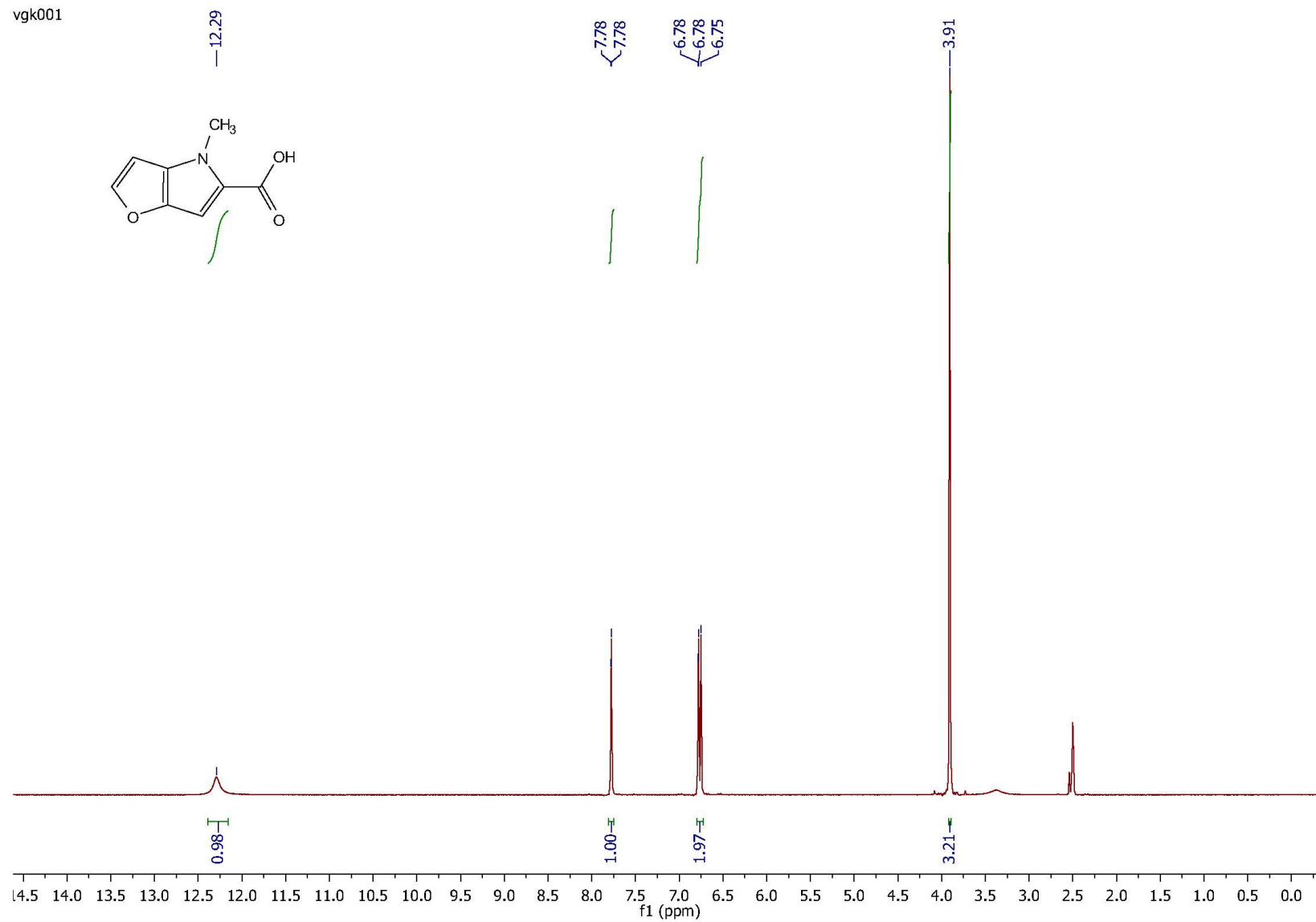


## **Supplementary Material**

### **Table of Contents**

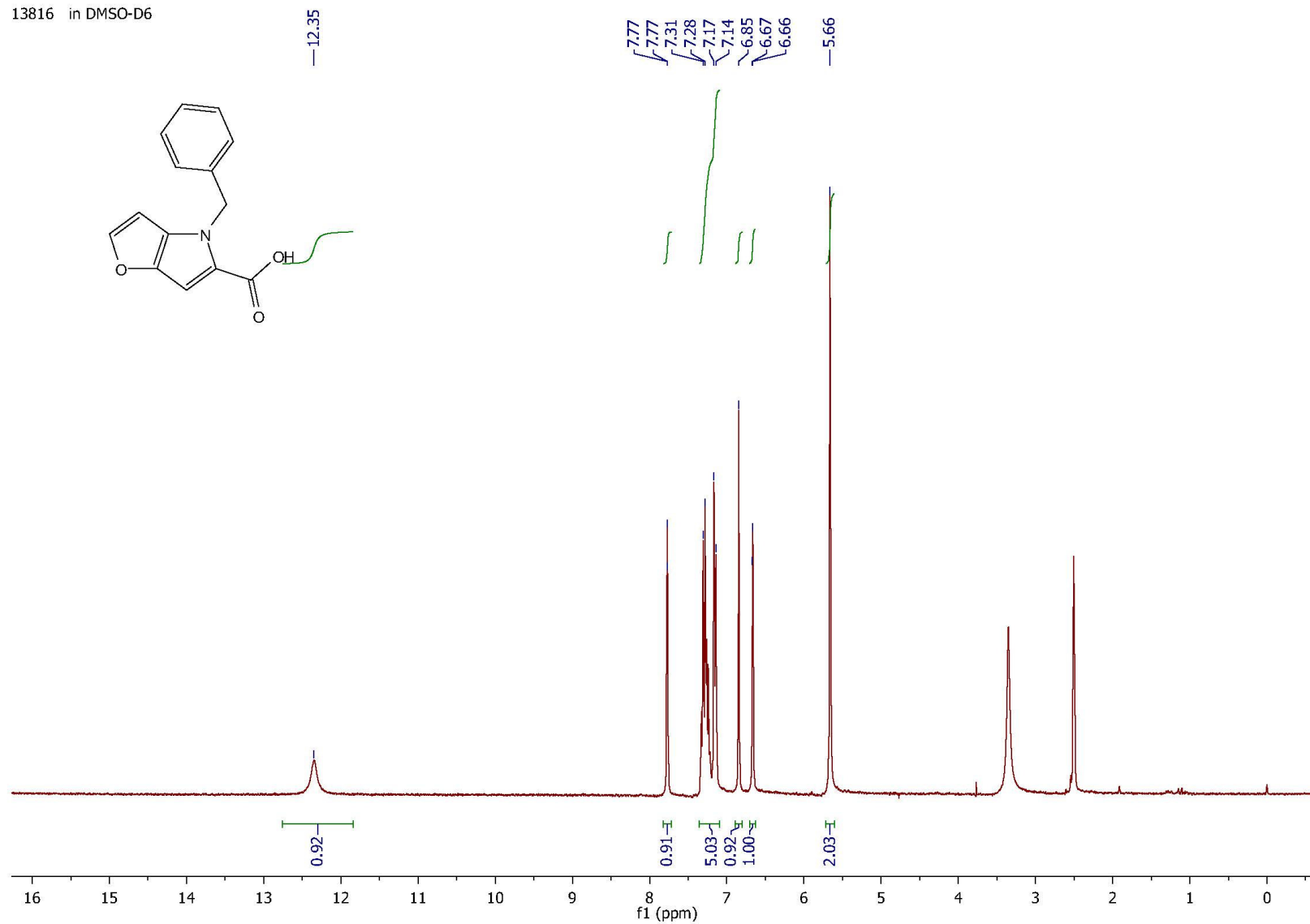
I. $^1\text{H}$ , $^{13}\text{C}$ NMR and LCMS Spectra of Products.....	2
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vgk001



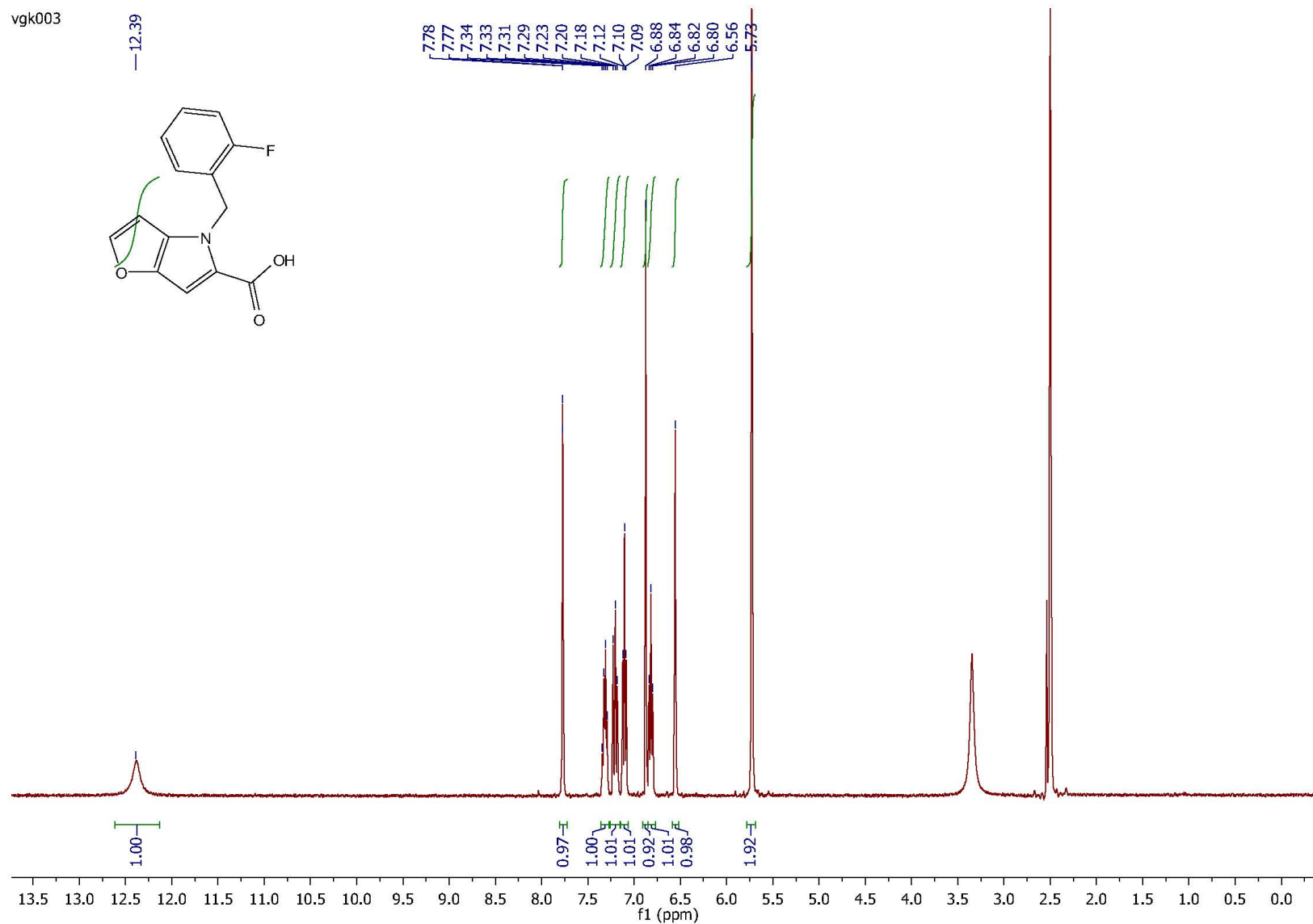
**Figure S1.** <sup>1</sup>H NMR spectrum of 4-Methyl-4H-furo[3,2-b]pyrrole-5-carboxylic acid (**3a**).

13816 in DMSO-D6



**Figure S2.** <sup>1</sup>H NMR spectrum of 4-Benzyl-4H-furo[3,2-b]pyrrole-5-carboxylic acid (**3c**).

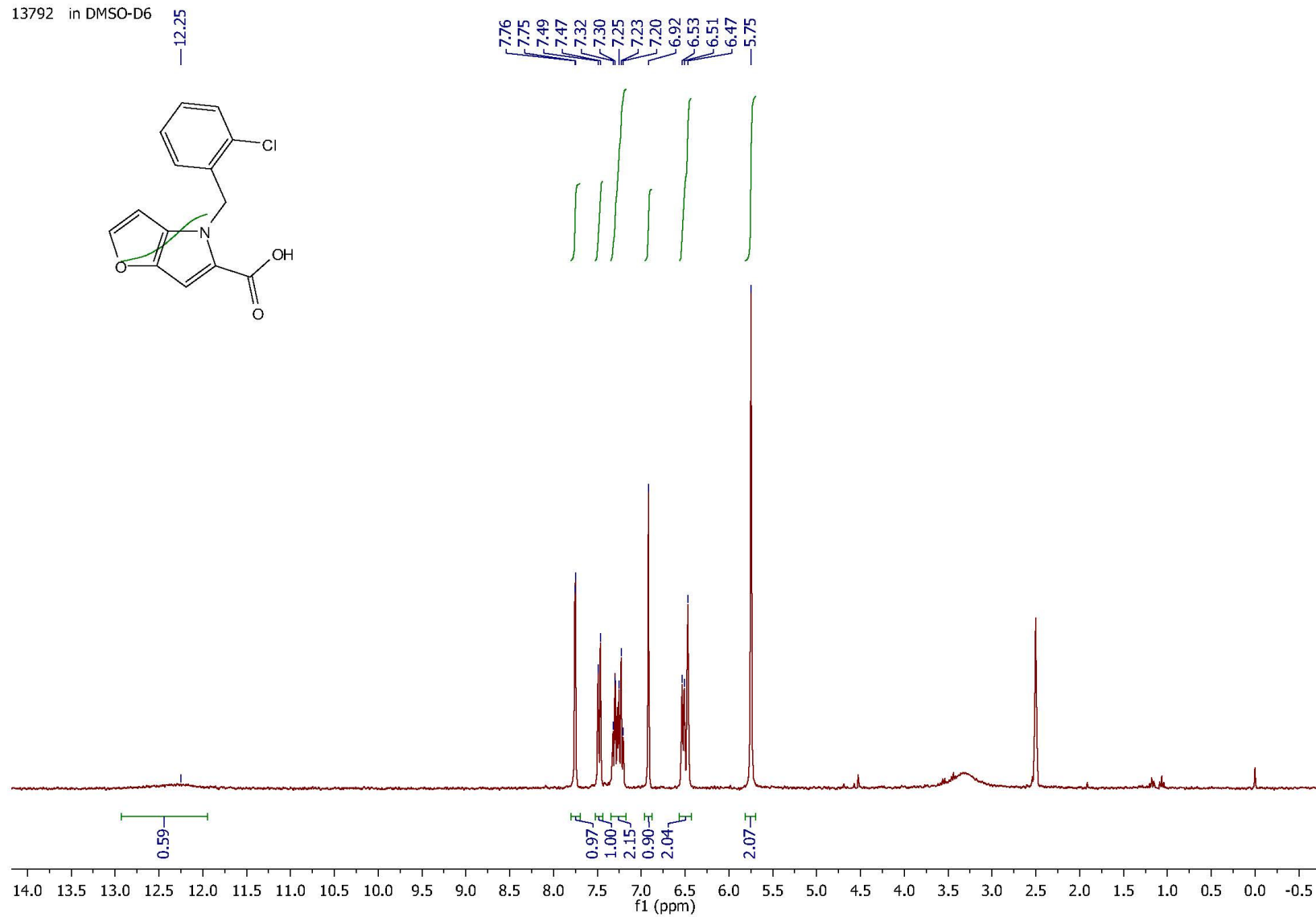
vgk003



**Figure S3.** <sup>1</sup>H NMR spectrum of 4-(2-Fluorobenzyl)-4H-furo[3,2-b]pyrrole-5-carboxylic acid (3d).

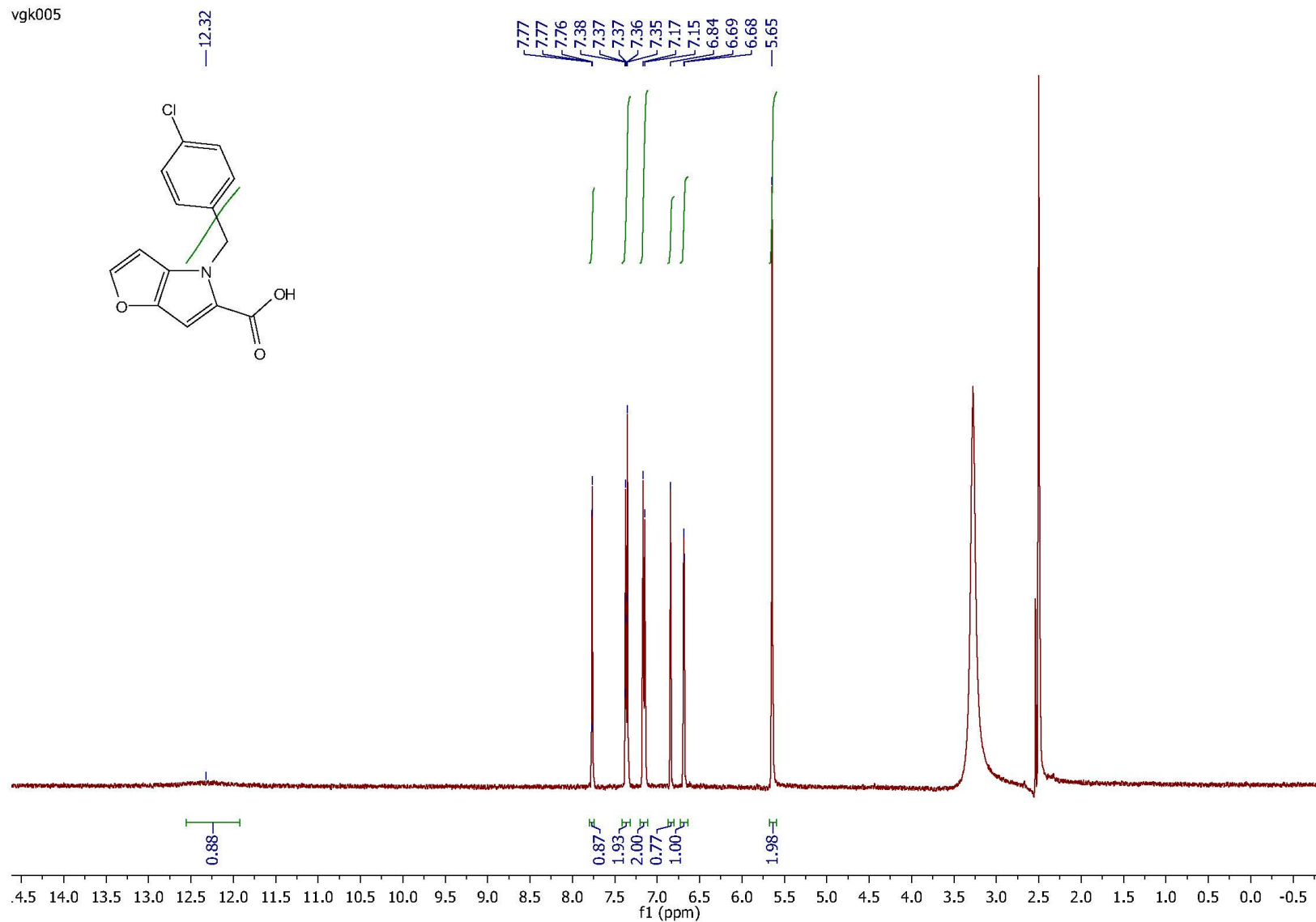


13792 in DMSO-D6



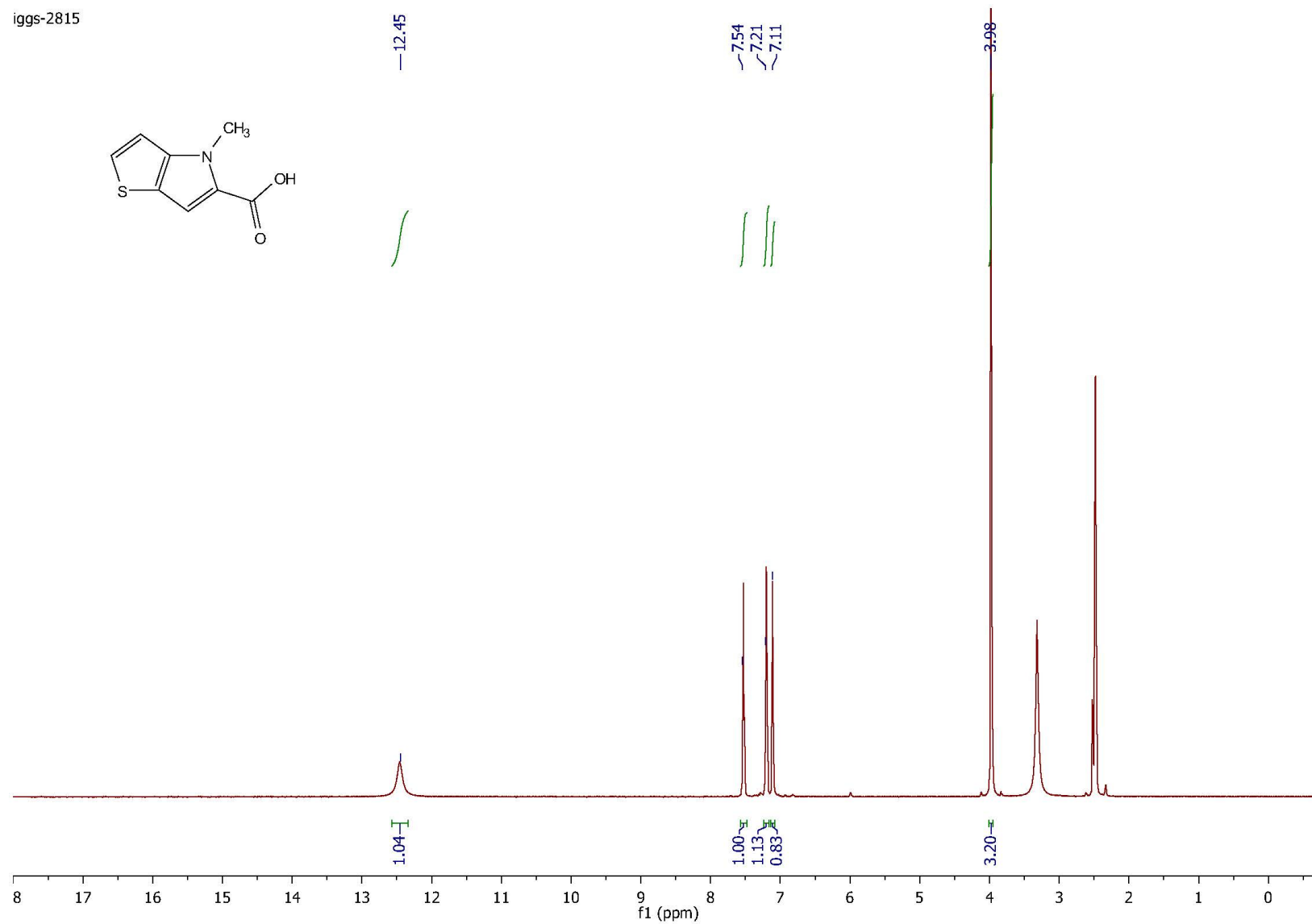
**Figure S4.** <sup>1</sup>H NMR spectrum of 4-(2-Chlorobenzyl)-4H-furo[3,2-b]pyrrole-5-carboxylic acid (**3e**).

