

# **Claulansine F-Donepezil hybrids as anti-Alzheimer's disease agents with cholinergic, free radical scavenging, and neuroprotective activities**

Yingda Zang†, Ke Liu†, Weiping Wang, Chuangjun Li, Jie Ma, Jingzhi Yang, Xinyi Chen, Xiaoliang Wang, Dongming Zhang\*

## **Supplementary Materials**

State Key Laboratory of Bioactive Substance and Function of Natural Medicines, Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, 100050, China;

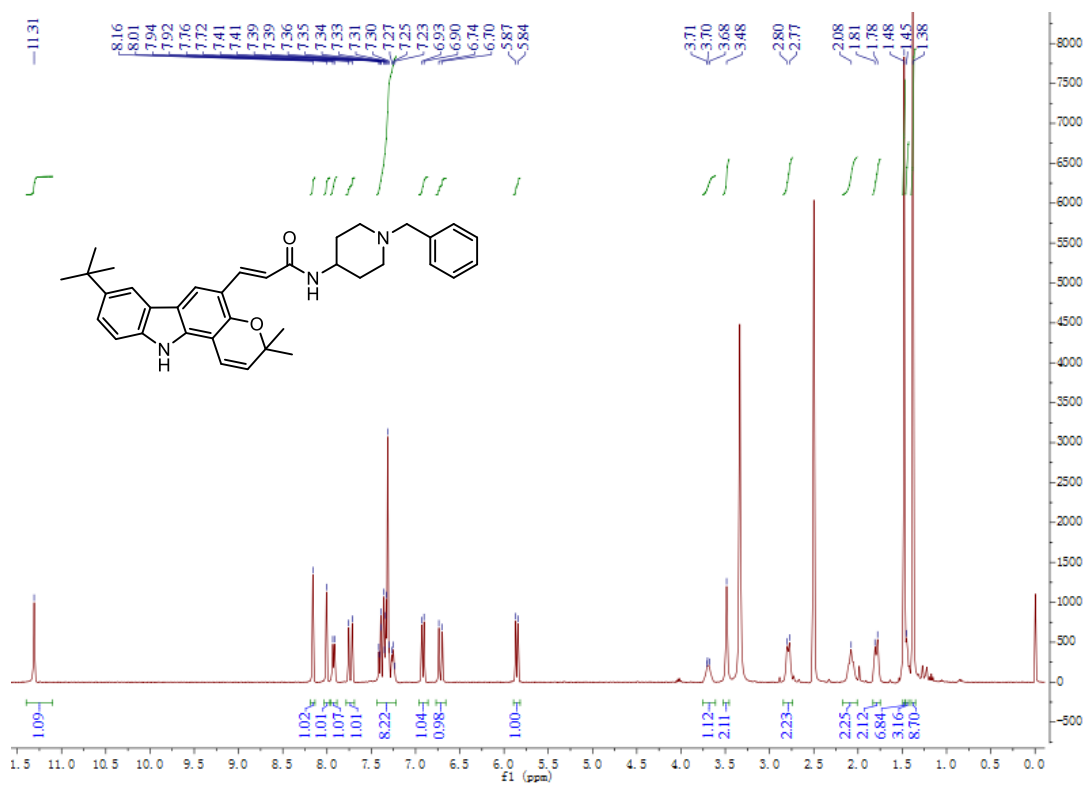
\* Correspondence: zhangdm@imm.ac.cn; Tel./Fax: +86-10-63165227

† These authors contributed equally to this work.

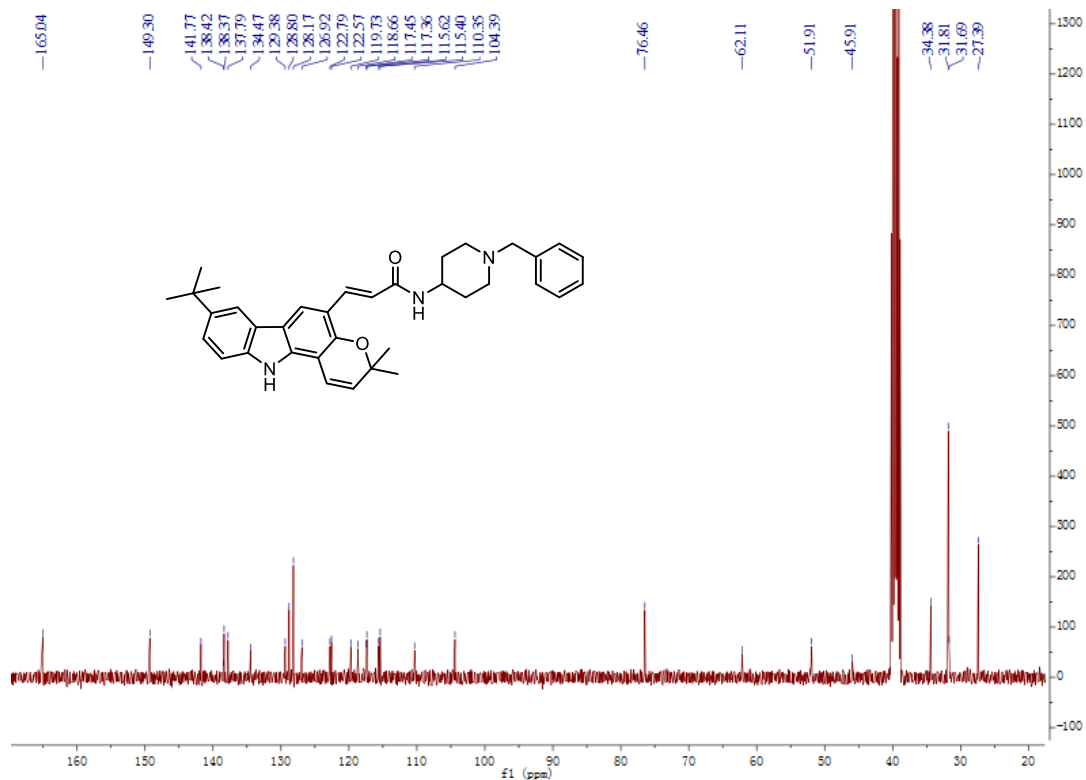
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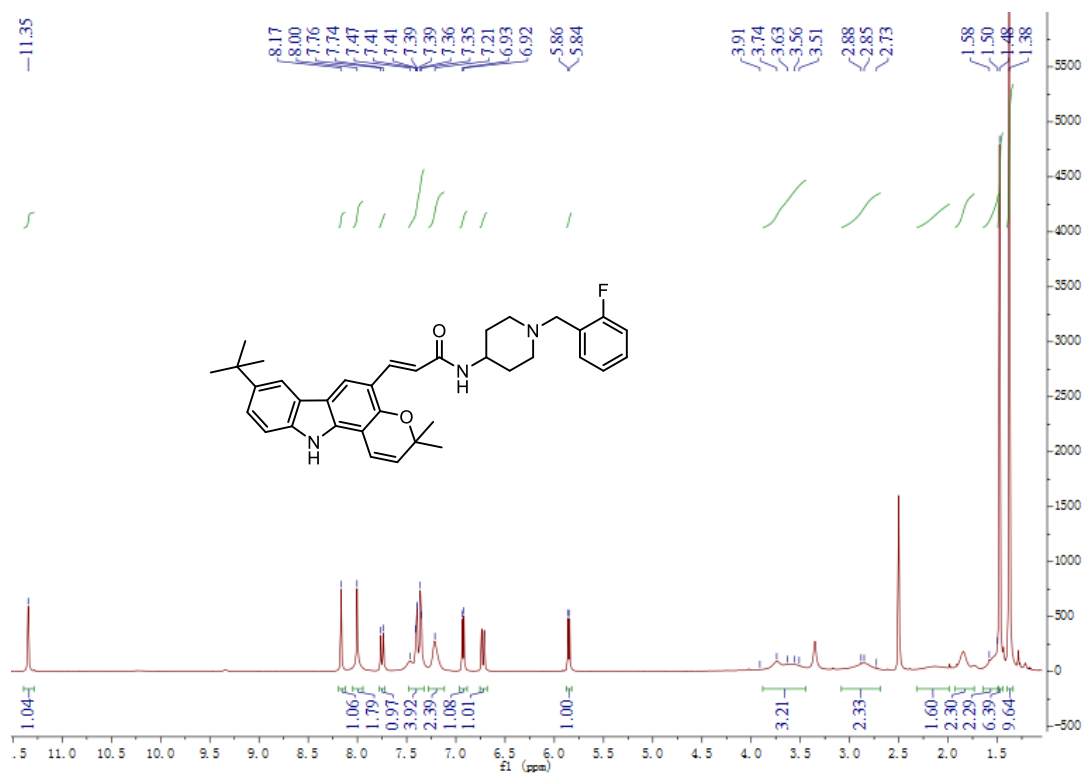
# 1. <sup>1</sup>H NMR and <sup>13</sup>C NMR spectra of all final compounds



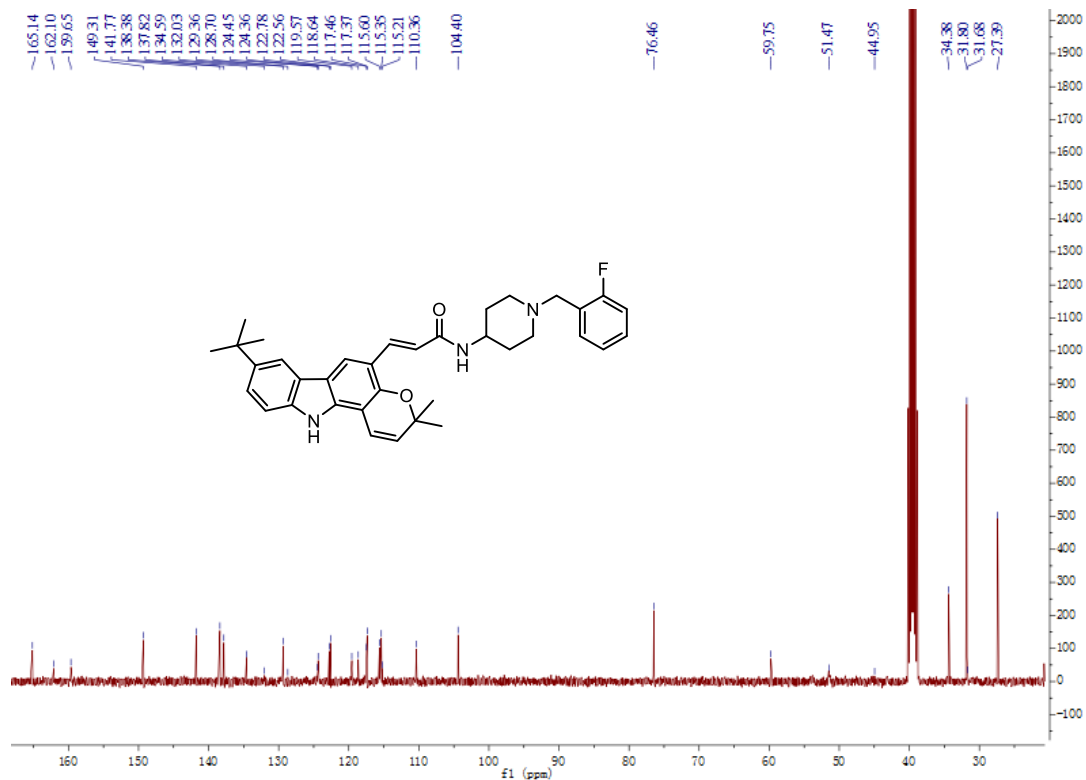
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6aa



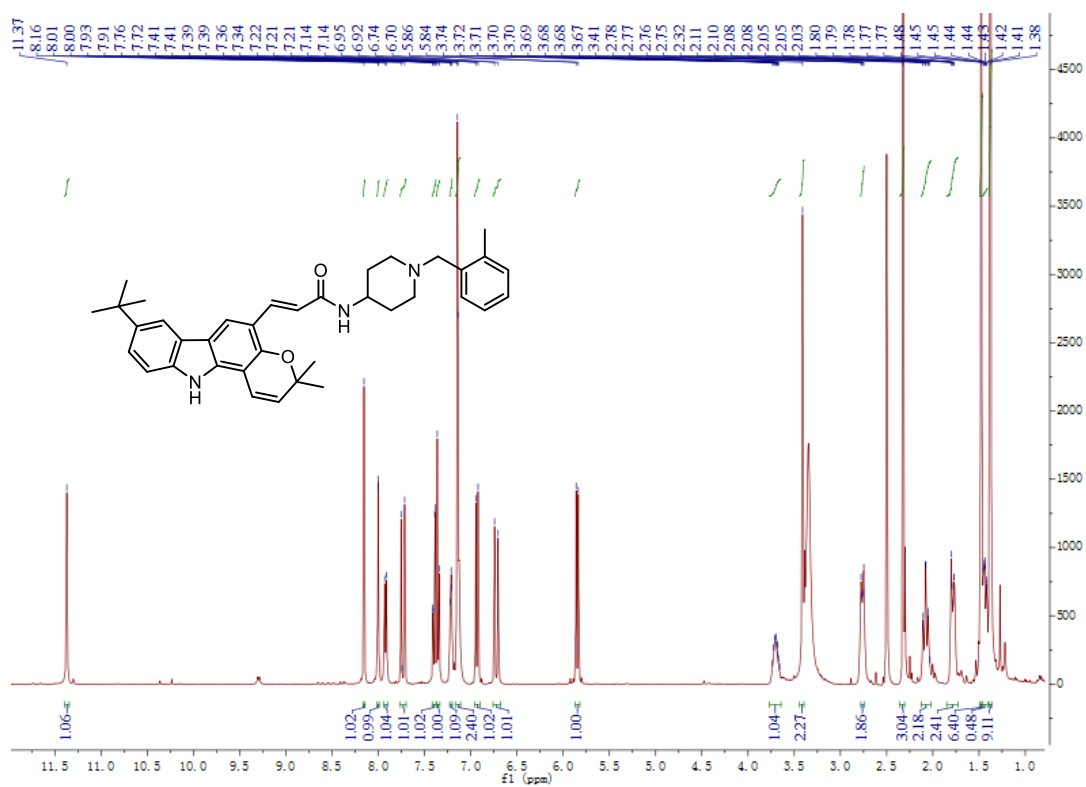
$^{13}\text{C}$  NMR (DMSO, 400 MHz) Spectrum of Compound 6aa



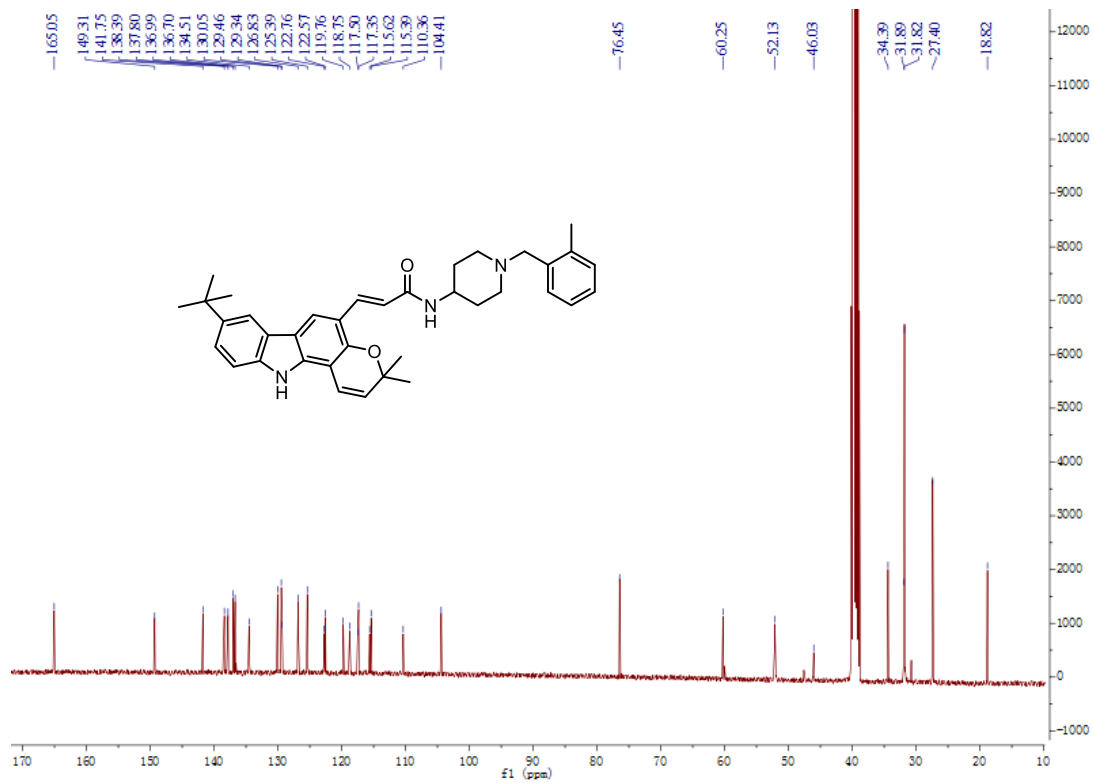
$^1\text{H}$  NMR (DMSO, 400 MHz) Spectrum of Compound 6ab



