

**Synthesis of Multi-Substituted 4-Aminopyridines via Ring-Opening and Recyclization  
Reactions of 2-Iminopyridines**

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Dong<sup>[a,\*]</sup>

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[b] *School of Chemistry and Environmental Engineering, Changchun University of Science and Technology,  
Changchun 130022, China*

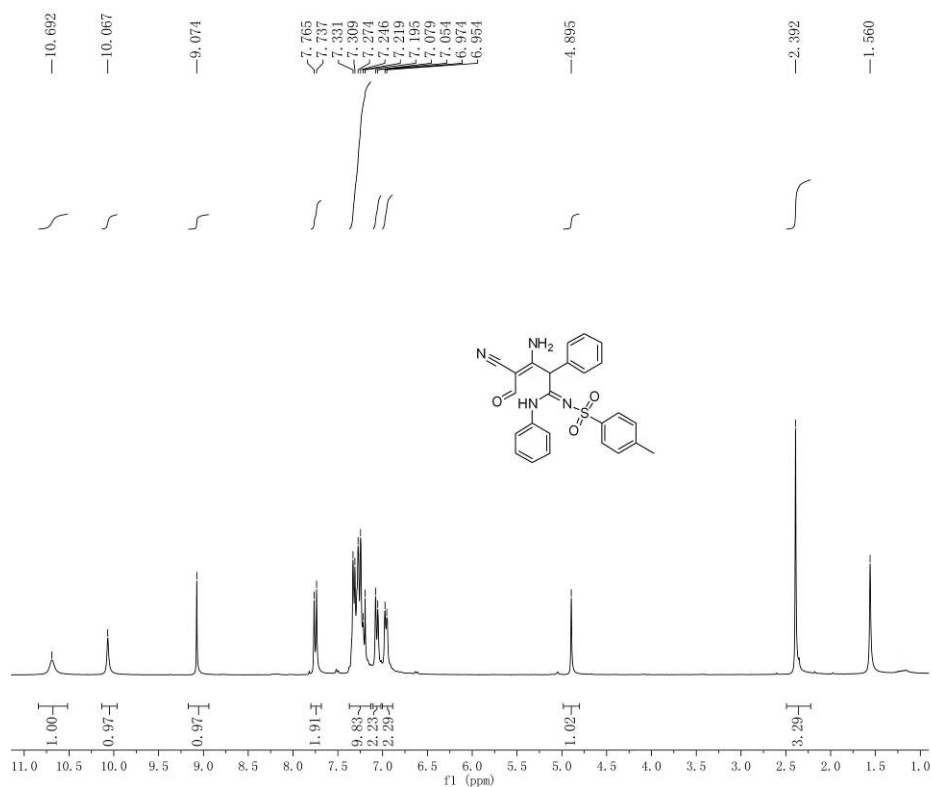
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**Electronic Supplementary Information (ESI)**

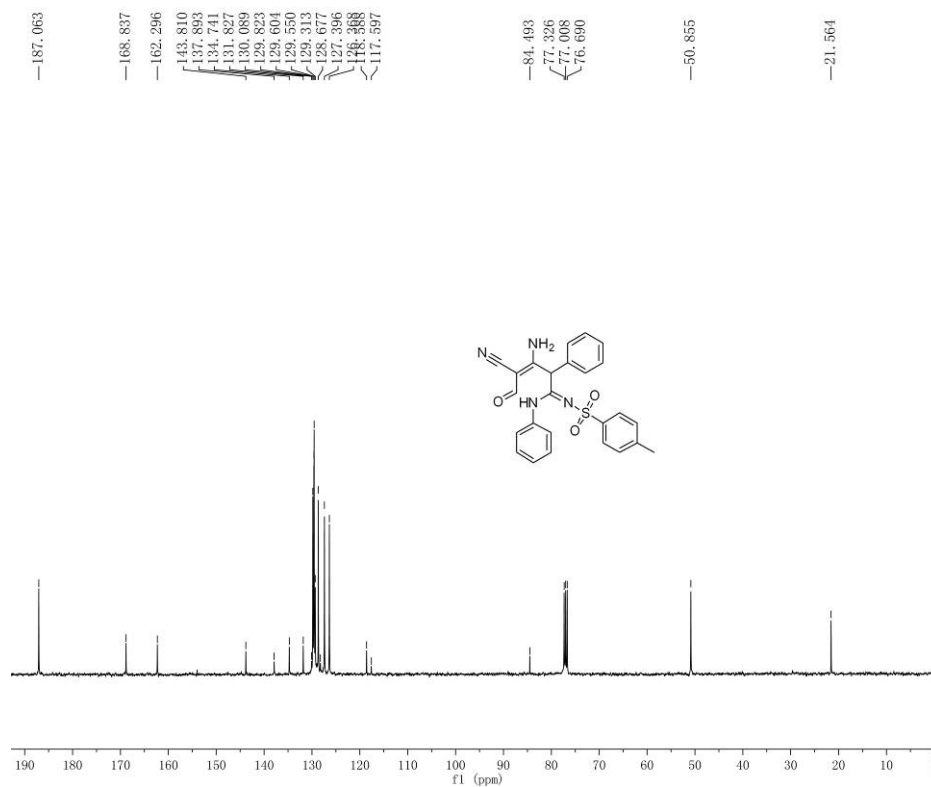
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# I . Copies of NMR spectra for products 2, 3 and 4.

2a

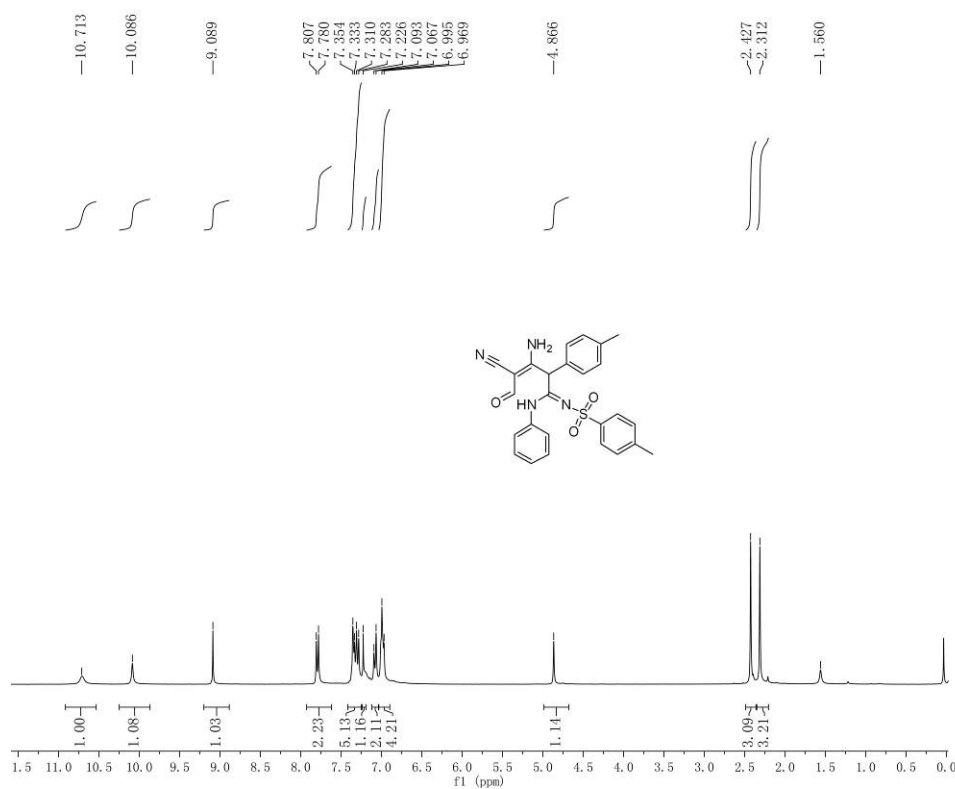


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4 Owner	nmr
5 Site	
6 Spectrometer	specter
7 Author	
8 Solvent	CDCl3
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13 Receiver Gain	193
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24 Spectral Size	32768

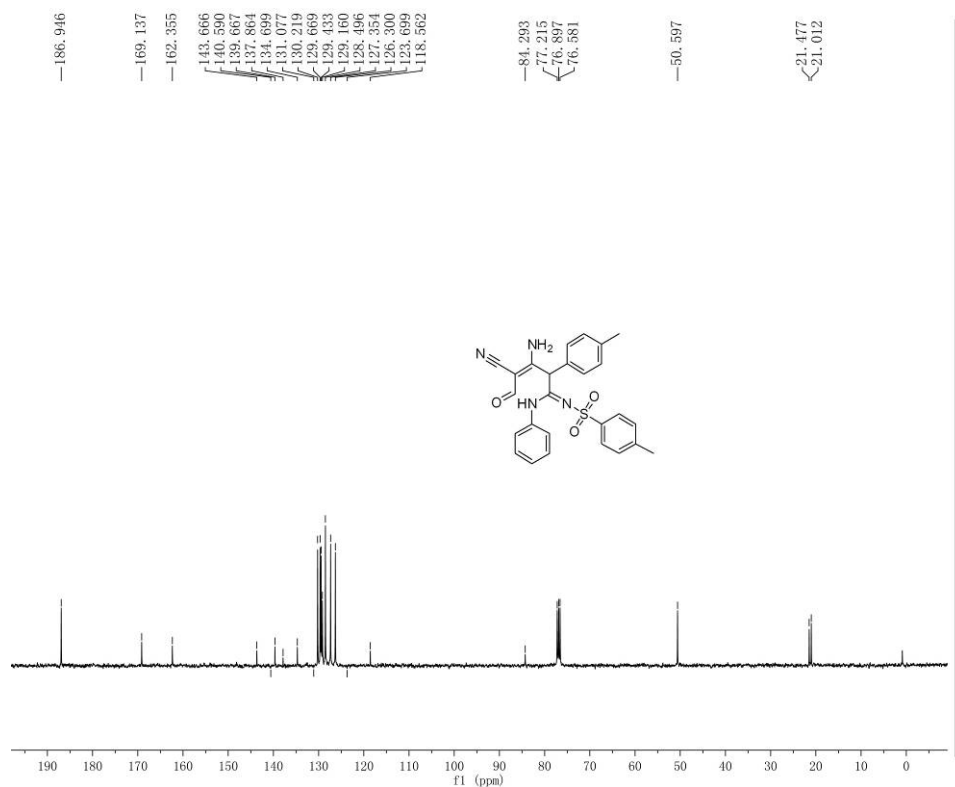


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5 Site	
6 Spectrometer	av400er
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0
10 Pulse Sequence	zgdc
11 Experiment ID	
12 Number of Scans	1181
13 Receiver Gain	8192
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16 Acquisition Time	0.3269
17 Acquisition Date	2013-09-24 12:31:00
18 Modification Date	2013-09-29 10:8:19:16
19 Spectrometer Frequency	100.57
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22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384

