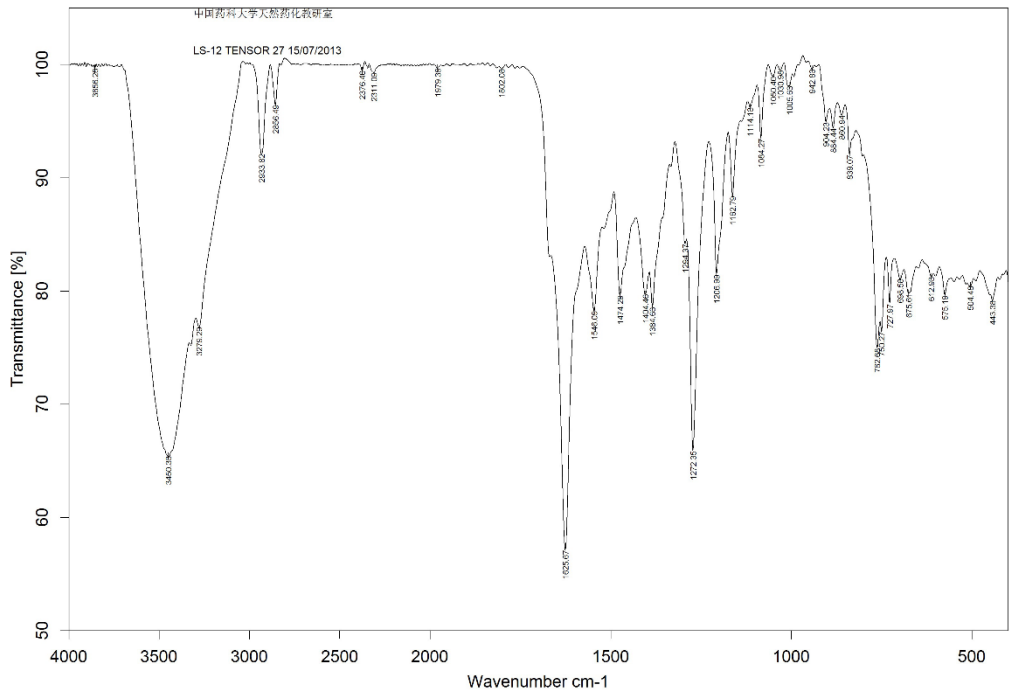
^1H NMR of compound **10b** in CDCl_3



^{13}C NMR of compound **10b** in CDCl_3



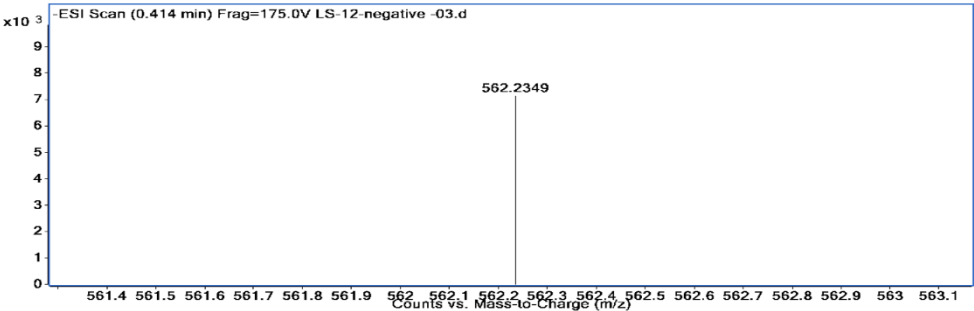
IR of compound **10b**



HRMS of compound **10b**

TCM-CPU HR-ESI-MS Display Report

Sample Name: LS-12 Instrument: Agilent 6520B Q-TOF

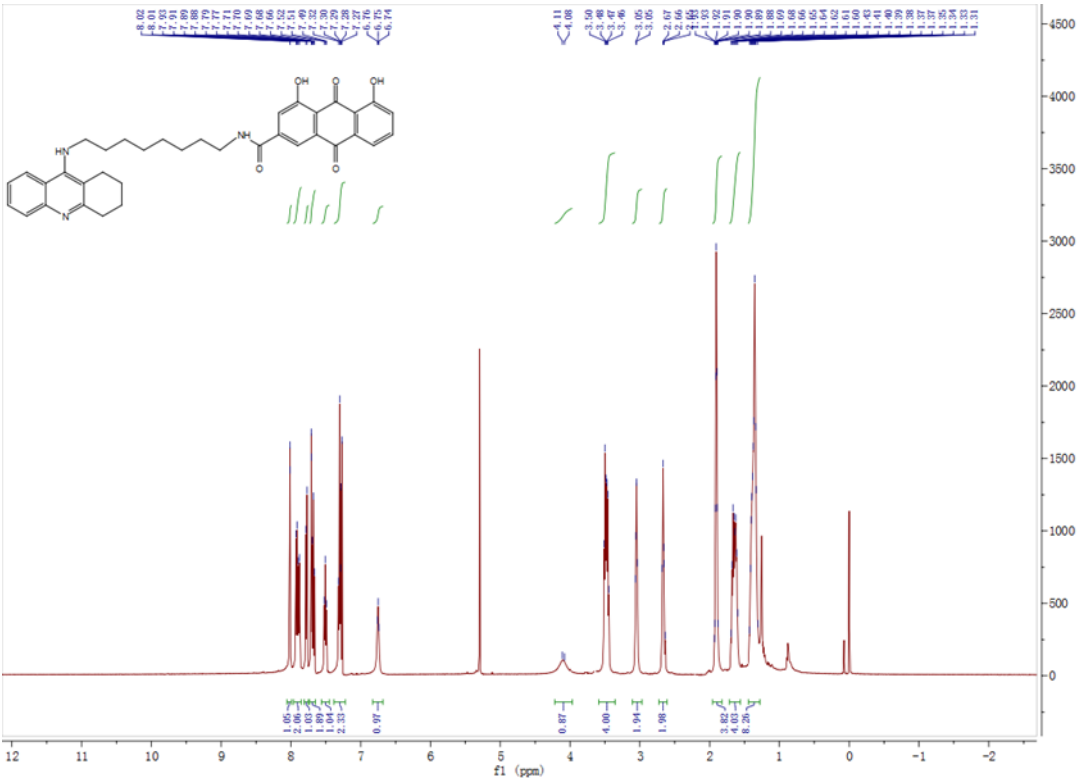


Elemental Composition Calculator

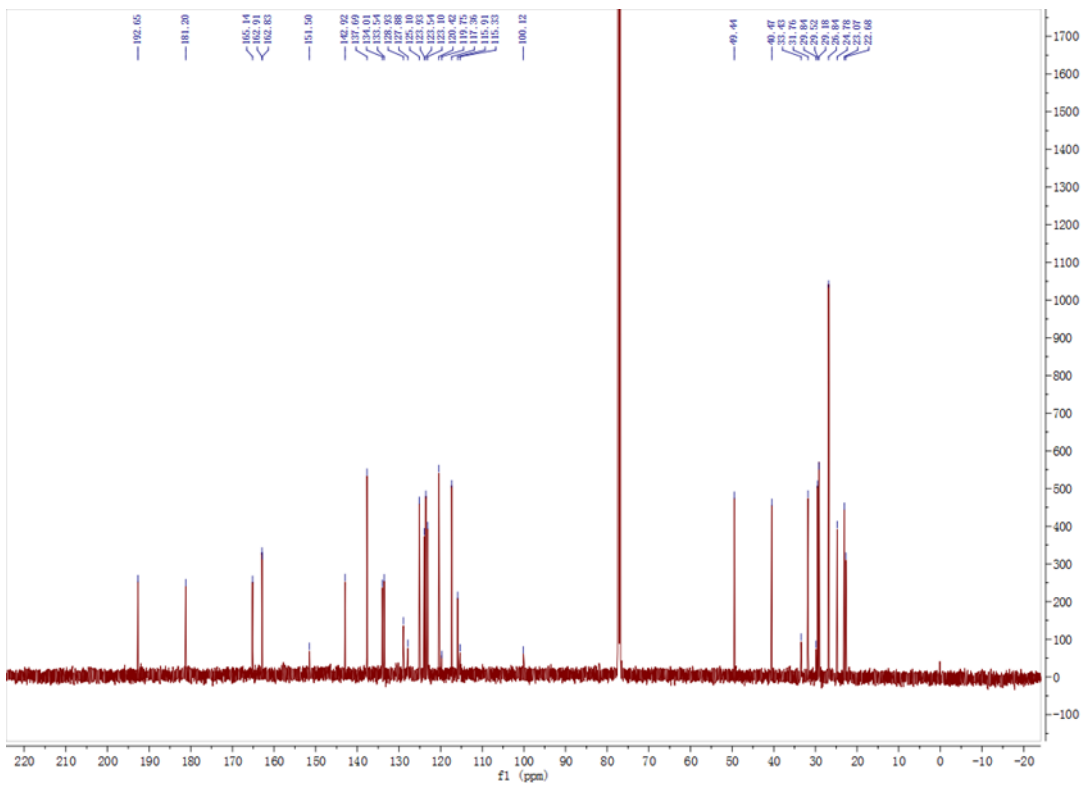
Target m/z:	562.2349	Result type:	Negative ions	Species:	[M-H] ⁻
Elements:	C (0-80); H (0-120); O (0-30); N(0-10); Cl (0-5)				
Ion Formula	Calculated m/z		PPM Error		
C34H32N3O5	562.2347		-0.31		



