

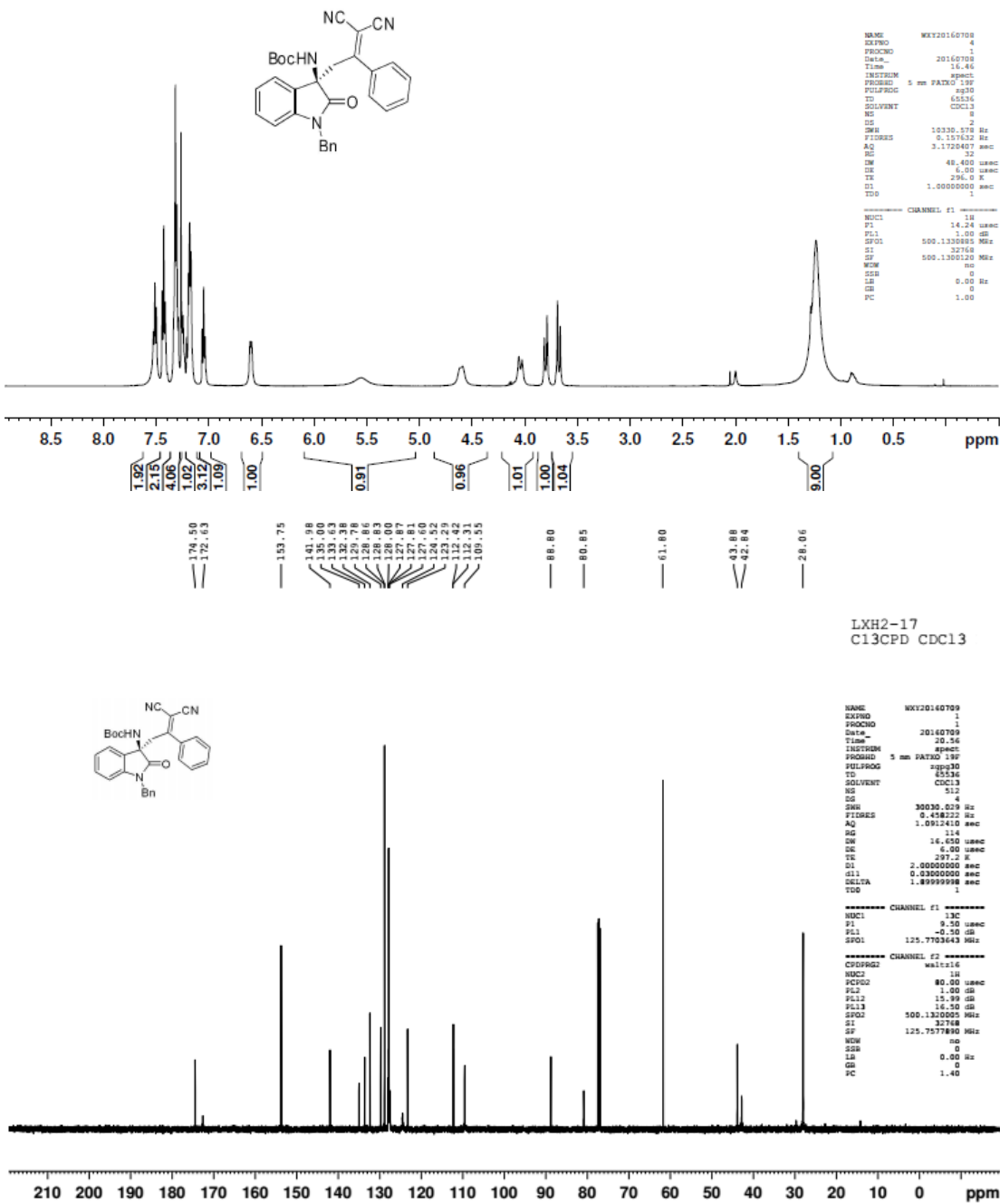
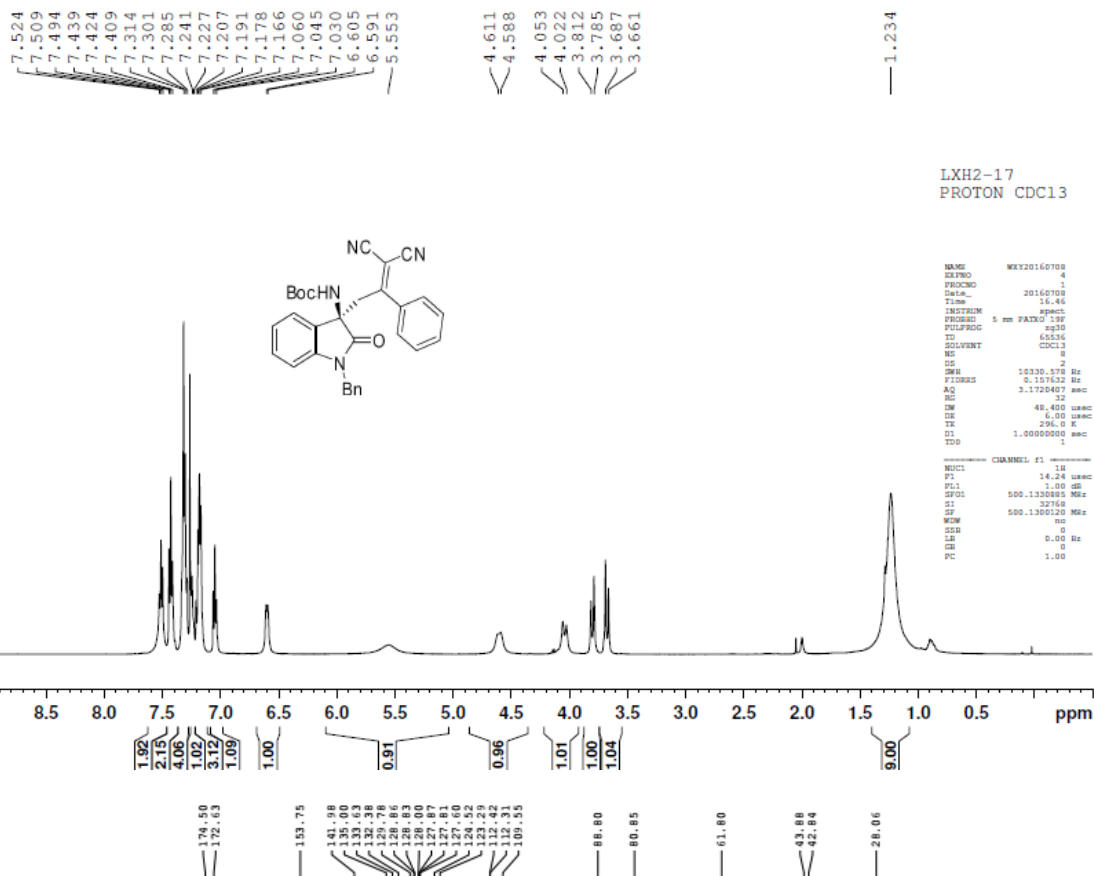
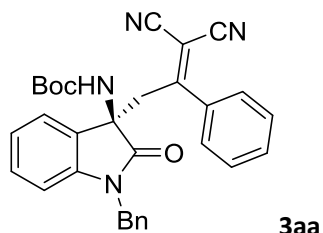
# Effective Asymmetric Vinylogous Mannich Reaction of Isatin Imines with $\alpha,\alpha$ -Dicyanoolefins in the Presence of a Simple Chiral Amide Phosponium Bifunctional Phase Transfer Catalyst

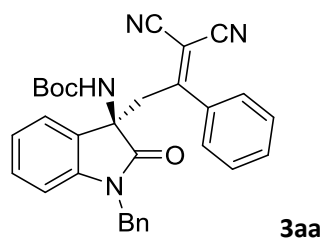
Cang Cheng,<sup>a</sup> Xuehe Lu,<sup>a</sup> Luo Ge,<sup>a</sup> Jie Chen,<sup>a</sup> Weiguo Cao,<sup>\*a</sup> Xiaoyu Wu,<sup>\*a,b</sup> and  
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Chemistry, Chinese Academy of Sciences, 354 Fenglin Lu, Shanghai 200032, China

e-mail: wgcao@shu.edu.cn; wuxy@shu.edu.cn

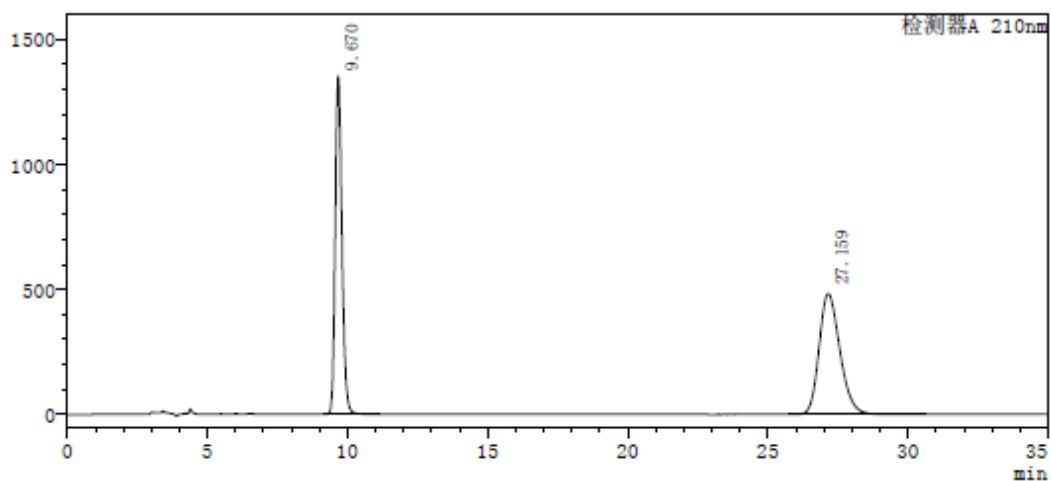
<sup>1</sup> H NMR, <sup>13</sup> C NMR and HPLC spectra of 3aa-3al and 3ba-3la-----	S2-49
<sup>1</sup> H NMR, <sup>13</sup> C NMR and HPLC spectra of 4a, 4b, 3ap and 4c-----	S50-57
<sup>1</sup> H NMR, <sup>13</sup> C NMR and HPLC spectra of 5-----	S58-81
<sup>1</sup> H NMR and <sup>13</sup> C NMR spectra of phosponium salt catalysts -----	S82-87





<chromatogram>

mV



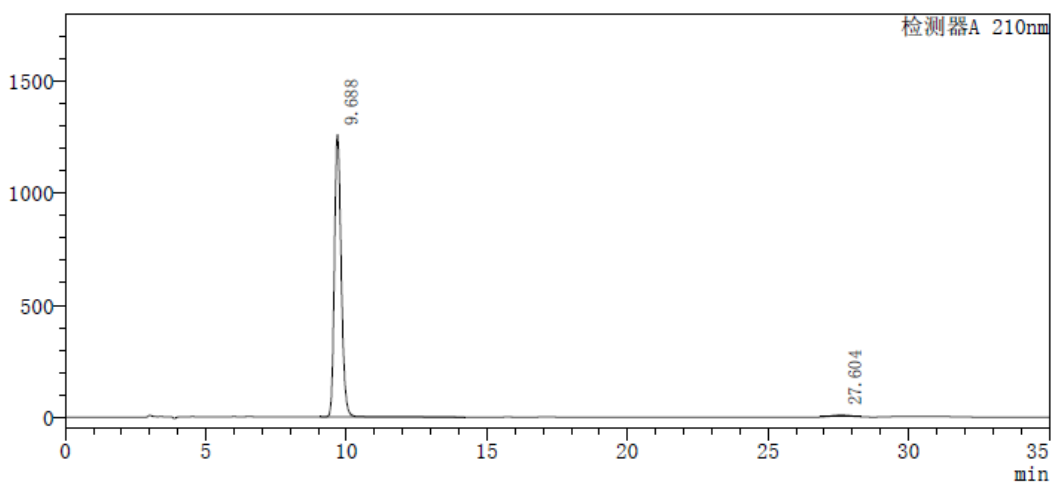
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	9.670	1350297	22688192	47.666
2	27.159	483039	24909627	52.334
总计		1833337	47597819	100.000

<chromatogram>

mV

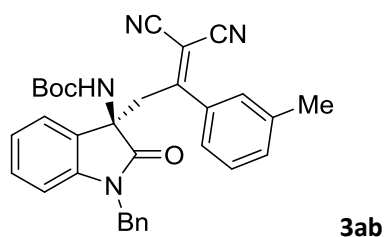


<Peak table>

检测器A 210nm

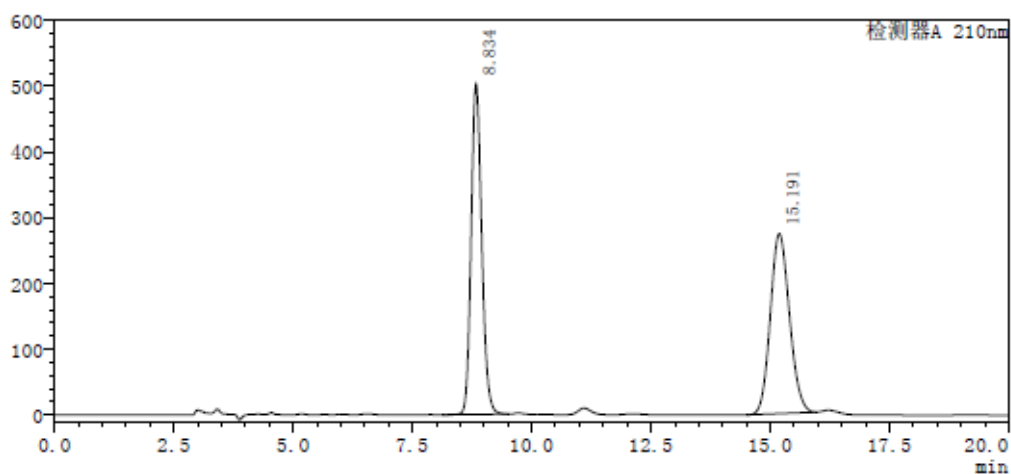
Peak#	Ret. Time	Height	Area	Area%
1	9.688	1261615	21281578	98.194
2	27.604	8716	391377	1.806
总计		1270331	21672955	100.000





<chromatogram>

mV



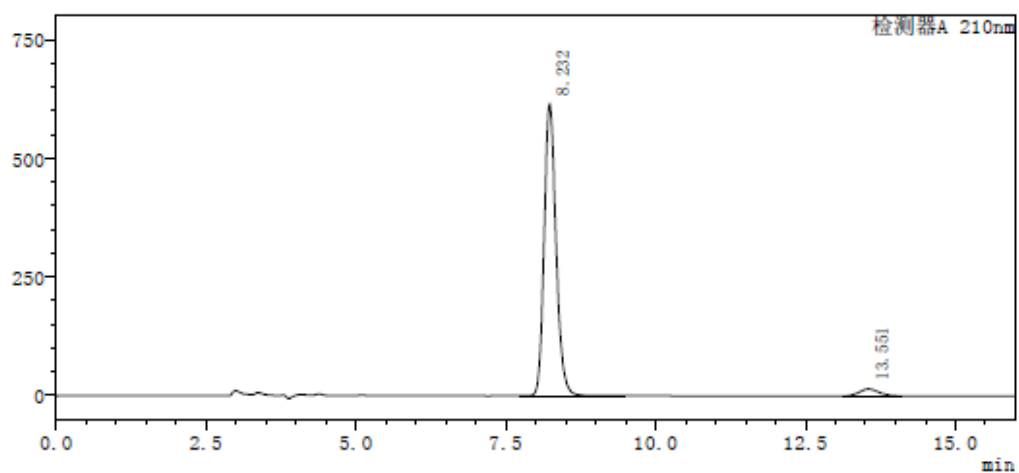
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.834	502715	7777849	50.429
2	15.191	273623	7645378	49.571
总计		776339	15423228	100.000

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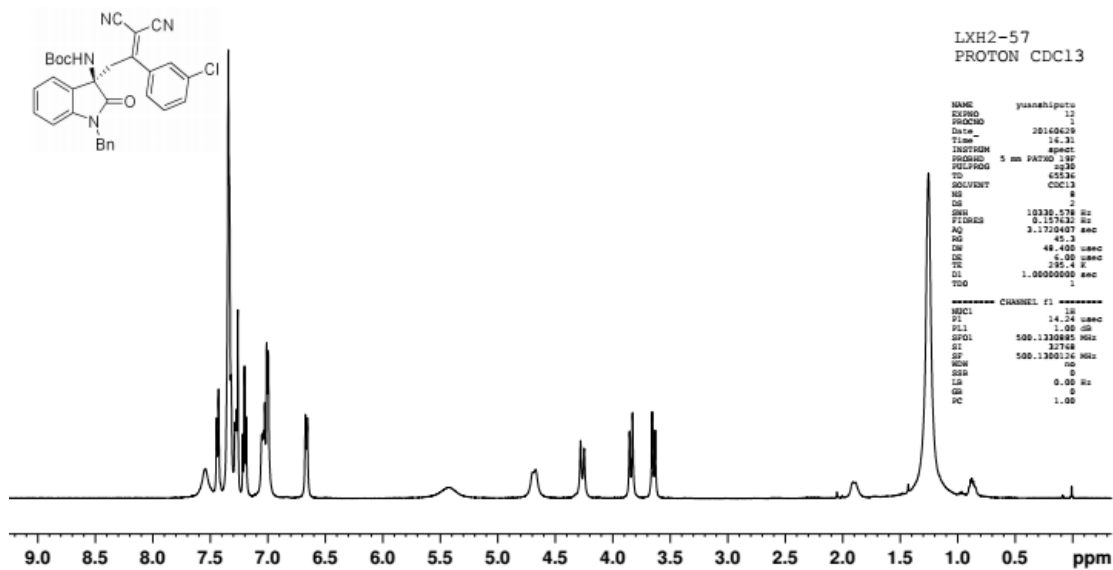
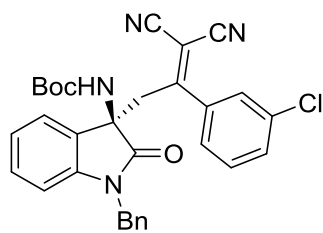
mV



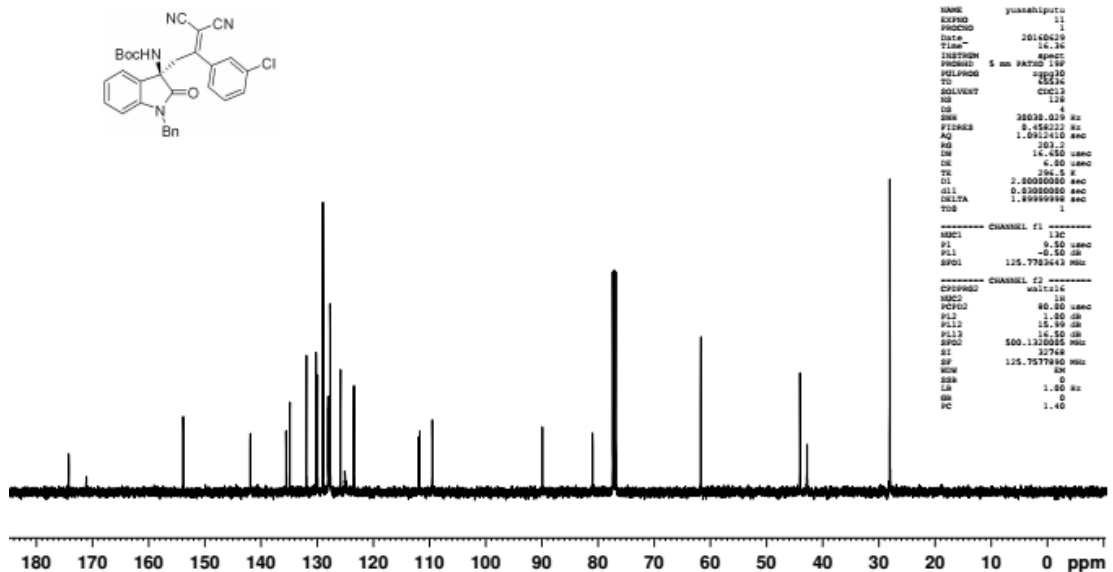
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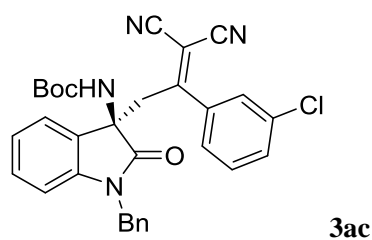
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.232	614891	8488237	96.303
2	13.551	14509	325879	3.697
总计		629401	8814116	100.000



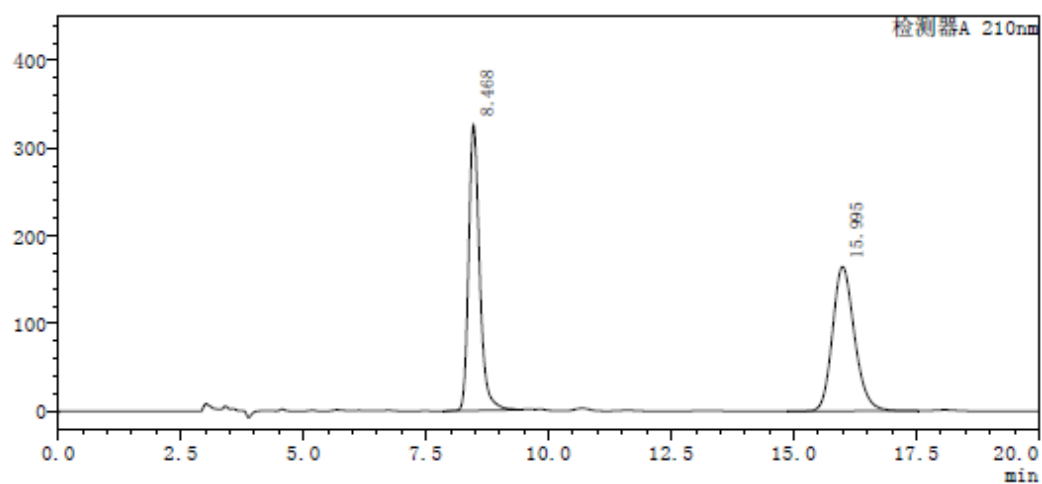
LXH2-57  
C13CPD CDCl3





<chromatogram>

mV



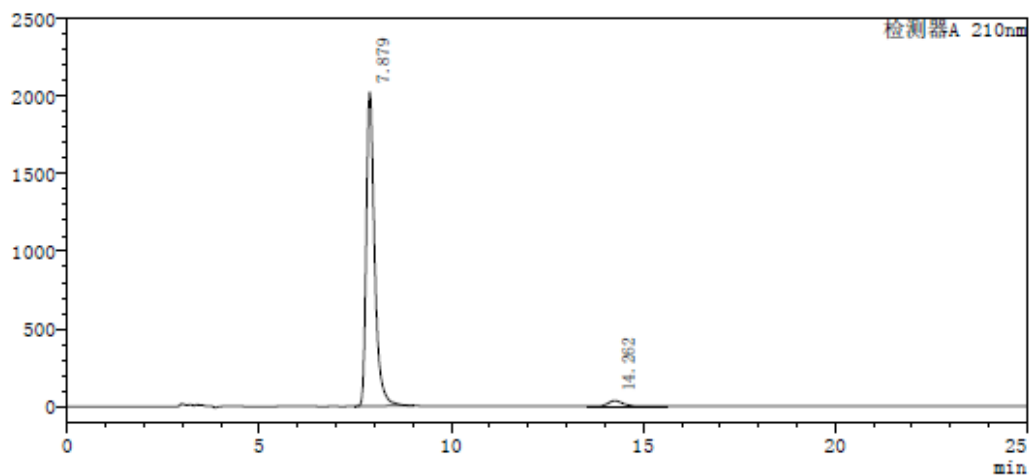
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.468	325465	5089739	49.806
2	15.995	164588	5129298	50.194
总计		490053	10219038	100.000

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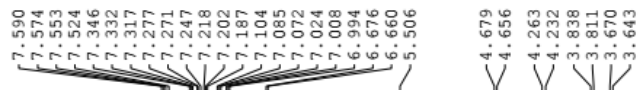
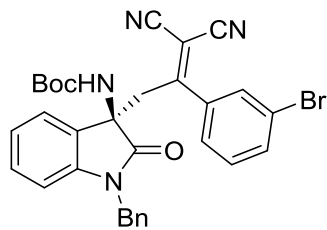
mV



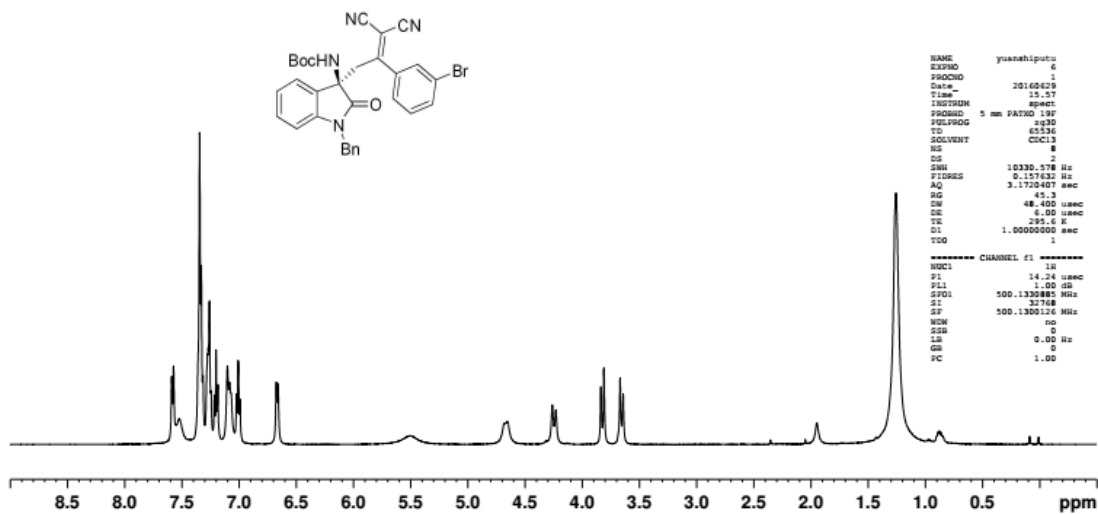
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.879	2023405	30719861	97.049
2	14.262	35745	934087	2.951
总计		2059150	31653948	100.000