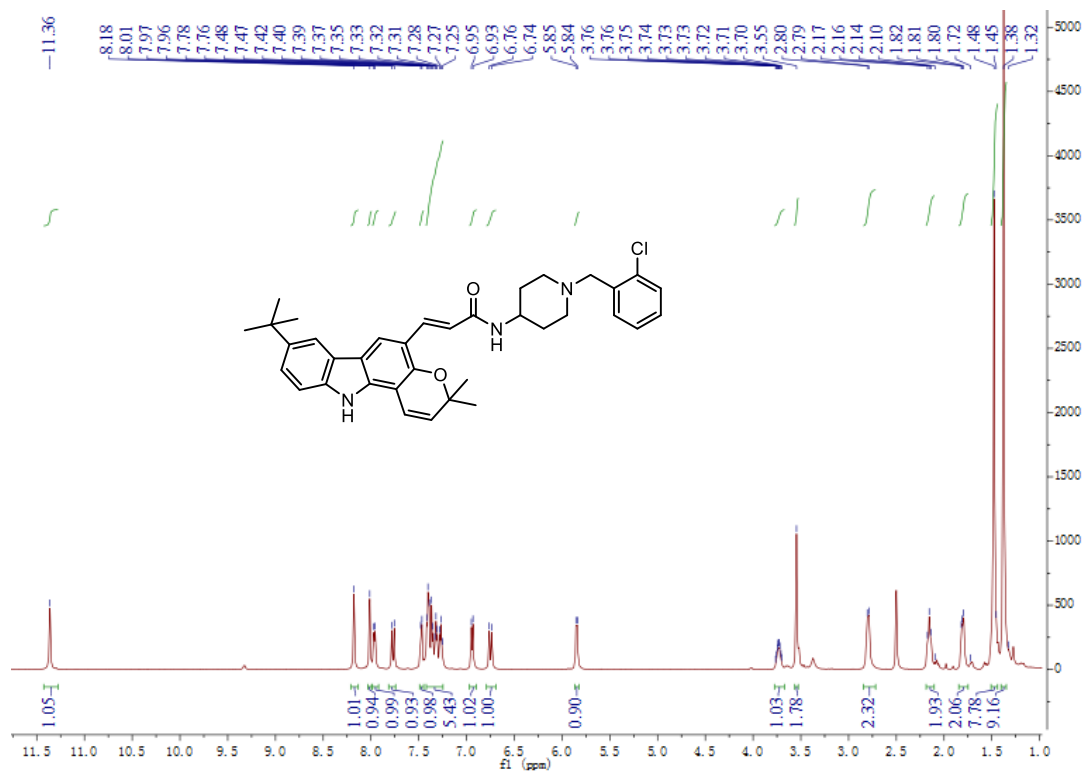
<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6ab



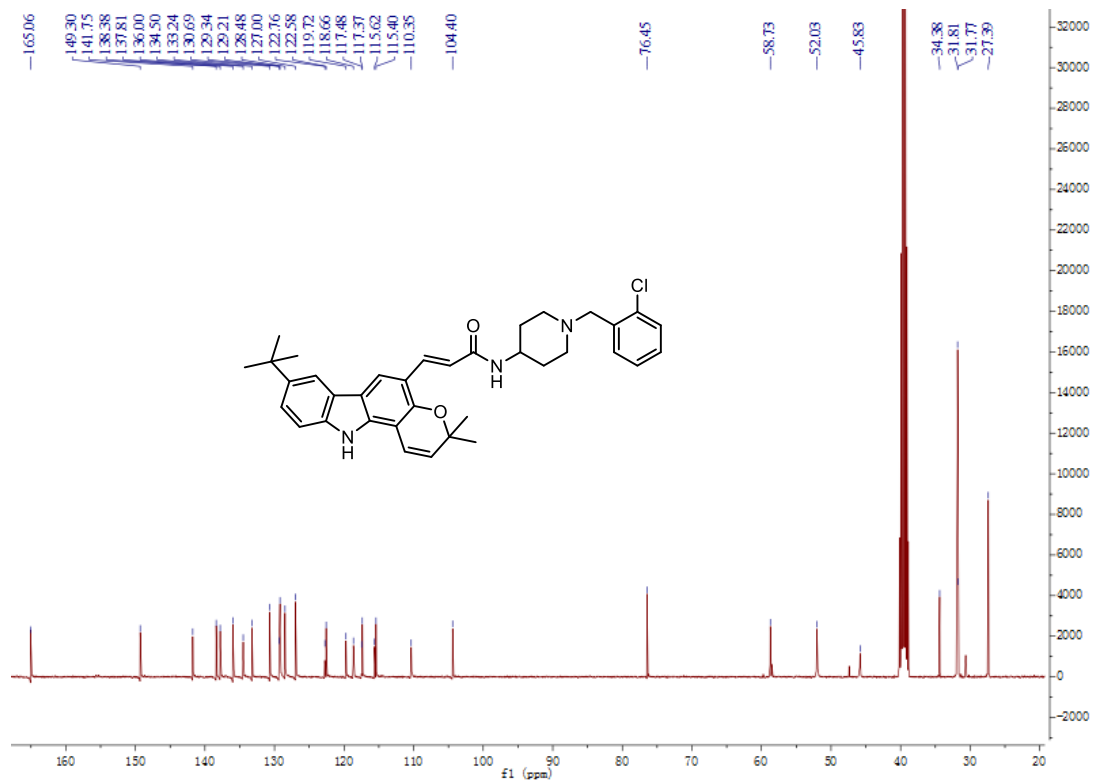
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6ac



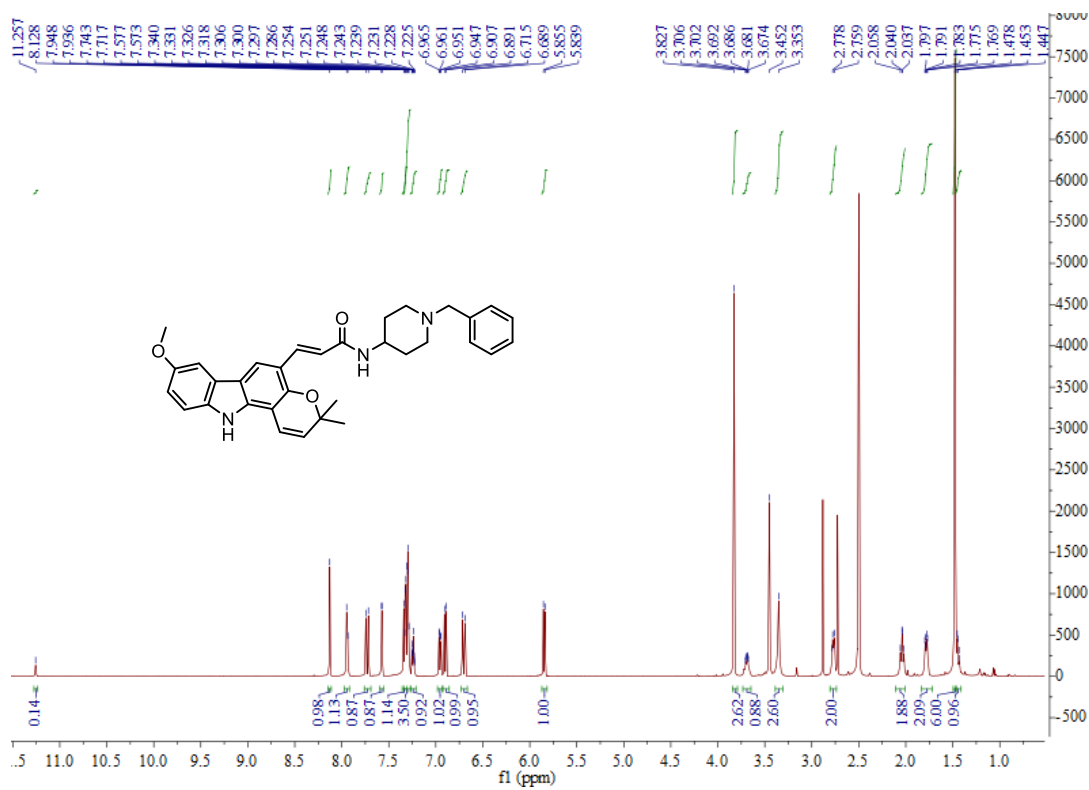
<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6ac



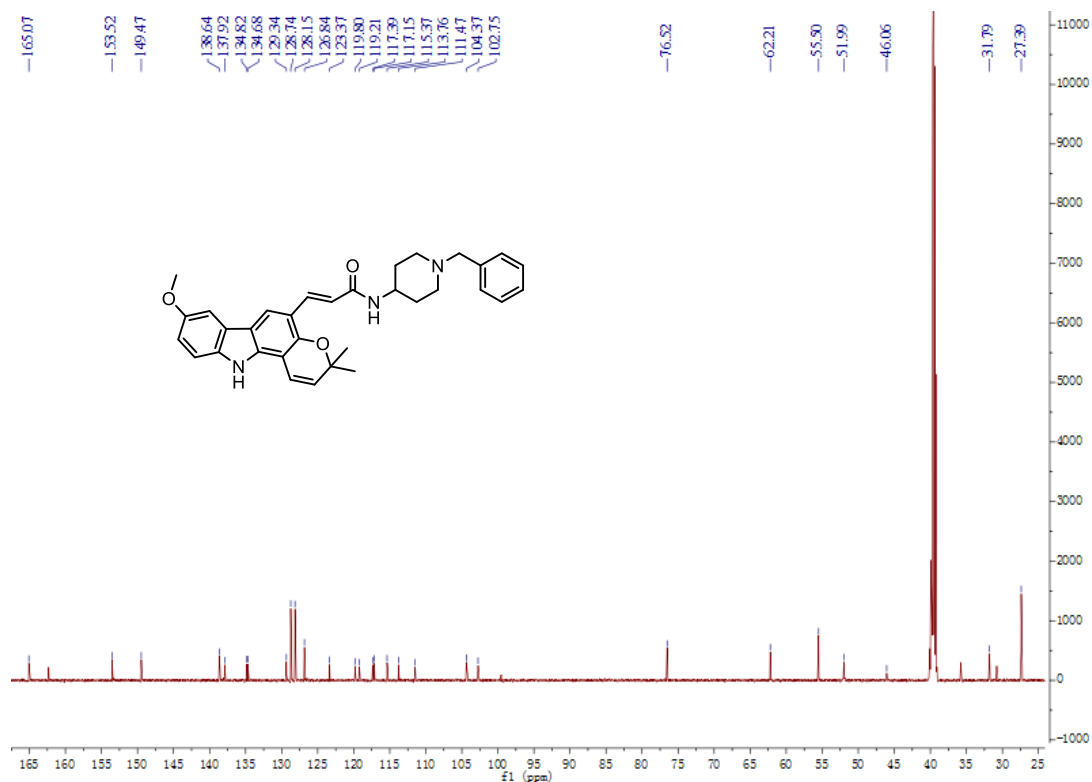
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6ad



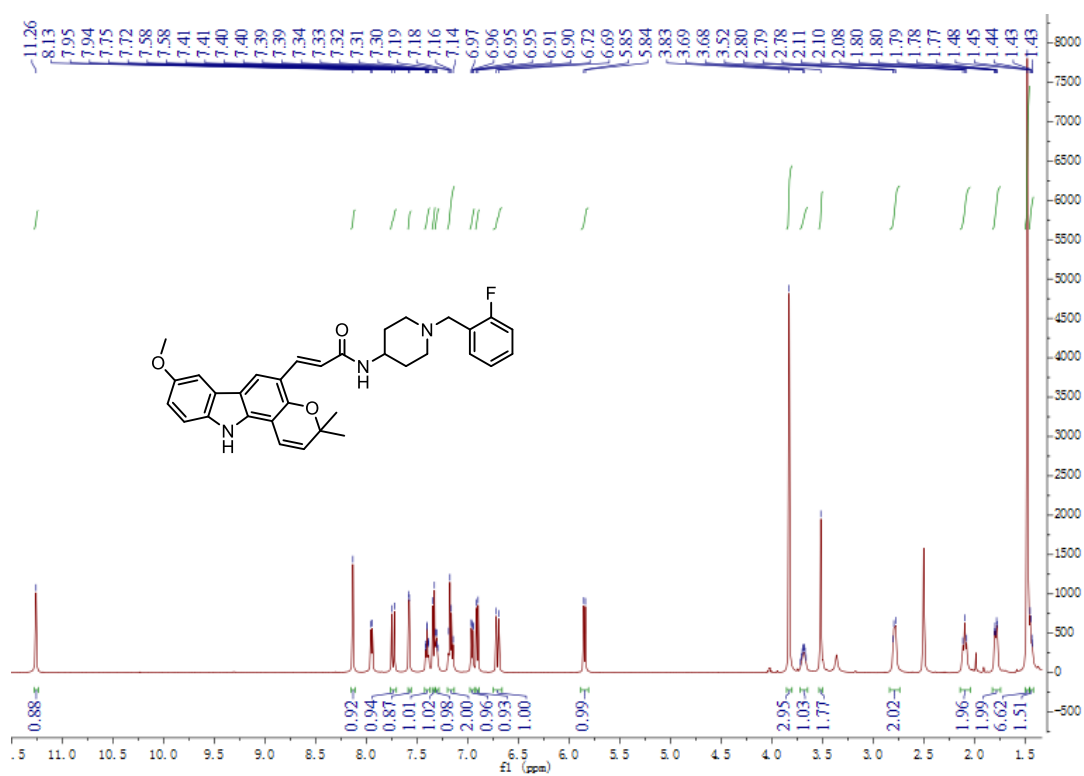
<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6ad



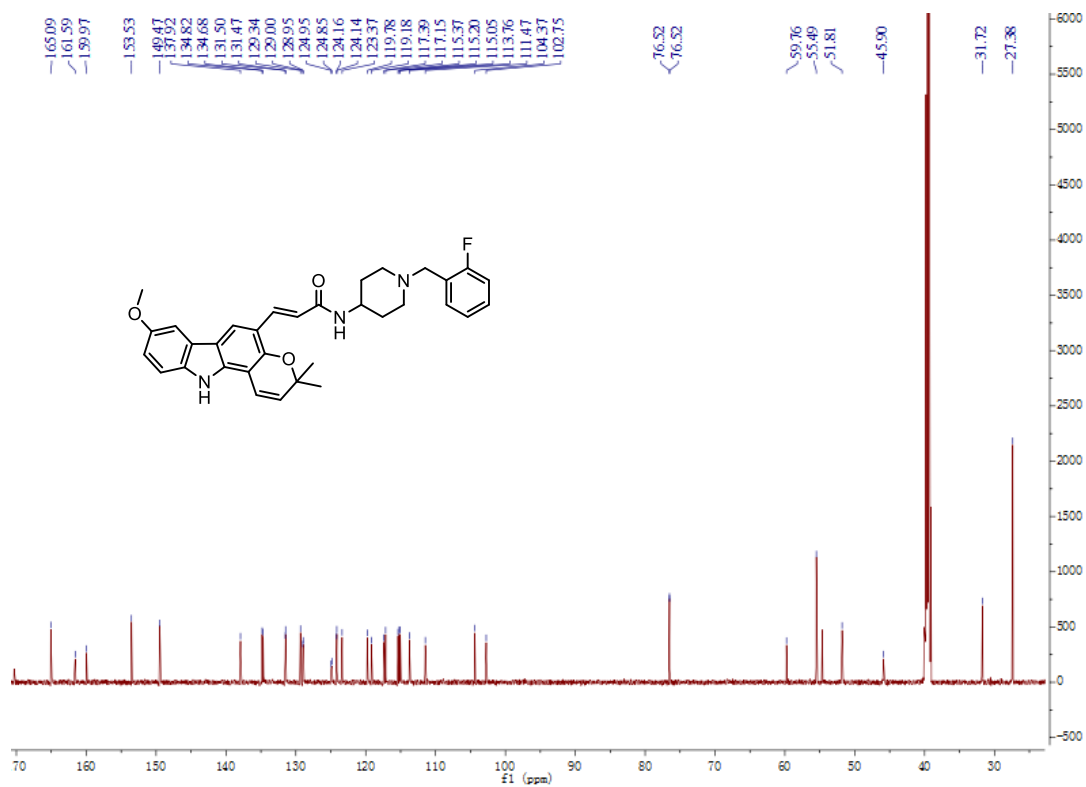
<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6ae



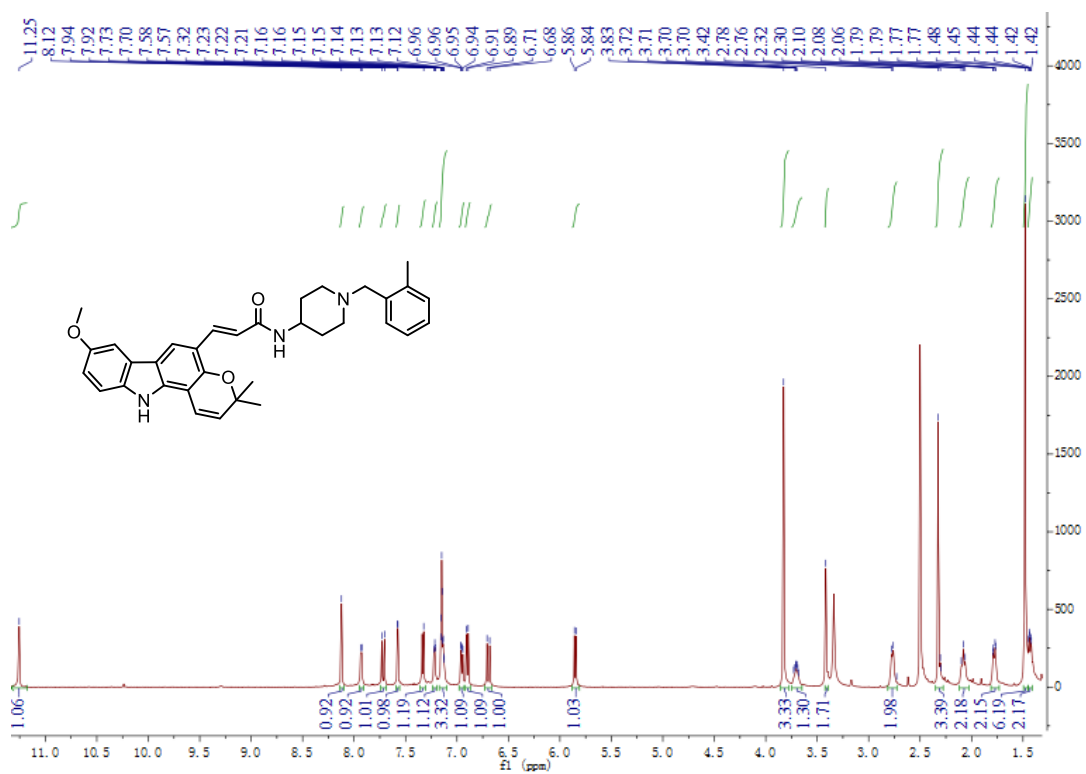
<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6ae



