

## Supplementary Material

### Synthesis of some oxazolo[4,5-d]pyrimidine derivatives and evaluation of their antiviral activity and cytotoxicity

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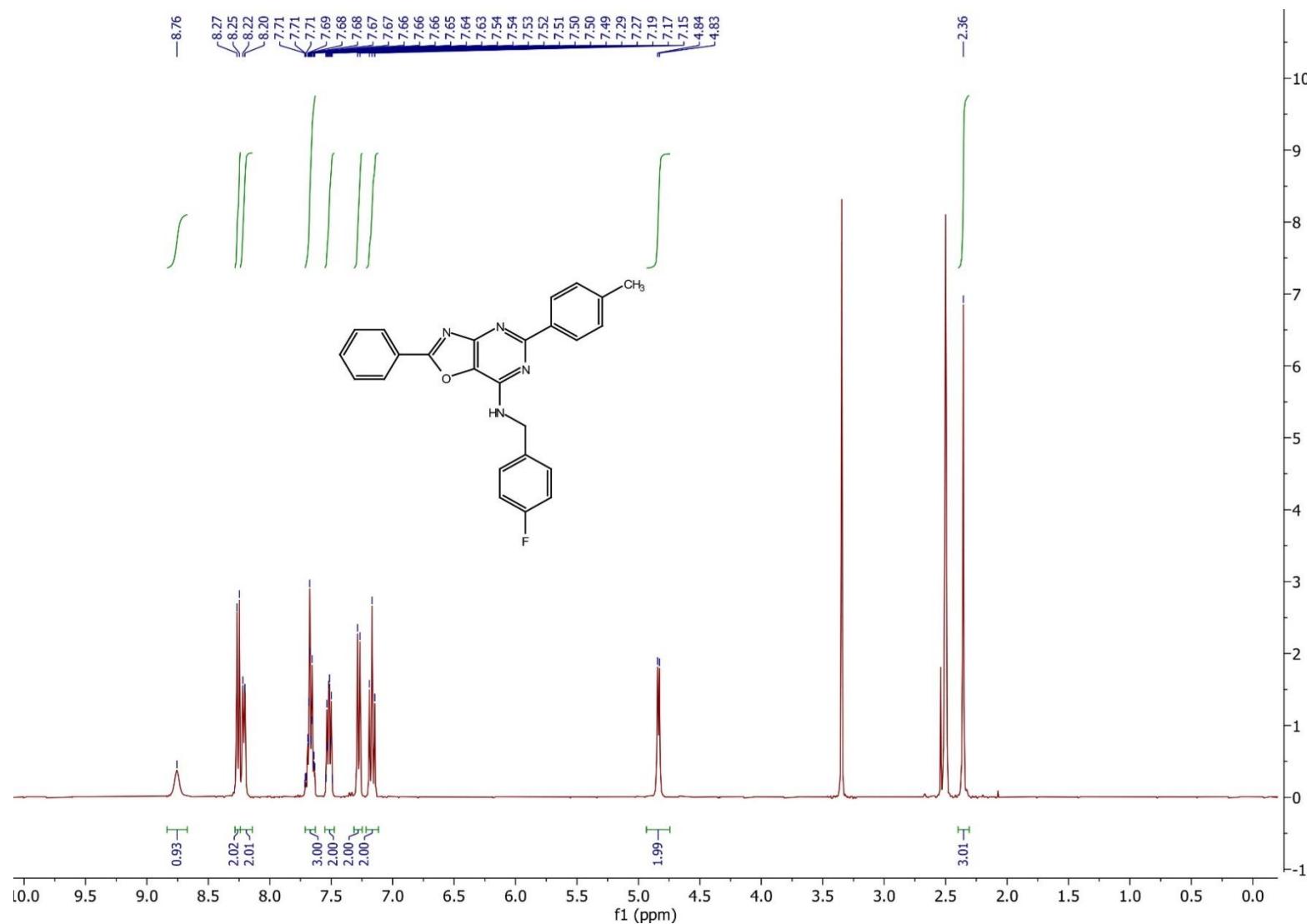
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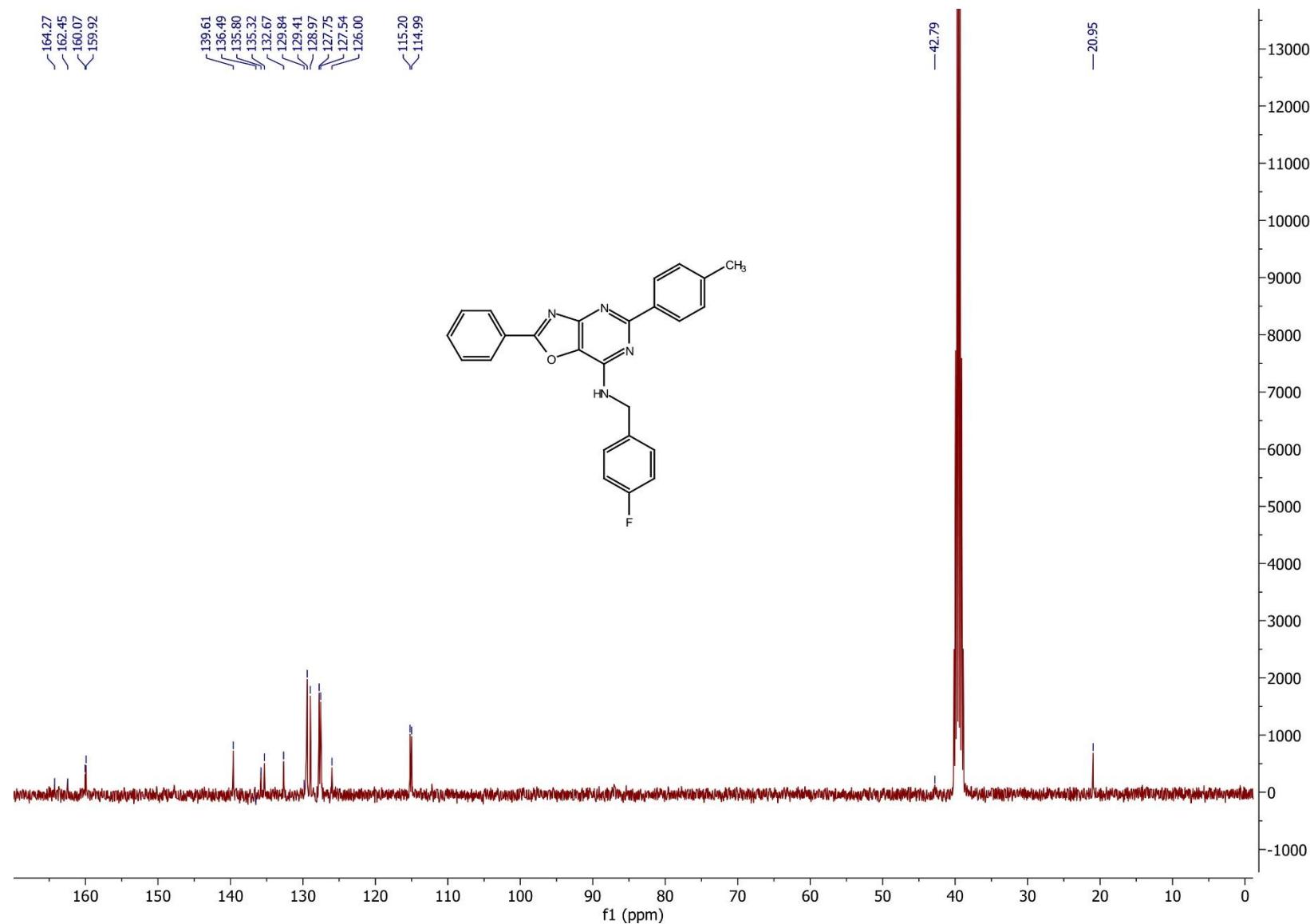
<sup>c</sup>Department of Pediatrics, Division of Pediatric Infectious Diseases, University of Alabama at Birmingham, Birmingham, Alabama 35233, USA  
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### Table of Contents

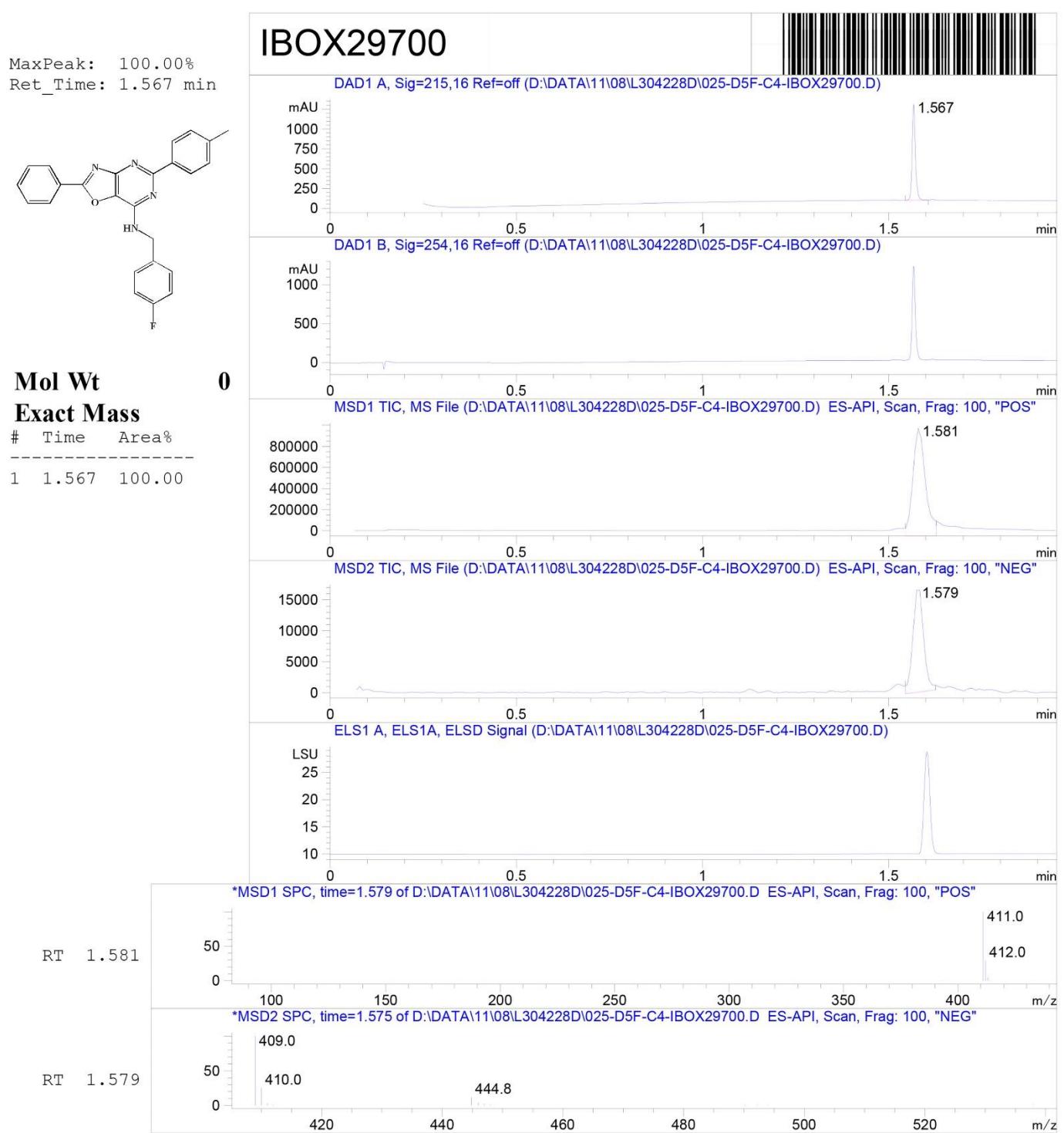
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| <sup>1</sup> H, <sup>13</sup> C NMR, and Mass Spectra.....  | S2  |
| Table S1. ADMET properties of oxazolo[4,5-d]pyrimidine derivatives predicted by pkCSM online server ..... | S46 |

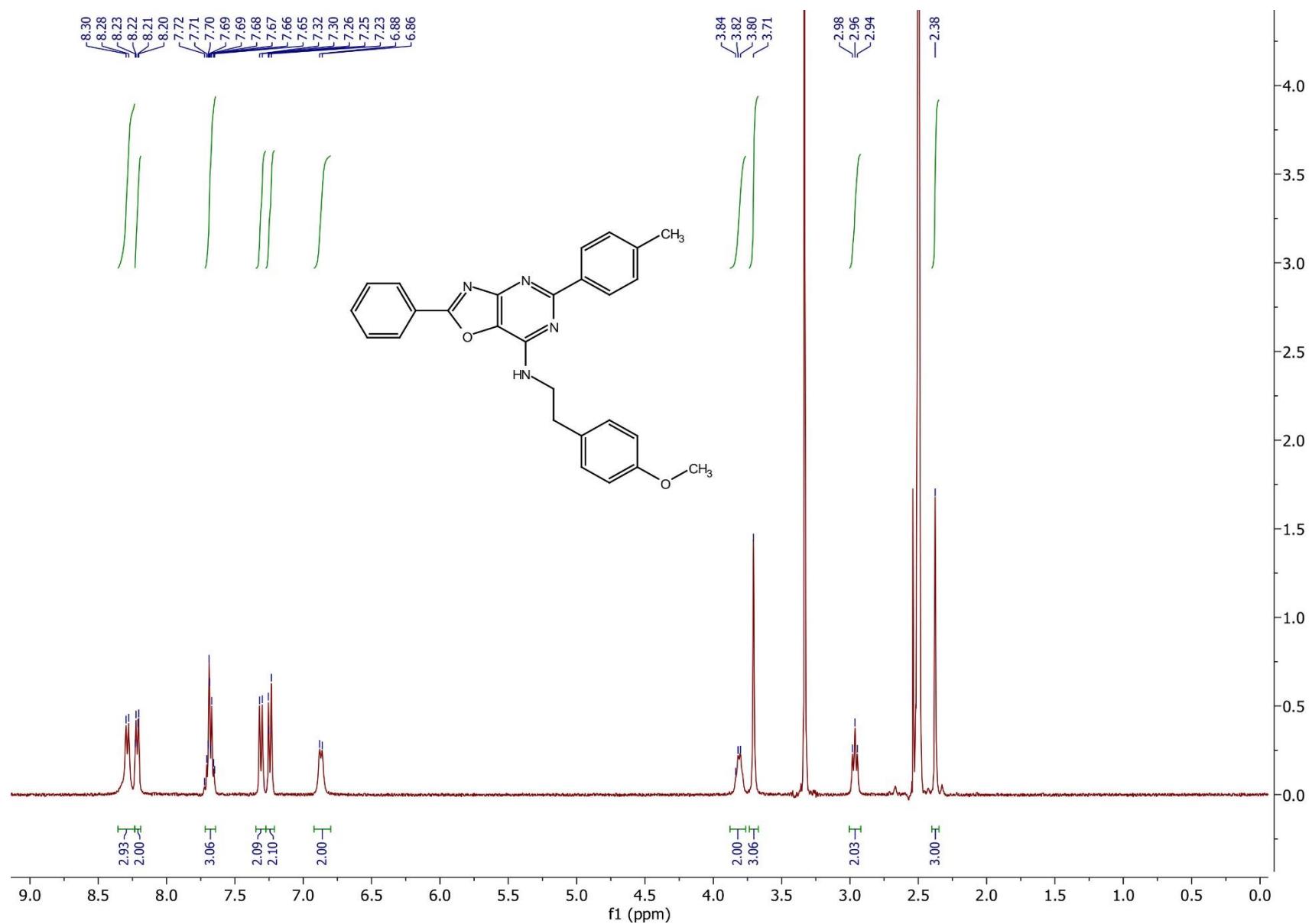


**Figure S1.**  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (1).



**Figure S2.**  $^{13}\text{C}$  NMR (101 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (1).

**Figure S3.** LCMS spectrum of compound (1).



**Figure S4.**  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (2).

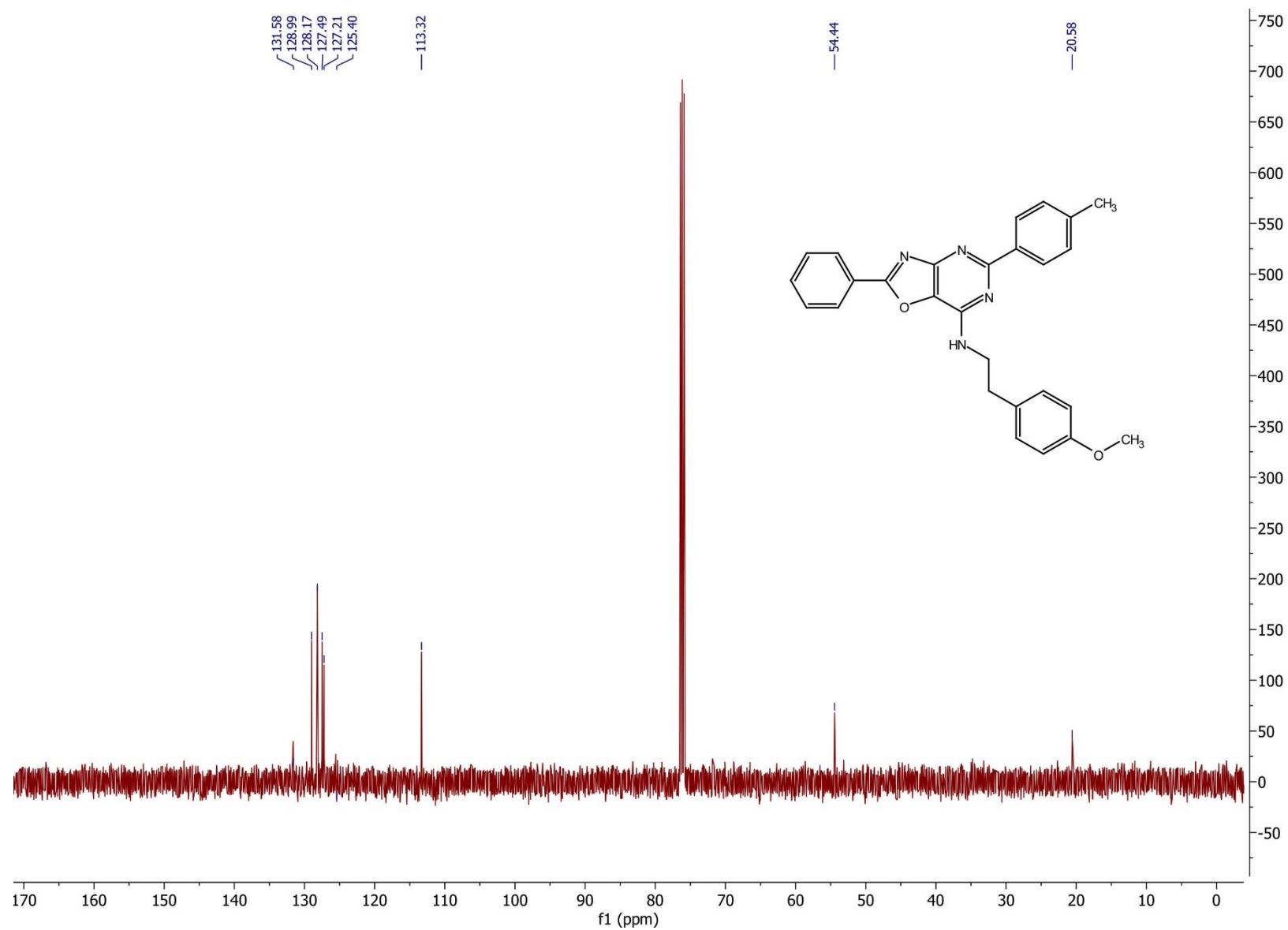
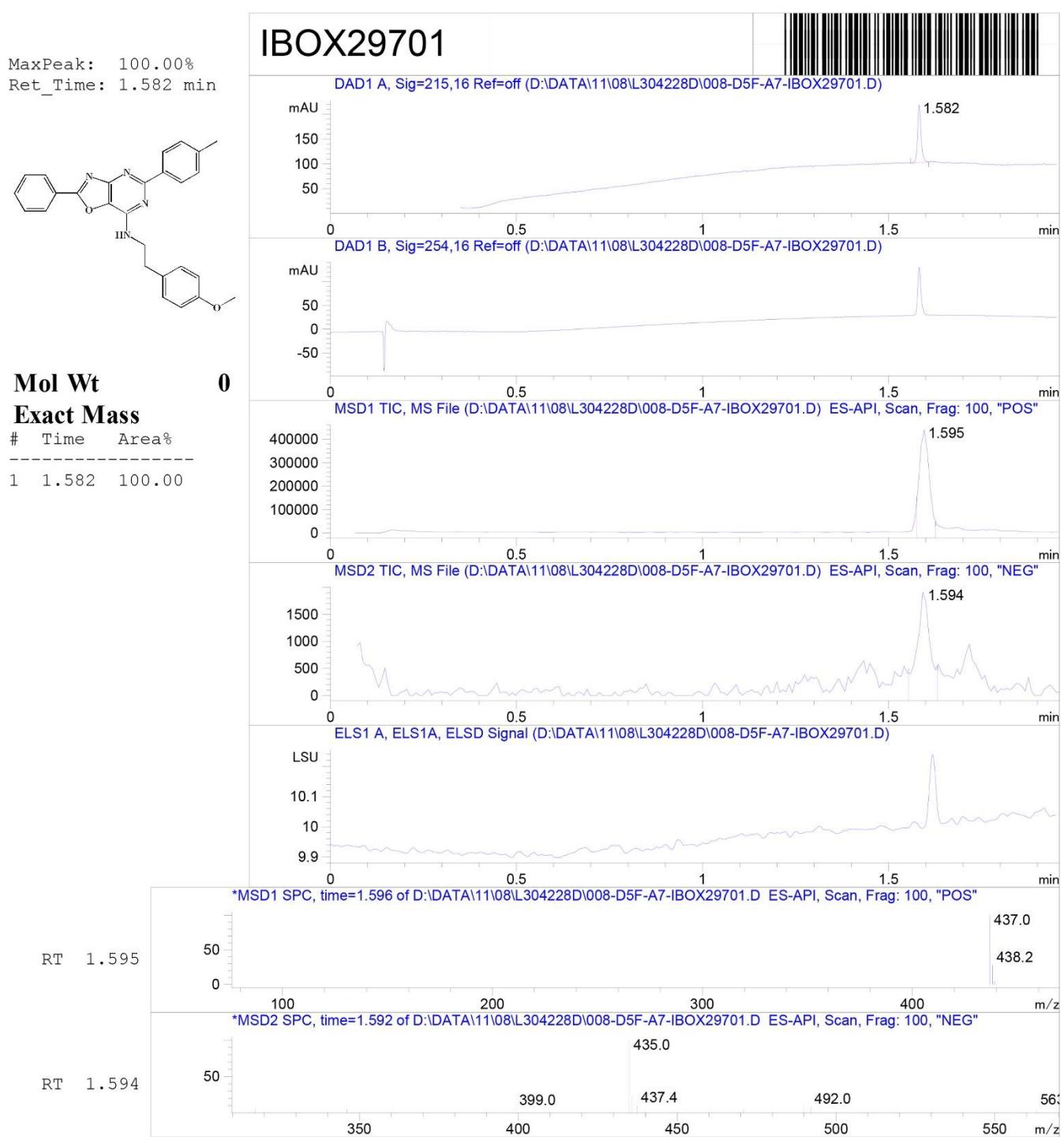


Figure S5.  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (2).