LXH2-52  
PROTON CDC13

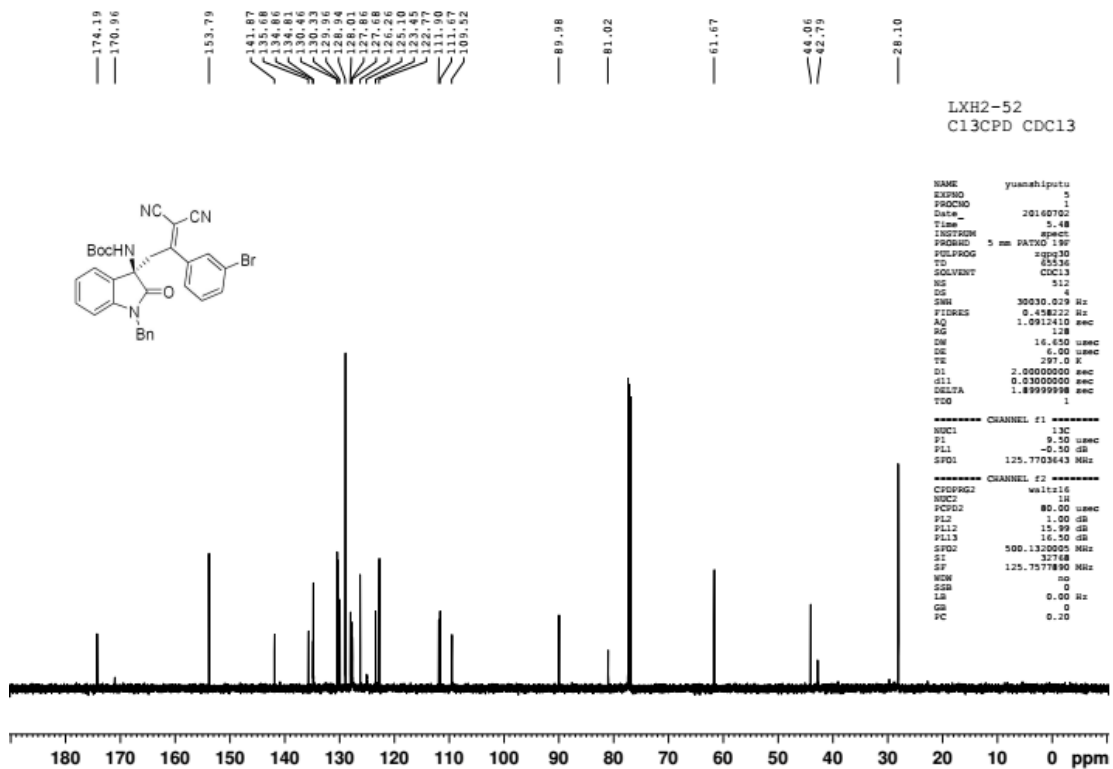


```

NAME      yusanhiputu
EXPNO     6
PROCNO    1
Date_     20160629
Time      15:57
INSTRUM   spect
PROBHD    5 mm PACTO 19F
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         8
DS         2
SFO1      10330.378 Hz
FIDRES    0.157632 Hz
AQ         3.1702407 sec
RG         45.3
SWH        48.460 usec
DE         6.00 usec
TE         295.6 K
D1         1.00000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         14.24 usec
PL1        1.00 dB
SFO1      500.1320025 MHz
SI         32768
SF         500.1300126 MHz
WDW        no
SSB        0
LA         0.00 Hz
GB         0
PC         1.00

```



LXH2-52  
C13CPD CDC13

```

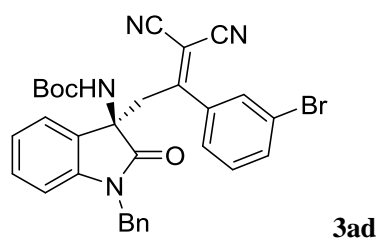
NAME      yusanhiputu
EXPNO     5
PROCNO    1
Date_     20160702
Time      5:48
INSTRUM   spect
PROBHD    5 mm PACTO 19F
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         8
DS         4
SFO1      30030.029 Hz
FIDRES    0.458222 Hz
AQ         1.0912410 sec
RG         128
SWH        16.450 usec
DE         6.00 usec
TE         297.0 K
D1         2.00000000 sec
d11        0.23000000 sec
DELTA     1.89999998 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         9.50 usec
PL1        -0.50 dB
SFO1      125.7703443 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     80.00 usec
PL2        1.00 dB
PL12      15.99 dB
PL13      16.50 dB
SFO2      500.1320025 MHz
SI         32768
SF         125.7577890 MHz
WDW        no
SSB        0
LA         0.00 Hz
GB         0
PC         0.20

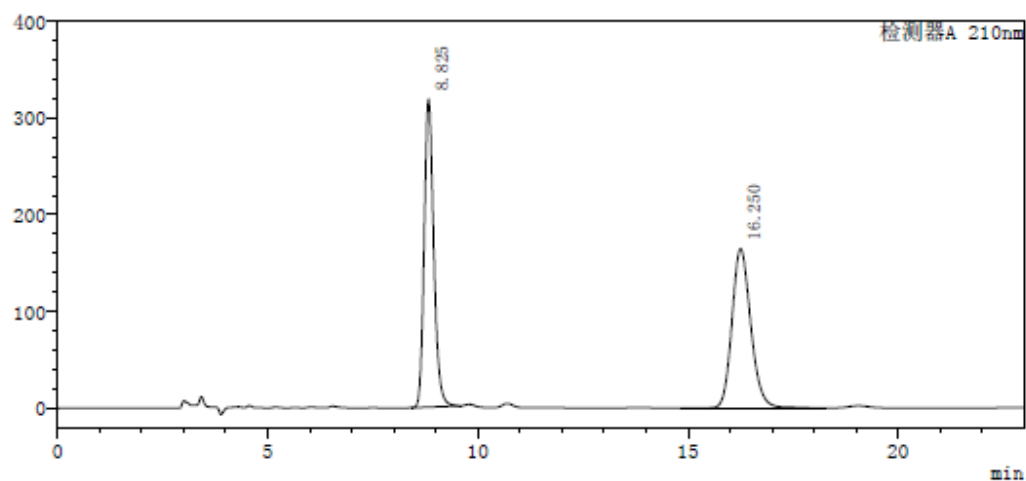
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<chromatogram>

mV



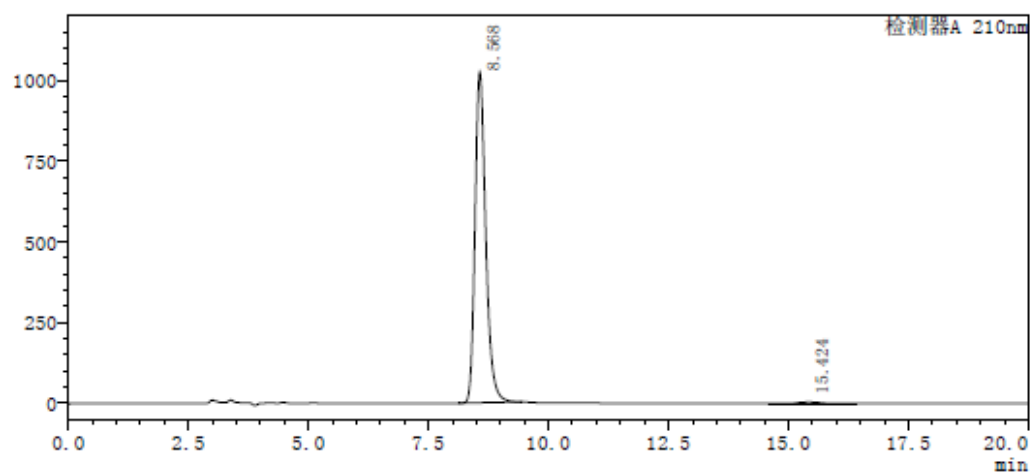
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.825	318041	5039609	49.487
2	16.250	164864	5144095	50.513
总计		482905	10183705	100.000

<chromatogram>

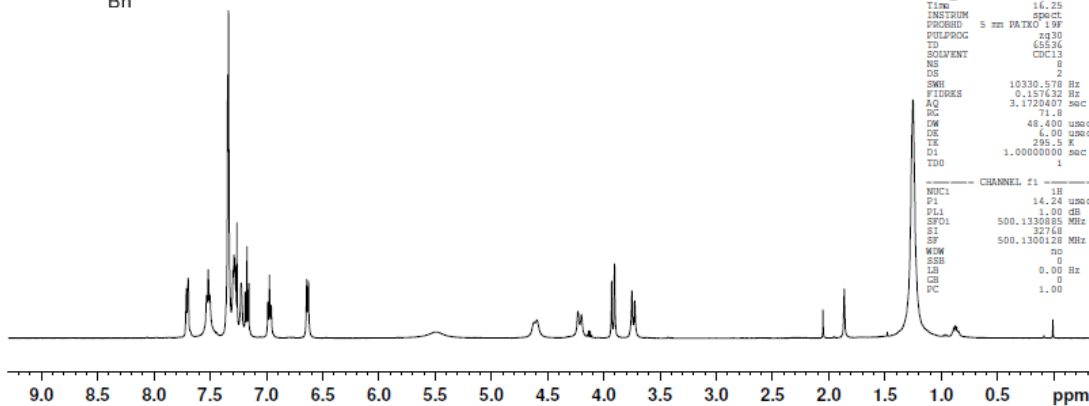
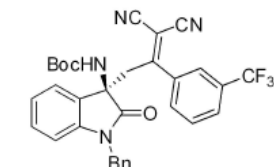
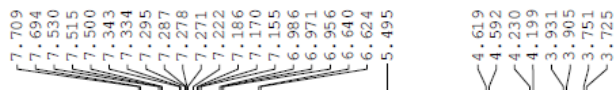
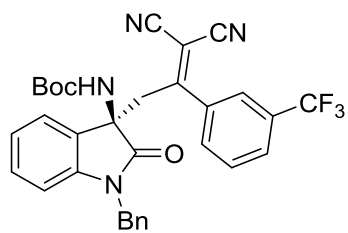
mV



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.568	1024197	15935998	99.345
2	15.424	3635	105083	0.655
总计		1027832	16041081	100.000

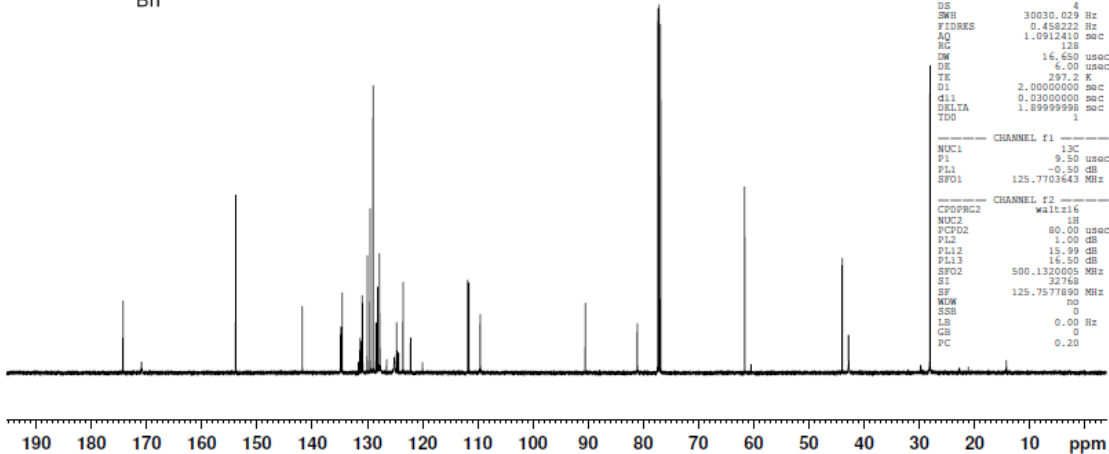
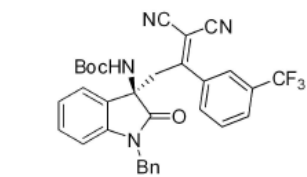


CC4-146  
PROTON CDC13

```

NAME      WXY20160701
EXPNO     4
PROCNO    1
Date_     20160701
Time      14.25
INSTRUM   spect
PROBHD    5 mm PAIXO 19F
PULPROG   zg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         8
SWH        10330.578 Hz
FIDRES     0.157632 Hz
AQ         3.1720407 sec
RG         71.8
DW         48.400 usec
DE         6.00 usec
TE         295.5 K
D1         1.00000000 sec
TDO        1
----- CHANNEL f1 -----
NUC1      1H
P1         14.24 usec
PL1        1.00 dB
SFO1      500.1330885 MHz
SI         32768
SF         500.1330128 MHz
WUM        no
SSB        0
LB         0.00 Hz
GB         0
PC         1.00

```

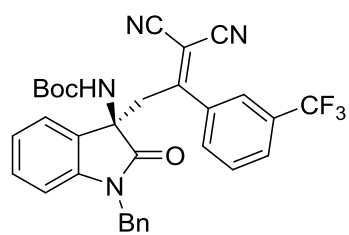


CC4-146  
C13CPD CDC13 I

```

NAME      WXY20160703
EXPNO     12
PROCNO    1
Date_     20160703
Time      11.17
INSTRUM   spect
PROBHD    5 mm PAIXO 19F
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         8
SWH        30030.029 Hz
FIDRES     0.458222 Hz
AQ         1.0912410 sec
RG         128
DW         16.650 usec
DE         6.00 usec
TE         297.2 K
D1         2.00000000 sec
d11        0.03000000 sec
DELTA      1.89999998 sec
TDO        1
----- CHANNEL f1 -----
NUC1      13C
P1         9.50 usec
PL1        -0.50 dB
SFO1      125.7703643 MHz
----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     80.50 usec
PL2        1.00 dB
PL12       15.99 dB
PL13       14.50 dB
SFO2      500.1320005 MHz
SI         32768
SF         125.7577890 MHz
WUM        no
SSB        0
LB         0.00 Hz
GB         0
PC         0.20

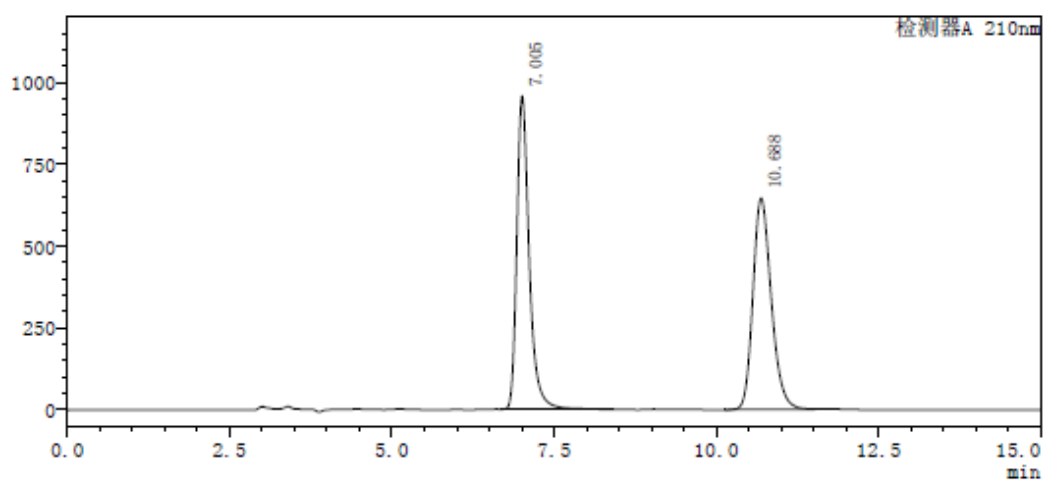
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3ae

<chromatogram>

mV



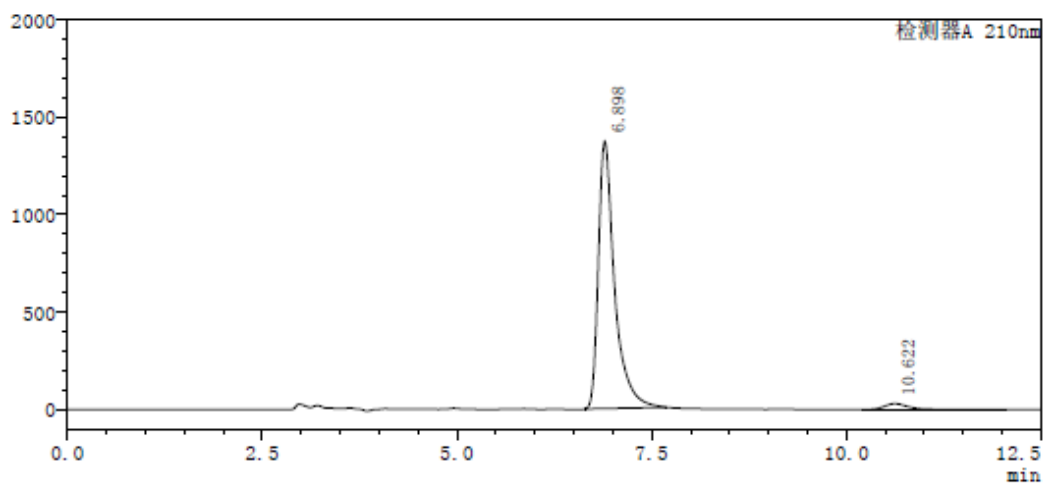
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.005	957001	12713448	50.008
2	10.688	645537	12709523	49.992
总计		1602538	25422972	100.000

<chromatogram>

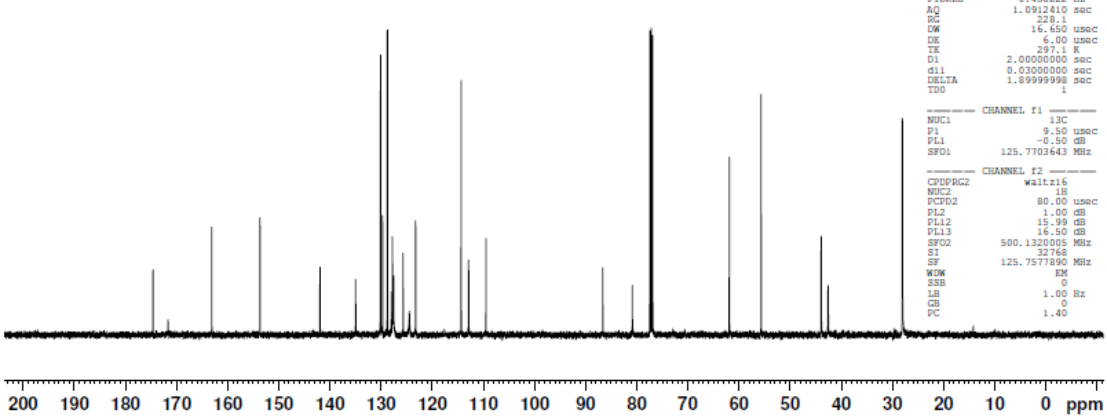
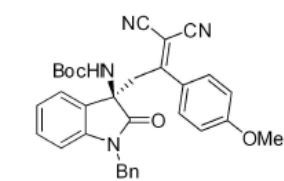
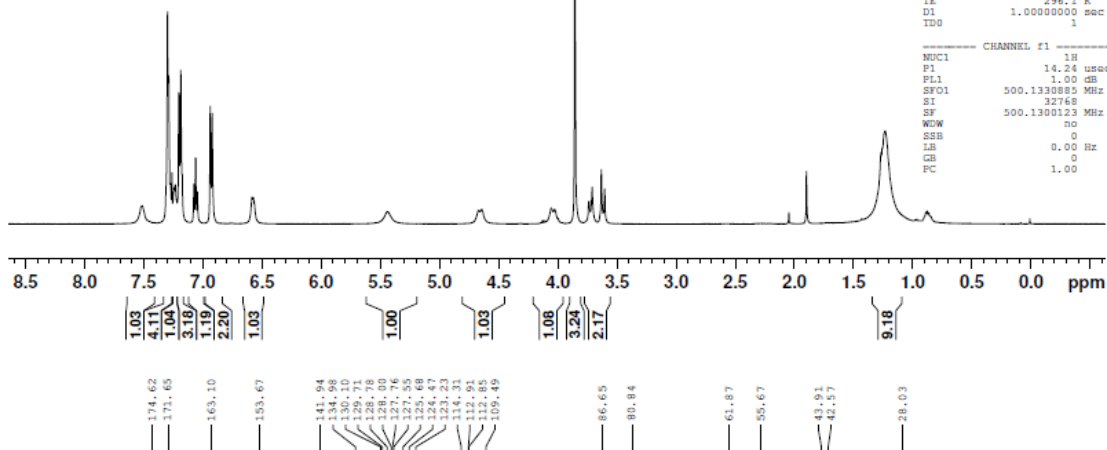
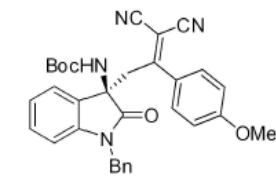
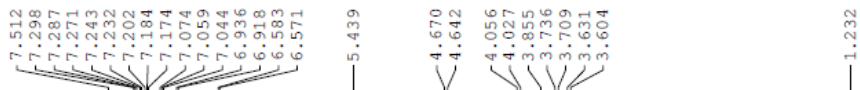
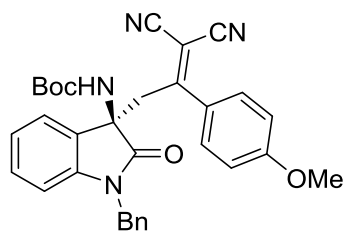
mV

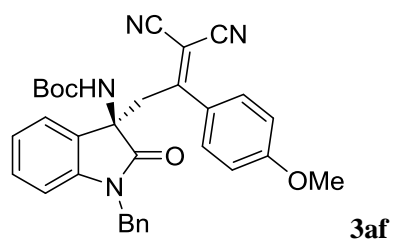


<Peak table>

检测器A 210nm

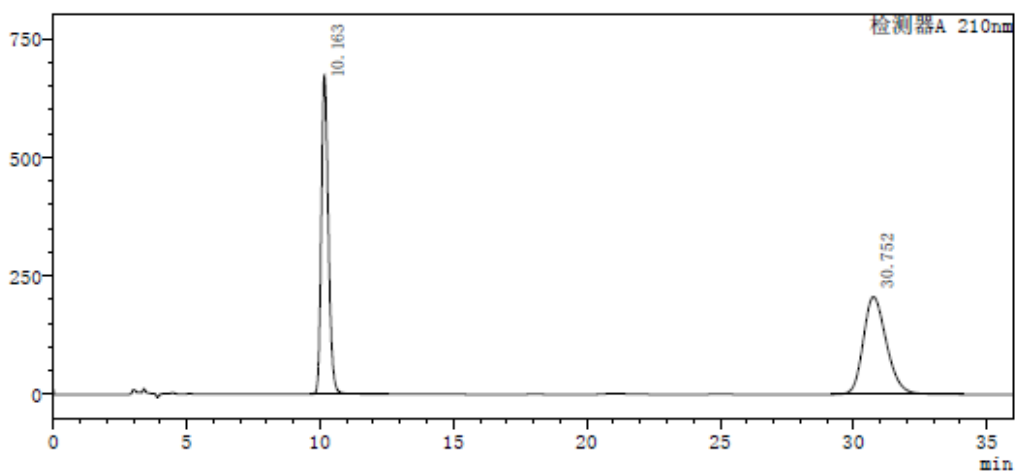
Peak#	Ret. Time	Height	Area	Area%
1	6.898	1372034	19928398	96.980
2	10.622	29699	620496	3.020
总计		1401733	20548895	100.000





<chromatogram>

mV



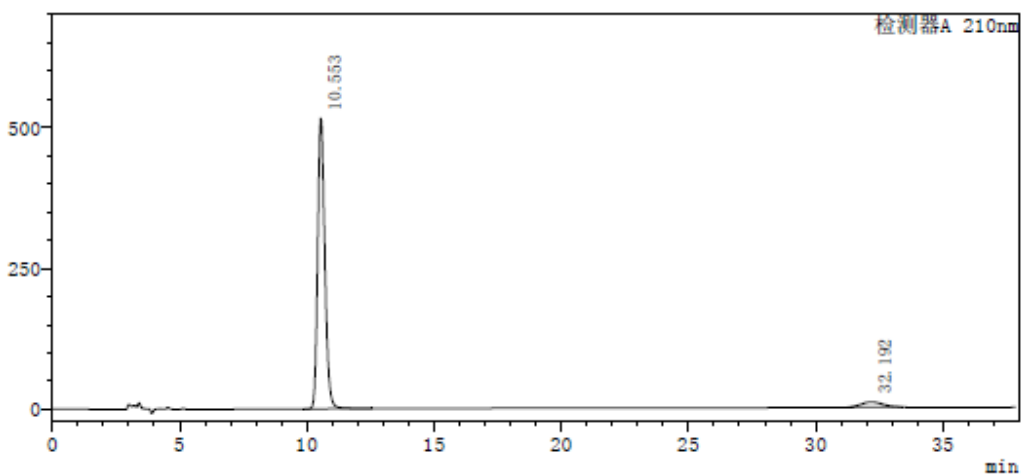
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	10.163	672132	12390311	49.997
2	30.752	205285	12391807	50.003
总计		877418	24782118	100.000