2b

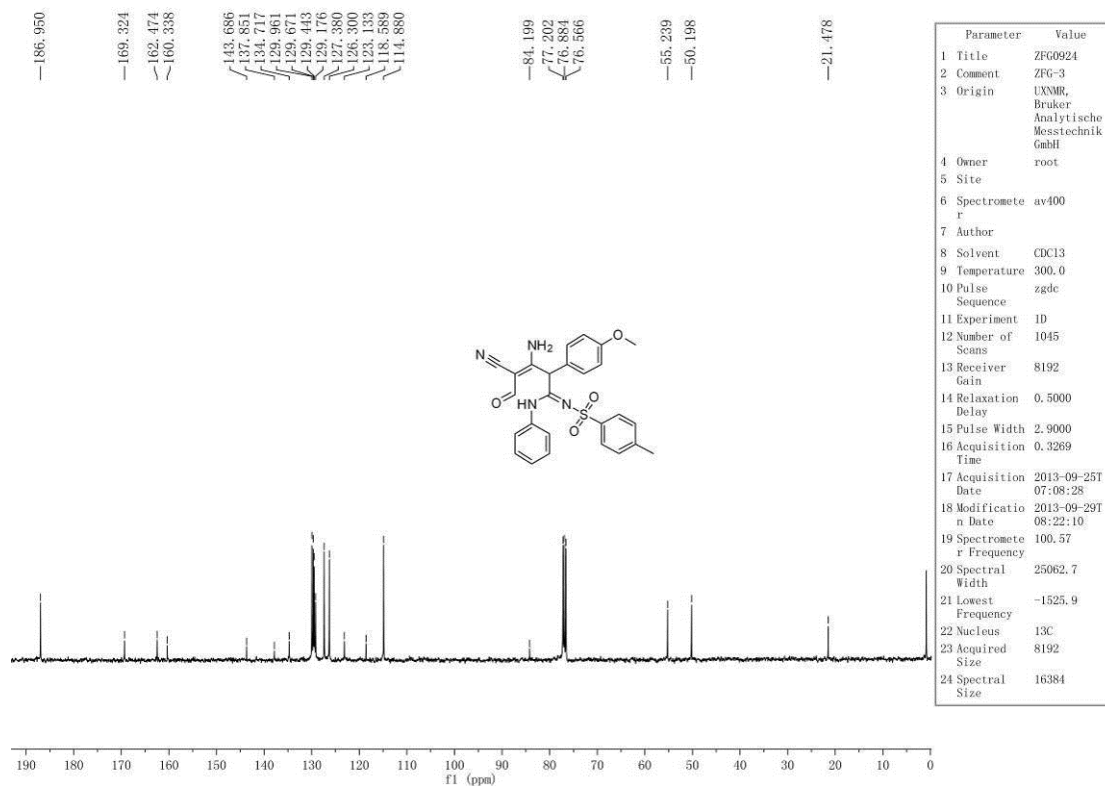
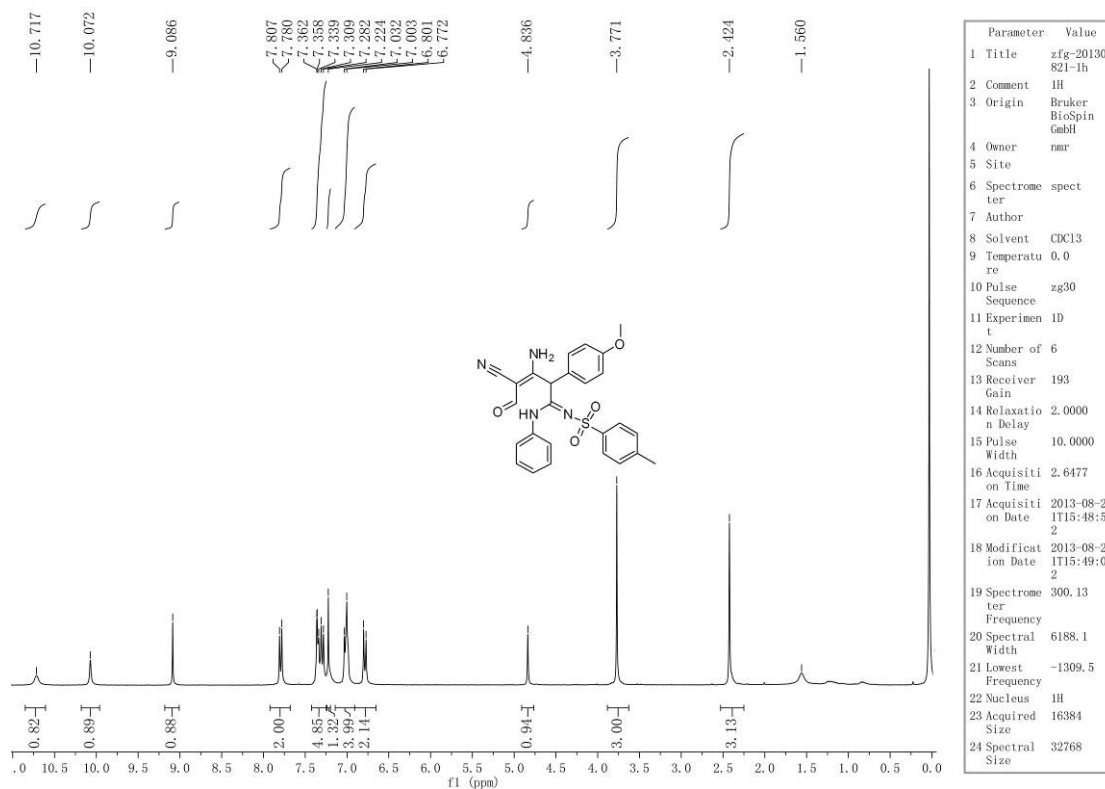


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4 Owner	nmr
5 Site	
6 Spectrometer	spect
7 Author	
8 Solvent	CDCl3
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10 Pulse Sequence	zg30
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13 Receiver Gain	193
14 Relaxation Delay	2.0000
15 Pulse Width	10.0000
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17 Acquisition Date	2013-08-2
18 Modification Date	2013-08-2
19 Spectrometer Frequency	300.13
20 Spectral Width	6188.1
21 Lowest Frequency	-1293.3
22 Nucleus	1H
23 Acquired Size	16384
24 Spectral Size	32768

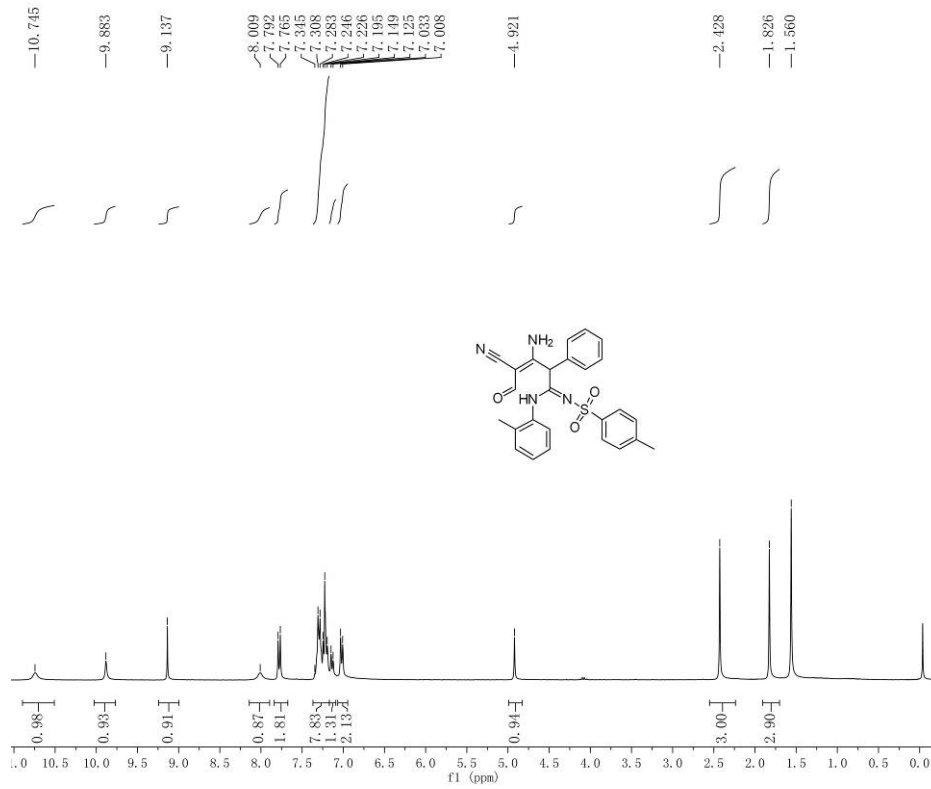


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8 Solvent	CDCl3
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10 Pulse Sequence	zgdc
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18 Modification Date	2013-09-29
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22 Nucleus	13C
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24 Spectral Size	16384

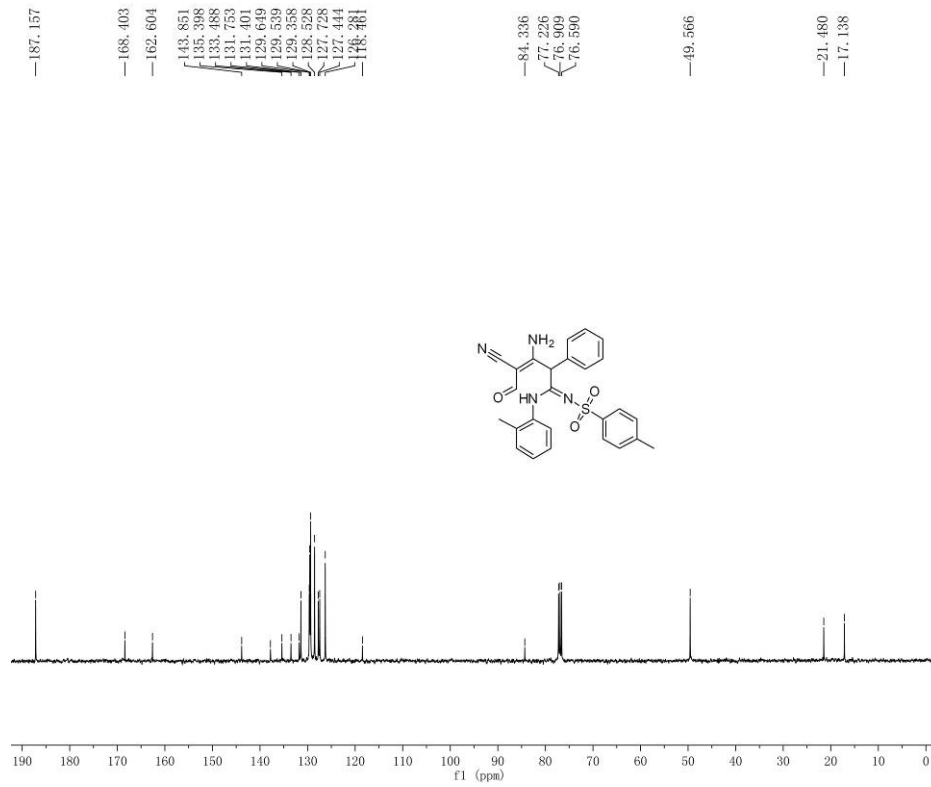
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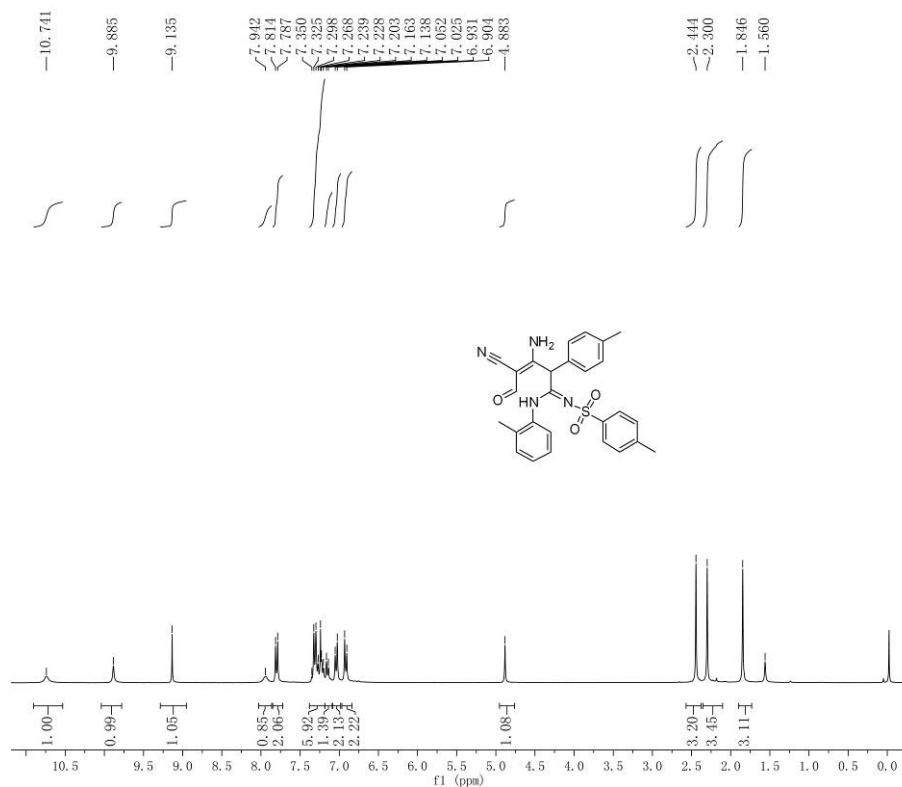


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1 Title	zfg-20130821-1h
2 Comment	1H
3 Origin	Bruker BioSpin GmbH
4 Owner	nmr
5 Site	
6 Spectrometer	specter
7 Author	
8 Solvent	CDC13
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10 Pulse Sequence	zg30
11 Experiment ID	
12 Number of Scans	9
13 Receiver Gain	193
14 Relaxation Delay	2.0000
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24 Spectral Size	32768