vgk005



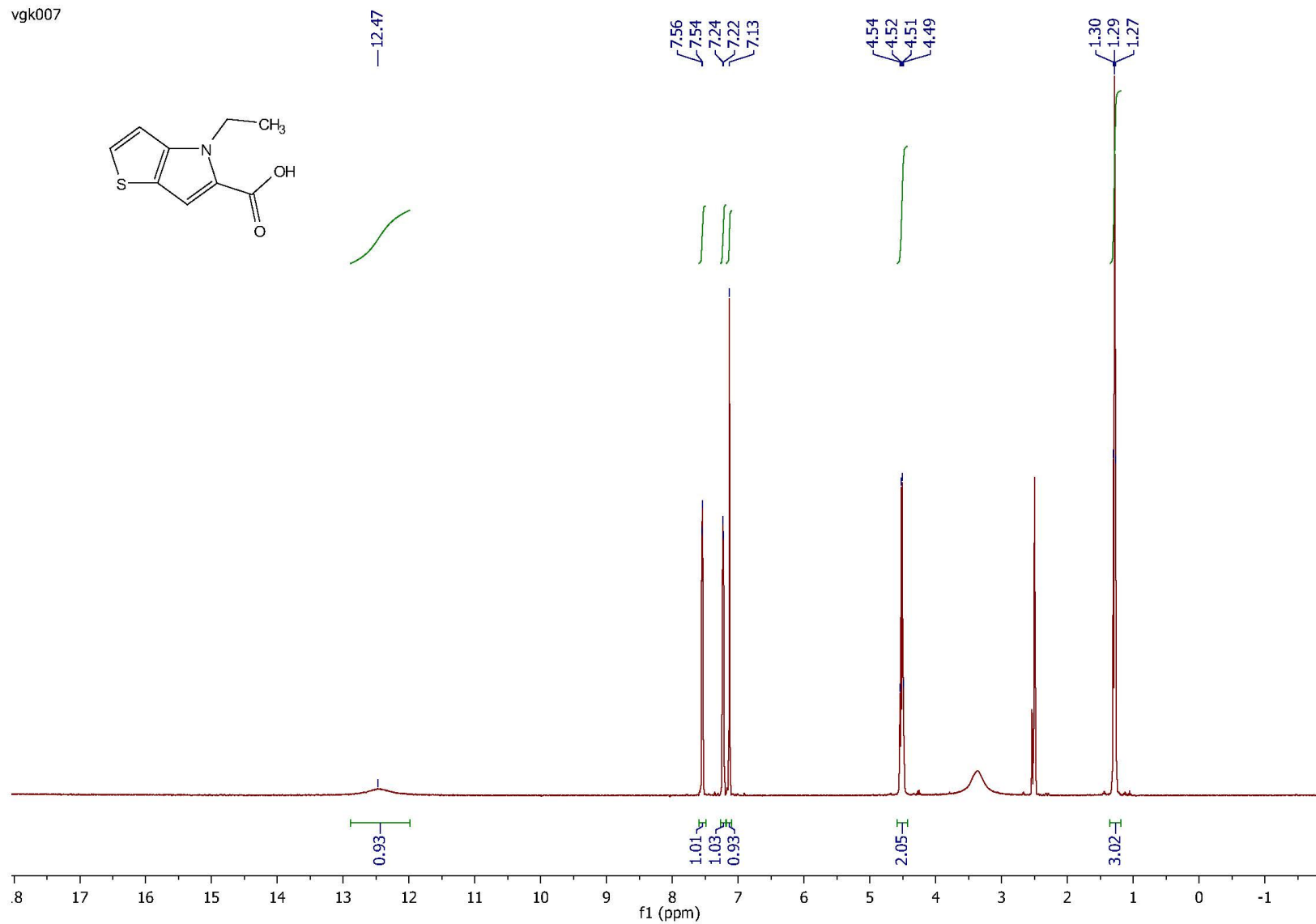
**Figure S5.** <sup>1</sup>H NMR spectrum of 4-(4-Chlorobenzyl)-4H-furo[3,2-b]pyrrole-5-carboxylic acid (**3f**).

iggs-2815



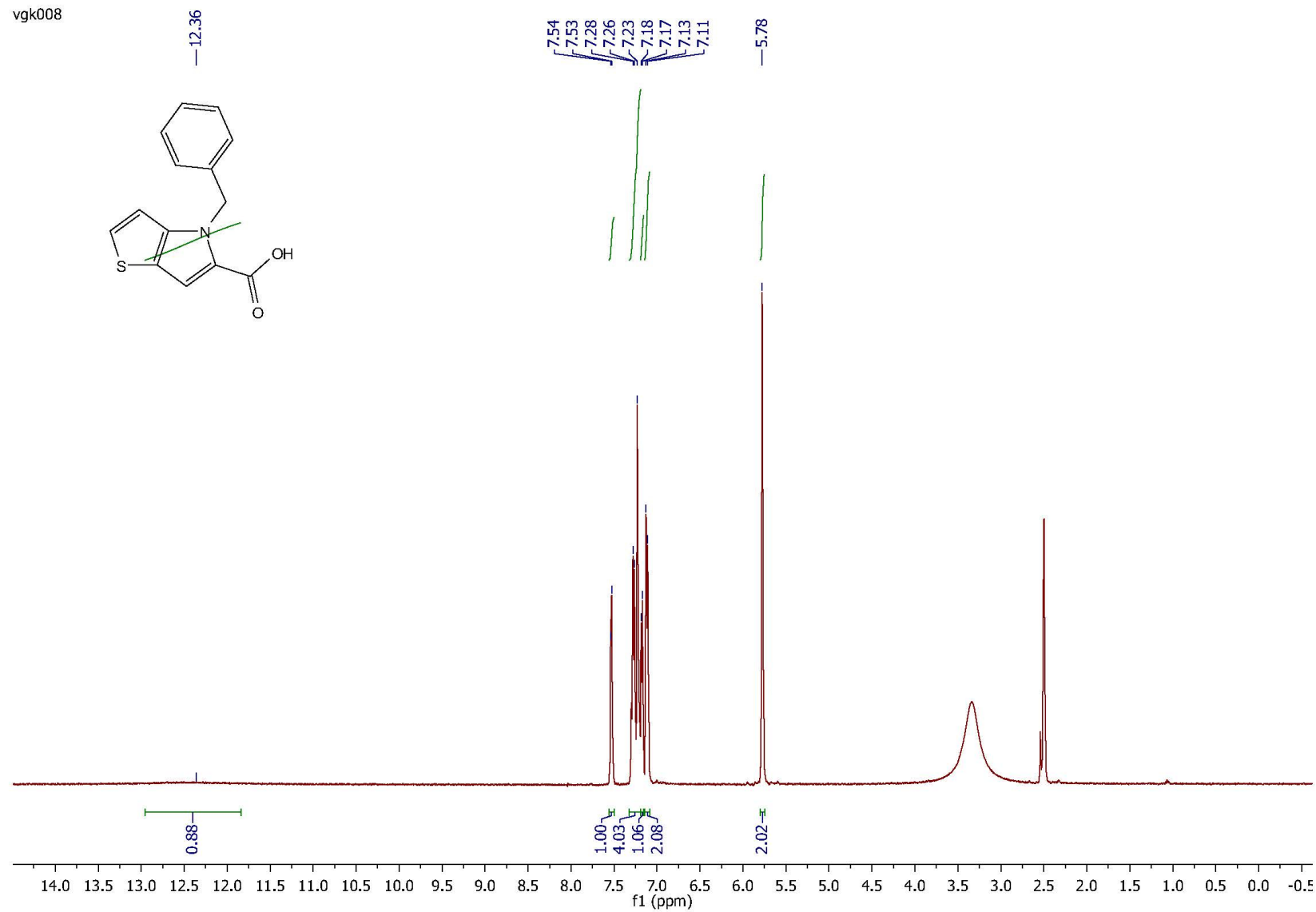
**Figure S6.** <sup>1</sup>H NMR spectrum of 4-Methyl-4H-thieno[3,2-b]pyrrole-5-carboxylic acid (**4a**).

vgk007



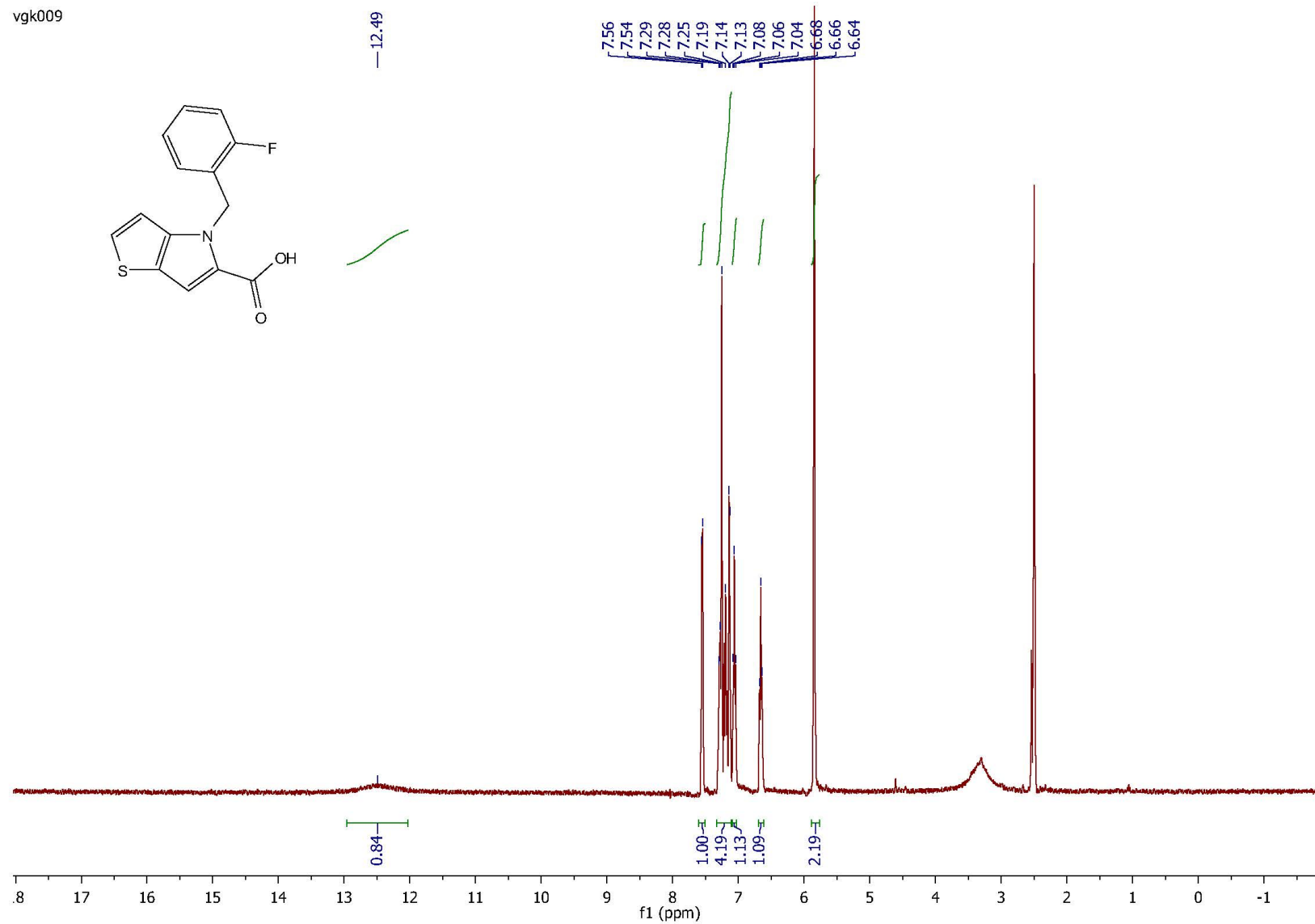
**Figure S7.** <sup>1</sup>H NMR spectrum of 4-Ethyl-4H-thieno[3,2-b]pyrrole-5-carboxylic acid (**4b**).

vgk008



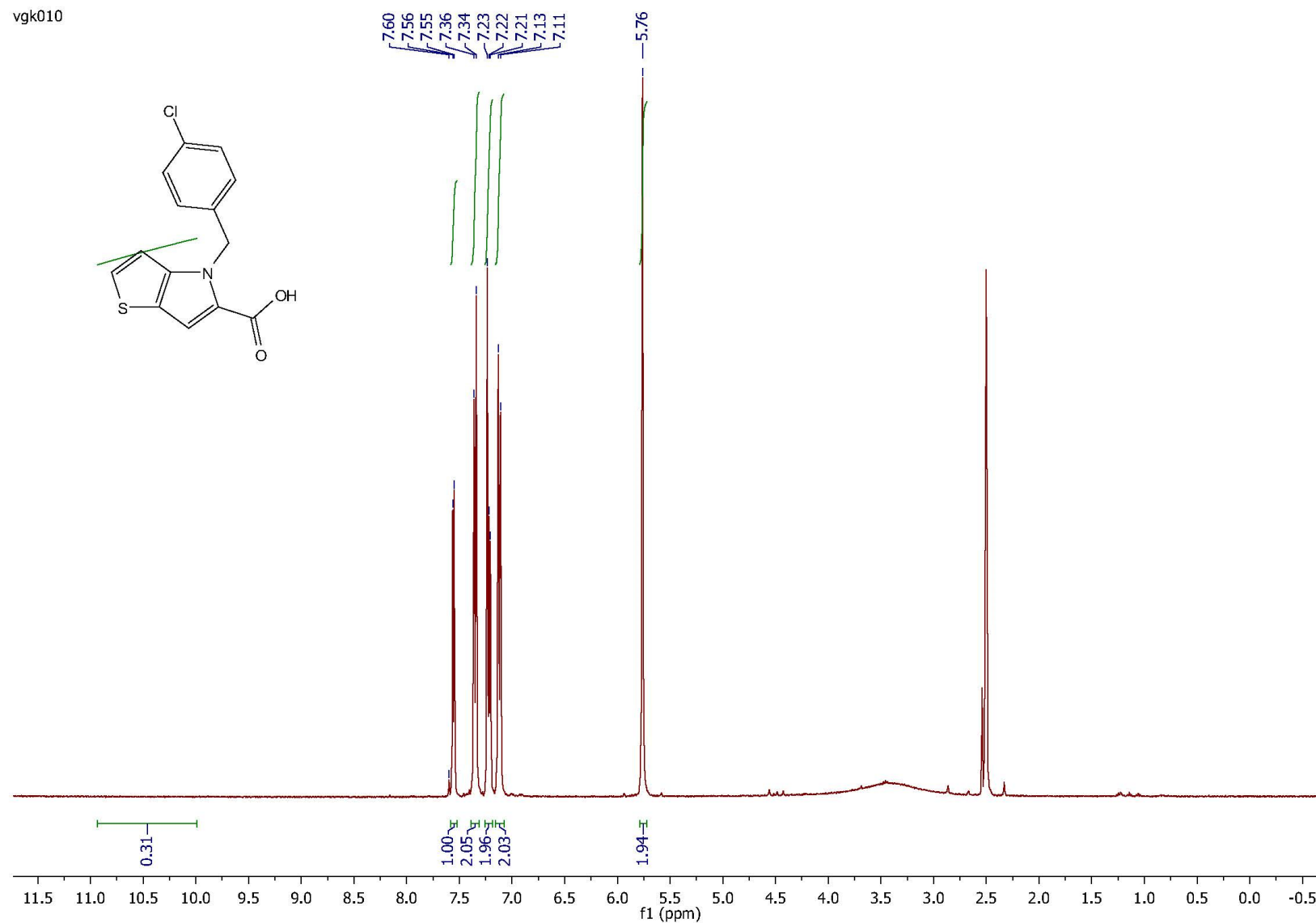
**Figure S8.**  $^1\text{H}$  NMR spectrum of 4-Benzyl-4H-thieno[3,2-b]pyrrole-5-carboxylic acid (**4c**).

vgk009



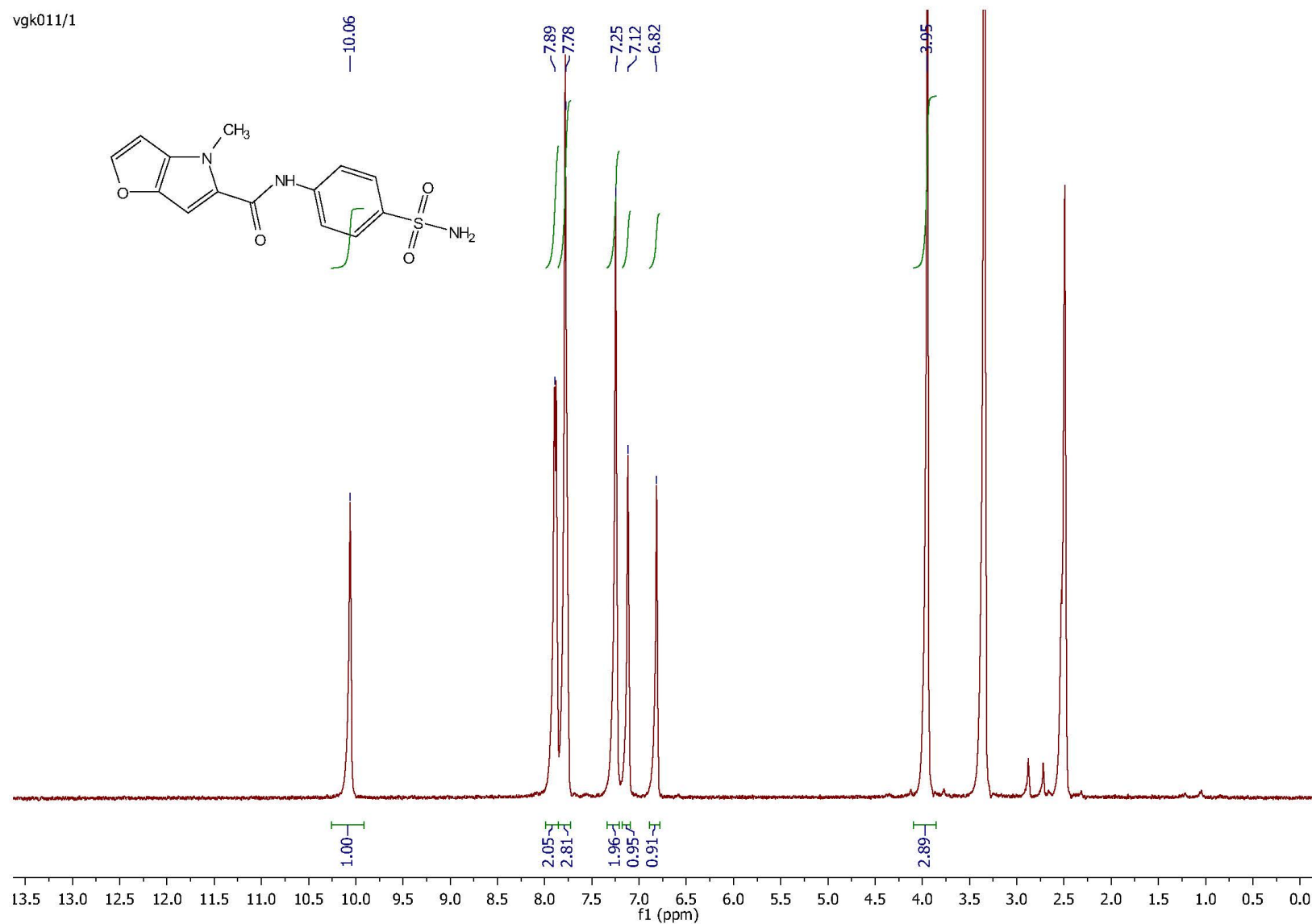
**Figure S9.** <sup>1</sup>H NMR spectrum of 4-(2-Fluorobenzyl)-4H-thieno[3,2-b]pyrrole-5-carboxylic acid (**4d**).