<chromatogram>

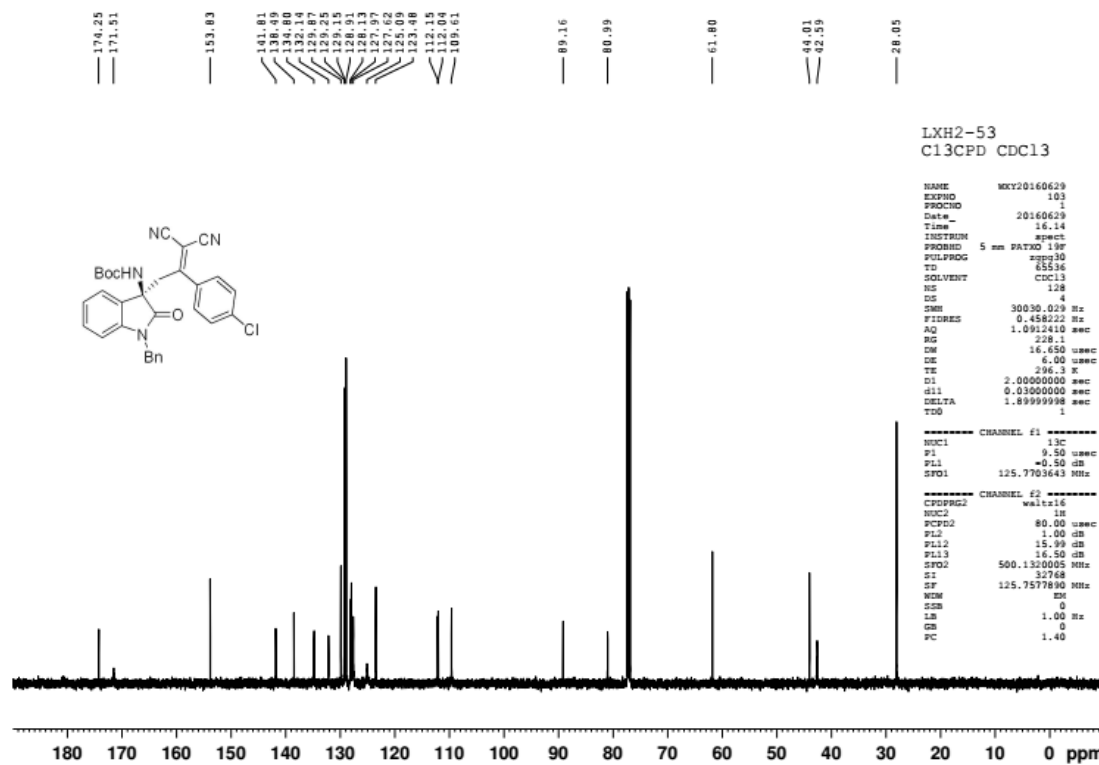
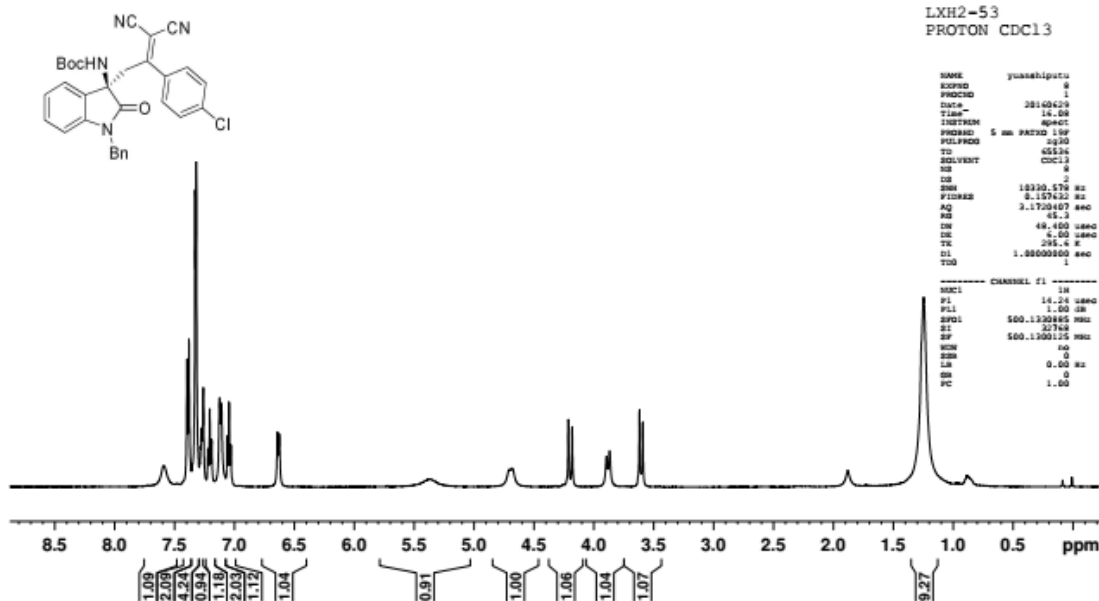
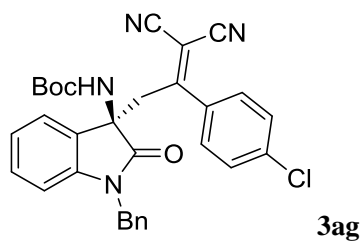
mV

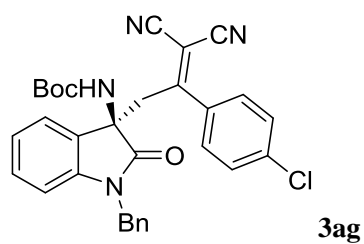


<Peak table>

检测器A 210nm

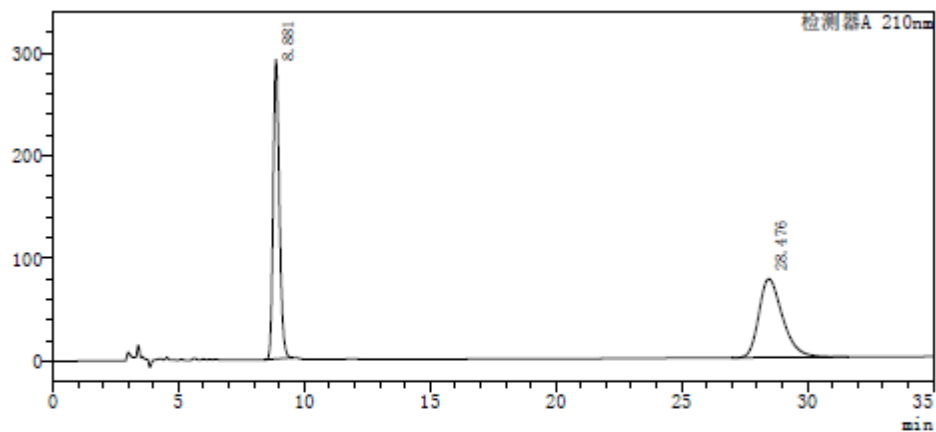
Peak#	Ret. Time	Height	Area	Area%
1	10.553	514129	10065869	94.841
2	32.192	9317	547597	5.159
总计		523446	10613466	100.000





<chromatogram>

mV



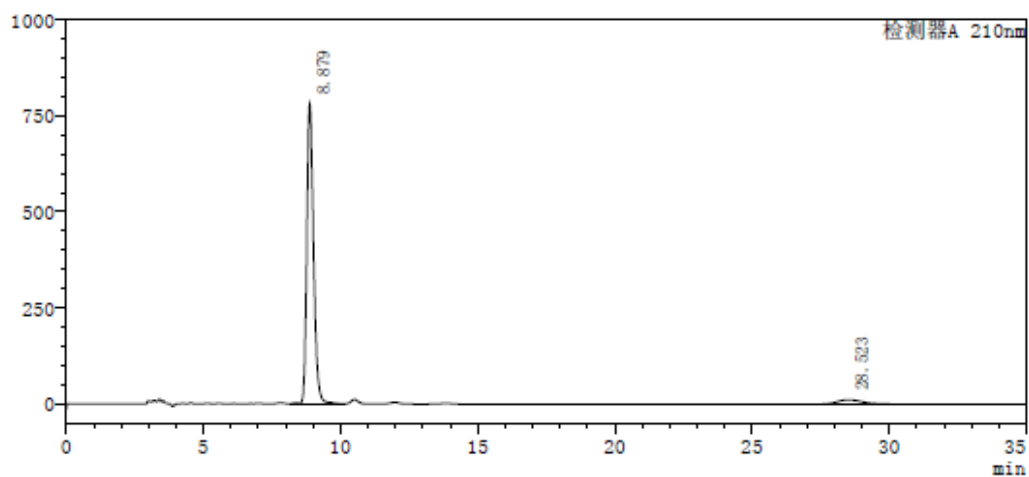
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.881	291540	4984065	49.782
2	28.476	76544	5027698	50.218
总计		368084	10011763	100.000

<chromatogram>

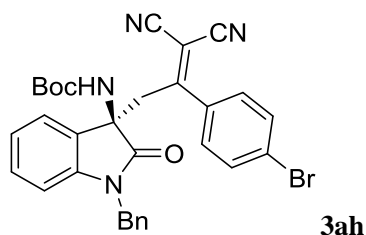
mV



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.879	781608	13362526	94.820
2	28.523	11713	730003	5.180
总计		793322	14092529	100.000



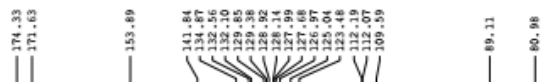
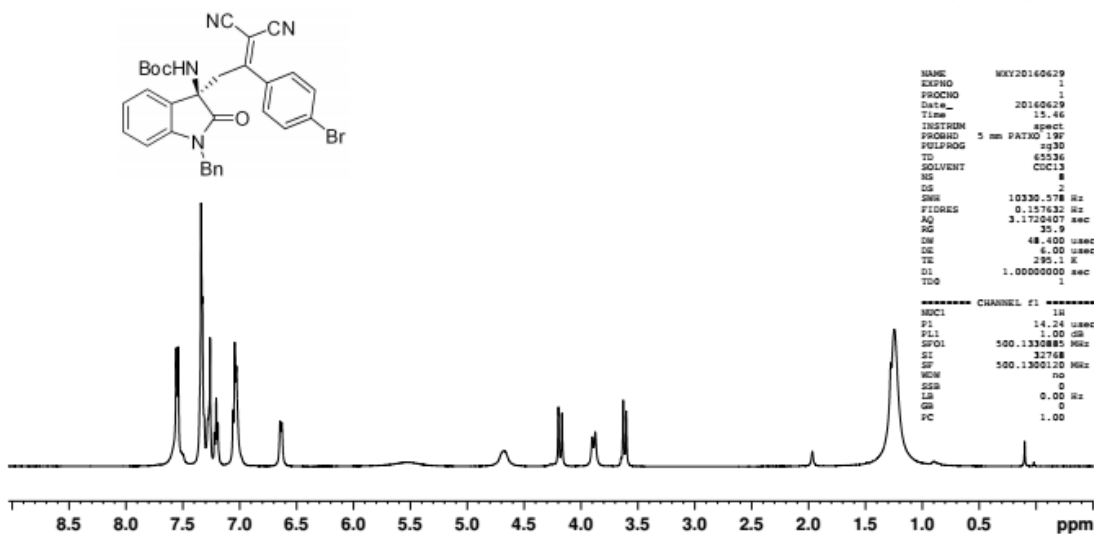
LXH2-32  
PROTON CDC13

```

NAME      WXY20160629
EXPNO    1
PROCNO   1
Date_    20160629
Time     15.46
INSTRUM  spect
PROBHD   5 mm PAXIO 19P
PULPROG  zg30
TD       65536
SOLVENT  CDCl3
NS       8
DS       2
SWH      10330.578 Hz
FIDRES   0.157632 Hz
AQ       3.1725407 sec
RG       35.9
DW       48.400 usec
DE       6.00 usec
TE       295.1 K
D1       1.0000000 sec
TD0      1

----- CHANNEL f1 -----
NUC1     1H
P1       14.24 usec
PL1     0.00 dB
SFO1    500.1330985 MHz
SI       32768
SF      500.1330120 MHz
WDW      no
SSB      0
LB       0.00 Hz
GB       0
PC       1.00

```



LXH2-32  
C13CPD CDC13

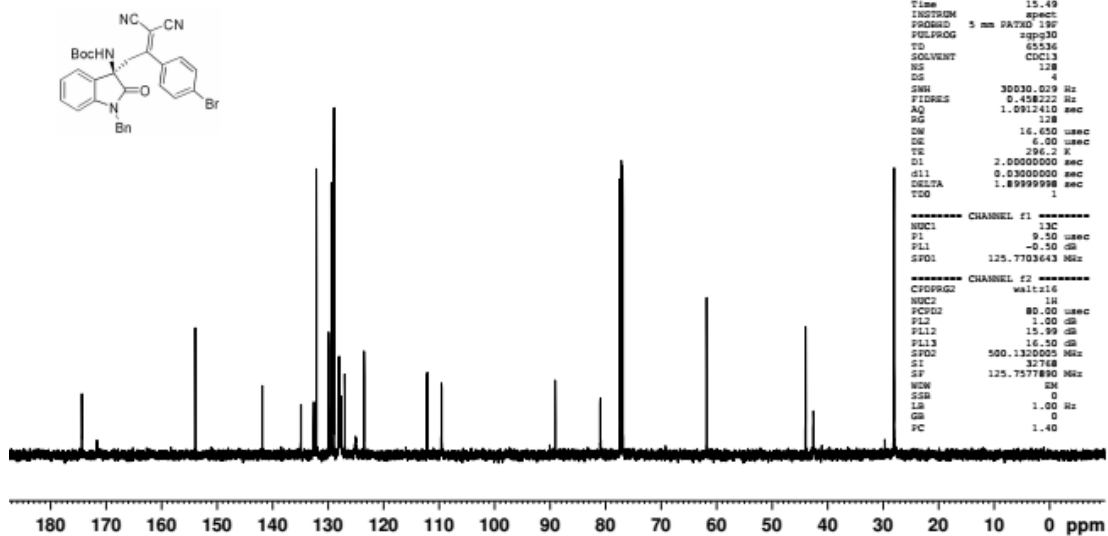
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NAME      yuanahiputu
EXPNO    3
PROCNO   1
Date_    20160629
Time     15.49
INSTRUM  spect
PROBHD   5 mm PAXIO 19P
PULPROG  zgpg30
TD       65536
SOLVENT  CDCl3
NS       8
DS       4
SWH      30030.029 Hz
FIDRES   0.458222 Hz
AQ       1.0912410 sec
RG       128
DW       16.000 usec
DE       6.00 usec
TE       296.2 K
D1       2.0000000 sec
d11     0.0300000 sec
DELTA   1.8999998 sec
TD0      1