**Figure S6.** LCMS spectrum of compound (2).

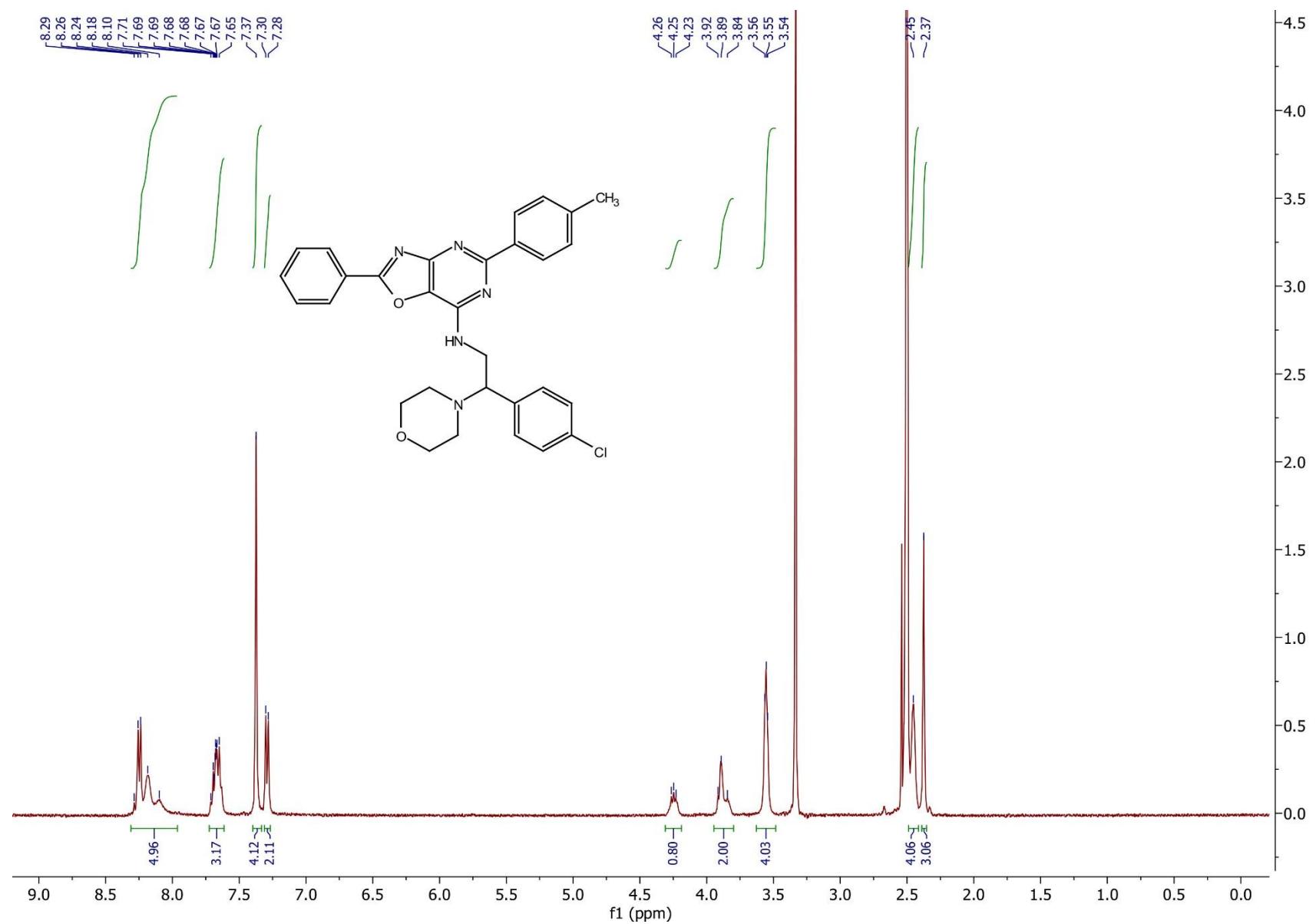


Figure S7.  $^1\text{H}$  NMR (400 MHz, 296.2 K, DMSO- $d_6$ ) spectrum of compound (3).

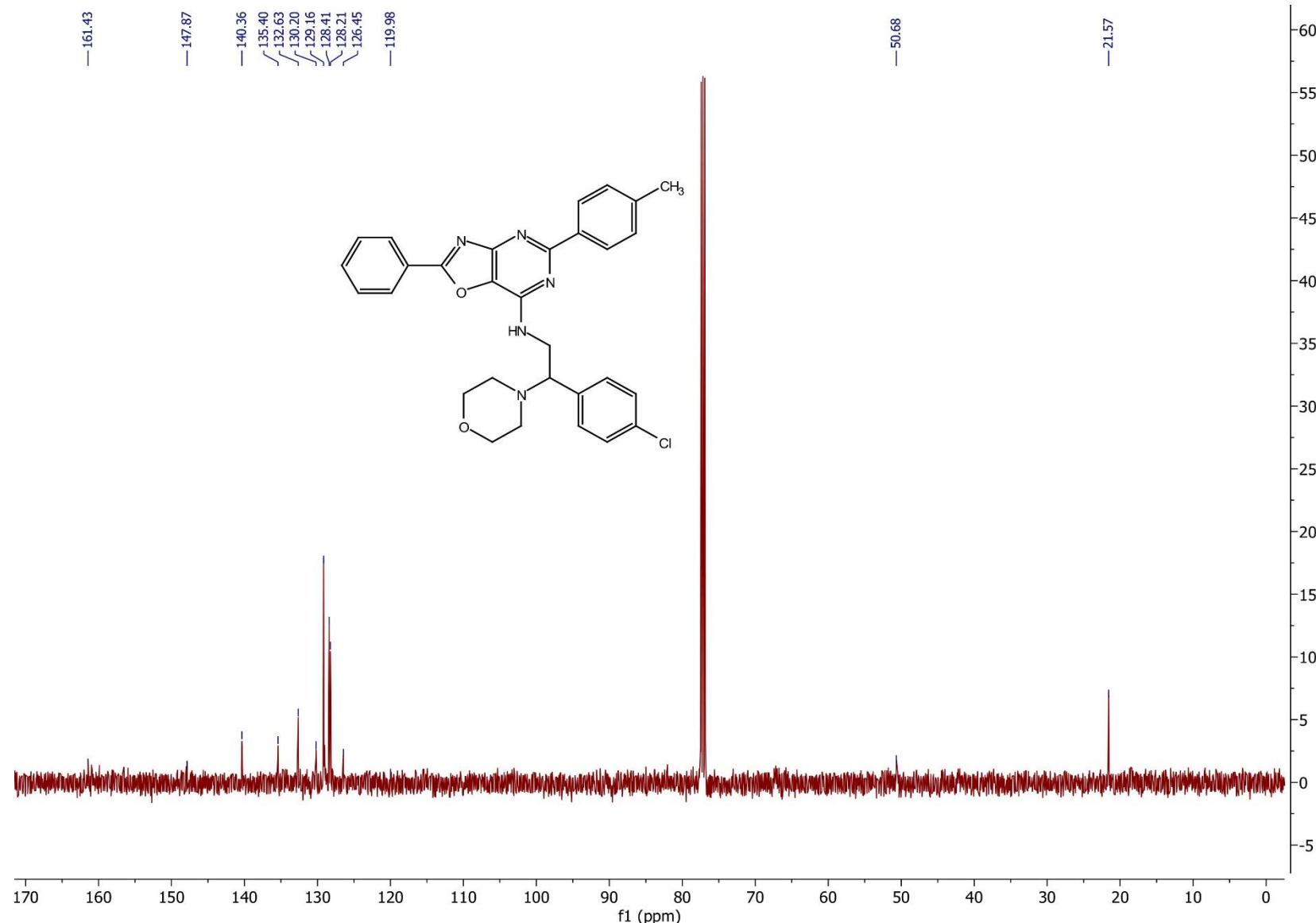
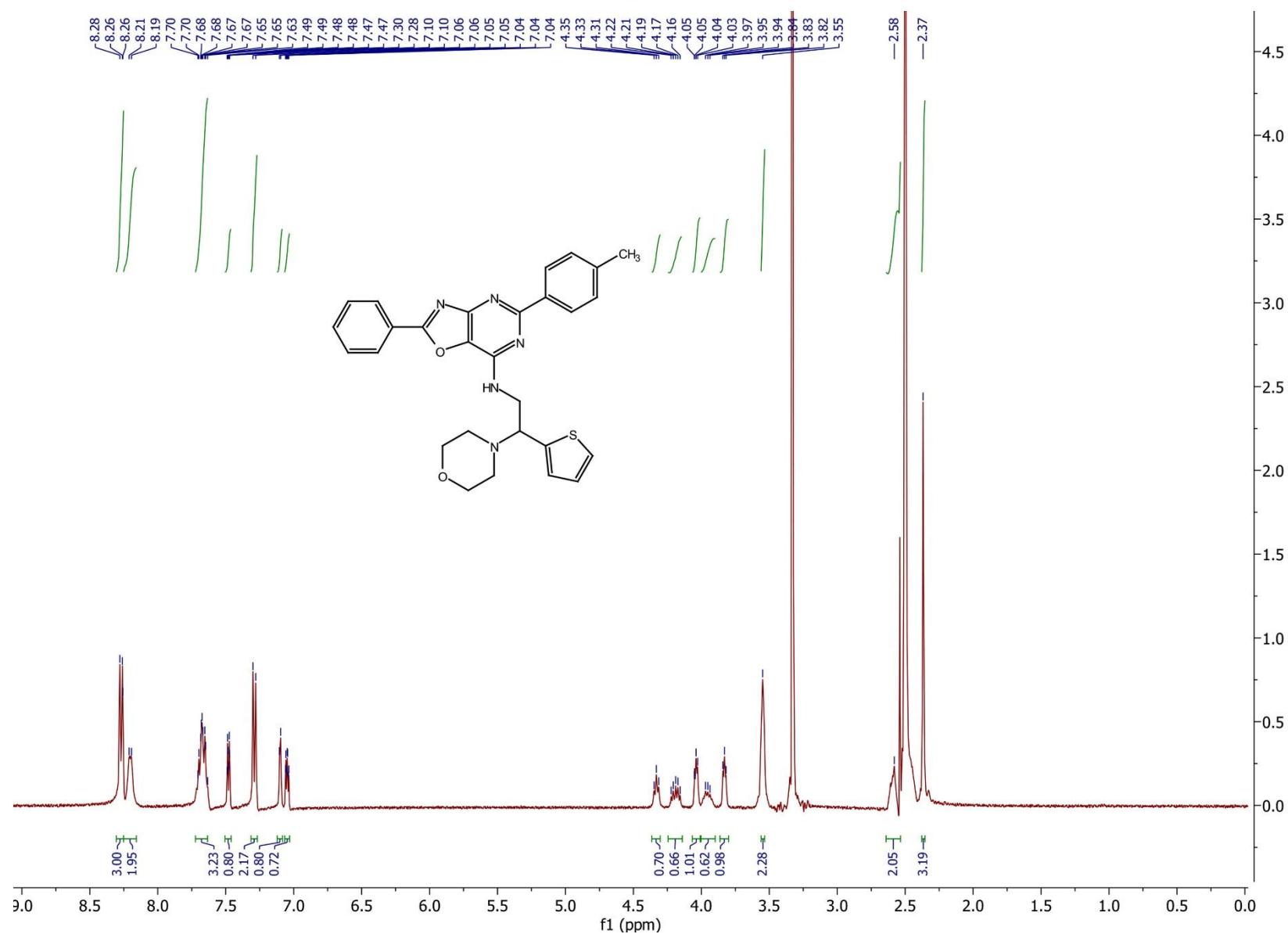
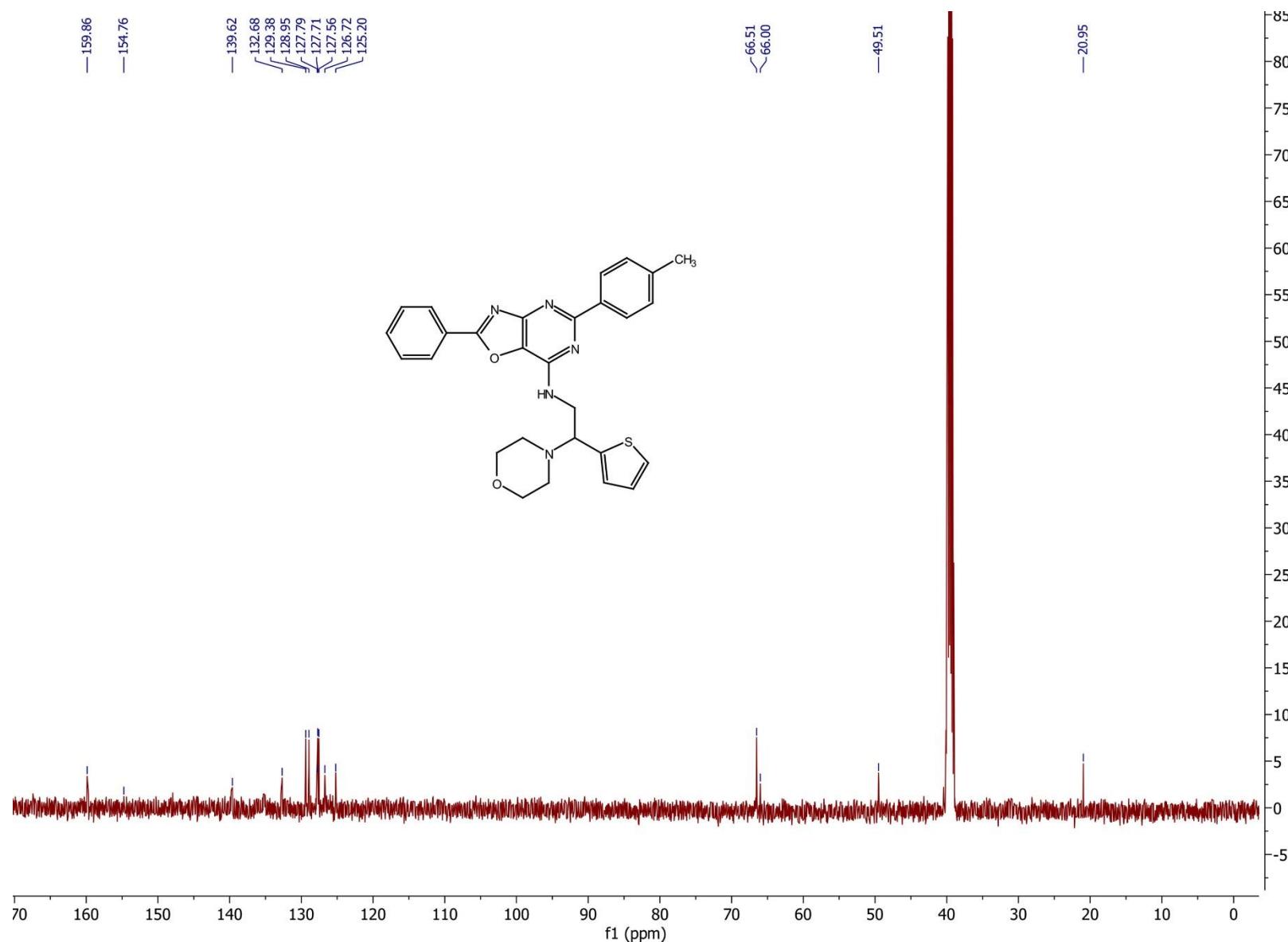


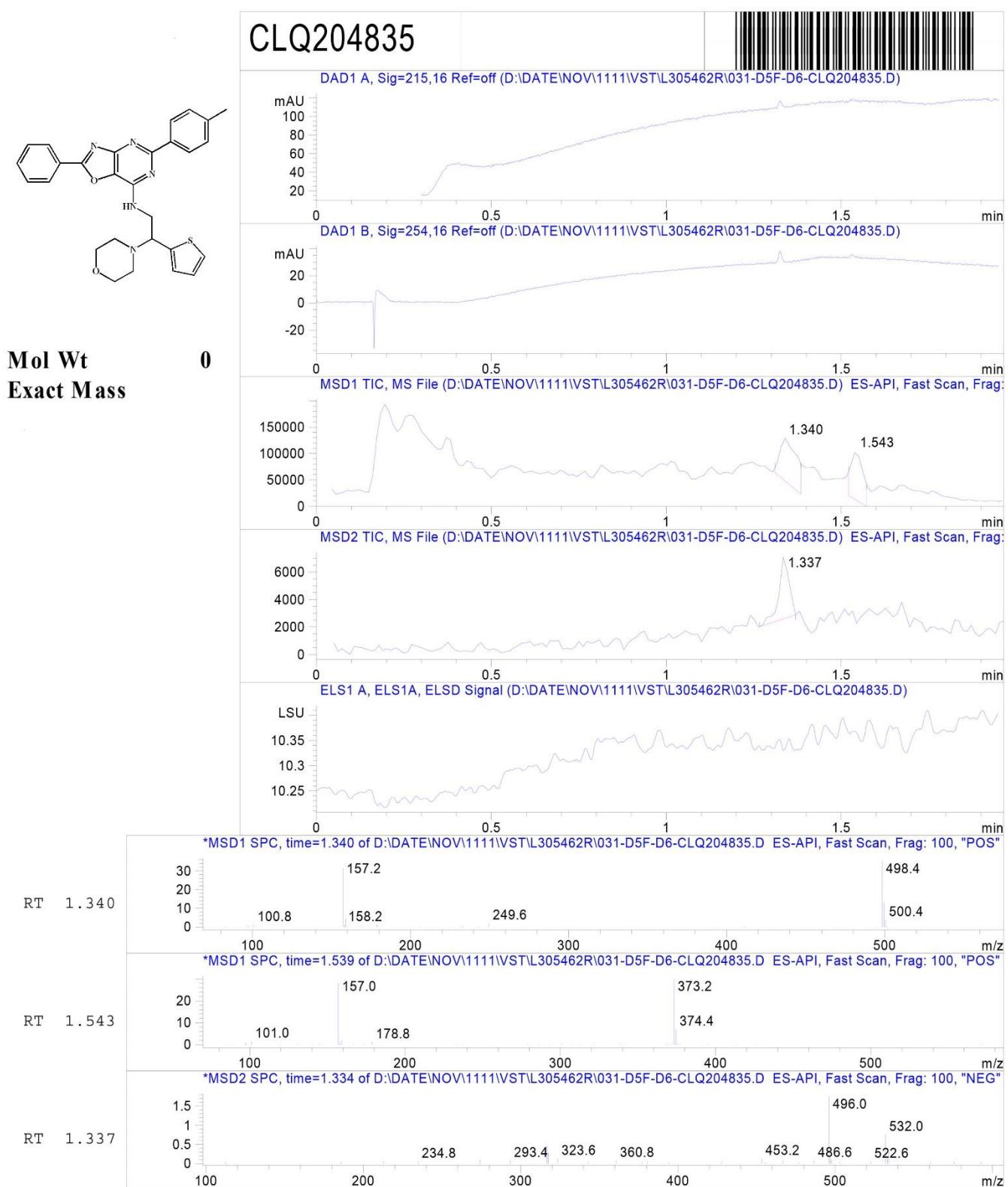
Figure S8.  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (3).