vgk010



**Figure S10.** <sup>1</sup>H NMR spectrum of 4-(4-Chlorobenzyl)-4H-thieno[3,2-b]pyrrole-5-carboxylic acid (**4f**).

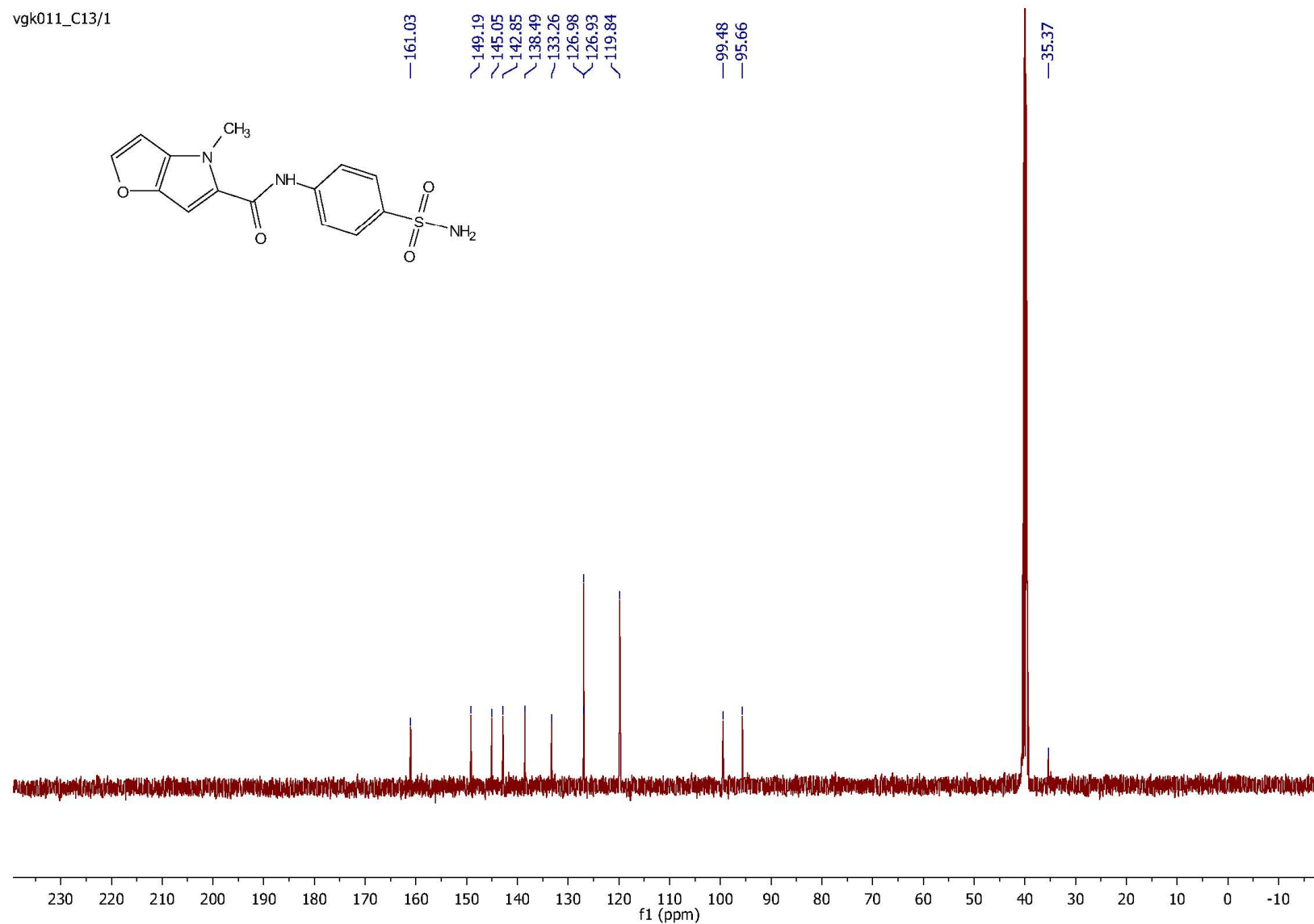
vgk011/1



**Figure S11.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-methyl-4H-furo[3,2-*b*]pyrrole-5-carboxamide (**7a**).

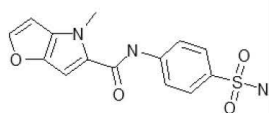


vgk011\_C13/1

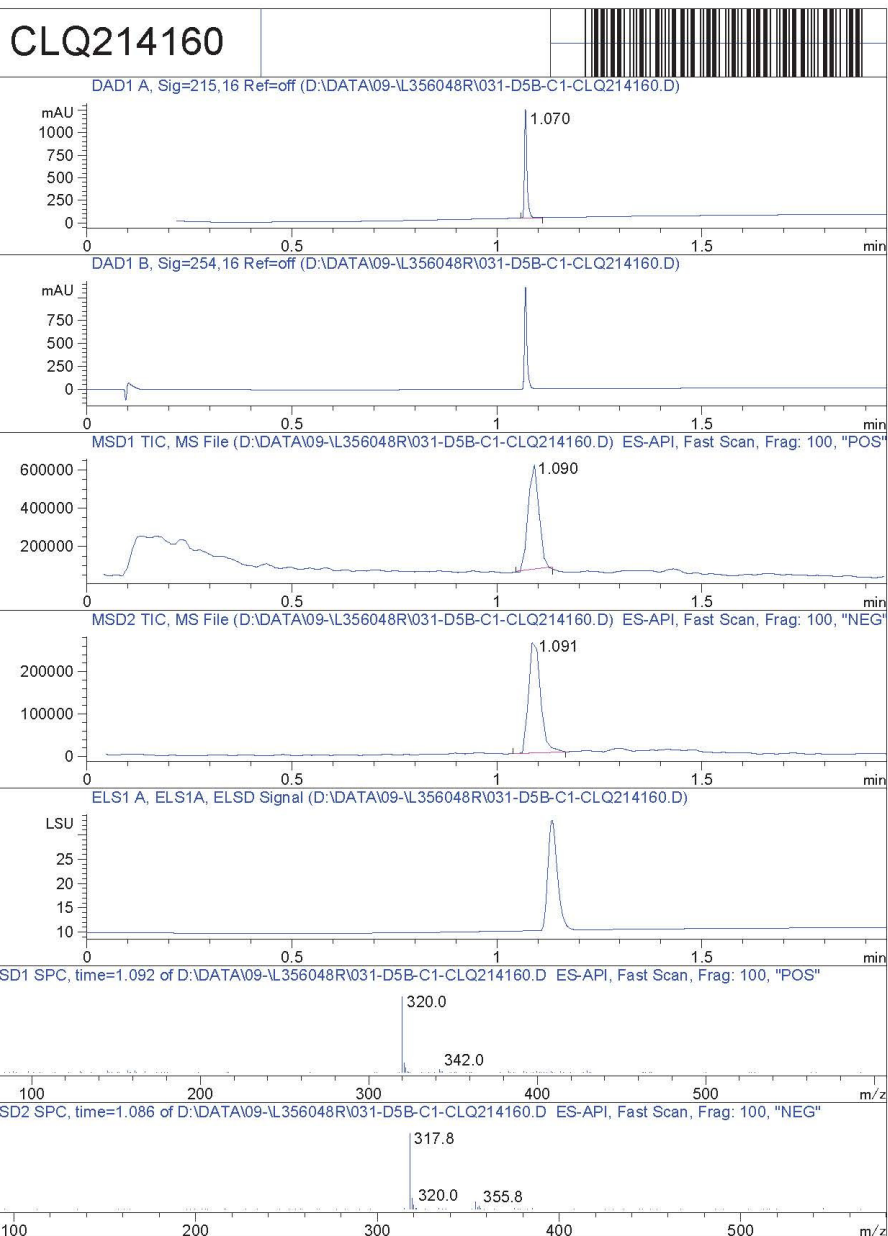


**Figure S12.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-methyl-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (7a).

MaxPeak: 100.00%  
Ret\_Time: 1.070 min



Mol Wt		
Exact Mass		
#	Time	Area%
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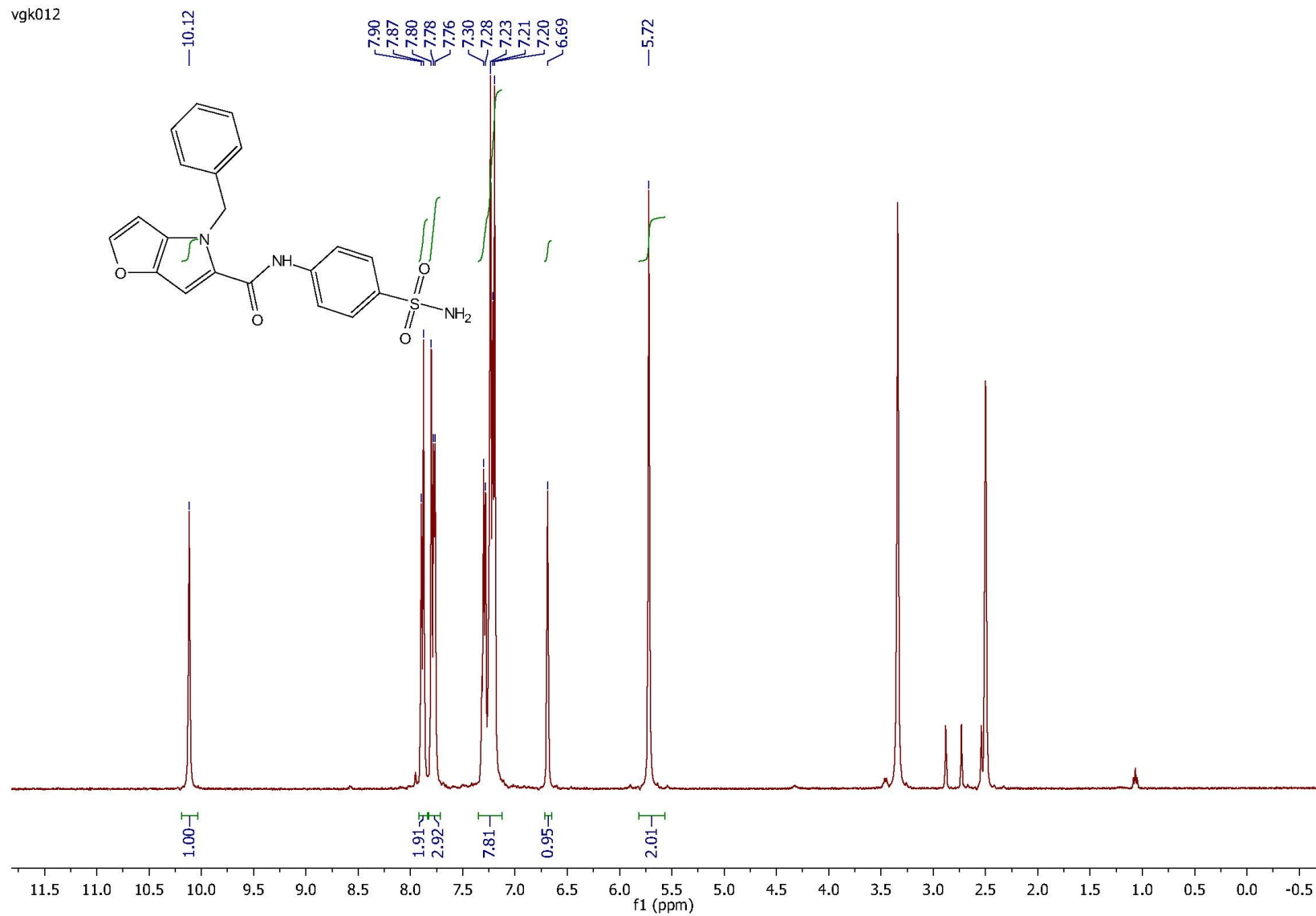
Inj.Date 4/9/2021

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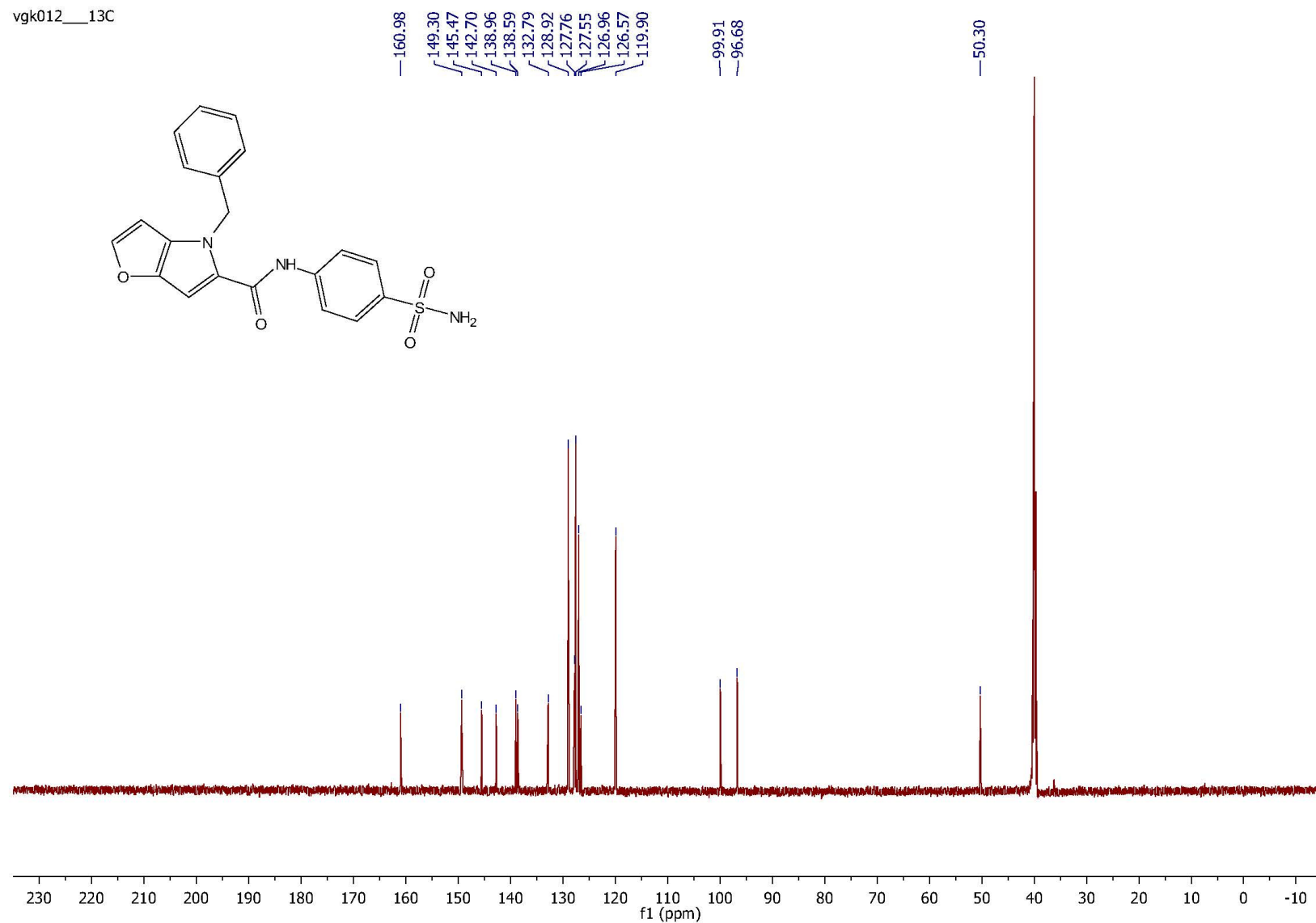
**Figure S13.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-methyl-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (**7a**).

vgk012



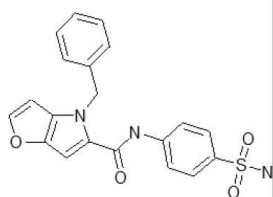
**Figure S14.**  $^1\text{H}$  NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-benzyl-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (**7c**).

vgk012\_\_\_13C



**Figure S15.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-benzyl-4H-furo[3,2-*b*]pyrrole-5-carboxamide (7c).

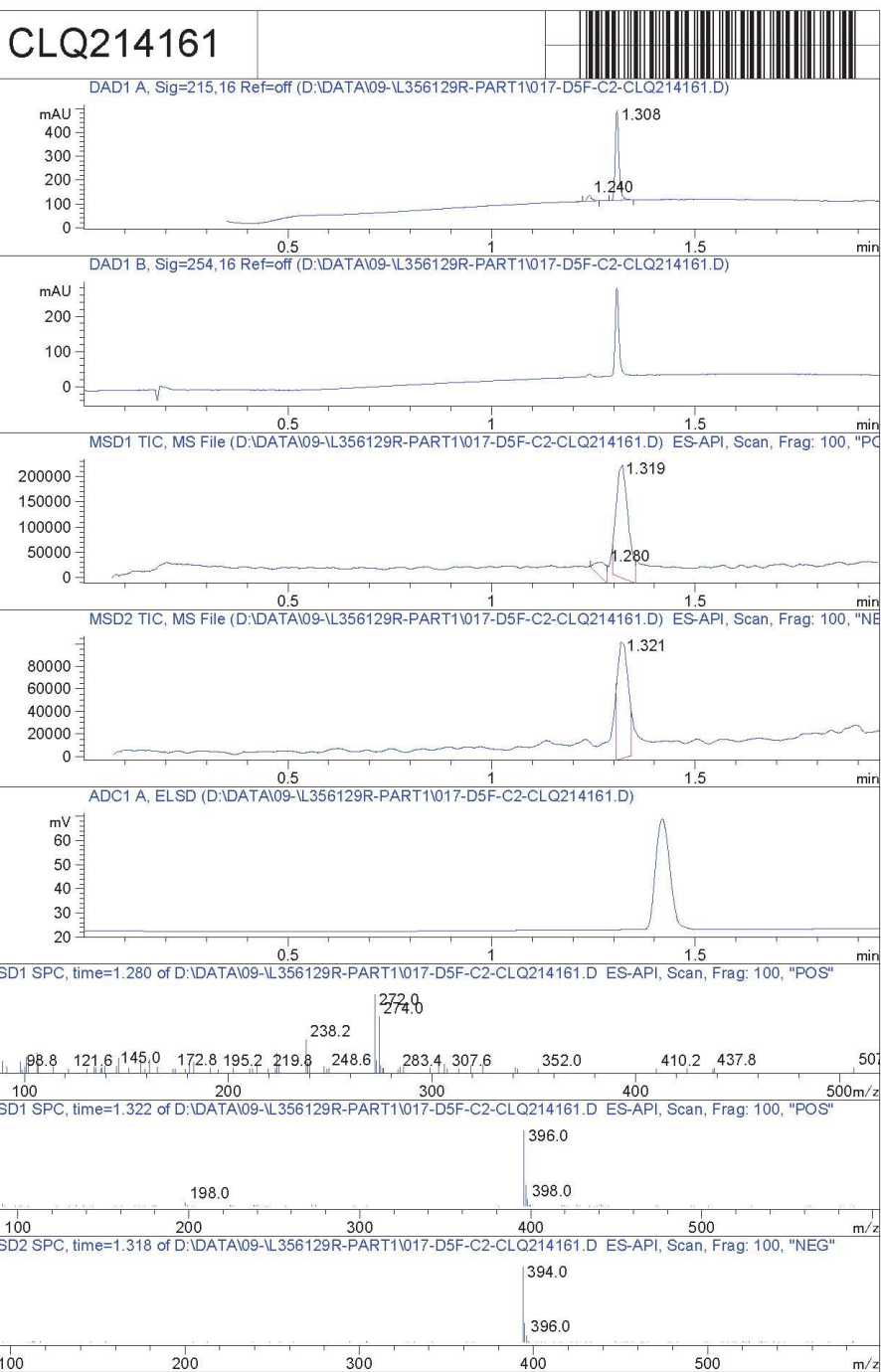
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Mol Wt 0