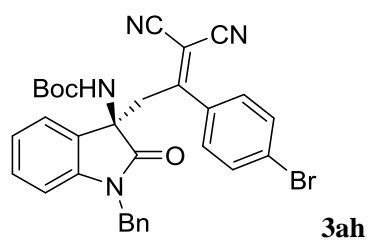
----- CHANNEL f1 -----
NUC1     13C
P1       9.50 usec
PL1     -0.50 dB
SFO1    125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2  wait:16
NUC2     1H
PCPD2    80.00 usec
PL2     1.00 dB
PL12    15.99 dB
PL13    16.50 dB
SFO2    500.1330985 MHz
SI       32768
SF      125.7577890 MHz
WDW      RM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40

```

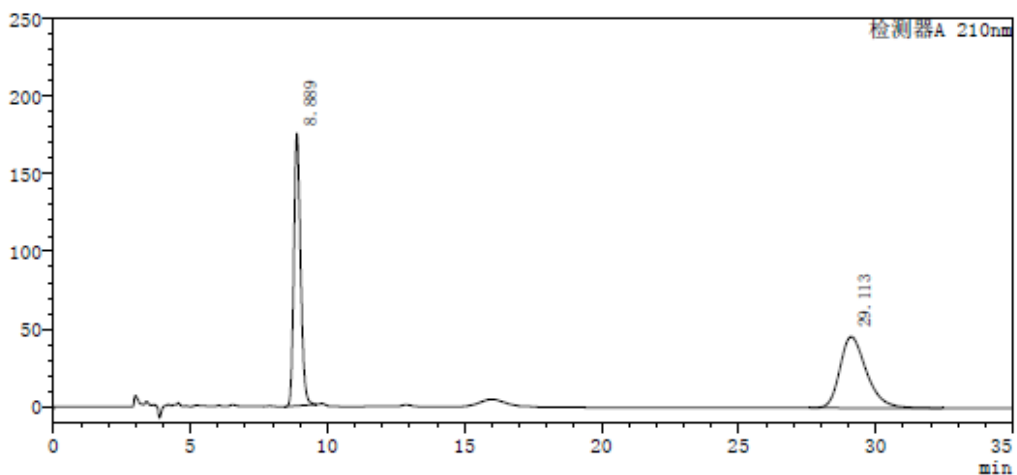






<chromatogram>

mV



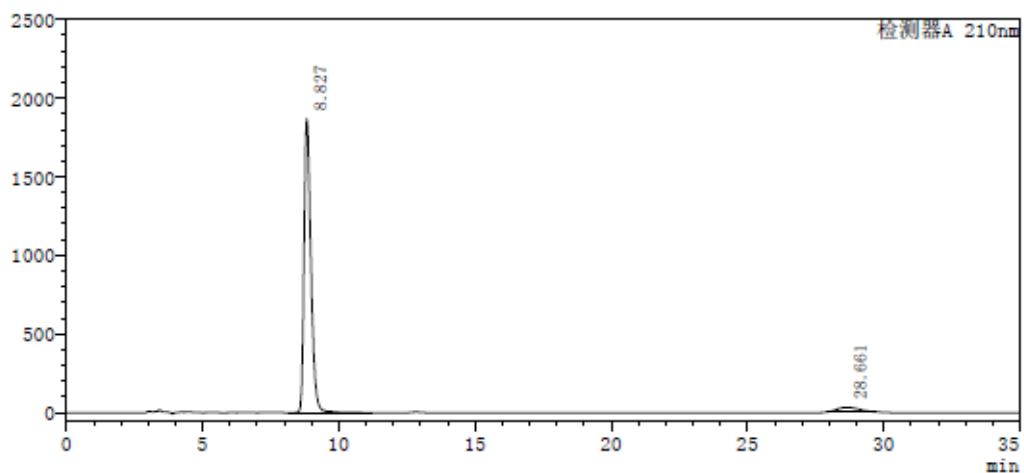
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.889	175320	2989496	49.143
2	29.113	45927	3093768	50.857
总计		221247	6083264	100.000

<chromatogram>

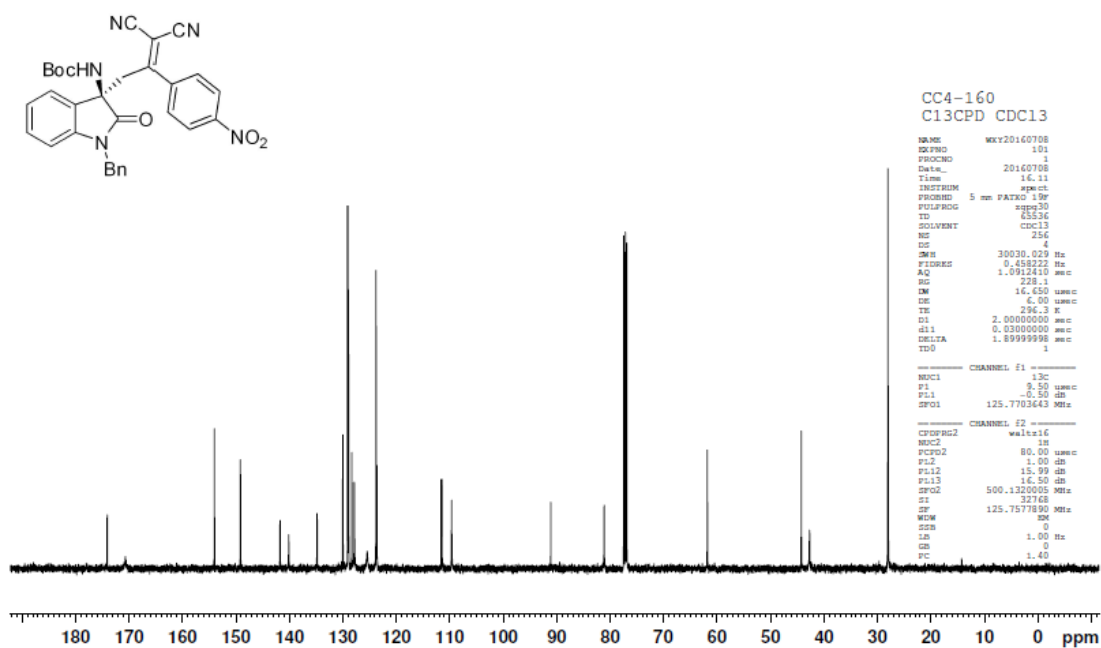
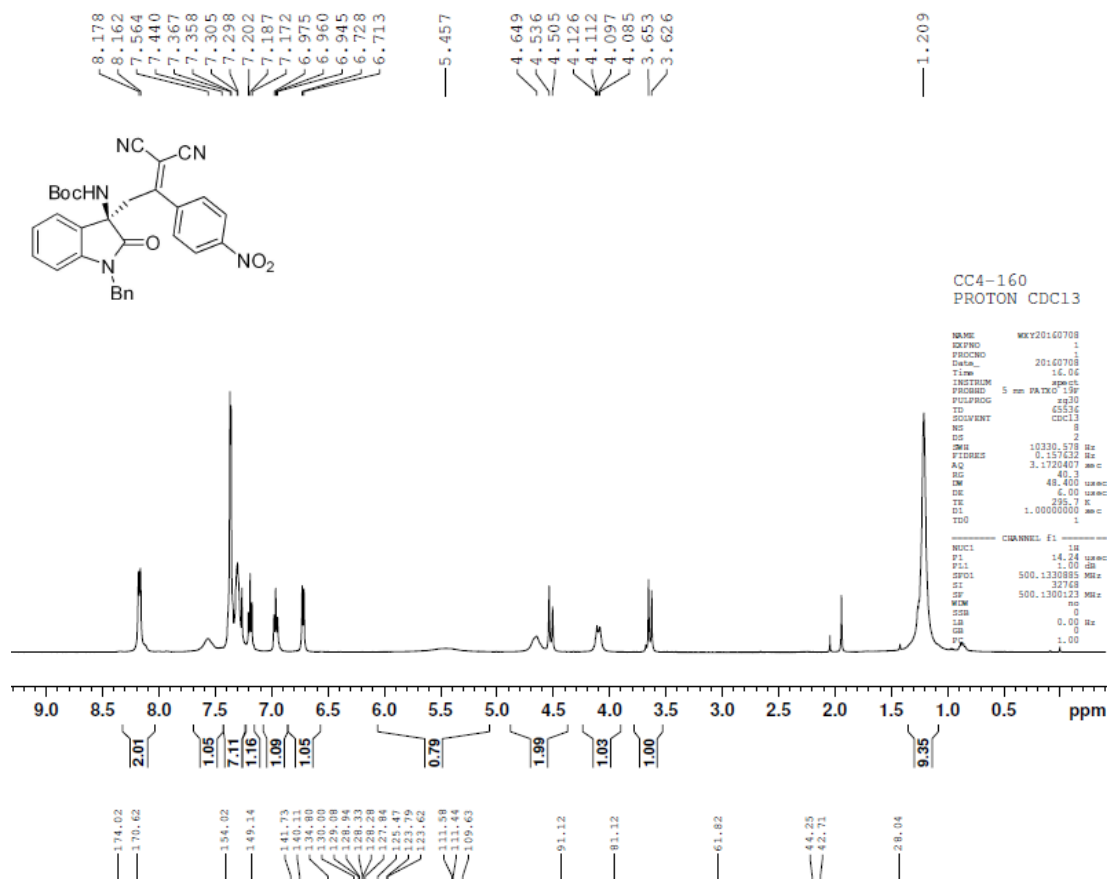
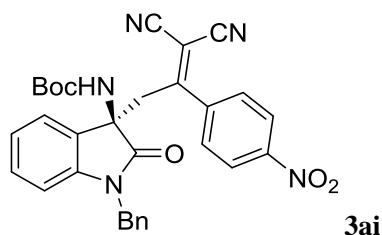
mV

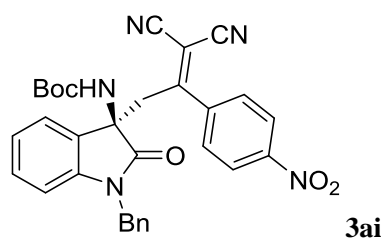


<Peak table>

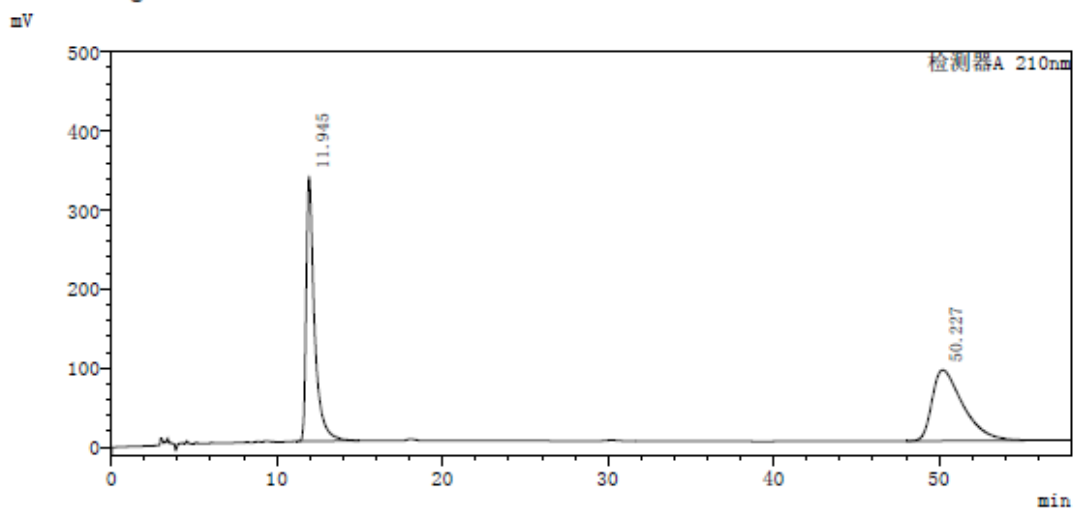
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.827	1865597	32693282	95.133
2	28.661	30440	1672653	4.867
总计		1896037	34365935	100.000





<chromatogram>

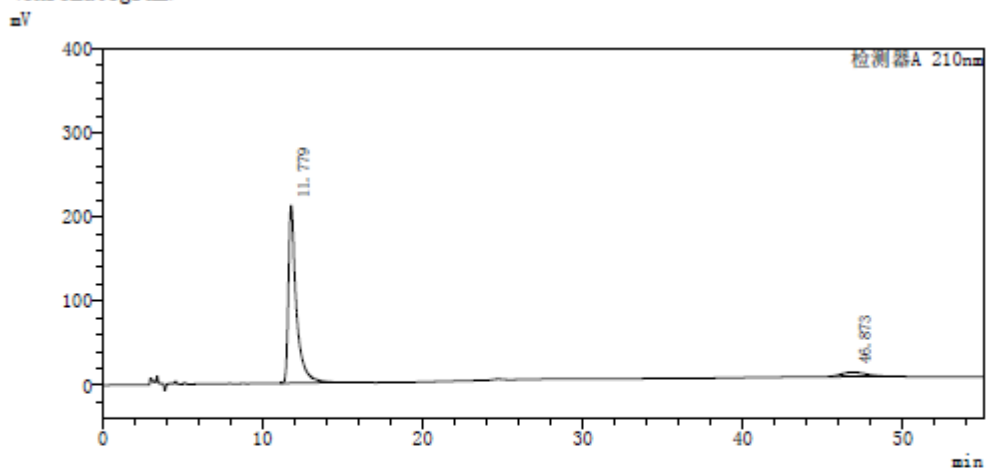


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	11.945	334405	11714169	50.099
2	50.227	89721	11667986	49.901
总计		424126	23382155	100.000

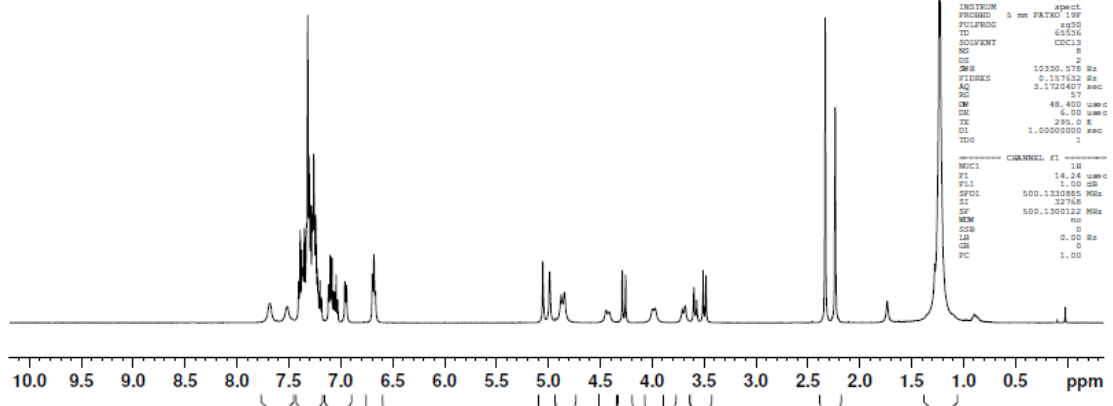
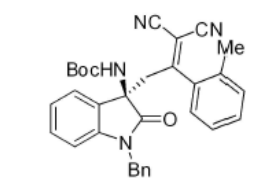
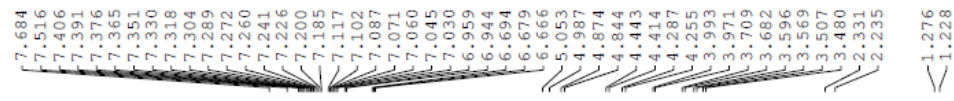
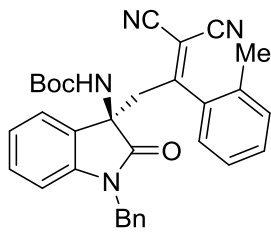
<chromatogram>



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	11.779	210860	7258858	93.004
2	46.873	5212	546071	6.996
总计		216072	7804929	100.000

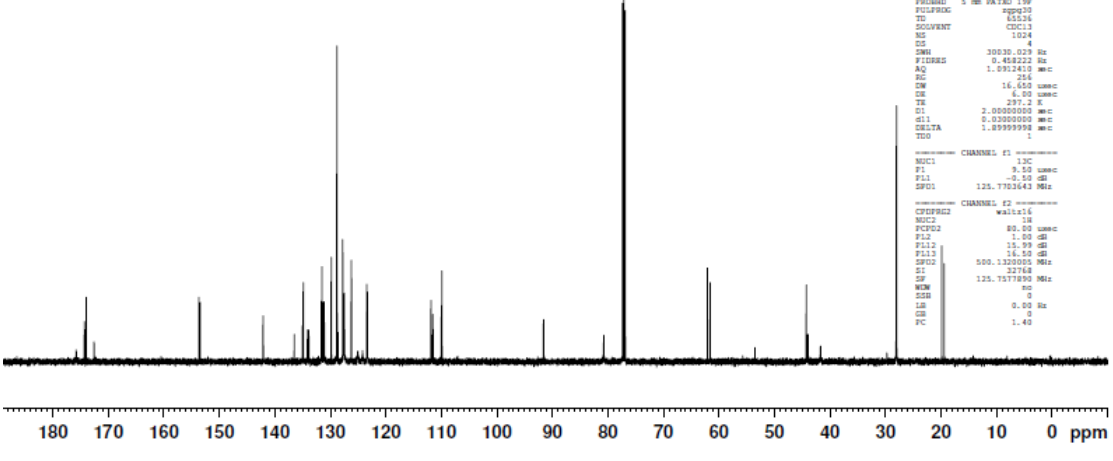
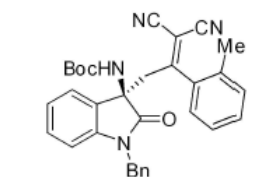
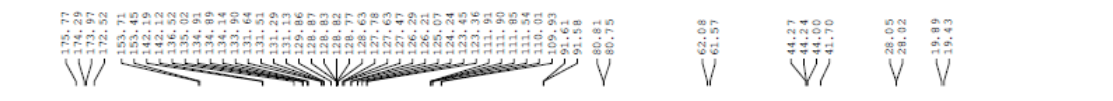


CC4-150  
PROTON CDC13

NAME	KEY20160705
EXPNO	1
F2PROC	1
Date_	20160705
Time	14.07
INSTRUM	axcpct
PROBHD	5 mm PATTI 199
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	8
DS	2
SWH	10330.578 Hz
FIDRES	0.101630 Hz
AQ	3.1720407 sec
RG	57
RM	48.600 umsec
DE	6.00 umsec
TE	295.0 K
D1	1.00000000 sec
TDD	1

----- CHANNEL f1 -----

MUCL	18
PL	14.24 umsec
PL1	1.00 dB
SFO1	500.1300855 MHz
ZF	32768
SF	500.1300122 MHz
NUC1	13C
SSB	0
LB	0.00 Hz
GB	0
PC	1.00



CC4-150  
C13CPD CDC13

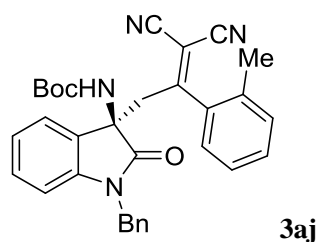
NAME	KEY20160705
EXPNO	2
F2PROC	1
Date_	20160705
Time	15.46
INSTRUM	axcpct
PROBHD	5 mm PATTI 199
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	1024
DS	4
SWH	30530.029 Hz
FIDRES	0.482222 Hz
AQ	1.5912410 sec
RG	256
RM	16.600 umsec
DE	6.00 umsec
TE	297.2 K
D1	2.00000000 sec
d11	0.03000000 sec
DELTA	1.89999999 sec
TDD	1

----- CHANNEL f1 -----

MUCL	13C
PL	3.00 umsec
PL1	-0.50 dB
SFO1	125.7703643 MHz

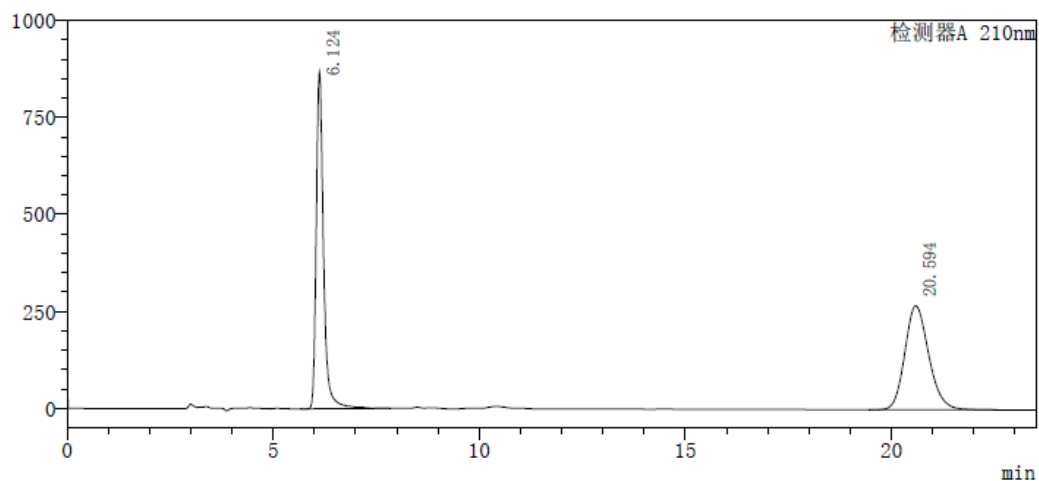
----- CHANNEL f2 -----

wait16	16
MUCL2	13C
PL2	80.00 umsec
PL12	1.00 dB
PL12	15.99 dB
PL12	16.00 dB
SFO2	500.1300000 MHz
ZF	32768
SF	125.7577890 MHz
NUC2	13C
SSB	0
LB	0.00 Hz
GB	0
PC	1.40



<chromatogram>

mV



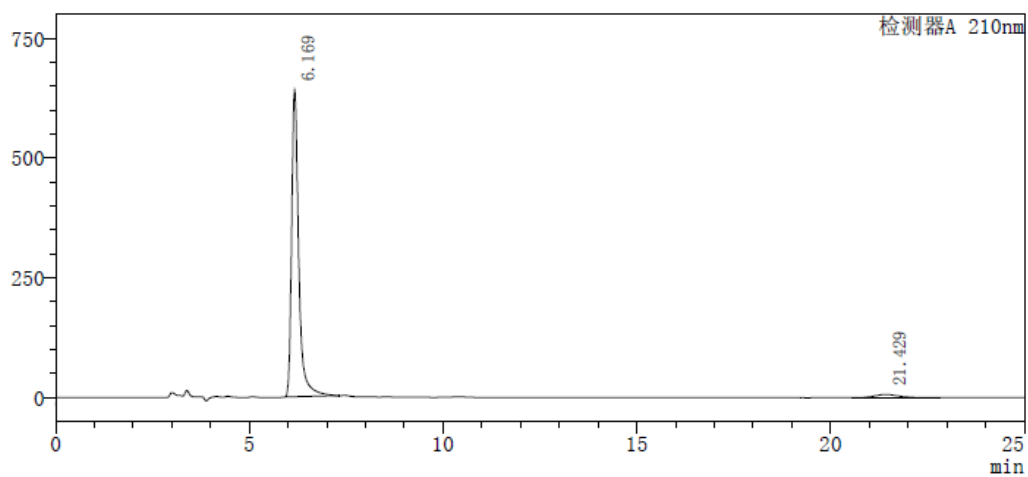
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	6.124	869194	10714157	49.705
2	20.594	268143	10841162	50.295
总计		1137336	21555319	100.000

<chromatogram>

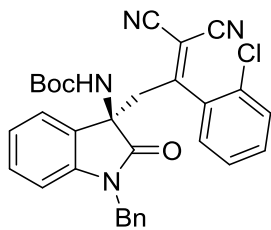
mV



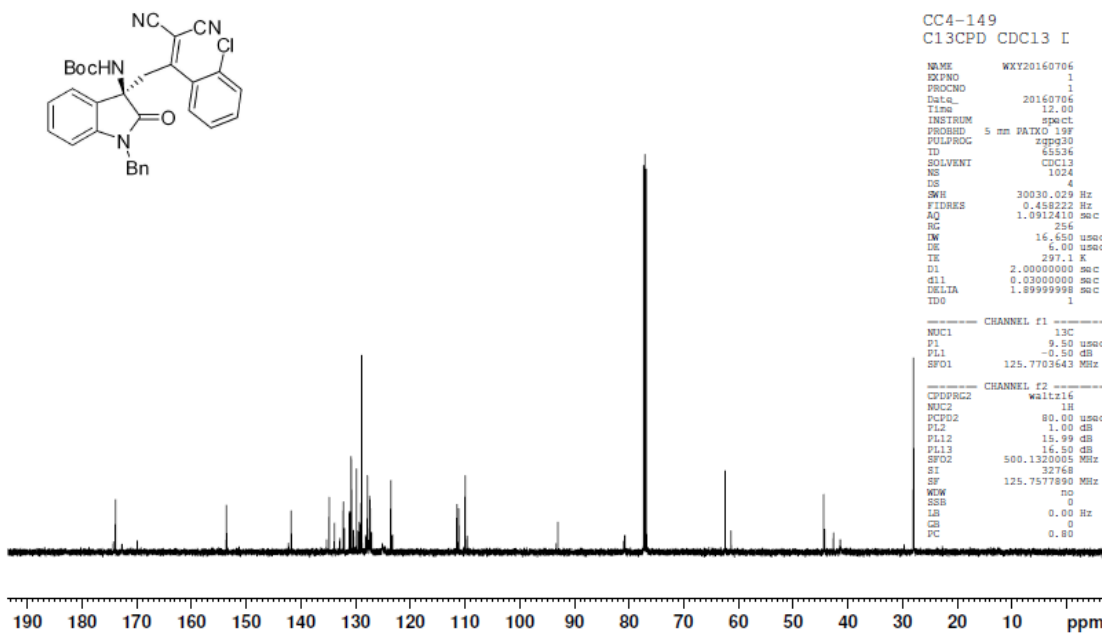
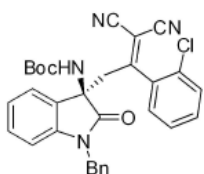
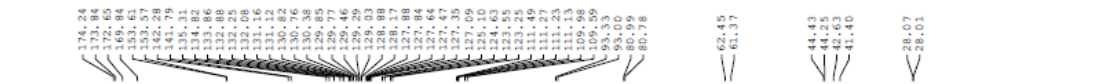
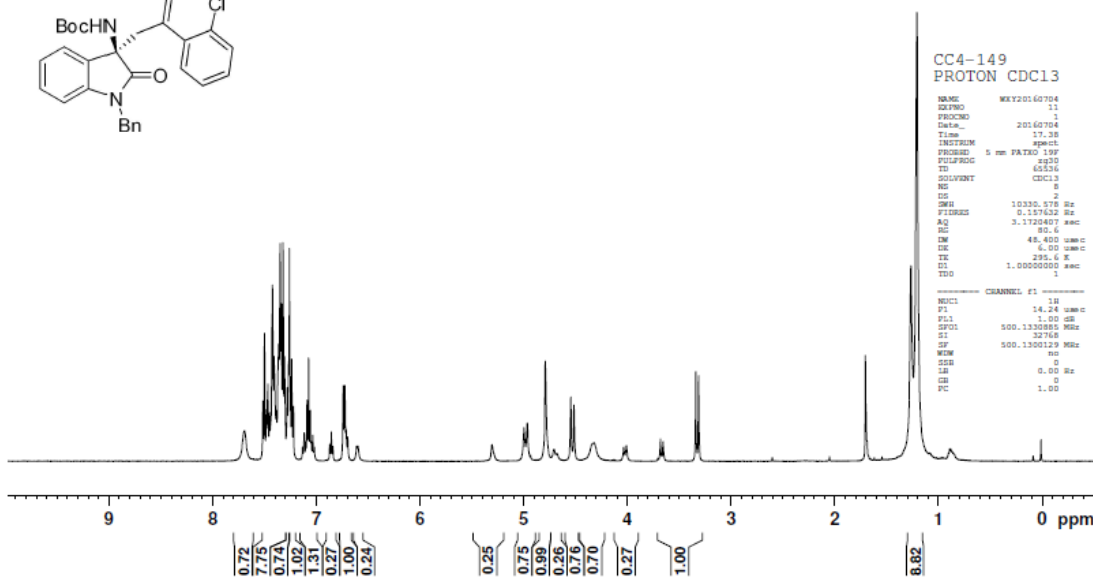
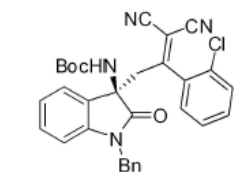
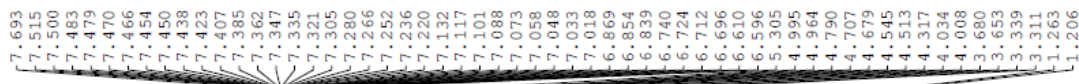
<Peak table>

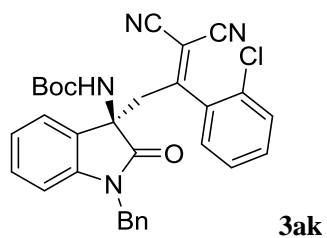
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	6.169	640337	8174900	96.882
2	21.429	6325	263080	3.118
总计		646661	8437980	100.000

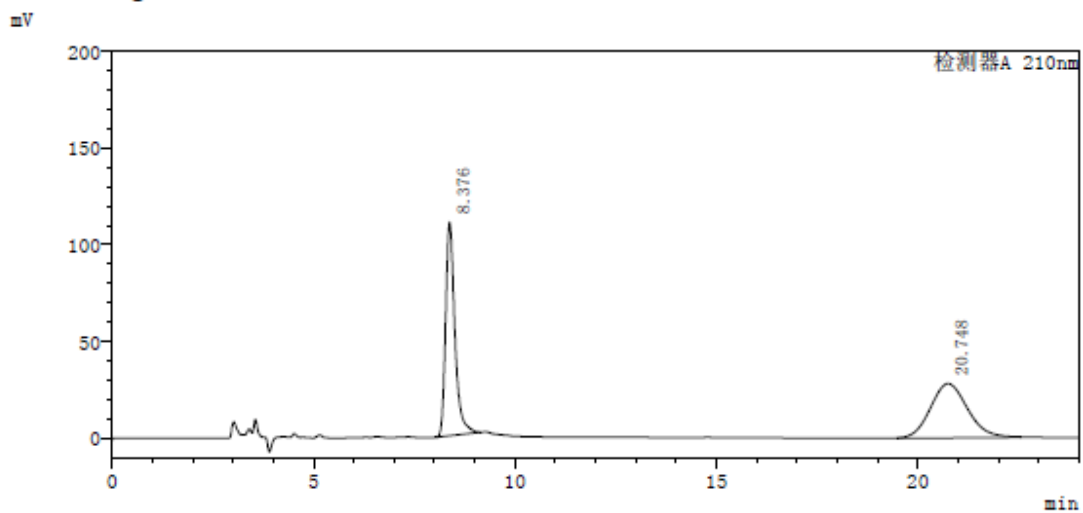


**3ak**





<chromatogram>

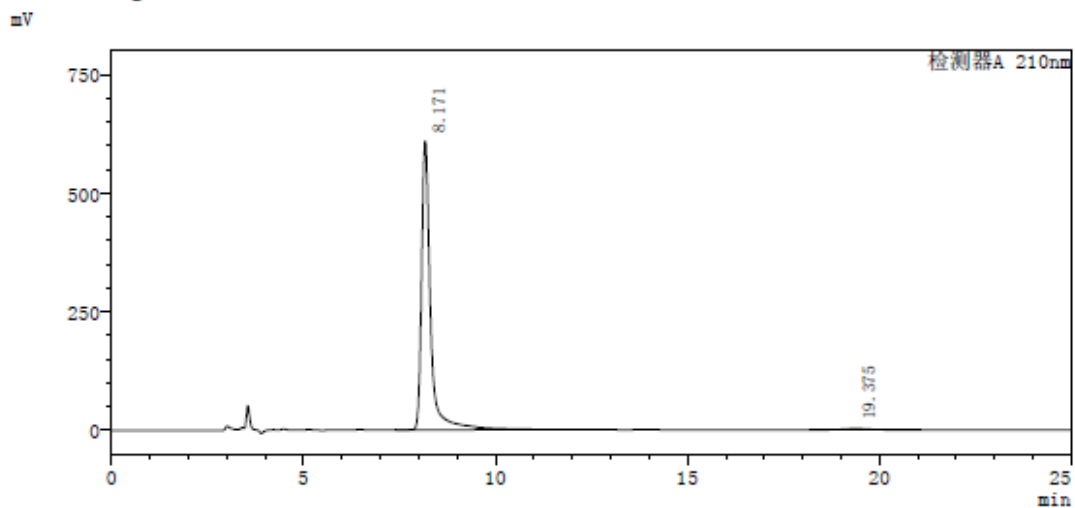


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.376	110142	1755680	49.301
2	20.748	28059	1805431	50.699
总计		138201	3561111	100.000

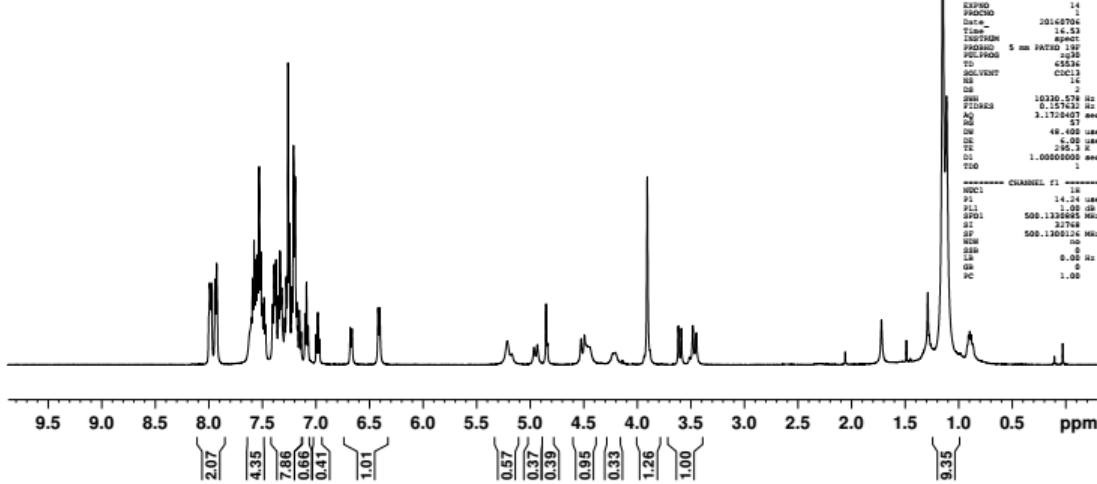
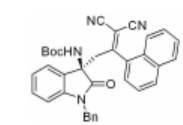
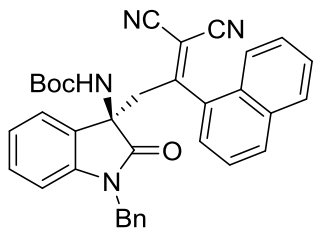
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<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.171	608188	9965087	98.454
2	19.375	2913	156472	1.546
总计		611100	10121559	100.000

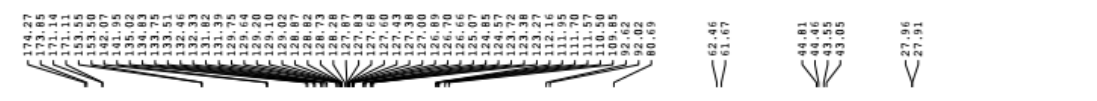


LXH-2-59-2  
PROTON CDCl3

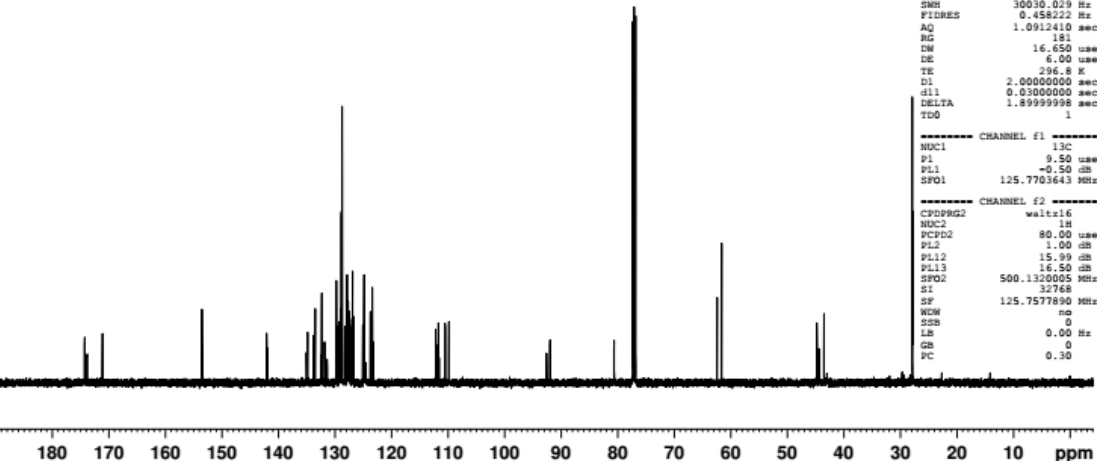
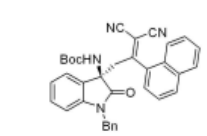
```

NAME          lxh11kh
EXPNO         14
PROCNO        1
Date_         20160704
Time          16.33
INSTRUM       spect
PROBHD        5 mm PABBO 13P
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            2
DS            4
SWH           10330.578 Hz
FIDRES        0.157623 Hz
AQ            1.1720427 sec
RG            327
WDW            EM
SSB            0
LB            46.400 usec
DE            6.00 usec
TE            296.2 K
D1            2.00000000 sec
DELTA         1.00000000 sec
TD0           1

----- CHANNEL f1 -----
NUC1          13C
P1            14.24 usec
PL1           1.00 dB
SFO1          500.1320000 MHz
SI            32768
SF            500.1320000 MHz
WDW            EM
SSB            0
LB            0.00 Hz
GB            0
PC            1.00
  
```



LXH2-59-2  
C13CPD CDCl3



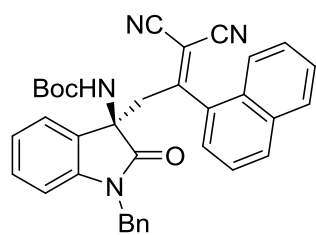
```