<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6af

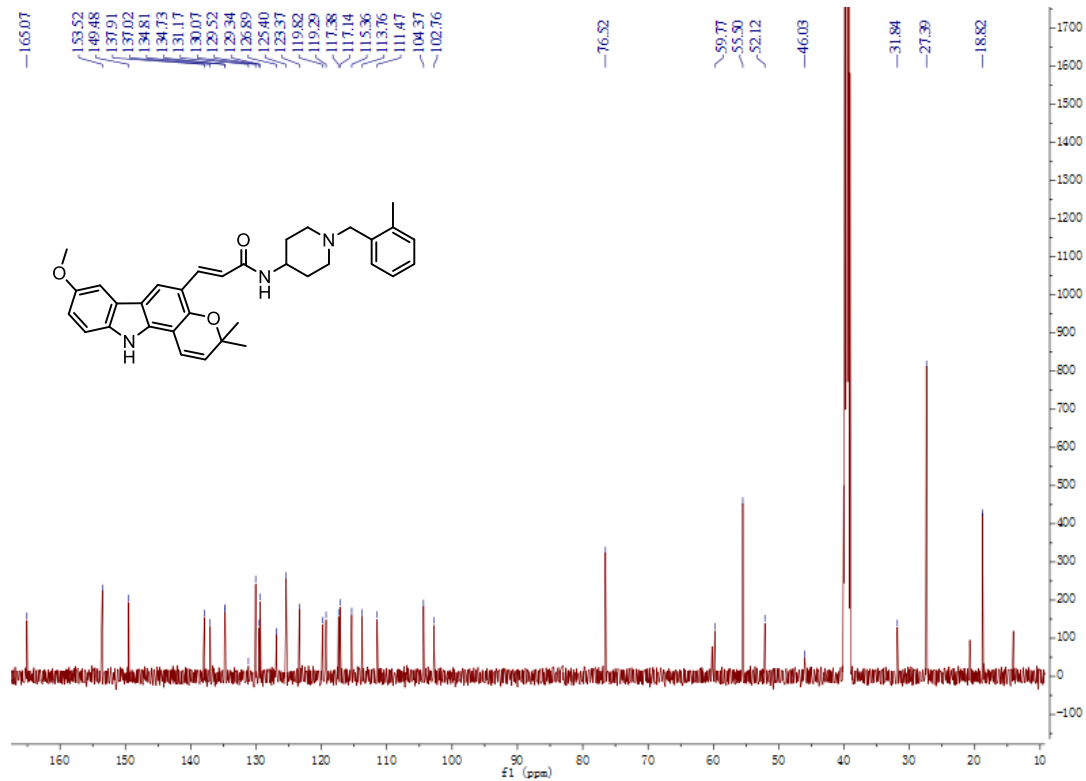


<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6af

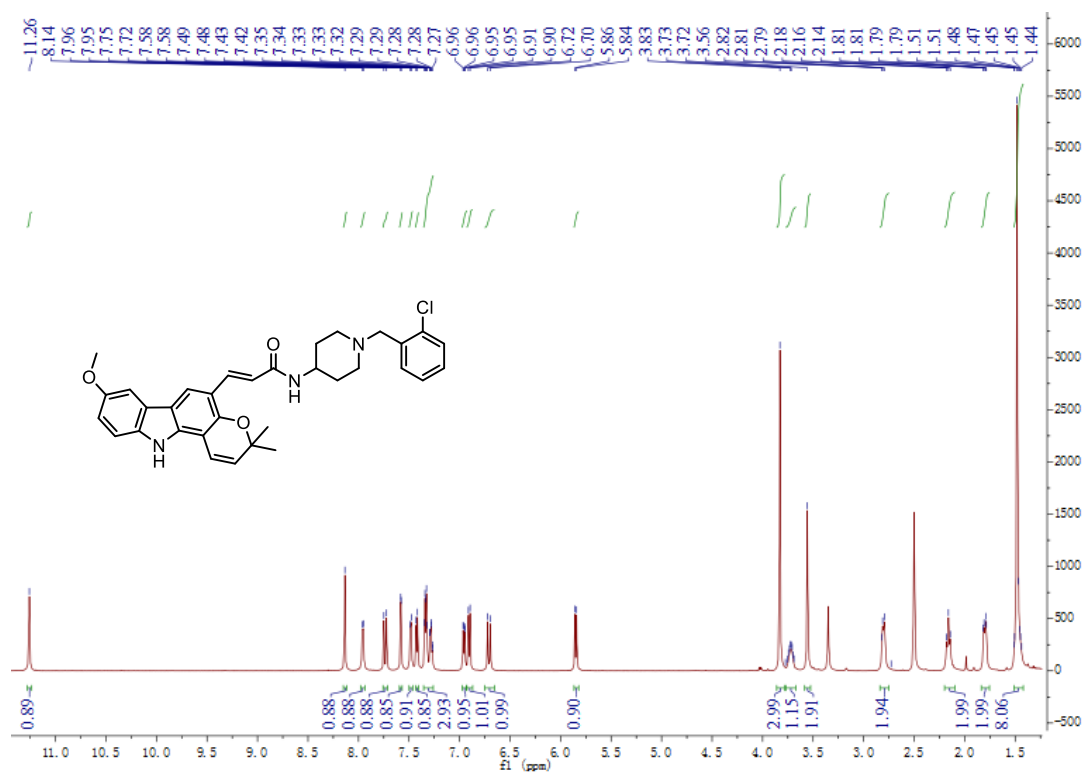


<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6ag

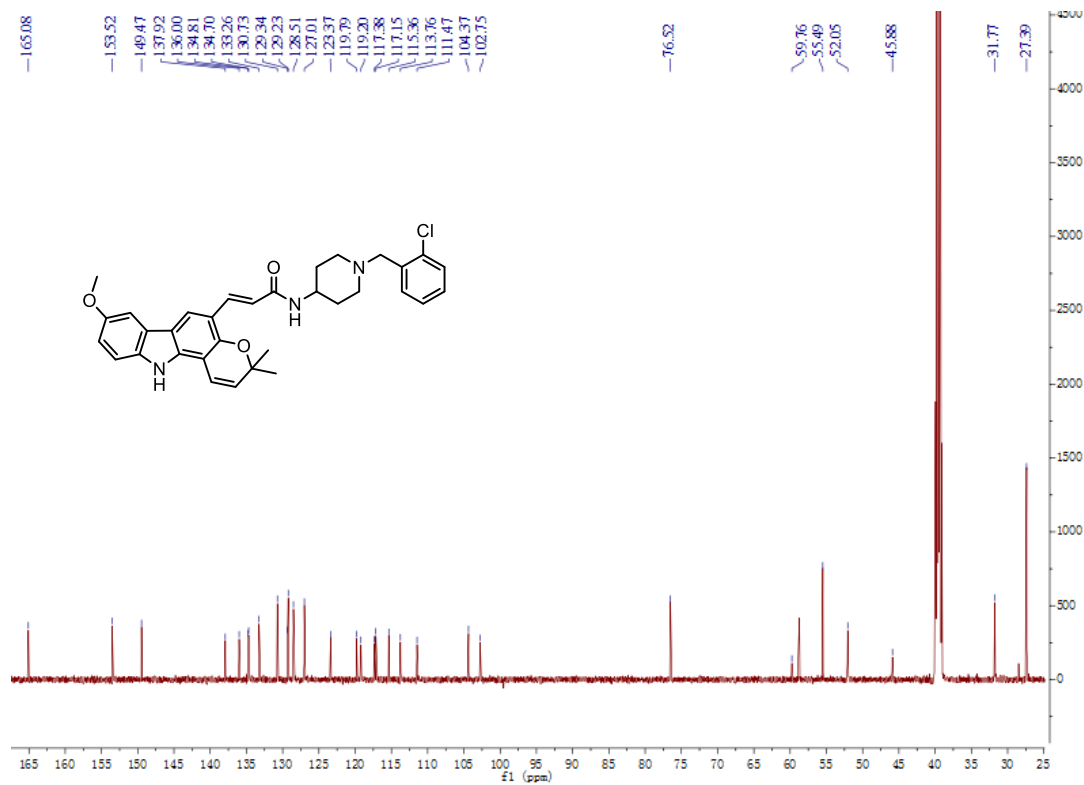




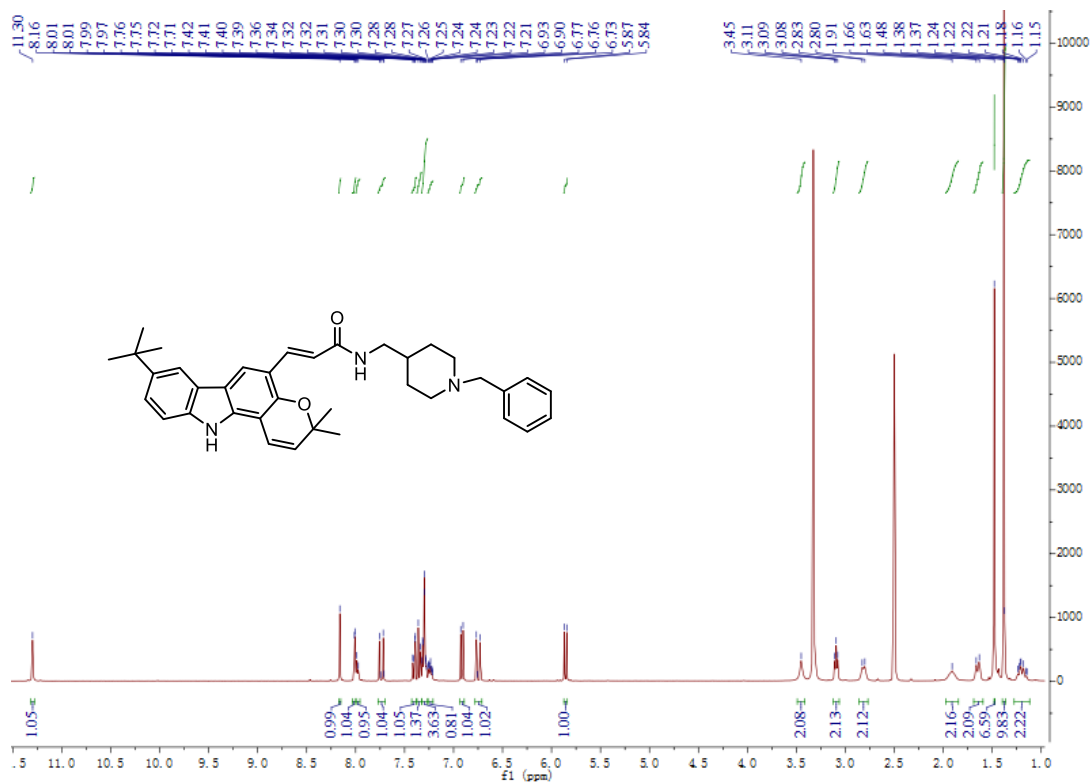
<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6ag



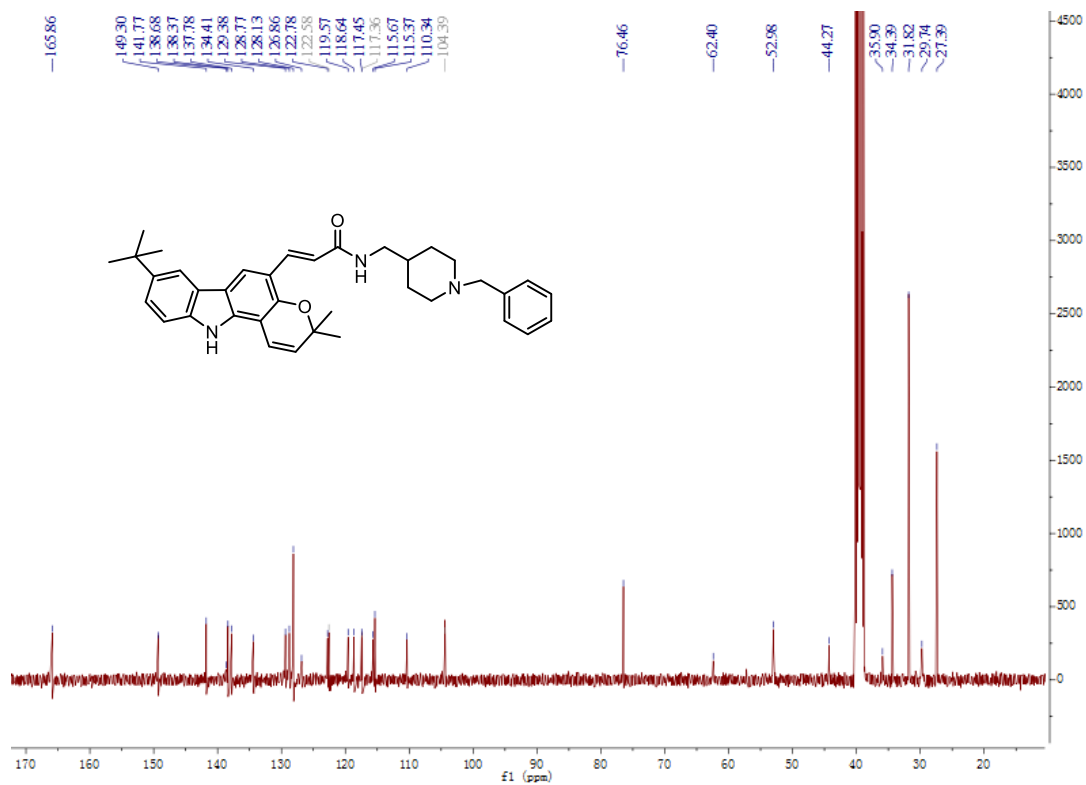
<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6ah



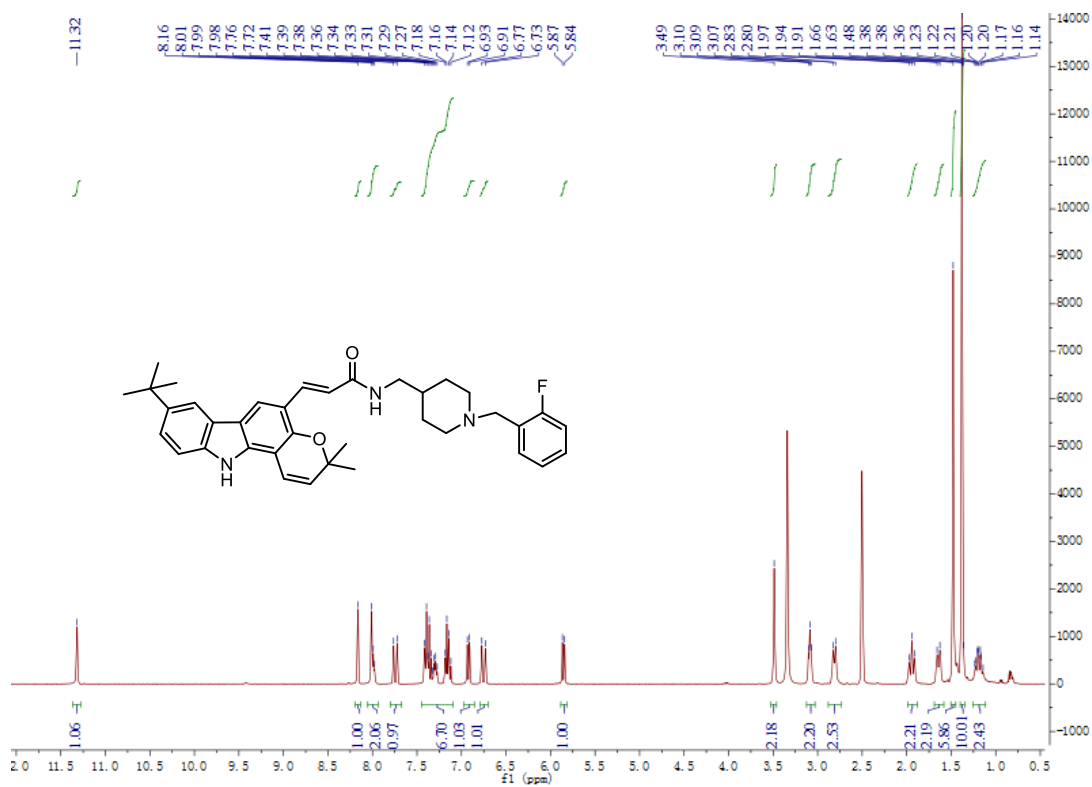
<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6ah



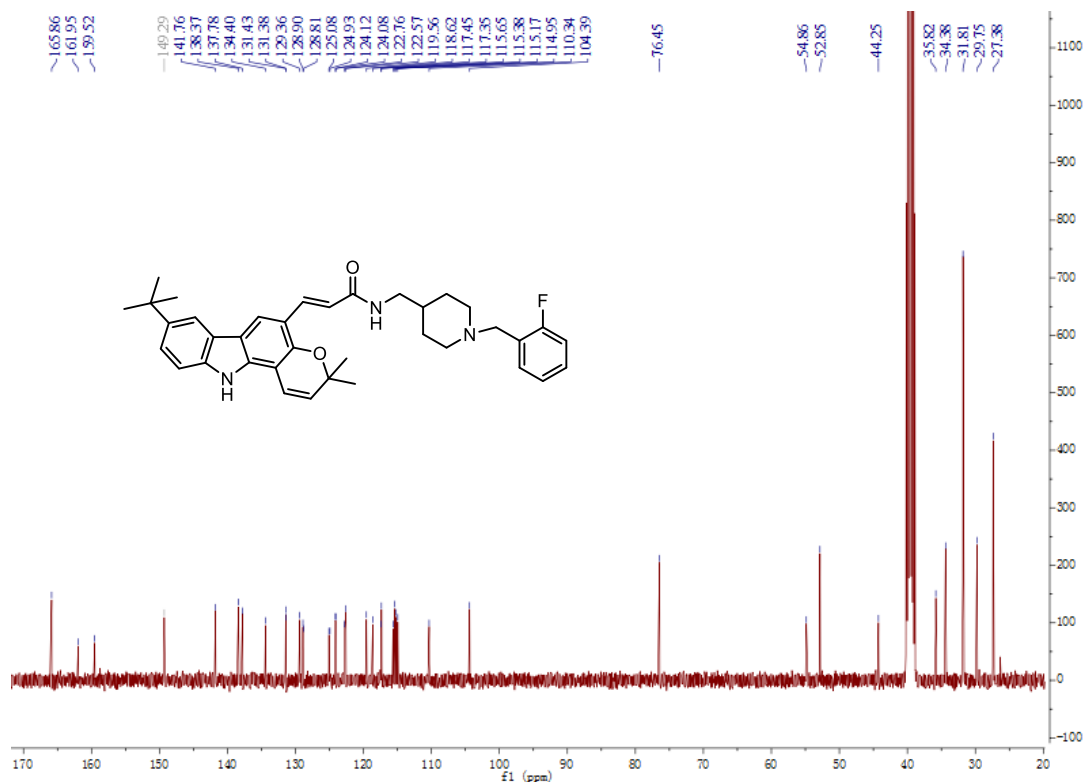
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6ba