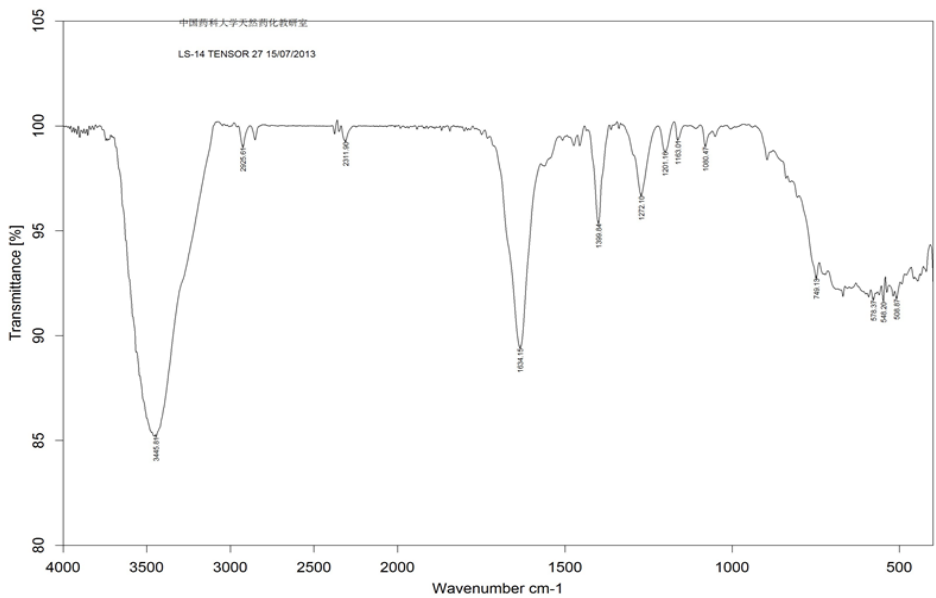
¹H NMR of compound **10c** in CDCl₃



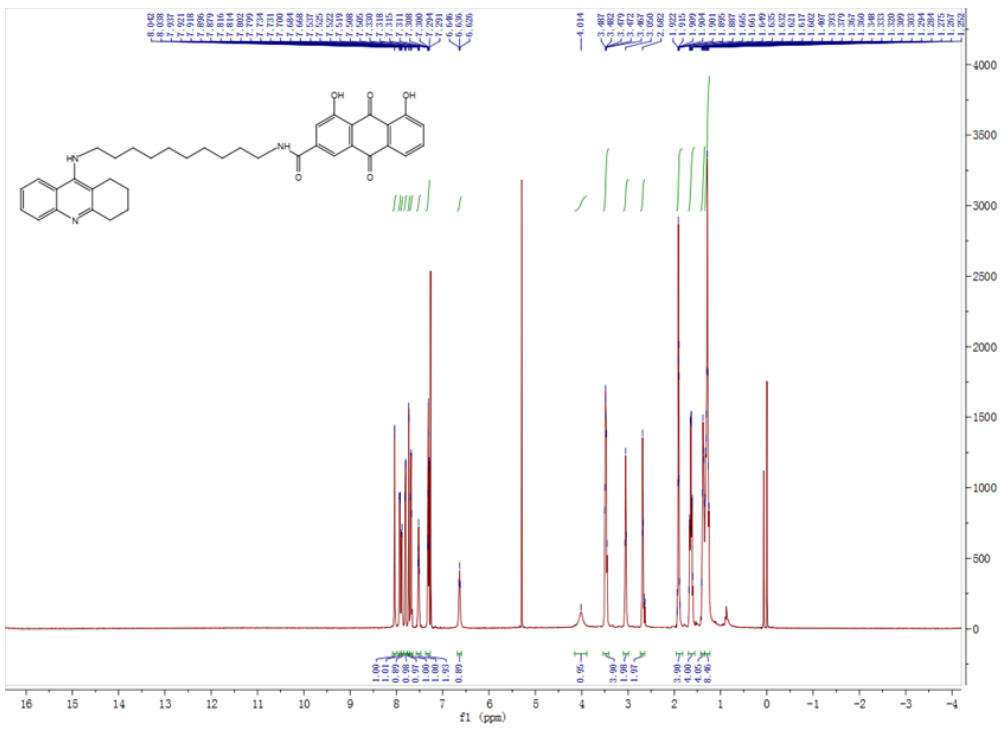
¹³C NMR of compound **10c** in CDCl₃



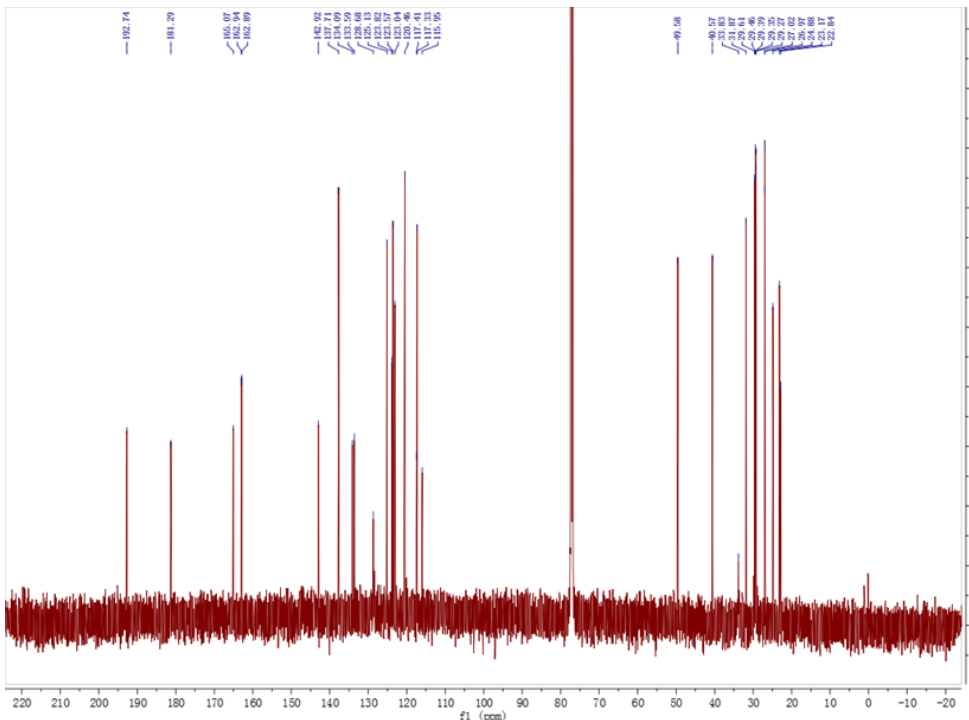
IR of compound **10c**



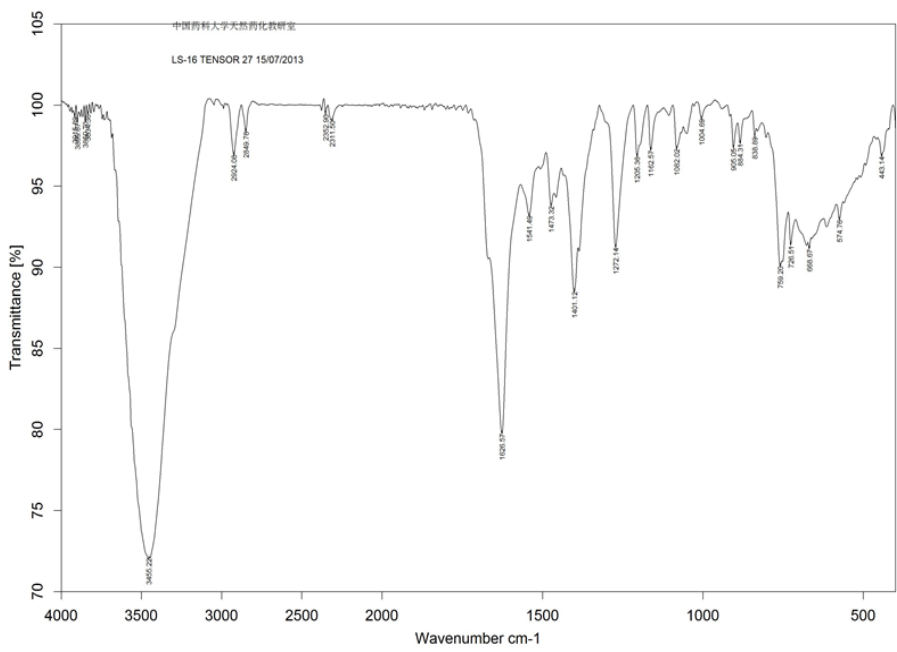
HRMS of compound **10c**



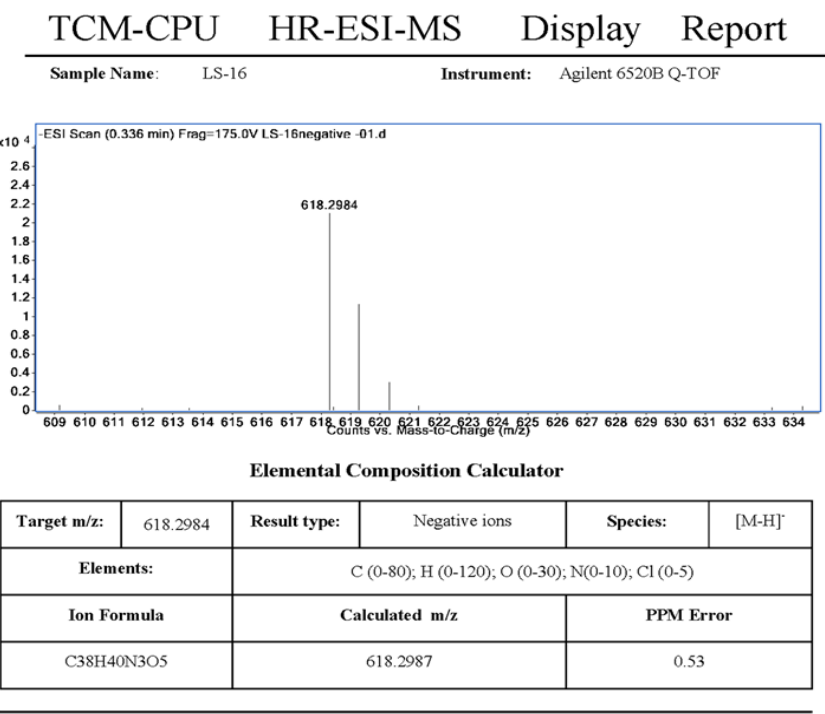
¹³C NMR of compound **10d** in CDCl₃



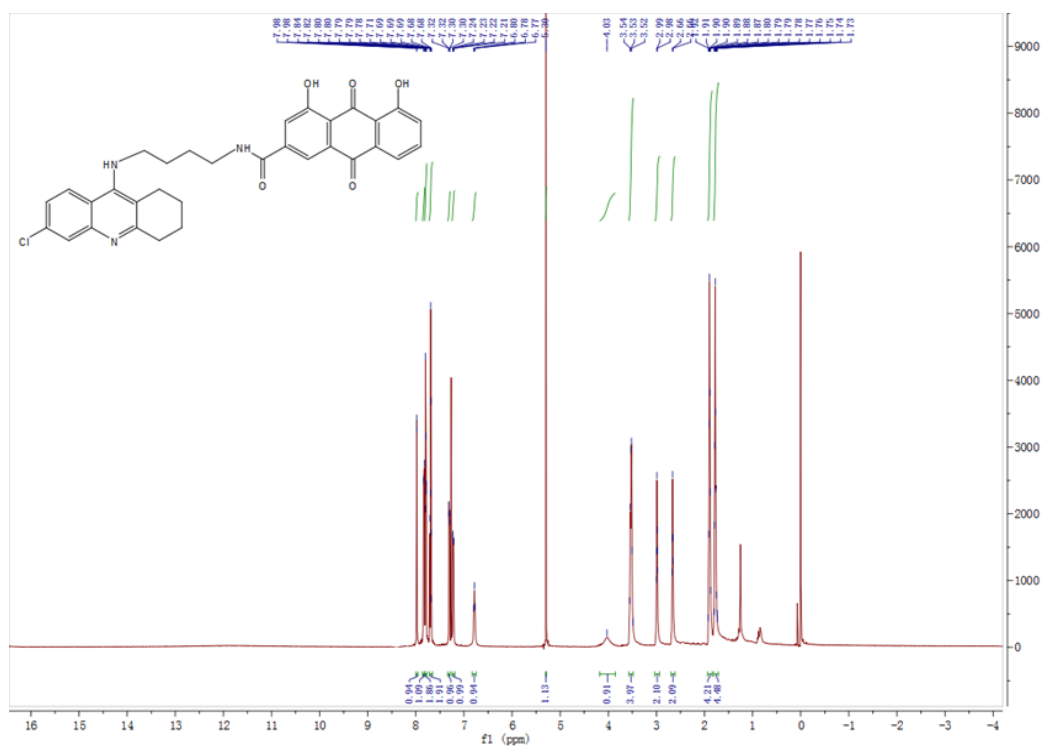
IR of compound **10d**



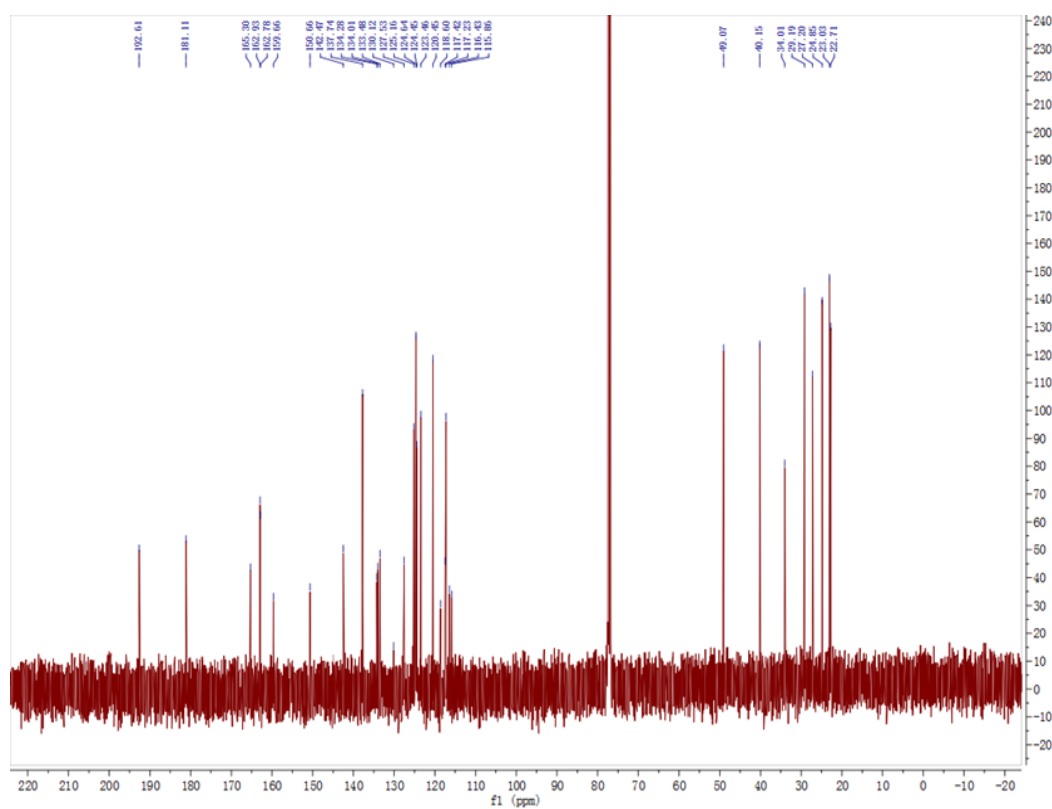