Exact Mass

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2	1.308	93.29



Inj.Date 4/9/2021

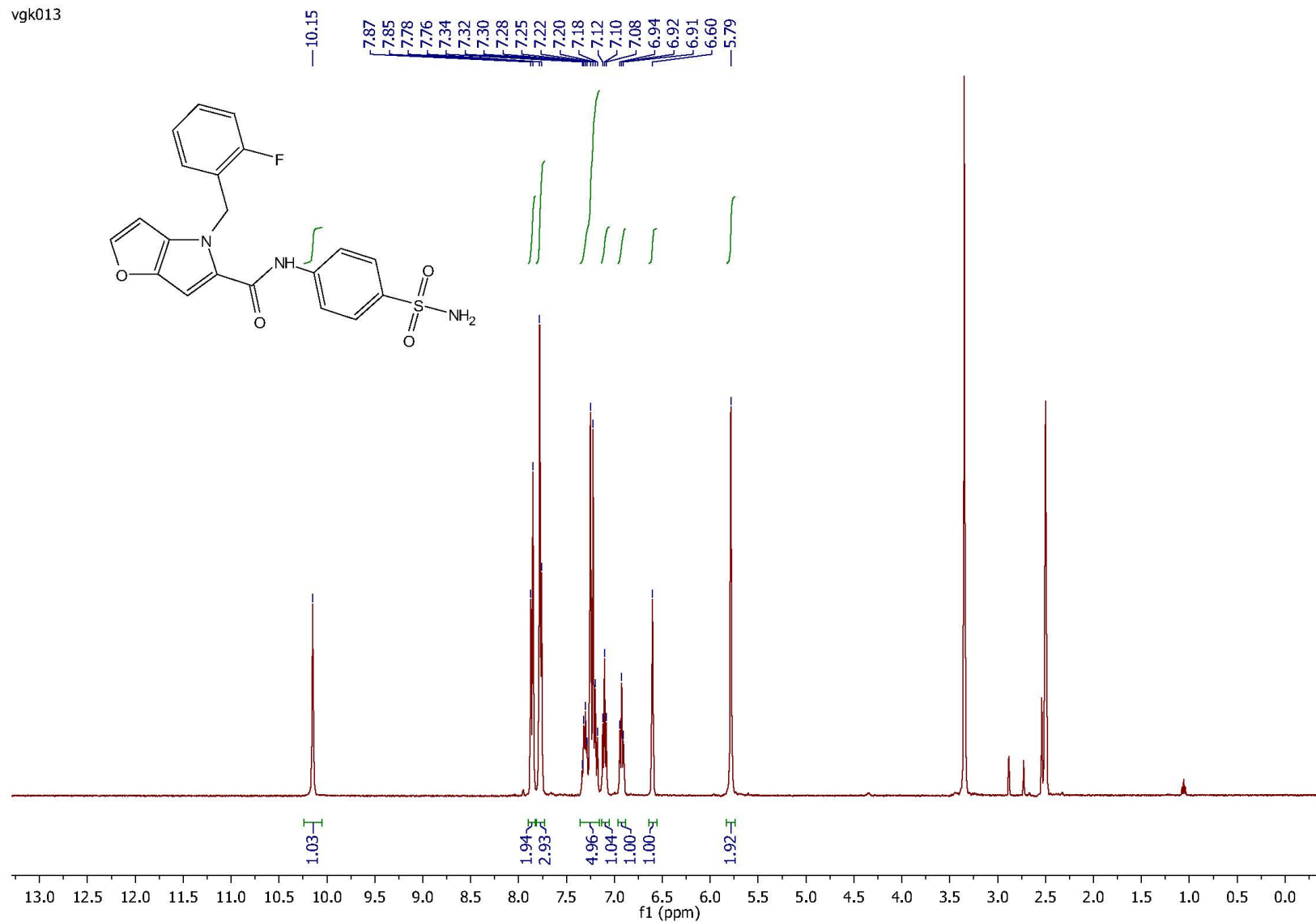
LB

-12-

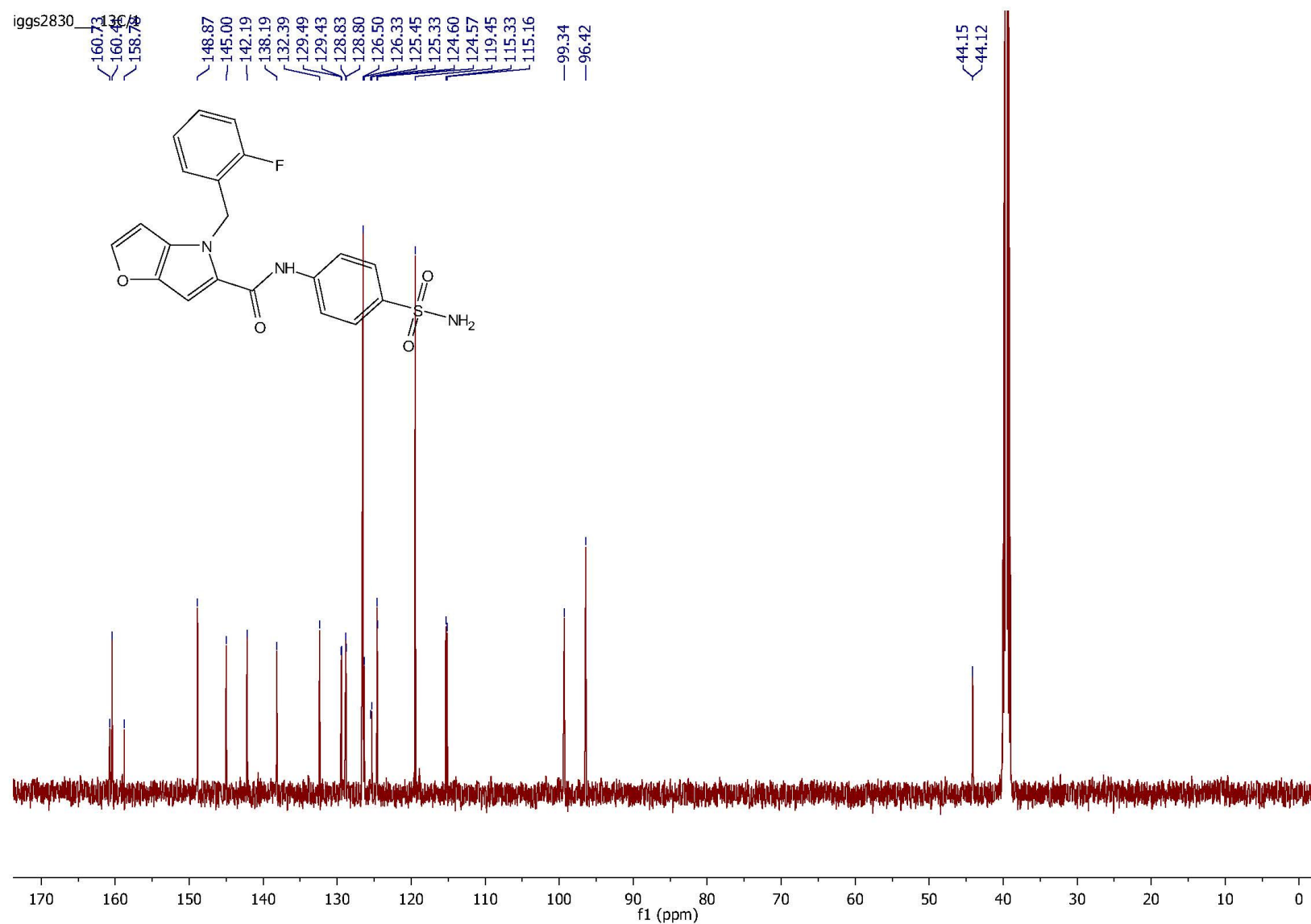
Acq. Method C:\Chem32\> ->

**Figure S16.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-benzyl-4H-furo[3,2-*b*]pyrrole-5-carboxamide (**7c**).

vgk013

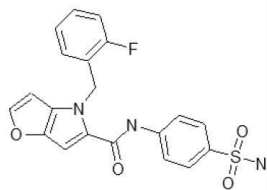


**Figure S17.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-fluorobenzyl)-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (**7d**).



**Figure S18.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-fluorobenzyl)-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (**7d**).

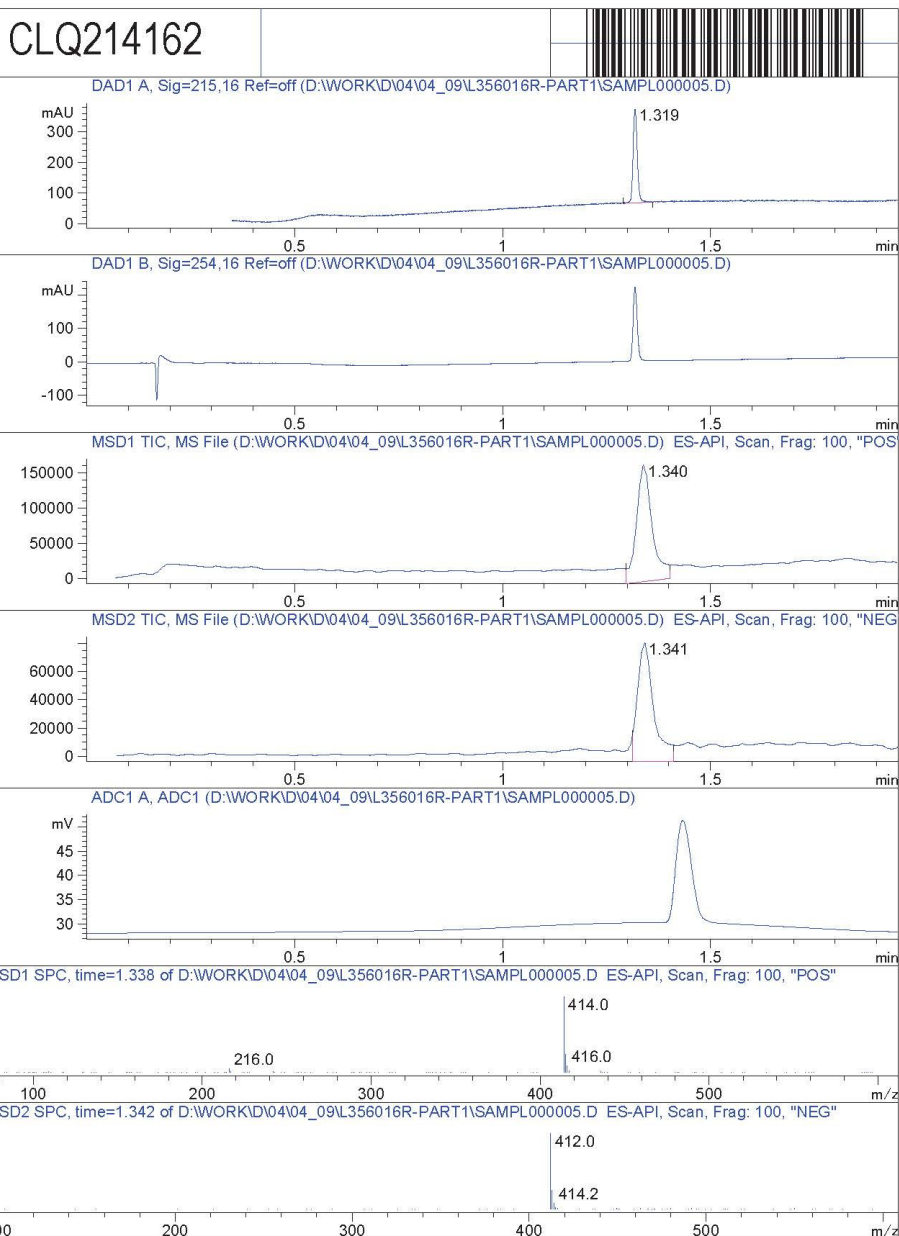
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Mol Wt 0

Exact Mass

#	Time	Area%
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Inj.Date 4/9/2021

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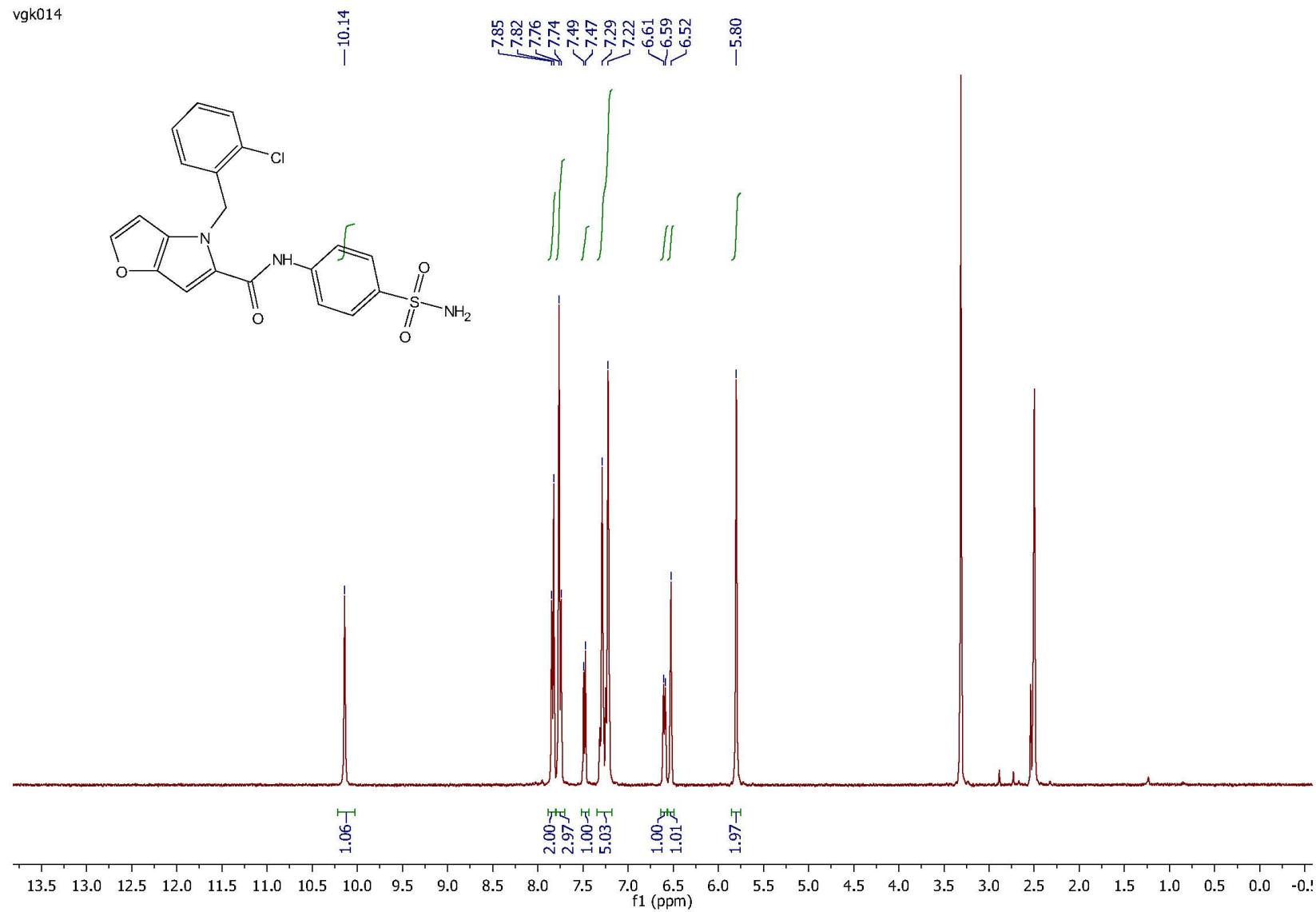
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Acq. Method C:\CHEM32\ -> ->

**Figure S19.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-fluorobenzyl)-4H-furo[3,2-*b*]pyrrole-5-carboxamide (**7d**).

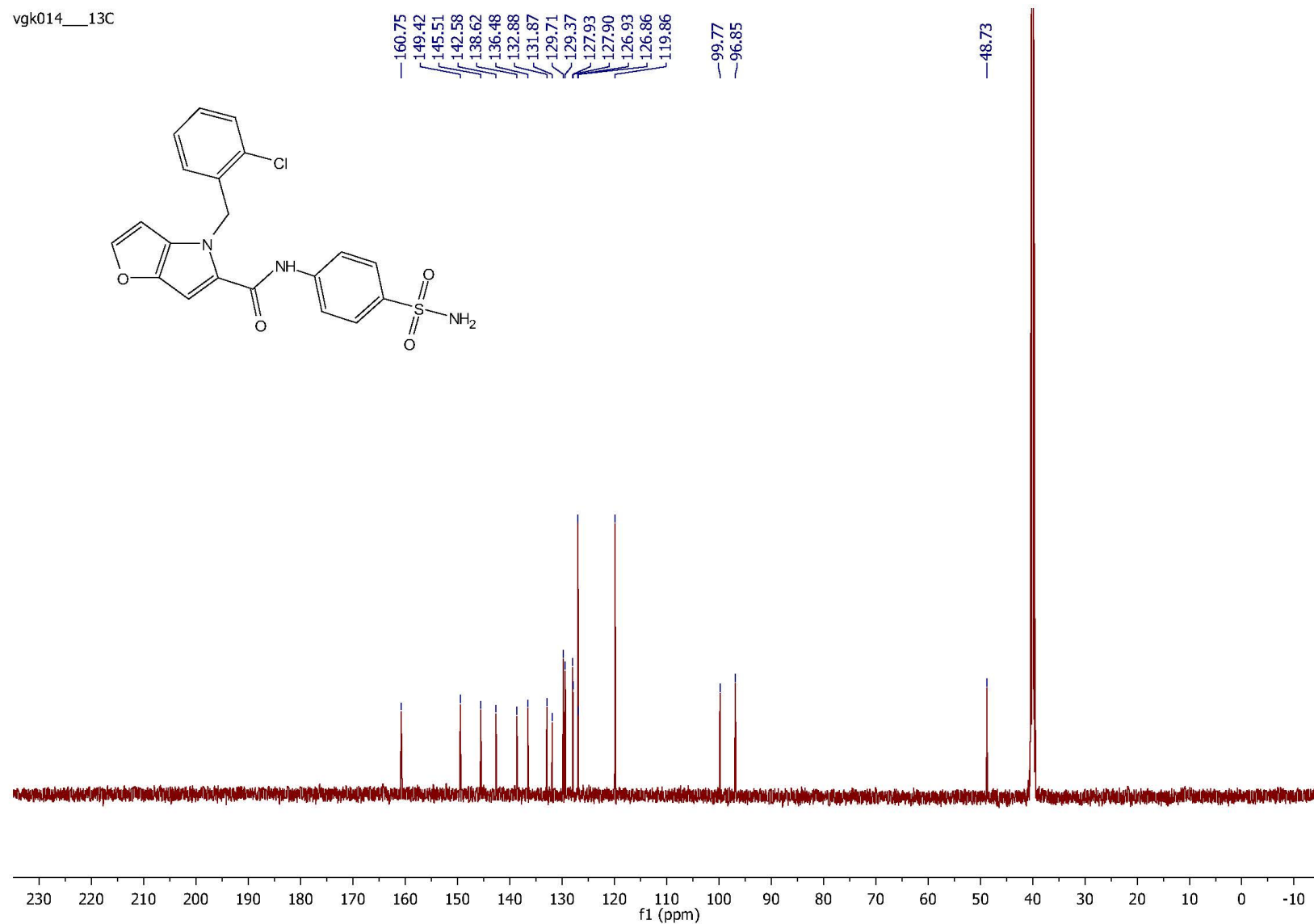


vgk014



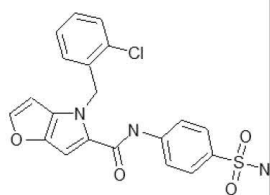
**Figure S20.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-chlorobenzyl)-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (**7e**).

vgk014\_\_13C



**Figure S21.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-chlorobenzyl)-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (7e).

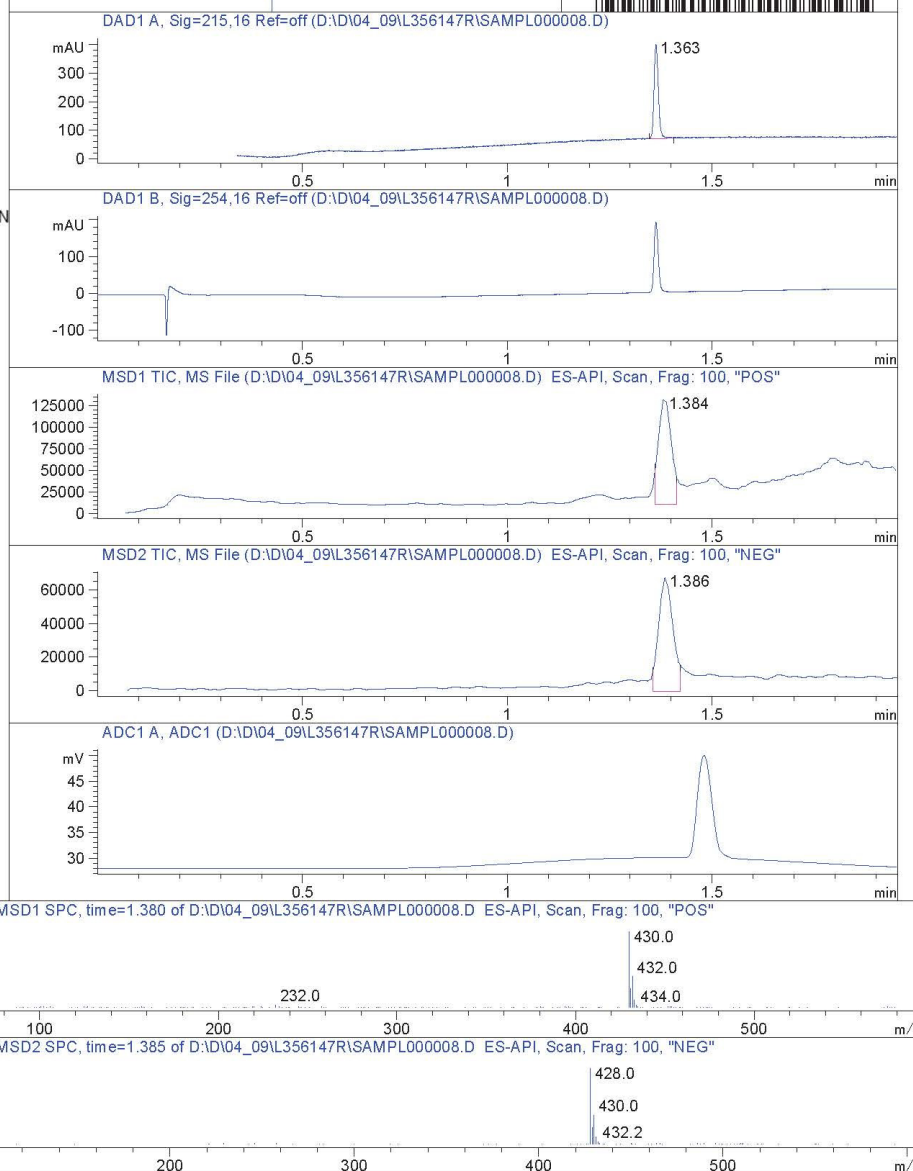
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Exact Mass