**Figure S9.**  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (4).



**Figure S10.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (4).

**Figure S11.** LCMS spectrum of compound (4).

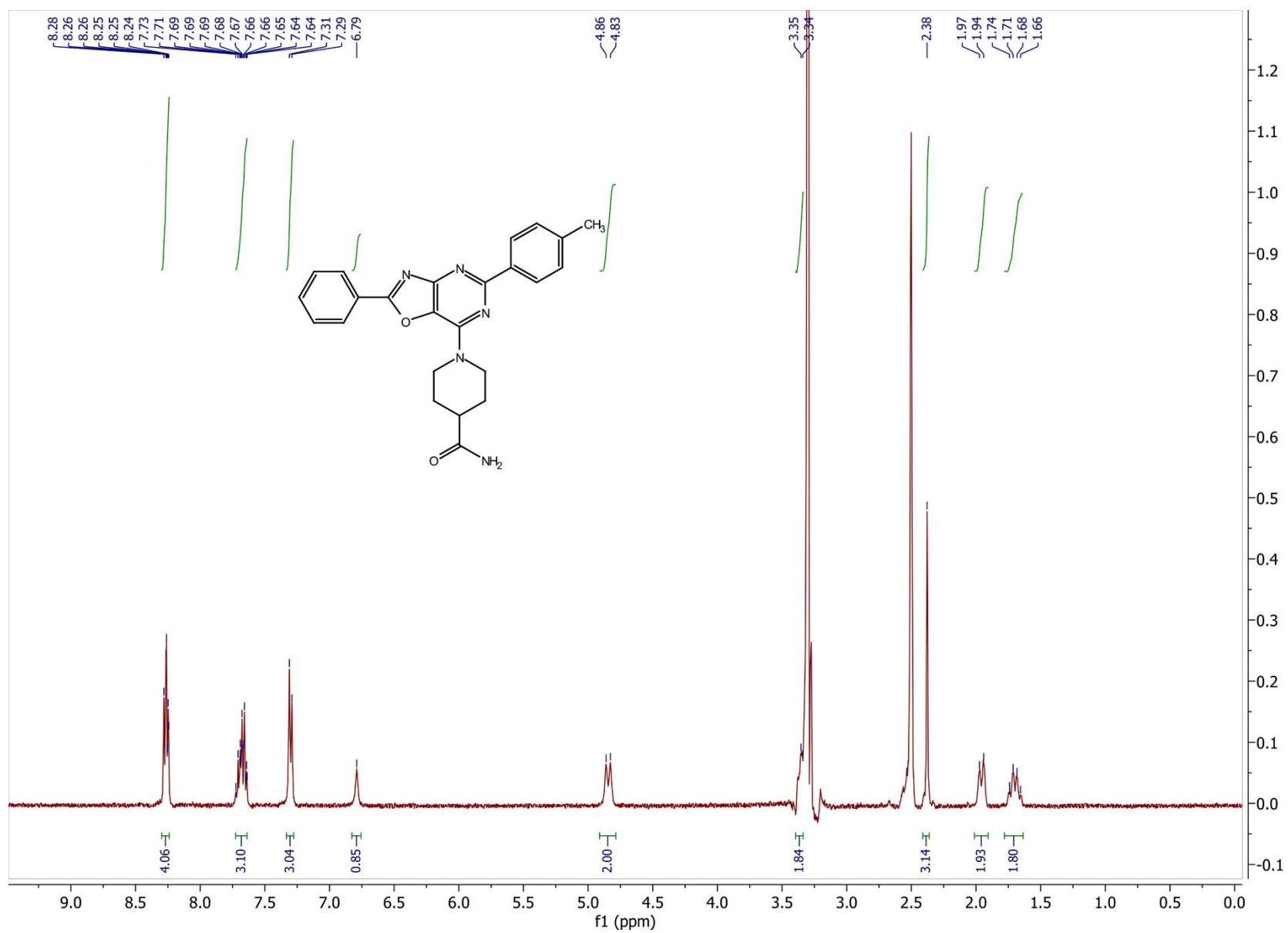


Figure S12.  $^1\text{H}$  NMR (400 MHz, 296.2 K, DMSO- $d_6$ ) spectrum of compound (5).

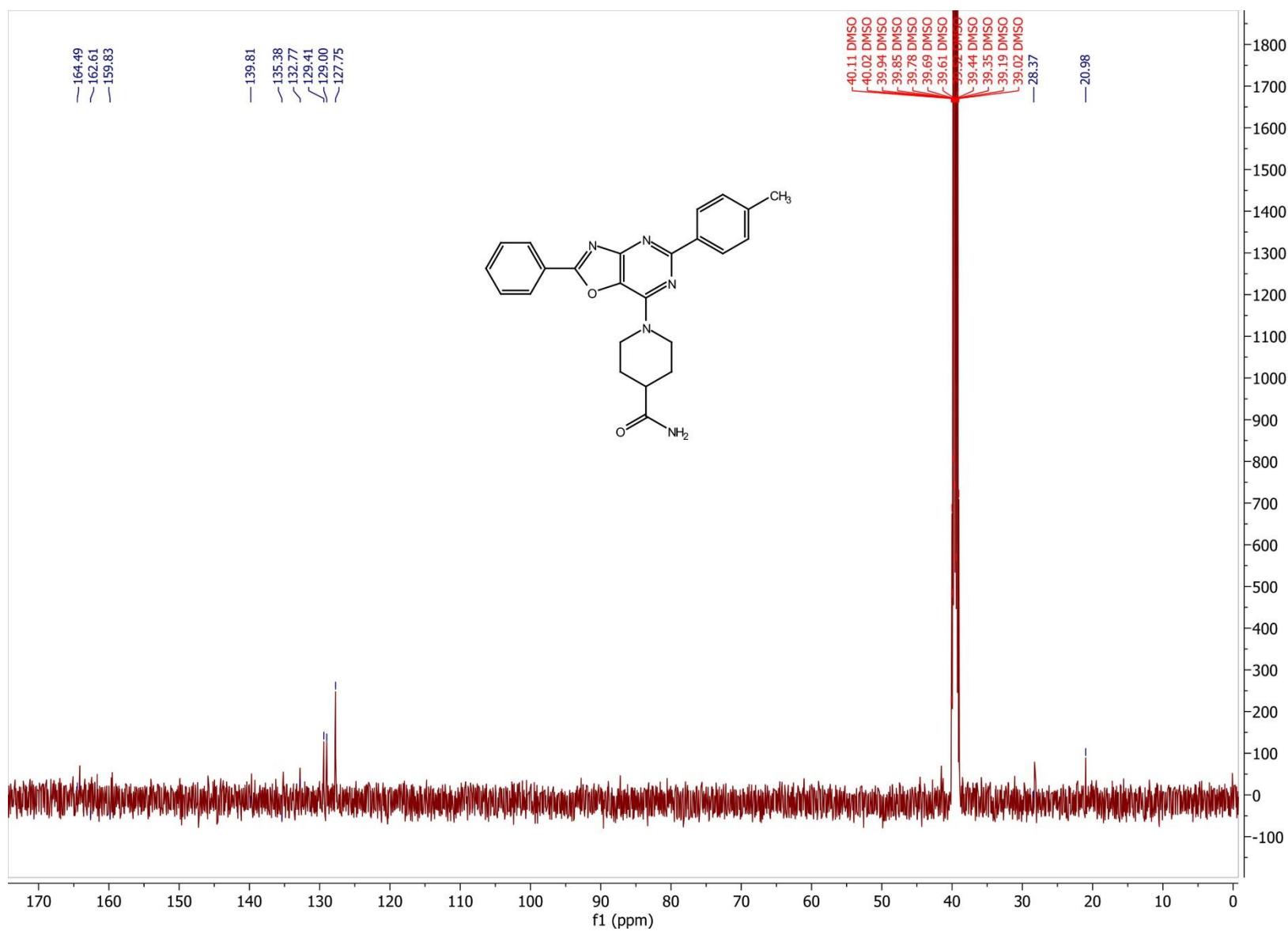
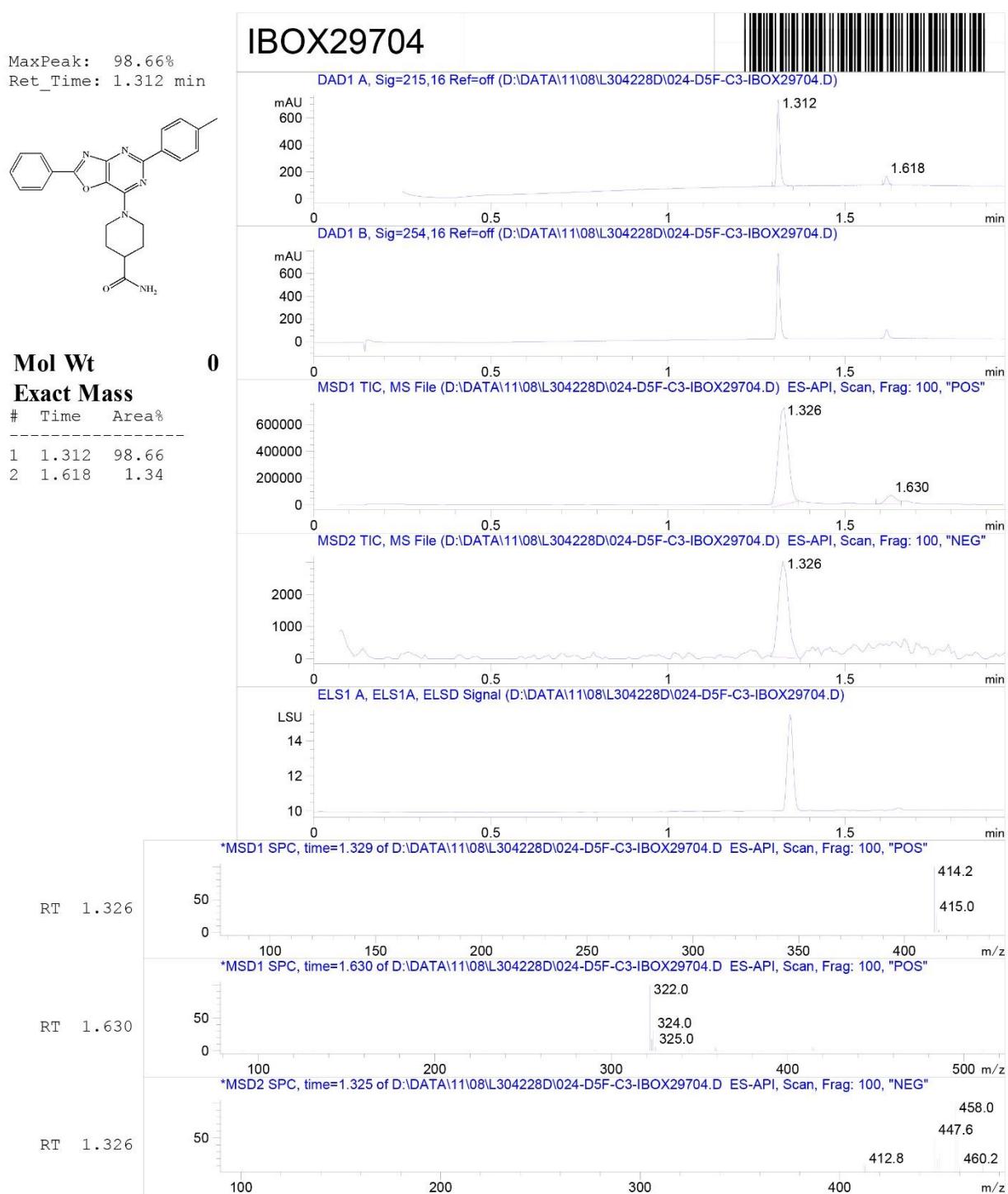


Figure S13. <sup>1</sup>H NMR (400 MHz, 296.2 K, DMSO-*d*<sub>6</sub>) spectrum of compound (5).



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**Figure S14.** LCMS spectrum of compound (5).

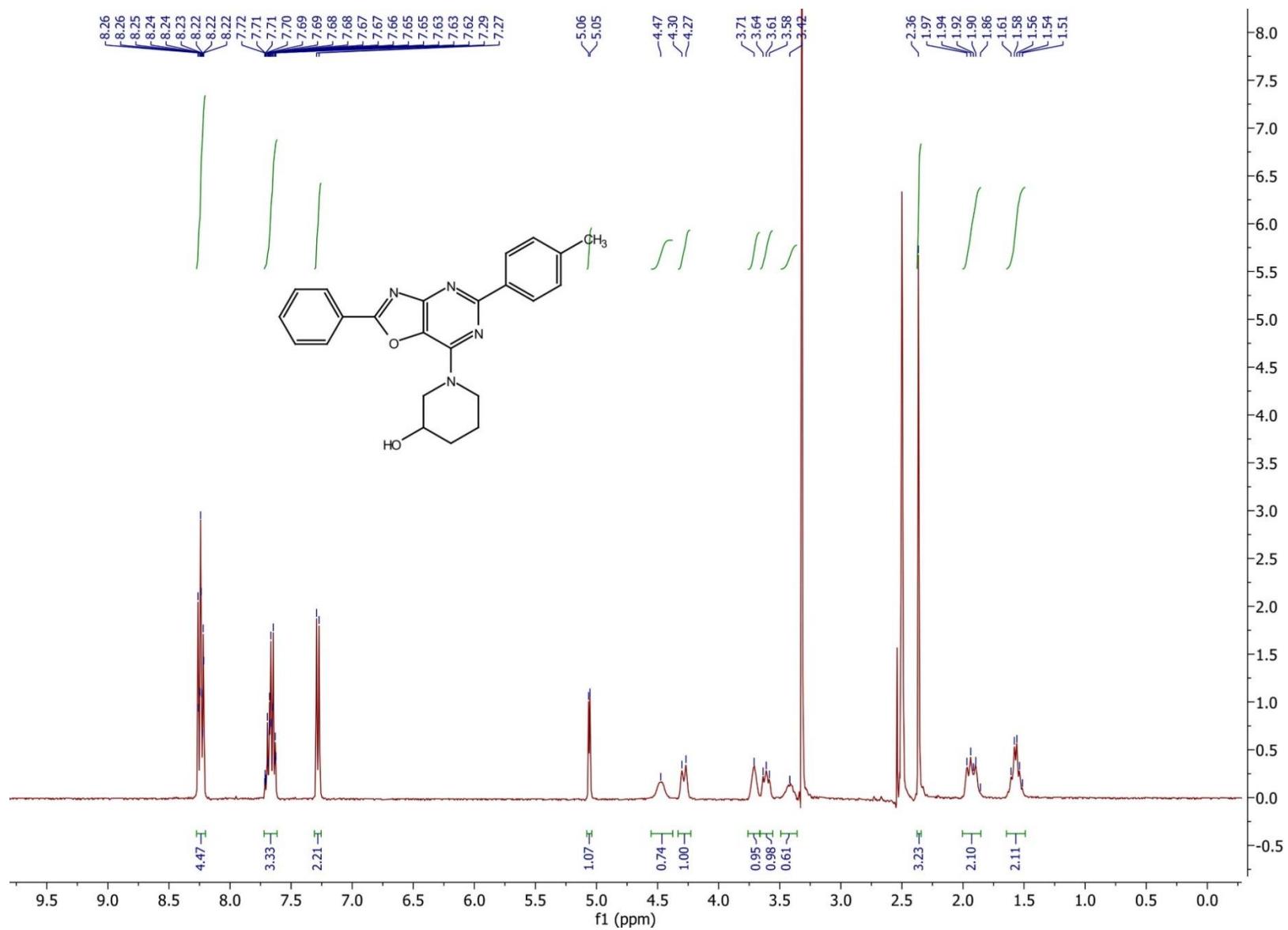
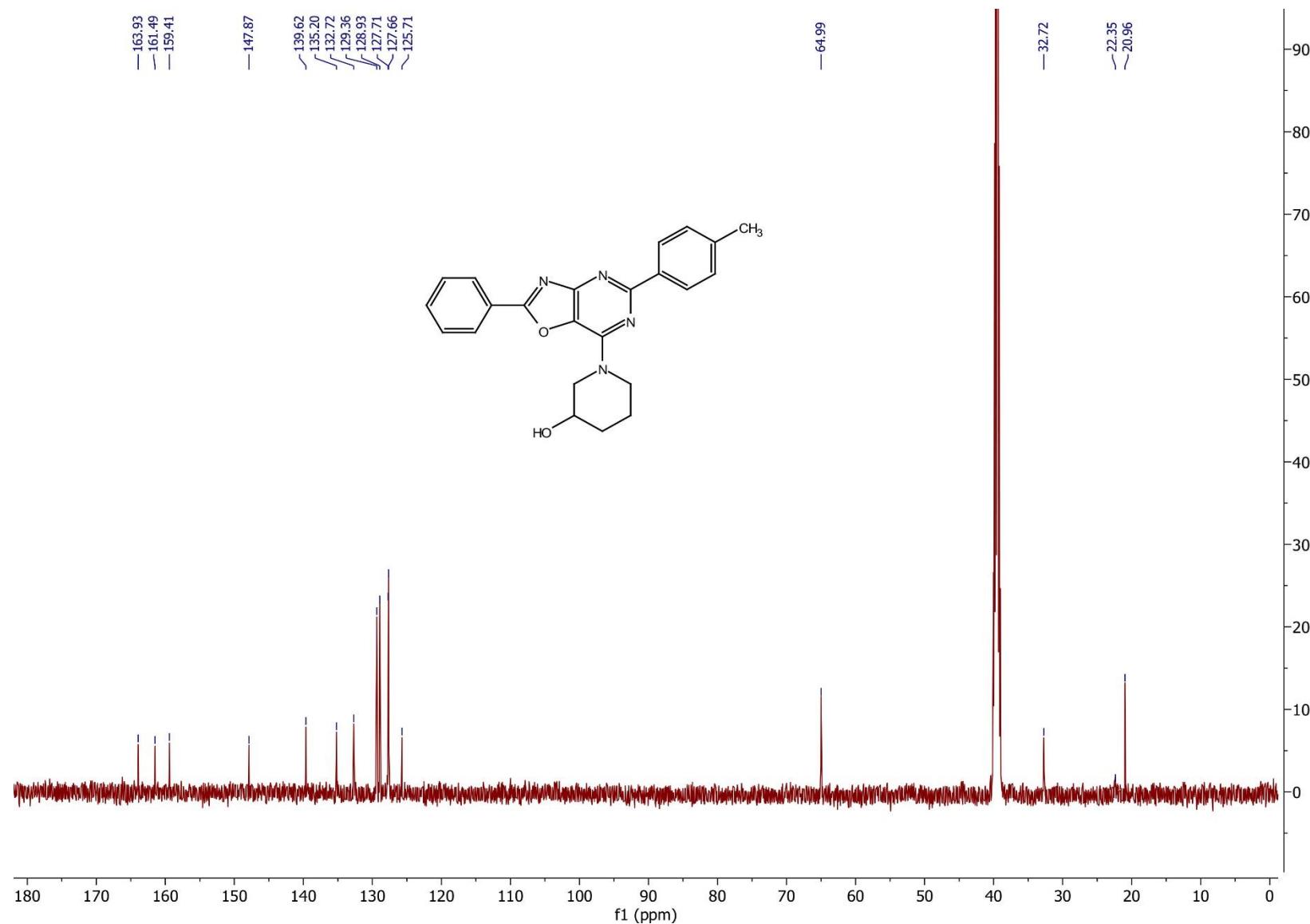
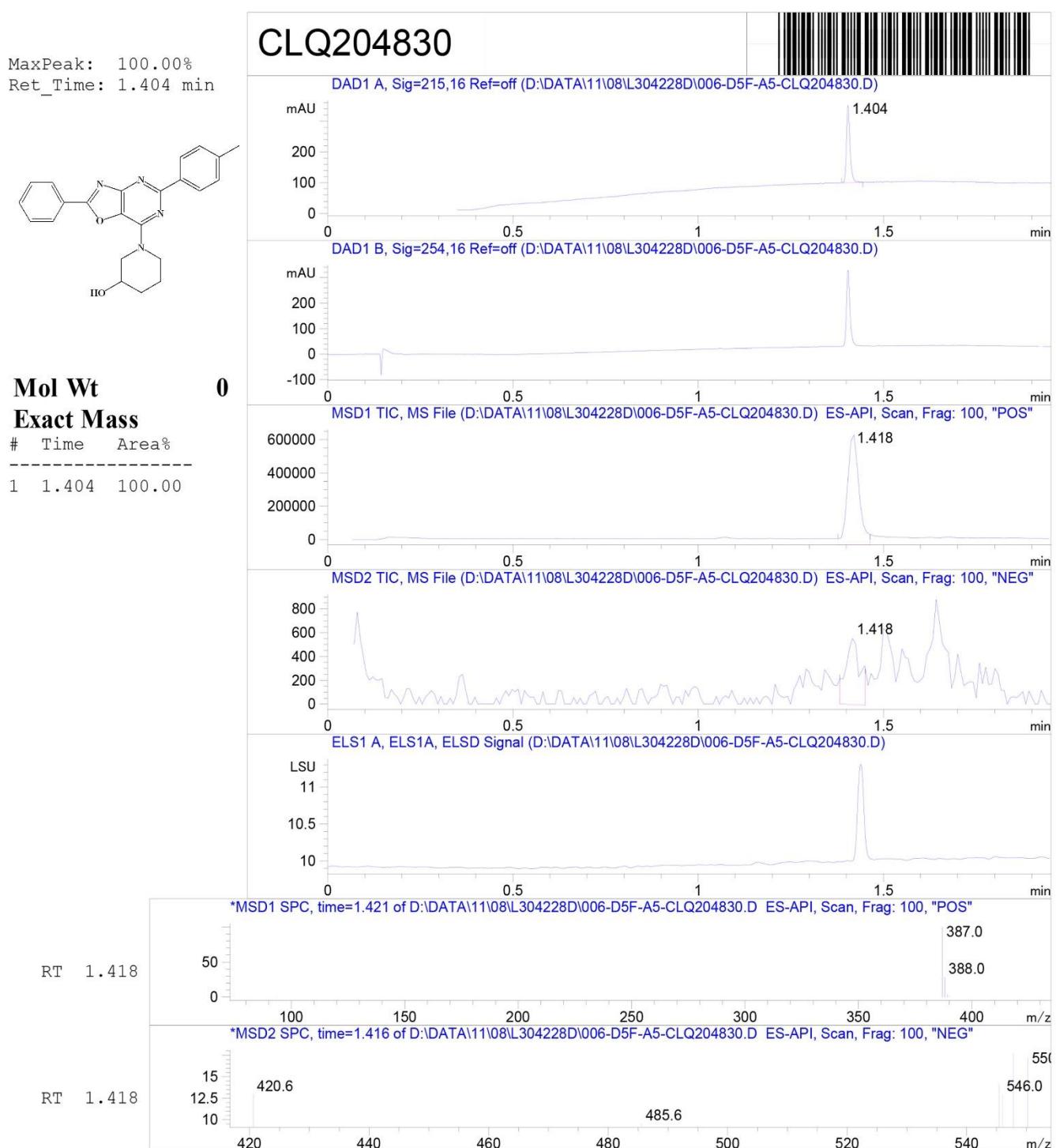


Figure S15.  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (6).