HRMS of compound **10d**



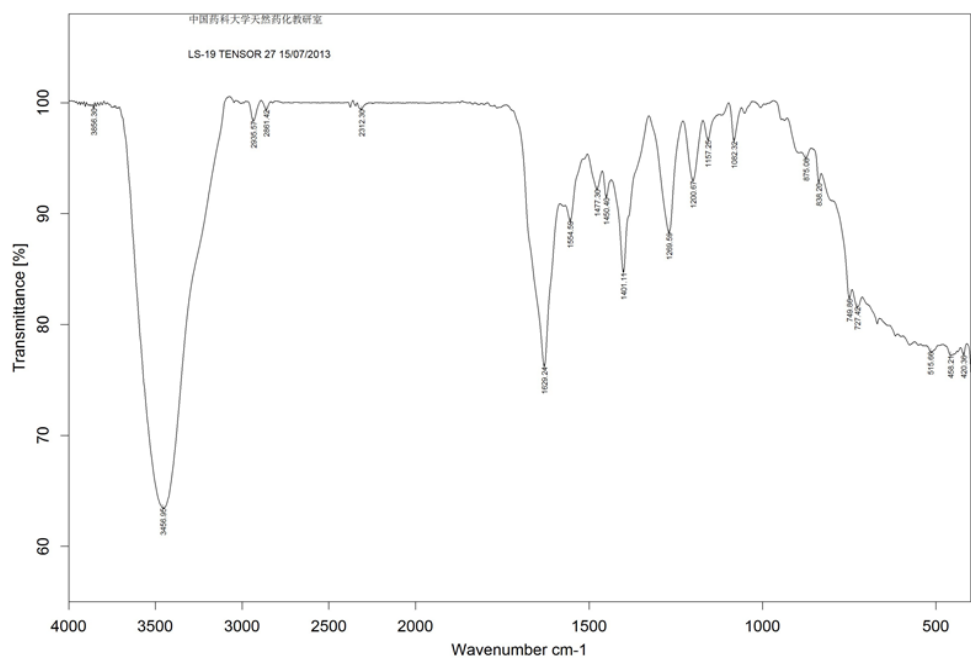
¹H NMR of compound **10e** in CDCl₃



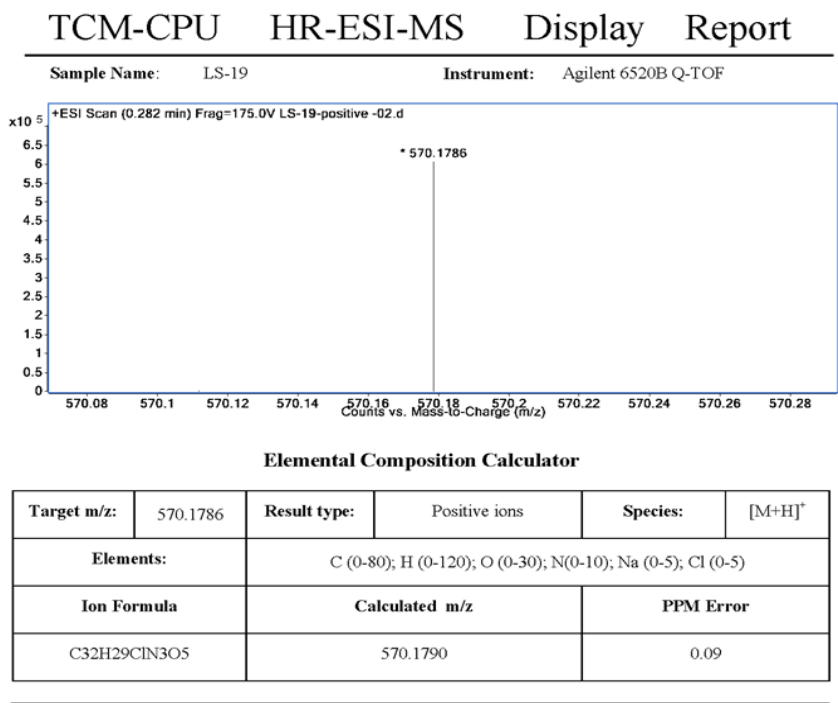
^{13}C NMR of compound **10e** in CDCl₃



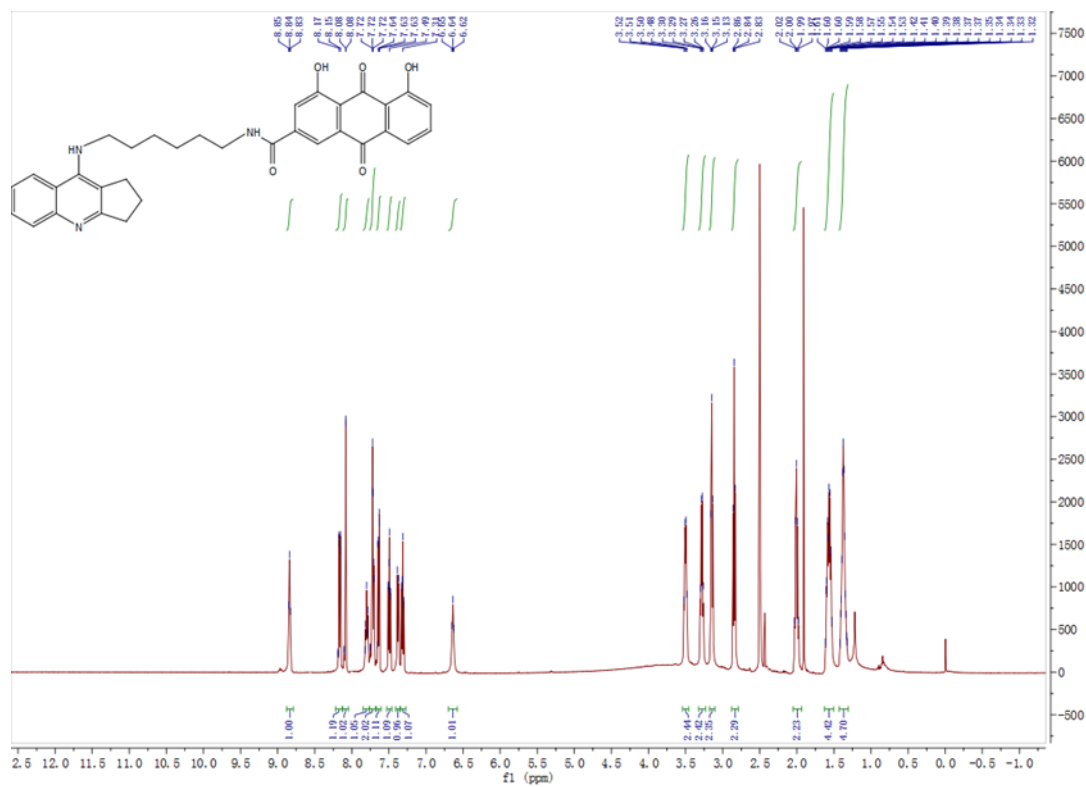
IR of compound **10e**



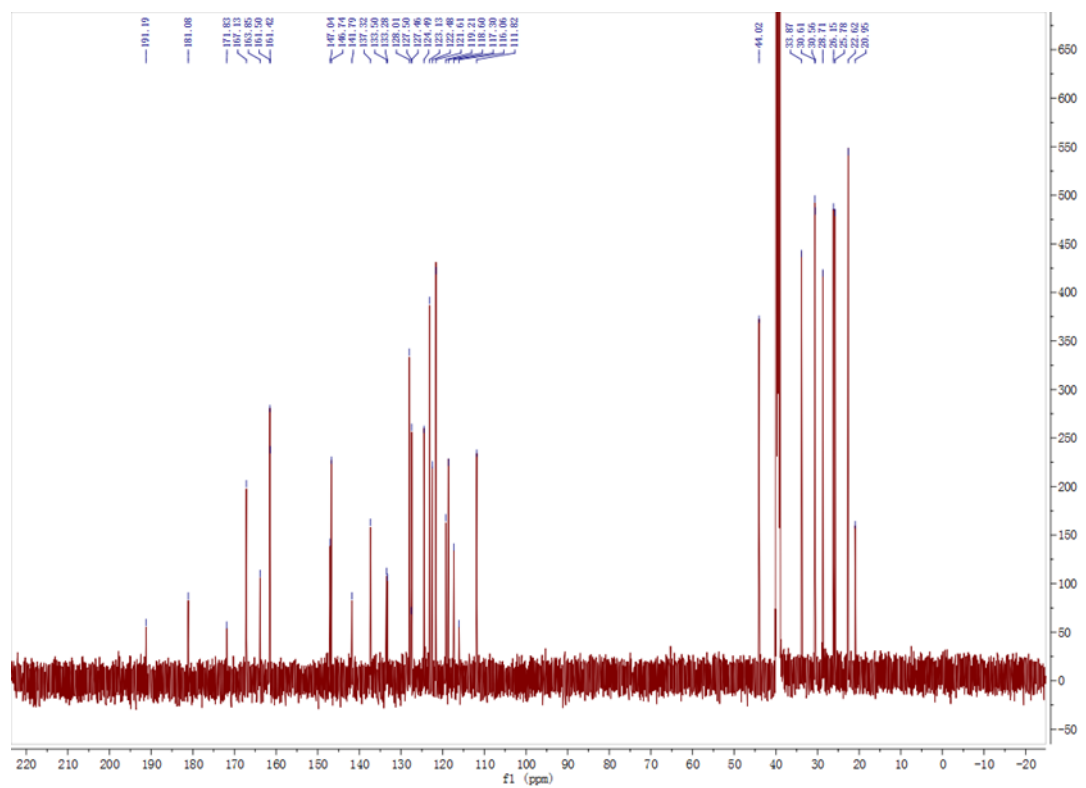
HRMS of compound **10e**



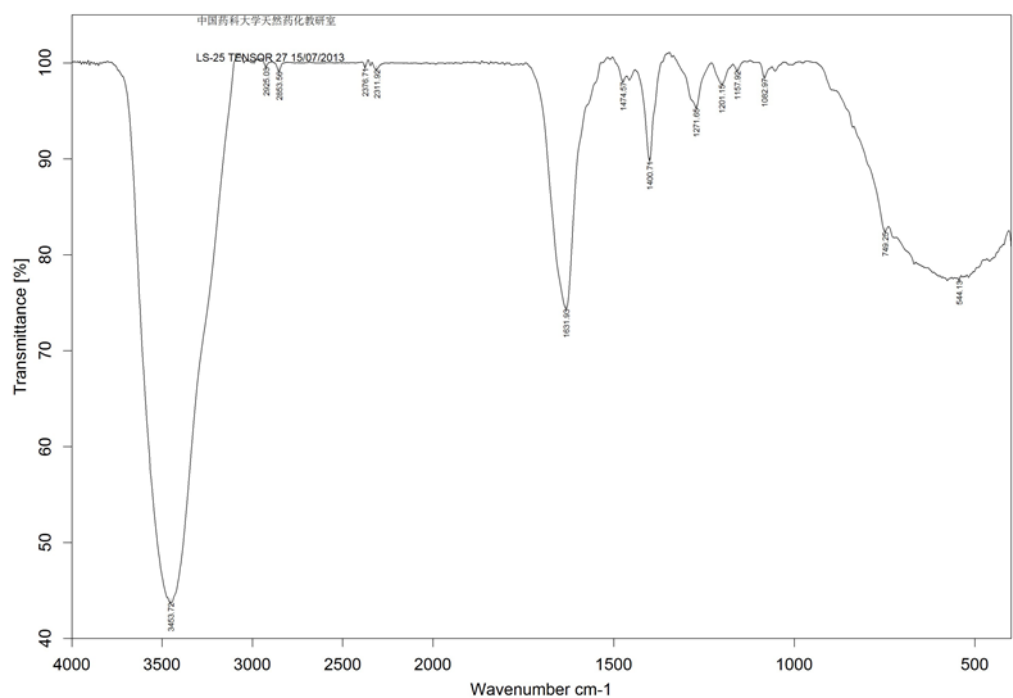
¹H NMR of compound **10h** in DMSO-*d*₆



^{13}C NMR of compound **10h** in $\text{DMSO}-d_6$