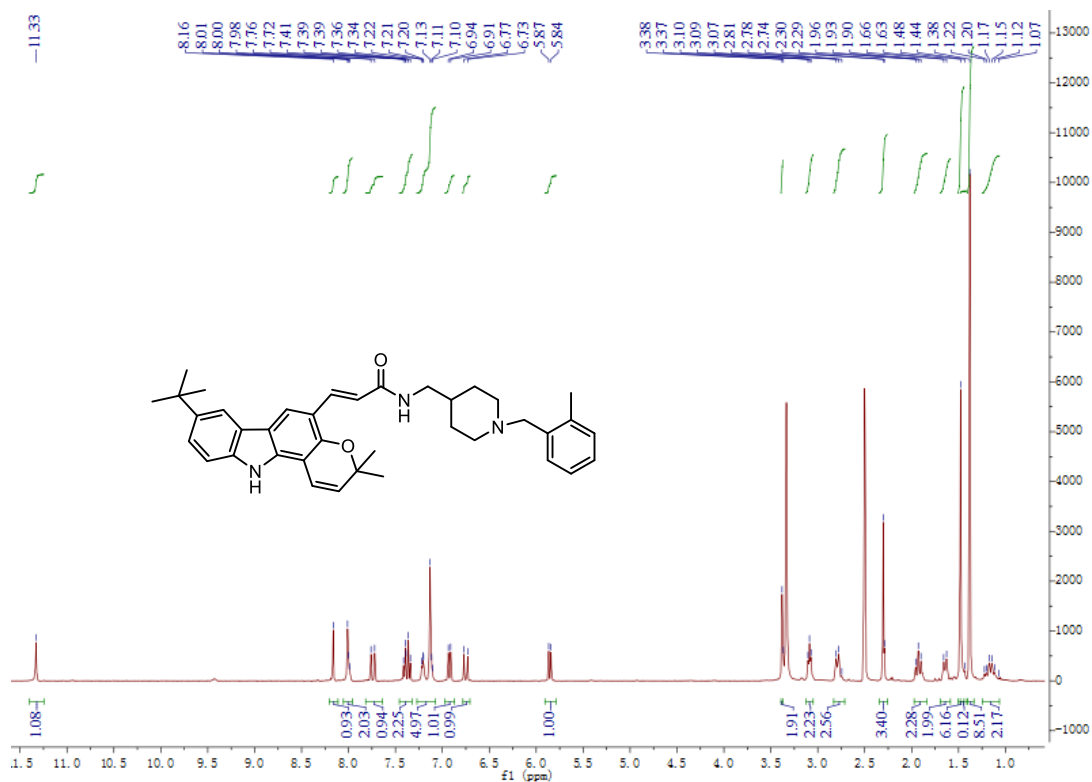
<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6ba



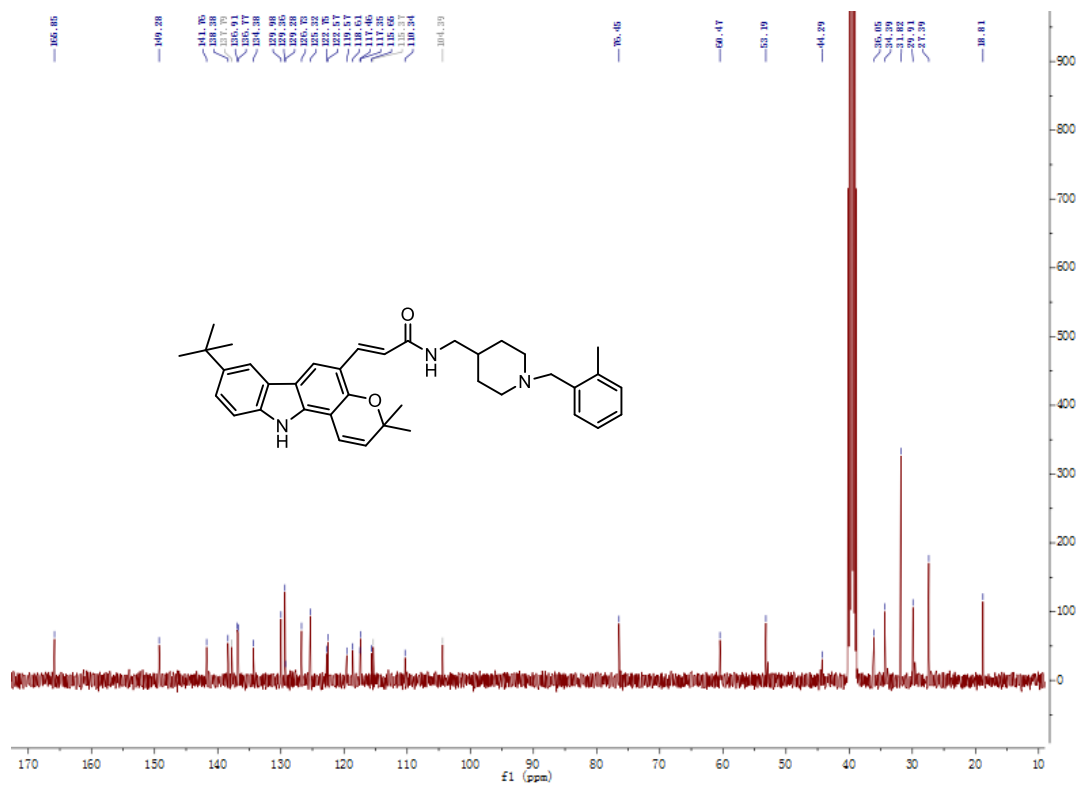
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6bb



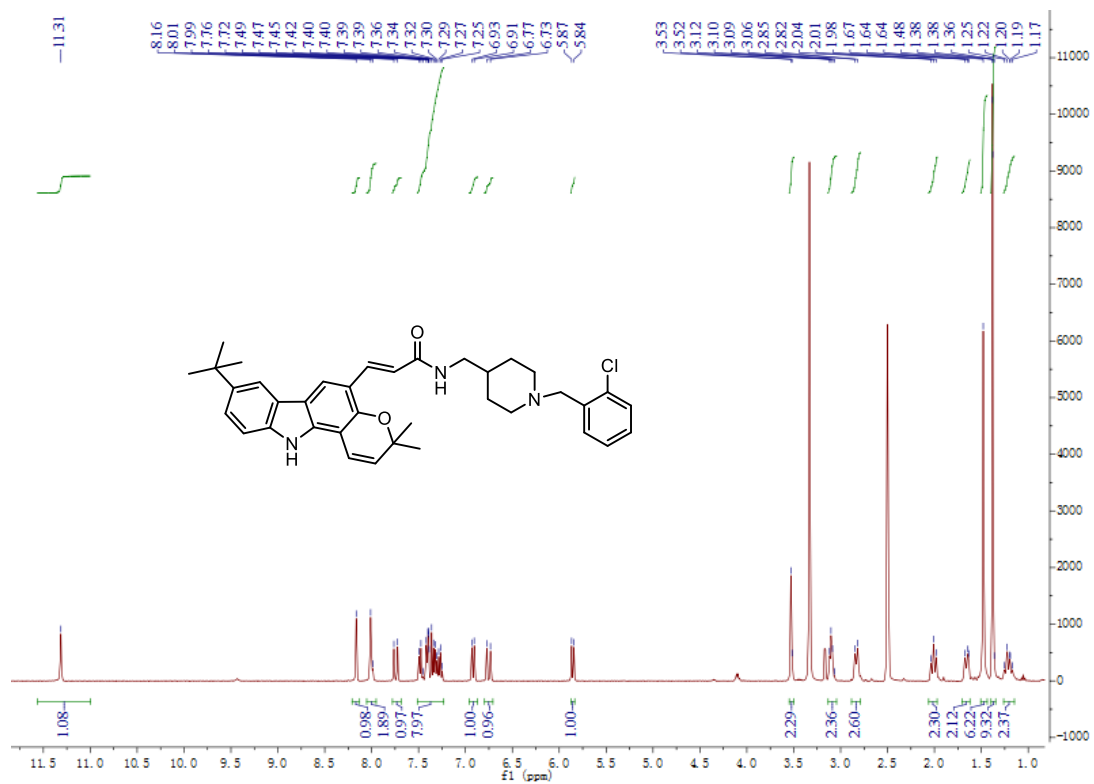
**<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6bb**



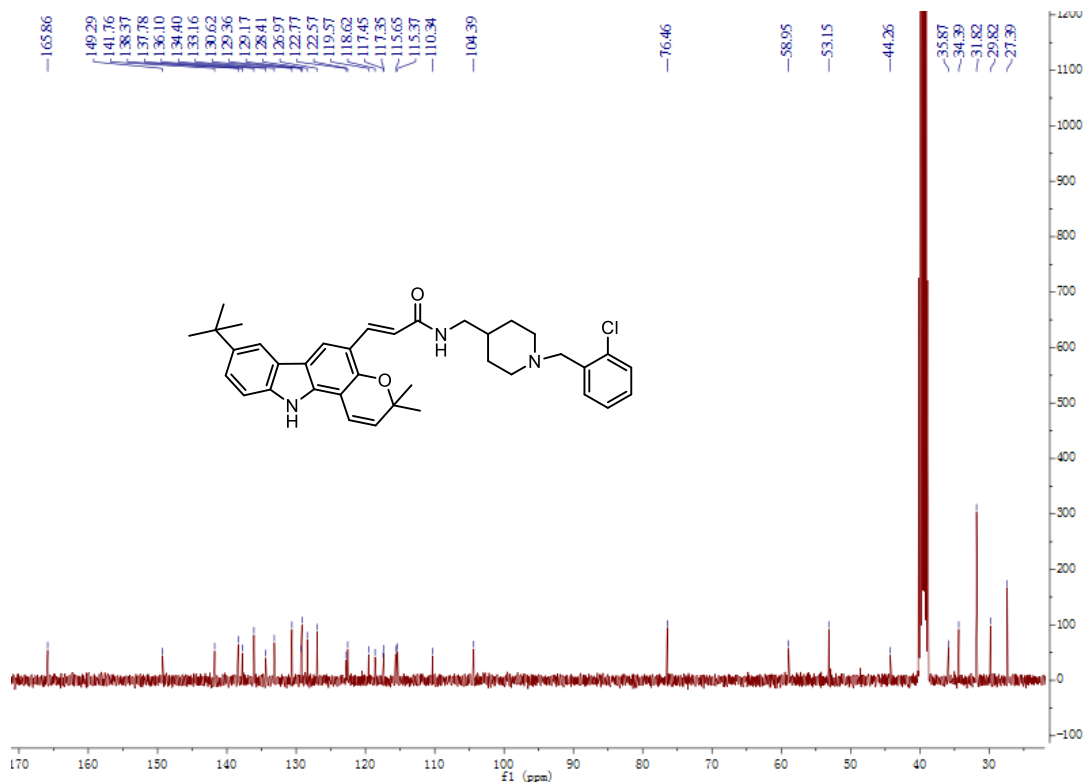
**<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6bc**



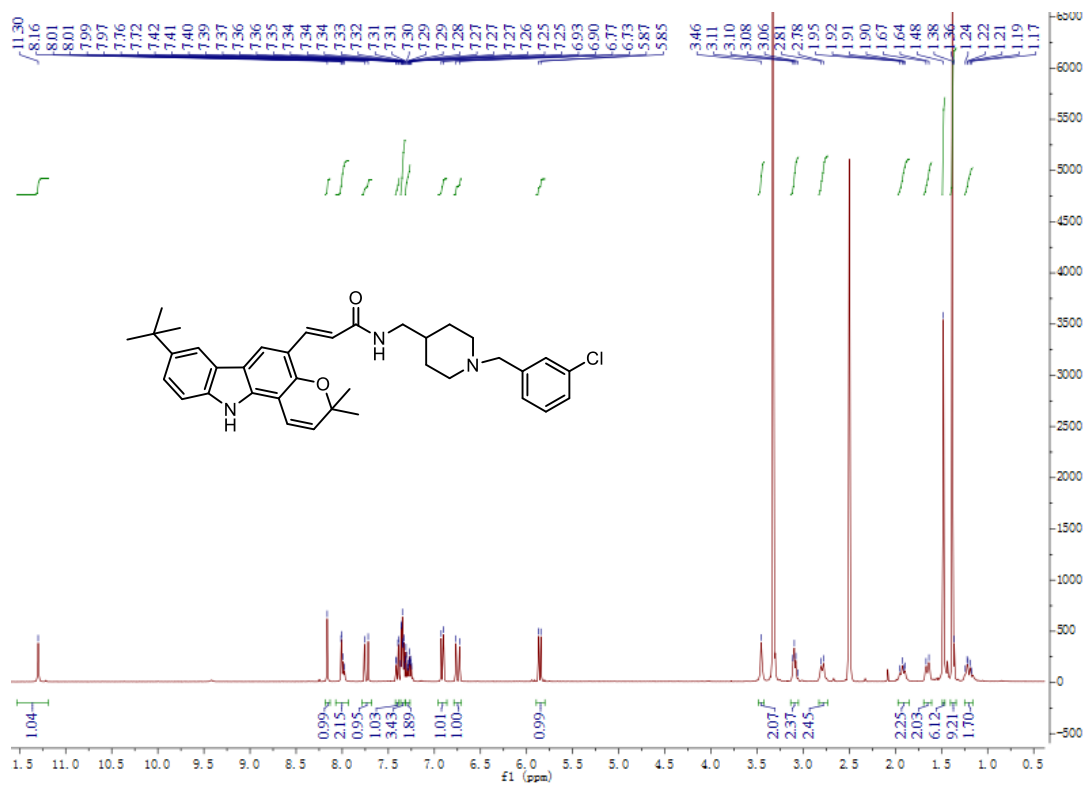
**<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6bc**



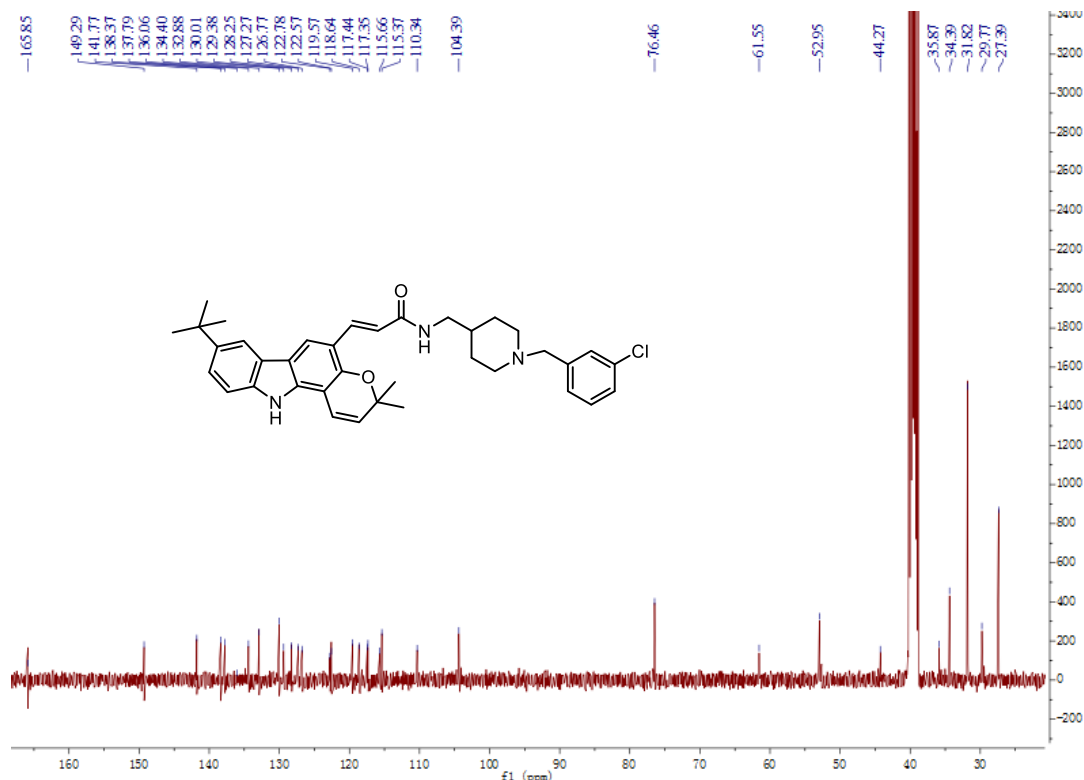
**<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6bd**