NAME          lxh11kh
EXPNO         13
PROCNO        1
Date_         20160709
Time          21.55
INSTRUM       spect
PROBHD        5 mm PABBO 13P
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            4
DS            4
SWH           30030.029 Hz
FIDRES        0.458222 Hz
AQ            1.0912410 sec
RG            181
WDW            EM
SSB            0
LB            16.650 usec
DE            6.00 usec
TE            296.2 K
D1            2.00000000 sec
DELTA         0.03000000 sec
TD0           1

----- CHANNEL f1 -----
NUC1          13C
P1            9.50 usec
PL1           -0.50 dB
SFO1          125.7703643 MHz

----- CHANNEL f2 -----
CPDPRG2      waltz16
NUC2          1H
PCPD2         80.00 usec
PL2            1.00 dB
PL12          15.99 dB
PL13          16.50 dB
SFO2          500.1320000 MHz
SI            32768
SF            125.7577890 MHz
WDW            EM
SSB            0
LB            0.00 Hz
GB            0
PC            0.30
  
```

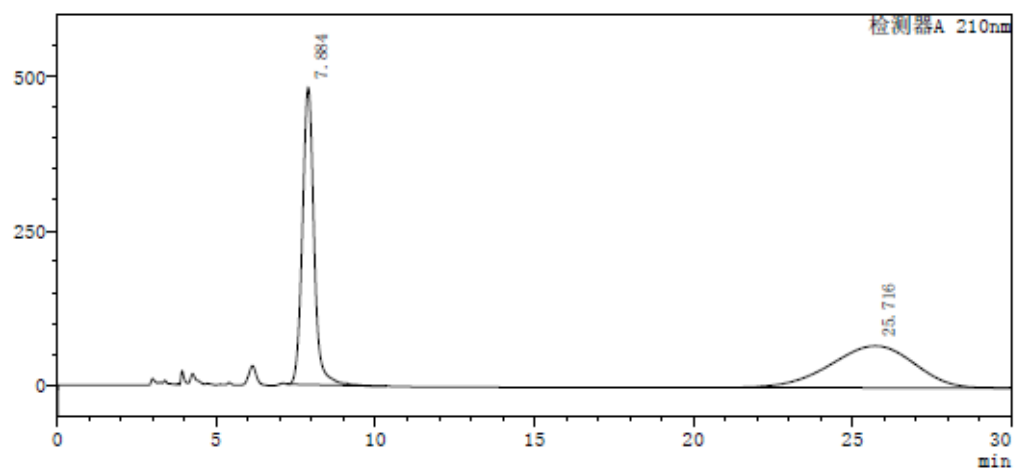




3a1

<chromatogram>

mV



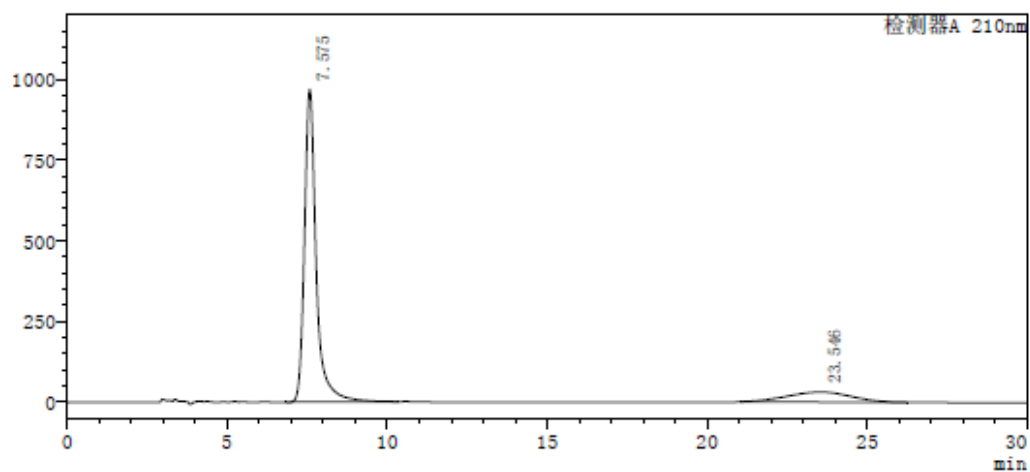
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.884	482337	12324222	49.710
2	25.716	67671	12468258	50.290
总计		550007	24792480	100.000

<chromatogram>

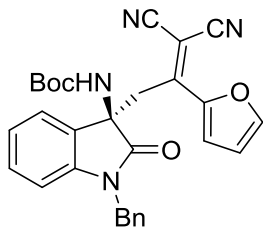
mV



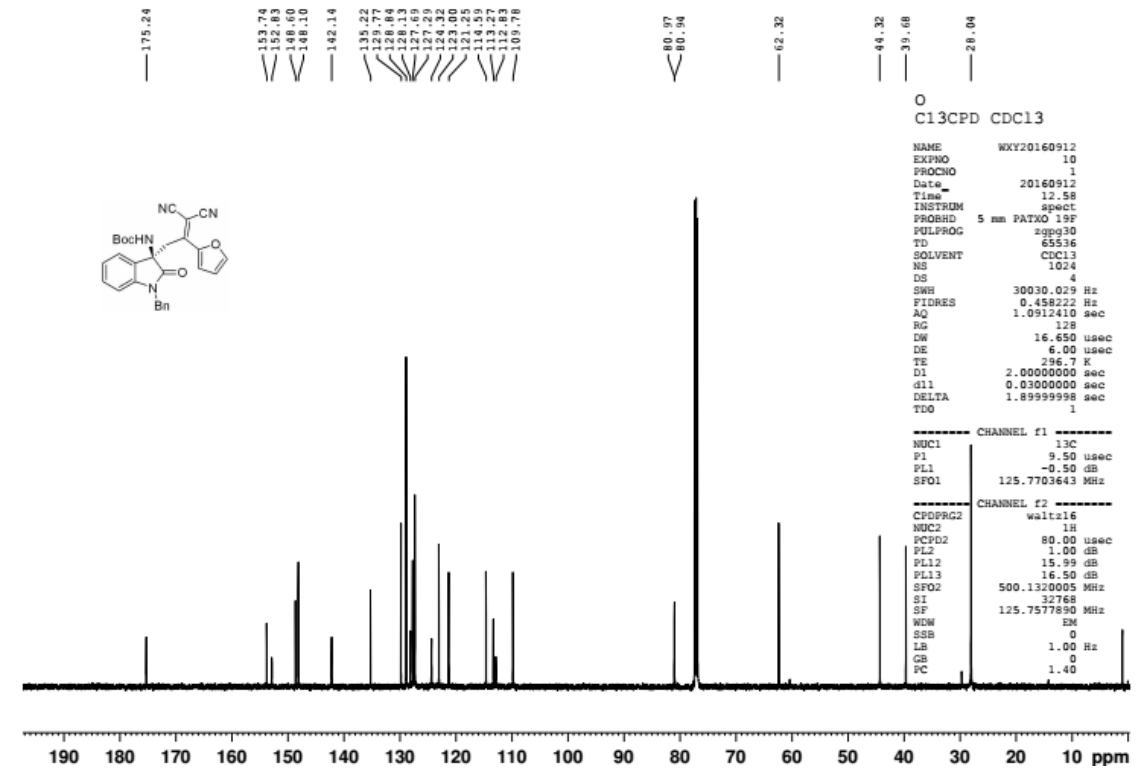
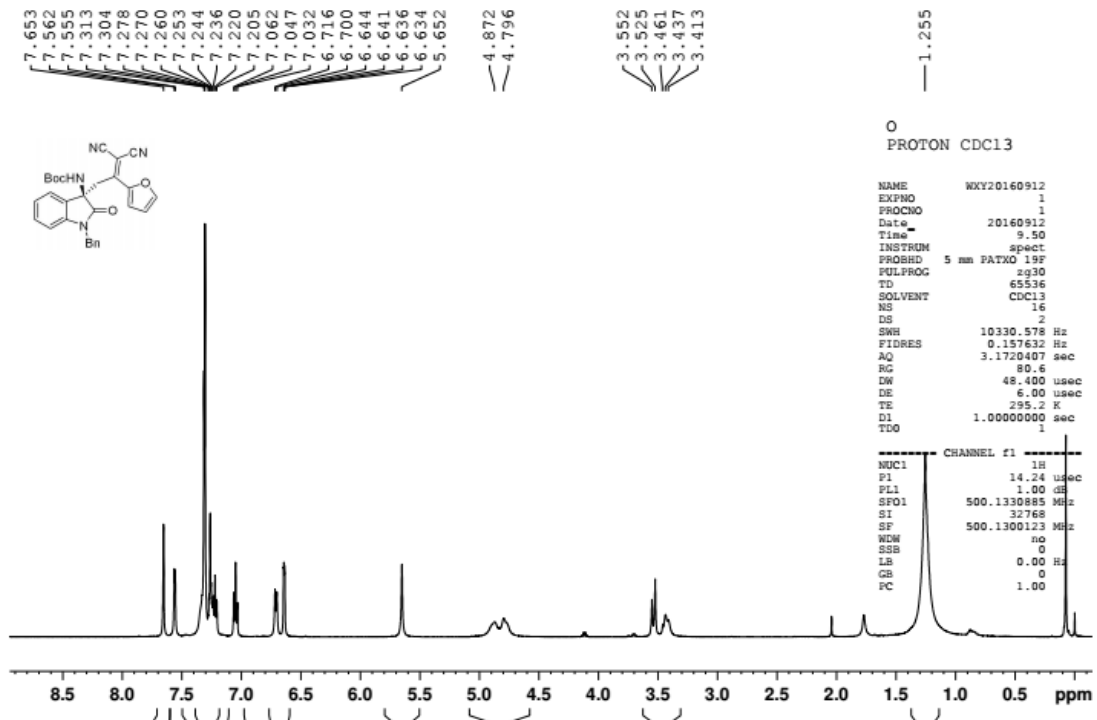
<Peak table>

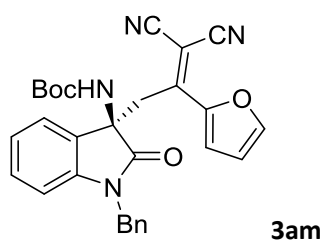
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.575	968021	24718276	85.363
2	23.546	30885	4238370	14.637
总计		998906	28956646	100.000

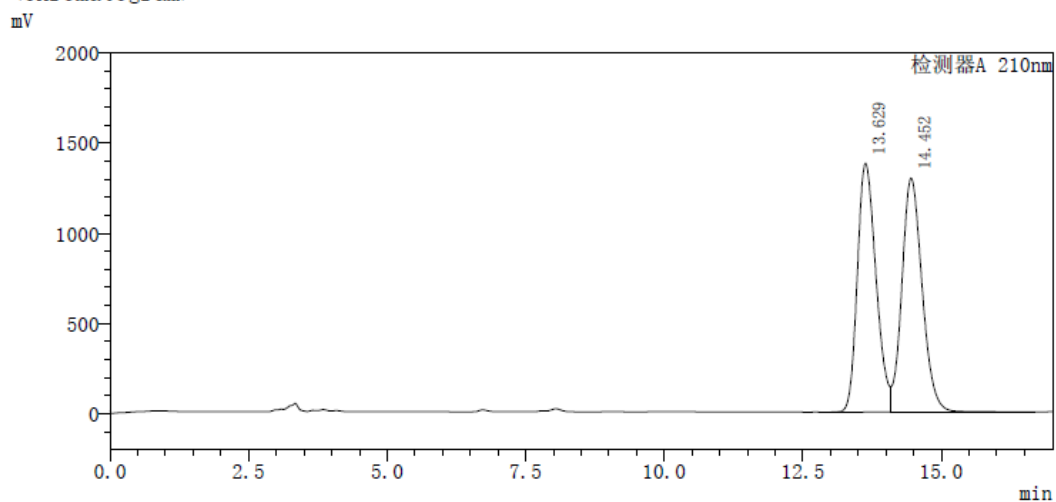


**3am**





<chromatogram>

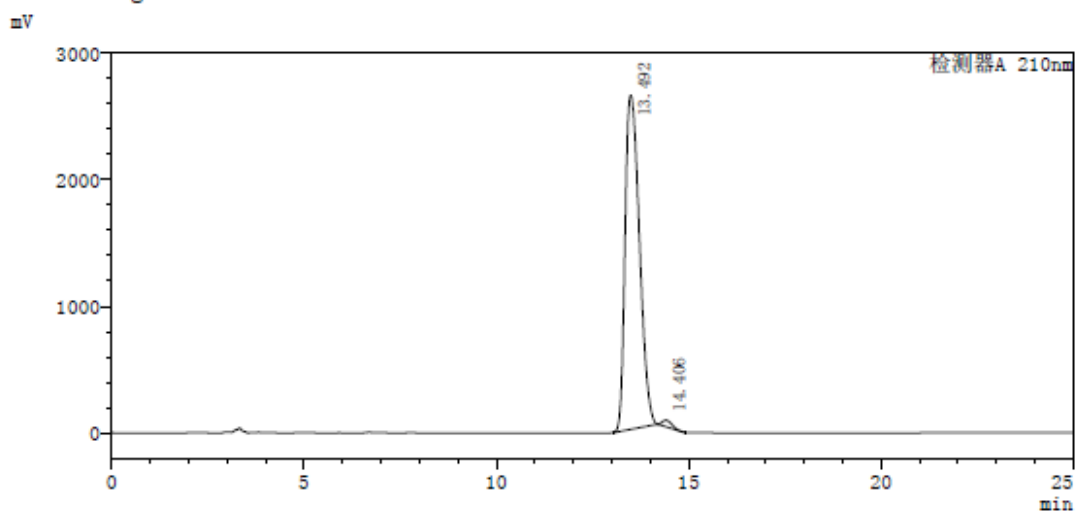


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	13.629	1380258	32331702	49.412
2	14.452	1297283	33101644	50.588
总计		2677541	65433347	100.000

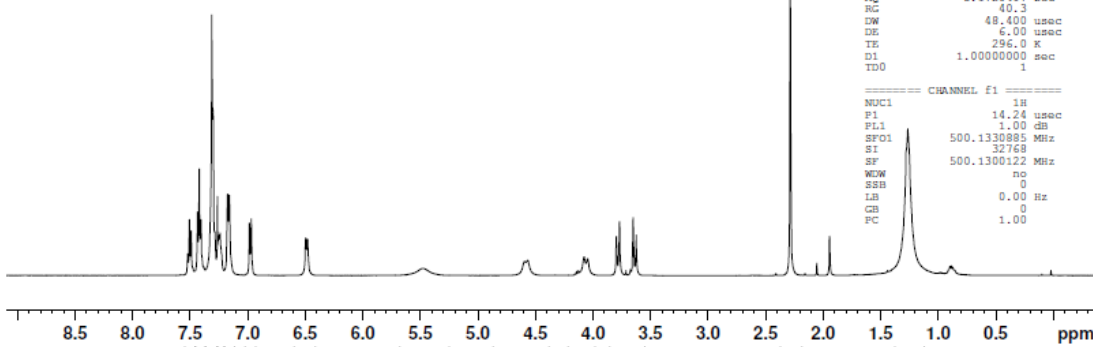
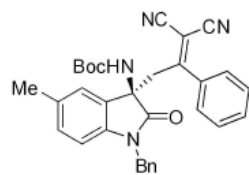
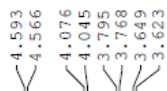
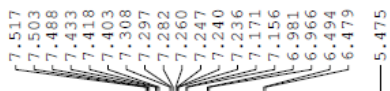
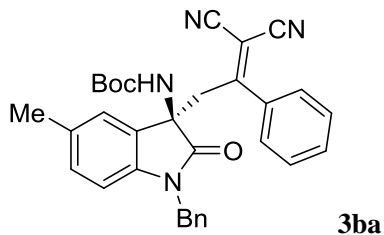
<chromatogram>



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	13.492	2637652	68531158	98.716
2	14.406	51157	891278	1.284
总计		2688809	69422436	100.000

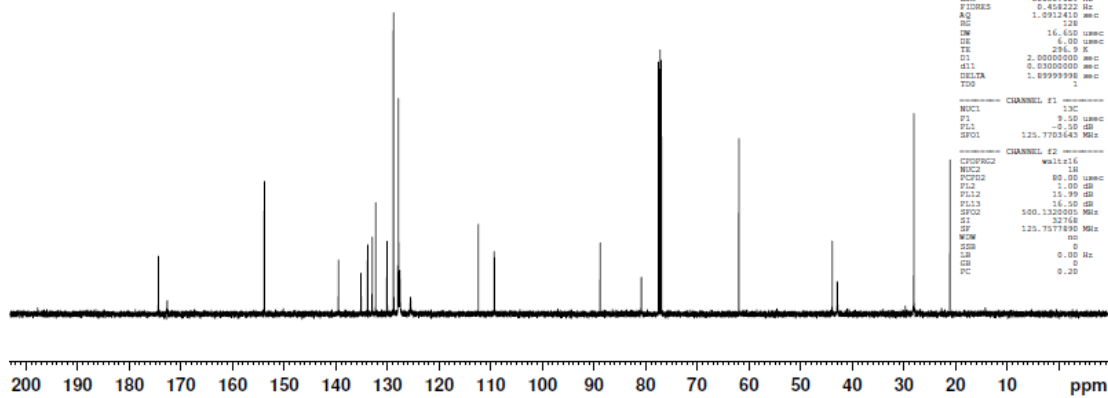
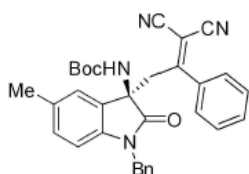


CC4-156  
PROTON CDC13

```

NAME      WKY20160704
EXPNO    14
PROCNO   1
Date_    20160704
Time     17.49
INSTRUM  spect
PROBHD   5 mm PAIXO 19F
PULPROG  zg30
ID       65536
SOLVENT  CDC13
NS       8
DS       2
SWH      10330.578 Hz
FIDRES   0.157632 Hz
AQ       3.1720407
RG       40.3
SC       48.400 usec
DE       6.00 usec
TE       296.0 K
D1       1.00000000 sec
TD0      1
===== CHANNEL f1 =====
NUC1     1H
P1       14.24 usec
PL1      1.00 dB
SFO1     500.1300895 MHz
SI       32768
SF       500.1300122 MHz
WOW      no
SSB      0
LB       0.00 Hz
GB       0
PC       1.00

```

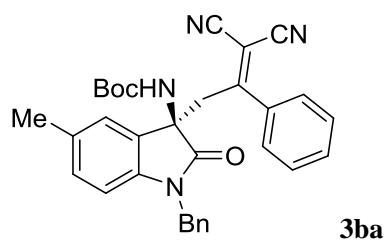


CC4-156  
C13CPD CDC13

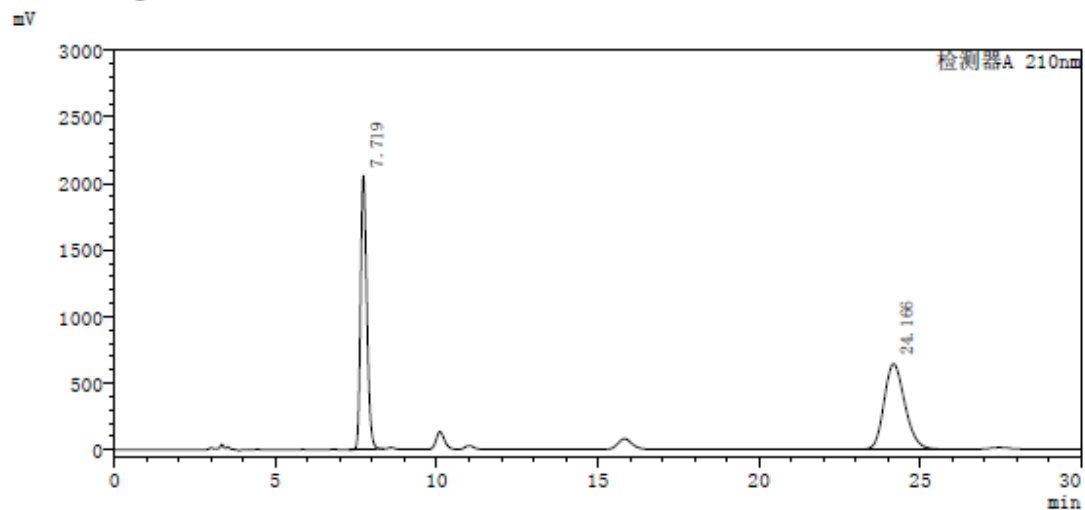
```