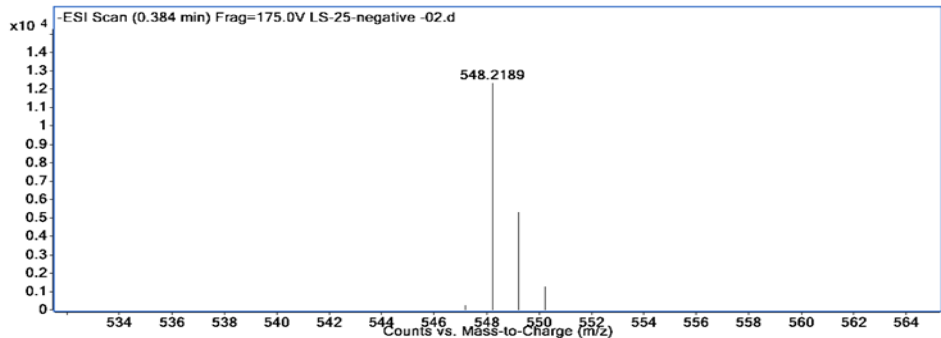
IR of compound **10h**



HRMS of compound **10h**

TCM-CPU HR-ESI-MS Display Report

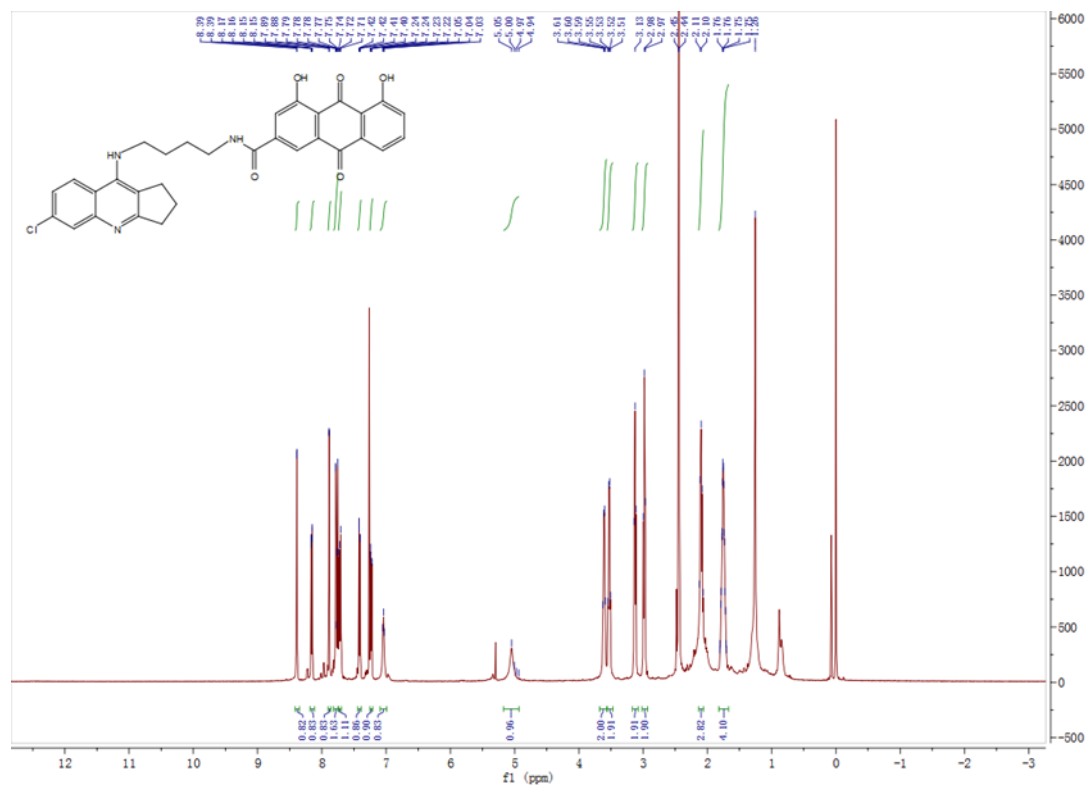
Sample Name: LS-25 Instrument: Agilent 6520B Q-TOF



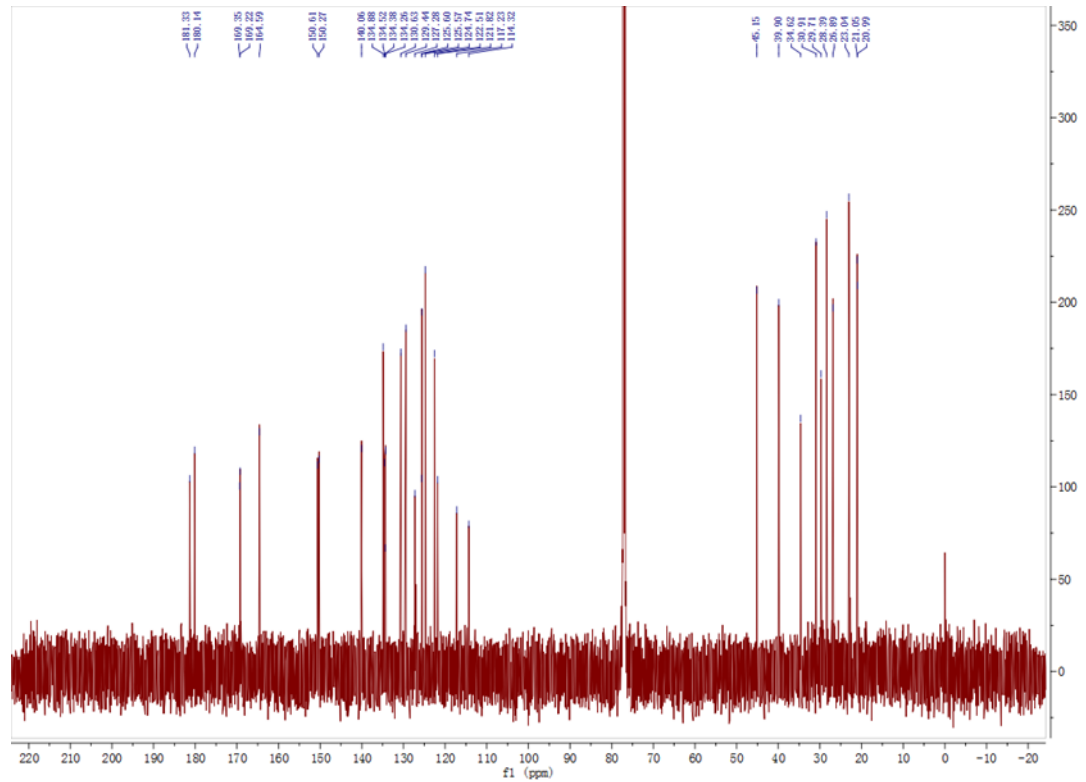
Elemental Composition Calculator

Target m/z:	548.2189	Result type:	Negative ions	Species:	[M-H] ⁻
Elements:	C (0-80); H (0-120); O (0-30); N(0-10); S (0-5)				
Ion Formula	Calculated m/z		PPM Error		
C ₃₃ H ₃₀ N ₃ O ₅	548.2191		0.4		