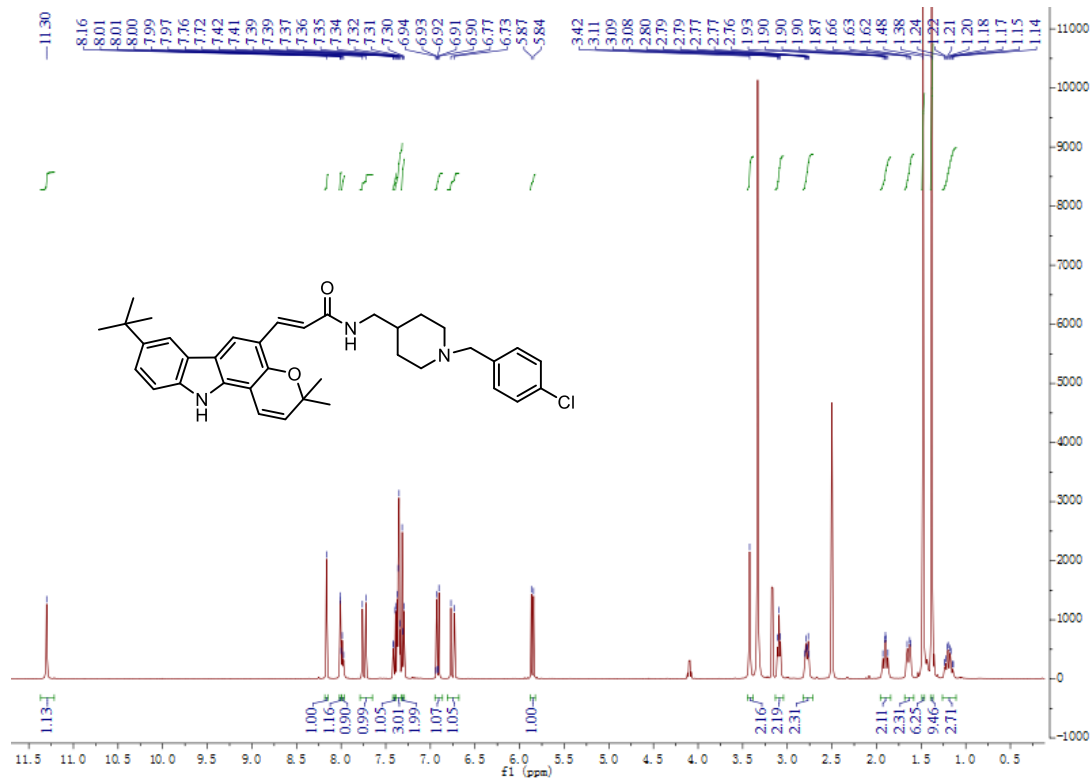
<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6bd



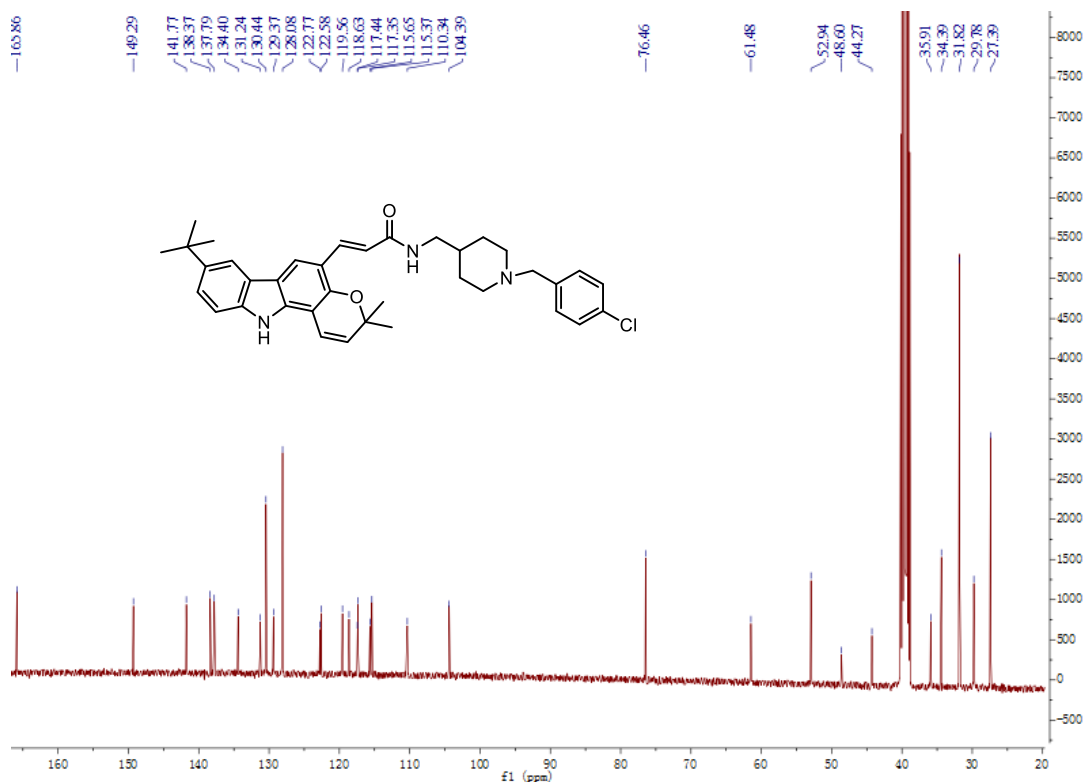
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6bd



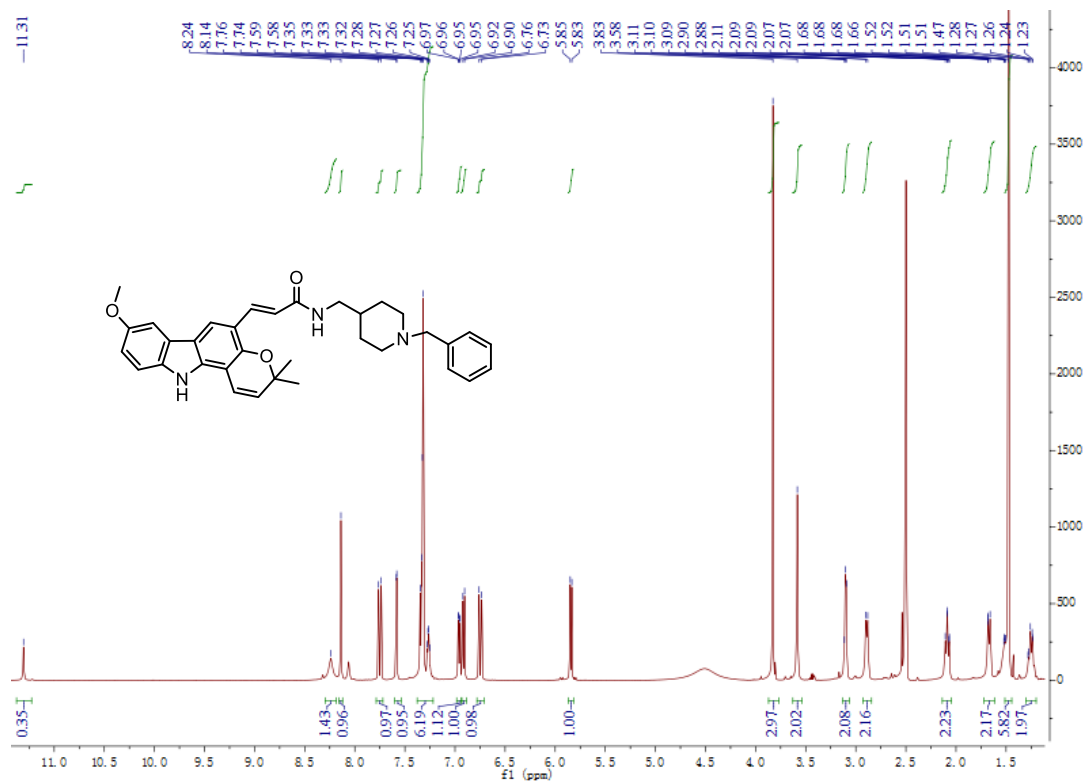
**<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6be**



**<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6bf**

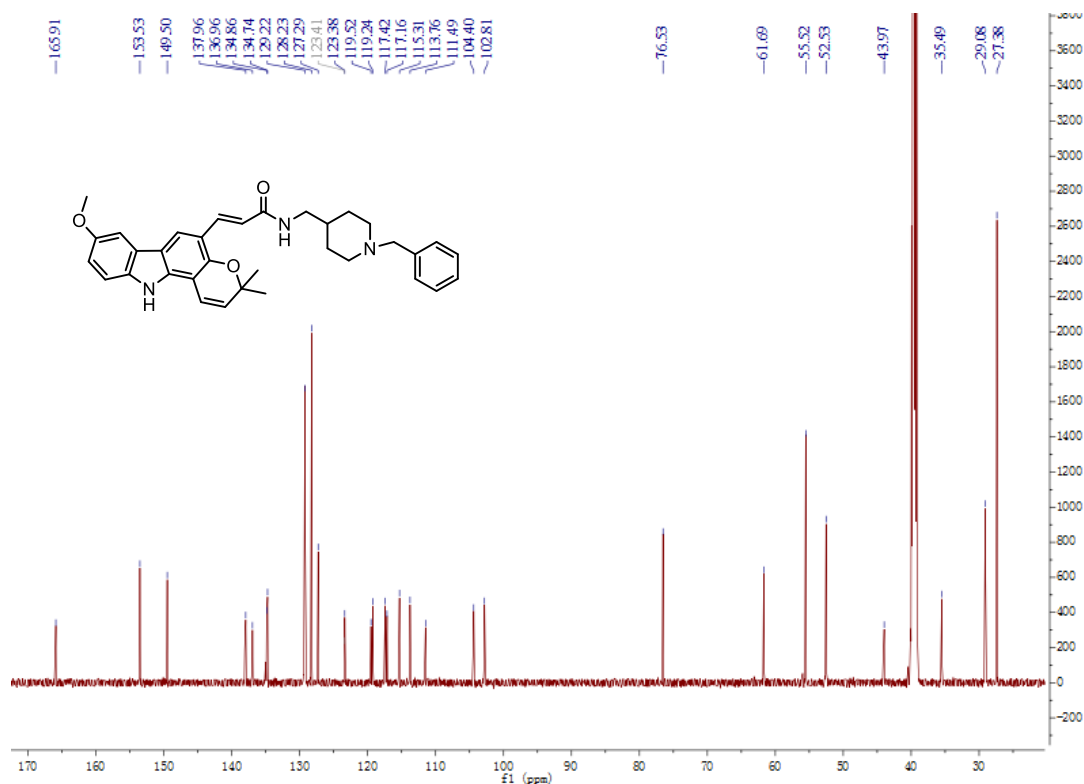


<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6bf

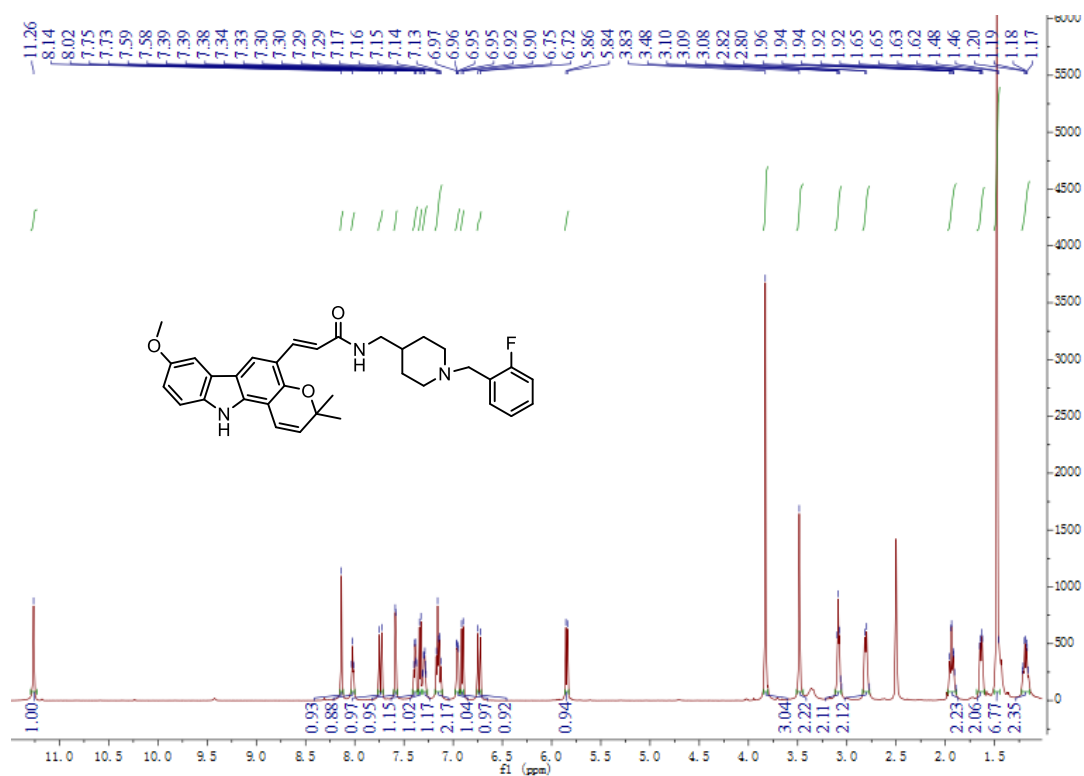


<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6bg

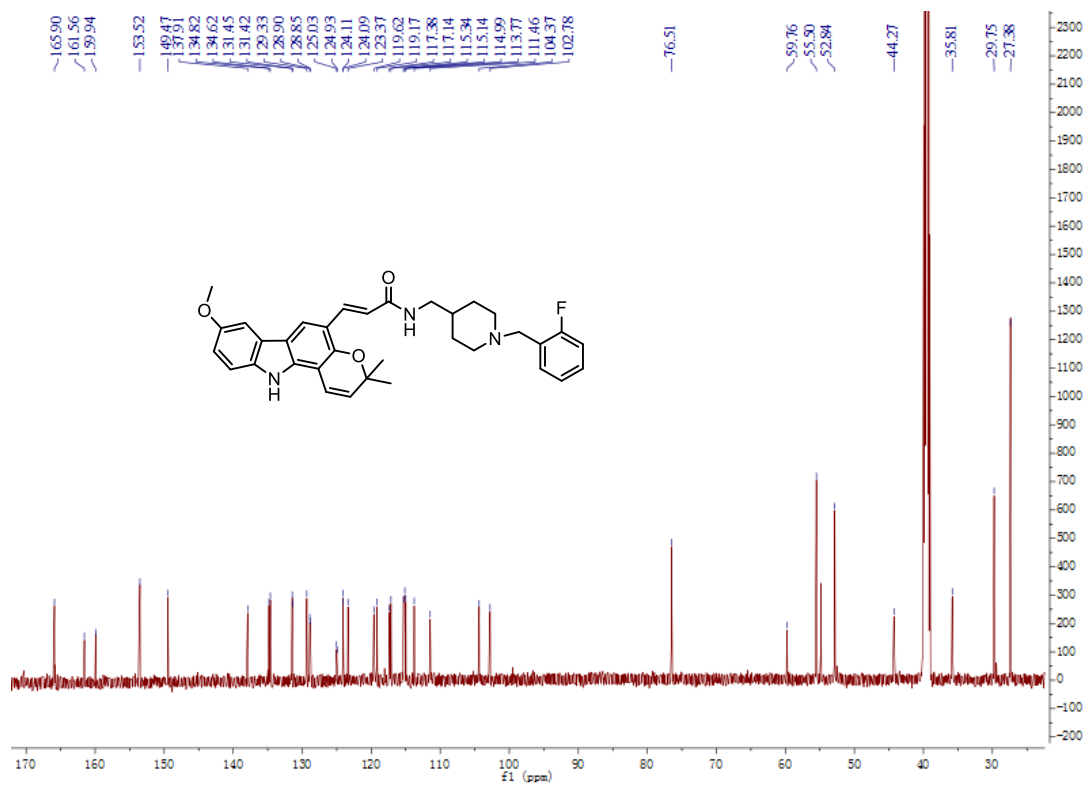




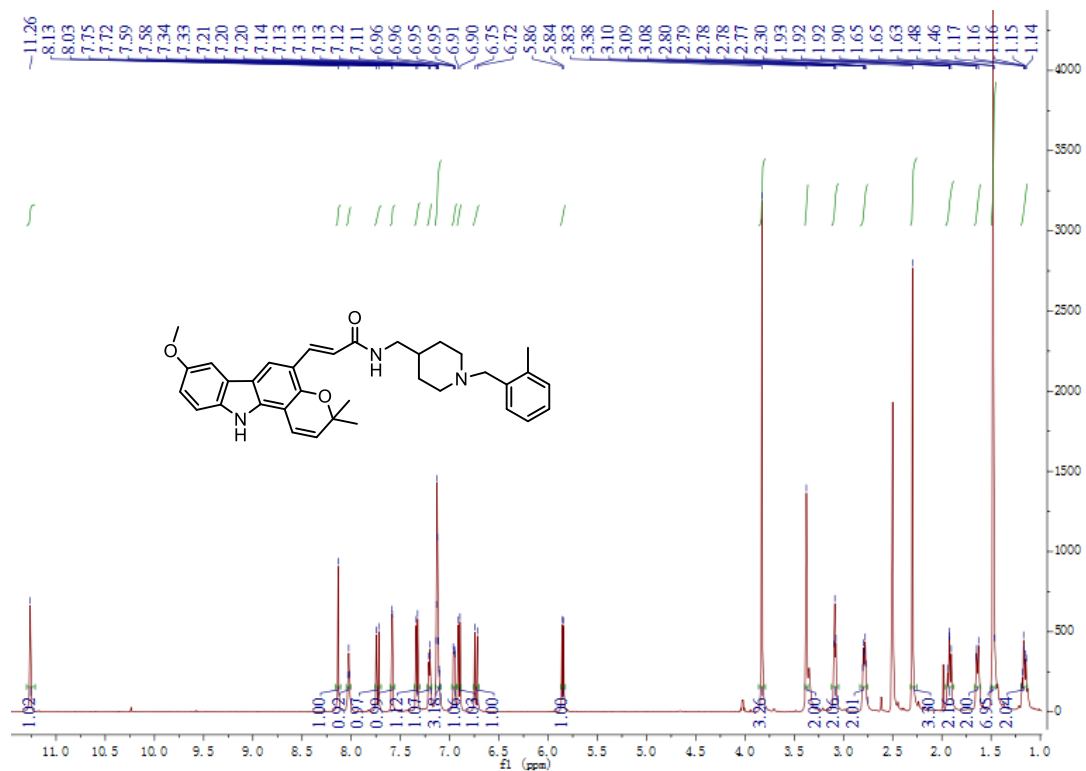
<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6bg