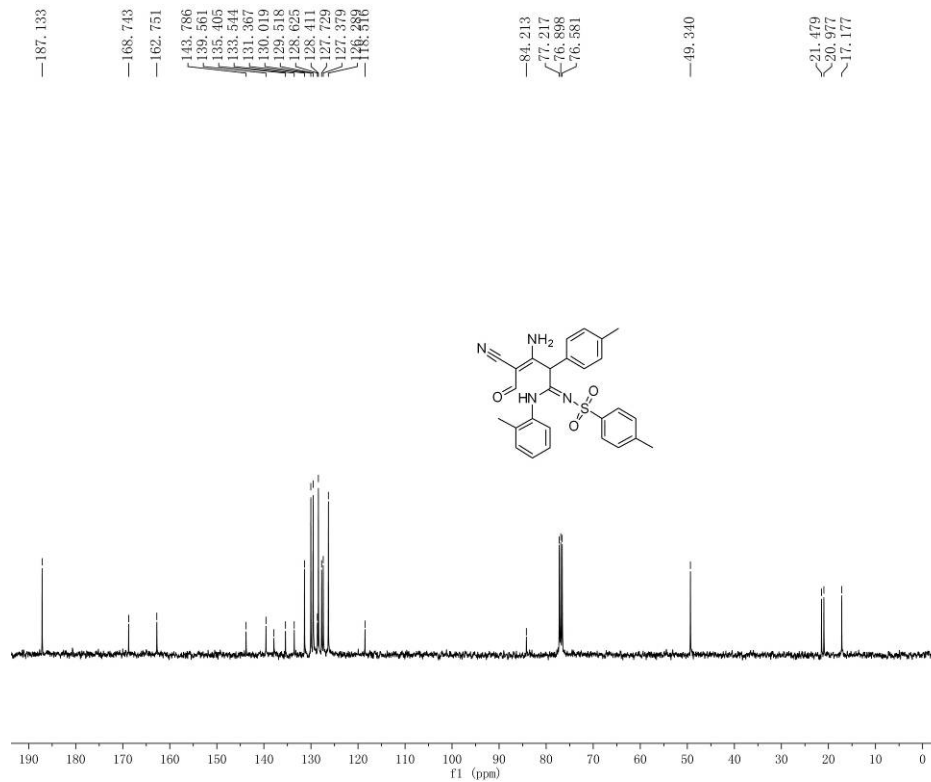


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5 Site	
6 Spectrometer	av400
7 Author	
8 Solvent	CDC13
9 Temperature	300.0 °C
10 Pulse Sequence	zgdc
11 Experiment ID	
12 Number of Scans	446
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23 Acquired Size	8192
24 Spectral Size	16384

2e

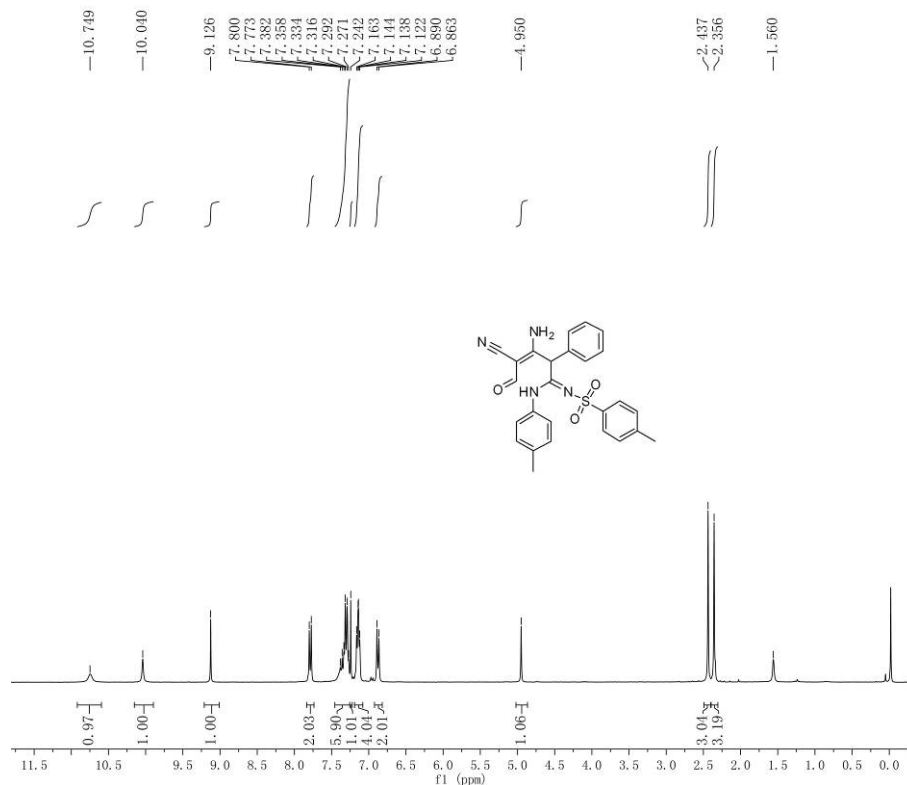


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2 Comment	-lh
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6 Spectrometer	spect
7 Author	
8 Solvent	CDCl3
9 Temperature	0.0
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11 Experiment	1D
12 Number of Scans	6
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24 Spectral Size	32768

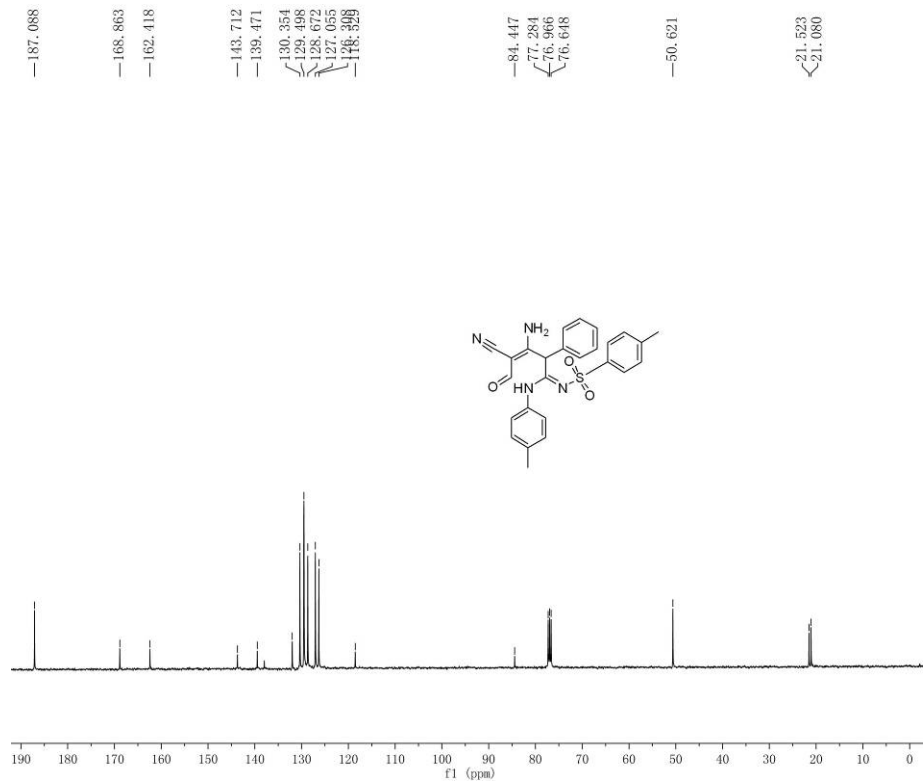


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4 Owner	root
5 Site	
6 Spectrometer	av400
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0
10 Pulse Sequence	zgdc
11 Experiment	1D
12 Number of Scans	573
13 Receiver Gain	8192
14 Relaxation Delay	0.5000
15 Pulse Width	2.9000
16 Acquisition Time	0.3269
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18 Modification Date	2013-09-29T08:22:40
19 Spectrometer Frequency	100.57
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22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384

2f

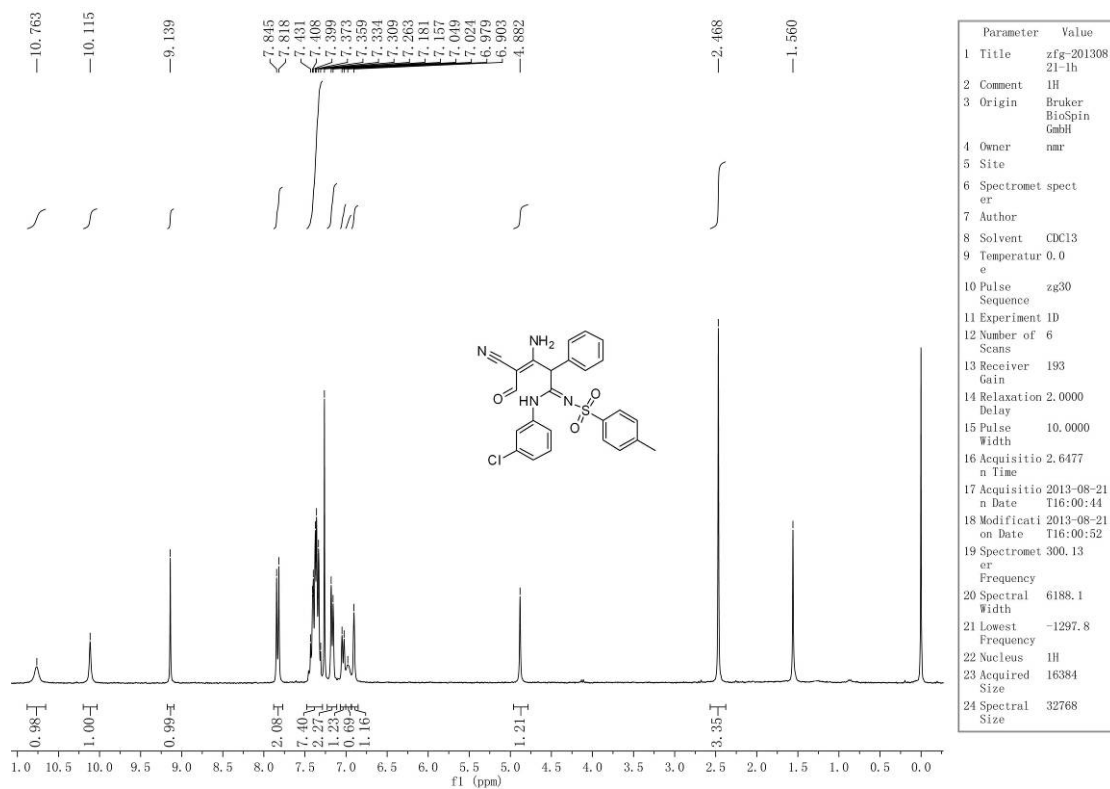


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2 Comment	lh
3 Origin	Bruker BioSpin GmbH
4 Owner	nmr
5 Site	
6 Spectrometer spect	
7 Author	
8 Solvent	CDCl3
9 Temperature	0.0
10 Pulse Sequence	zg30
11 Experiment ID	
12 Number of Scans	7
13 Receiver Gain	193
14 Relaxation Delay	2.0000
15 Pulse Width	10.0000
16 Acquisition Time	2.6477
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23 Acquired Size	16384
24 Spectral Size	32768

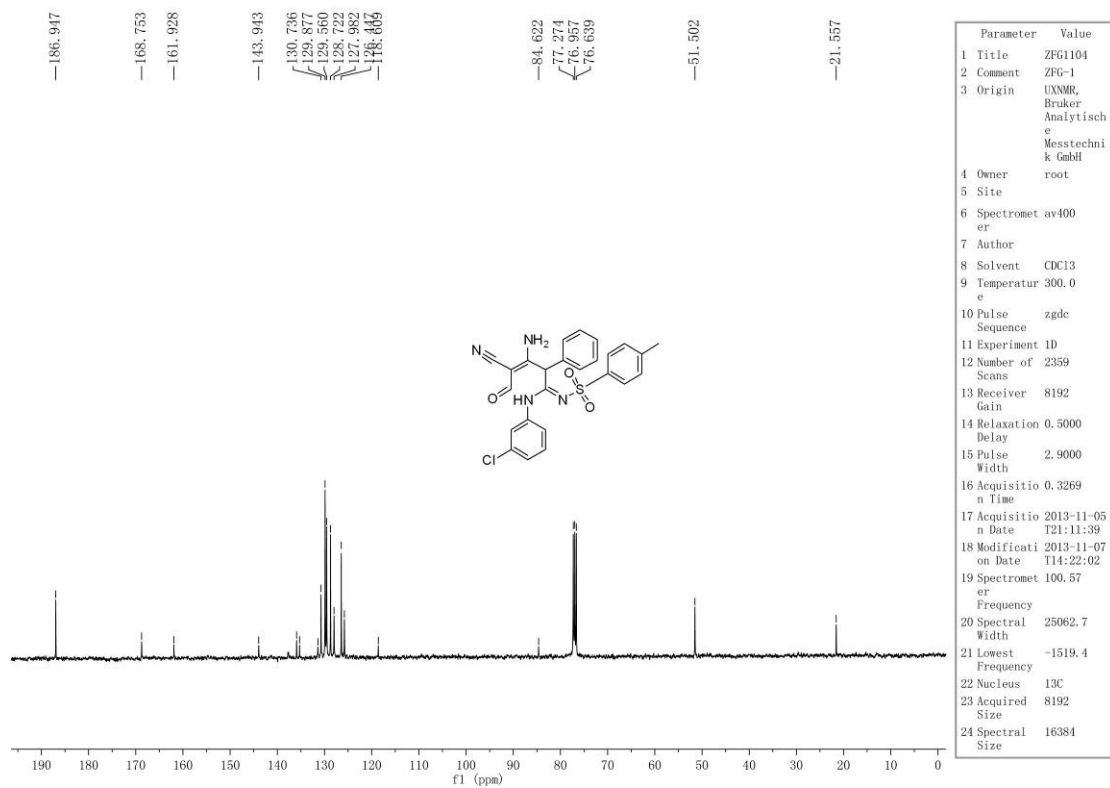


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5 Site	
6 Spectromete r	av400
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0
10 Pulse Sequence	zgdc
11 Experiment ID	
12 Number of Scans	1562
13 Receiver Gain	8192
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15 Pulse Width	2.9000
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17 Acquisition Date	2013-11-06T00:58:34
18 Modification Date	2013-11-07T14:22:12
19 Spectromete r Frequency	100.57
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22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384