**Figure S16.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (6).

**Figure S17.** LCMS spectrum of compound (6).

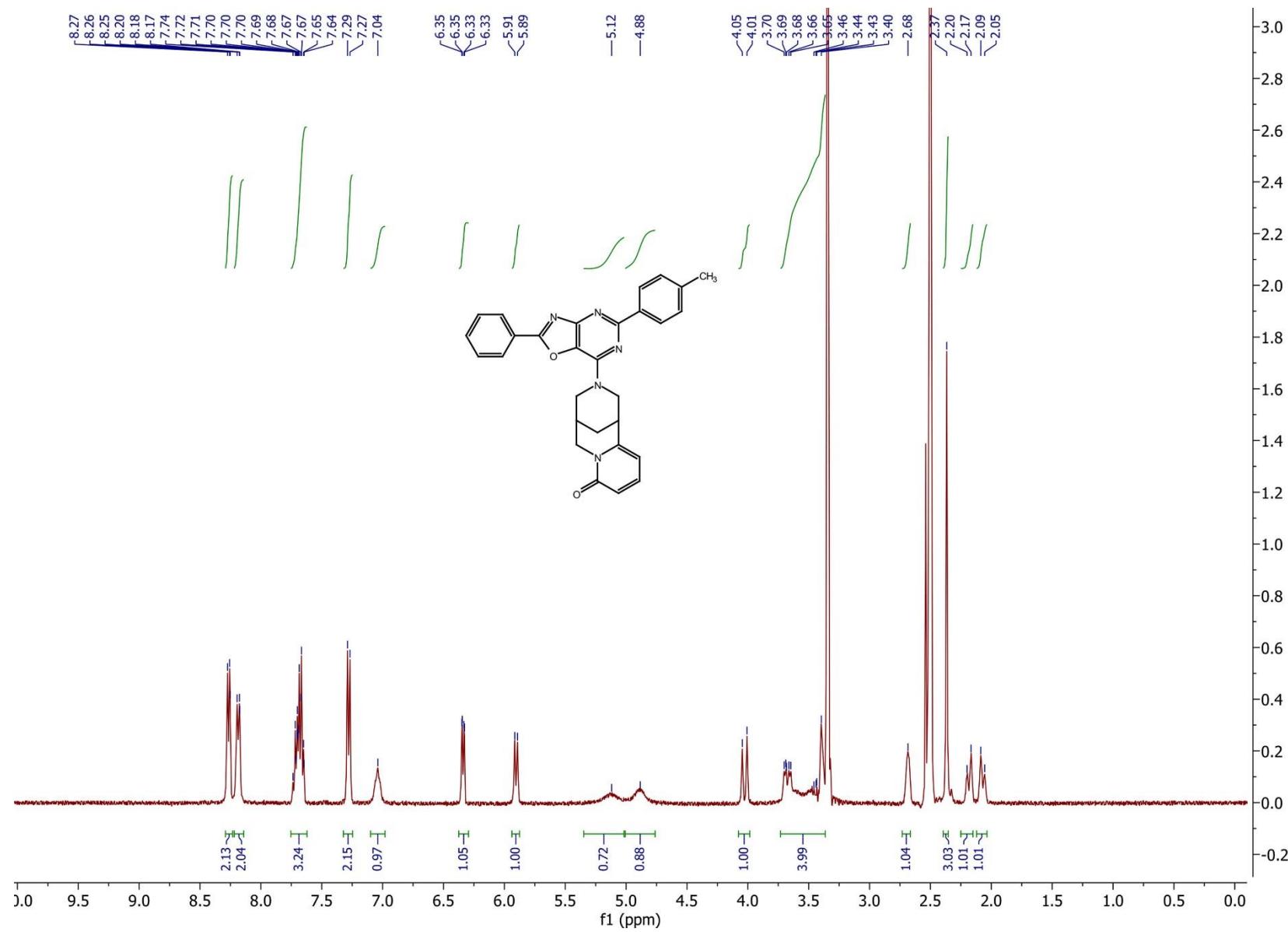
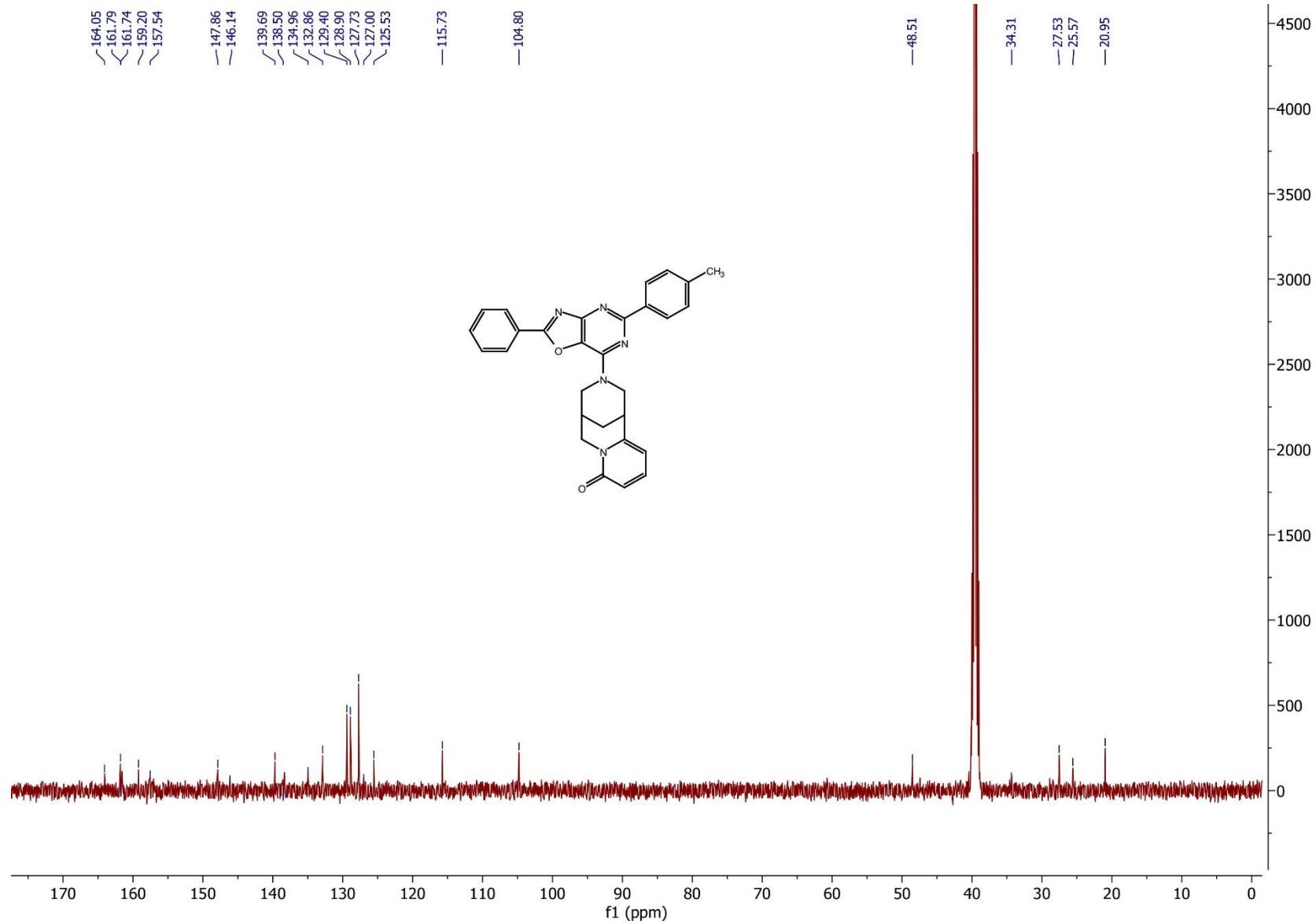
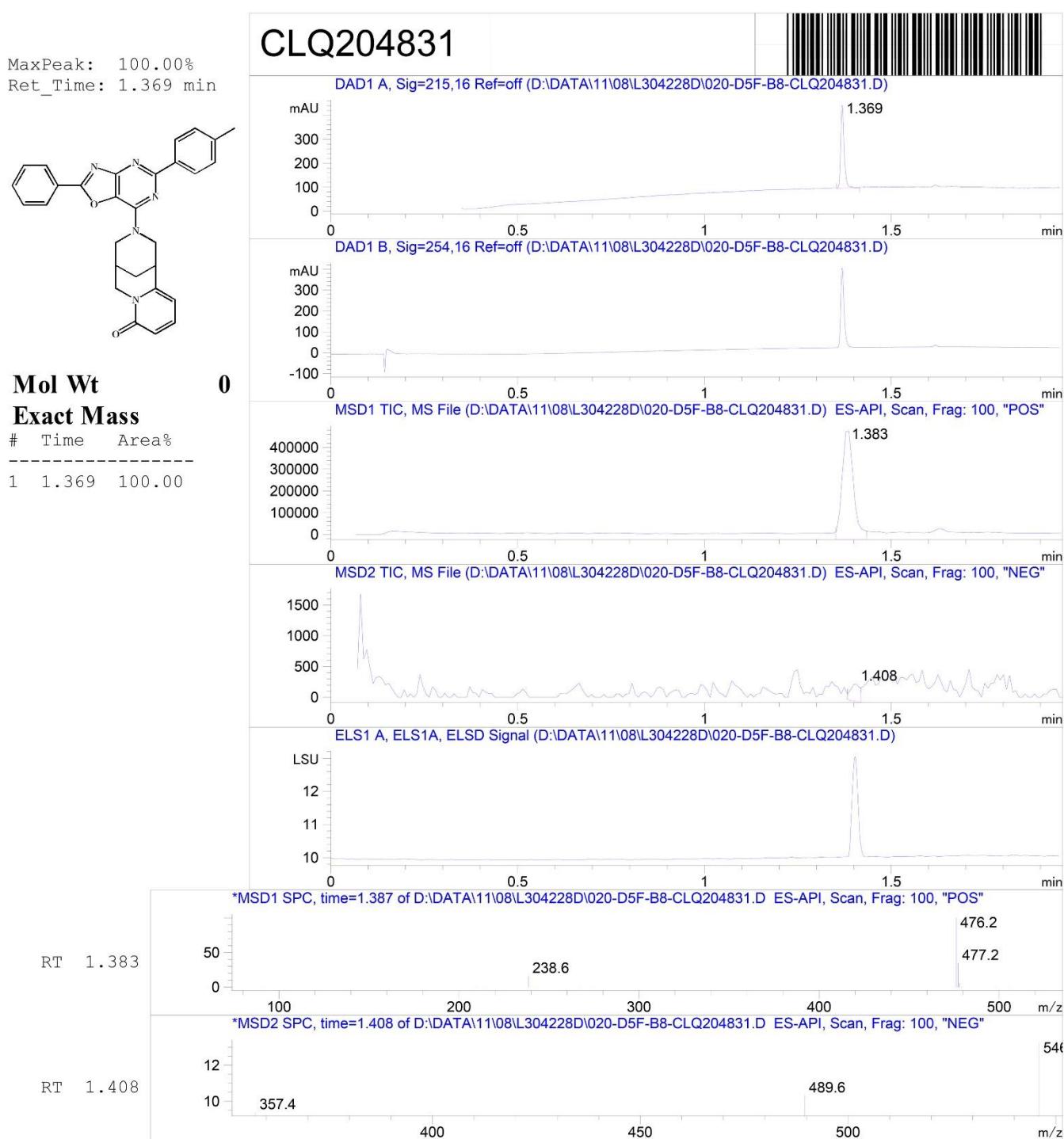


Figure S18.  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (7).



**Figure S19.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (7).

**Figure S20.** LCMS spectrum of compound (7).

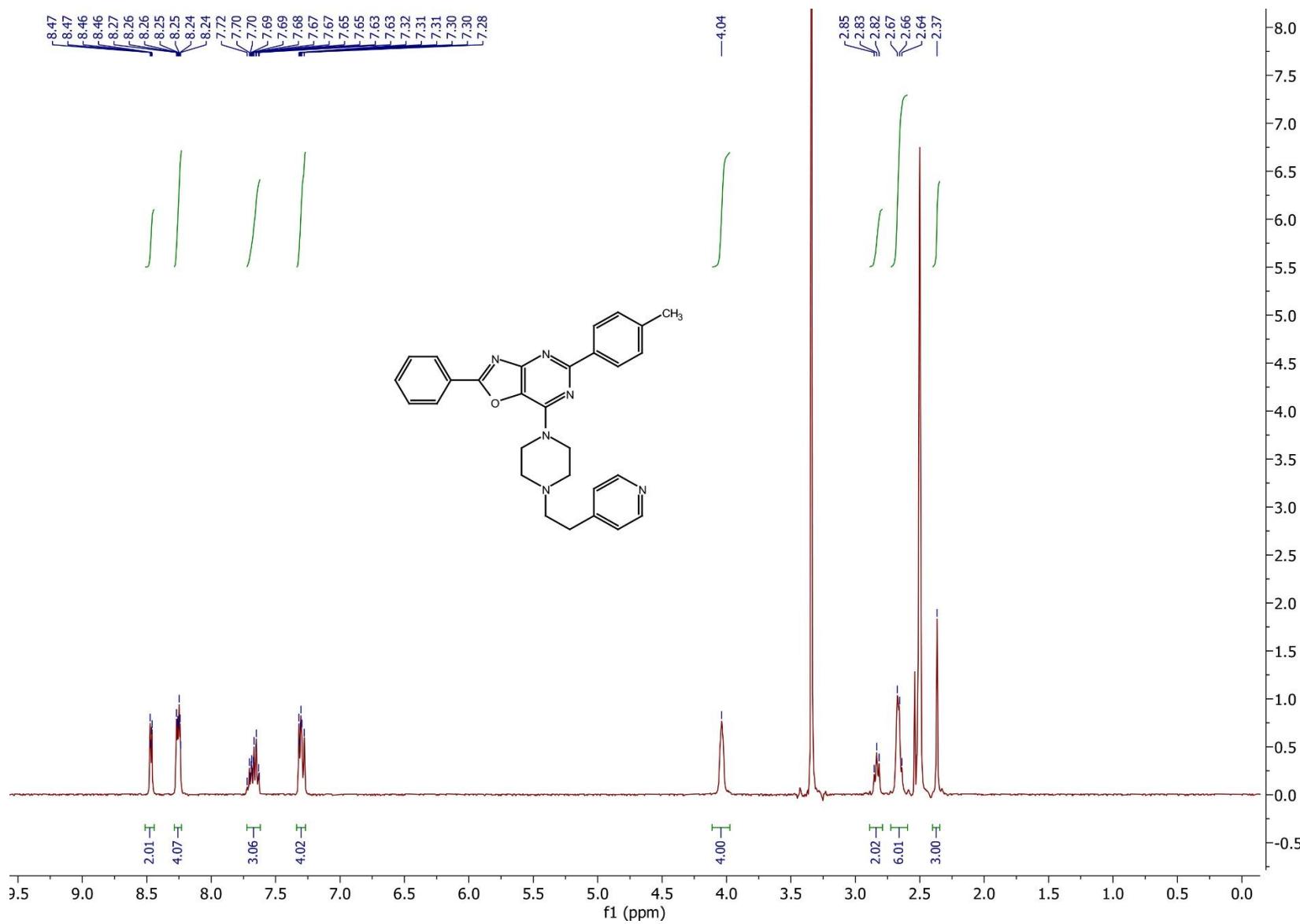
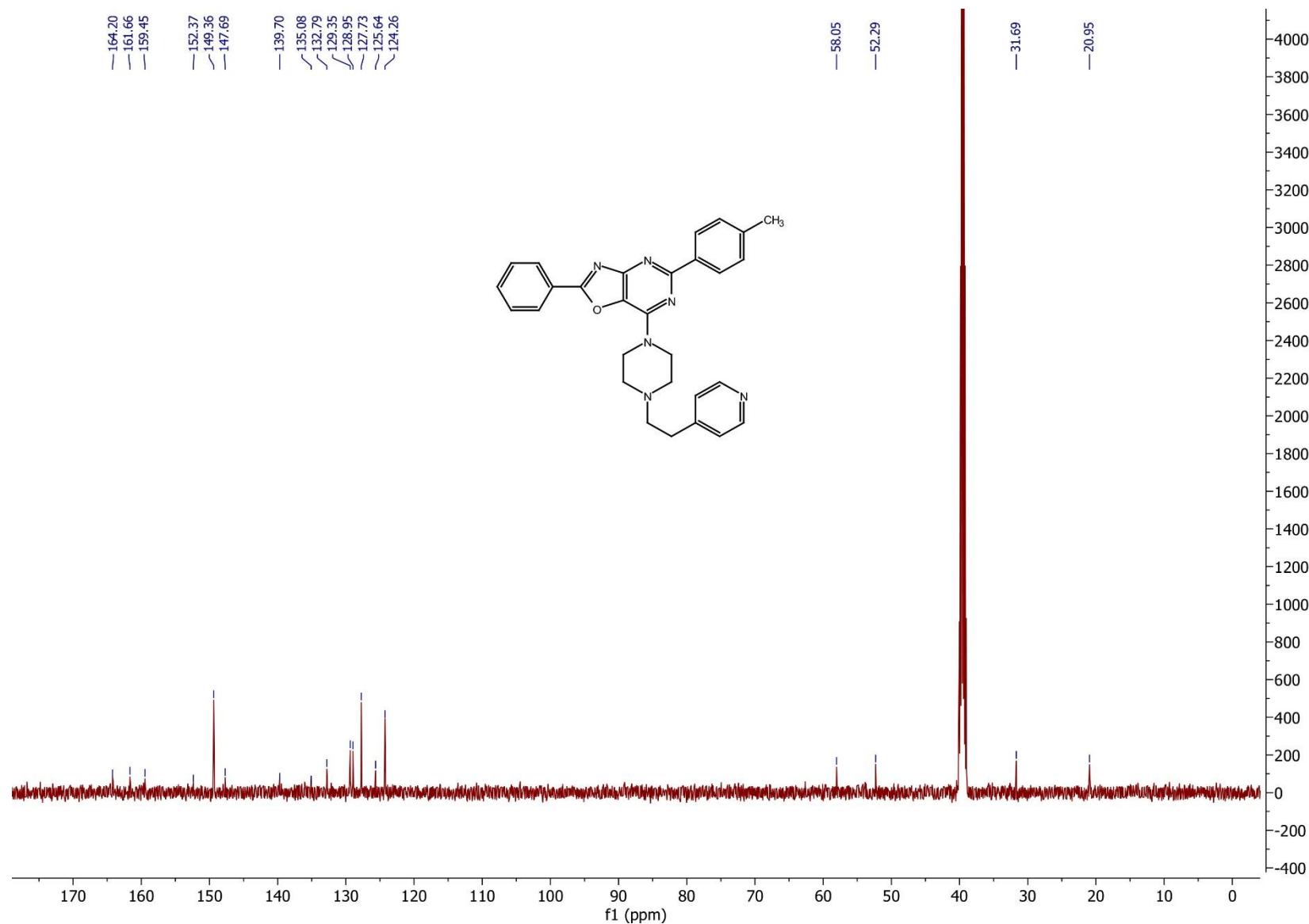
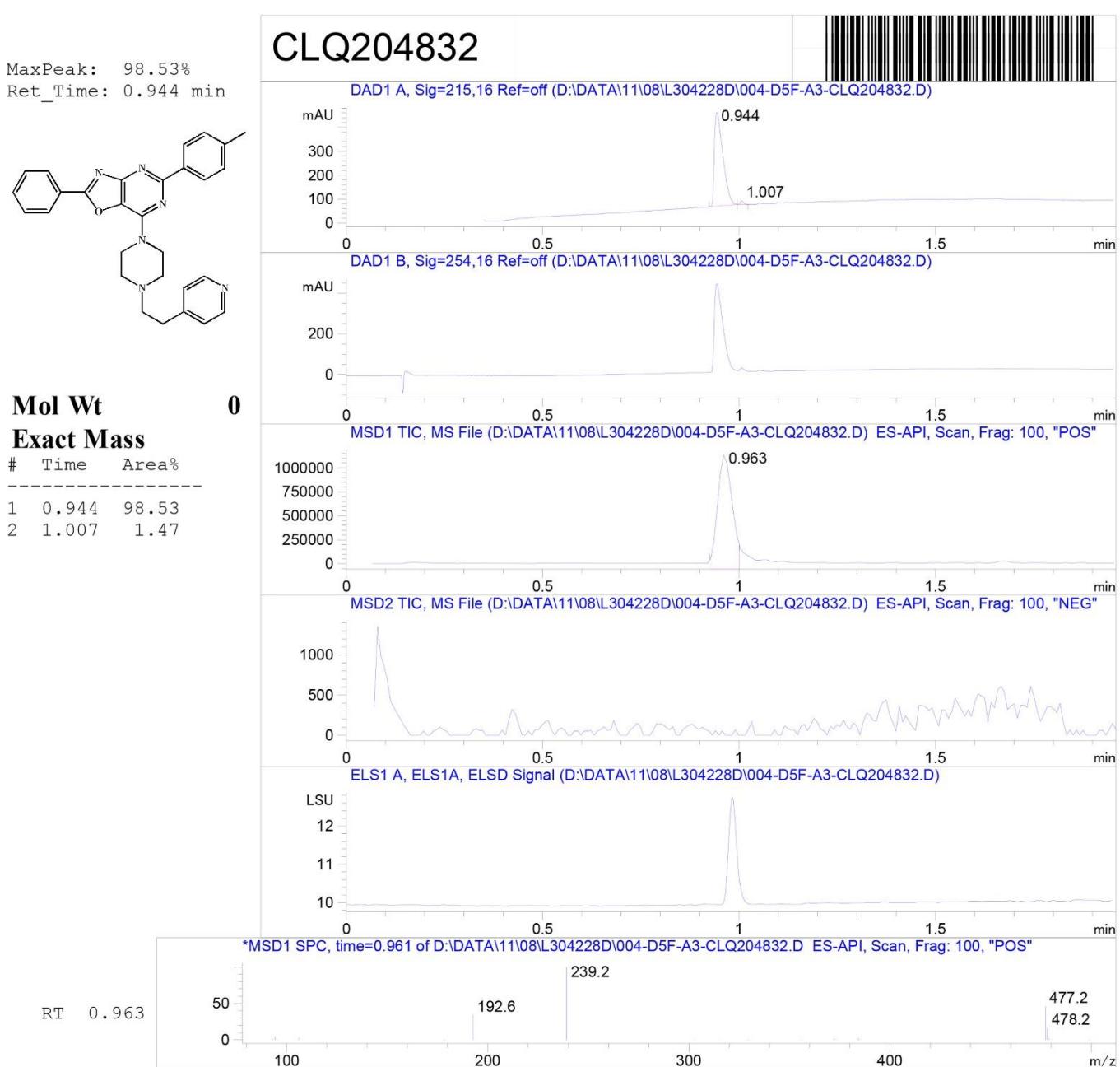
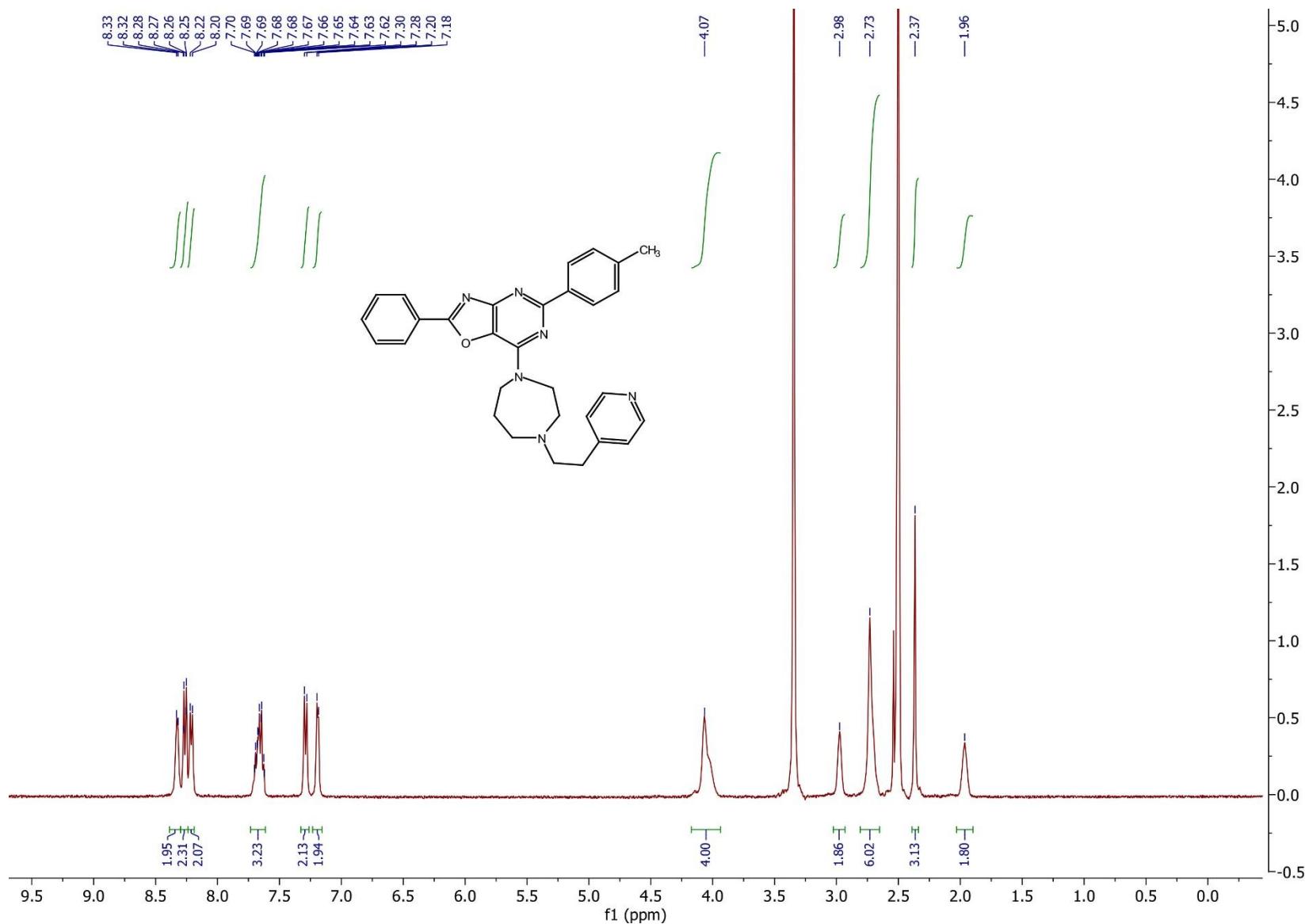