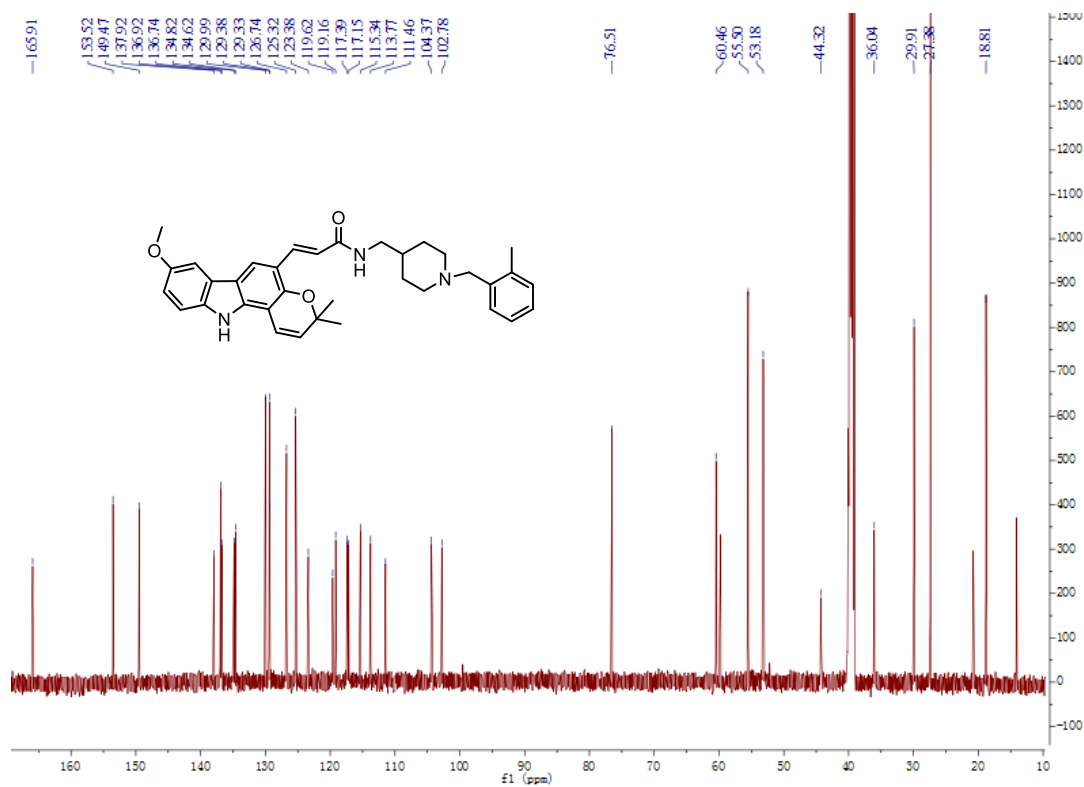
<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6bh



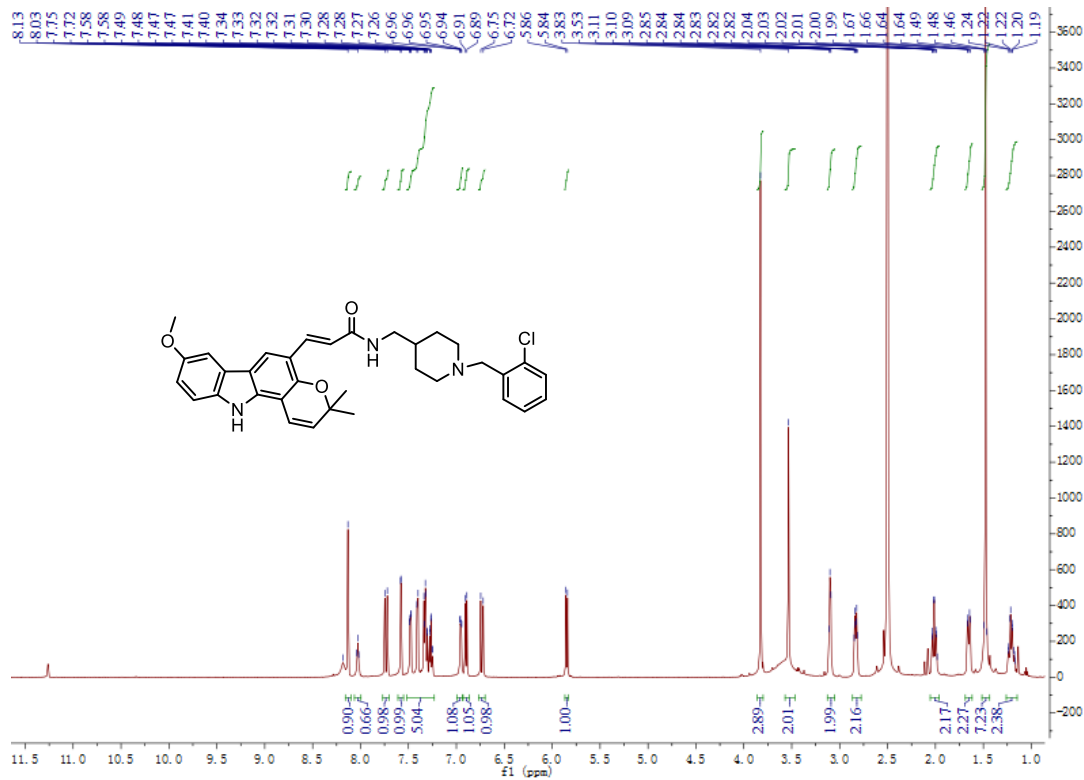
<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6bh



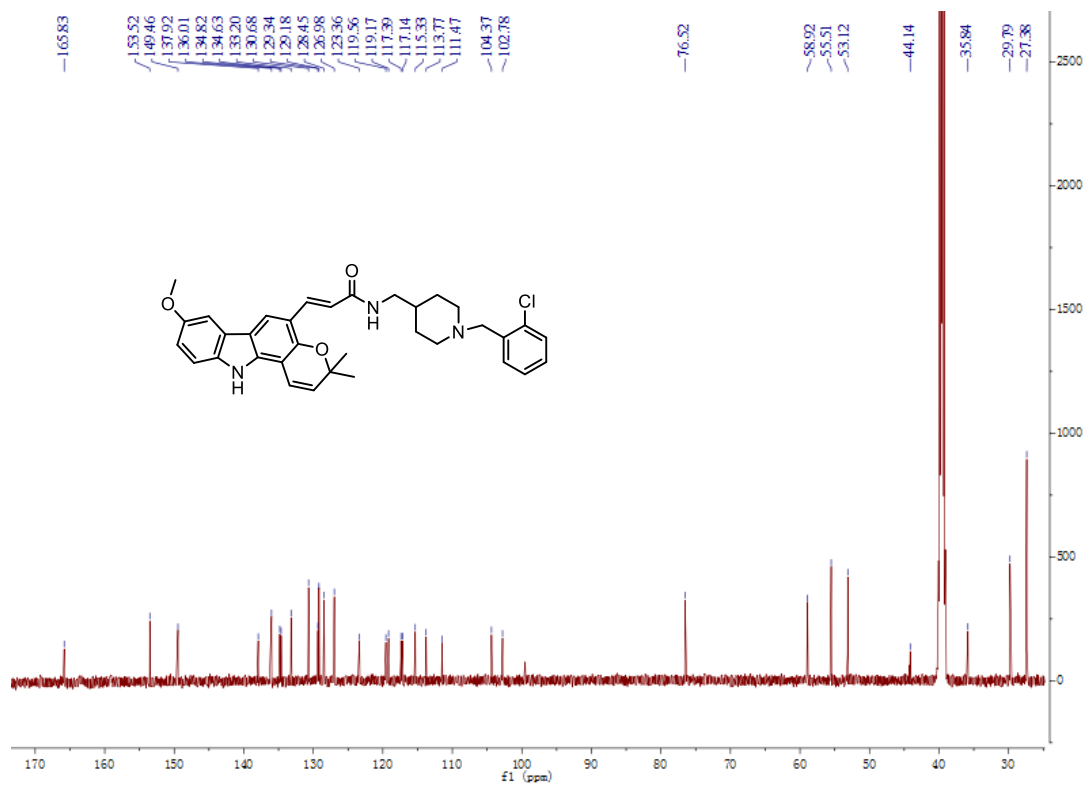
<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6bi



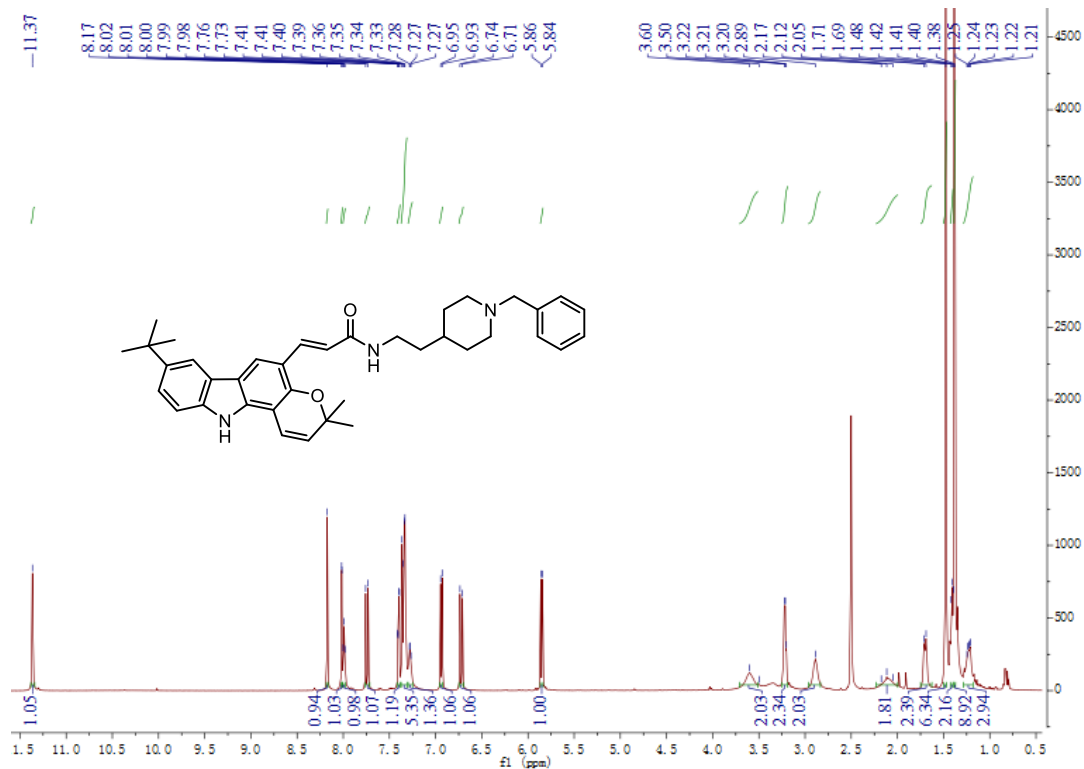
**<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6bi**



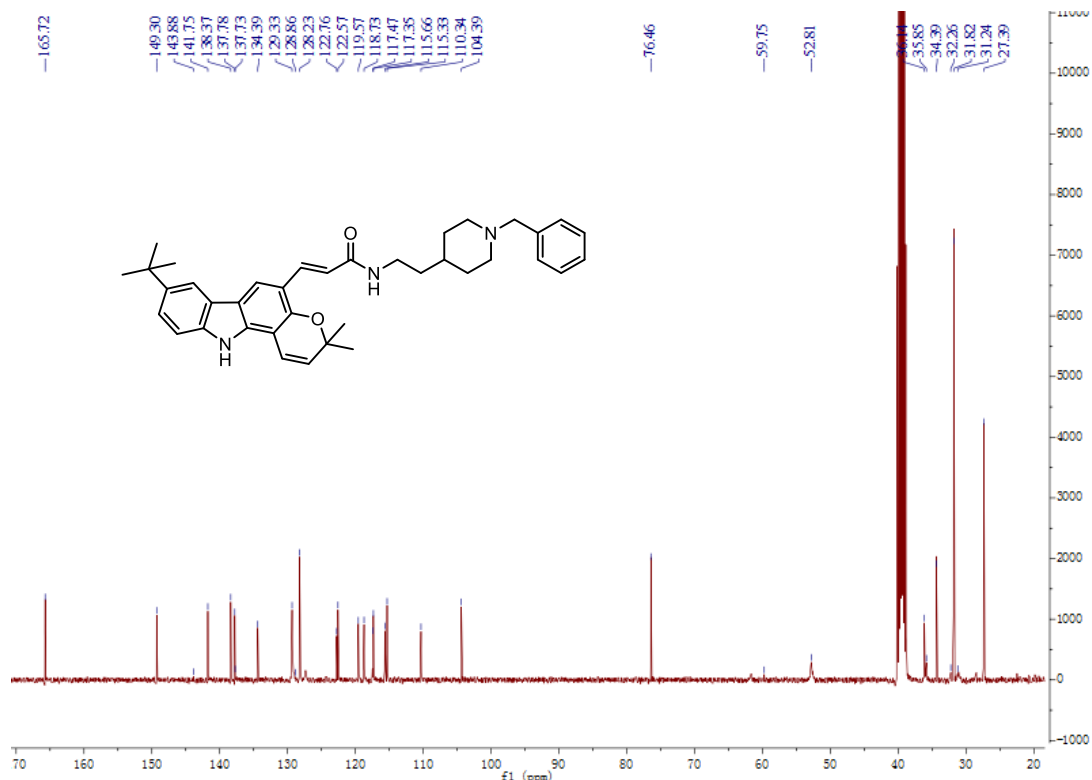
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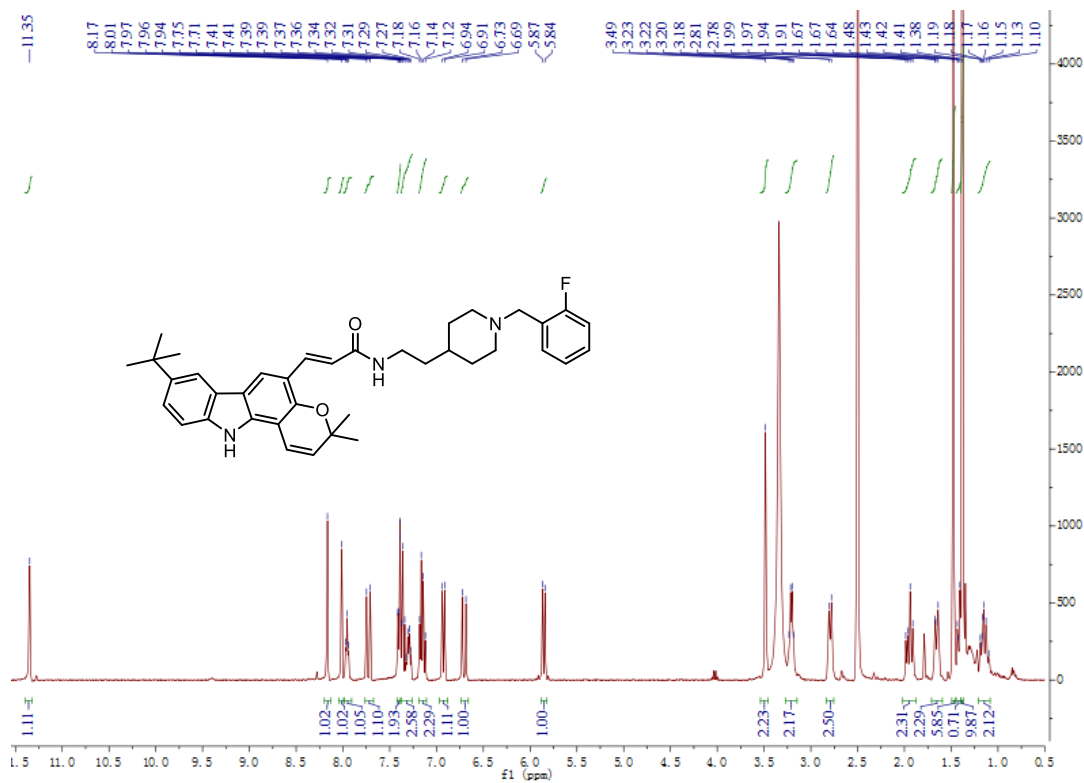
<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6bj