2g



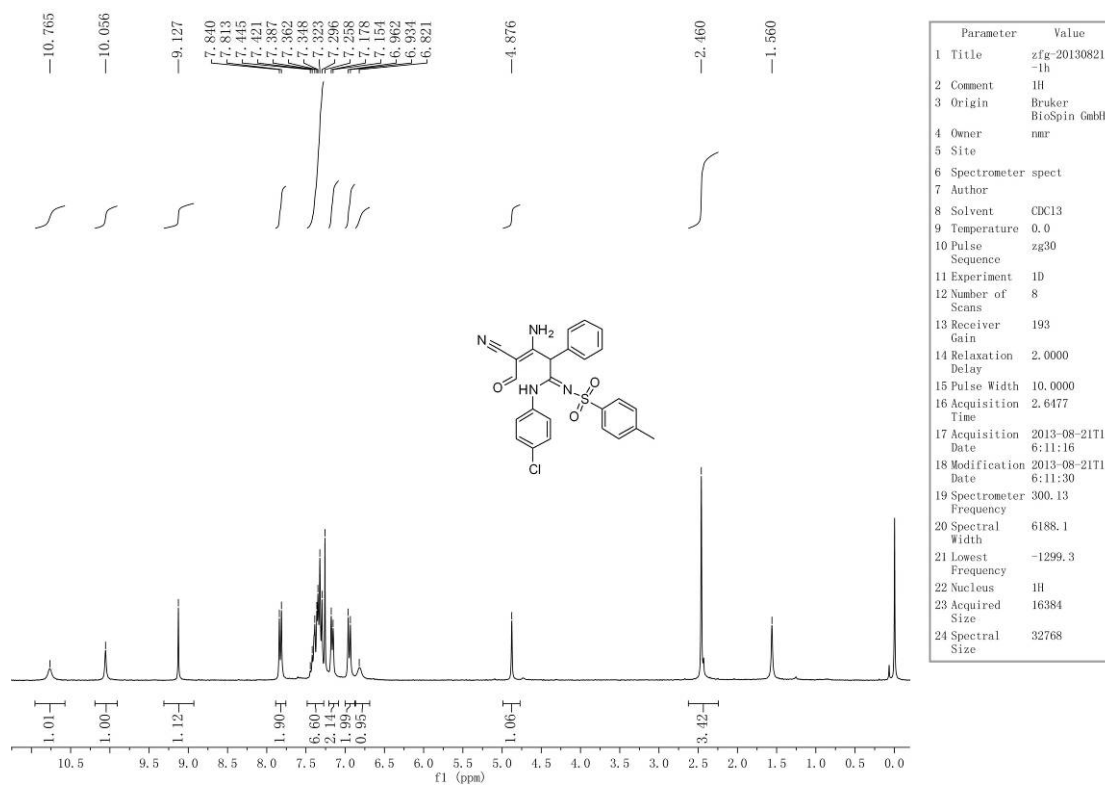
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4 Owner	nar
5 Site	
6 Spectrometer	specter
7 Author	
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9 Temperature	0.0 °C
10 Pulse Sequence	zg30
11 Experiment ID	
12 Number of Scans	6
13 Receiver Gain	193
14 Relaxation Delay	2.0000
15 Pulse Width	10.0000
16 Acquisition Time	2.6477
17 Acquisition Date	2013-08-21
18 Modification Date	2013-08-21
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21 Lowest Frequency	-1297.8
22 Nucleus	1H
23 Acquired Size	16384
24 Spectral Size	32768



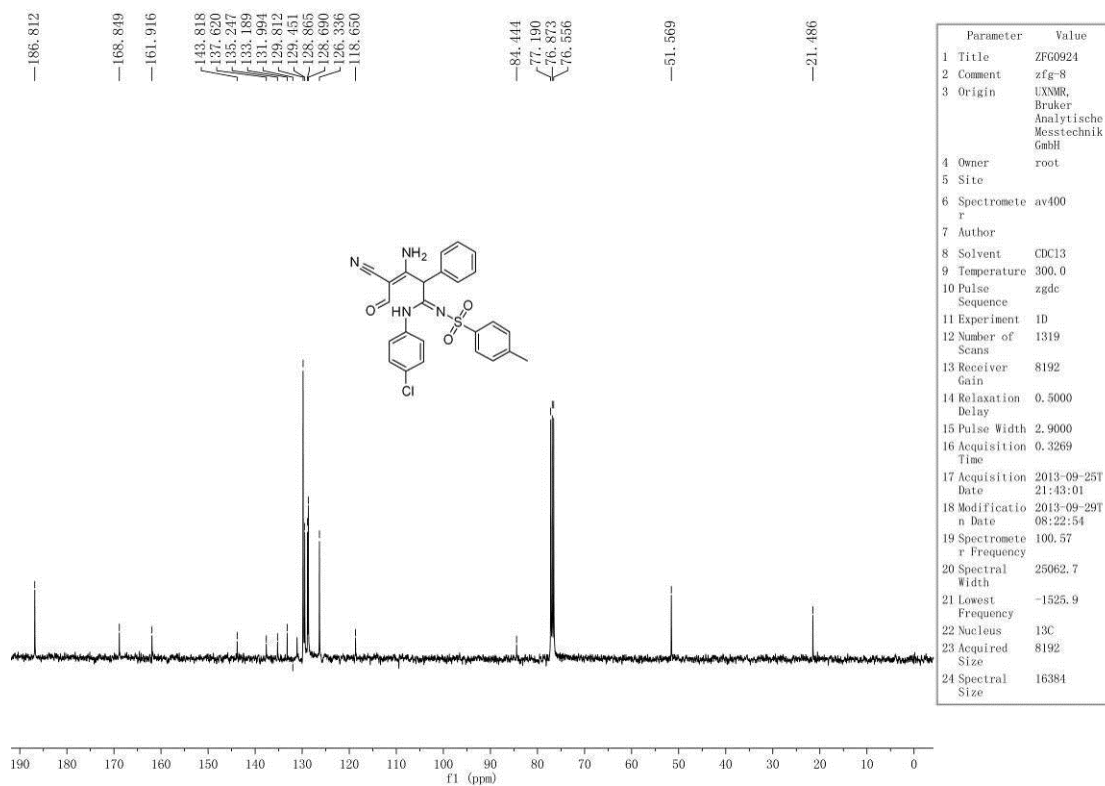
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4 Owner	root
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6 Spectrometer	av400
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0 °C
10 Pulse Sequence	zgdc
11 Experiment ID	
12 Number of Scans	2359
13 Receiver Gain	8192
14 Relaxation Delay	0.5000
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16 Acquisition Time	0.3269
17 Acquisition Date	2013-11-05
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19 Spectrometer Frequency	100.57
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22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384



2h

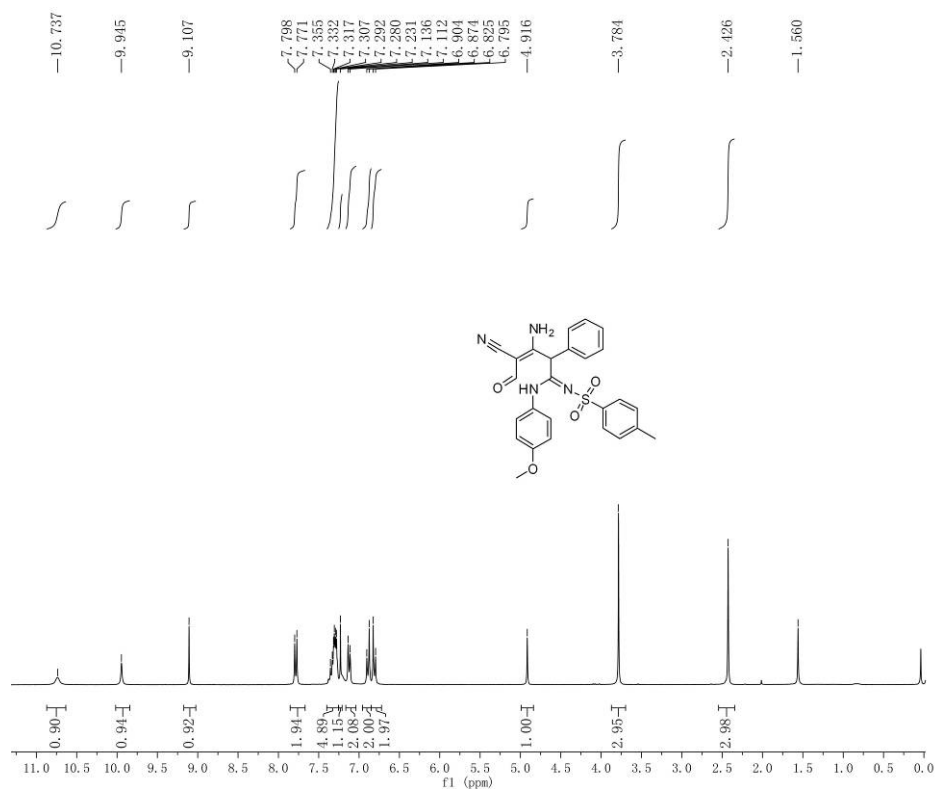


Parameter	Value
1 Title	zfg-20130821-1h
2 Comment	1H
3 Origin	Bruker BioSpin GmbH
4 Owner	nmr
5 Site	
6 Spectrometer	spect
7 Author	
8 Solvent	CDCl3
9 Temperature	0.0
10 Pulse Sequence	zg30
11 Experiment	1D
12 Number of Scans	8
13 Receiver Gain	193
14 Relaxation Delay	2.0000
15 Pulse Width	10.0000
16 Acquisition Time	2.6477
17 Acquisition Date	2013-08-21T16:11:16
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21 Lowest Frequency	-1299.3
22 Nucleus	1H
23 Acquired Size	16384
24 Spectral Size	32768

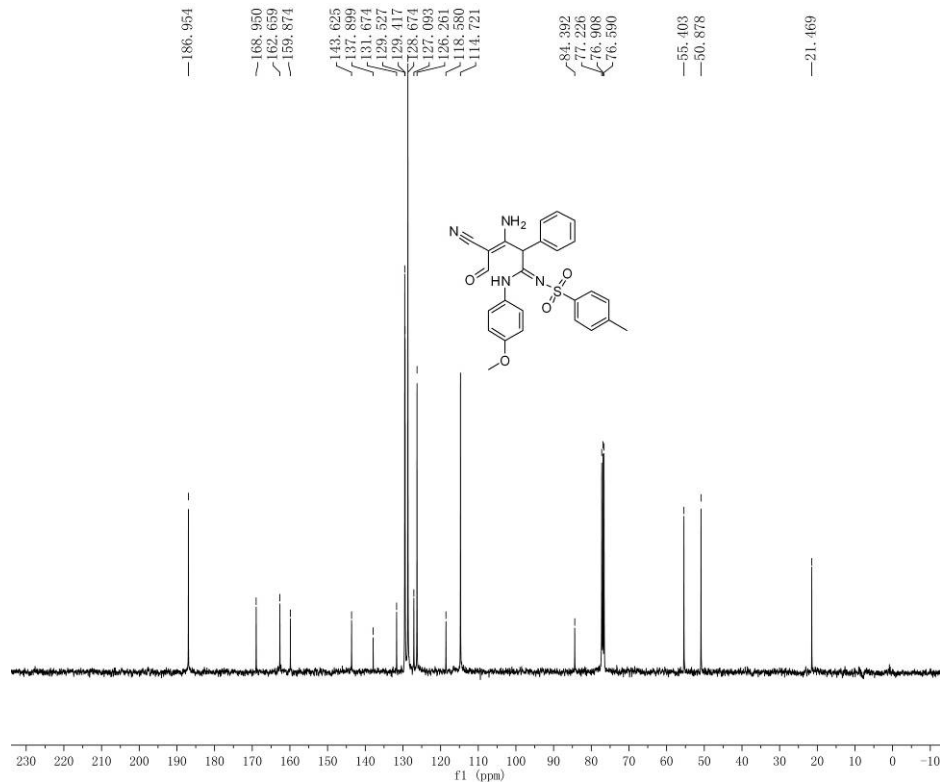


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6 Spectrometer	av400r
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0
10 Pulse Sequence	zgdc
11 Experiment	1D
12 Number of Scans	1319
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22 Nucleus	13C
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24 Spectral Size	16384