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CLQ214170



Inj.Date 4/9/2021

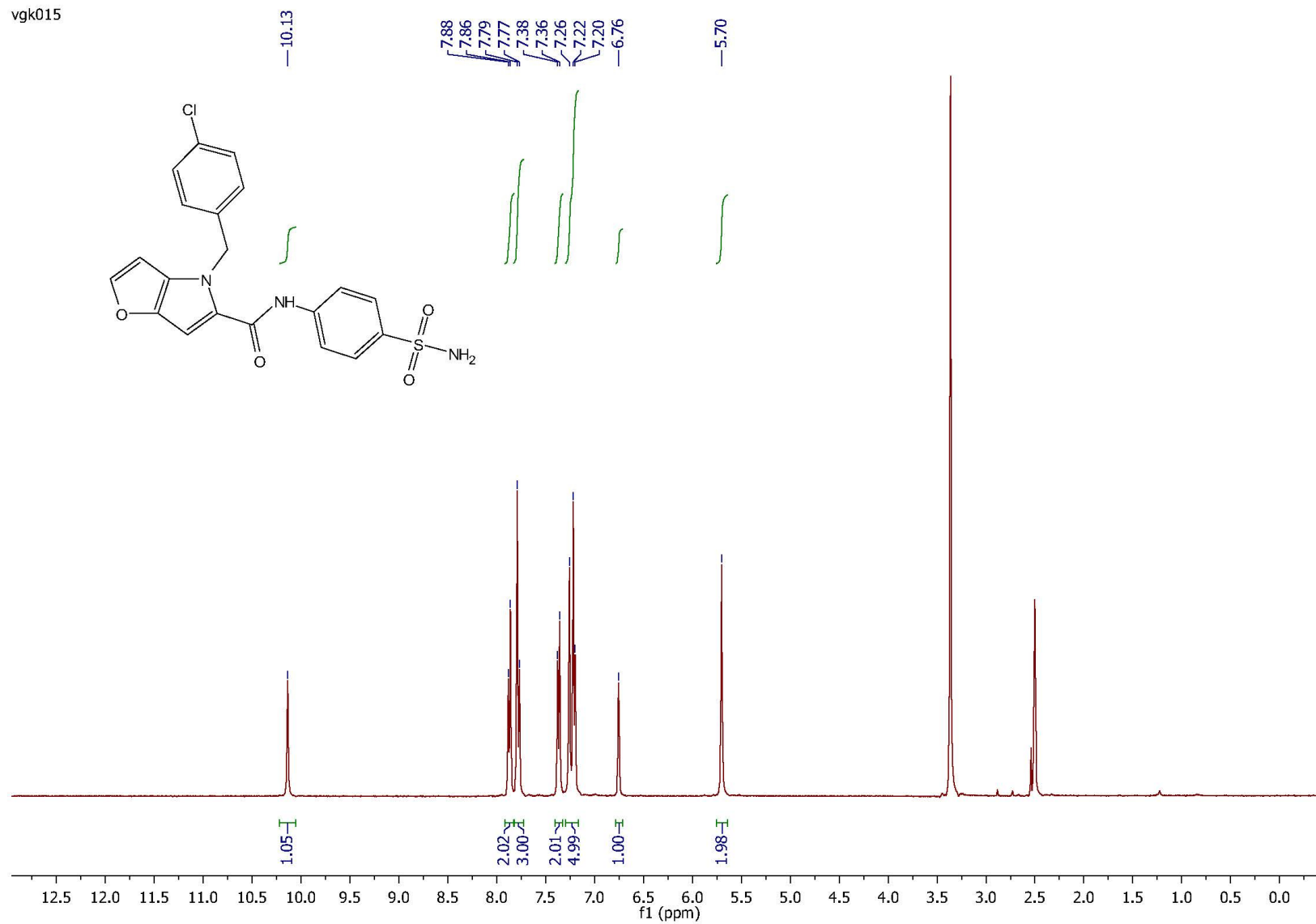
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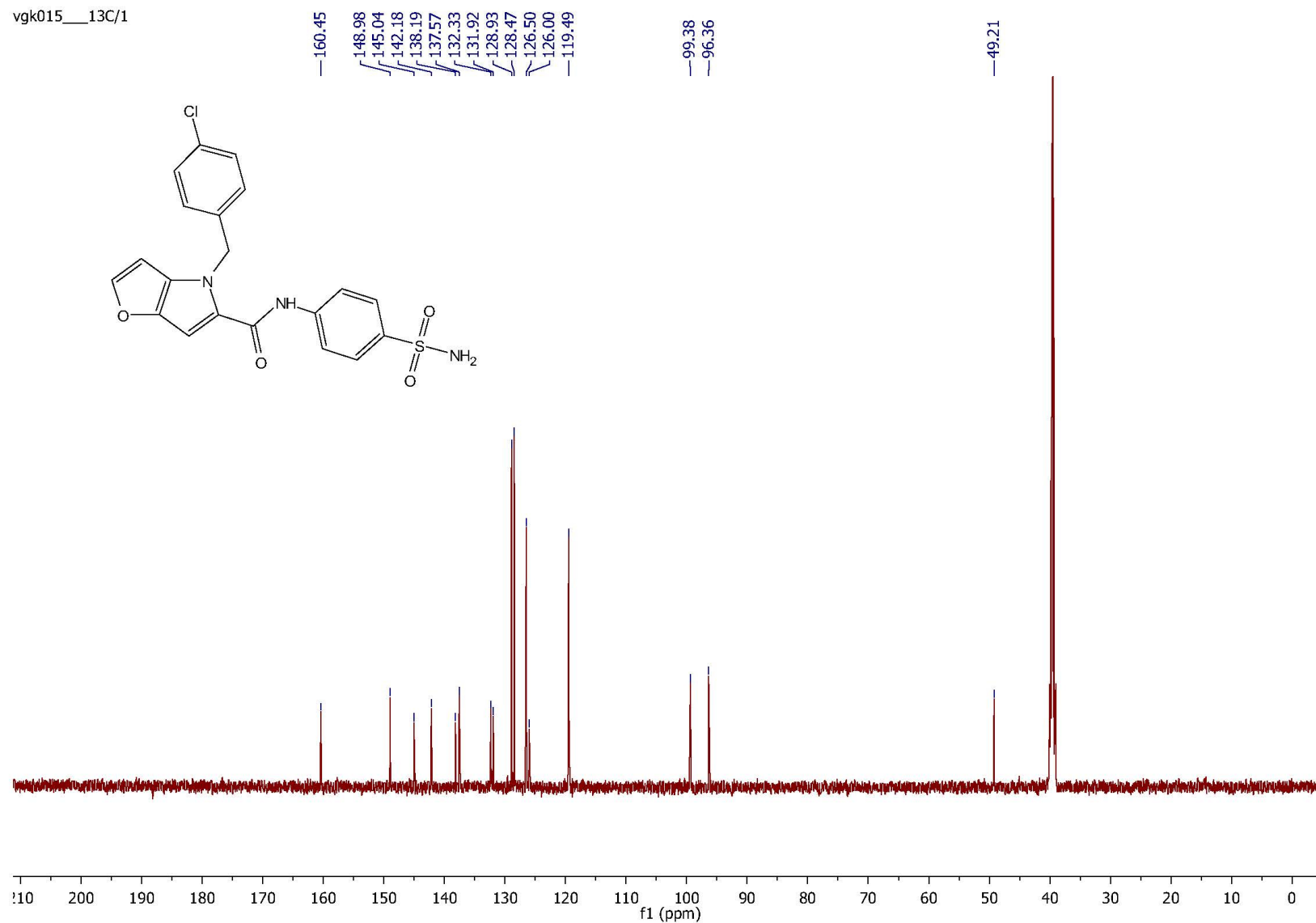
**Figure S22.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-chlorobenzyl)-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (**7e**).

vgk015



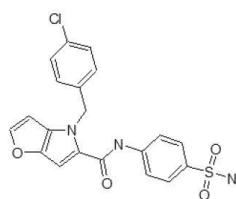
**Figure S23.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(4-chlorobenzyl)-4H-furo[3,2-*b*]pyrrole-5-carboxamide (**7f**).

vgk015\_\_13C/1



**Figure S24.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(4-chlorobenzyl)-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (7f).

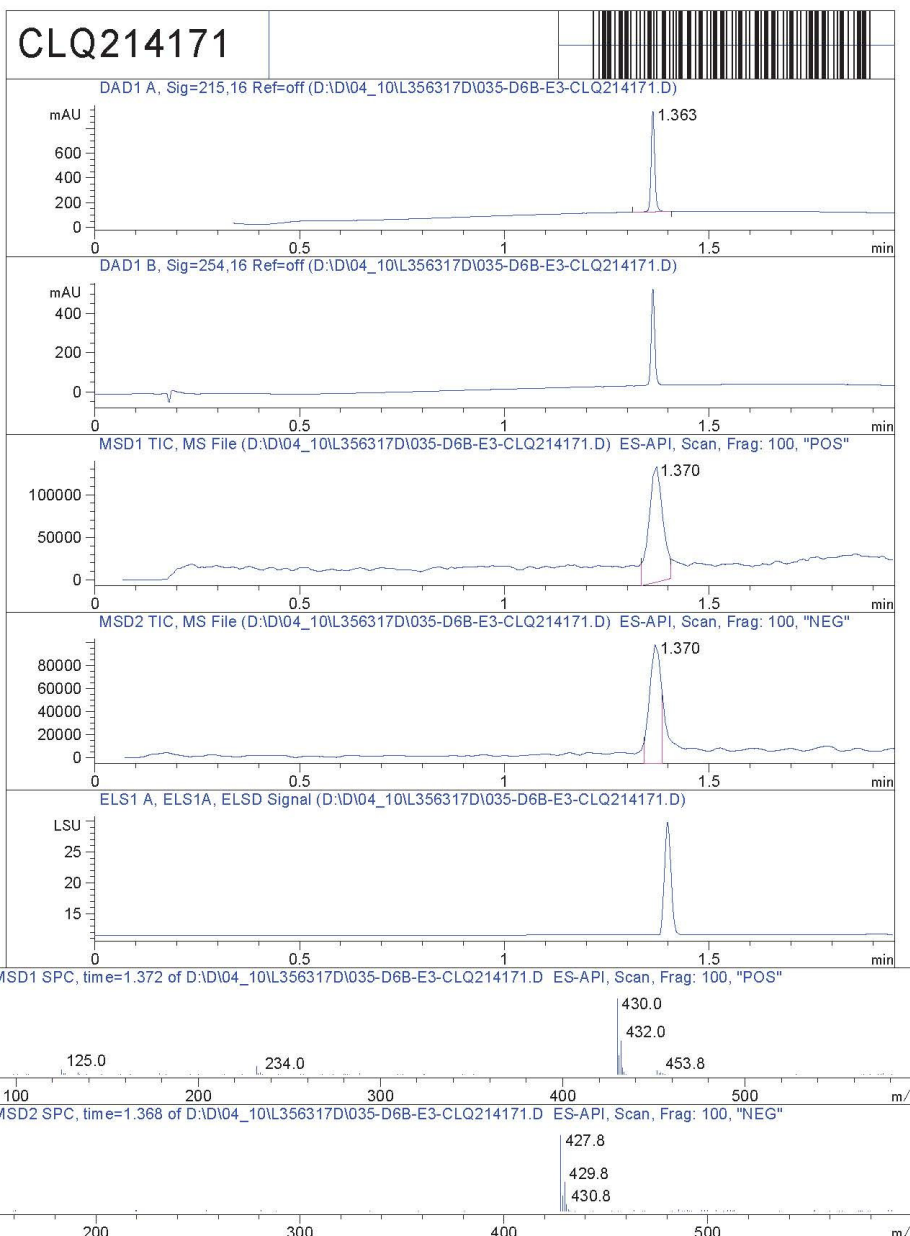
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**Mol Wt** **0**

**Exact Mass**

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Inj.Date 4/9/2021

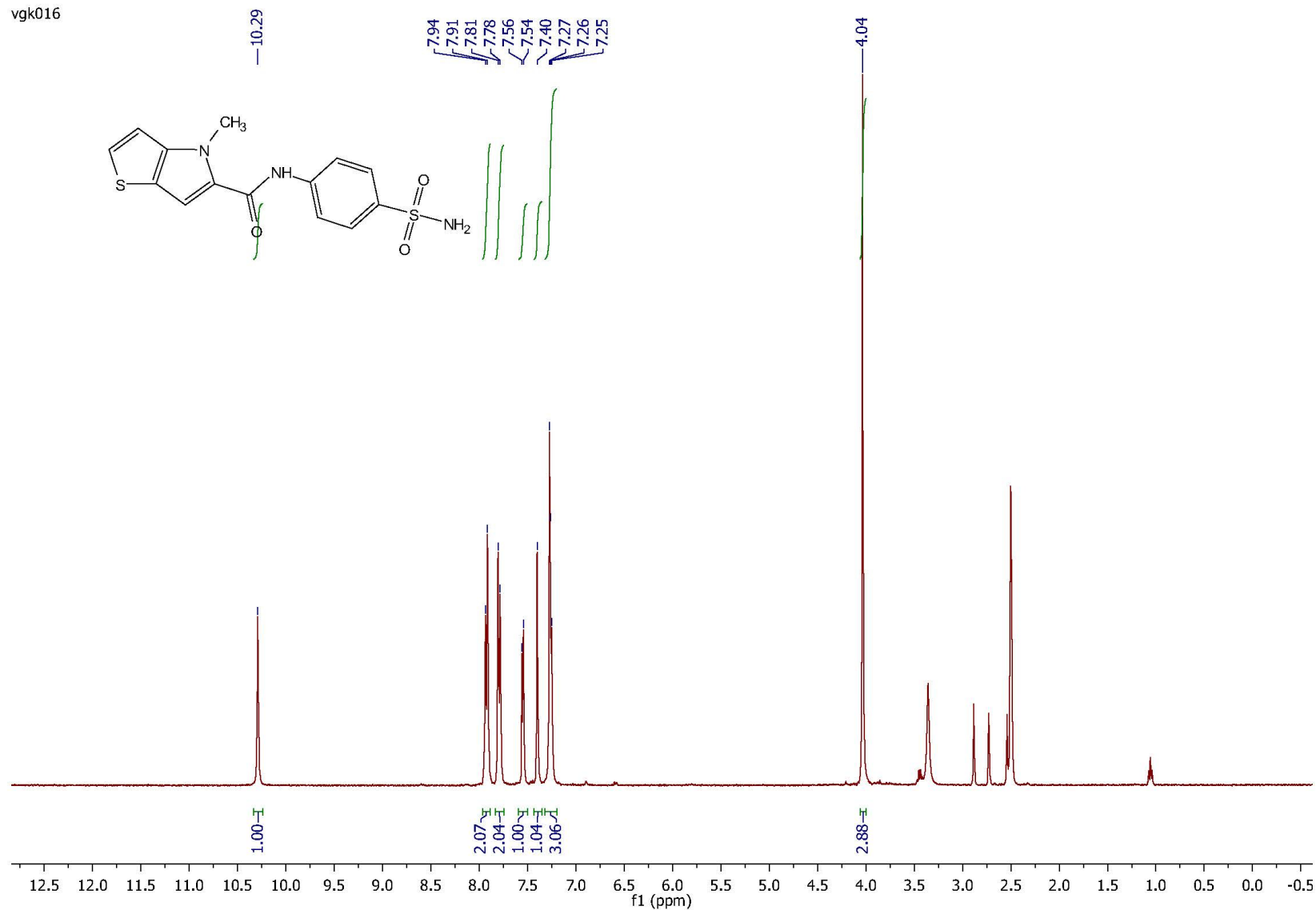
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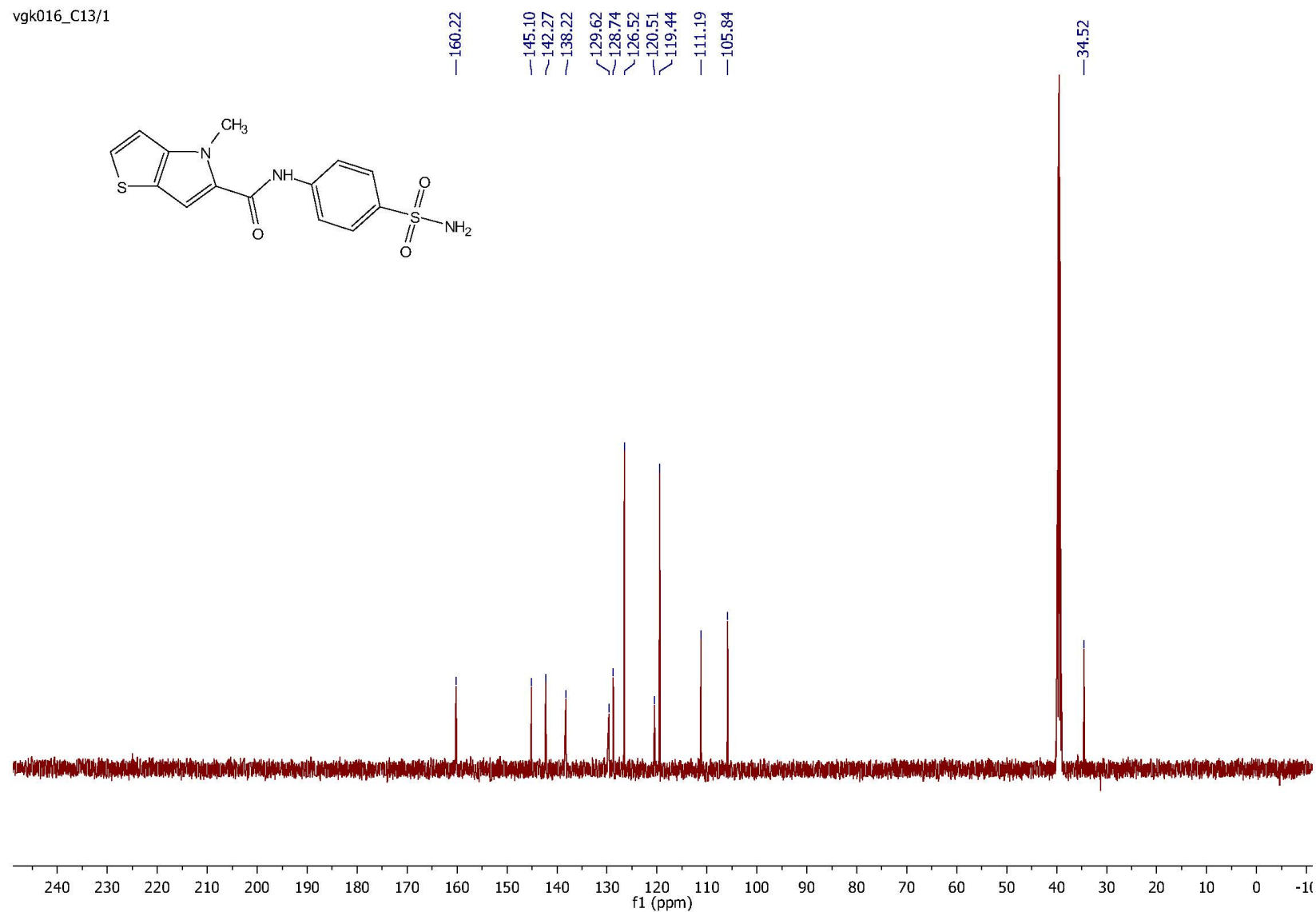
**Figure S25.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(4-chlorobenzyl)-4*H*-furo[3,2-*b*]pyrrole-5-carboxamide (**7f**).

vgk016



**Figure S26.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-methyl-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8a**).

vgk016\_C13/1



**Figure S27.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-methyl-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8a**).