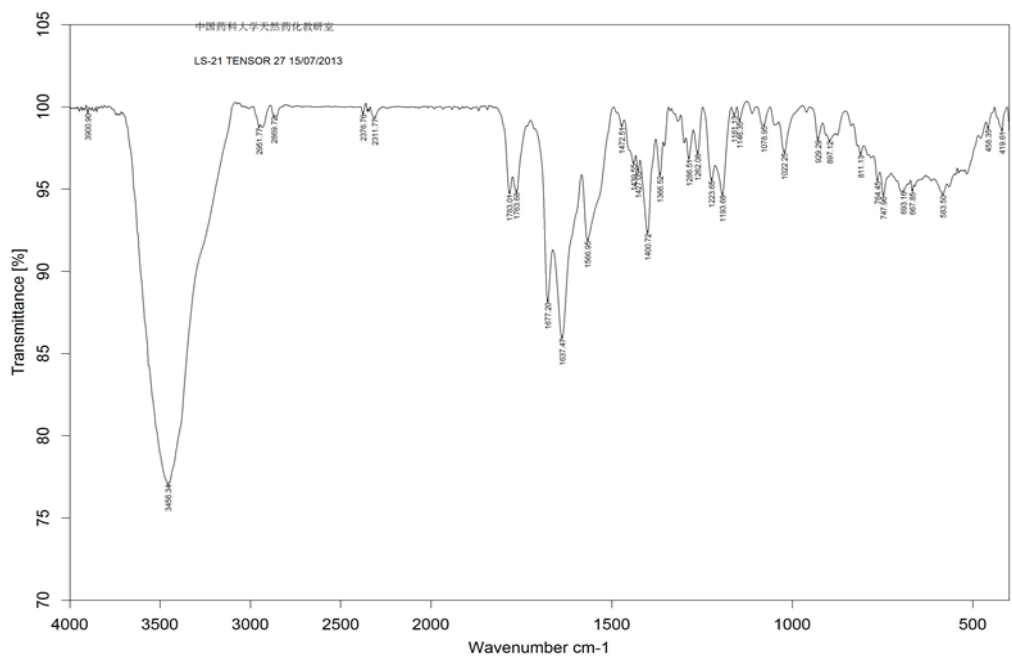
¹H NMR of compound **10i** in CDCl₃



^{13}C NMR of compound **10i** in CDCl_3



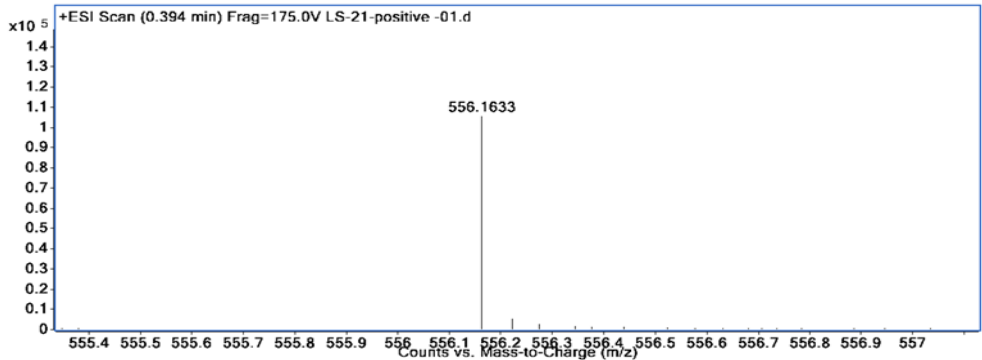
IR of compound **10i**



HRMS of compound **10i**

TCM-CPU HR-ESI-MS Display Report

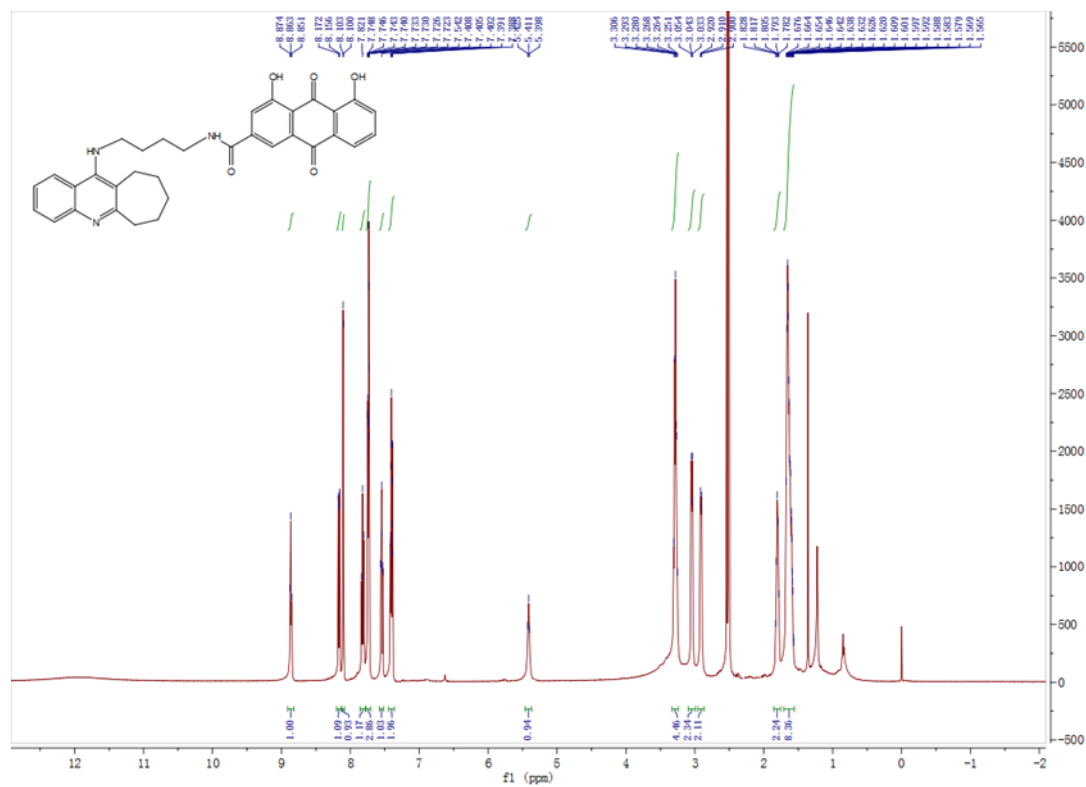
Sample Name: LS-21 Instrument: Agilent 6520B Q-TOF



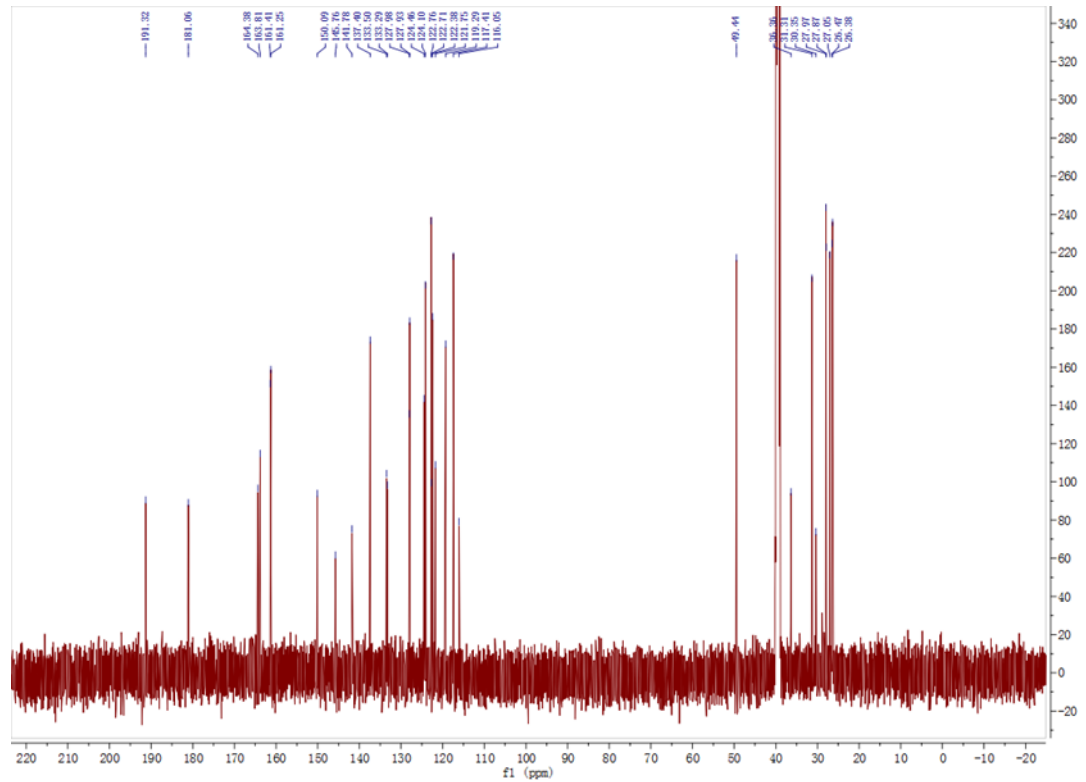
Elemental Composition Calculator

Target m/z:	556.1633	Result type:	Positive ions	Species:	[M+H] ⁺
Elements:	C (0-80); H (0-120); O (0-30); N(0-10); Na (0-5); Cl (0-5)				
Ion Formula	Calculated m/z		PPM Error		
C31H27ClN3O5	556.1634		0.1		