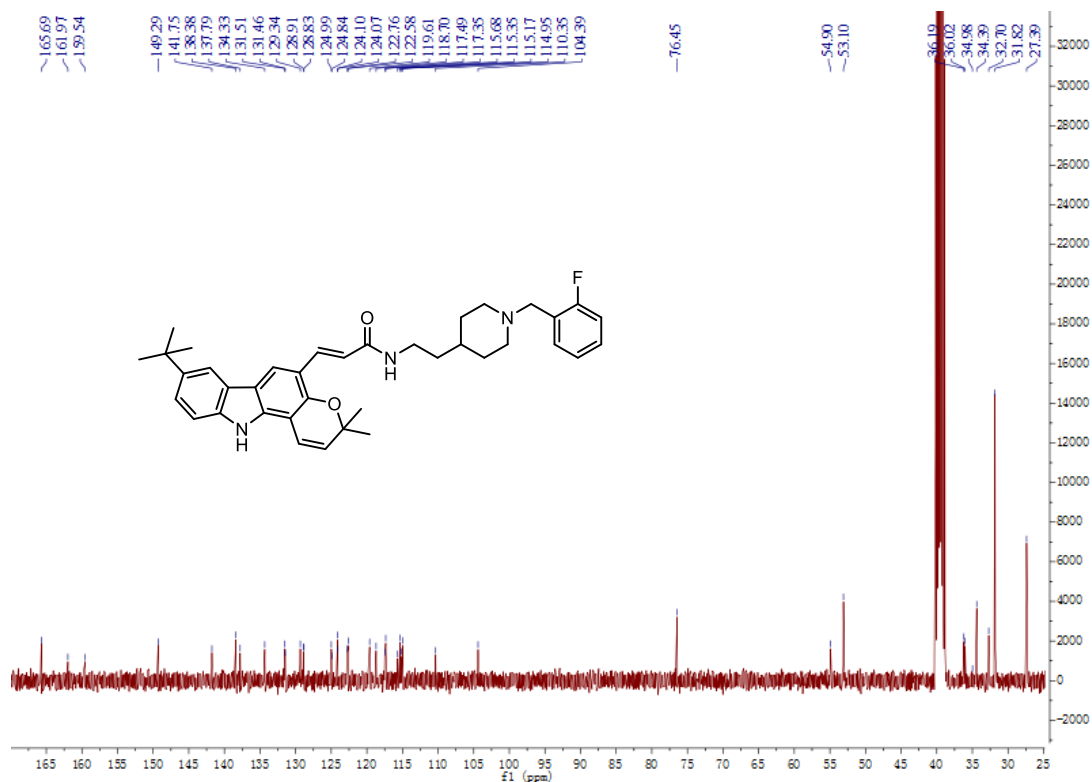
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6ca



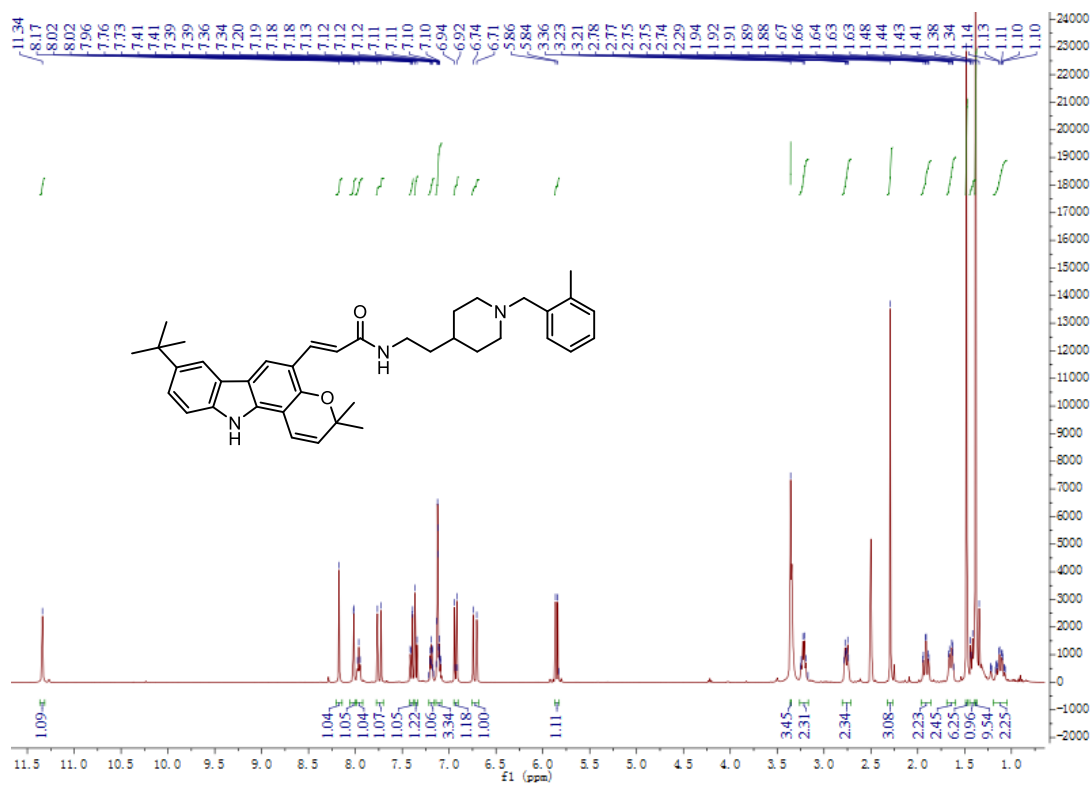
<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6ca



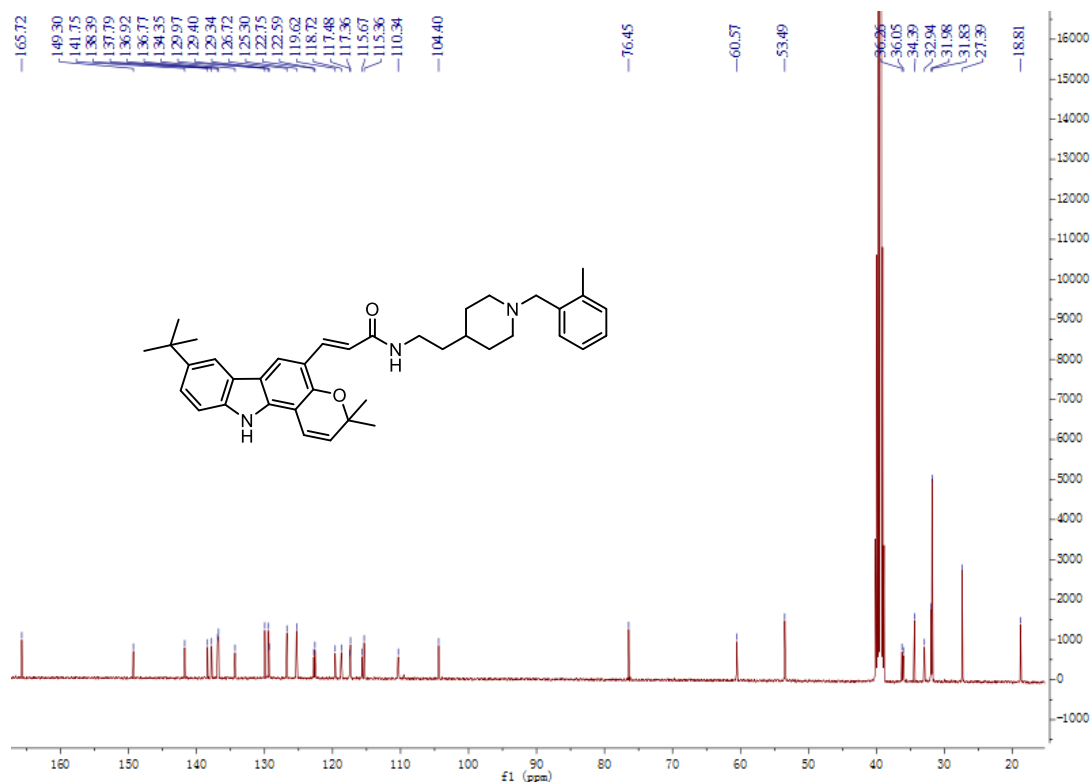
<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6cb



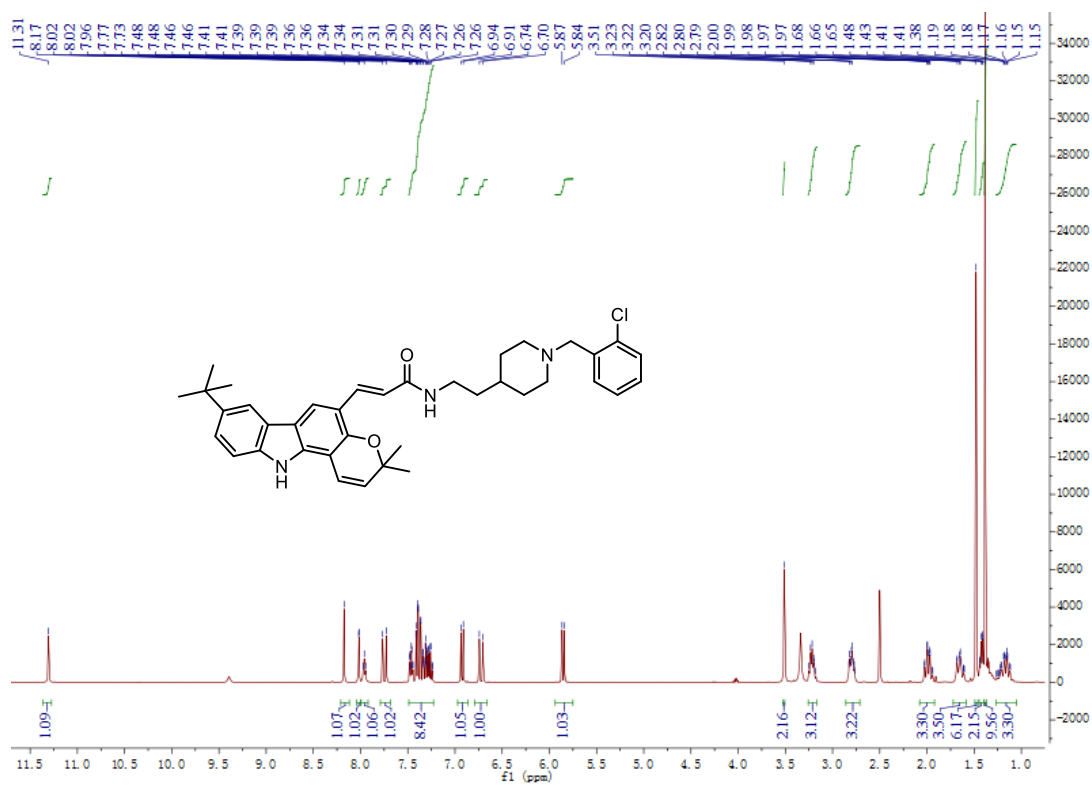
**<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6cb**



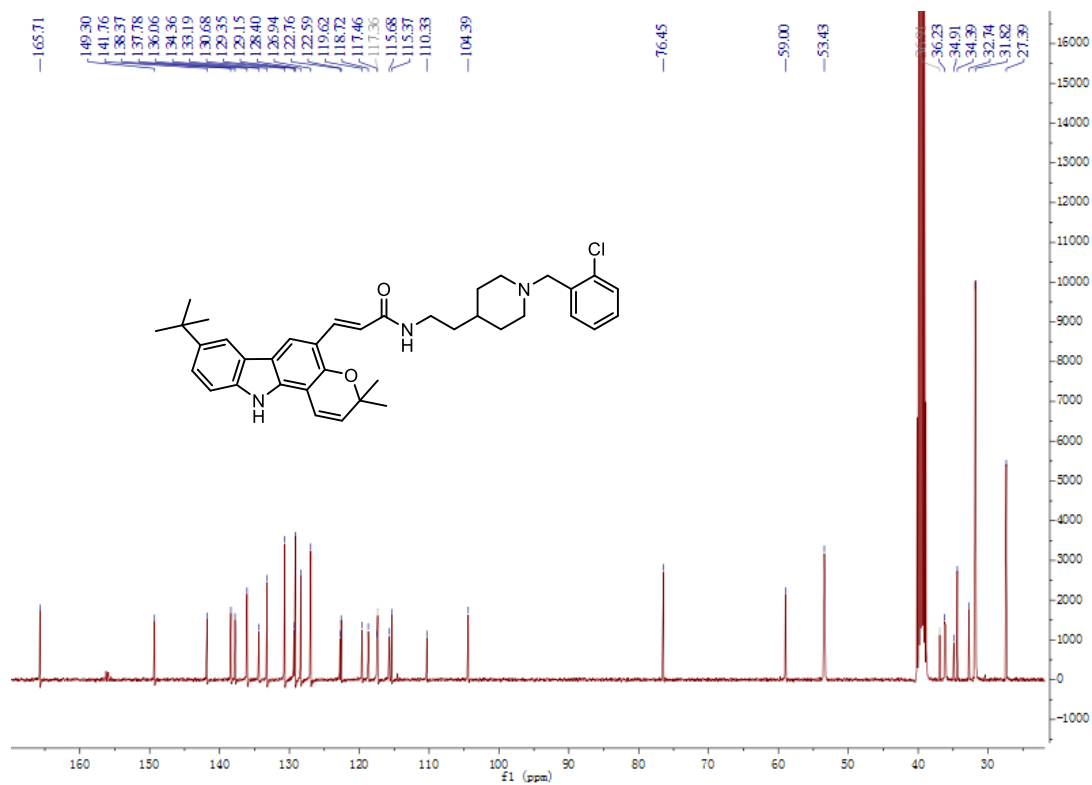
**<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6cc**



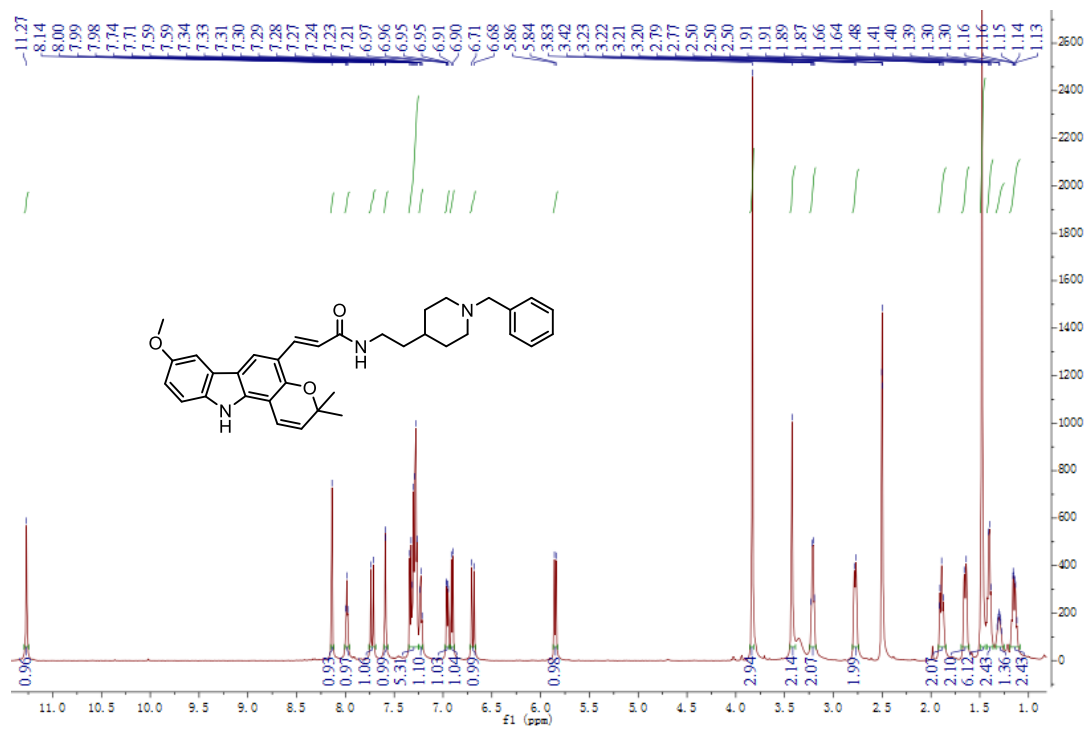
<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6cc