Figure S21.  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (8).

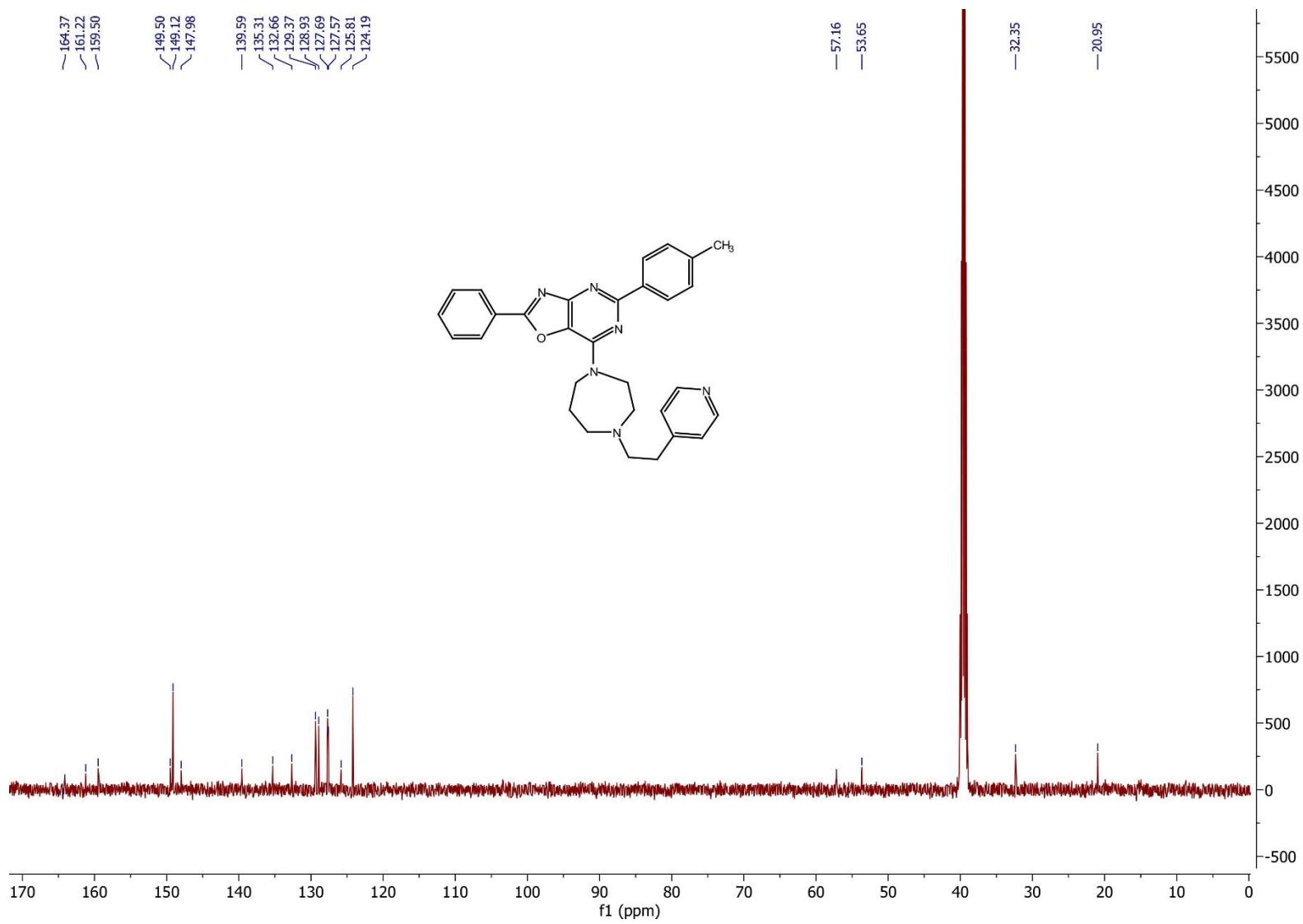


**Figure S22.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (8).

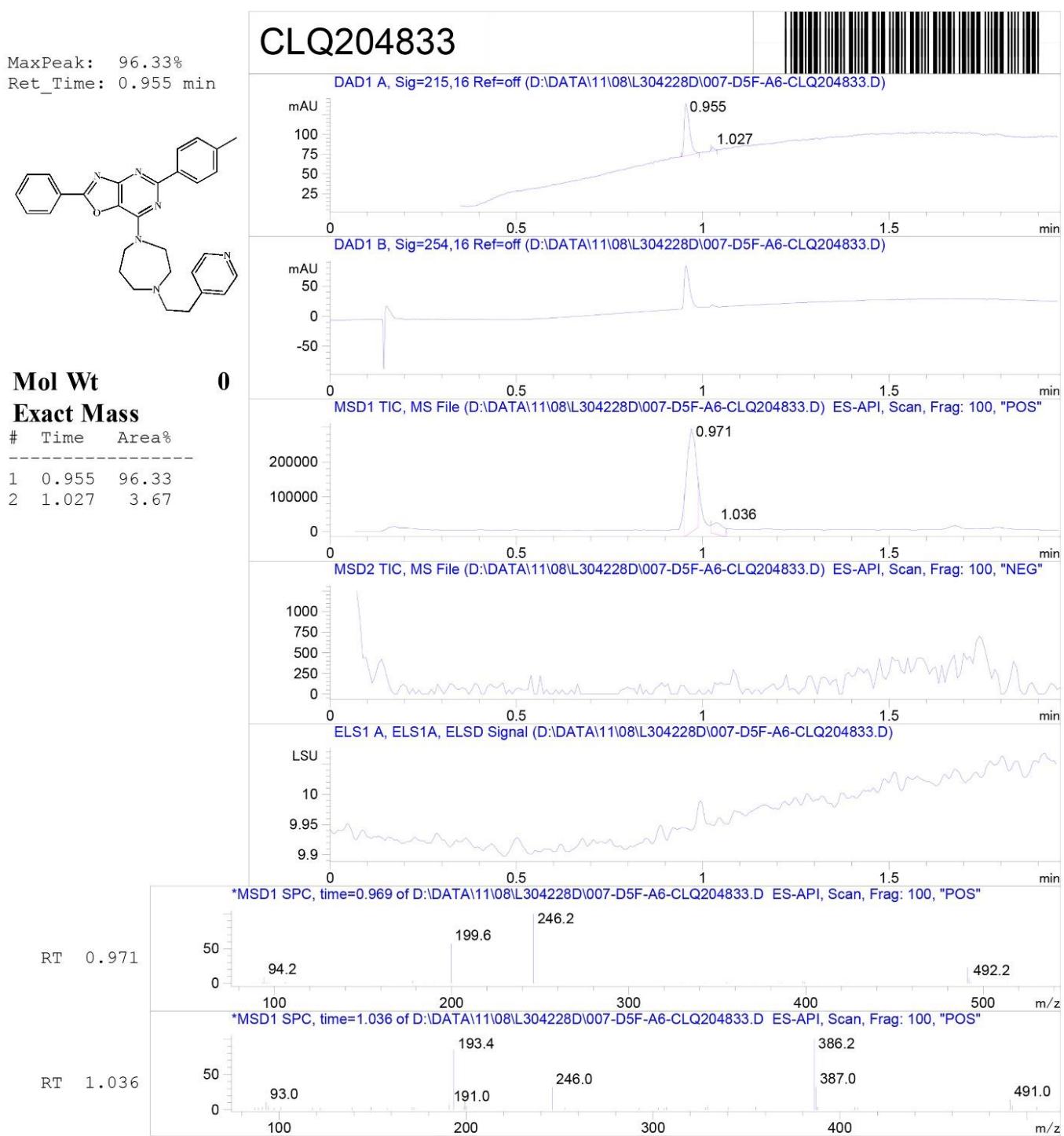
**Figure S23.** LCMS spectrum of compound (8).



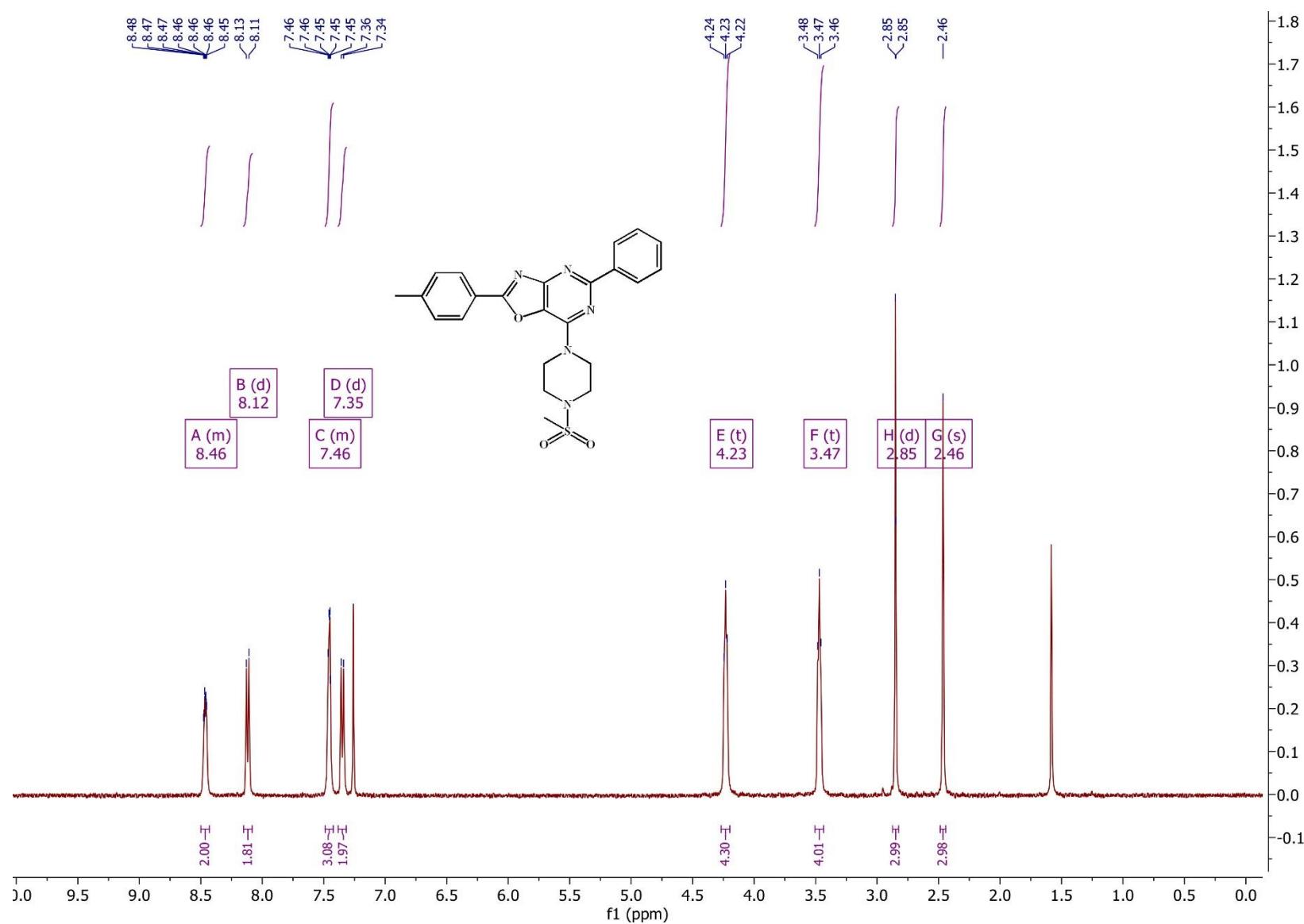
**Figure S24.**  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (9).



**Figure S25.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K, DMSO- $d_6$ ) spectrum of compound (9).



**Figure S26.** LCMS spectrum of compound (**9**).



**Figure S27.**  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (10).

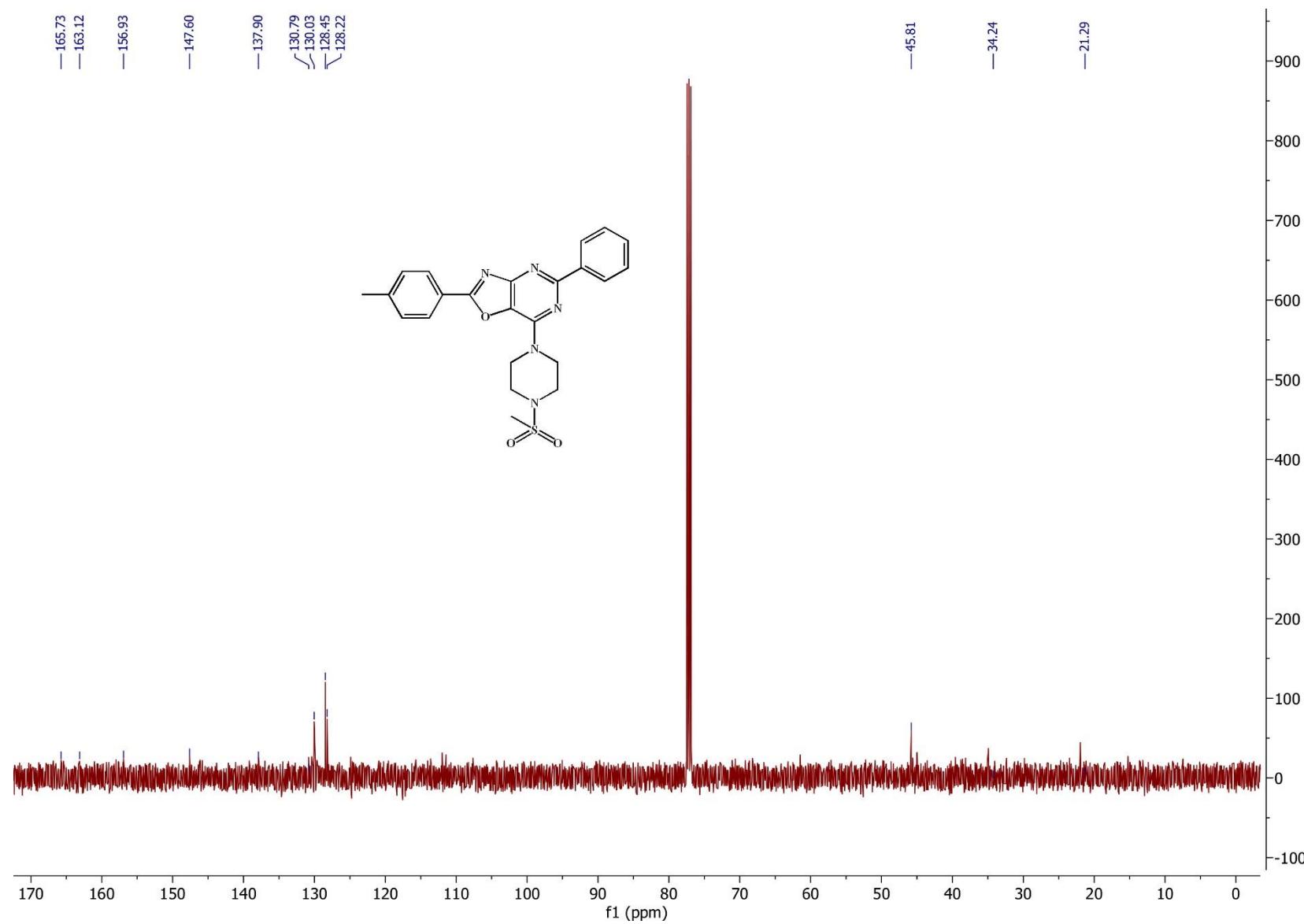
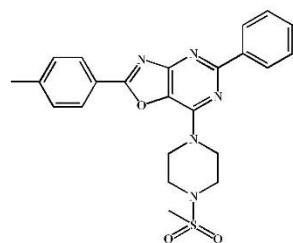


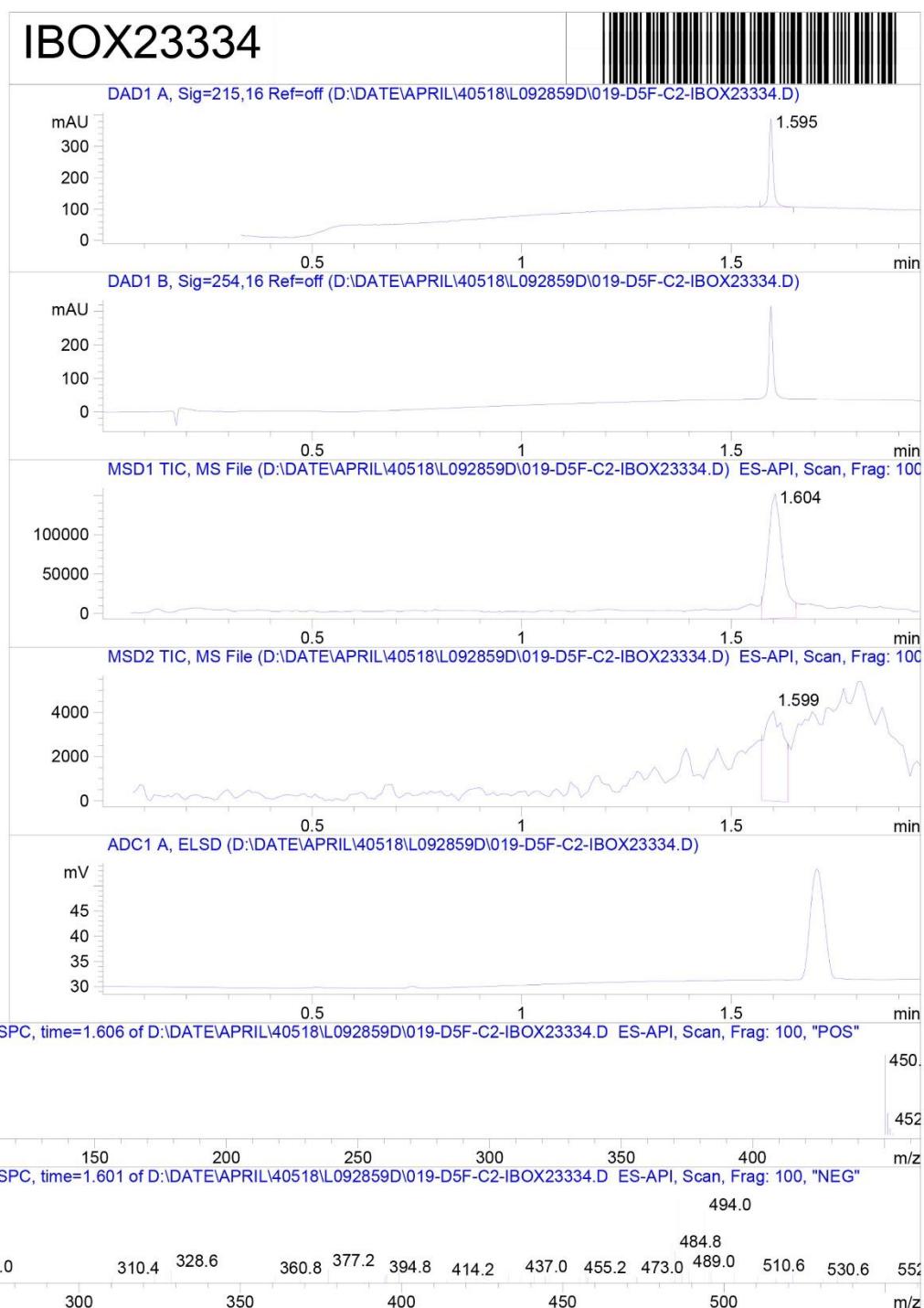
Figure S28.  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (10).