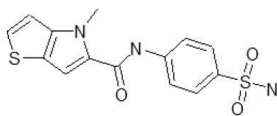
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CLQ214173



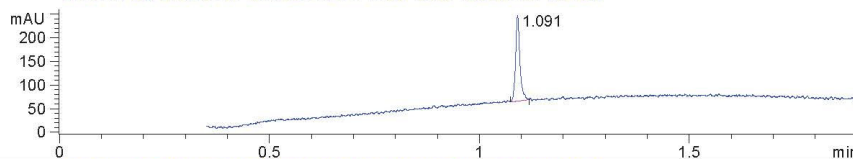
Mol Wt  
Exact Mass

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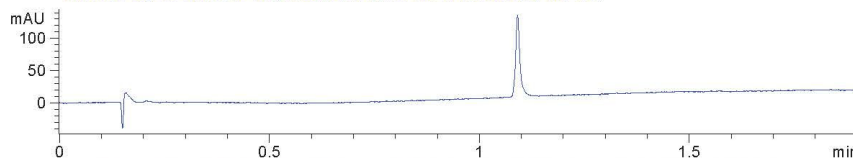


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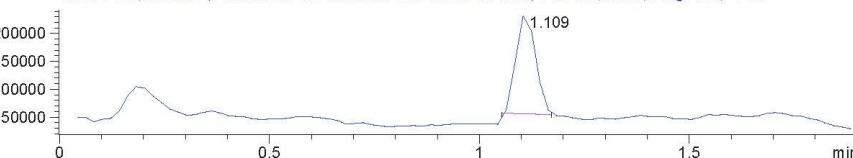
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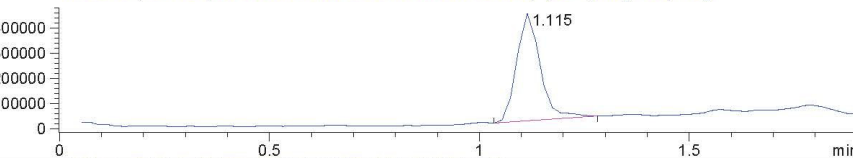
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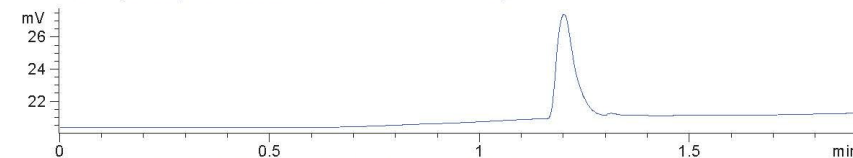
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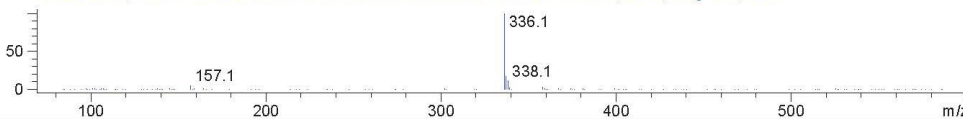


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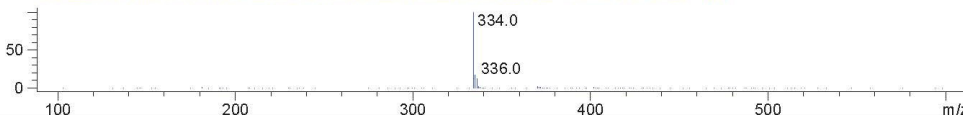
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RT 1.115

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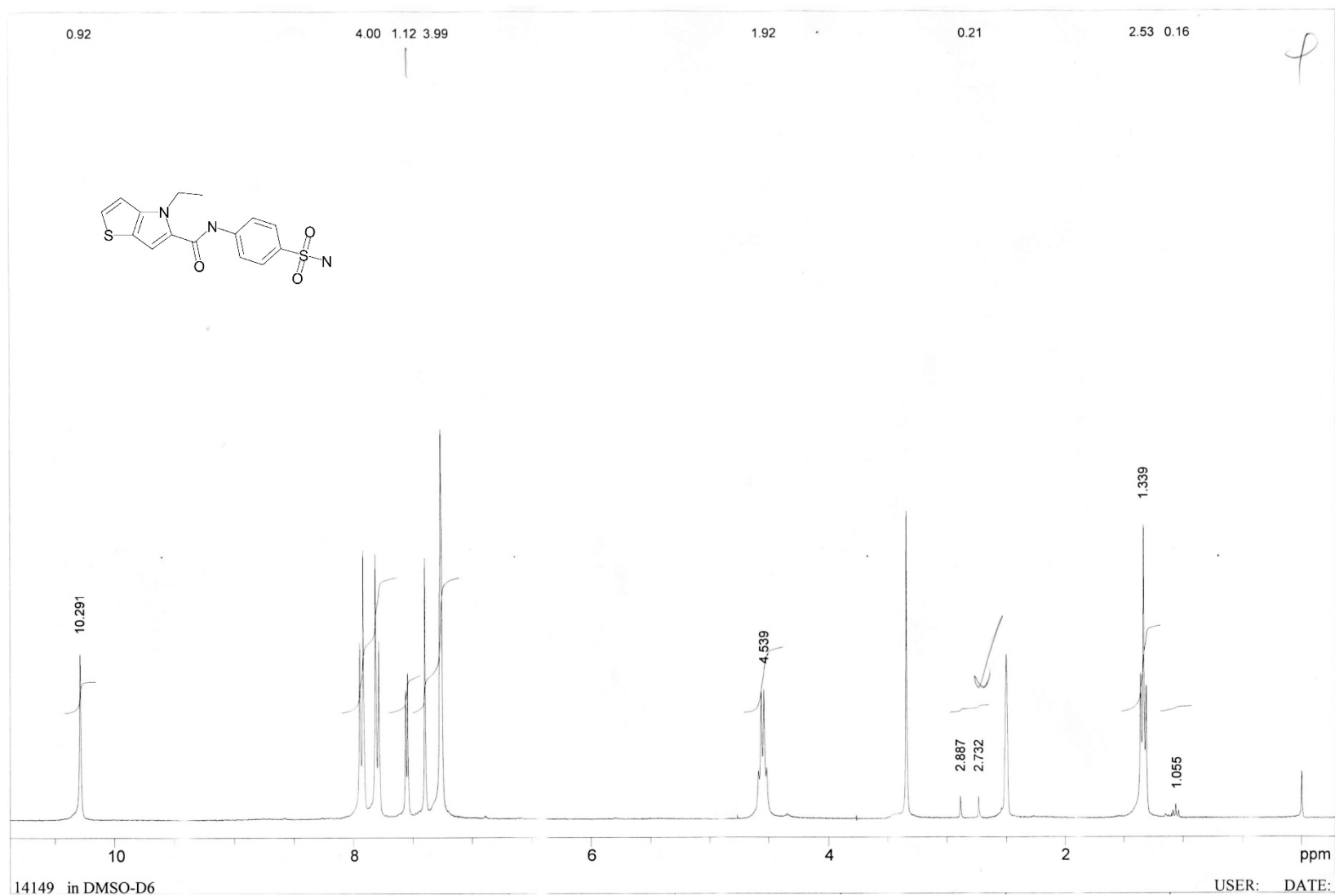
Inj.Date 4/15/2021

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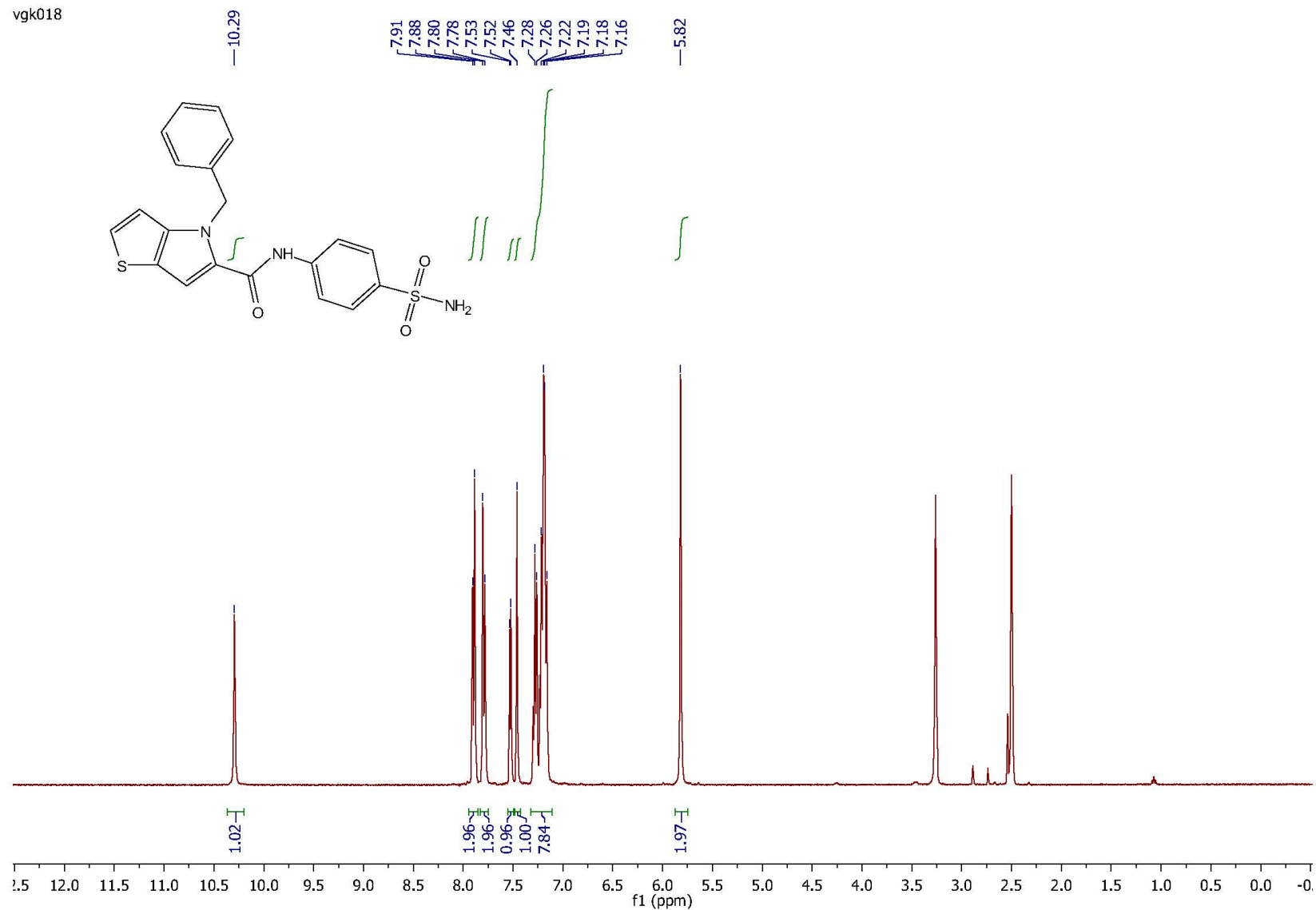
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**Figure S28.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-methyl-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8a**).

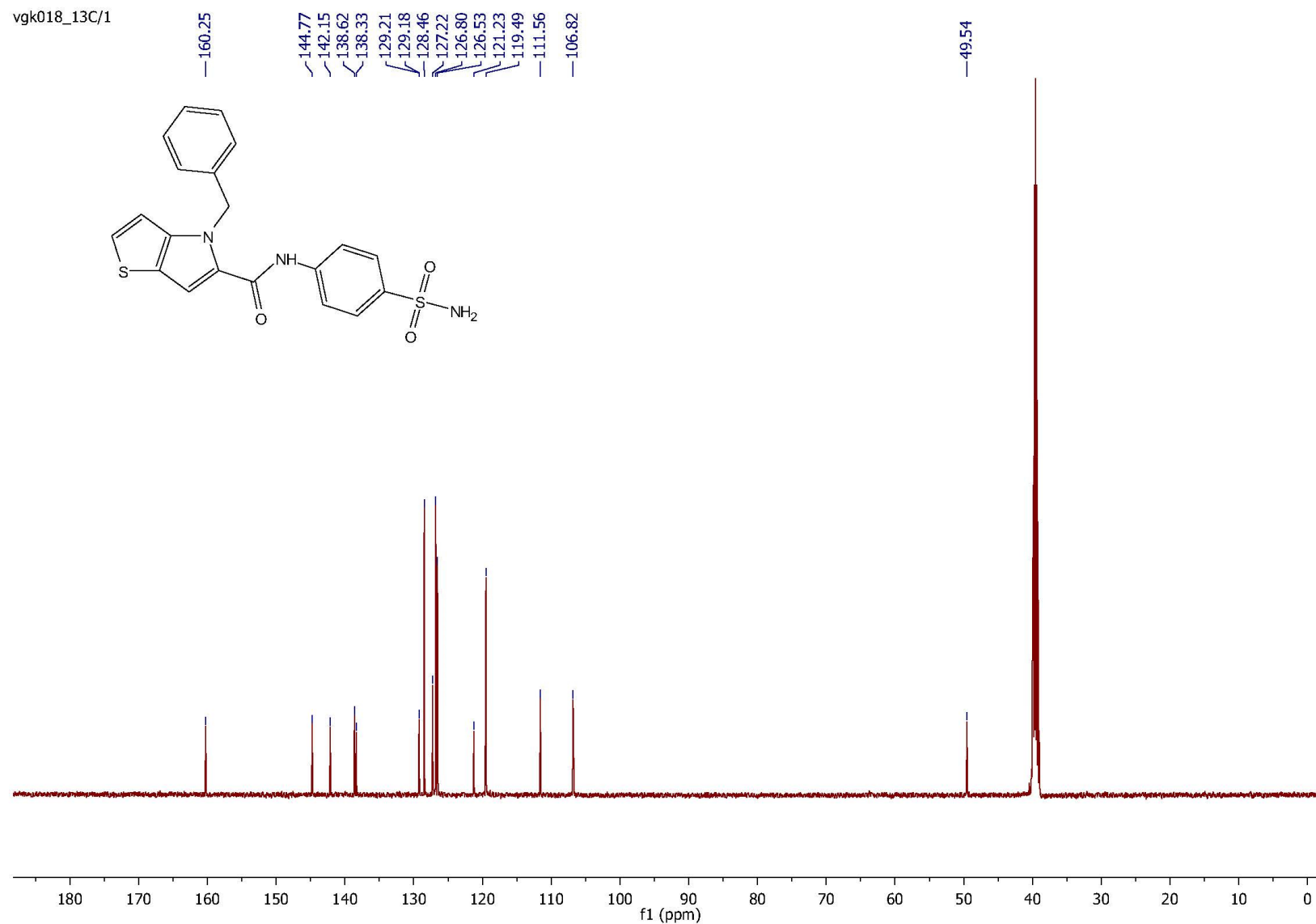


**Figure S29.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-ethyl-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8b**).

vgk018

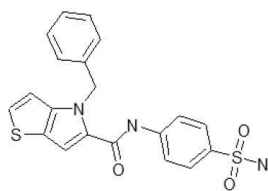


**Figure S30.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-benzyl-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8c**).



**Figure S31.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-benzyl-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8c**).

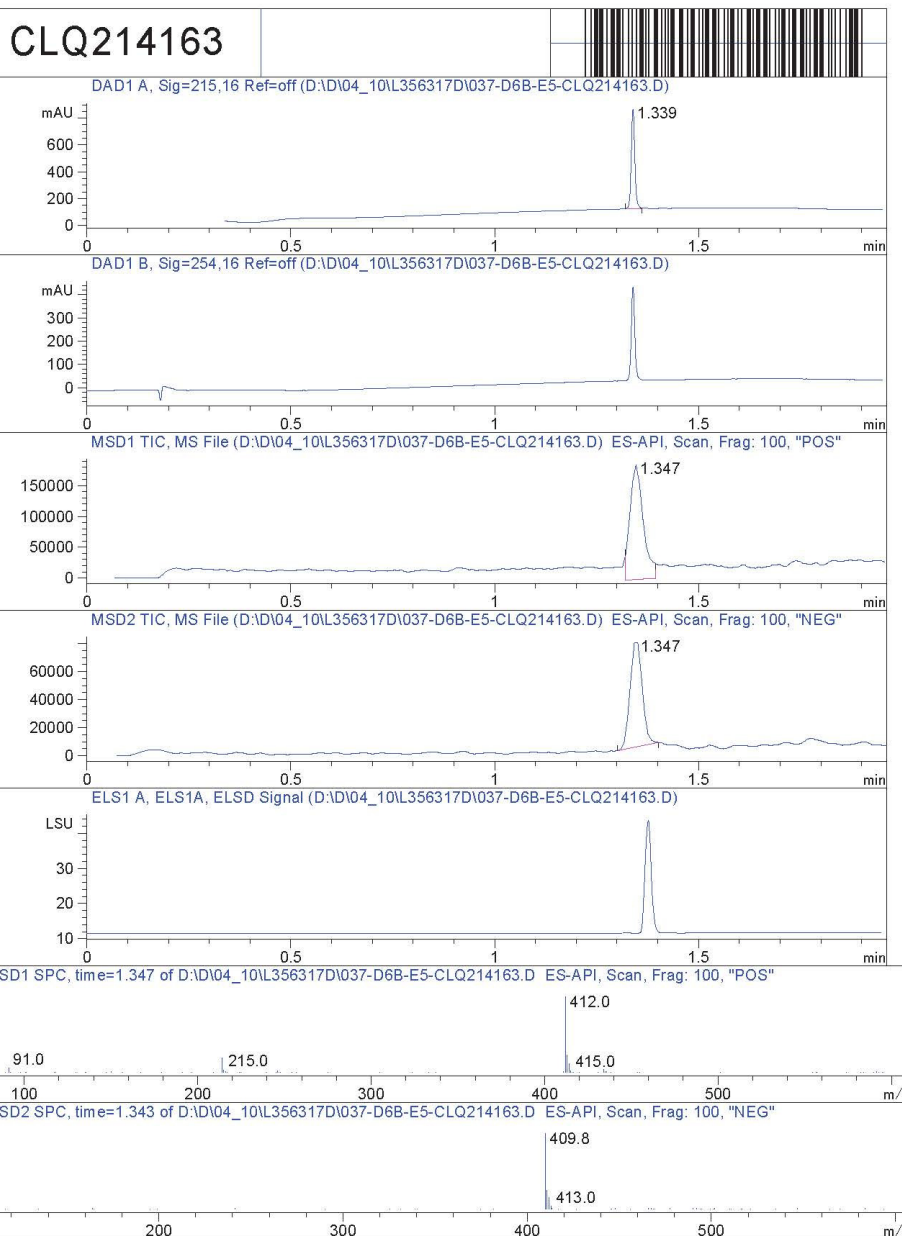
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**Mol Wt**

**Exact Mass**

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Inj.Date 4/9/2021

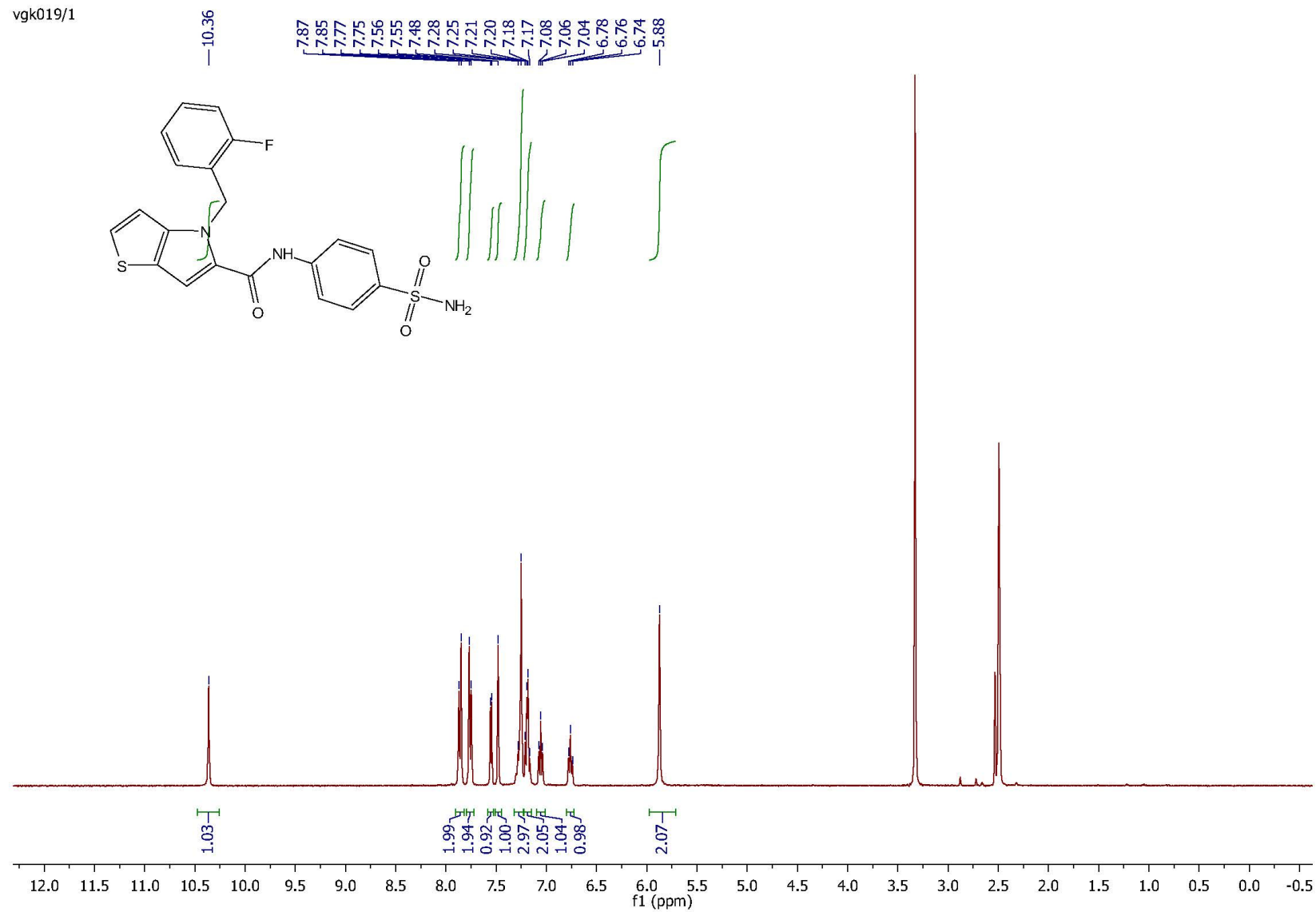
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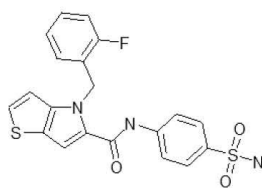
**Figure S32.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-benzyl-4H-thieno[3,2-b]pyrrole-5-carboxamide (**8c**).

vgk019/1



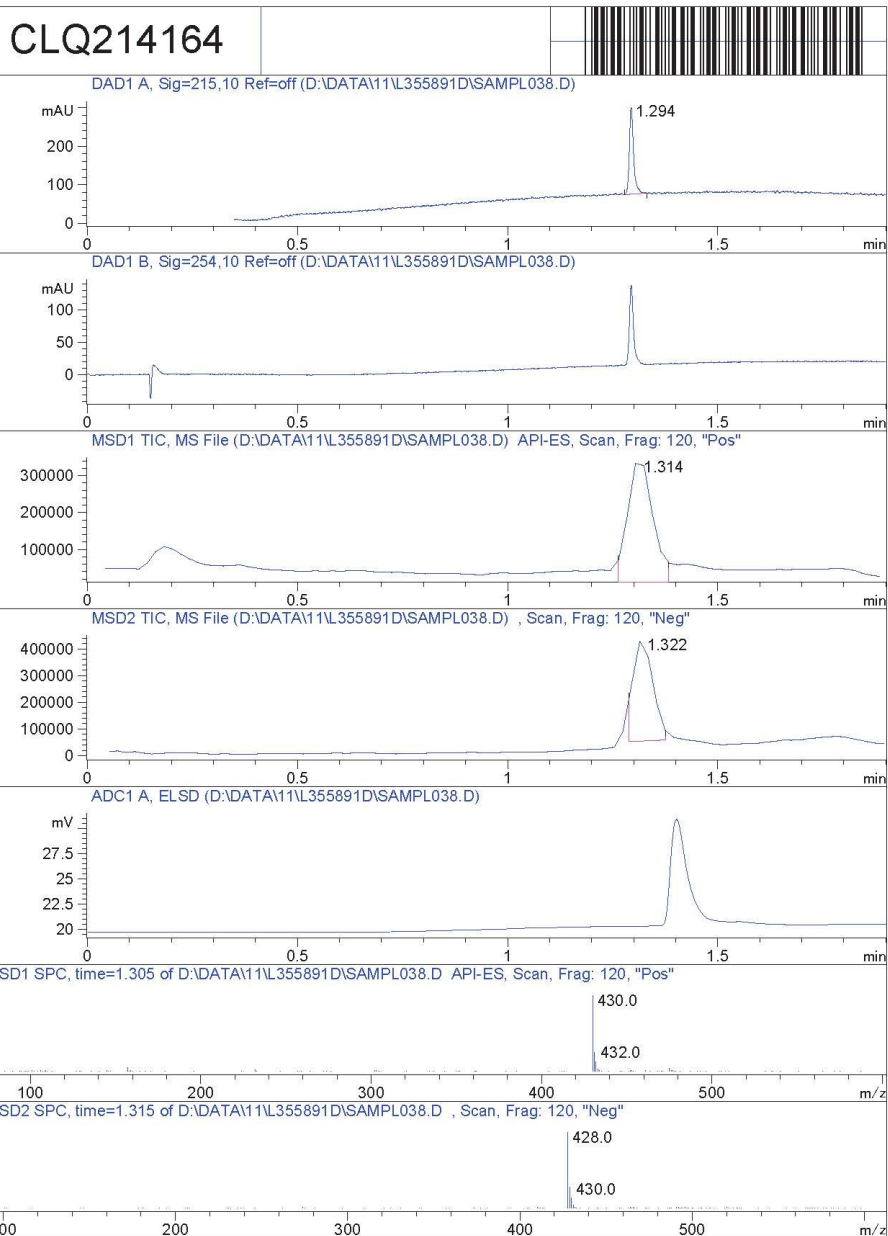
**Figure S33.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-fluorobenzyl)-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8d**).