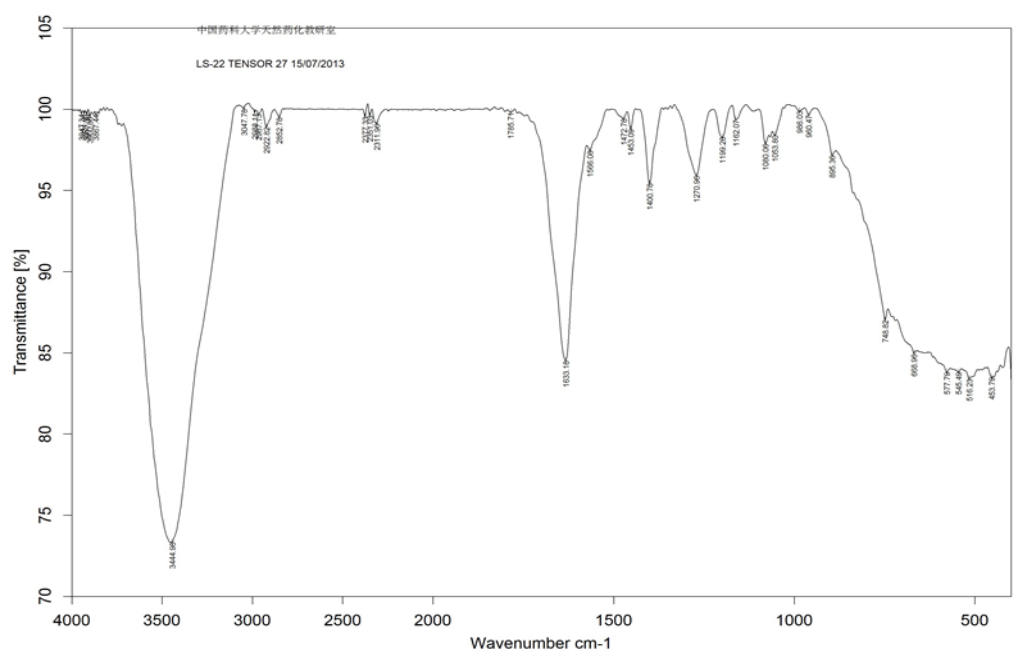
¹H NMR of compound **10k** in DMSO-*d*₆



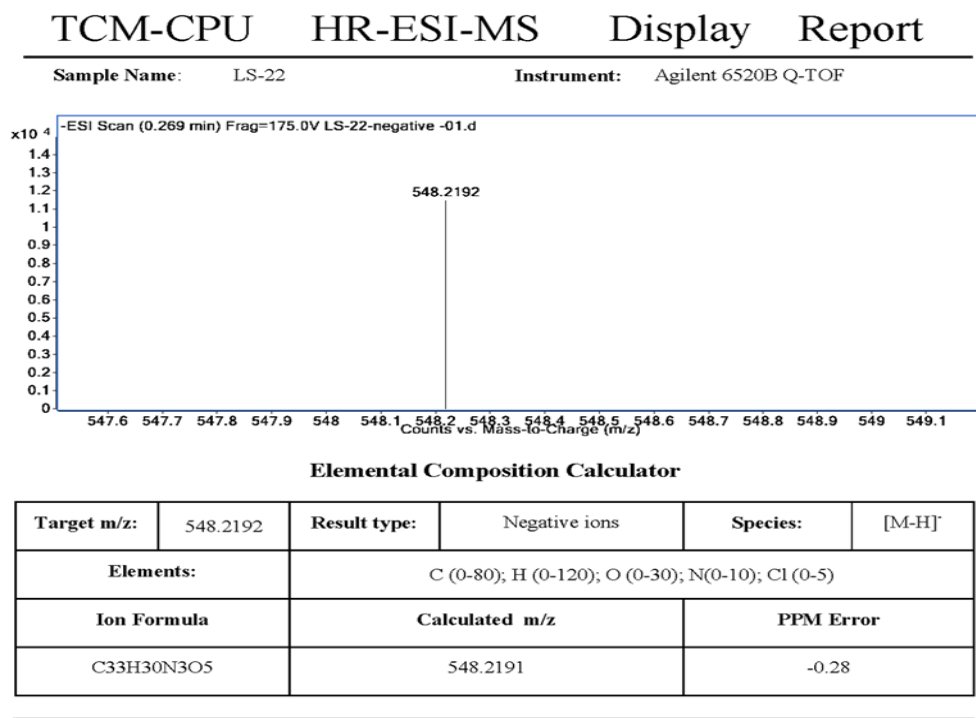
¹³C NMR of compound **10k** in DMSO-*d*₆