2i

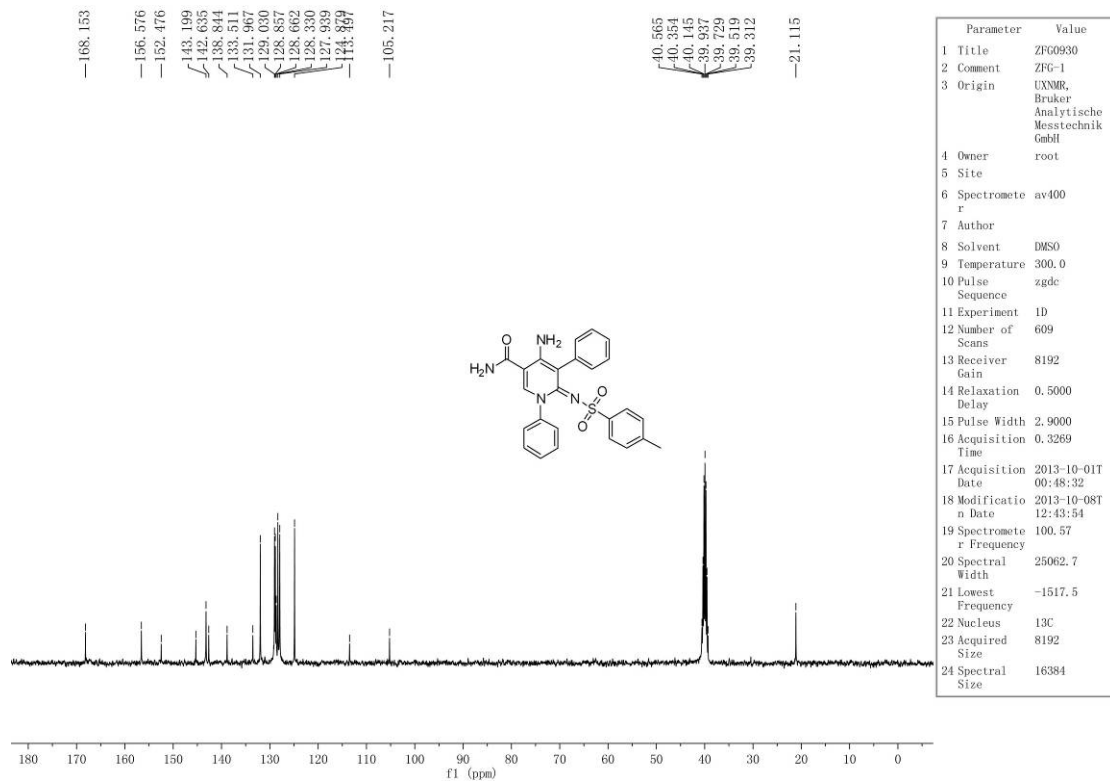
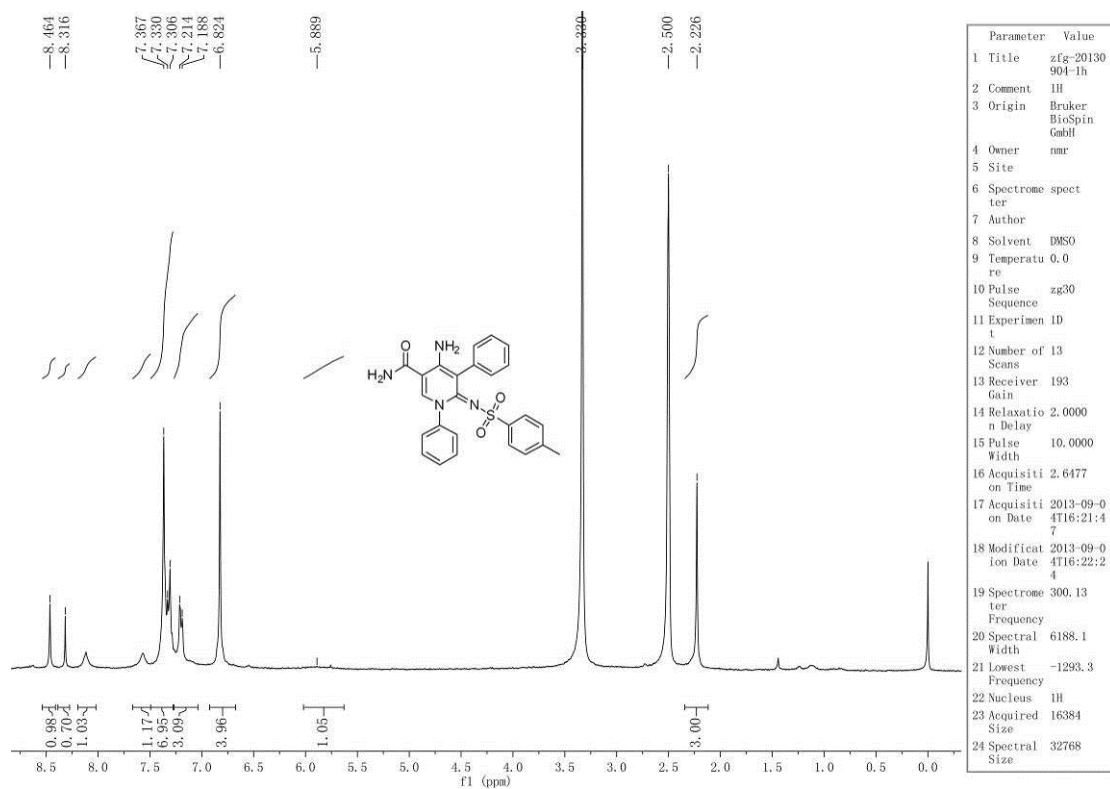


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6 Spectrometer	specter
7 Author	
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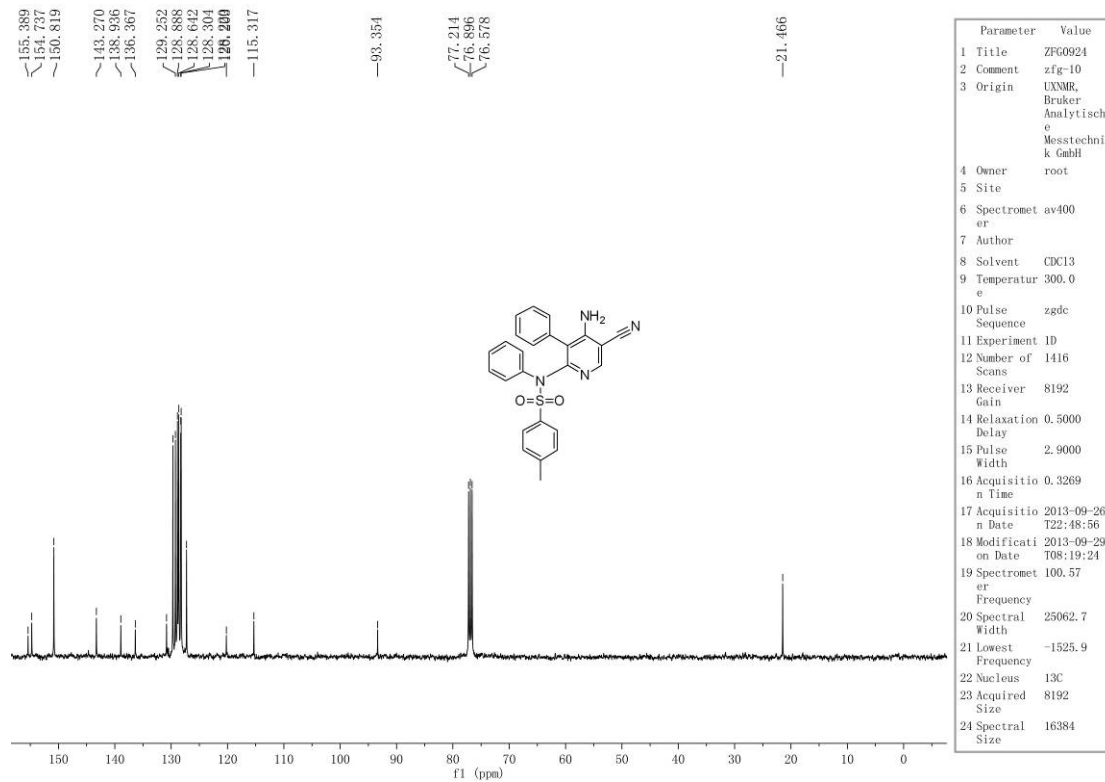
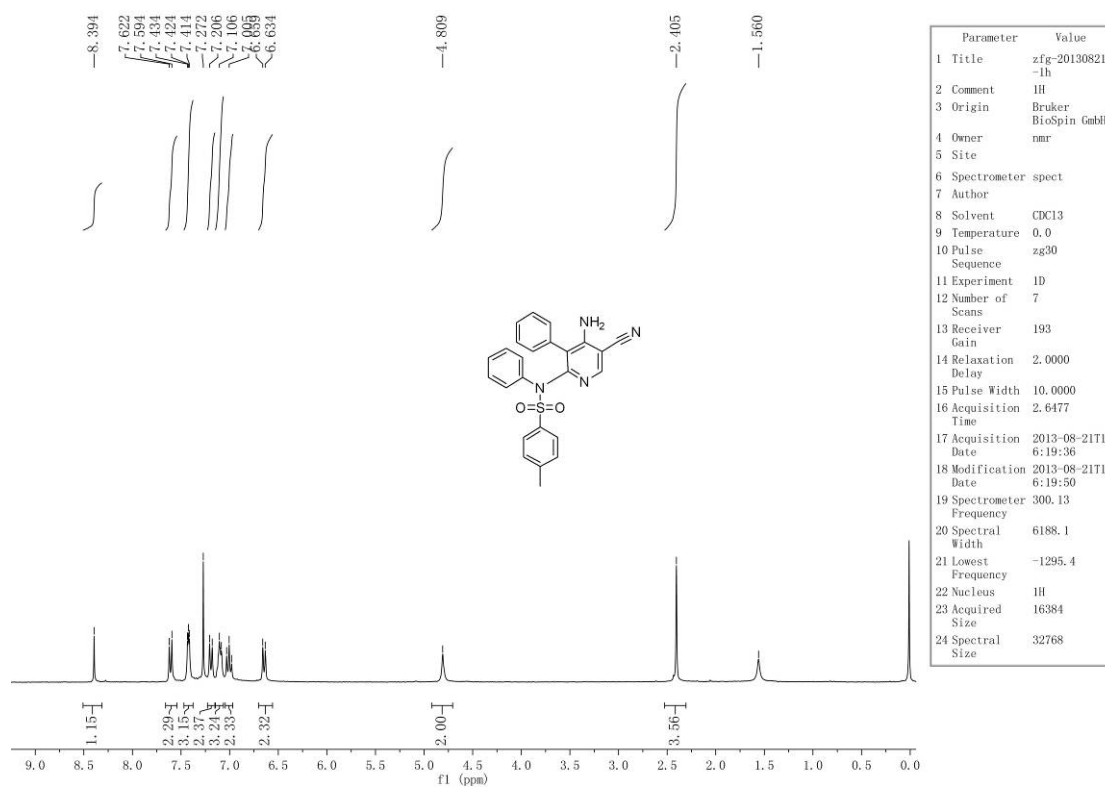


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5 Site	
6 Spectrometer	av400
7 Author	
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9 Temperature	300.0
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11 Experiment ID	
12 Number of Scans	1267
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24 Spectral Size	16384