MaxPeak: 100.00%  
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**Mol Wt**  
**Exact Mass**

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Inj.Date 4/10/2021

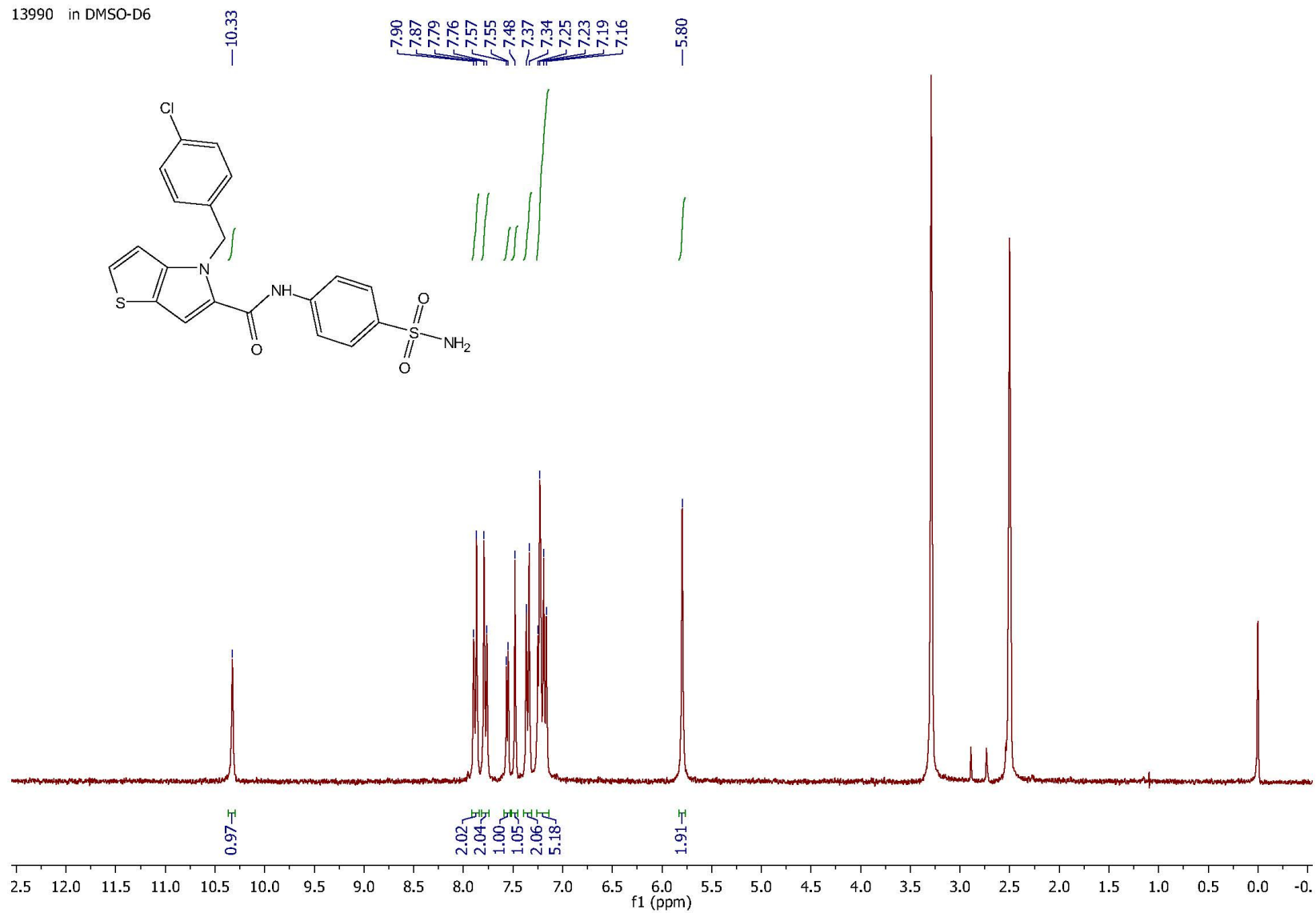
LB

-SL-

Acq. Method C:\HPCHEM\> ->

**Figure S34.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(2-fluorobenzyl)-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8d**).

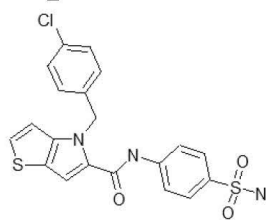
13990 in DMSO-D6



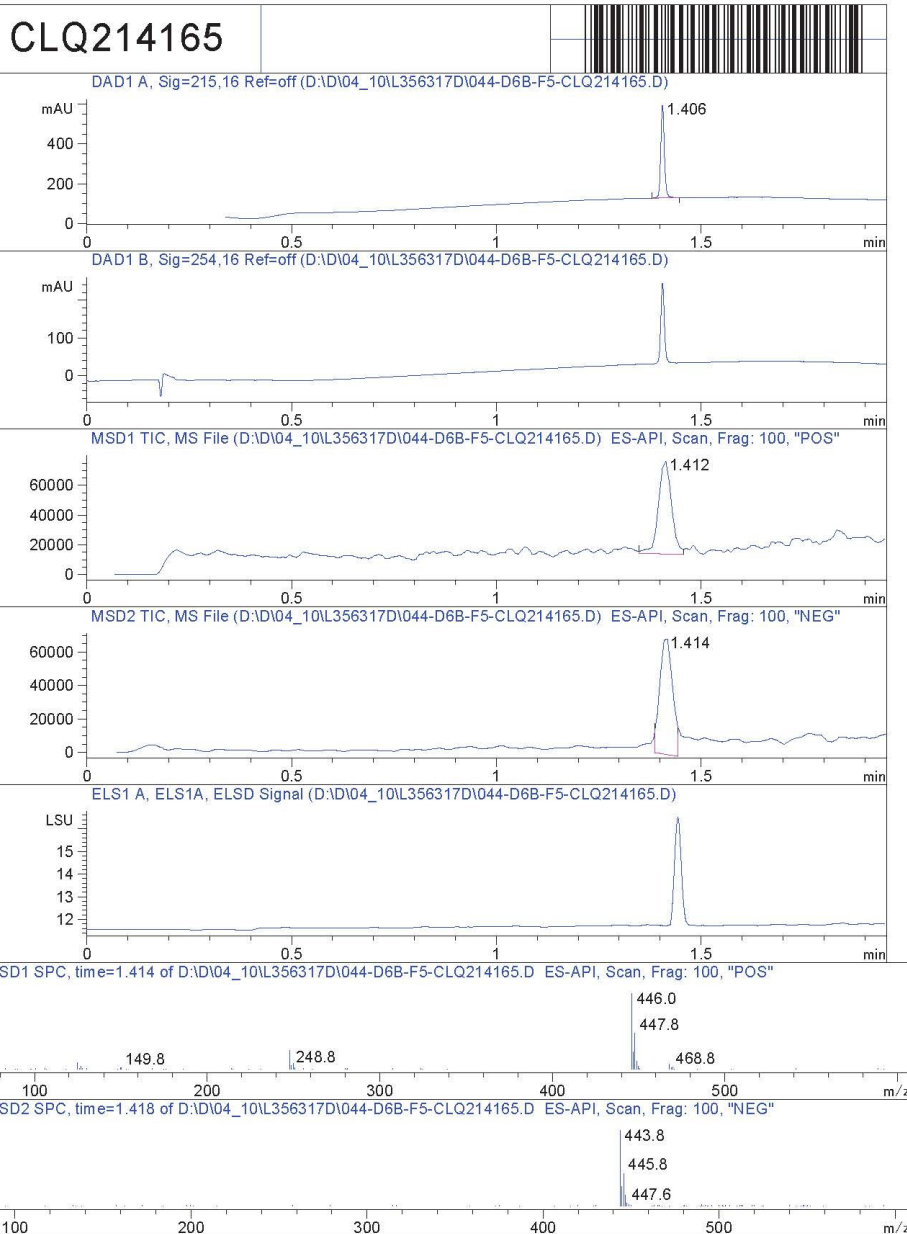
**Figure S35.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(4-chlorobenzyl)-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8f**).



MaxPeak: 100.00%  
Ret\_Time: 1.406 min



Mol Wt Exact Mass		
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Inj.Date 4/9/2021

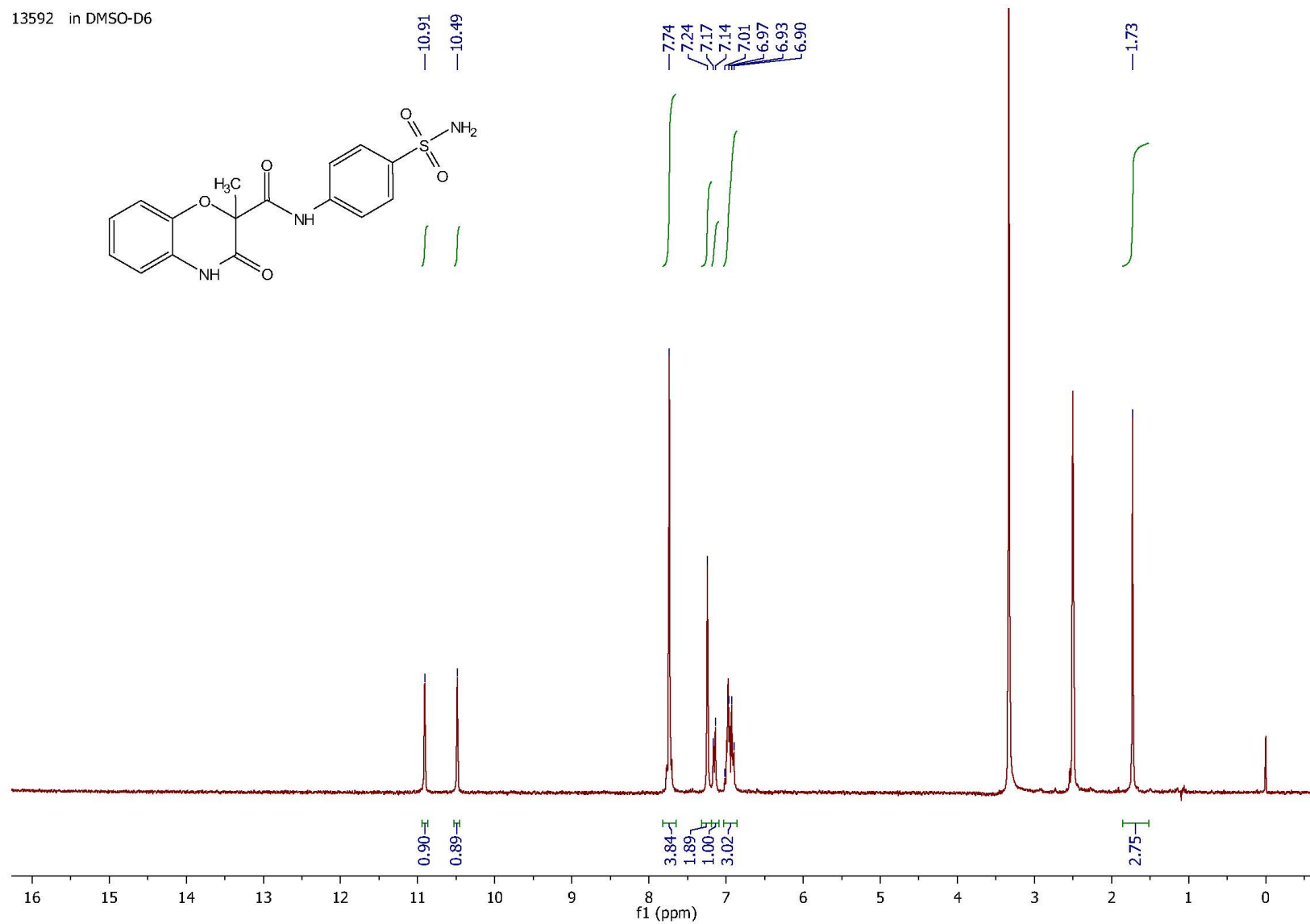
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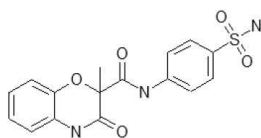
**Figure S36.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-4-(4-chlorobenzyl)-4*H*-thieno[3,2-*b*]pyrrole-5-carboxamide (**8f**).

13592 in DMSO-D6



**Figure S41.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-2-methyl-3-oxo-3,4-dihydro-2H-1,4-benzoxazine-2-carboxamide (**11**).

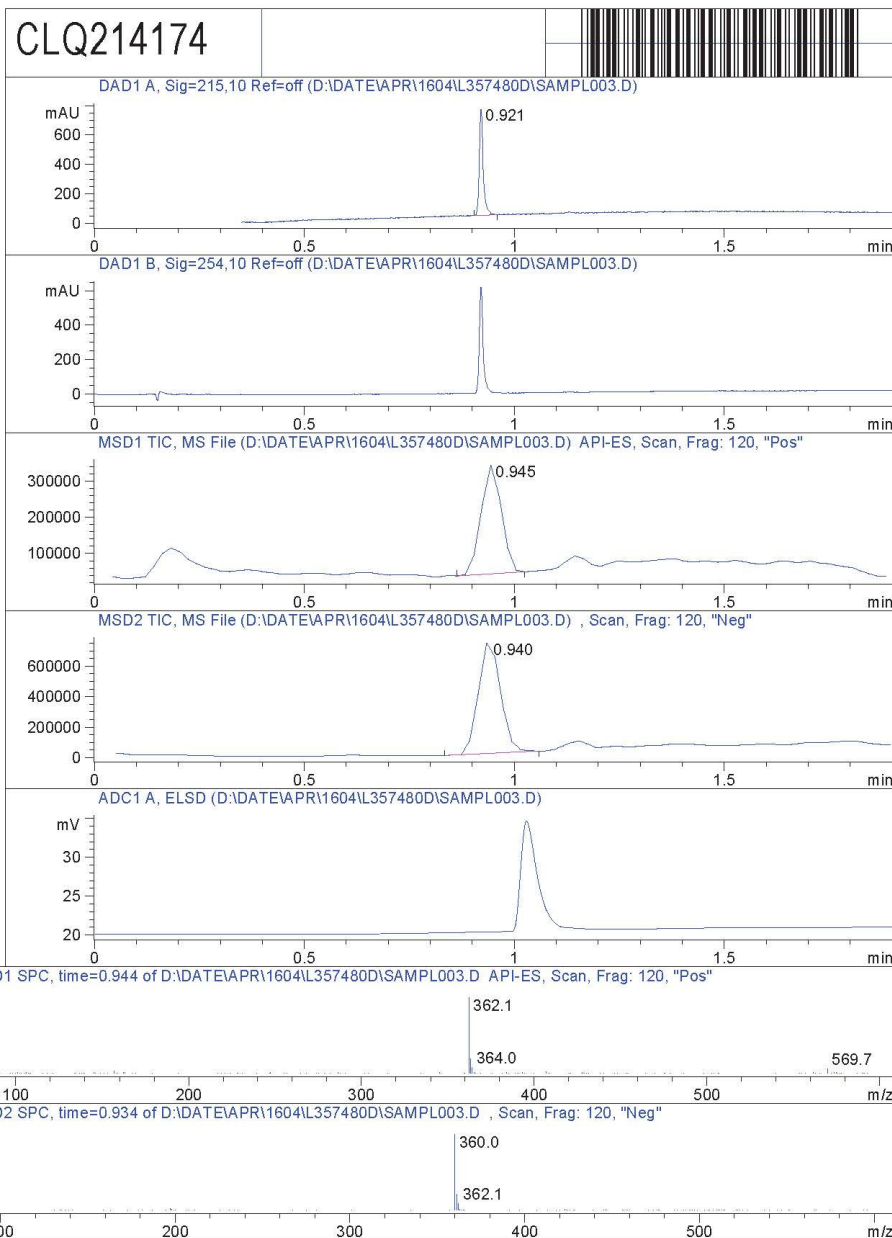
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**Mol Wt**  
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Inj.Date 4/15/2021

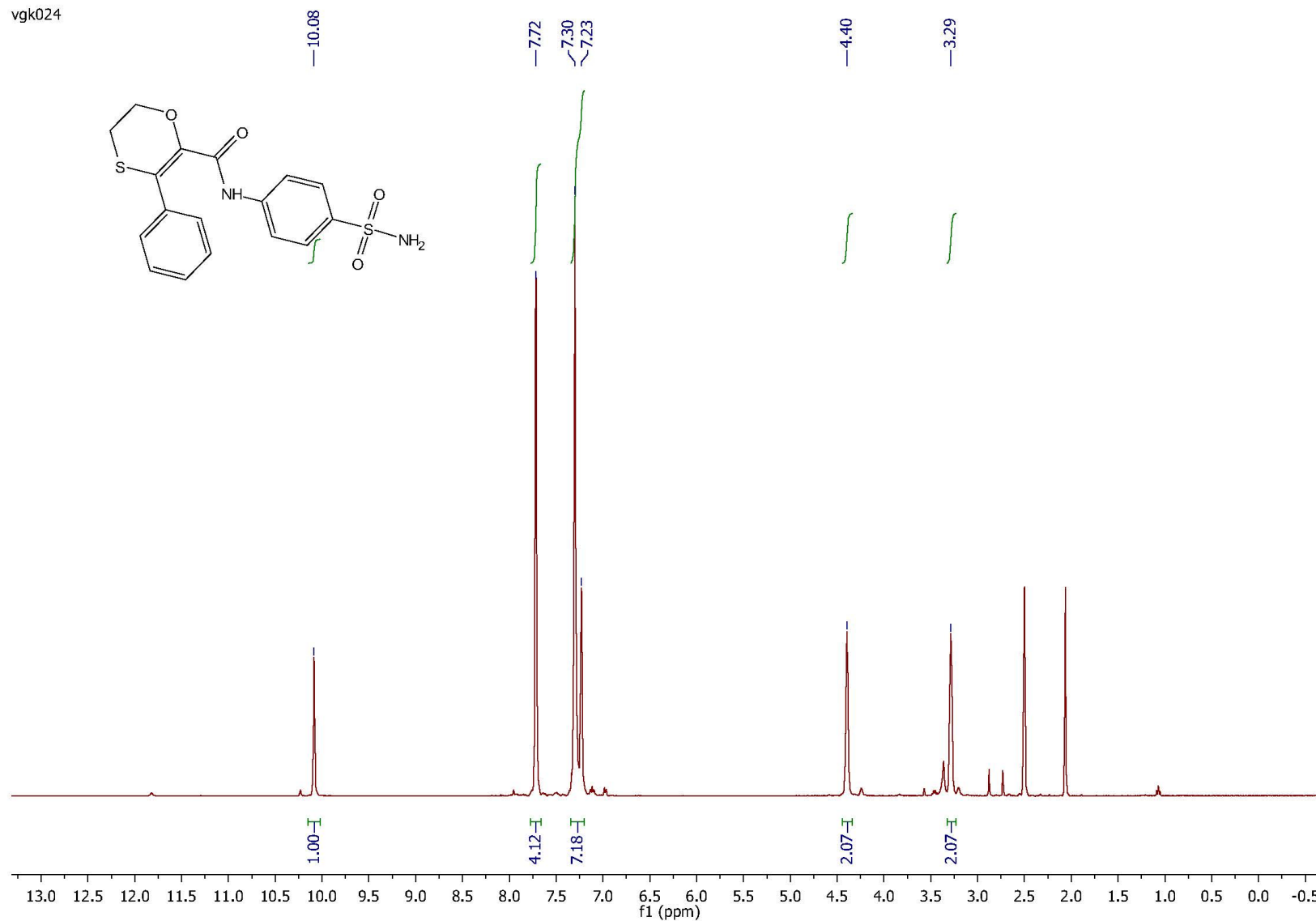
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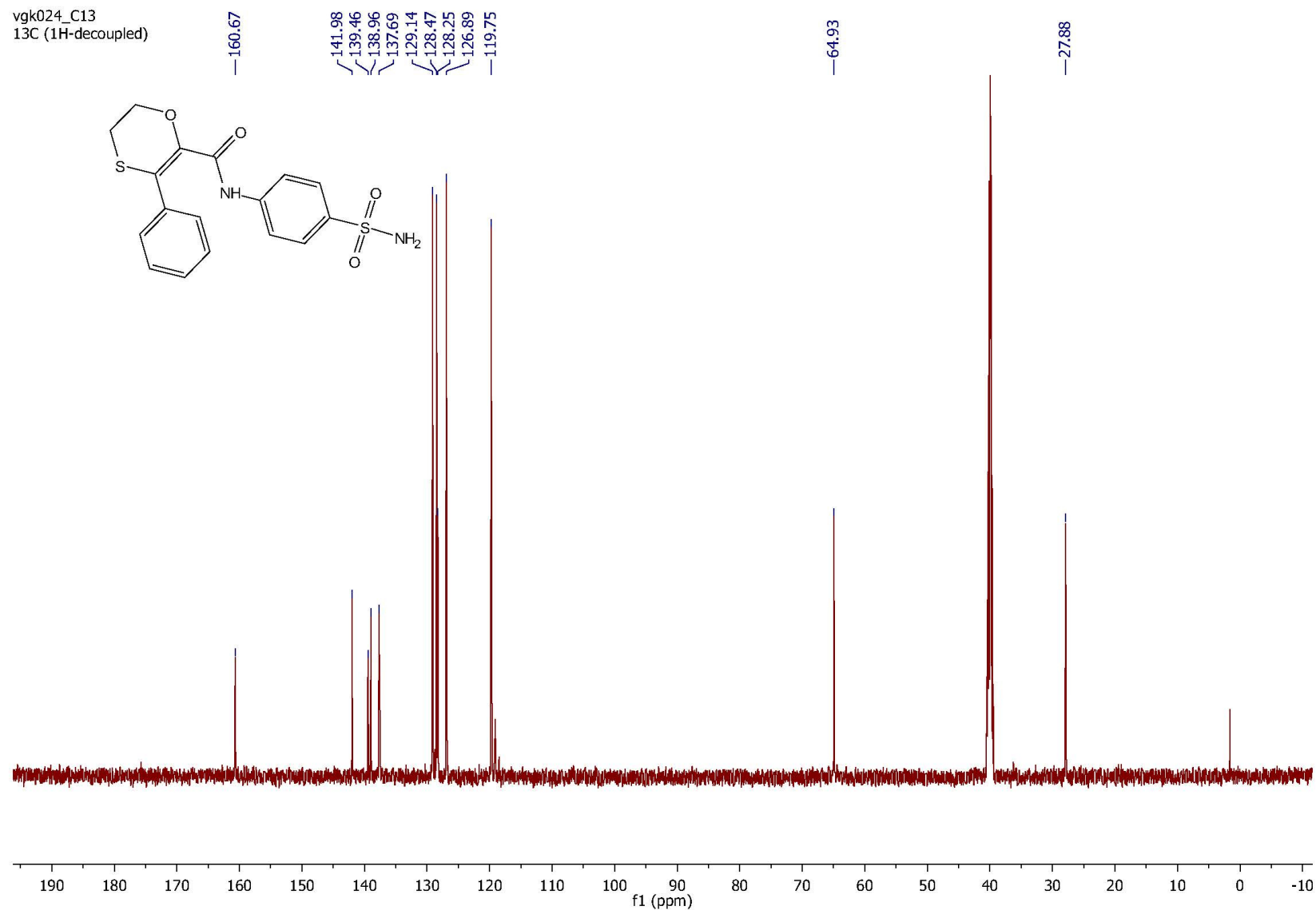
**Figure S42.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-2-methyl-3-oxo-3,4-dihydro-2H-1,4-benzoxazine-2-carboxamide (**11**).