NAME      WKY20160705
EXPNO    8
PROCNO   1
Date_    20160705
Time     20.50
INSTRUM  spect
PROBHD   5 mm PAIXO 19F
PULPROG  zgpg30
ID       65536
SOLVENT  CDC13
NS       4
DS       4
SWH      30030.029 Hz
FIDRES   0.493220 Hz
AQ       1.0912410 sec
RG       128
SC       16.650 usec
DE       6.00 usec
TE       296.9 K
D1       1.00000000 sec
d11      0.03000000 sec
DELTA    1.89999999 sec
TD0      1
===== CHANNEL f1 =====
NUC1     13C
P1       9.50 usec
PL1      0.20 dB
SFO1     125.7701643 MHz
===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     15N
PCPD2    80.00 usec
PL2      1.00 dB
PL12     15.99 dB
PL13     16.50 dB
SFO2     500.1326001 MHz
SI       32768
SF       125.7571850 MHz
WOW      no
SSB      0
LB       0.00 Hz
GB       0
PC       0.20

```



<chromatogram>

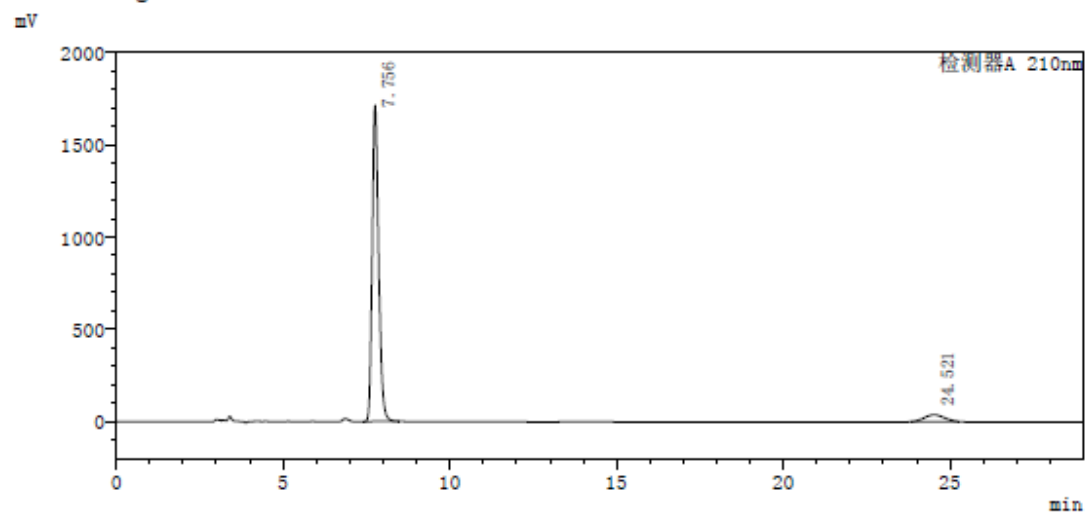


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.719	2052155	27762230	49.334
2	24.166	641065	28511566	50.666
总计		2693220	56273796	100.000

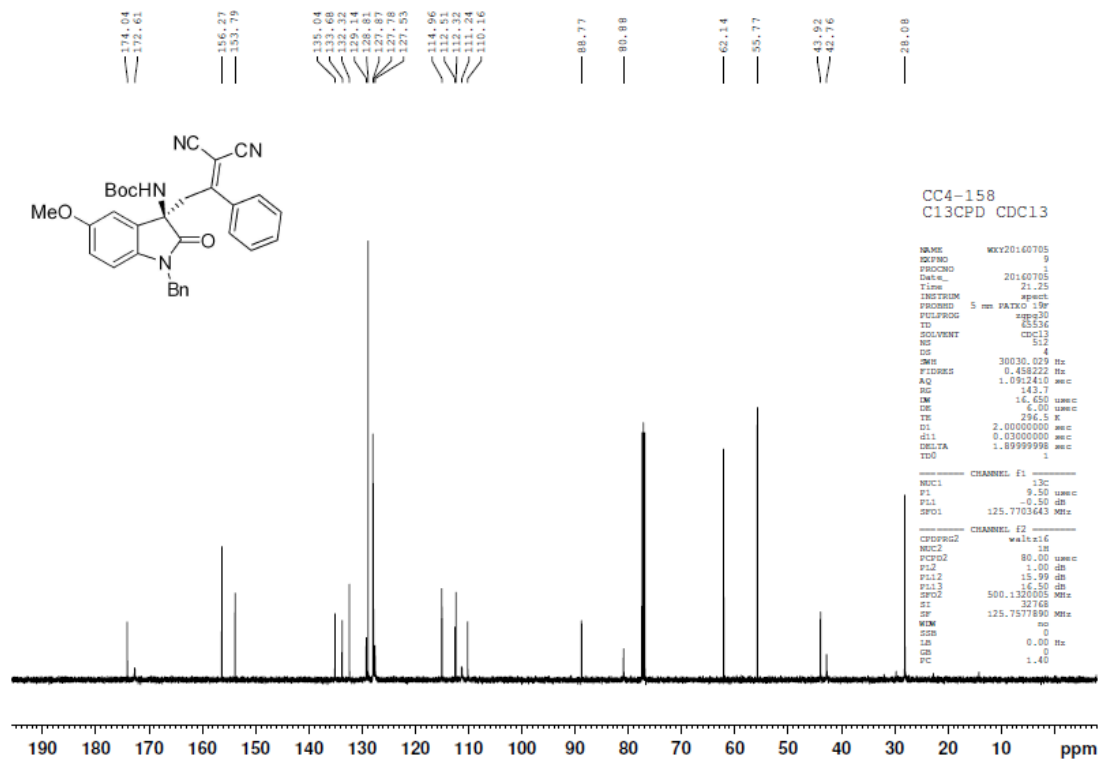
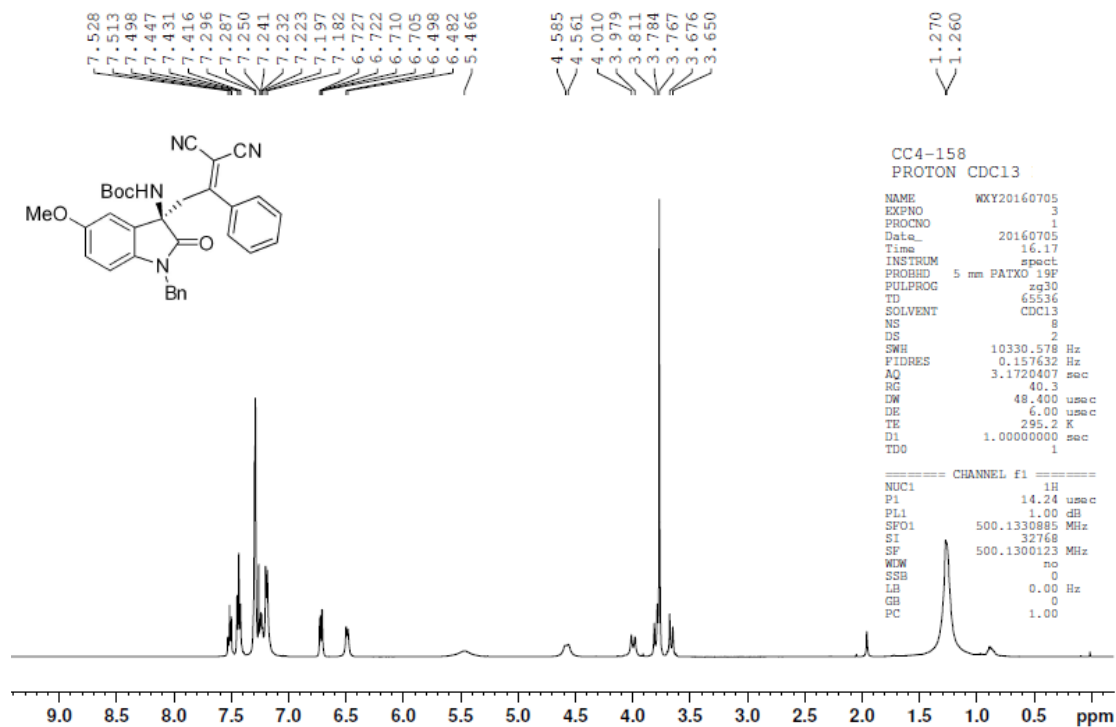
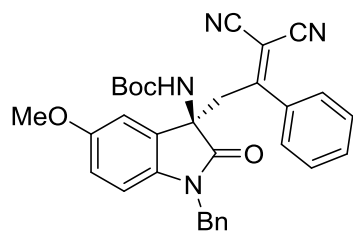
<chromatogram>

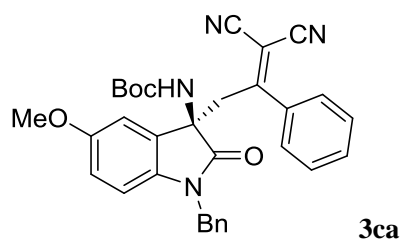


<Peak table>

检测器A 210nm

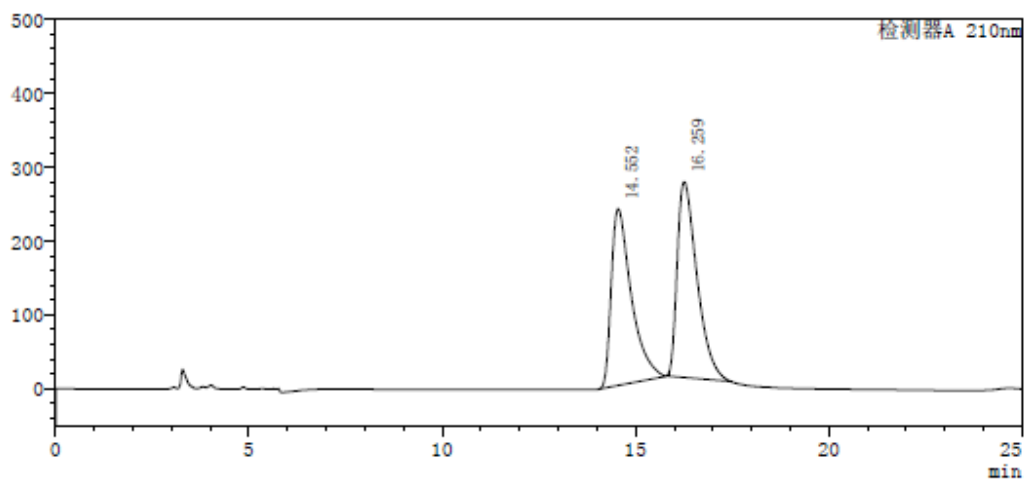
Peak#	Ret. Time	Height	Area	Area%
1	7.756	1706164	23115344	93.929
2	24.521	36642	1494156	6.071
总计		1742806	24609499	100.000





<chromatogram>

mV



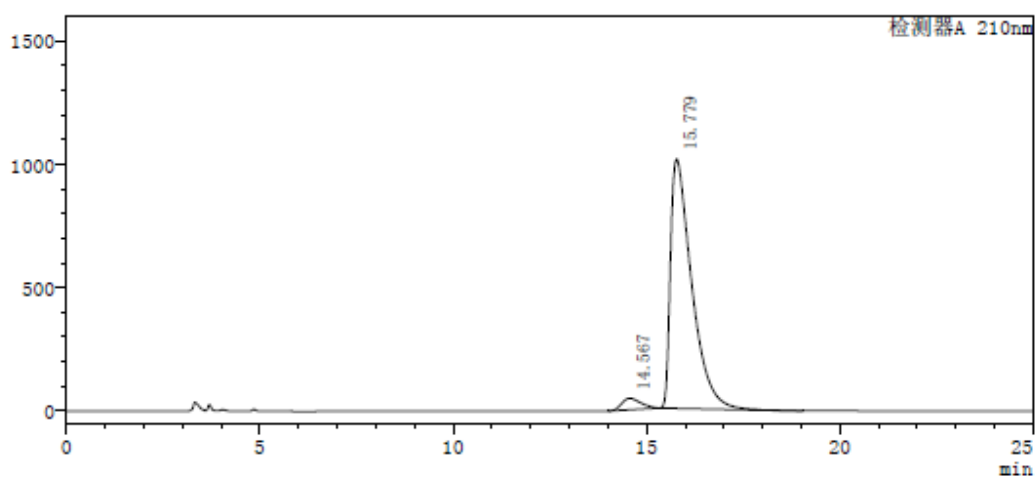
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	14.552	239281	8664264	47.898
2	16.259	265021	9424588	52.102
总计		504303	18088852	100.000

<chromatogram>

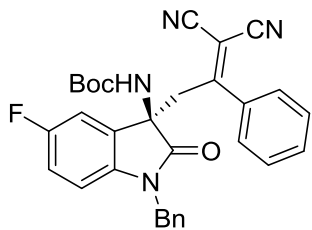
mV



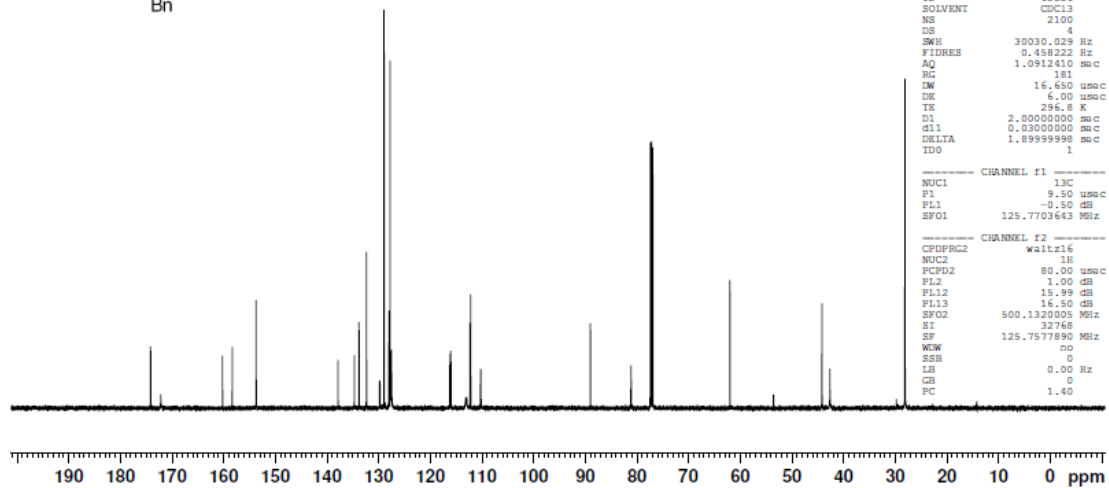
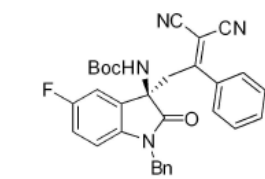
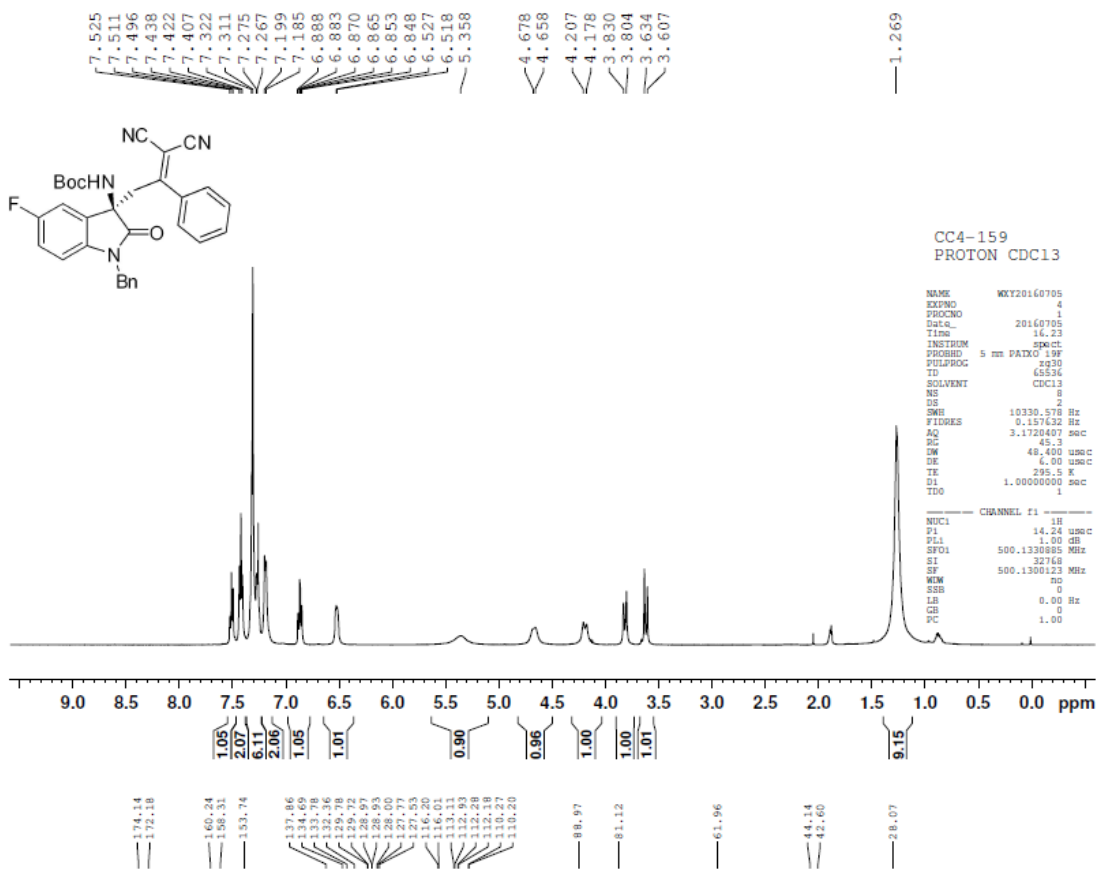
<Peak table>

检测器A 210nm

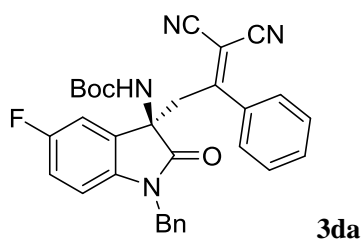
Peak#	Ret. Time	Height	Area	Area%
1	14.567	46596	1604381	3.989
2	15.779	1011205	38611866	96.011
总计		1057801	40216247	100.000



**3da**

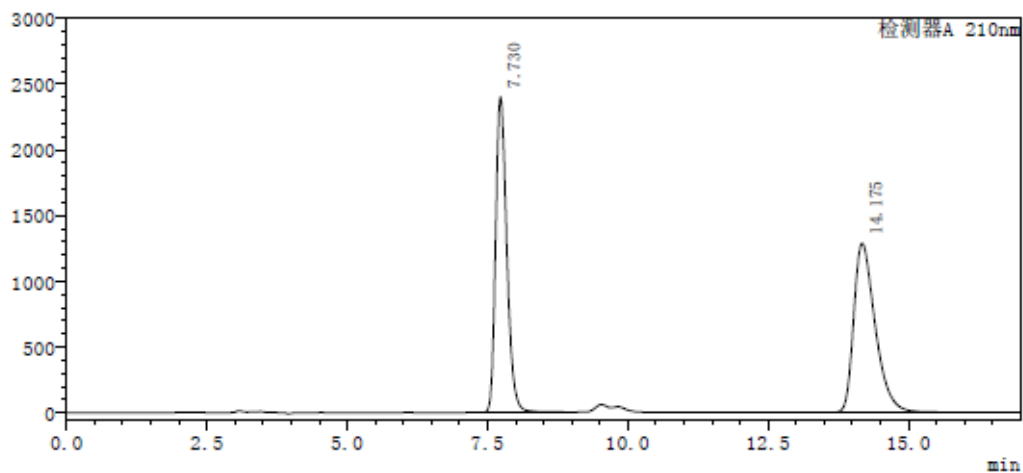






<chromatogram>

mV



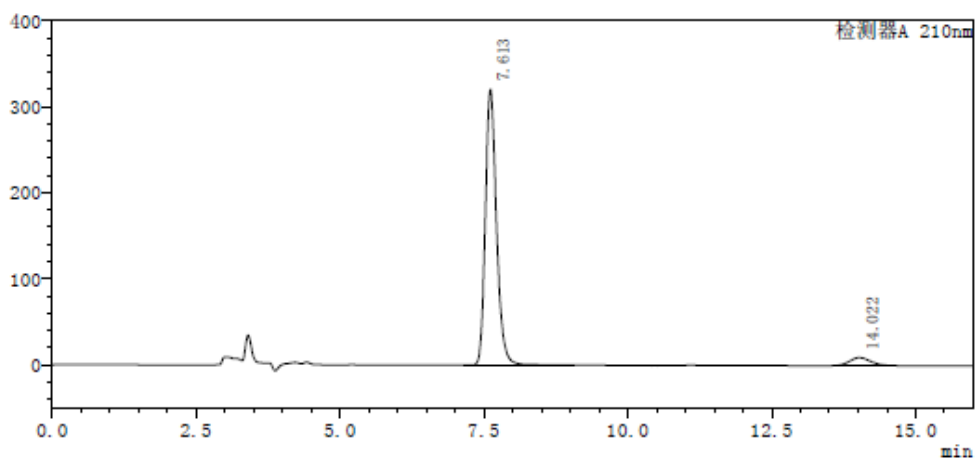
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.730	2396383	33333540	49.254
2	14.175	1286010	34343365	50.746
总计		3682393	67676904	100.000

<chromatogram>

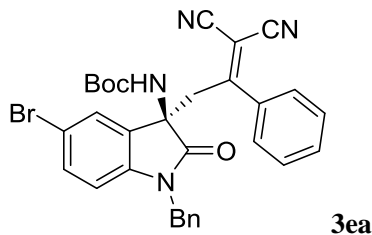
mV



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.613	320227	4318539	94.815
2	14.022	9347	236177	5.185
总计		329574	4554716	100.000



7.540  
7.518  
7.503  
7.488  
7.419  
7.404  
7.389  
7.323  
7.270  
7.267  
7.260  
7.254  
7.251  
7.152  
7.140  
6.487  
6.471

5.437

4.638

4.271

4.247

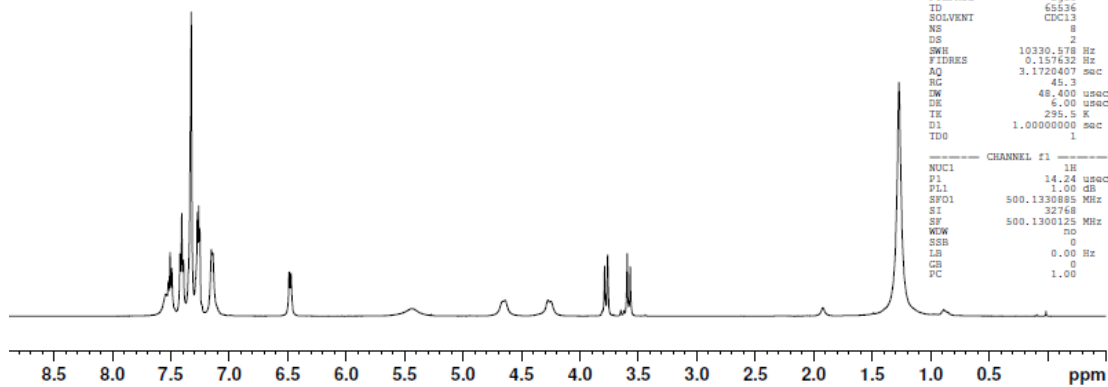
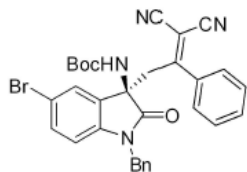
3.788

3.761

3.595

3.568

1.270



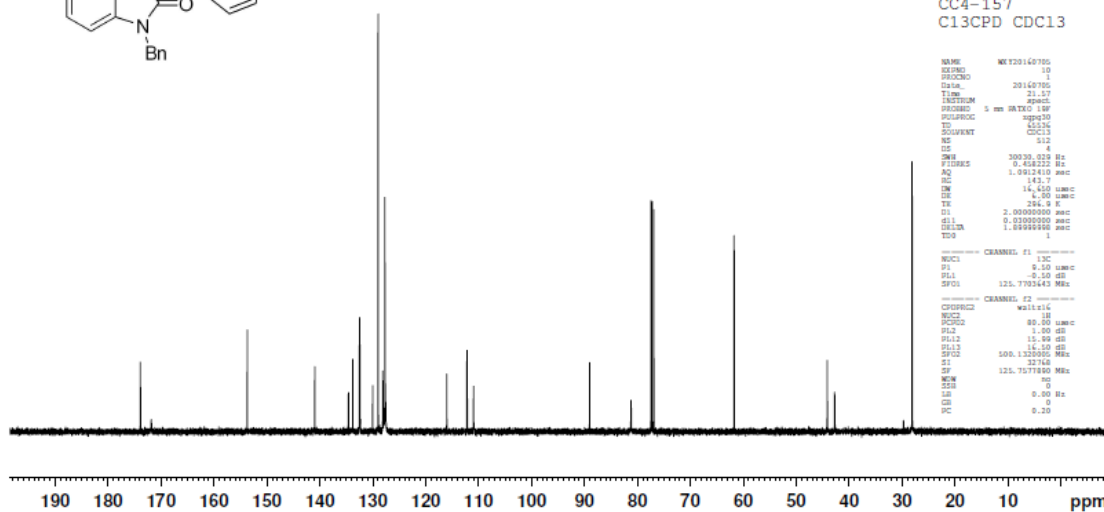
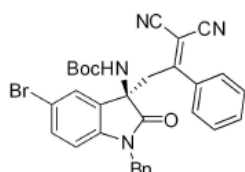
CC4-157  
PROTON CDC13

```

NAME      WXY20160705
EXPNO    2
PROCNO   1
Data     20160705
Time     16.12
INSTRUM  spect
PROBHD   5 mm PATXO 1RF
PULPROG  zg30
ID       65536
SOLVENT  CDCl3
NS       8
DS       2
SWH      10330.578 Hz
FIDRES   0.157632 Hz
AQ       3.1720407 sec
RG       45.3
RW       48.400 usec
DE       5.00 usec
TE       295.2 K
D1       1.00000000 sec
TD0      1

----- CHANNEL f1 -----
NUC1     1H
P1       14.24 usec
PL1      1.00 dB
SFO1     500.1330885 MHz
SI       32768
SF       500.1330125 MHz
WDW      no
SSB      0
LB       0.00 Hz
GB       0
CB       1.00
  
```

173.89  
171.84  
153.71  
140.96  
134.60  
133.76  
132.51  
130.02  
128.97  
128.08  
127.71  
127.71  
127.60  
116.03  
112.22  
112.18  
110.96  
89.02  
81.22  
61.72  
44.14  
42.74  
29.11



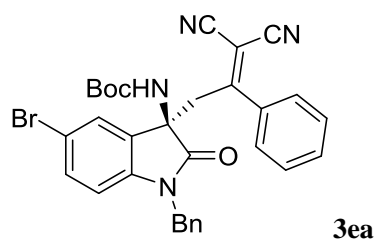
CC4-157  
C13CPD CDC13

```

NAME      WXY20160705
EXPNO    10
PROCNO   1
Data     20160705
Time     21.57
INSTRUM  spect
PROBHD   5 mm PATXO 1RF
PULPROG  zgpg30
ID       65536
SOLVENT  CDCl3
NS       4
DS       4
SWH      10030.028 Hz
FIDRES   0.454232 Hz
AQ       1.4912410 sec
RG       143.7
RW       16.500 usec
DE       4.50 usec
TE       295.2 K
D1       2.00000000 sec
d11      0.20000000 sec
DELTA    1.58999999 sec
TDR

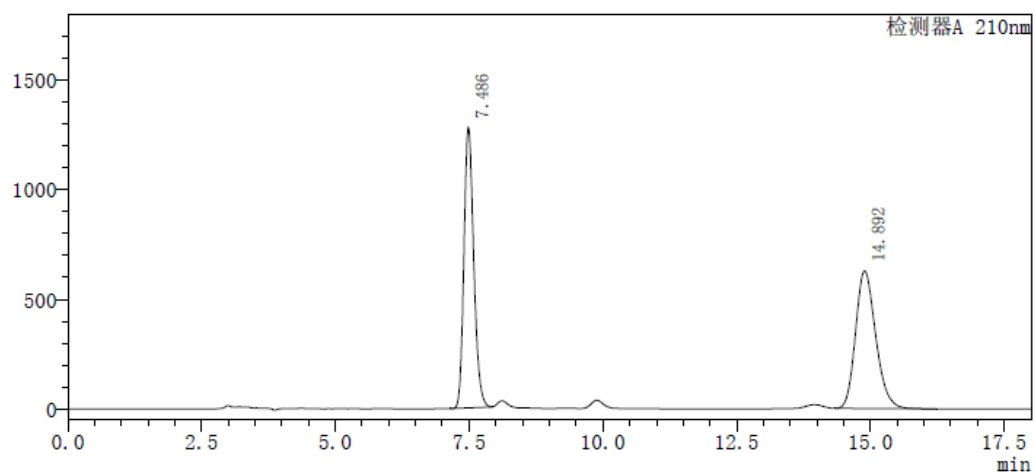
----- CHANNEL f1 -----
NUC1     13C
P1       8.10 usec
PL1      2.50 dB
SFO1     125.7703443 MHz