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Ret\_Time: 1.595 min



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**Exact Mass**  
# Time Area%

| # | Time  | Area%  |
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**Figure S29.** LCMS spectrum of compound (10).

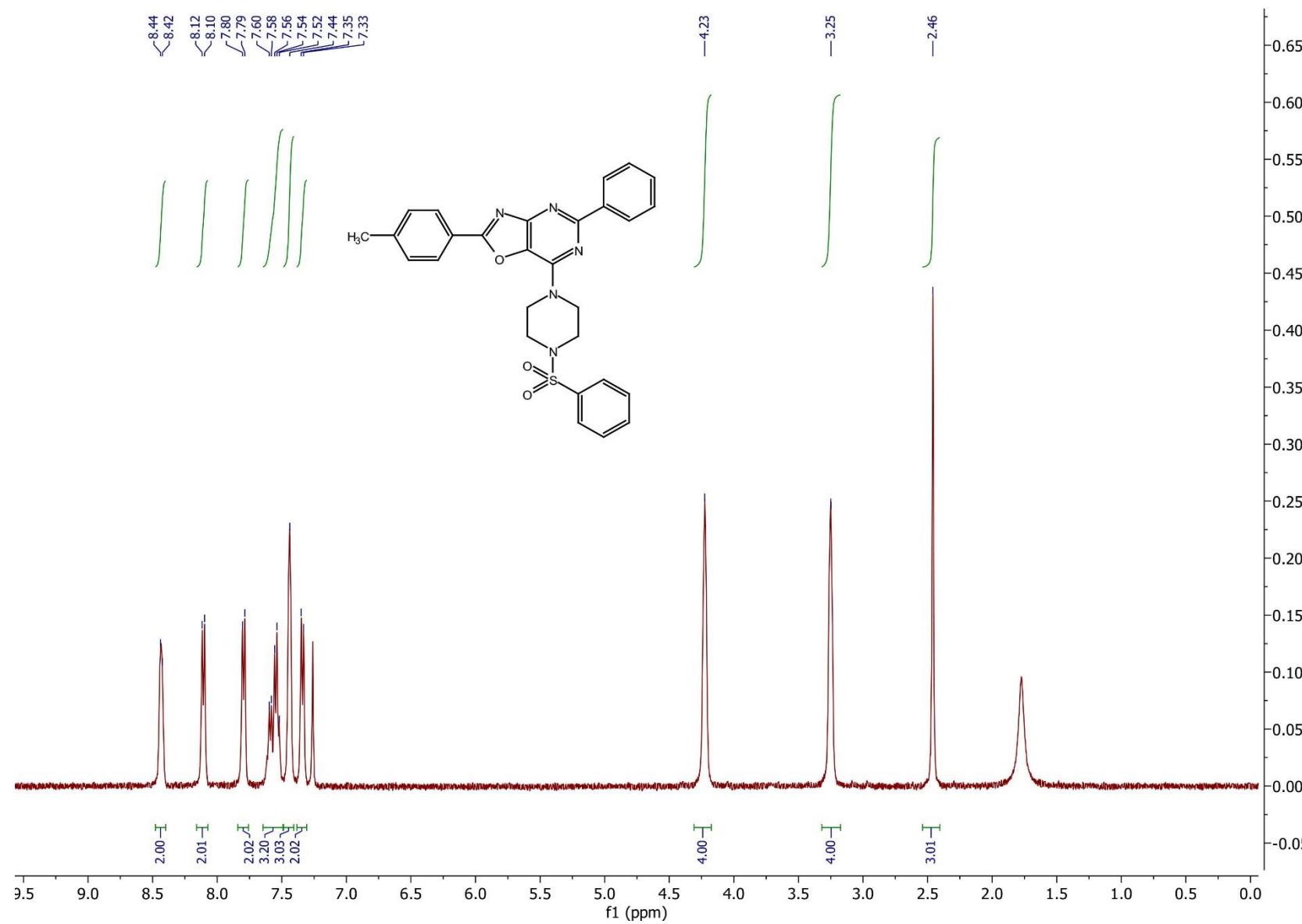
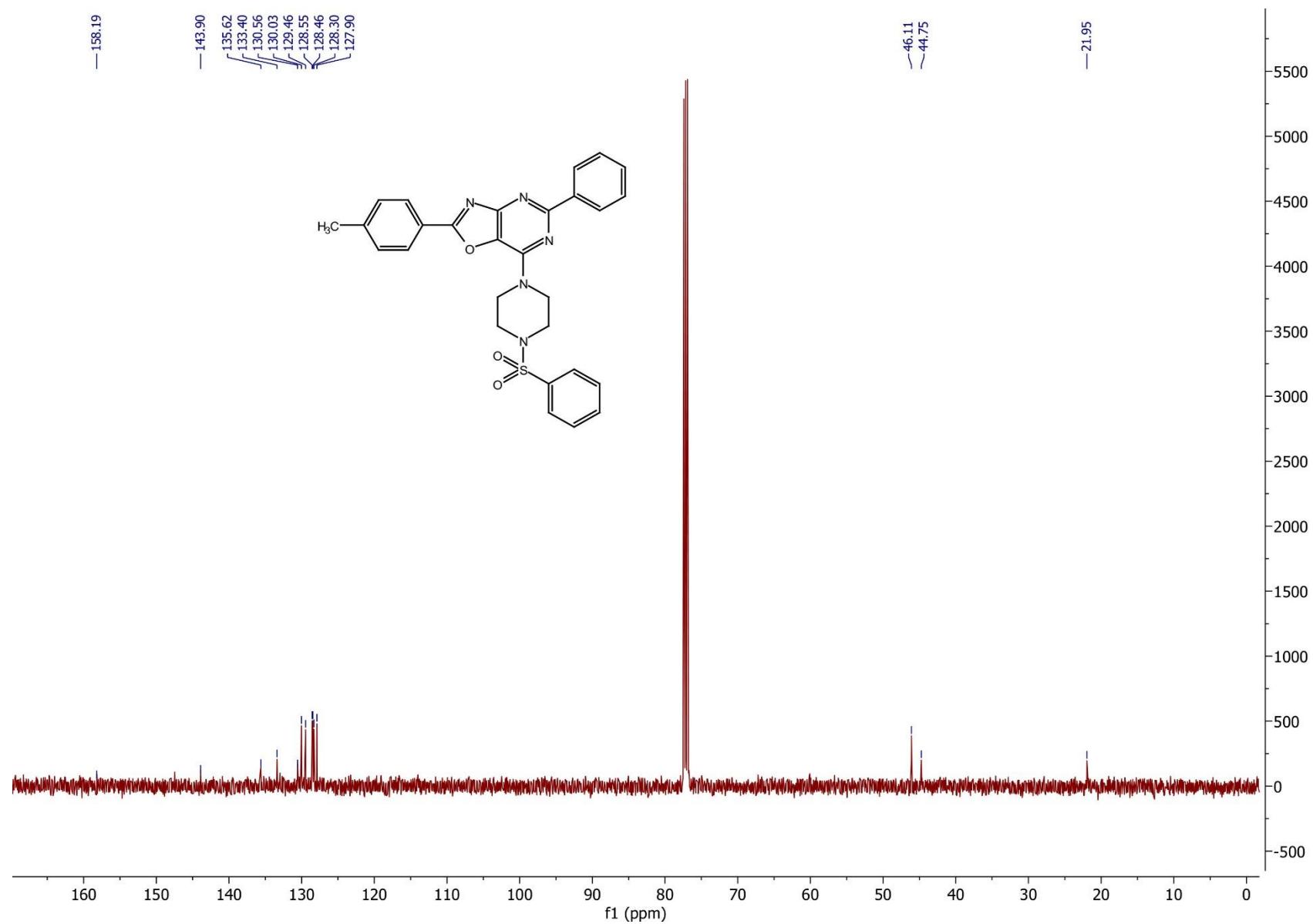
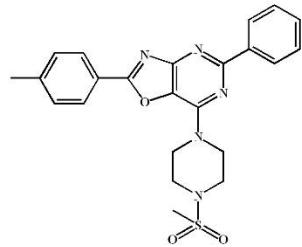


Figure S30.  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (11).



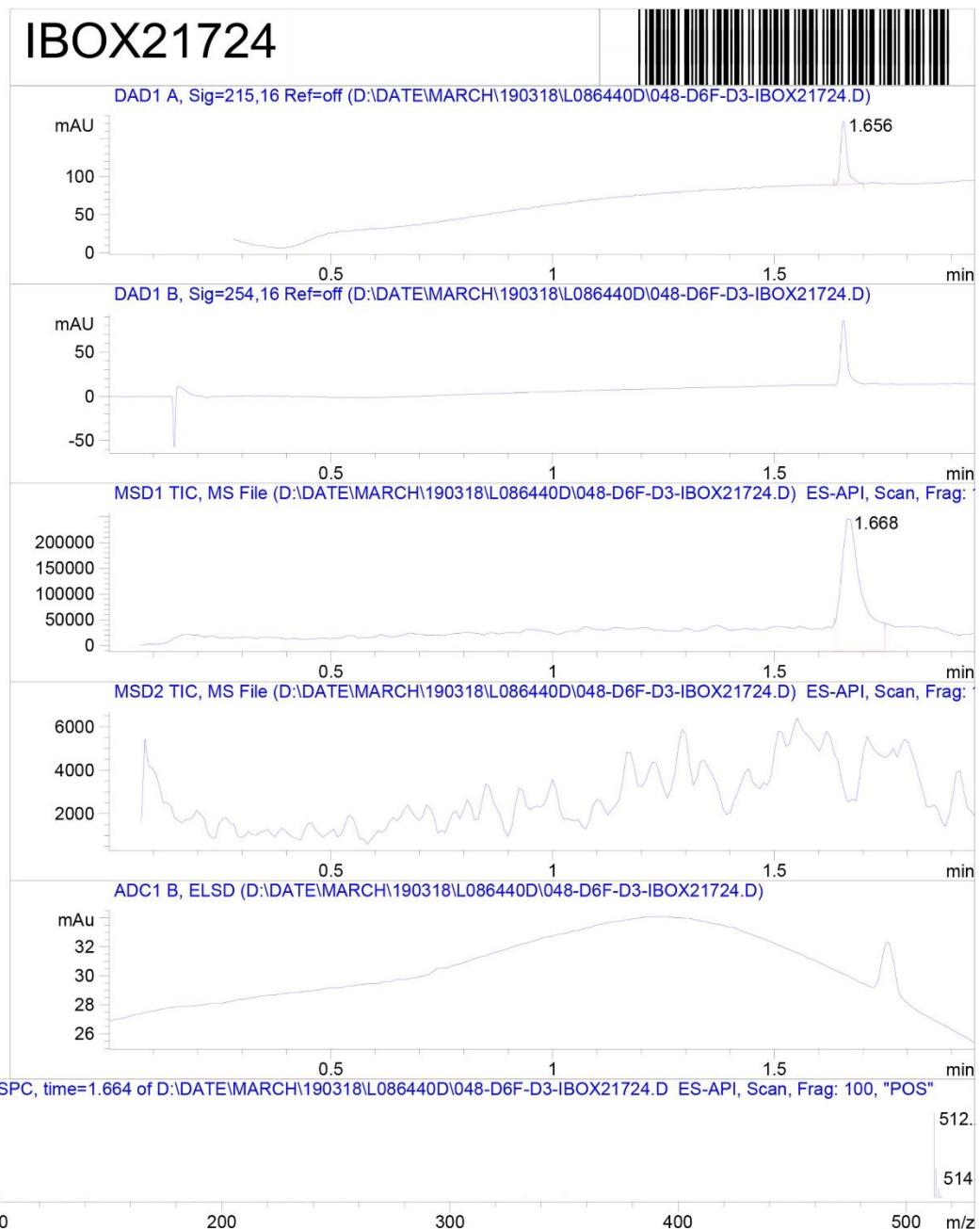
**Figure S31.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (11).

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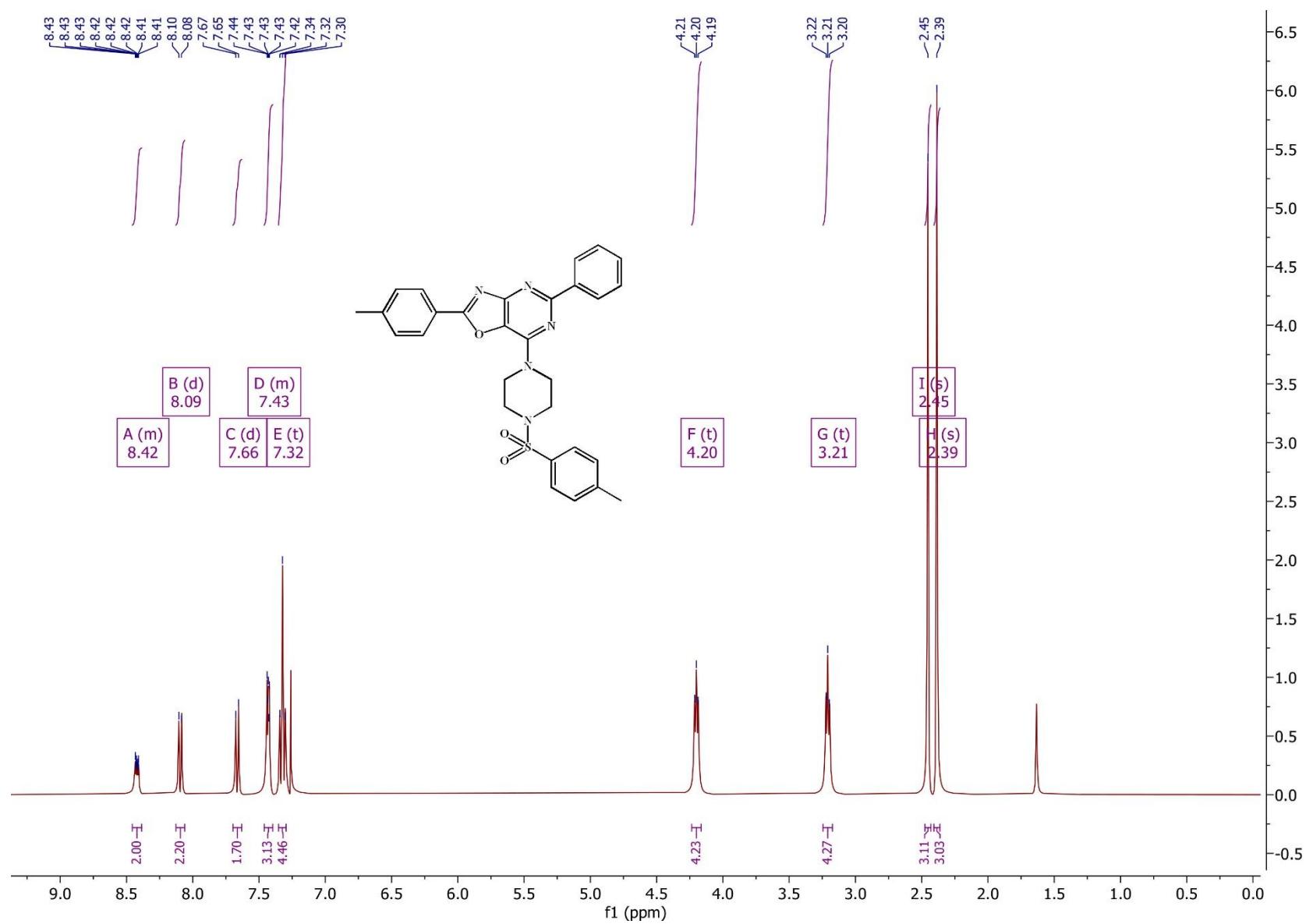


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# Time Area%

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**Figure S32.** LCMS spectrum of compound (11).



**Figure S33.**  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (12).

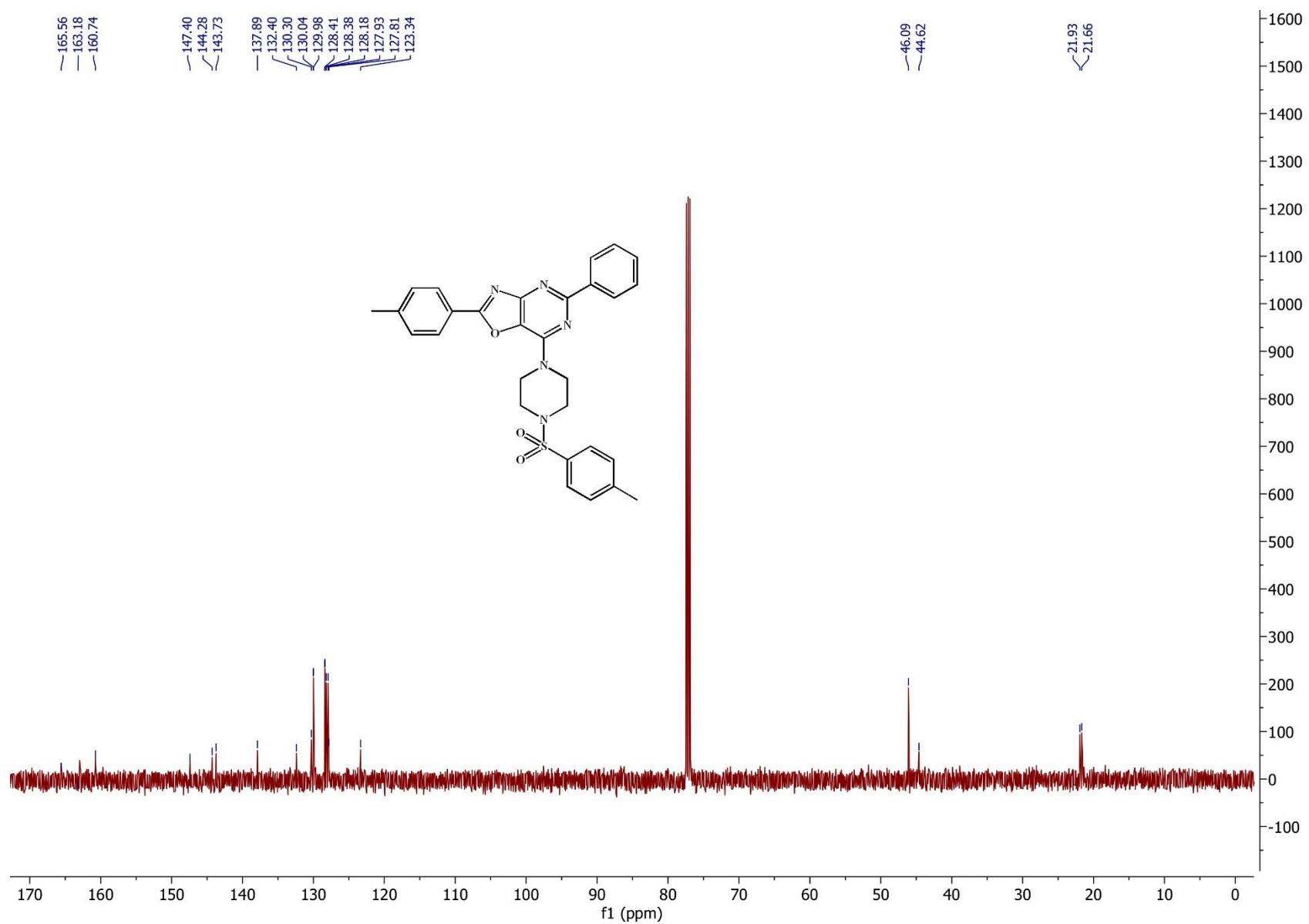
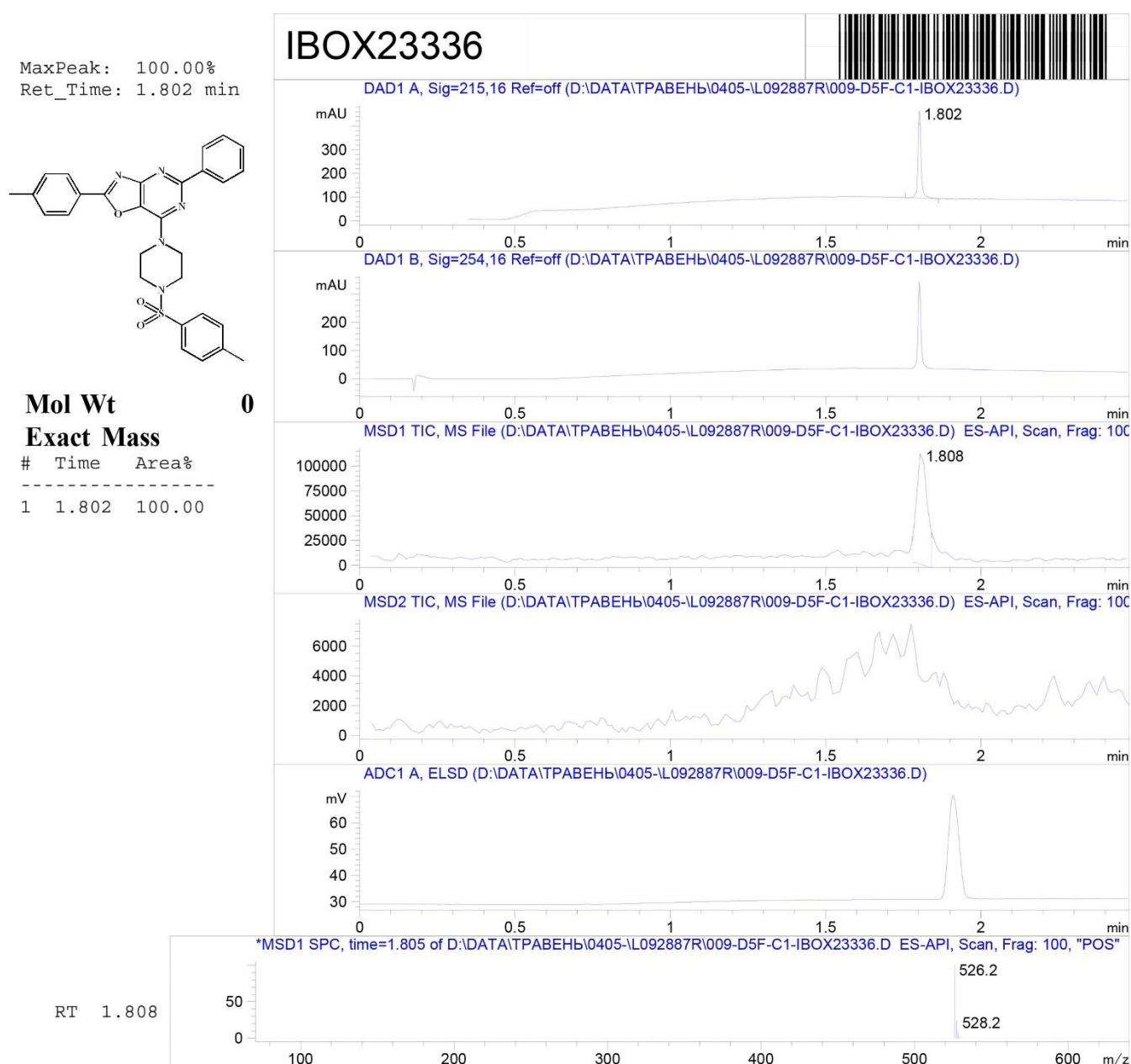


Figure S34.  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (12).