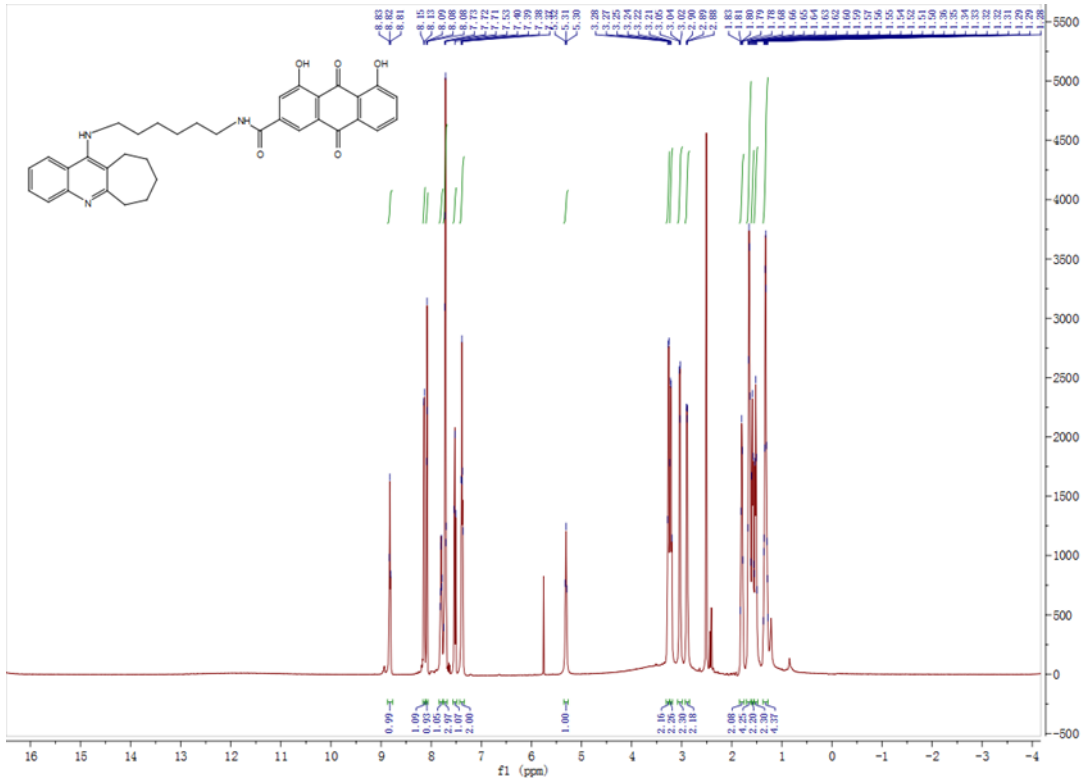
IR of compound **10k**



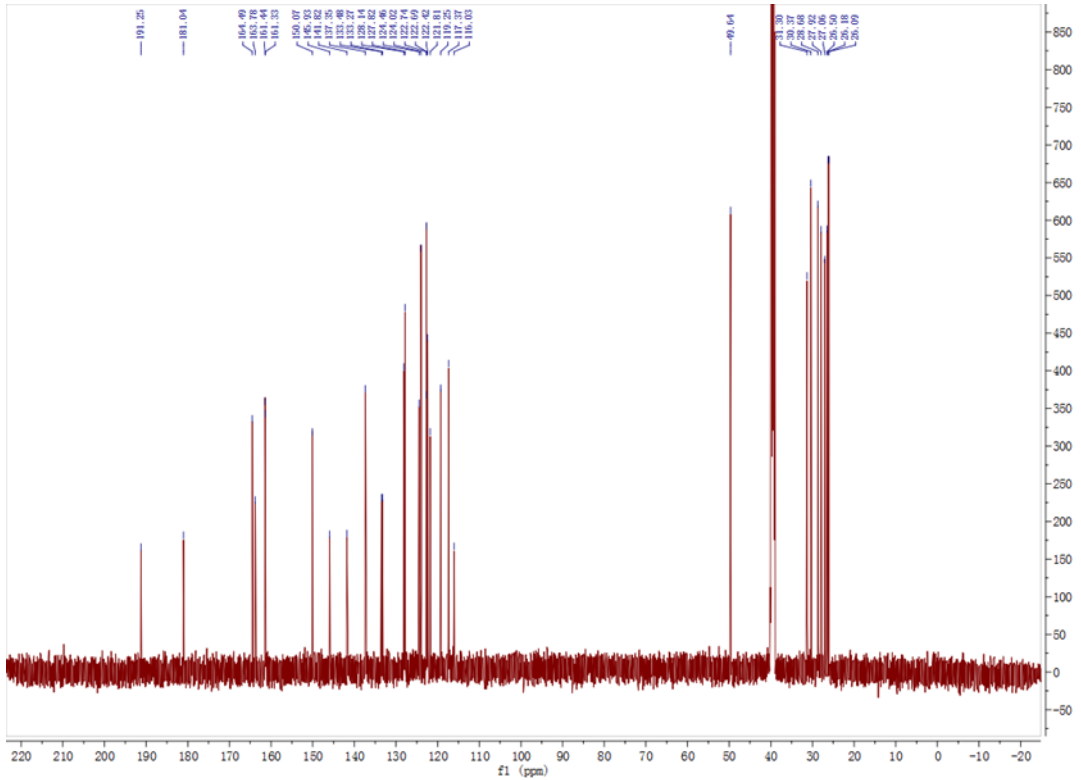
HRMS of compound **10k**



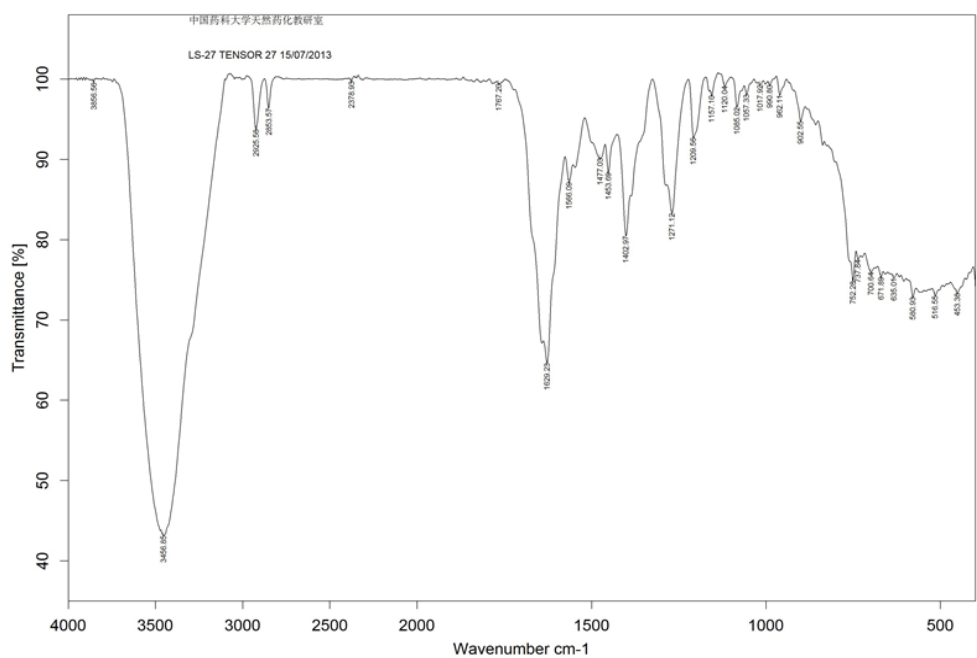
¹H NMR of compound **10l** in DMSO-*d*₆



¹³C NMR of compound **101** in DMSO-*d*₆



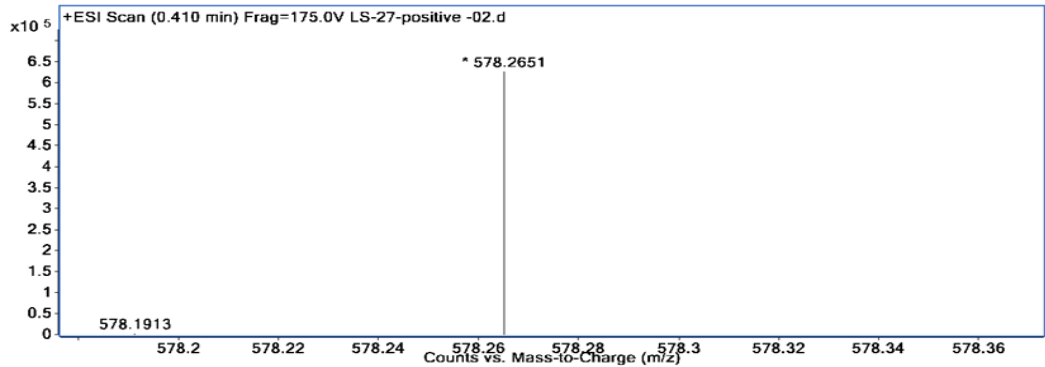
IR of compound **101**



HRMS of compound **10l**

TCM-CPU HR-ESI-MS Display Report

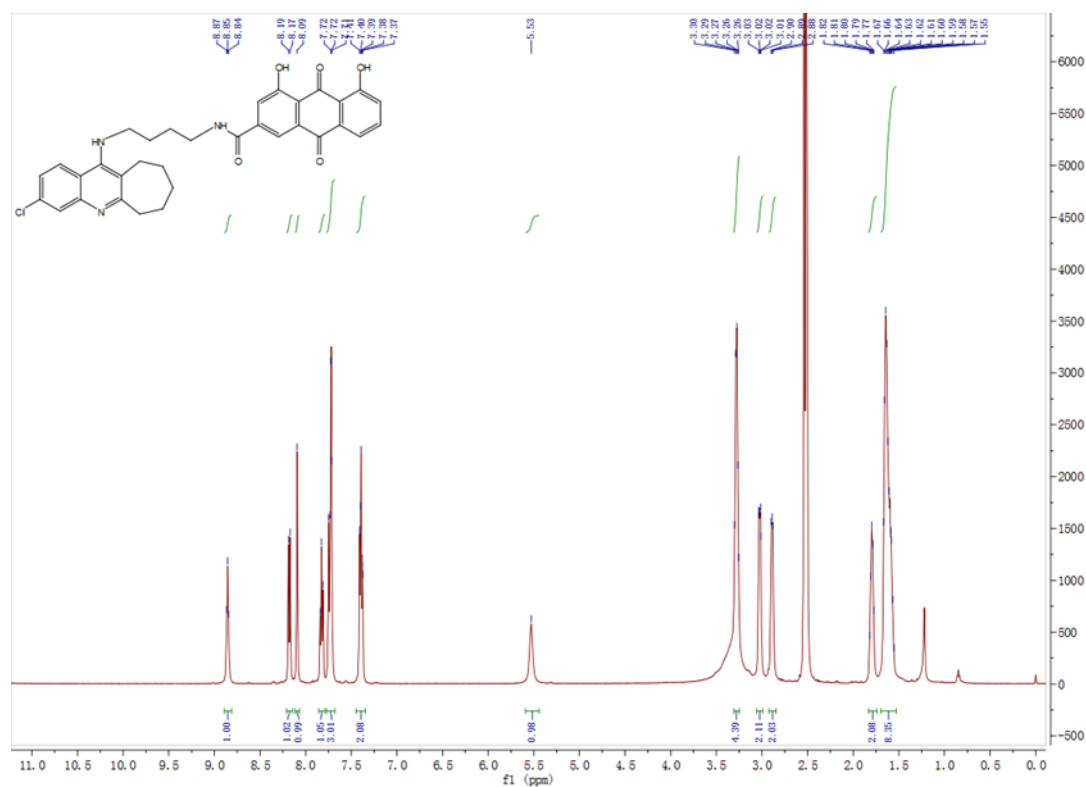
Sample Name: LS-27 Instrument: Agilent 6520B Q-TOF



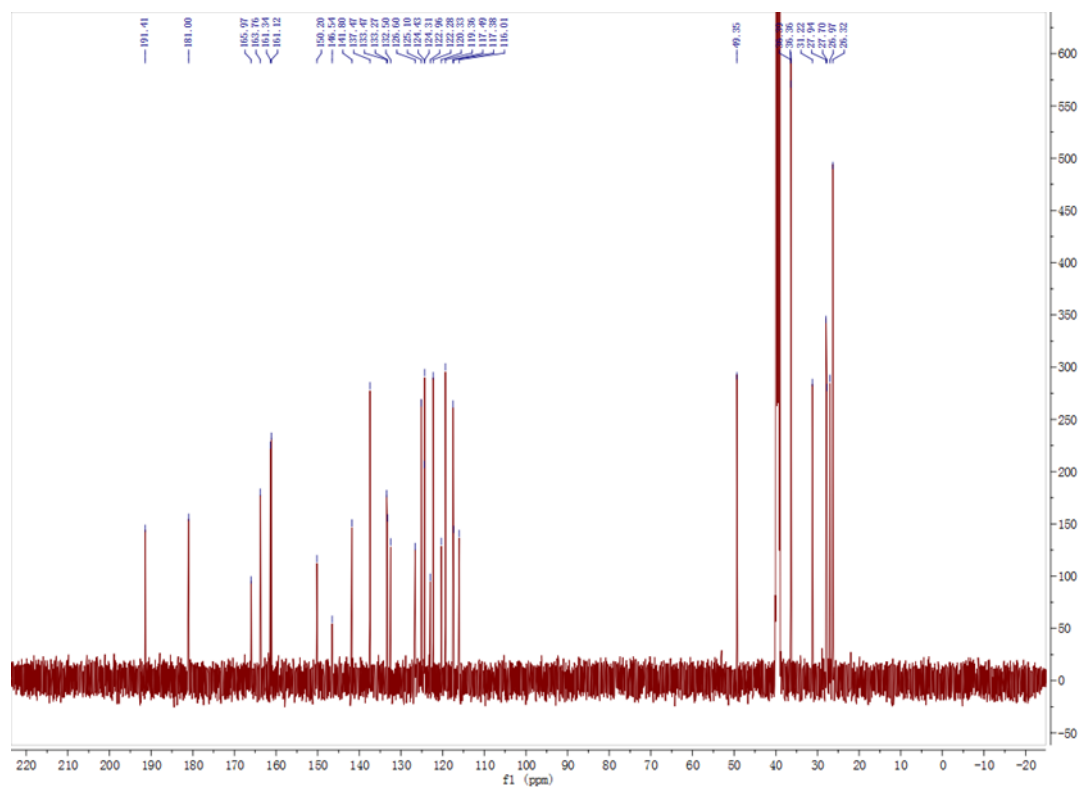
Elemental Composition Calculator

Target m/z:	578.2651	Result type:	Positive ions	Species:	[M+H] ⁺
Elements:	C (0-80); H (0-120); O (0-30); N(0-10); Na (0-5); S (0-5)				
Ion Formula	Calculated m/z		PPM Error		
C35H36N3O5	578.2649		-0.23		