----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2     1H
PCPD2    80.00 usec
PL2      1.00 dB
PL3      15.00 dB
SFO2     500.1330885 MHz
SI       32768
SF       125.7707880 MHz
WDW      no
SSB      0
LB       0.00 Hz
GB       0
CB       0.20
  
```



<chromatogram>

mV



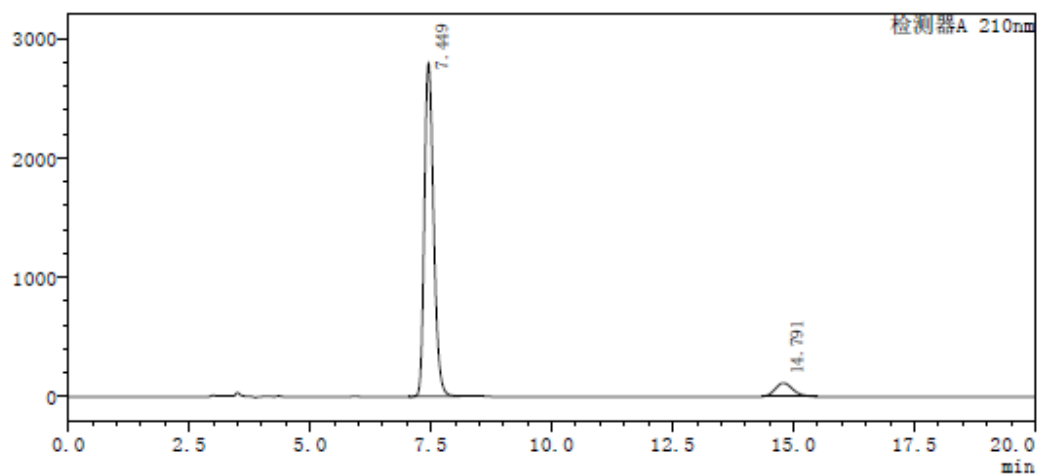
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.486	1281295	16347666	49.769
2	14.892	628976	16499521	50.231
总计		1910271	32847187	100.000

<chromatogram>

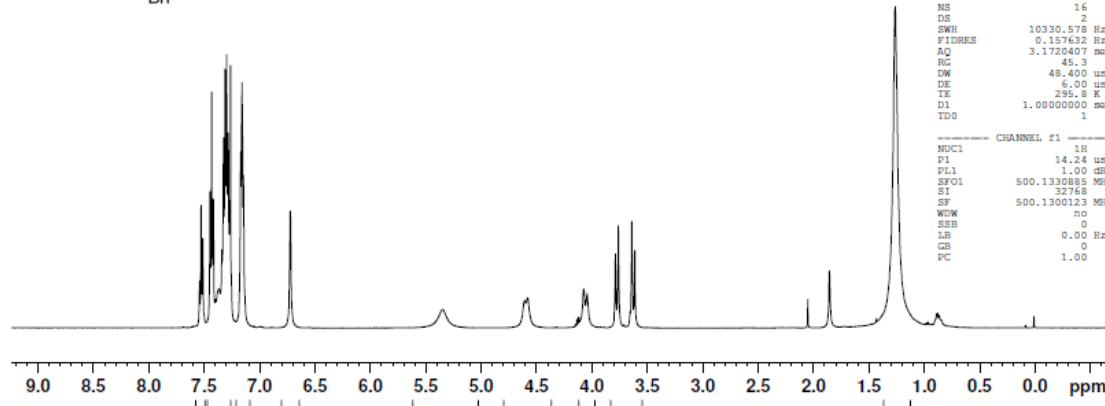
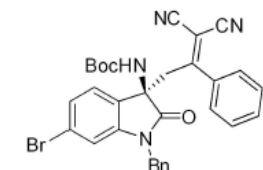
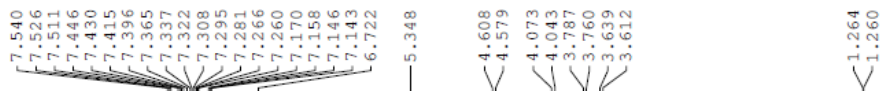
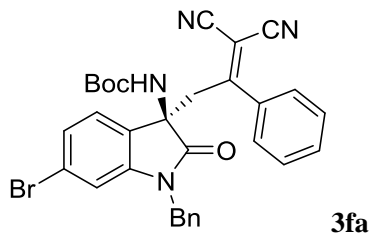
mV



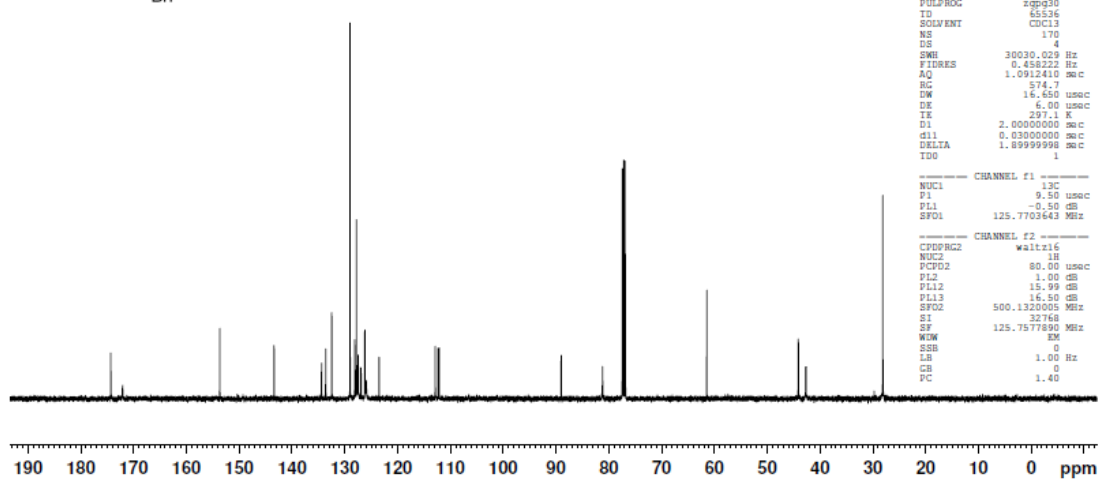
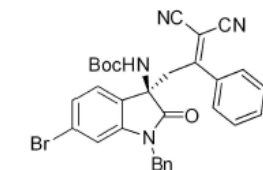
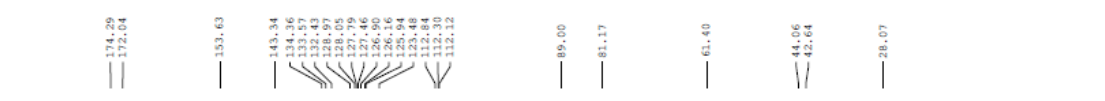
<Peak table>

检测器A 210nm

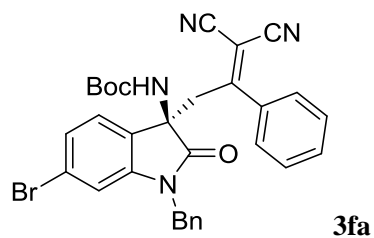
Peak#	Ret. Time	Height	Area	Area%
1	7.449	2786946	37102181	92.546
2	14.791	115123	2988480	7.454
总计		2902068	40090662	100.000



CC4-173  
 PROTON CDC13  
 NAME WXY20160715  
 EXPNO 1  
 PROCNO 1  
 Data\_ 20160715  
 Time 16.11  
 INSTRUM spect  
 PROBSH 5 mm PATXO 19F  
 PULPROG zgpg30  
 TD 65536  
 ID 65536  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157632 Hz  
 AQ 3.1720407 sec  
 RG 48.3  
 RW 48.400 usec  
 DE 6.00 usec  
 TE 295.2 K  
 D1 1.00000000 sec  
 TD0 1  
 CHANNEL f1  
 NUC1 1H  
 P1 14.24 usec  
 PL1 1.00 dB  
 SFO1 500.1330885 MHz  
 SI 32768  
 SF 500.1330123 MHz  
 WDW no  
 SSB 0  
 LB 0.0 Hz  
 GB 0  
 PC 1.00

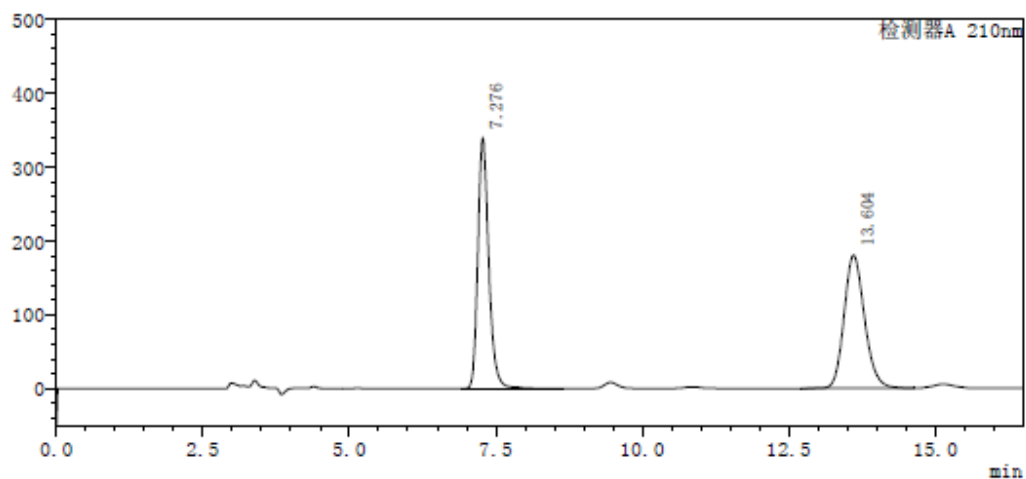


CC4-173  
 C13CPD CDC13  
 NAME WXY20160715  
 EXPNO 2  
 PROCNO 1  
 Data\_ 20160715  
 Time 16.19  
 INSTRUM spect  
 PROBSH 5 mm PATXO 19F  
 PULPROG zgpg30  
 TD 65536  
 ID 65536  
 SOLVENT CDC13  
 NS 170  
 DS 4  
 SWH 30030.029 Hz  
 FIDRES 0.458222 Hz  
 AQ 1.9912410 sec  
 RG 574.7  
 RW 16.650 usec  
 DE 6.00 usec  
 TE 297.1 K  
 D1 2.00000000 sec  
 d11 0.03000000 sec  
 DELTA 1.89999998 sec  
 TD0 1  
 CHANNEL f1  
 NUC1 13C  
 P1 9.50 usec  
 PL1 -0.50 dB  
 SFO1 125.7703643 MHz  
 CHANNEL f2  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 80.00 usec  
 PL2 1.00 dB  
 PL12 15.99 dB  
 PL13 16.50 dB  
 SFO2 500.1320005 MHz  
 SI 32768  
 SF 125.7577890 MHz  
 WDW EM  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40



<chromatogram>

mV



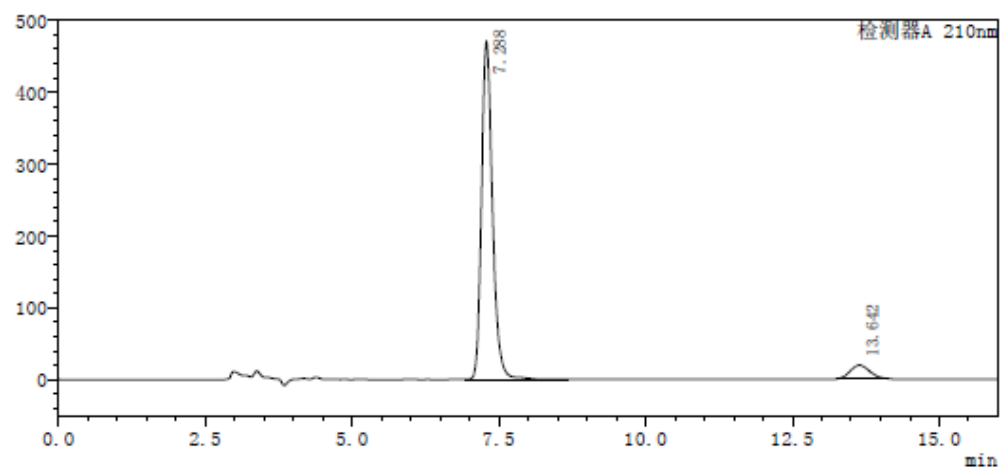
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.276	338853	4392437	50.173
2	13.604	179972	4362124	49.827
总计		518825	8754561	100.000

<chromatogram>

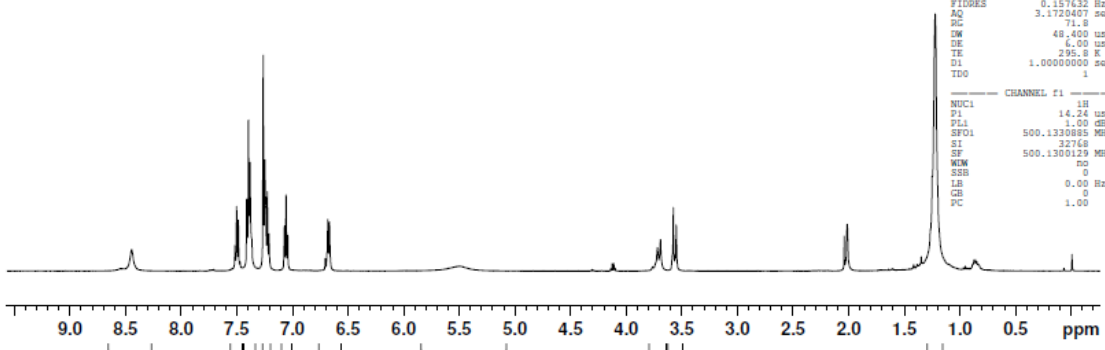
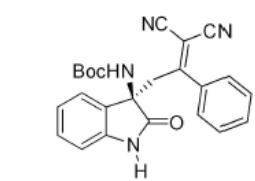
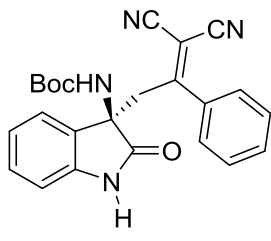
mV



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.288	470186	6116152	93.364
2	13.642	18868	434736	6.636
总计		489055	6550888	100.000

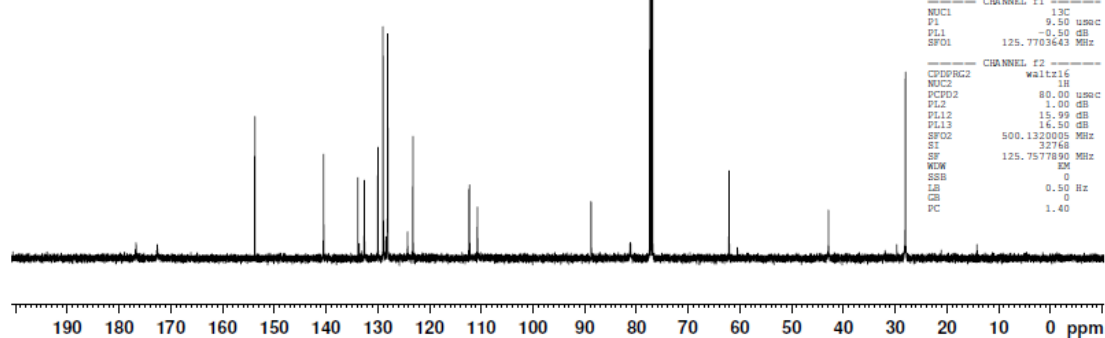
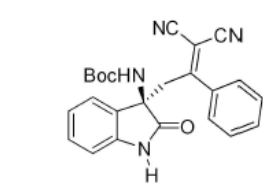
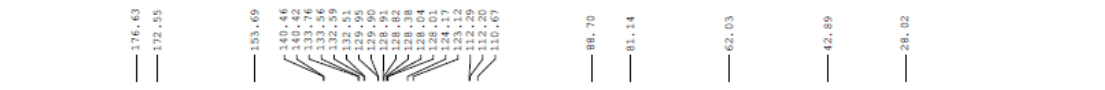


CC4-145  
PROTON CDC13

```

NAME      WKY20160701
EXPNO     5
PROCNO    1
Date_     20160701
Time      16.21
INSTRUM   spect
PROBHD    5 mm PATAI 19F
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         8
DS         2
SWH        10330.578 Hz
FIDRES     0.157622 Hz
AQ         3.1720407 sec
RG         71.8
CW         48.400 usec
DE         6.00 usec
TE         295.8 K
D1         1.00000000 sec
TD0        1
----- CHANNEL f1 -----
NUC1      1H
P1        14.24 usec
PL1       1.00 dB
SFO1      500.1330885 MHz
SI        32768
SF        500.1300129 MHz
WVW       no
SSB       0
LB        0.00 Hz
GB        0
PC        1.00

```

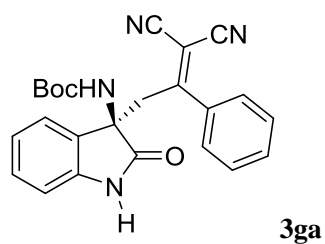


CC4-145  
C13CPD CDC13

```

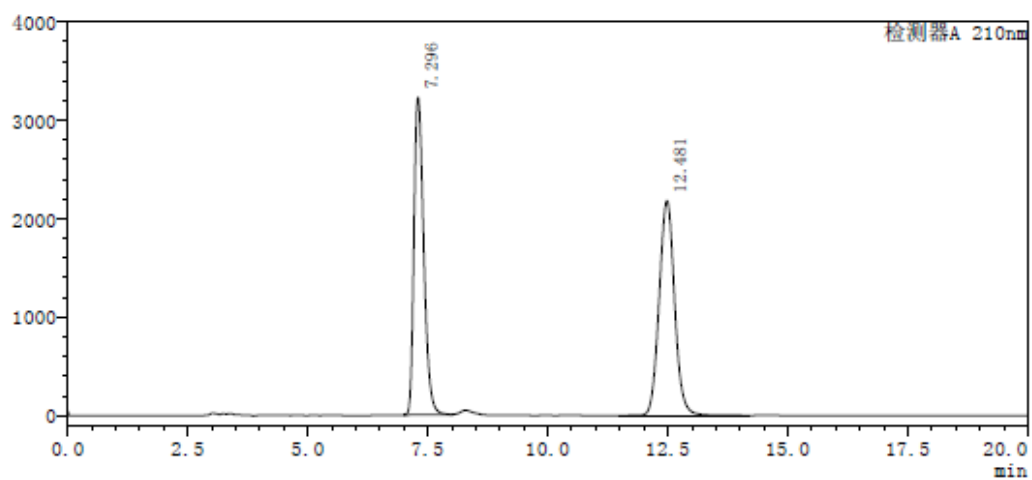
NAME      WKY20160703
EXPNO     10
PROCNO    1
Date_     20160703
Time      8.17
INSTRUM   spect
PROBHD    5 mm PATAI 19F
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         4
DS         4
SWH        30030.029 Hz
FIDRES     0.458222 Hz
AQ         1.0912410 sec
RG         128
CW         16.650 usec
DE         6.00 usec
TE         297.0 K
D1         2.00000000 sec
d11        0.03000000 sec
DELTA     1.89999998 sec
TD0        1
----- CHANNEL f1 -----
NUC1      13C
P1         9.50 usec
PL1       -0.50 dB
SFO1      125.7703643 MHz
----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2      1H
PCPD2     80.00 usec
PL2        1.00 dB
PL12     15.99 dB
PL13     15.50 dB
SFO2     500.1320005 MHz
SI        32768
SF        125.7577890 MHz
WVW       EM
SSB       0
LB        0.58 Hz
GB        0
PC        1.40

```



<chromatogram>

mV



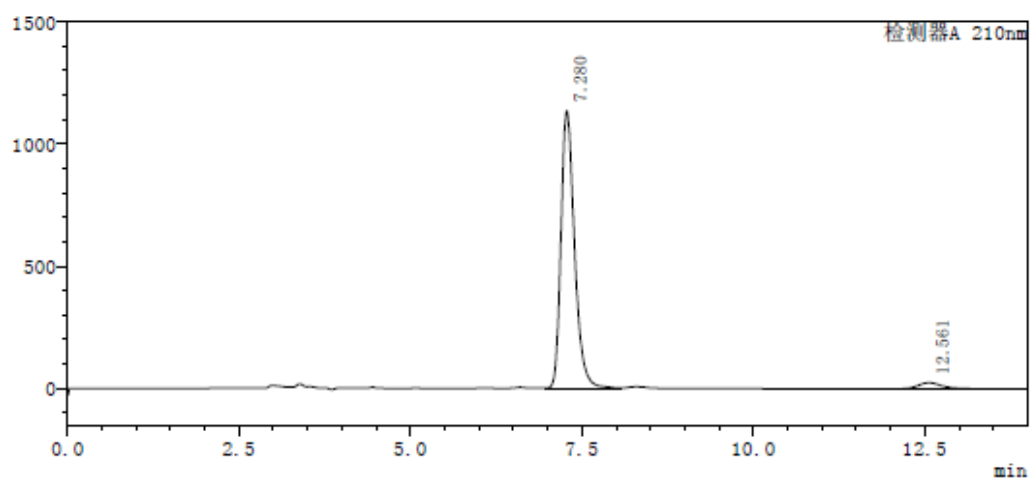
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.296	3224678	45874272	48.360
2	12.481	2183219	48986637	51.640
总计		5407897	94860909	100.000

<chromatogram>

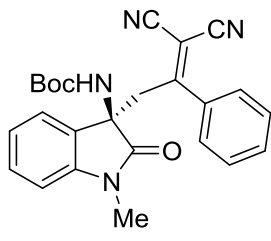
mV



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.280	1134055	15549251	96.190
2	12.561	25421	615907	3.810
总计		1159476	16165157	100.000



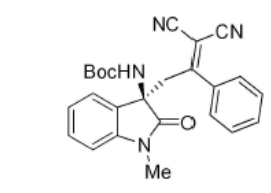
7.583  
7.519  
7.503  
7.489  
7.442  
7.427  
7.412  
7.364  
7.349  
7.347  
7.334  
7.332  
7.172  
7.157  
7.141  
7.126  
6.687  
6.671

5.138

3.735  
3.709  
3.613  
3.586

2.670

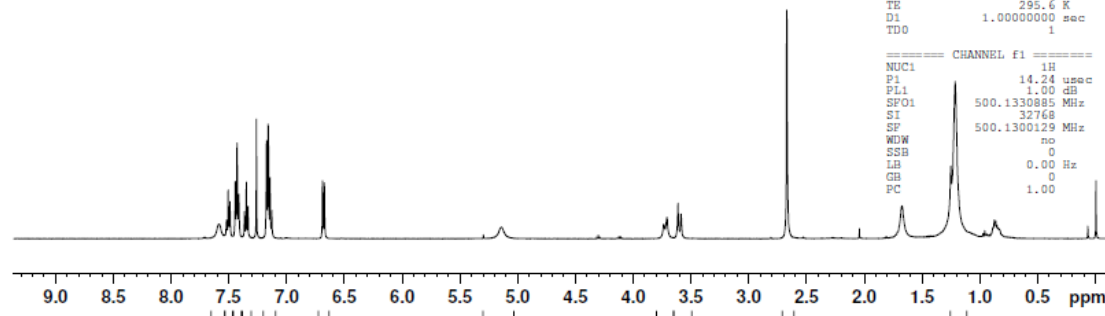
1.213



CC4-141  
PROTON CDC13

```

NAME      WXY20160630
EXPNO    5
PROCNO   1
Date_    20160630
Time     16.26
INSTRUM  spect
PROBHD   5 mm PATXO 19F
PULPROG  zg30
TD        65536
SOLVENT  CDC13
NS        16
DS        2
SWH       10330.578 Hz
FIDRES   0.157632 Hz
AQ        3.1720407 sec
RG        181
DW        48.400 usec
DE        6.00 usec
TE        295.6 K
D1        1.0000000 sec
TDO       1
  
```



0.92  
1.15  
2.13  
1.11  
3.15

1.04

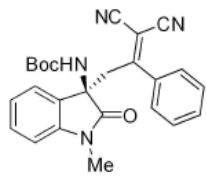
0.97

1.01  
1.07

3.08

9.50

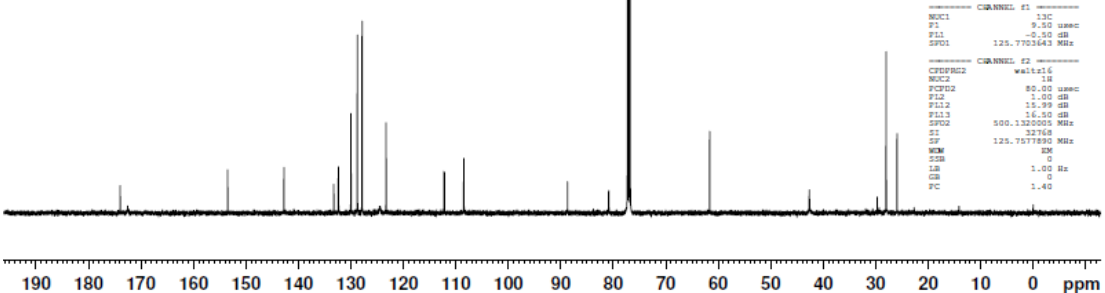
173.93  
172.50  
153.51  
142.79  
133.29  
132.40  
130.02  
128.79  
127.89  
127.33  
123.31  
112.32  
112.16  
108.50  
88.75  
80.89  
61.65  
42.65  
28.01  
21.94



CC4-141  
C13CPD CDC13

```

NAME      WXY20160703
EXPNO    1
PROCNO   1
Date_    20160703
Time     13.54
INSTRUM  spect
PROBHD   5 mm PATXO 19F
PULPROG  zgpg30
TD        65536
SOLVENT  CDC13
NS        2100
DS        4
SWH       30030.029 Hz
FIDRES   0.459222 Hz
AQ        1.0024010 sec
RG        128
DW        16.000 usec
DE        6.00 usec
TE        297.4 K
D1        2.0000000 sec
d11       0.0300000 sec
DELTA    1.8999999 sec
TDO       1
  
```

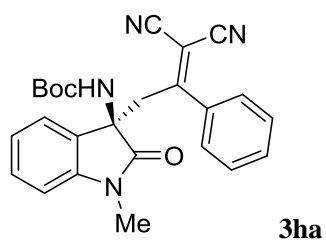


```

CHANNEL F1
NUC1     13C
P1        9.50 usec
PL1       -2.50 dB
SFO1     125.7654643 MHz

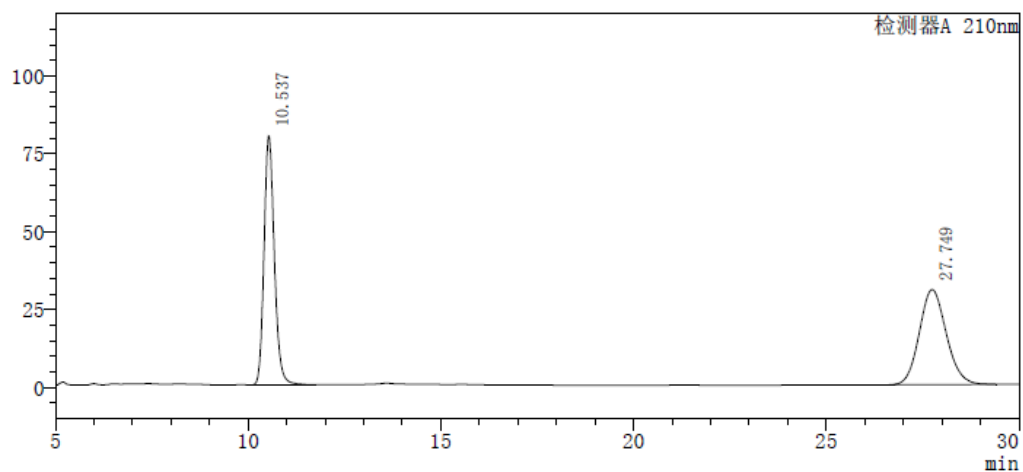
CHANNEL F2
CPDPRG2  waltz16
NUC2     13C
FPCPD2   80.00 usec
PL2       1.00 dB
PL12     15.99 dB
PL13     16.50 dB
SFO2     500.1320000 MHz
SI        32768
SF        125.7679000 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```