<sup>1</sup>H NMR (DMSO, 400 MHz) Spectrum of Compound 6cd

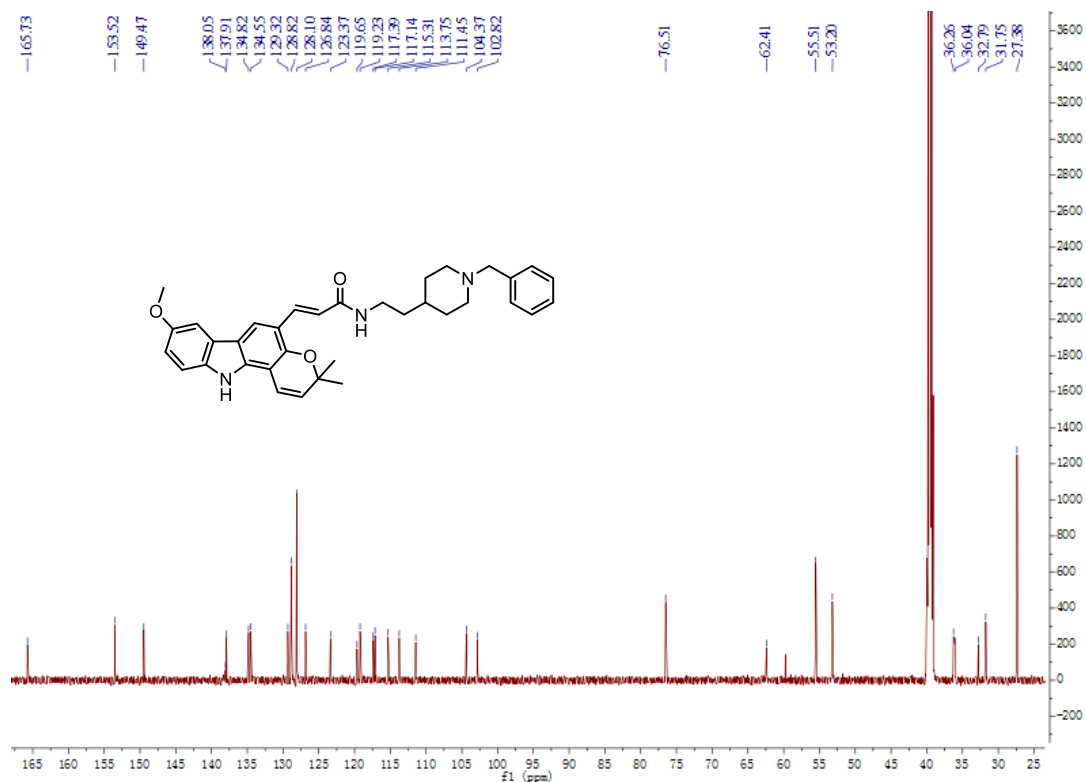


<sup>13</sup>C NMR (DMSO, 400 MHz) Spectrum of Compound 6cd

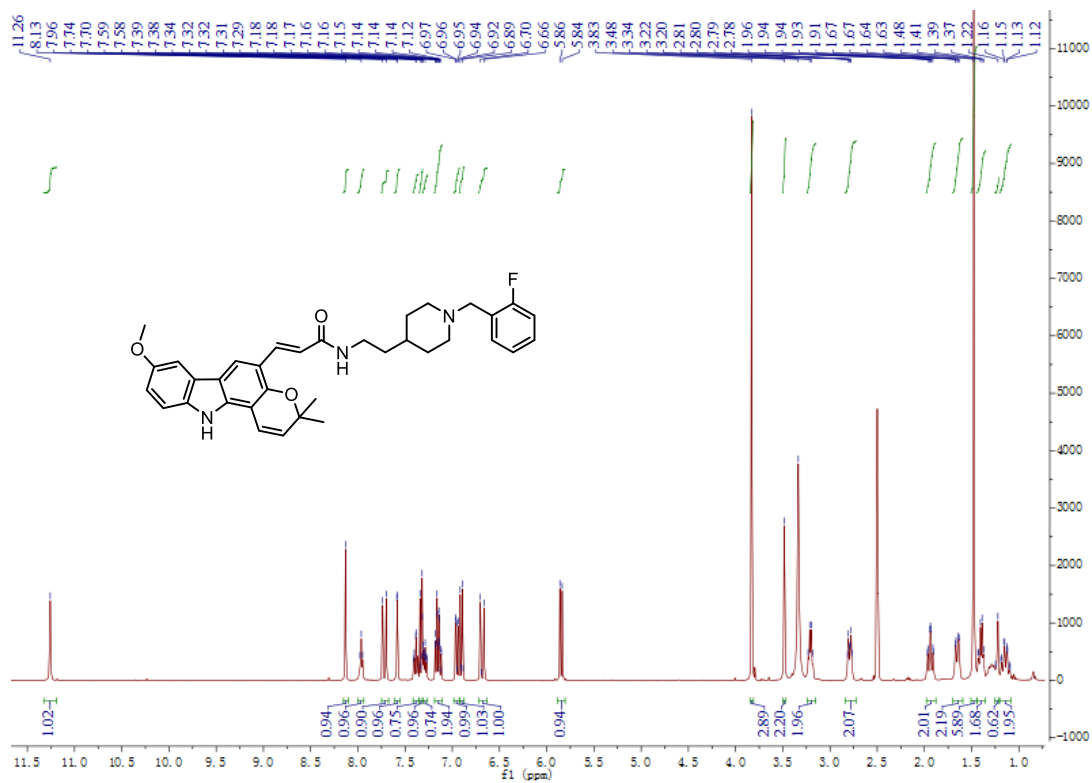


<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6ce

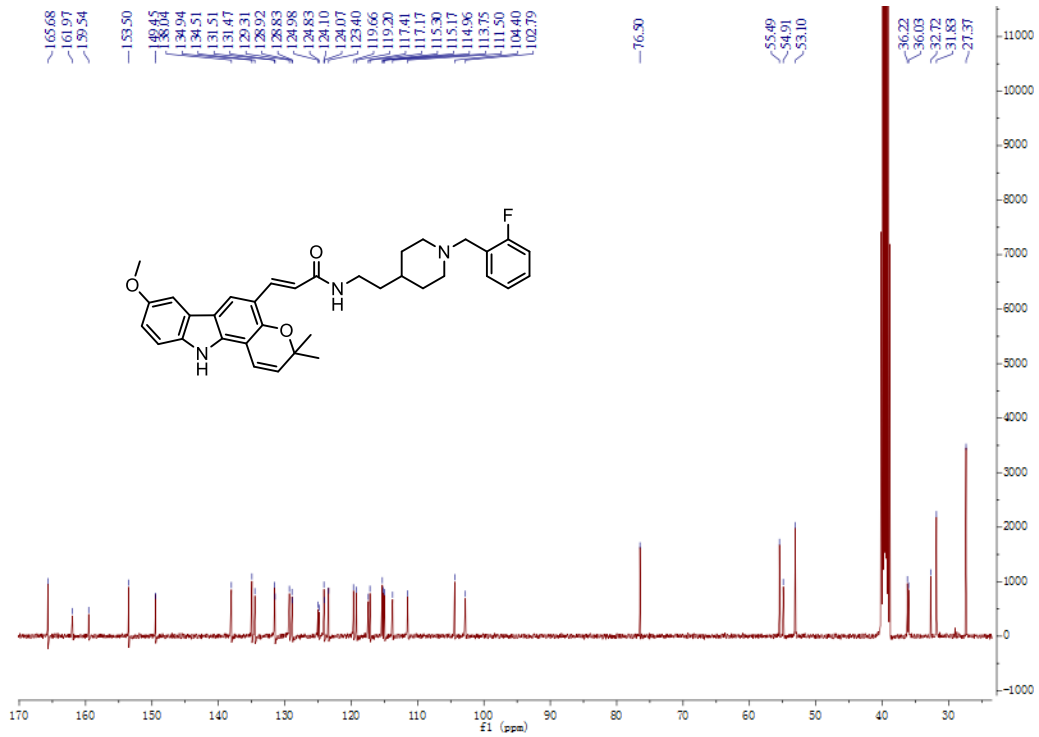




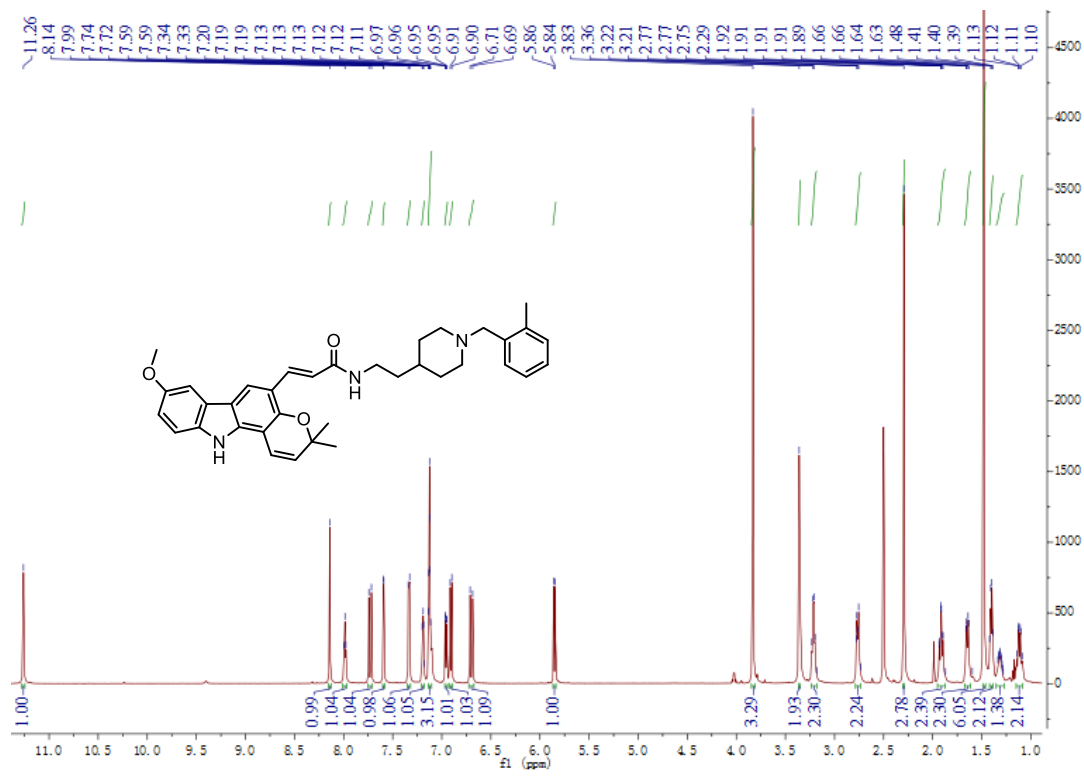
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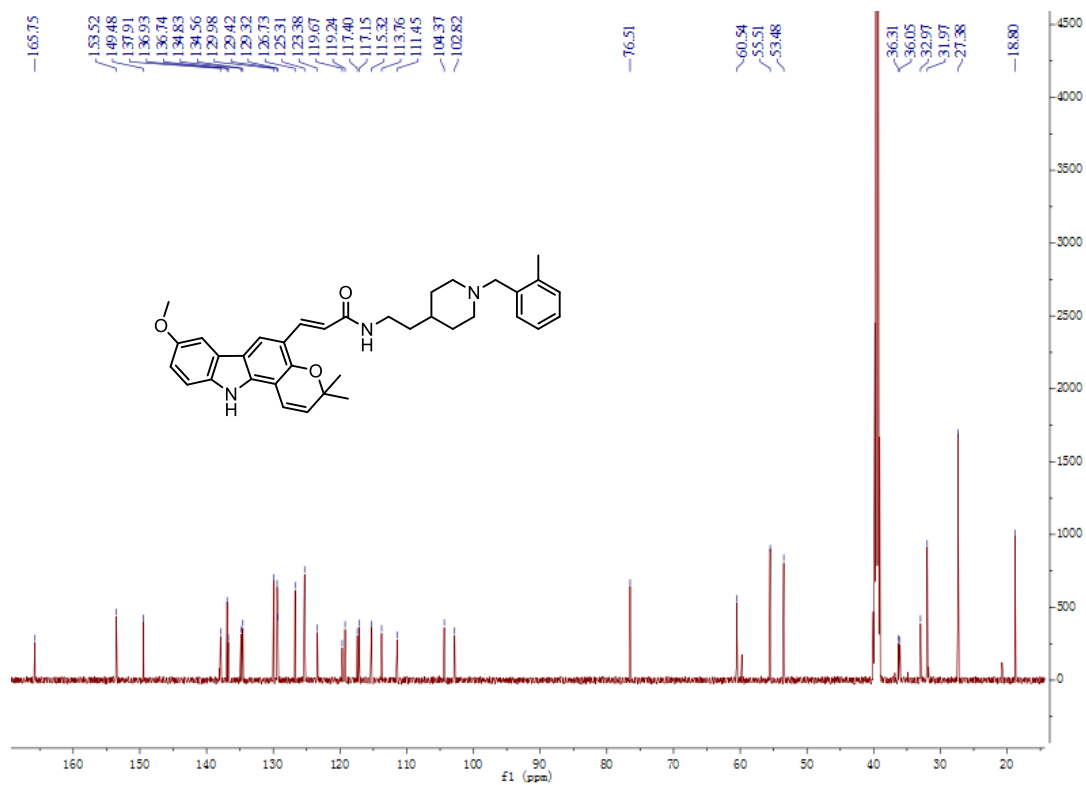
<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6cf



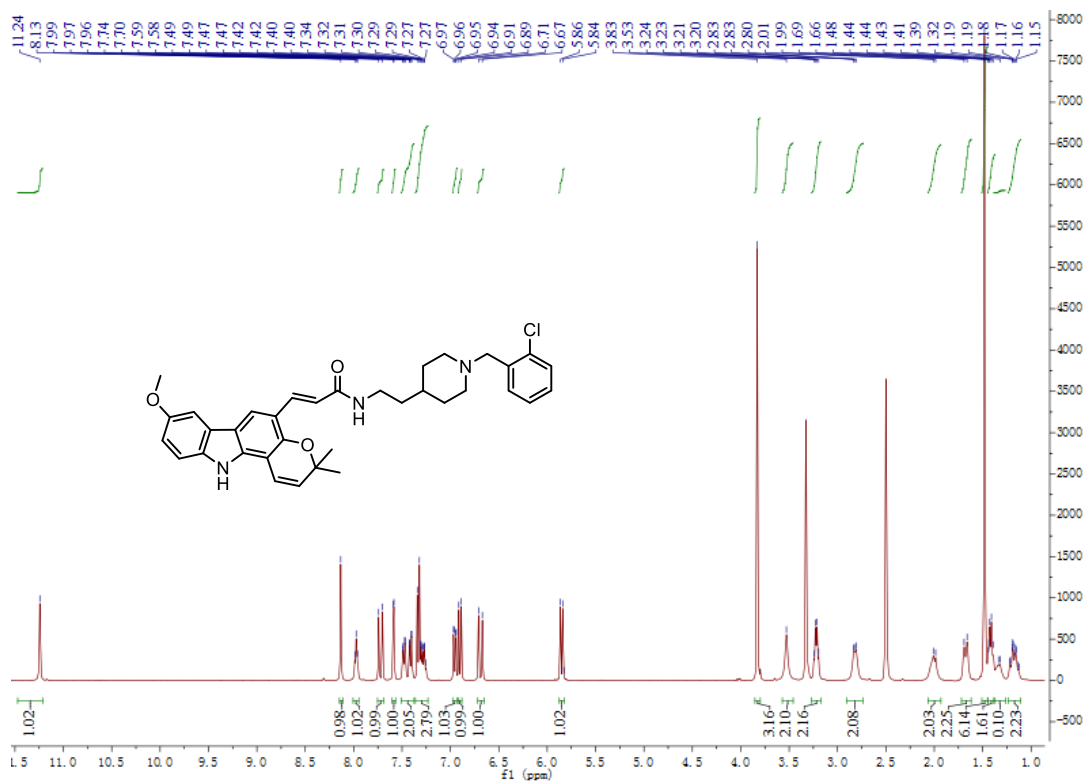
**<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6cf**



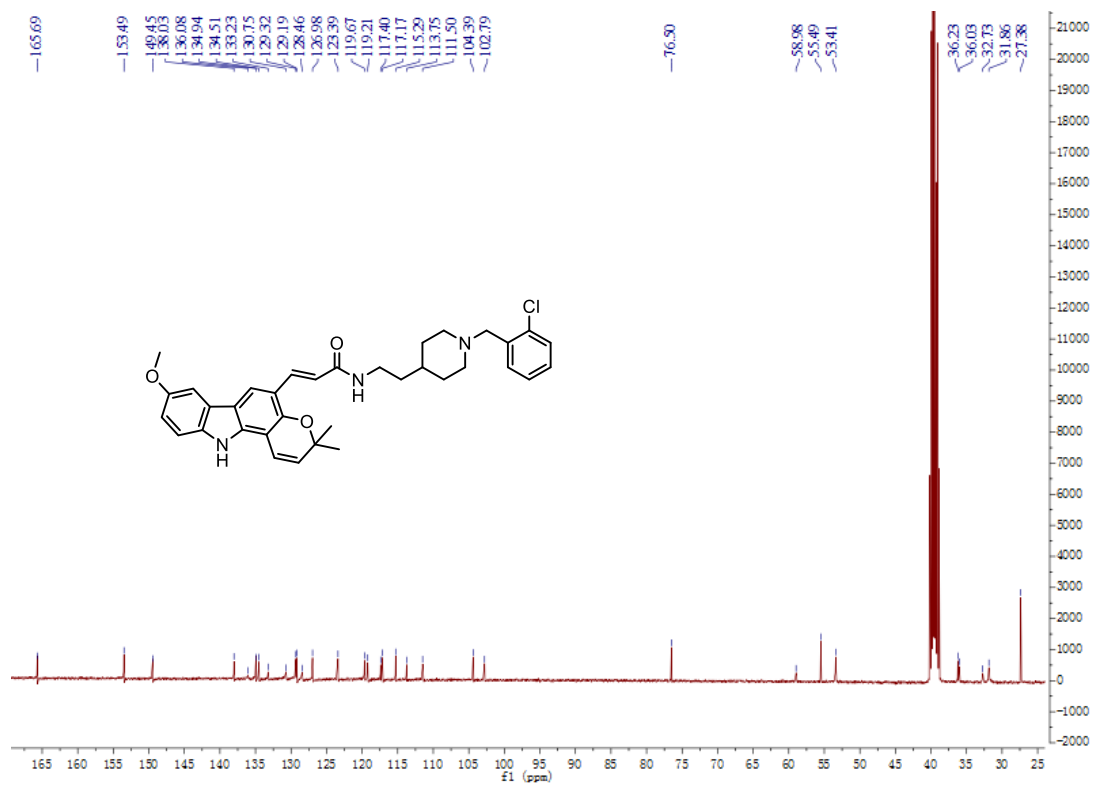
**<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6cg**



<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6cg



<sup>1</sup>H NMR (DMSO, 600 MHz) Spectrum of Compound 6ch



<sup>13</sup>C NMR (DMSO, 600 MHz) Spectrum of Compound 6ch

## 2. HPLC analysis of all final compounds

System: Agilent 1100 Series

Mobile phase: methanol / water

Detector: DAD at 254 nm

Column: YMC C18 column (150 mm×4.6 mm, 5μm)

Flow rate: 1 mL/min

Compound	Methanol %	Purity	Retention time (min)
6aa	80%	99.11%	6.724
6ab	80%	99.68%	15.023
6ac	90%	95.89%	6.479

<b>6ad</b>	80%	98.56%	17.62
<b>6ae</b>	85%	95.28%	4.726
<b>6af</b>	85%	95.90%	5.379
<b>6ag</b>	85%	98.87%	5.417
<b>6ah</b>	85%	97.53%	10.823
<b>6ba</b>	85%	99.70%	12.342
<b>6bb</b>	80%	98.66%	4.628
<b>6bc</b>	80%	99.59%	6.887
<b>6bd</b>	80%	98.94%	8.25
<b>6be</b>	85%	99.21%	11.41
<b>6bf</b>	90%	98.72%	12.924
<b>6bg</b>	90%	99.64%	14.598
<b>6bh</b>	85%	95.41%	6.744
<b>6bi</b>	85%	97.25%	10.984
<b>6bj</b>	85%	98.04%	13.025
<b>6ca</b>	85%	97.05%	8.074
<b>6cb</b>	85%	98.62%	13.255
<b>6cc</b>	85%	97.45%	15.597
<b>6cd</b>	85%	96.27%	4.759
<b>6ce</b>	85%	95.98%	6.179
<b>6cf</b>	85%	95.10%	6.68
<b>6cg</b>	85%	96.23%	8.576
<b>6ch</b>	85%	98.67%	14.652

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