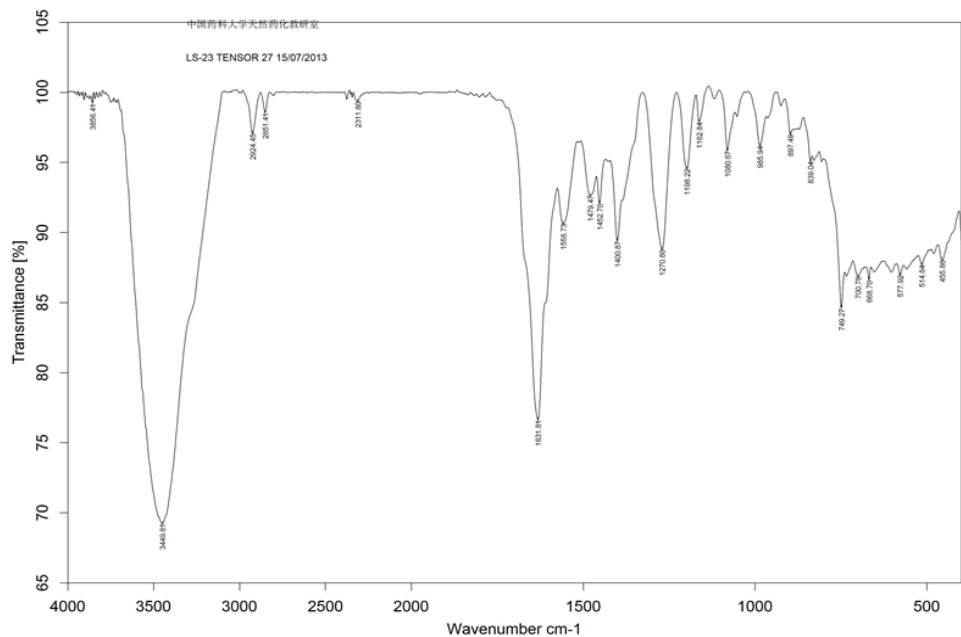
¹H NMR of compound **10m** in DMSO-*d*₆



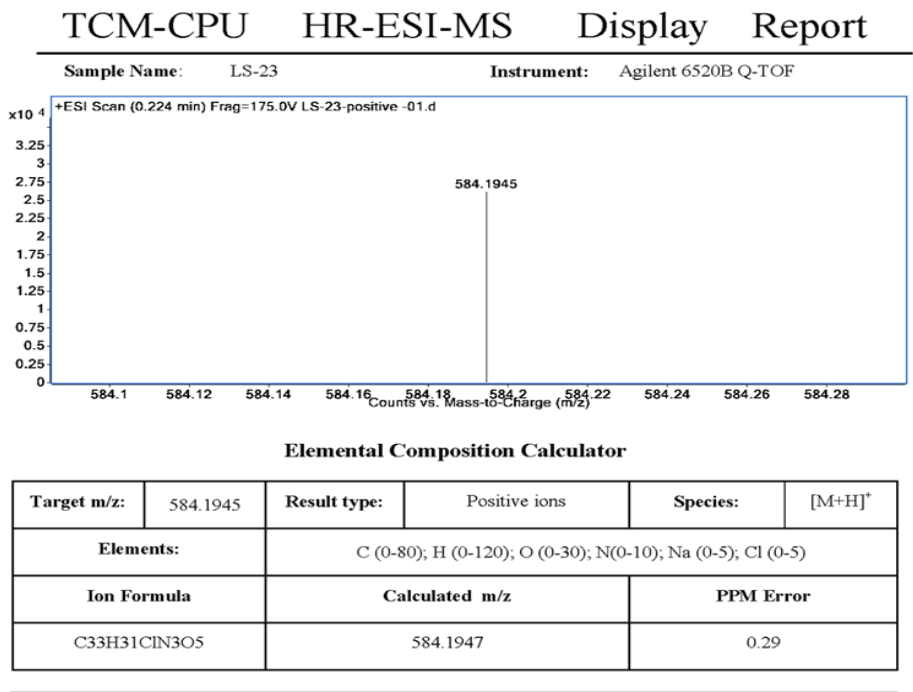
¹³C NMR of compound 10m in DMSO-*d*₆



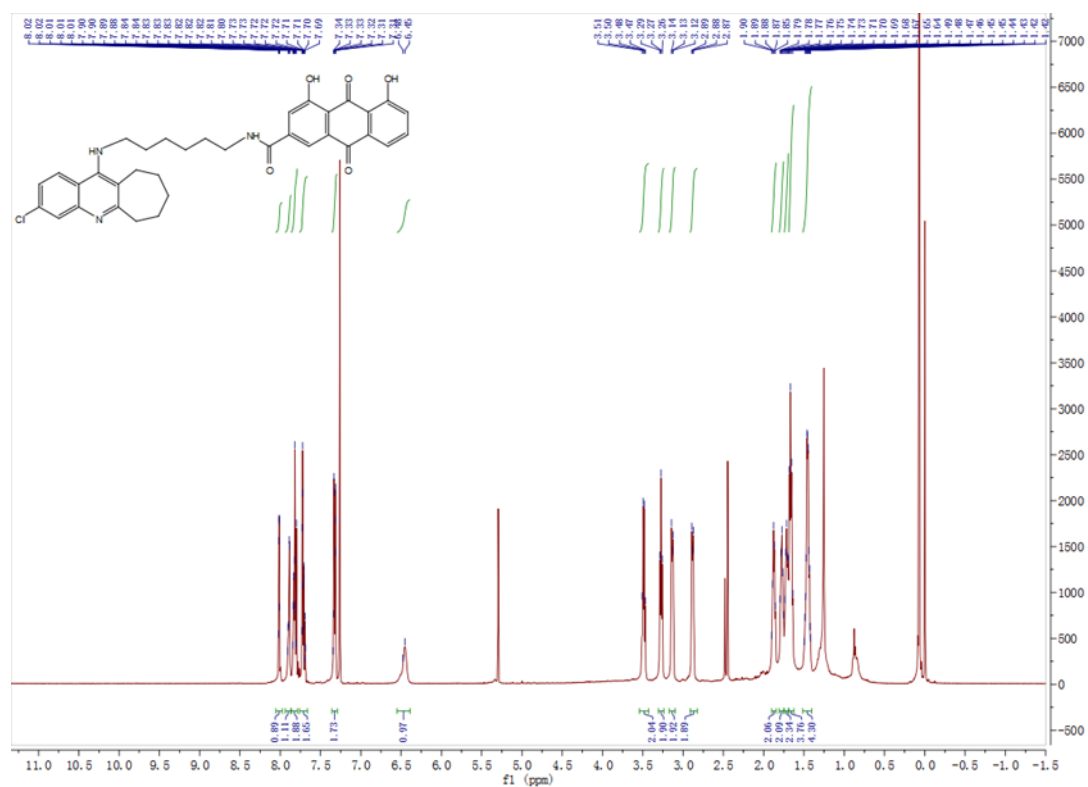
IR of compound **10m**



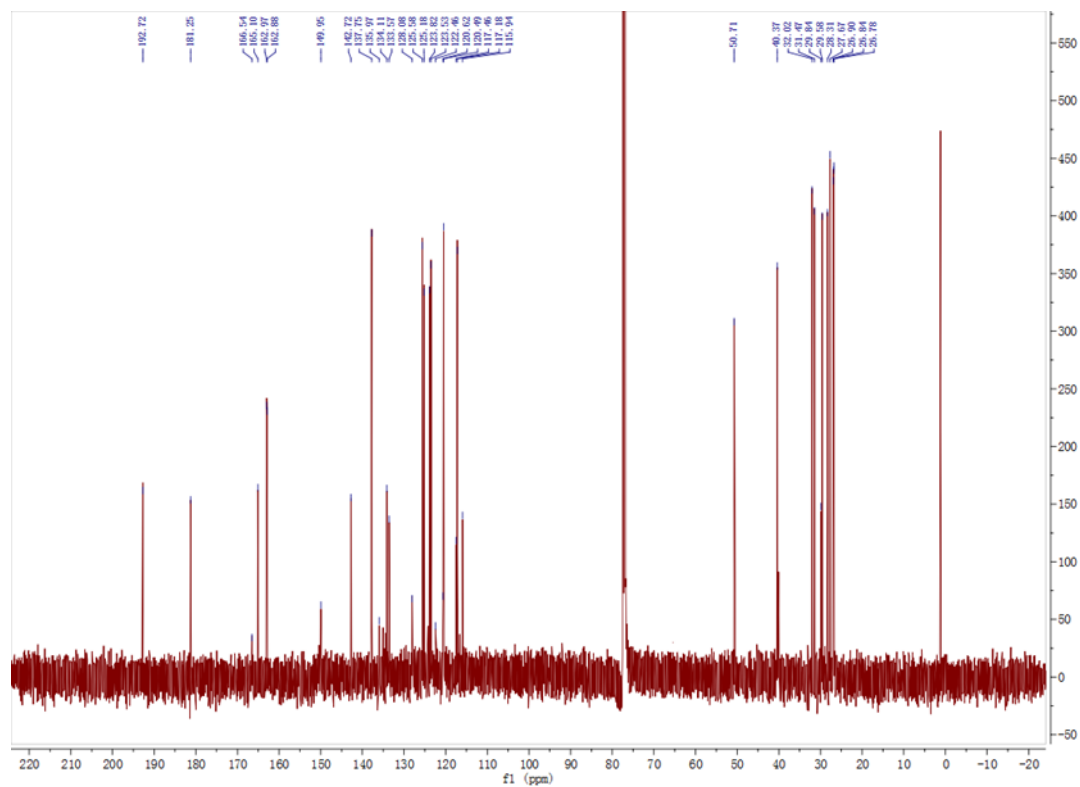
HRMS of compound **10m**



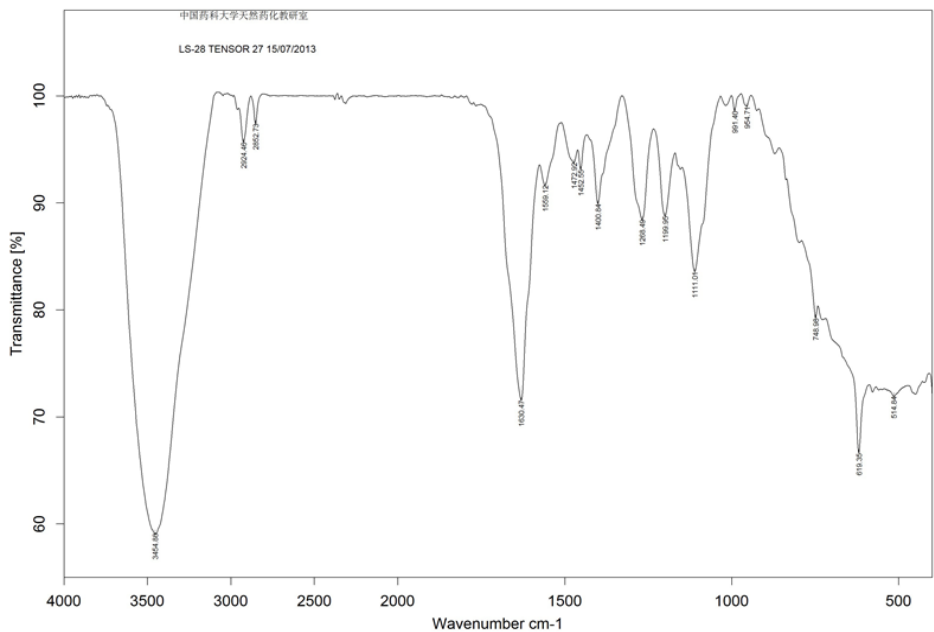
^1H NMR of compound **10n** in CDCl_3



^{13}C NMR of compound **10n** in CDCl_3



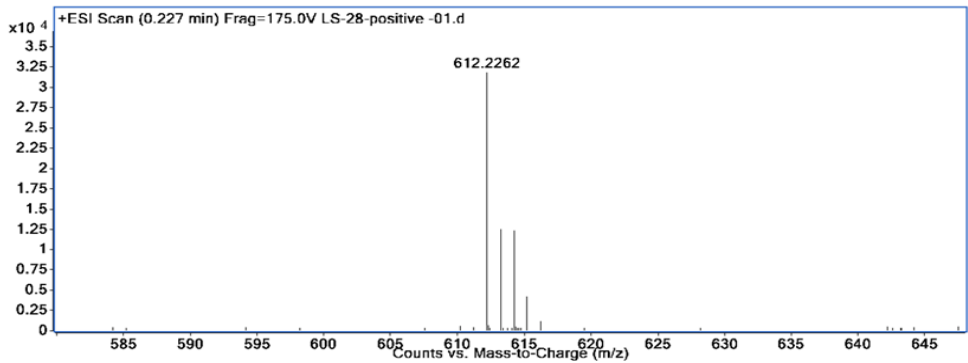
IR of compound **10n**



HRMS of compound **10n**

TCM-CPU HR-ESI-MS Display Report

Sample Name: LS-28 Instrument: Agilent 6520B Q-TOF



Elemental Composition Calculator

Target m/z:	612.2262	Result type:	Positive ions	Species:	[M+H] ⁺
Elements:	C (0-80); H (0-120); O (0-30); N(0-10); Na (0-5); Cl(0-5)				
Ion Formula	Calculated m/z		PPM Error		
C35H35ClN3O5	612.2260		-0.34		