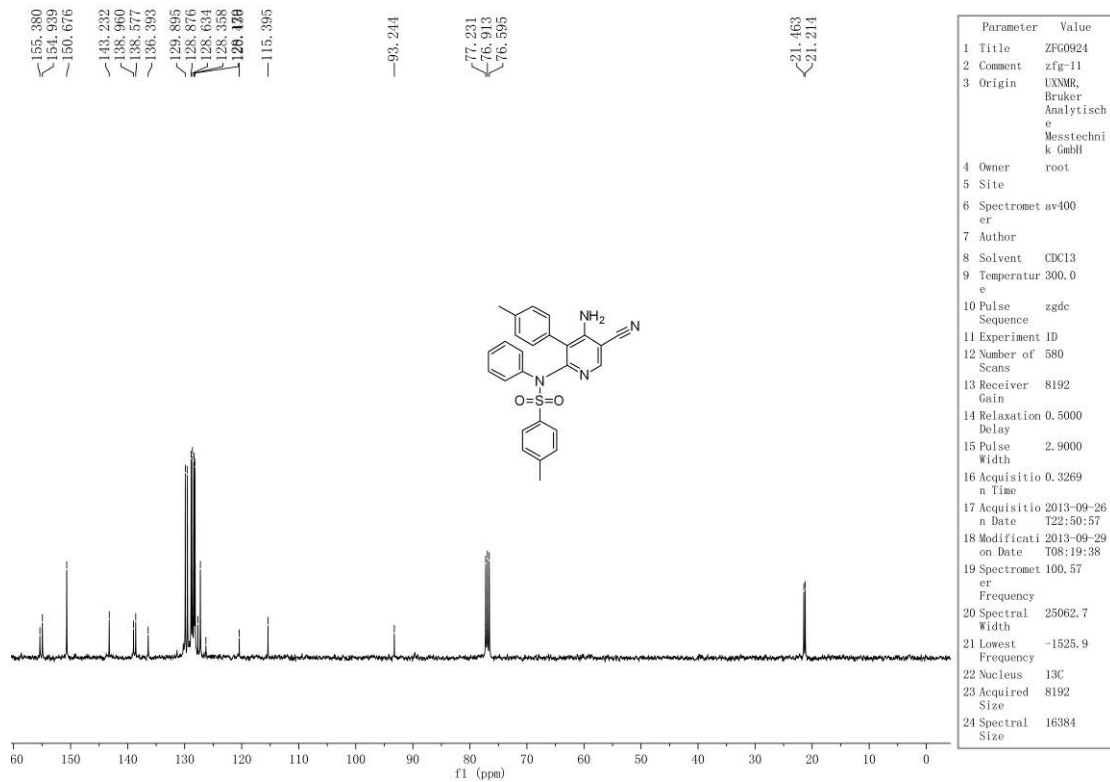
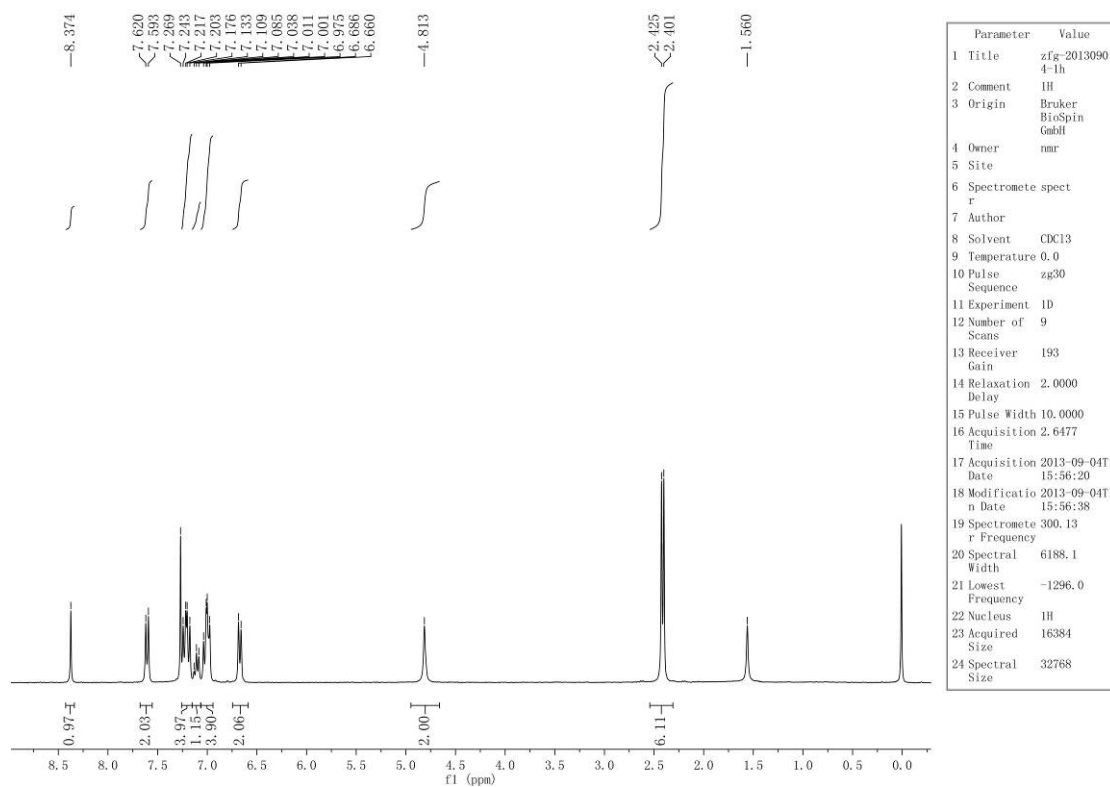
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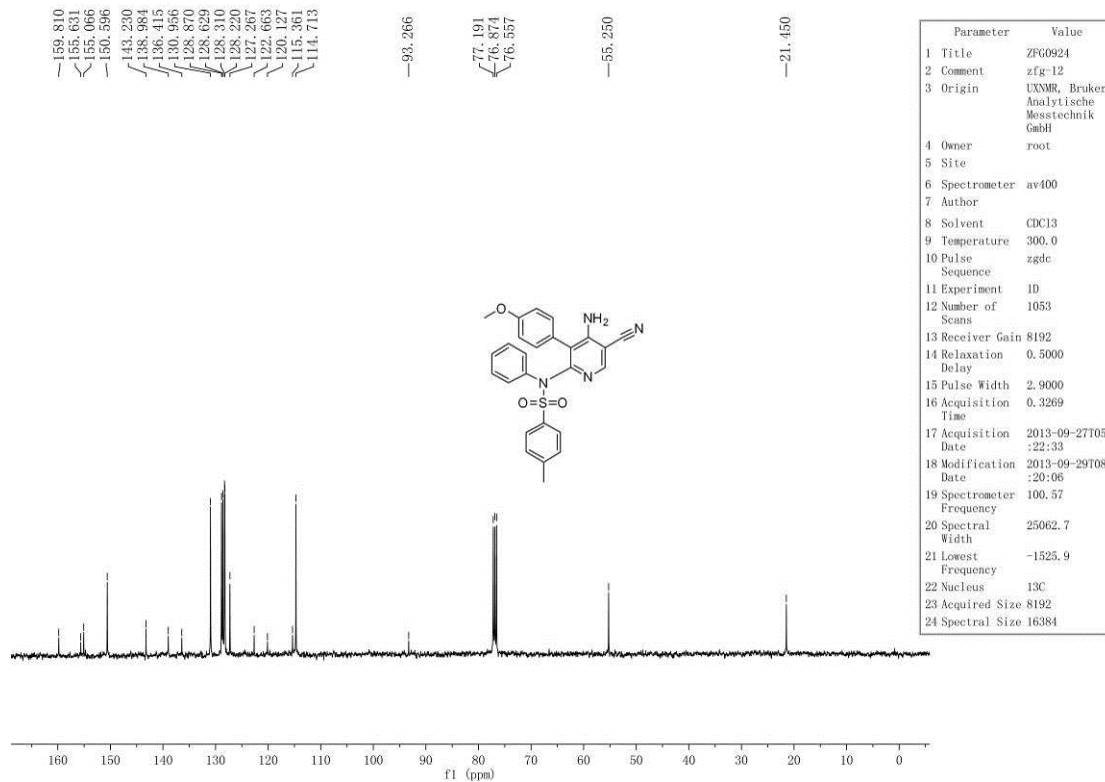
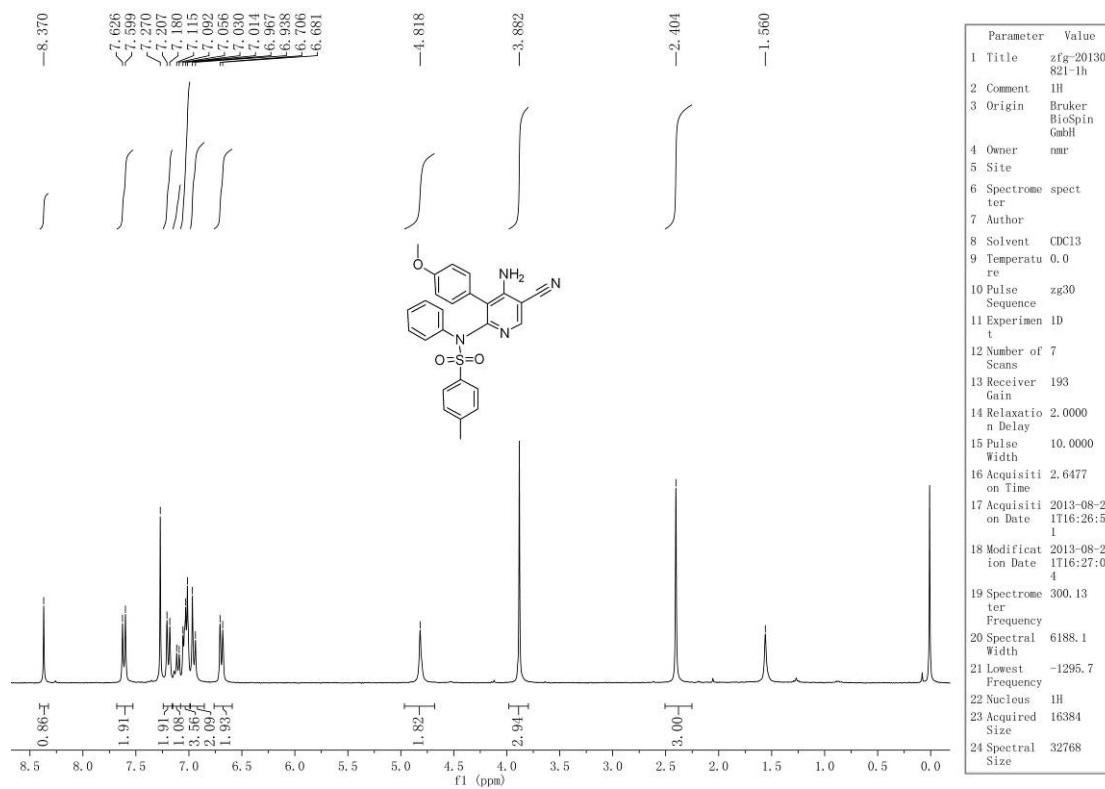
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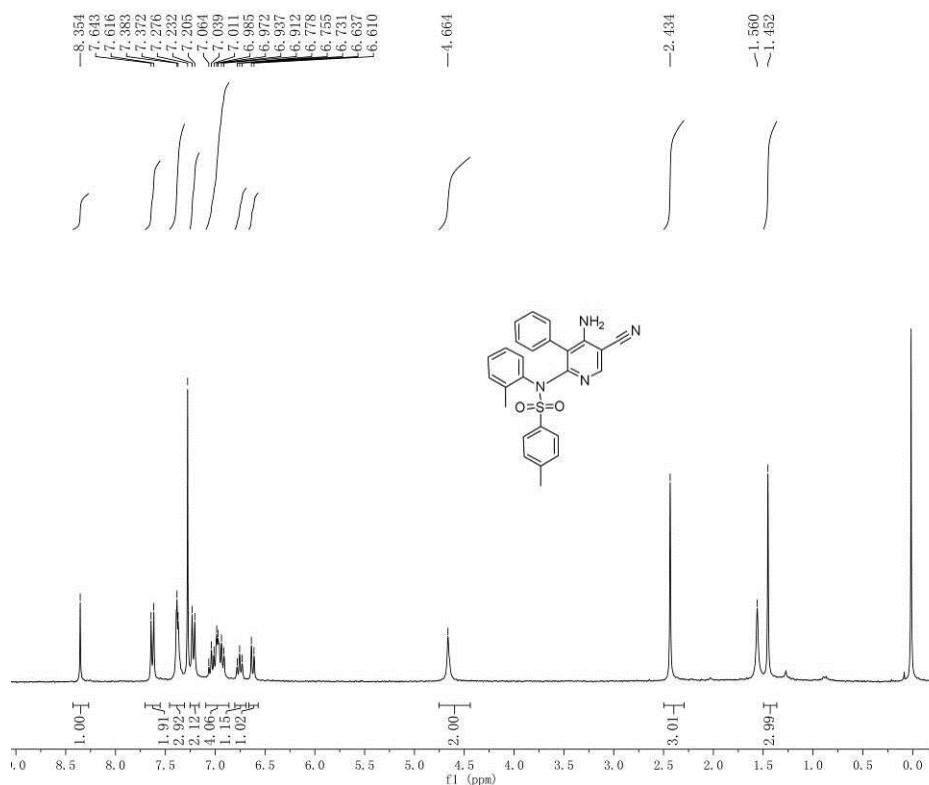
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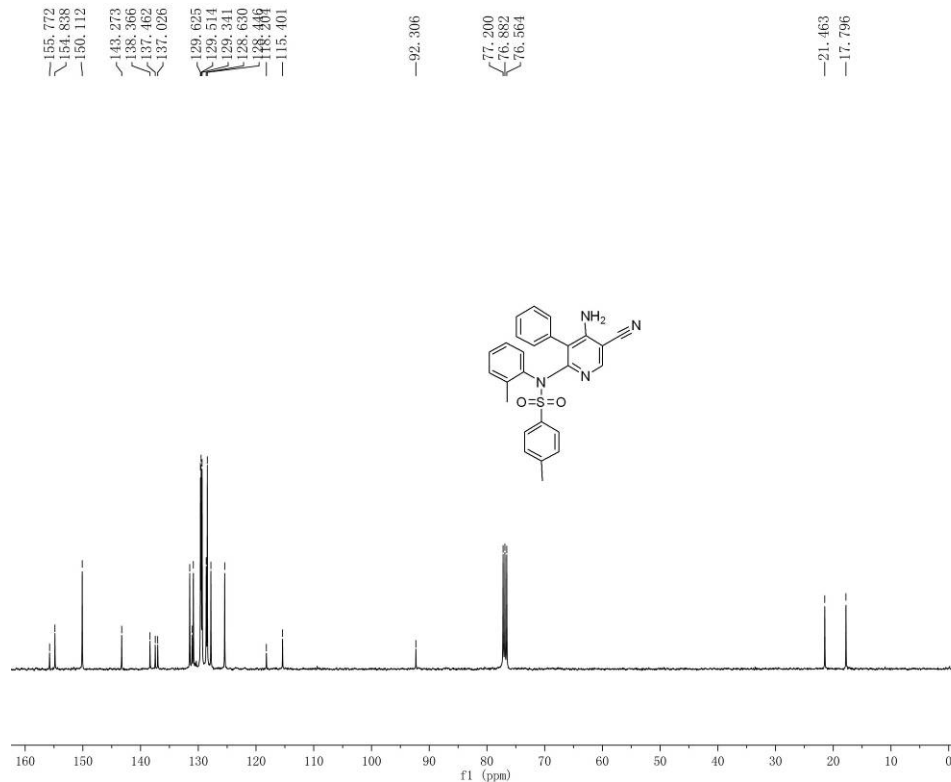
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4d