**Figure S35.** LCMS spectrum of compound (12).

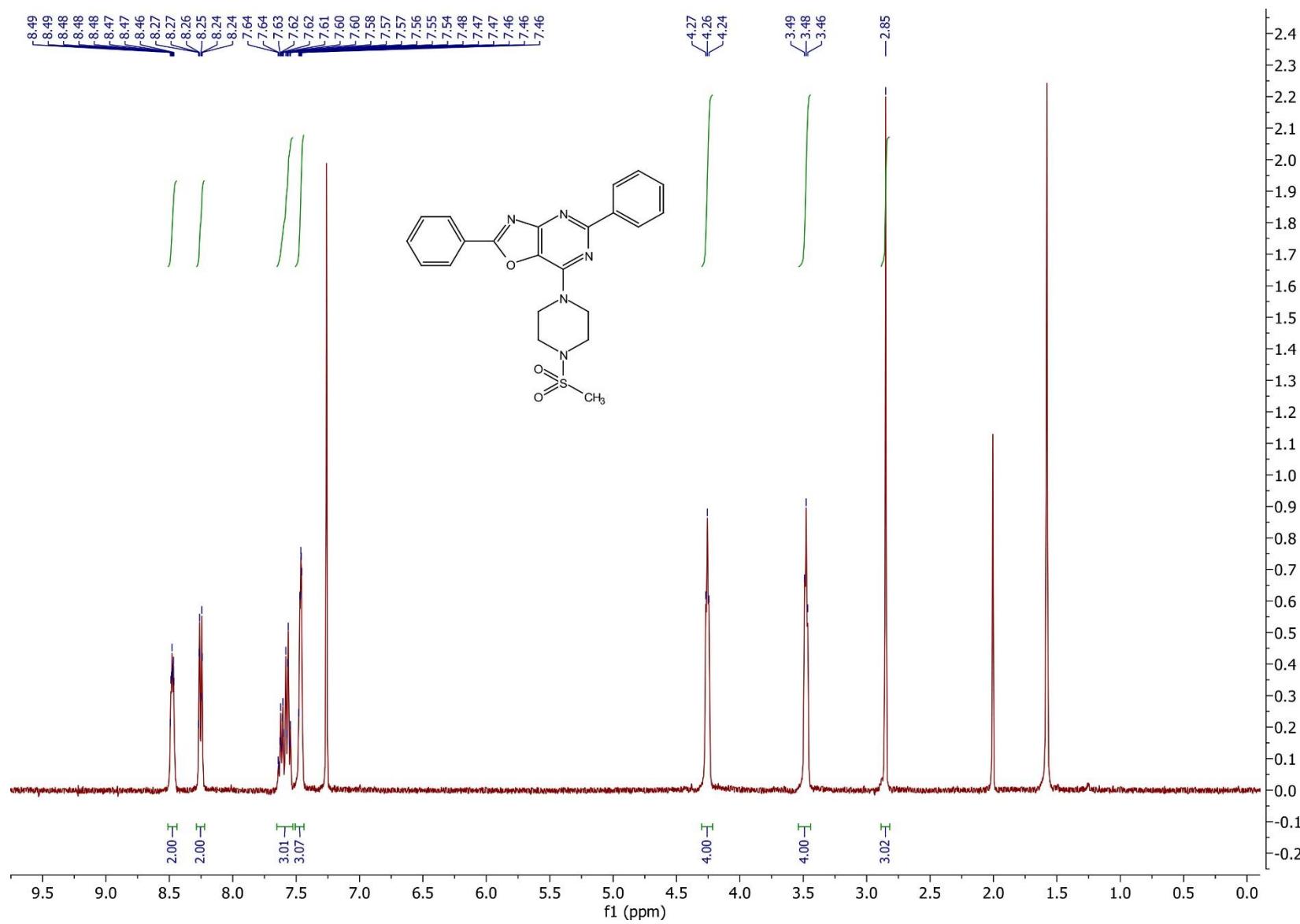
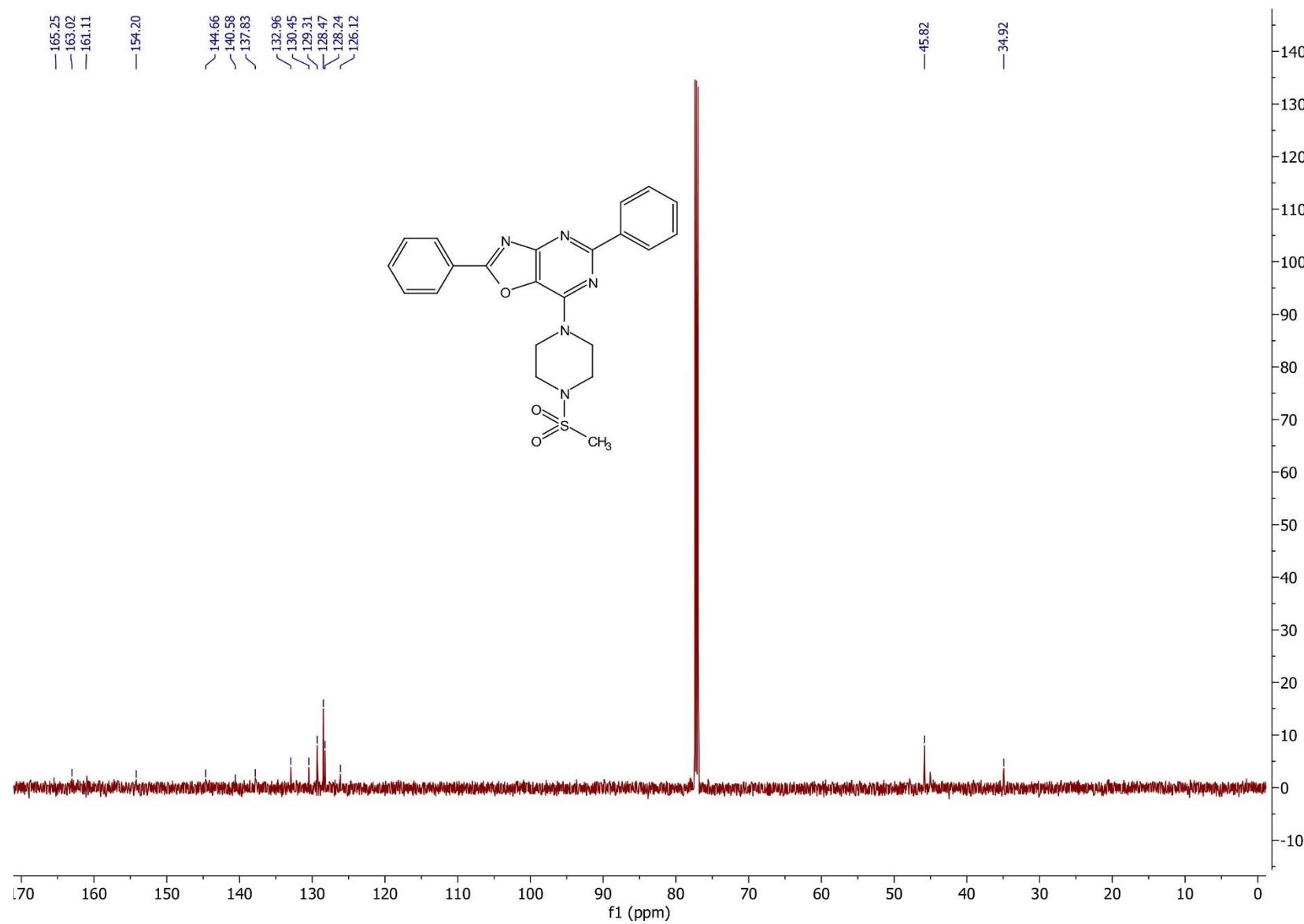
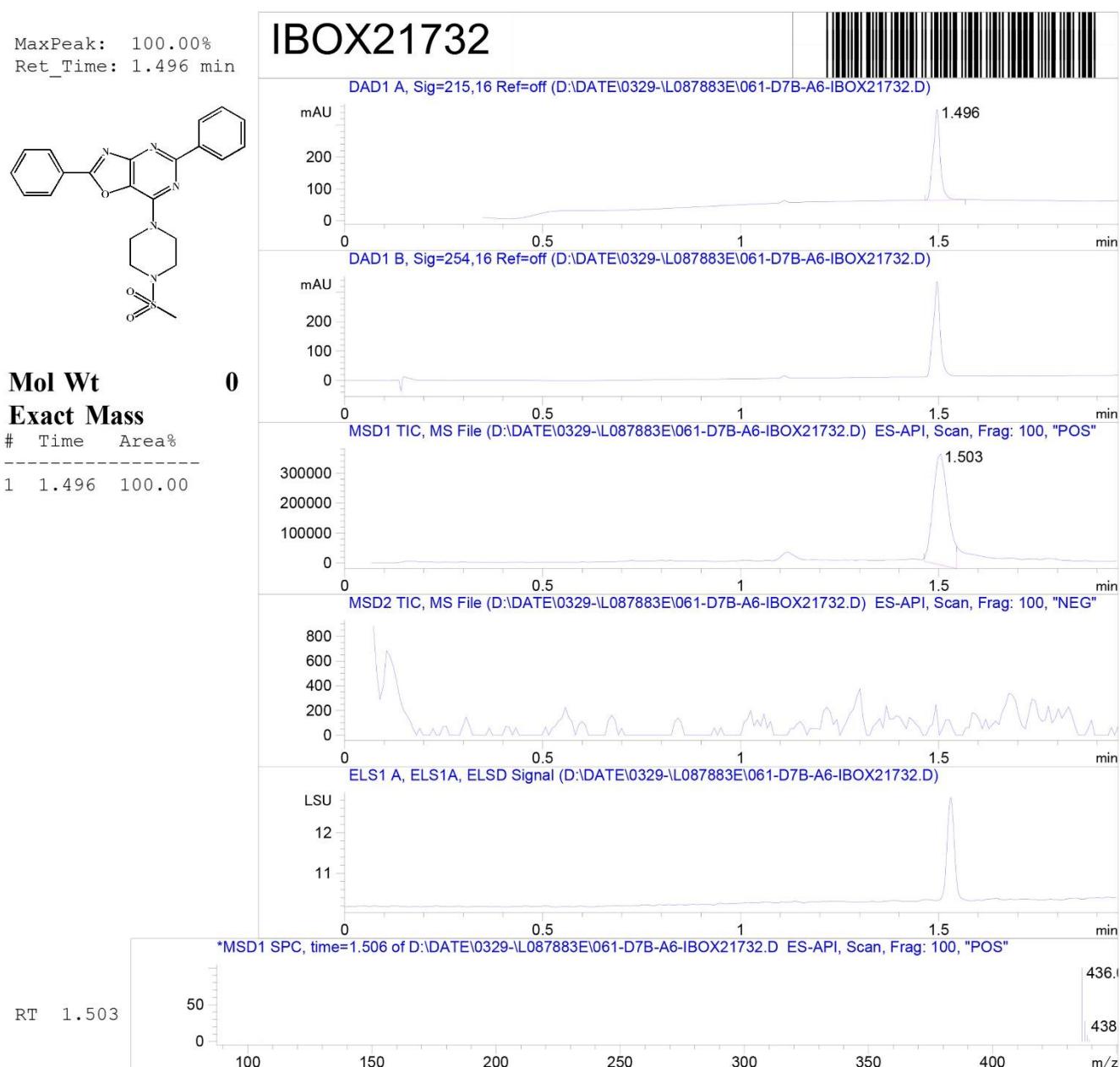


Figure S36.  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (13).



**Figure S37.**  $^{13}\text{C}$  NMR (151 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (13).



**Figure S38.** LCMS spectrum of compound (**13**).

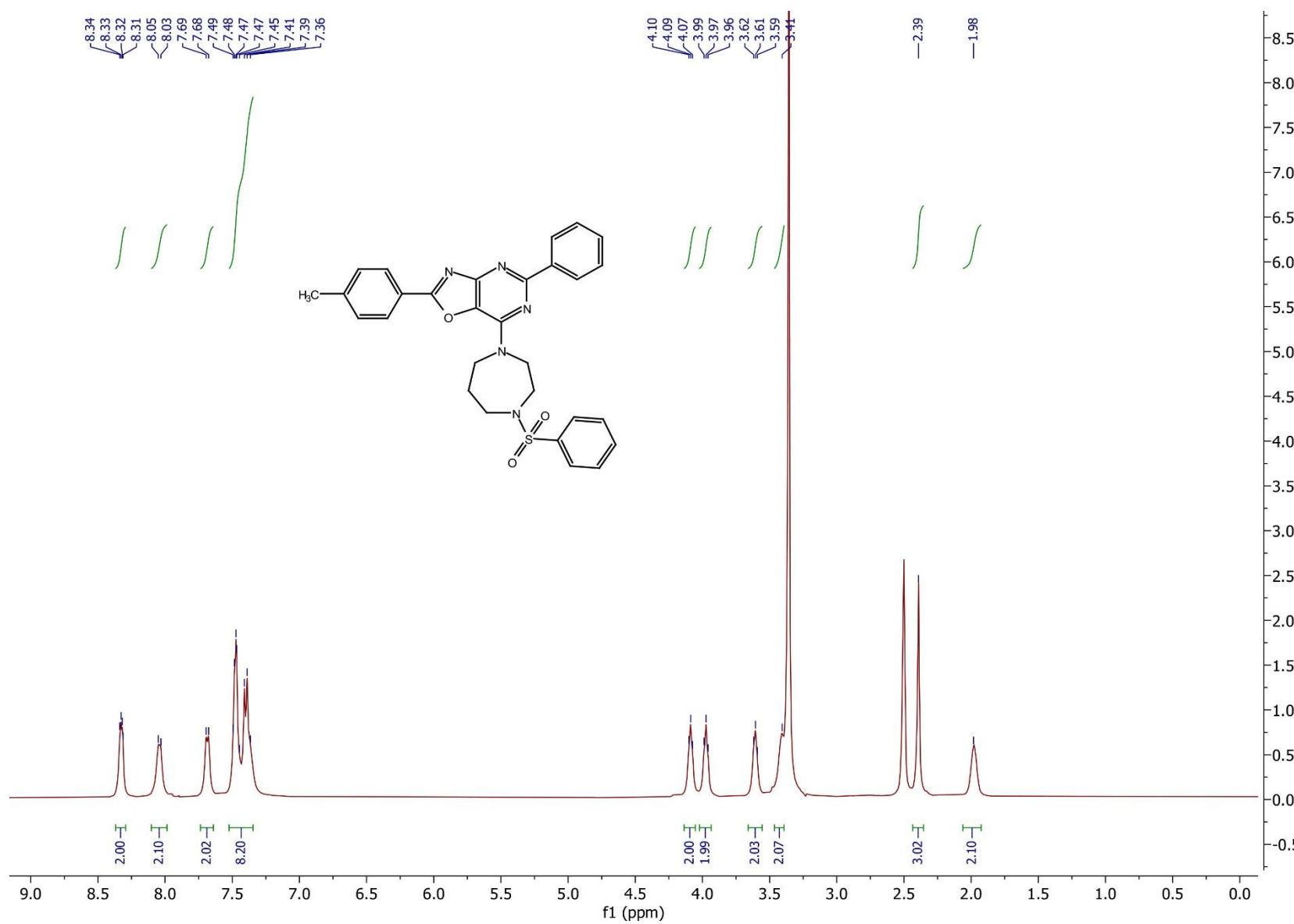
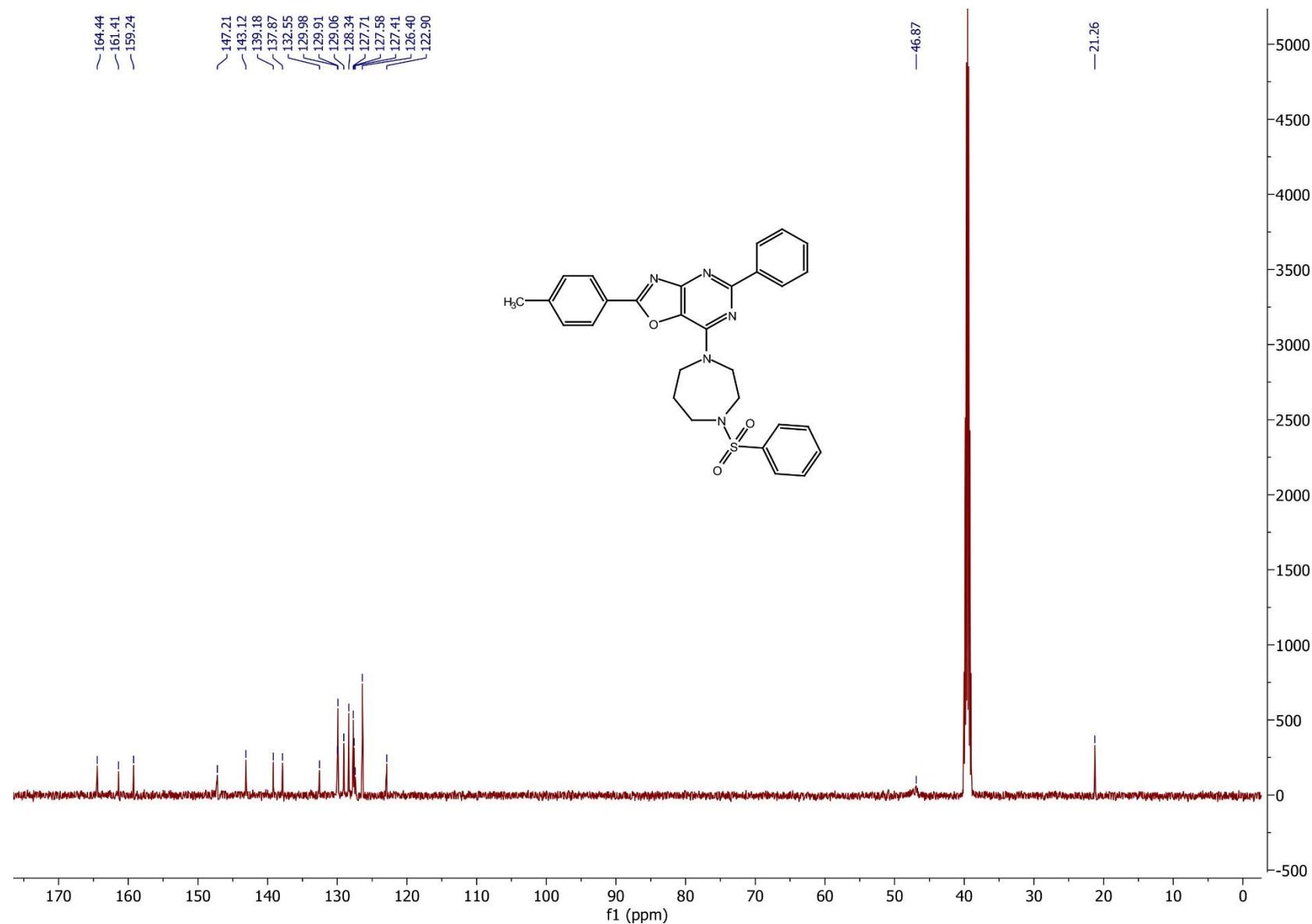
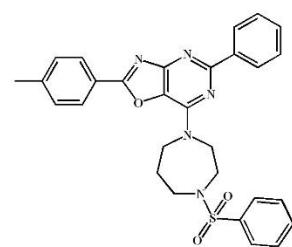


Figure S39.  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (14).