vgk024



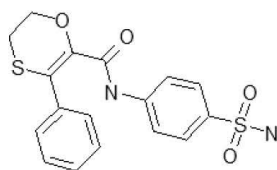
**Figure S43.** <sup>1</sup>H NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-3-phenyl-5,6-dihydro-1,4-oxathiine-2-carboxamide (**14a**).

vgk024\_C13  
13C (1H-decoupled)



**Figure S44.** <sup>13</sup>C NMR spectrum of *N*-[4-(Aminosulfonyl)phenyl]-3-phenyl-5,6-dihydro-1,4-oxathiine-2-carboxamide (**14a**).

MaxPeak: 93.92%  
Ret\_Time: 1.120 min



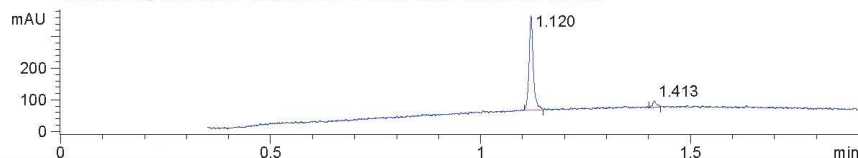
**Mol Wt**  
**Exact Mass**

#	Time	Area%
1	1.120	93.92
2	1.413	6.08

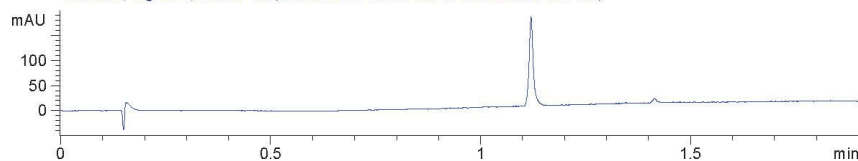
CLQ213970



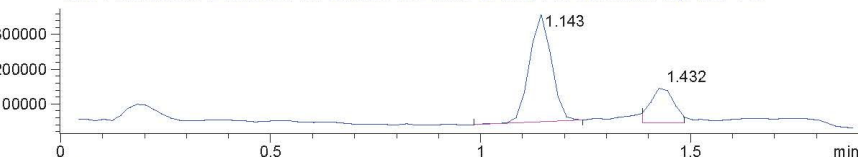
DAD1 A, Sig=215,10 Ref=off (D:\DATE\APR1604\357480D\SAMPL013.D)



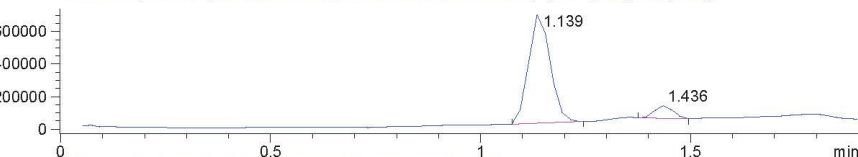
DAD1 B, Sig=254,10 Ref=off (D:\DATE\APR1604\357480D\SAMPL013.D)



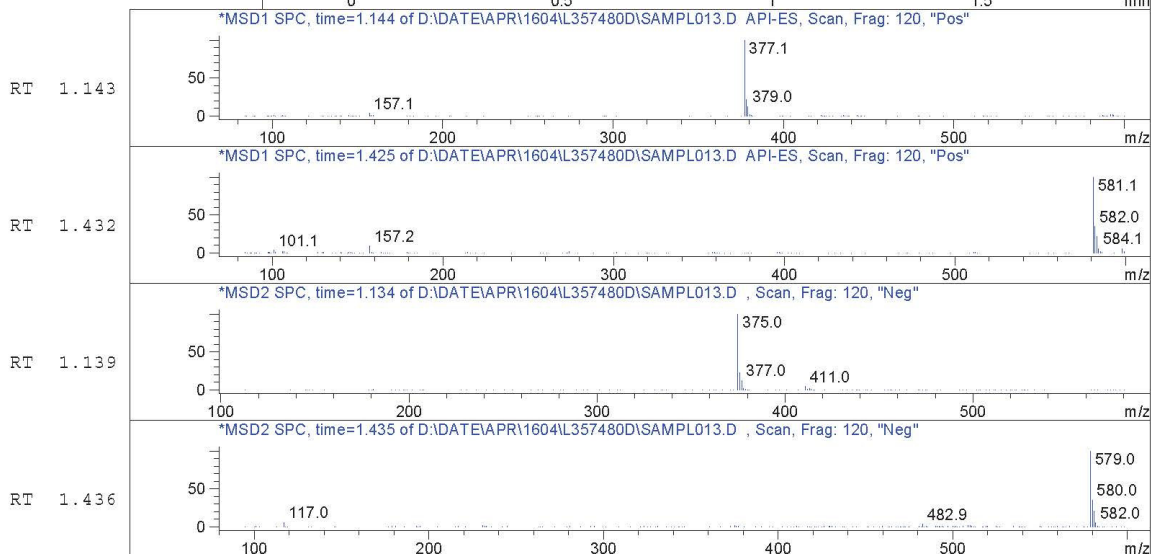
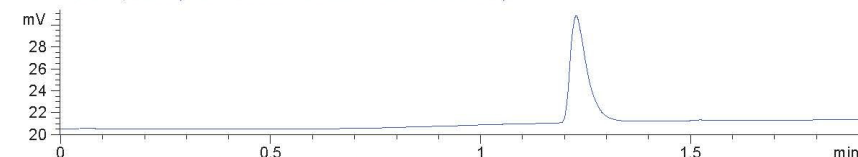
MSD1 TIC, MS File (D:\DATE\APR1604\357480D\SAMPL013.D) API-ES, Scan, Frag: 120, "Pos"



MSD2 TIC, MS File (D:\DATE\APR1604\357480D\SAMPL013.D) , Scan, Frag: 120, "Neg"



ADC1 A, ELSD (D:\DATE\APR1604\357480D\SAMPL013.D)



Inj.Date 4/15/2021

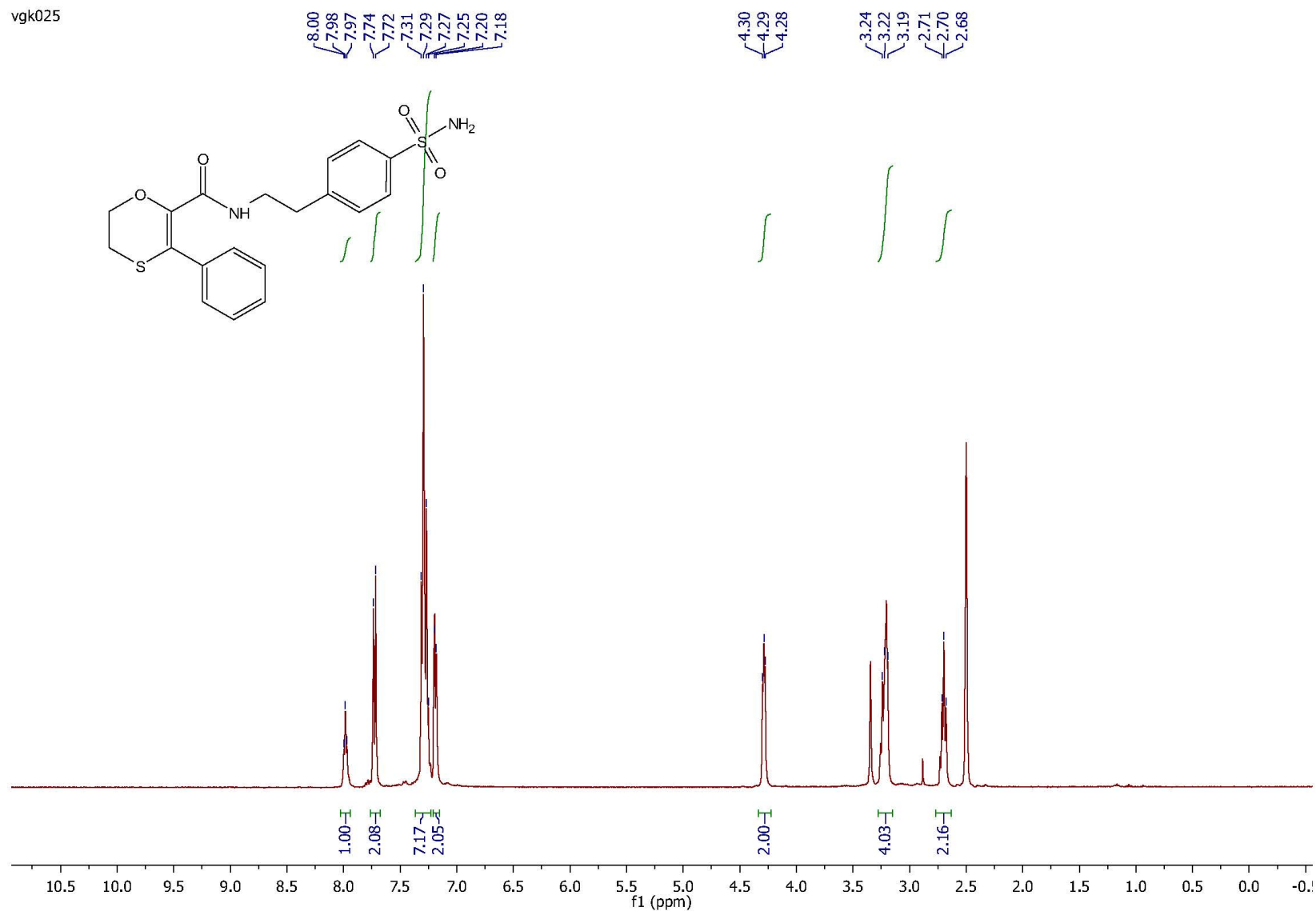
Y

-SL-

Acq. Method C:\HPCHEM\ -> ->

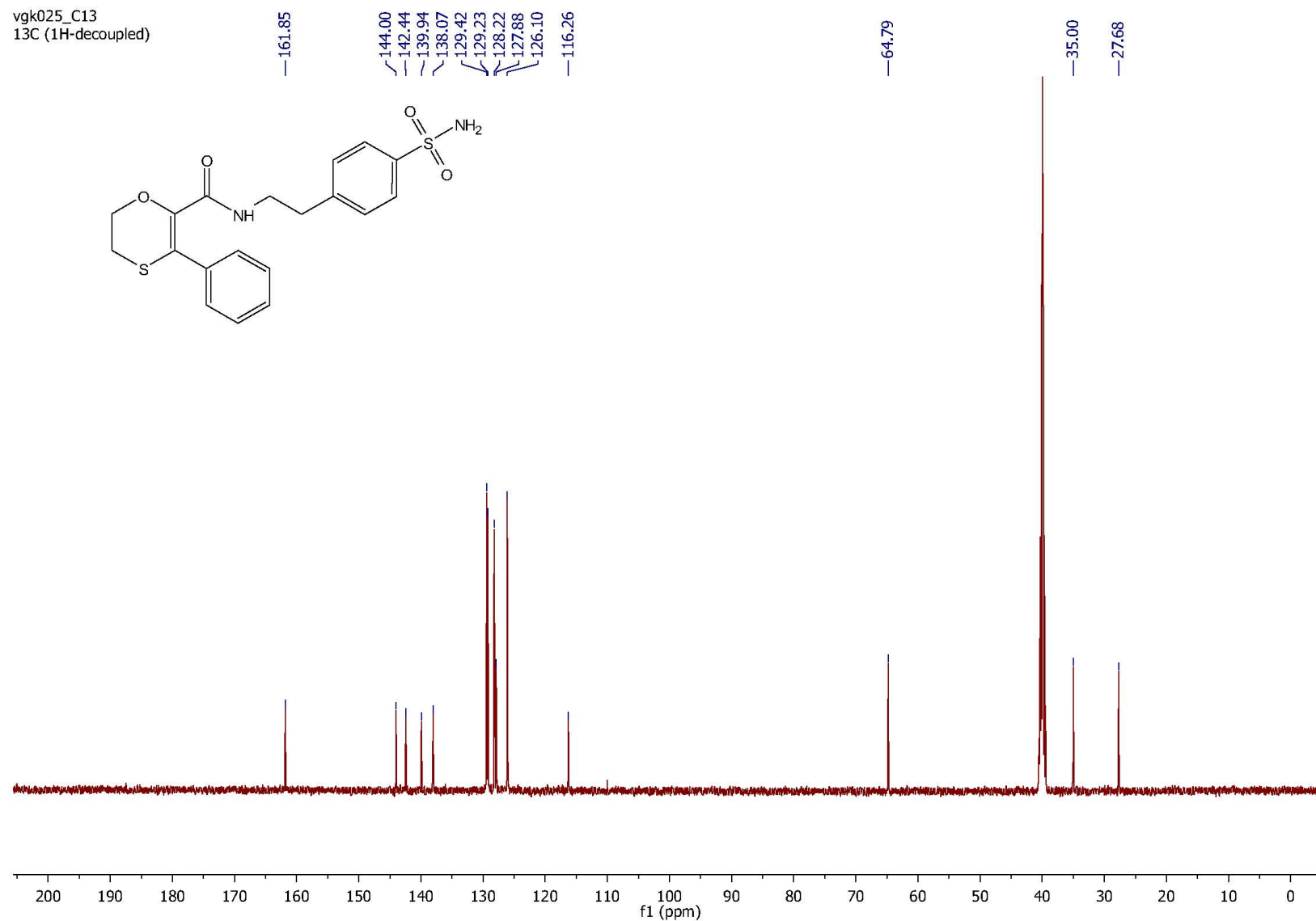
**Figure S45.** LCMS spectrum of *N*-[4-(Aminosulfonyl)phenyl]-3-phenyl-5,6-dihydro-1,4-oxathiine-2-carboxamide (**14a**).

vgk025



**Figure S46.** <sup>1</sup>H NMR spectrum of *N*-{2-[4-(Aminosulfonyl)phenyl]ethyl}-3-phenyl-5,6-dihydro-1,4-oxathiine-2-carboxamide (**14b**).

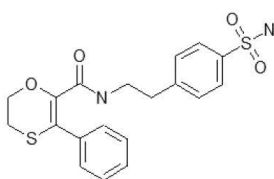
vgk025\_C13  
13C (1H-decoupled)



**Figure S47.** <sup>13</sup>C NMR spectrum of *N*-{2-[4-(Aminosulfonyl)phenyl]ethyl}-3-phenyl-5,6-dihydro-1,4-oxathiine-2-carboxamide (**14b**).



MaxPeak: 100.00%  
Ret\_Time: 1.086 min



**Mol Wt**  
**Exact Mass**

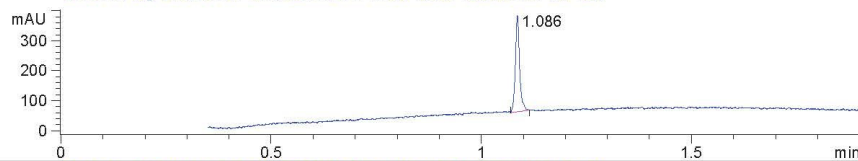
#	Time	Area%
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0

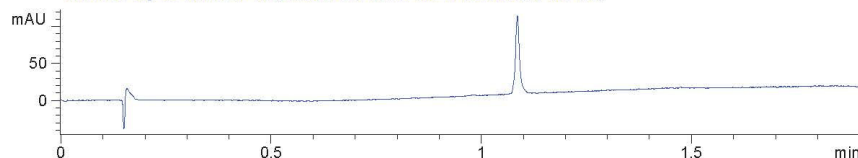
CLQ213968



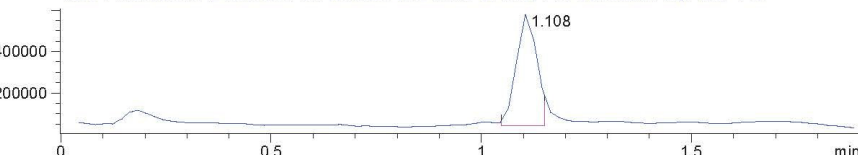
DAD1 A, Sig=215,10 Ref=off (D:\DATE\APR1604\1357480D\SAMPL014.D)



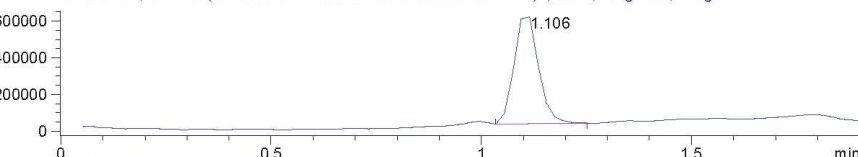
DAD1 B, Sig=254,10 Ref=off (D:\DATE\APR1604\1357480D\SAMPL014.D)



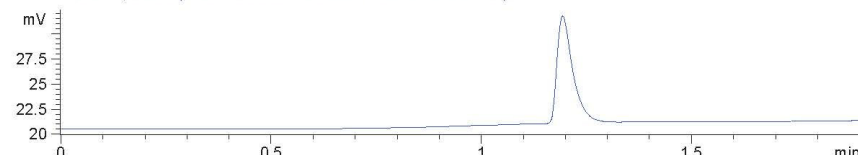
MSD1 TIC, MS File (D:\DATE\APR1604\1357480D\SAMPL014.D) API-ES, Scan, Frag: 120, "Pos"



MSD2 TIC, MS File (D:\DATE\APR1604\1357480D\SAMPL014.D) , Scan, Frag: 120, "Neg"

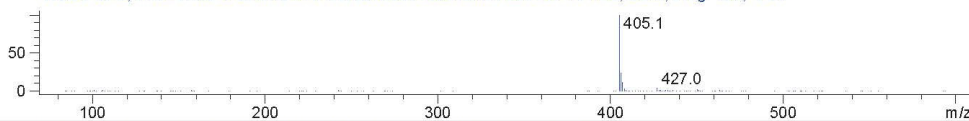


ADC1 A, ELSD (D:\DATE\APR1604\1357480D\SAMPL014.D)



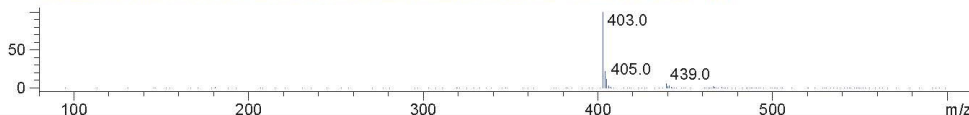
RT 1.108

\*MSD1 SPC, time=1.105 of D:\DATE\APR1604\1357480D\SAMPL014.D API-ES, Scan, Frag: 120, "Pos"



RT 1.106

\*MSD2 SPC, time=1.115 of D:\DATE\APR1604\1357480D\SAMPL014.D , Scan, Frag: 120, "Neg"



Inj.Date 4/15/2021

Y

-SL-

Acq. Method C:\HPCHEM\ -> ->

**Figure S48.** LCMS spectrum of *N*-{2-[4-(Aminosulfonyl)phenyl]ethyl}-3-phenyl-5,6-dihydro-1,4-oxathiine-2-carboxamide (**14b**).