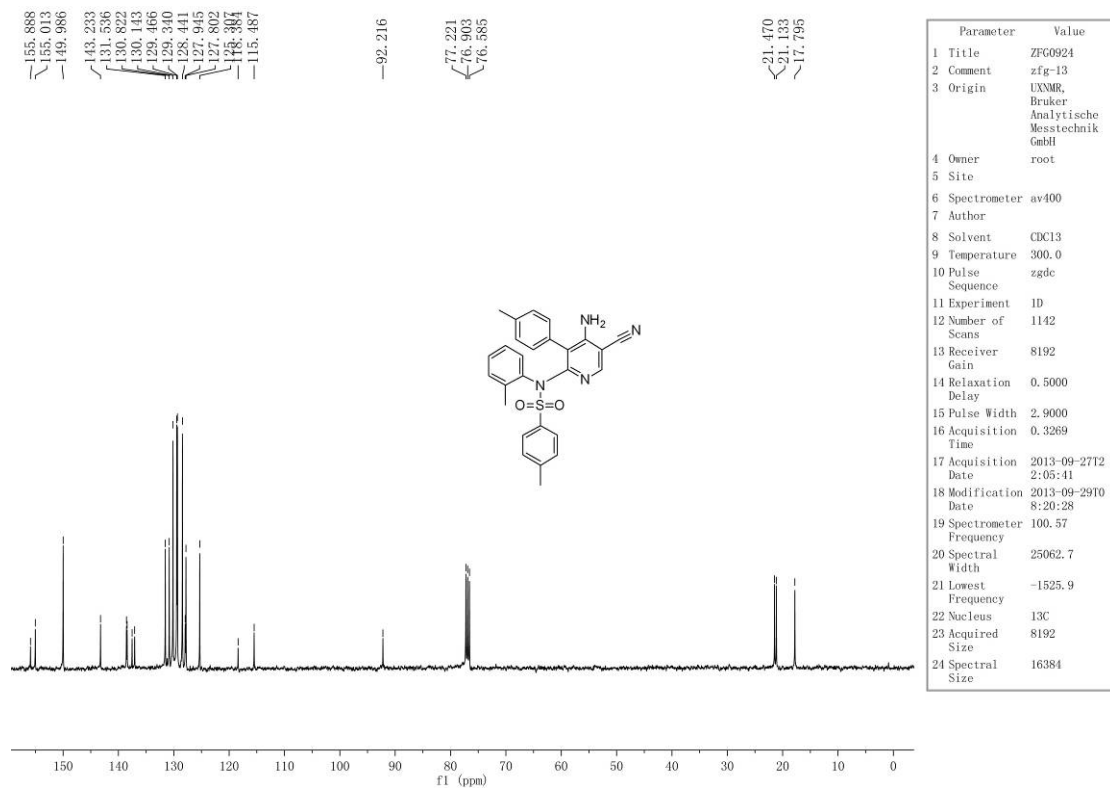
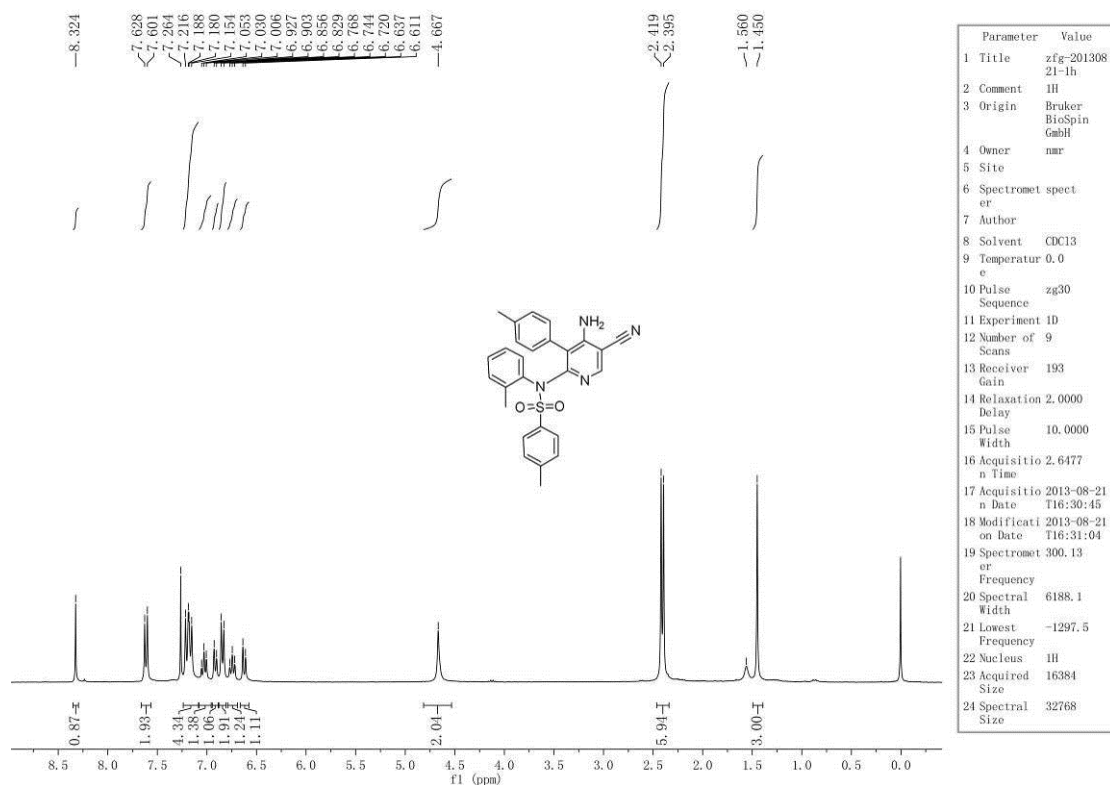


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1 Title	zfg-201308-21-1h
2 Comment	1H
3 Origin	Bruker BioSpin GmbH
4 Owner	nmr
5 Site	
6 Spectrometer	specter
7 Author	
8 Solvent	CDCl3
9 Temperature	0.0
10 Pulse Sequence	zg30
11 Experiment ID	1D
12 Number of Scans	9
13 Receiver Gain	193
14 Relaxation Delay	2.0000
15 Pulse Width	10.0000
16 Acquisition Time	2.6477
17 Acquisition Date	2013-08-21 16:34:54
18 Modification Date	2013-08-21 16:35:22
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20 Spectral Width	6188.1
21 Lowest Frequency	-1293.9
22 Nucleus	1H
23 Acquired Size	16384
24 Spectral Size	32768



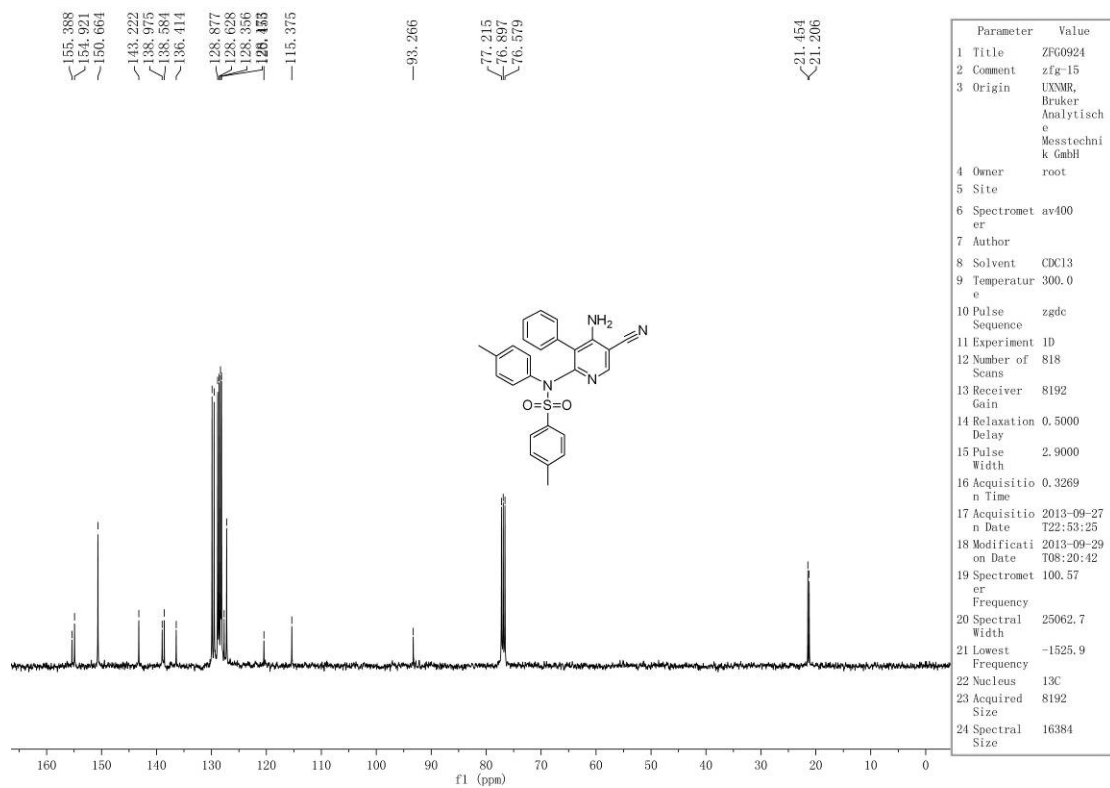
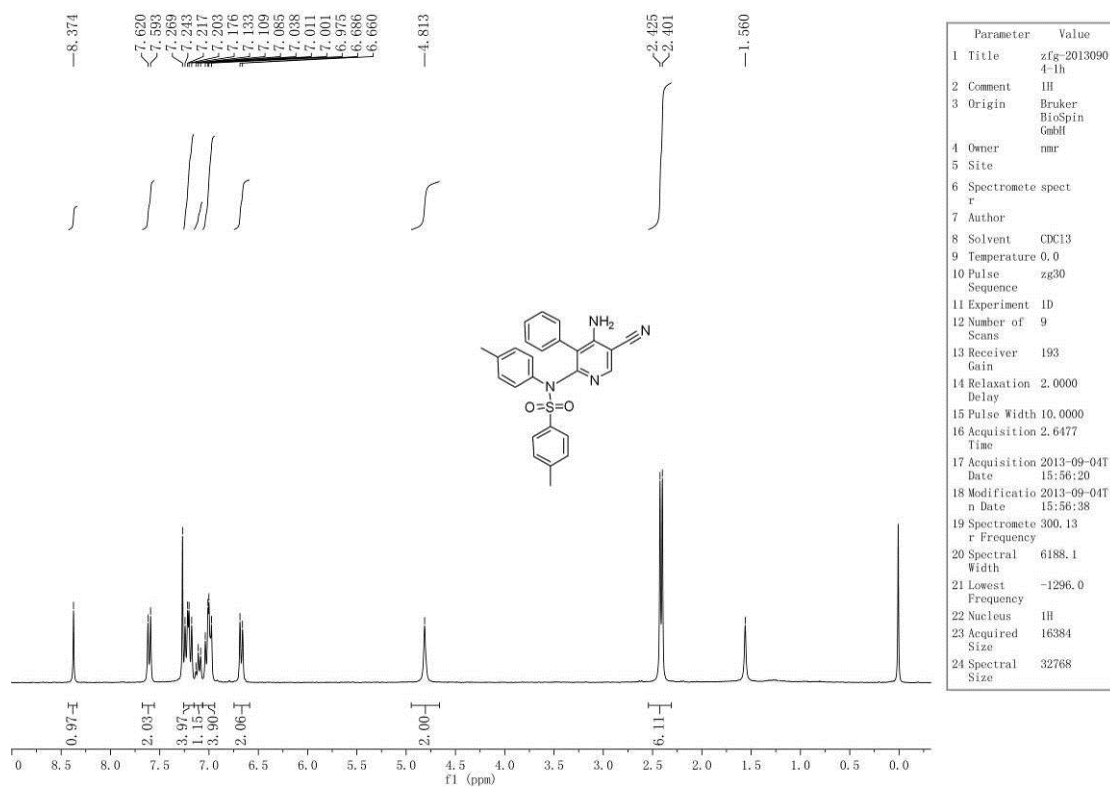
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4 Owner	root
5 Site	
6 Spectrometer	av400
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0
10 Pulse Sequence	zgdc
11 Experiment ID	1D
12 Number of Scans	6691
13 Receiver Gain	8192
14 Relaxation Delay	0.5000
15 Pulse Width	2.9000
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18 Modification Date	2013-10-12 11:53:58
19 Spectrometer Frequency	100.57
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22 Nucleus	13C
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24 Spectral Size	16384