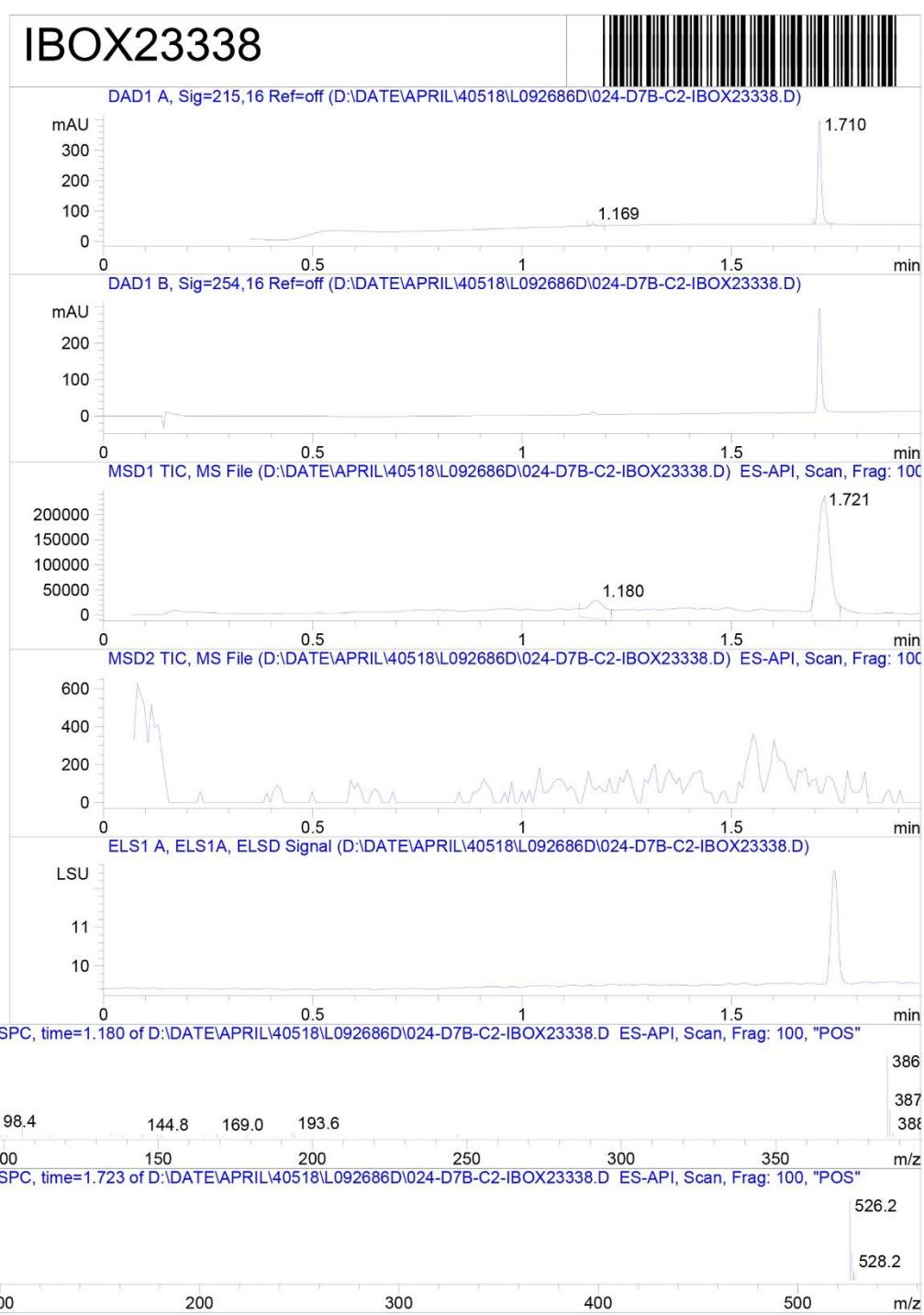


**Figure S40.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{DMSO}-d_6$ ) spectrum of compound (14).

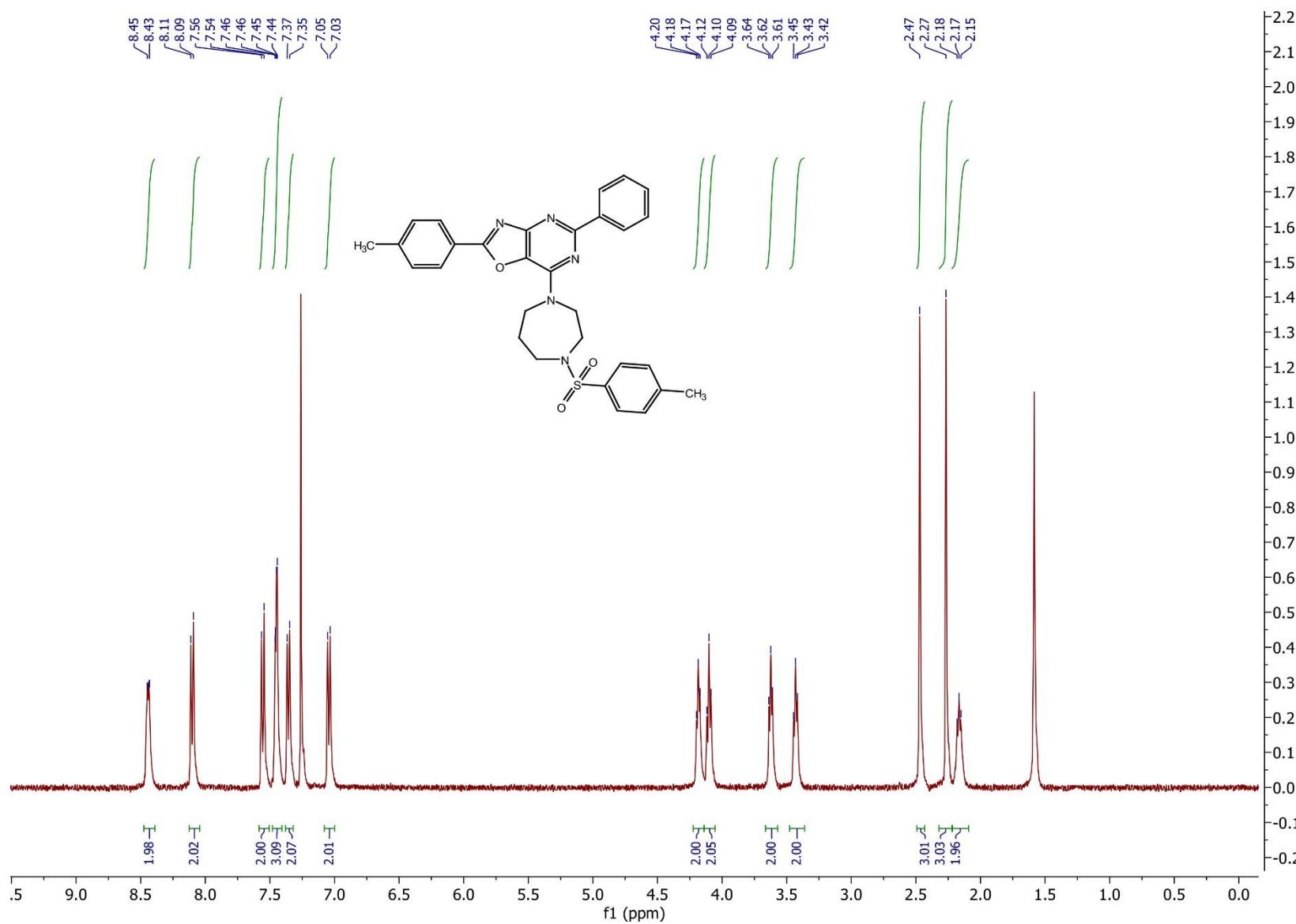
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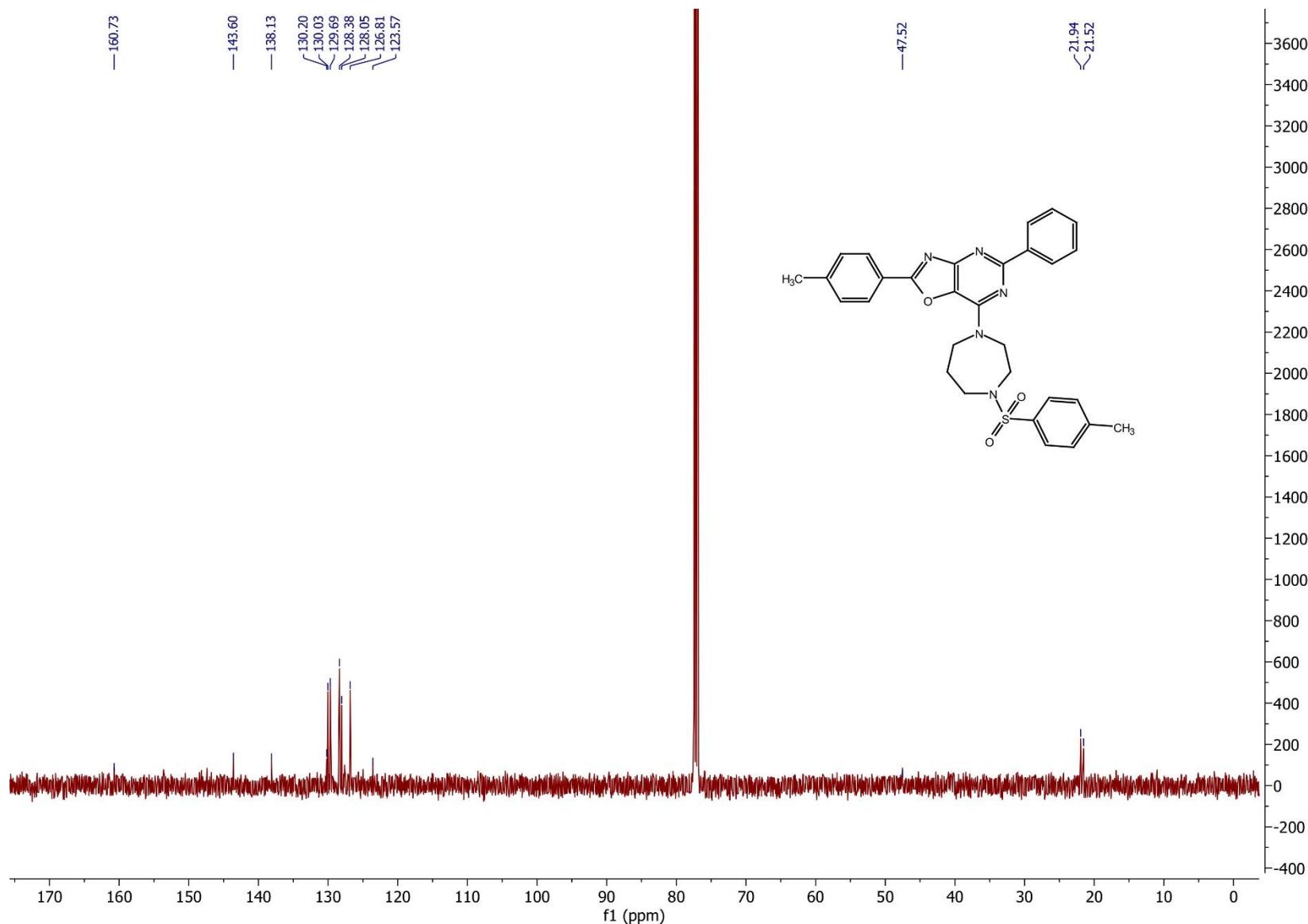
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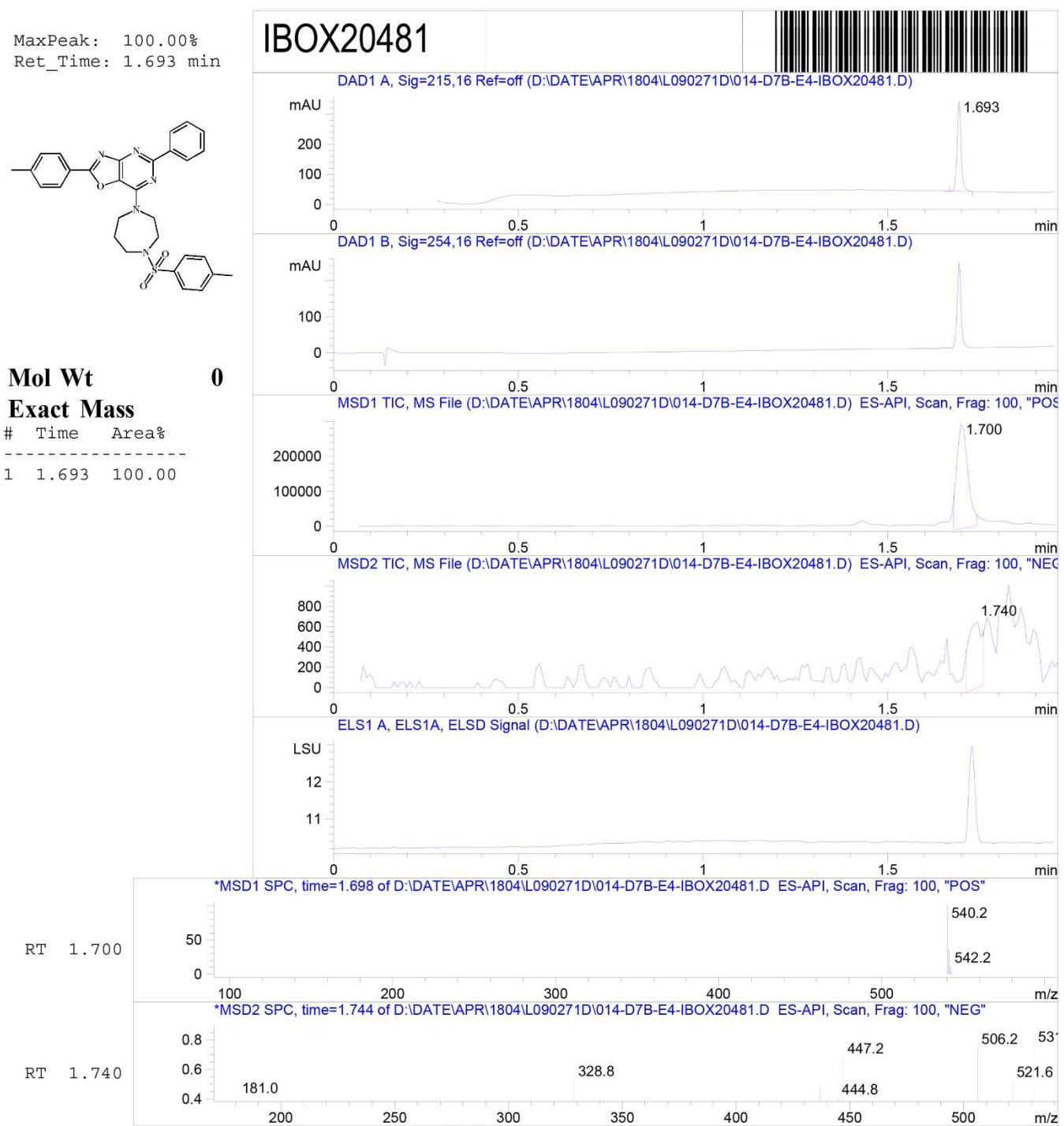
**Figure S41.** LCMS spectrum of compound (14).



**Figure S42.**  $^1\text{H}$  NMR (400 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (15).



**Figure S43.**  $^{13}\text{C}$  NMR (126 MHz, 296.2 K,  $\text{CDCl}_3$ ) spectrum of compound (15).



**Figure S44.** LCMS spectrum of compound (15).

**Table S1.** ADMET properties of oxazolo[4,5-d]pyrimidine derivatives predicted by pkCSM online server

| Compd | Absorption       |                    |                   |                          |                            |                             | Distribution             |                          |                  |                  |                  |                  | Metabolism       |                   |                  |                  |                 |                      | Excretion     |                             |                  | Toxicity          |   |                                   |                |                    |                               |
|-------|------------------|--------------------|-------------------|--------------------------|----------------------------|-----------------------------|--------------------------|--------------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|-----------------|----------------------|---------------|-----------------------------|------------------|-------------------|---|-----------------------------------|----------------|--------------------|-------------------------------|
|       | Water solubility | Caco2 permeability | Skin Permeability | P-glycoprotein substrate | P-glycoprotein I inhibitor | P-glycoprotein II inhibitor | V <sub>Dss</sub> (human) | Fraction unbound (human) | CNS permeability | CYP2D6 substrate | CYP3A4 substrate | CYP1A2 inhibitor | CYP2C9 inhibitor | CYP2C19 inhibitor | CYP2D6 inhibitor | CYP3A4 inhibitor | Total Clearance | Renal OCT2 substrate | AMES toxicity | Max. tolerated dose (human) | hERG I inhibitor | hERG II inhibitor | Oral Rat Acute Toxicity (LD <sub>50</sub> ) | Oral Rat Chronic Toxicity (LOAEL) | Hepatotoxicity | Skin Sensitisation | T. <i>Pyriformis</i> toxicity |
| 1     | -3.793           | 0.991              | -2.735            | Yes                      | Yes                        | Yes                         | 0.135                    | 0.245                    | -1.586           | No               | Yes              | Yes              | No               | Yes               | No               | 0.404            | No              | No                   | 0.693         | No                          | Yes              | 3.098             | 0.793                                       | Yes                               | No             | 0.285              | -1.45                         |
| 2     | -3.382           | 1.299              | -2.735            | Yes                      | Yes                        | Yes                         | -0.237                   | 0.329                    | -1.819           | No               | Yes              | Yes              | Yes              | Yes               | No               | 0.759            | No              | No                   | 0.675         | No                          | Yes              | 2.739             | 0.068                                       | Yes                               | No             | 0.285              | -1.626                        |
| 3     | -4.085           | 1                  | -2.735            | Yes                      | Yes                        | Yes                         | 0.642                    | 0.154                    | -1.762           | No               | Yes              | No               | Yes              | No                | No               | 0.718            | No              | No                   | 0.711         | No                          | Yes              | 3.401             | 0.034                                       | Yes                               | No             | 0.285              | -2.273                        |
| 4     | -4.08            | 0.976              | -2.735            | Yes                      | Yes                        | Yes                         | 0.666                    | 0.13                     | -1.928           | No               | Yes              | No               | Yes              | No                | No               | 0.88             | No              | No                   | 0.715         | No                          | Yes              | 3.371             | 0.191                                       | Yes                               | No             | 0.285              | -1.61                         |
| 5     | -3.814           | 0.807              | -2.727            | No                       | Yes                        | Yes                         | 0.432                    | 0.205                    | -2.131           | No               | Yes              | Yes              | Yes              | Yes               | No               | 0.611            | No              | No                   | 0.468         | No                          | Yes              | 2.59              | 1.125                                       | Yes                               | No             | 0.289              | 0.22                          |
| 6     | -3.629           | 1.121              | -2.731            | No                       | Yes                        | Yes                         | 0.447                    | 0.232                    | -1.99            | No               | Yes              | Yes              | Yes              | Yes               | No               | 0.668            | No              | No                   | 0.484         | No                          | Yes              | 2.683             | 1.179                                       | Yes                               | No             | 0.288              | 0.711                         |
| 7     | -3.939           | 1.295              | -2.734            | No                       | Yes                        | Yes                         | 0.733                    | 0.229                    | -1.783           | No               | Yes              | Yes              | Yes              | Yes               | No               | 0.699            | No              | No                   | 0.445         | No                          | Yes              | 2.765             | 1.153                                       | Yes                               | No             | 0.286              | -0.501                        |
| 8     | -3.777           | 1.135              | -2.735            | Yes                      | Yes                        | Yes                         | 1.097                    | 0.248                    | -1.932           | No               | Yes              | No               | No               | Yes               | No               | 0.594            | No              | No                   | 0.66          | No                          | Yes              | 2.914             | 1.048                                       | Yes                               | No             | 0.285              | -0.436                        |
| 9     | -3.846           | 1.202              | -2.735            | No                       | Yes                        | Yes                         | 1.182                    | 0.25                     | -1.845           | No               | Yes              | No               | No               | Yes               | No               | 0.518            | No              | No                   | 0.662         | No                          | Yes              | 2.868             | 1.084                                       | Yes                               | No             | 0.285              | -0.298                        |
| 10    | -3.293           | 0.995              | -2.734            | No                       | Yes                        | Yes                         | 0.415                    | 0.169                    | -2.389           | No               | Yes              | Yes              | Yes              | Yes               | No               | 1.02             | No              | No                   | 0.458         | No                          | Yes              | 2.54              | 0.825                                       | Yes                               | No             | 0.286              | -2.013                        |
| 11    | -3.23            | 1.192              | -2.735            | No                       | Yes                        | Yes                         | 0.167                    | 0.261                    | -2.083           | No               | Yes              | No               | Yes              | Yes               | No               | 1.096            | No              | No                   | 0.785         | No                          | Yes              | 2.855             | 0.886                                       | Yes                               | No             | 0.285              | -6.516                        |
| 12    | -3.252           | 1.111              | -2.735            | No                       | Yes                        | Yes                         | 0.209                    | 0.267                    | -2.01            | No               | Yes              | No               | Yes              | Yes               | No               | 1.101            | No              | No                   | 0.786         | No                          | Yes              | 2.897             | 0.942                                       | Yes                               | No             | 0.285              | -6.497                        |
| 13    | -3.632           | 1.095              | -2.735            | No                       | Yes                        | Yes                         | -0.042                   | 0.258                    | -2.584           | No               | Yes              | Yes              | No               | No                | No               | 1.016            | No              | No                   | 0.778         | No                          | Yes              | 2.999             | 0.508                                       | Yes                               | No             | 0.285              | -3.759                        |
| 14    | -3.239           | 1.191              | -2.735            | No                       | Yes                        | Yes                         | 0.193                    | 0.262                    | -1.991           | No               | Yes              | No               | Yes              | Yes               | No               | 1.104            | No              | No                   | 0.787         | No                          | Yes              | 2.86              | 0.907                                       | Yes                               | No             | 0.285              | -6.633                        |
| 15    | -3.261           | 1.11               | -2.735            | No                       | Yes                        | Yes                         | 0.236                    | 0.268                    | -1.919           | No               | Yes              | No               | Yes              | Yes               | No               | 1.108            | No              | No                   | 0.789         | No                          | Yes              | 2.903             | 0.963                                       | Yes                               | No             | 0.285              | -6.615                        |