4e

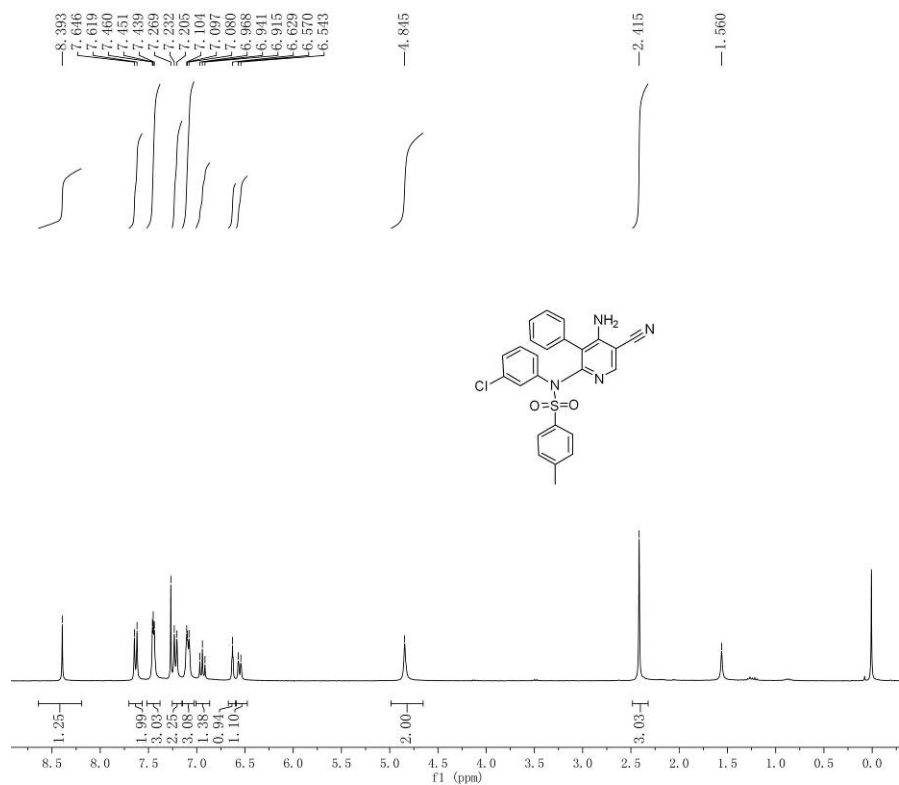




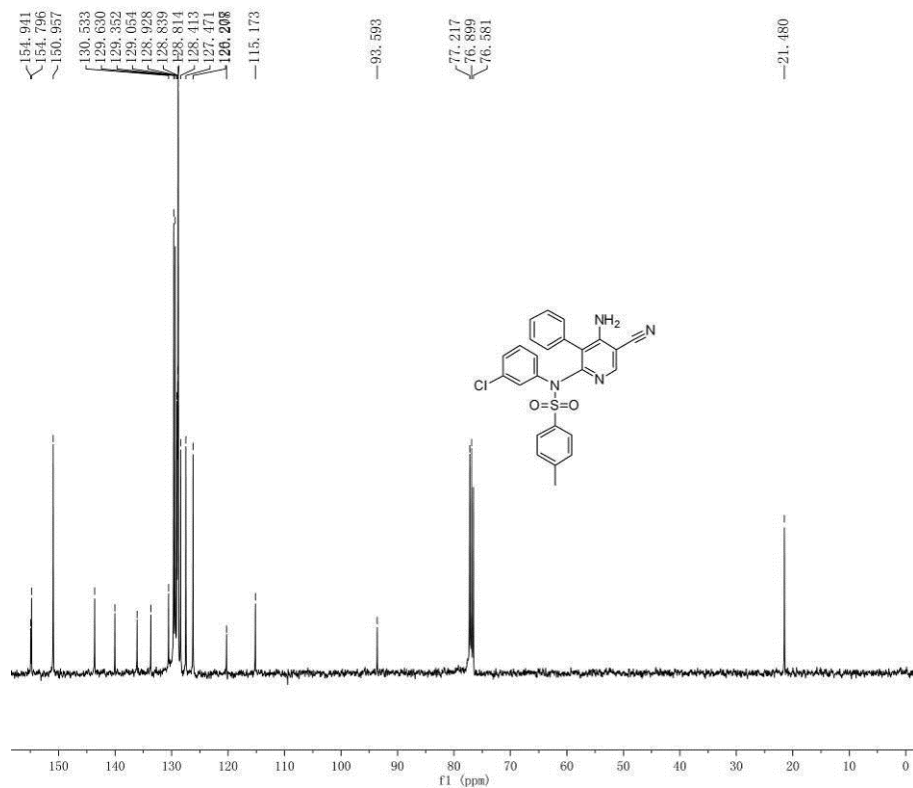
4f



4g

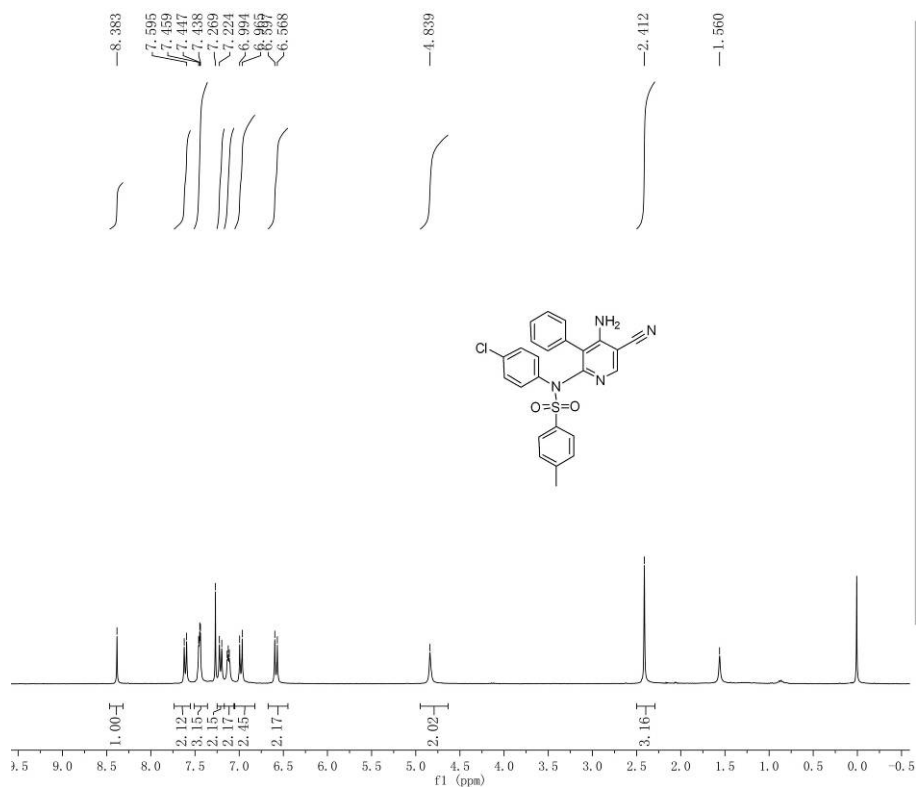


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4 Owner	nmr
5 Site	
6 Spectrometer	spect
7 Author	
8 Solvent	CDCl3
9 Temperature	0.0
10 Pulse Sequence	zg30
11 Experiment	1D
12 Number of Scans	8
13 Receiver Gain	193
14 Relaxation Delay	2.0000
15 Pulse Width	10.0000
16 Acquisition Time	2.6477
17 Acquisition Date	2013-08-28T15:40:14
18 Modification Date	2013-08-28T15:40:28
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20 Spectral Width	6188.1
21 Lowest Frequency	-1296.3
22 Nucleus	1H
23 Acquired Size	16384
24 Spectral Size	32768

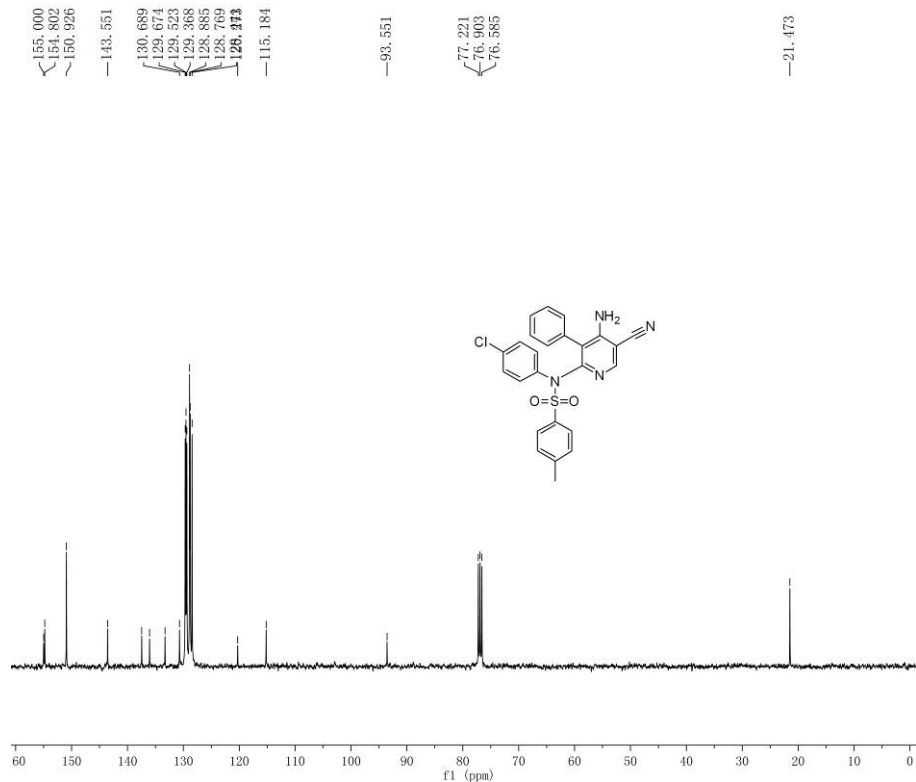


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4 Owner	root
5 Site	
6 Spectrometer	av400
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0
10 Pulse Sequence	zgdc
11 Experiment	1D
12 Number of Scans	1553
13 Receiver Gain	8192
14 Relaxation Delay	0.5000
15 Pulse Width	2.9000
16 Acquisition Time	0.3269
17 Acquisition Date	2013-09-27T2:27:08
18 Modification Date	2013-09-29T10:8:20:34
19 Spectrometer Frequency	100.57
20 Spectral Width	25062.7
21 Lowest Frequency	-1525.9
22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384

4h



Parameter	Value
1 Title	zfg-20130828-4h
2 Comment	4h
3 Origin	Bruker BioSpin GmbH
4 Owner	nmr
5 Site	
6 Spectrometer	spect
7 Author	
8 Solvent	CDCl3
9 Temperature	0.0
10 Pulse Sequence	zg30
11 Experiment	1D
12 Number of Scans	8
13 Receiver Gain	193
14 Relaxation Delay	2.0000
15 Pulse Width	10.0000
16 Acquisition Time	2.6477
17 Acquisition Date	2013-08-28T16:01:11
18 Modification Date	2013-08-28T16:01:30
19 Spectrometer Frequency	300.13
20 Spectral Width	6188.1
21 Lowest Frequency	-1296.3
22 Nucleus	1H
23 Acquired Size	16384
24 Spectral Size	32768



Parameter	Value
1 Title	ZFG0924
2 Comment	zfg-16
3 Origin	UXNMR, Bruker Analytische Messtechnik GmbH
4 Owner	root
5 Site	
6 Spectrometer	av400
7 Author	
8 Solvent	CDCl3
9 Temperature	300.0
10 Pulse Sequence	zgdc
11 Experiment	1D
12 Number of Scans	684
13 Receiver Gain	8192
14 Relaxation Delay	0.5000
15 Pulse Width	2.9000
16 Acquisition Time	0.3269
17 Acquisition Date	2013-09-27T2 3:03:08
18 Modification Date	2013-09-29T0 8:20:48
19 Spectrometer Frequency	100.57
20 Spectral Width	25062.7
21 Lowest Frequency	-1525.9
22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384

4i