<chromatogram>

mV



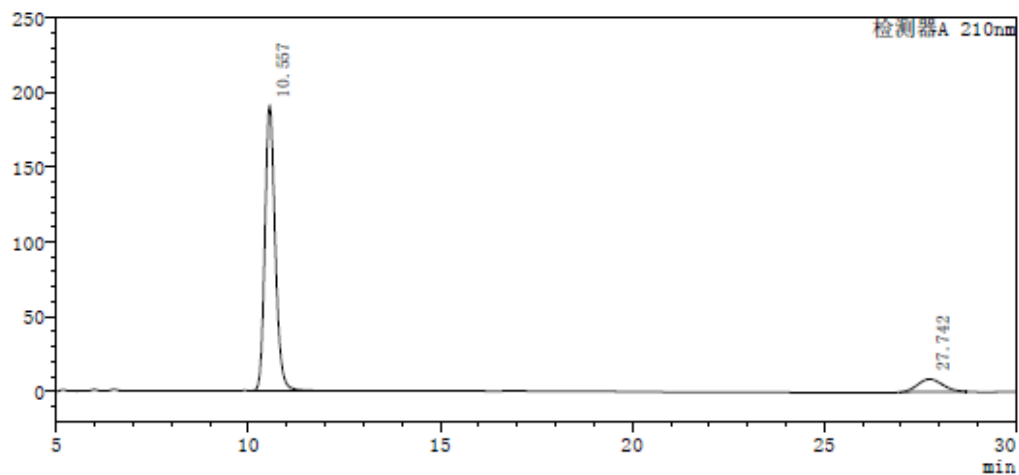
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	10.537	79907	1487308	50.047
2	27.749	30528	1484537	49.953
总计		110435	2971845	100.000

<chromatogram>

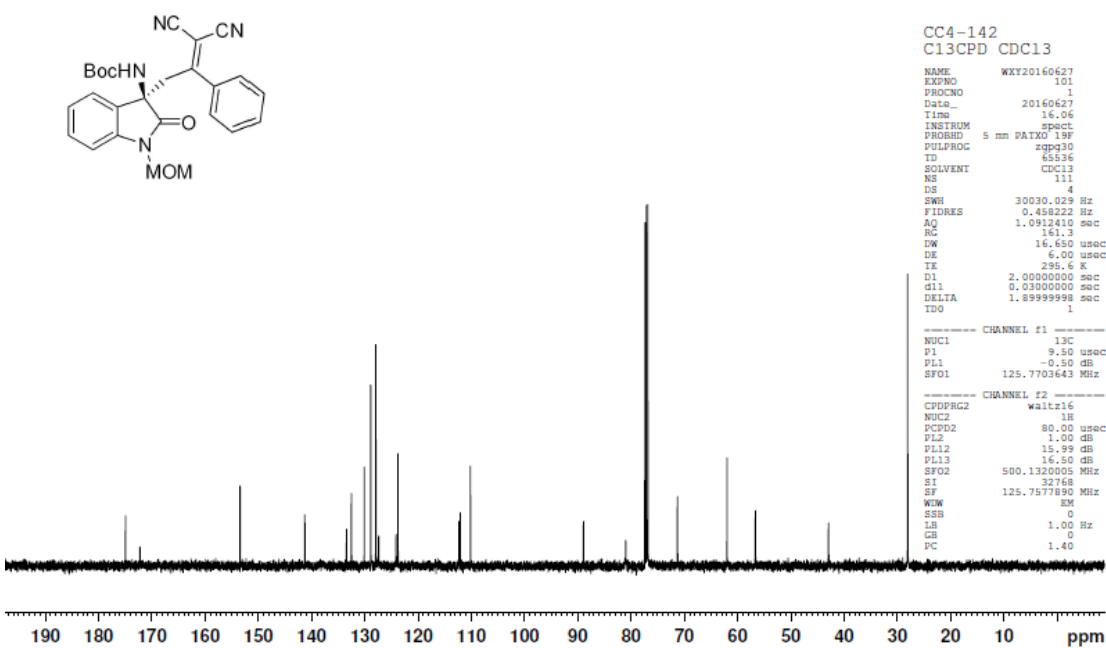
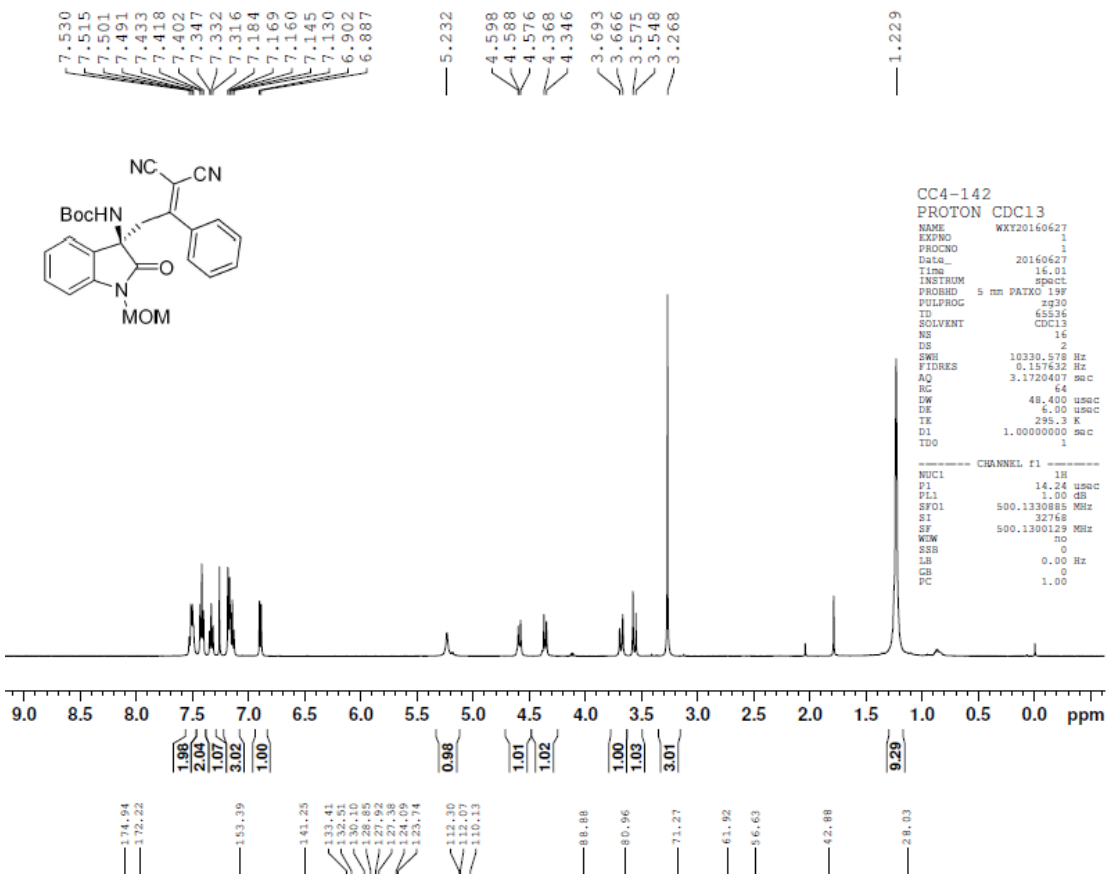
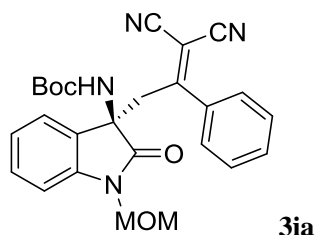
mV

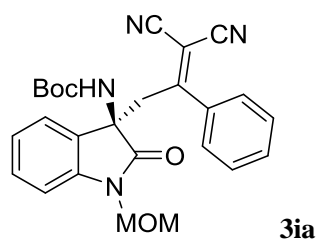


<Peak table>

检测器A 210nm

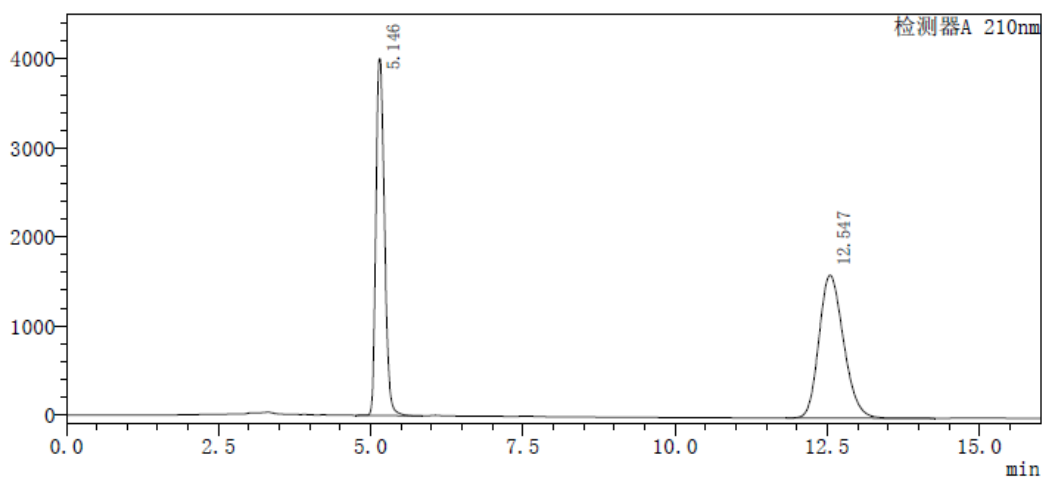
Peak#	Ret. Time	Height	Area	Area%
1	10.557	190750	3568145	90.199
2	27.742	8575	387698	9.801
总计		199325	3955843	100.000





<chromatogram>

mV



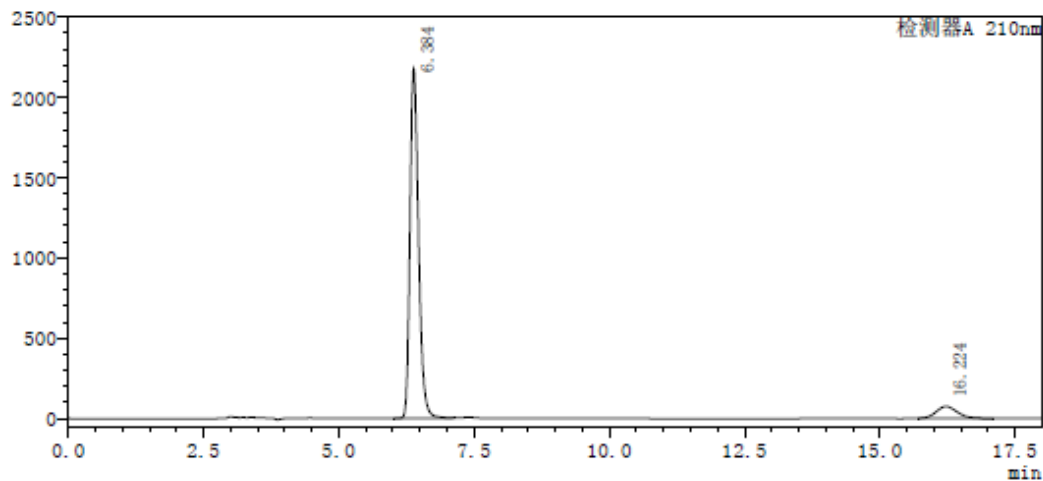
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	5.146	4008042	39224109	46.481
2	12.547	1605132	45163335	53.519
总计		5613174	84387444	100.000

<chromatogram>

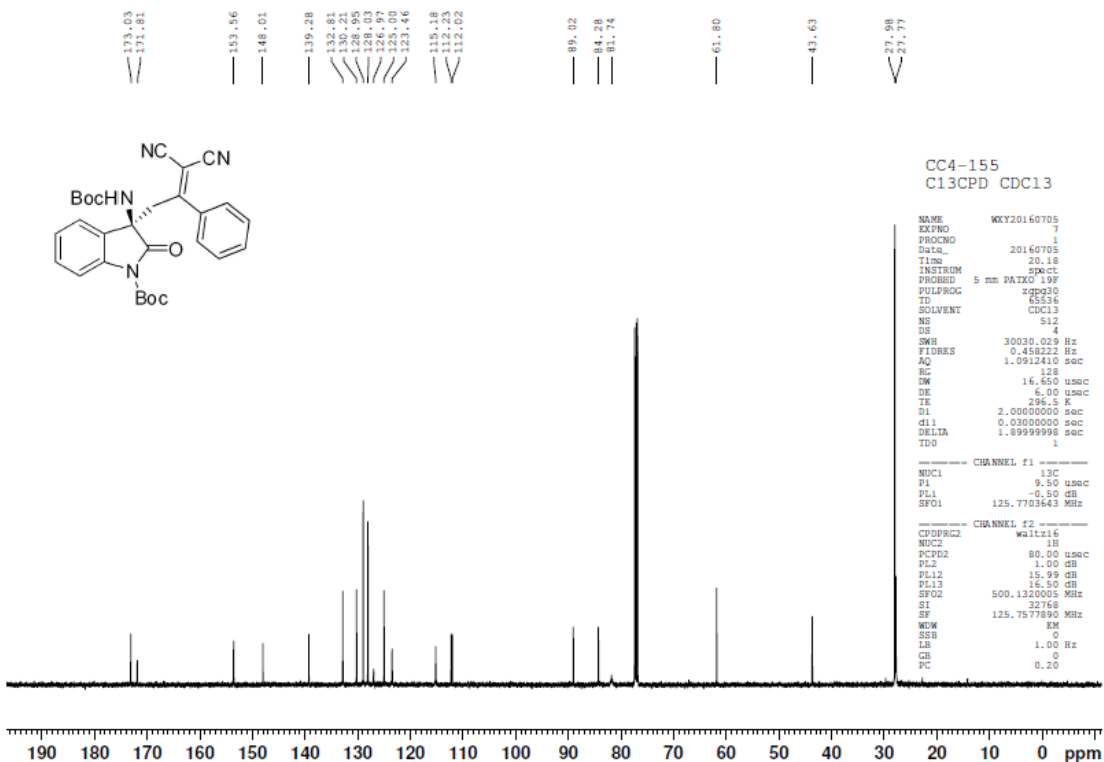
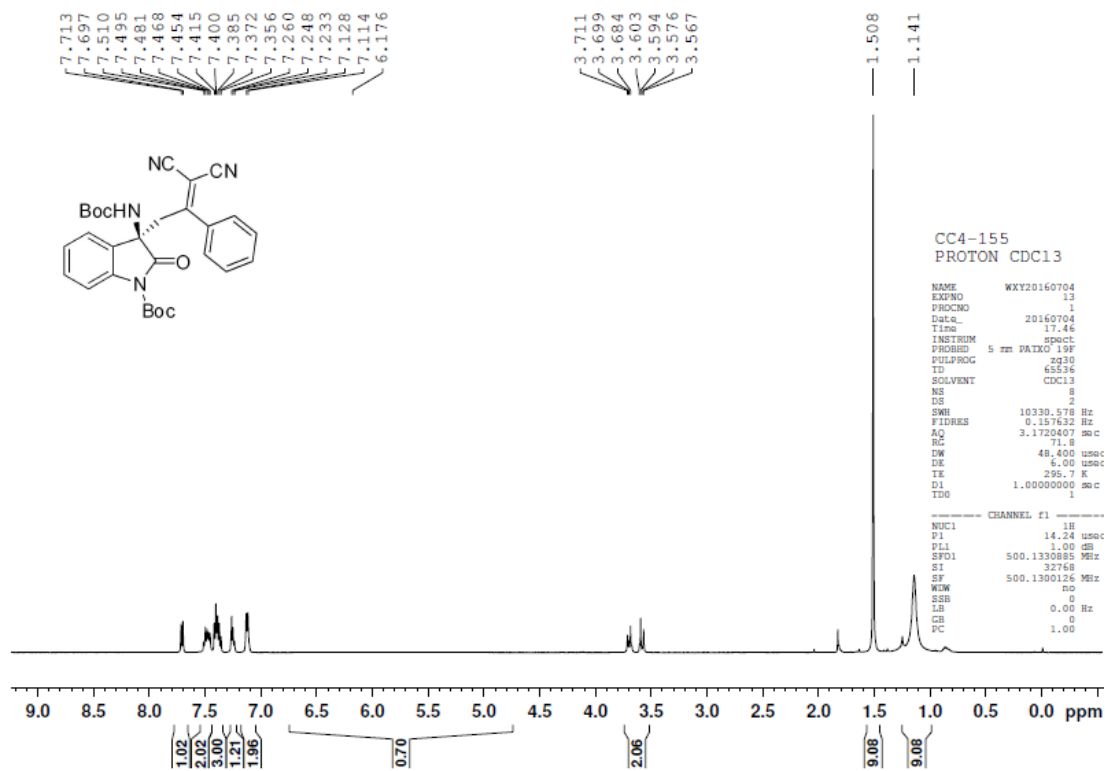
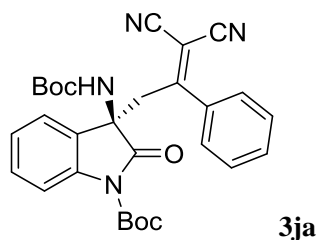
mV

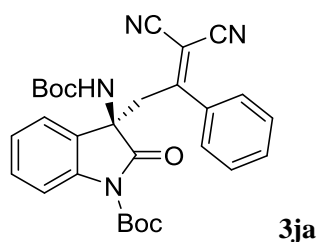


<Peak table>

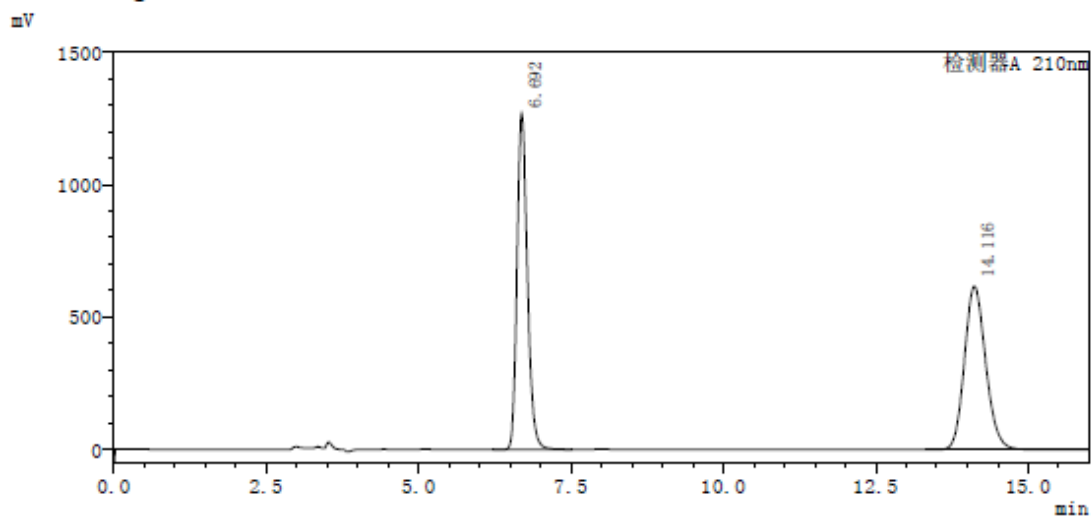
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	6.384	2175544	24037110	92.370
2	16.224	73761	1985390	7.630
总计		2249304	26022500	100.000





<chromatogram>

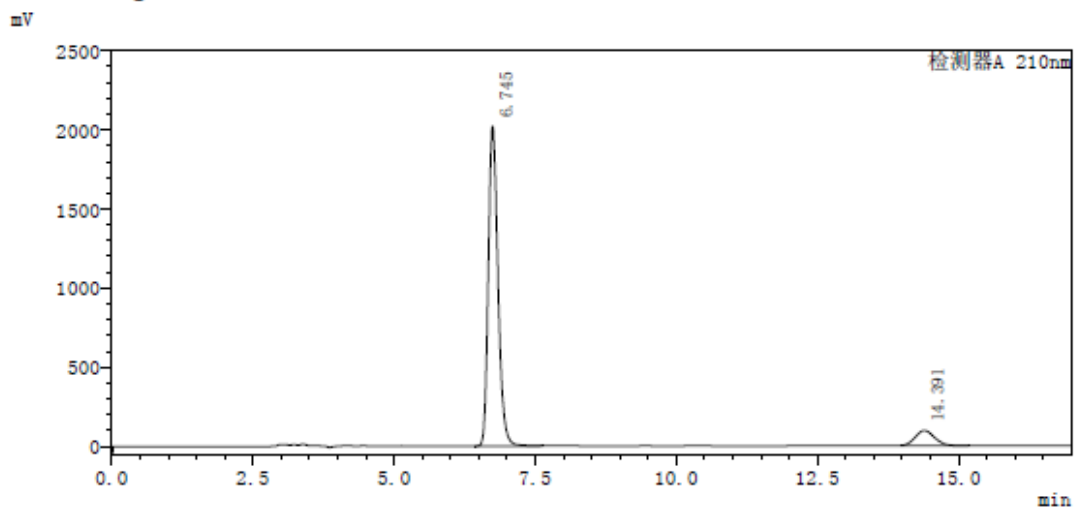


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	6.692	1268902	14980884	49.935
2	14.116	617644	15019665	50.065
总计		1886546	30000549	100.000

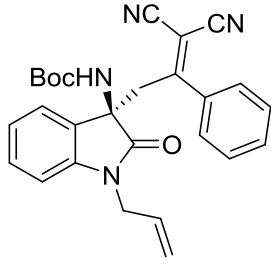
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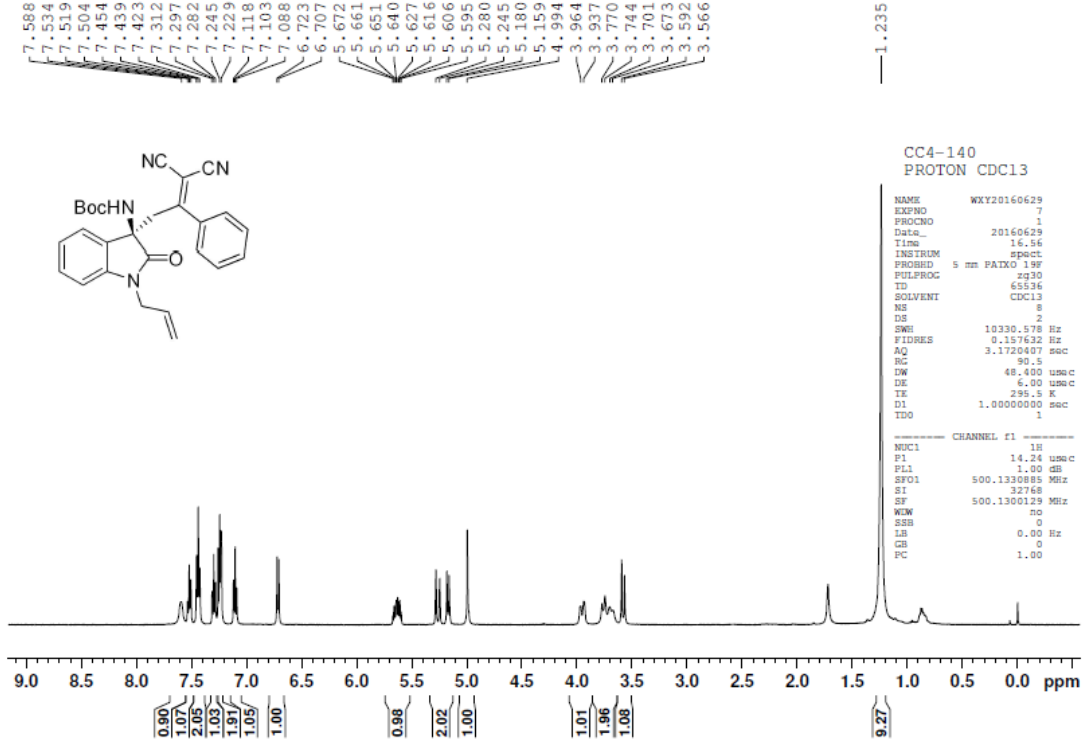
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	6.745	2019088	23949156	91.302
2	14.391	95576	2281529	8.698
总计		2114664	26230685	100.000



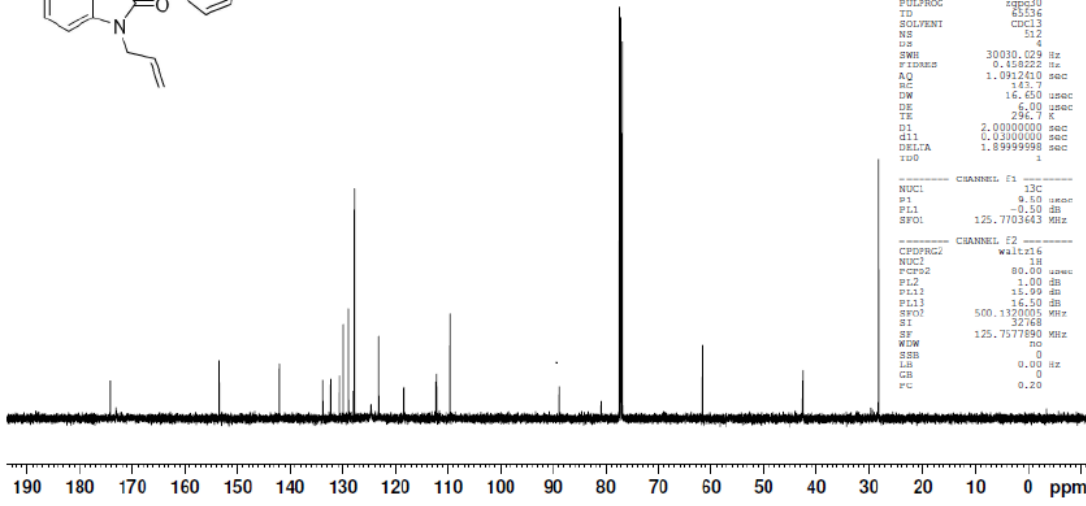
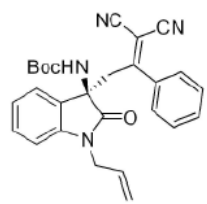
**3ka**



```

CC4-140
PROTON CDC13
NAME WXY20160629
EXPNO 7
PROCNO 1
Date_ 20160629
Time 16.56
INSTRUM spect
PROBHD 5 mm PATEO 19F
PULPROG zgpg30
ID 65536
SOLVENT CDC13
NS 8
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 90.5
SW 48.400 usec
DE 6.00 usec
TE 295.5 K
D1 1.00000000 sec
TD 1
----- CHANNEL f1 -----
NUC1 1H
P1 14.24 usec
PL1 0.00 dB
SFO1 500.1330885 MHz
SI 32768
SF 500.1330129 MHz
WDW sc
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

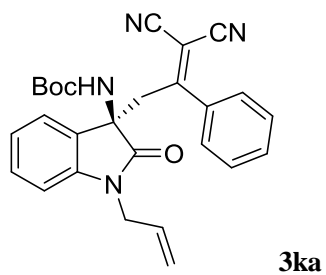
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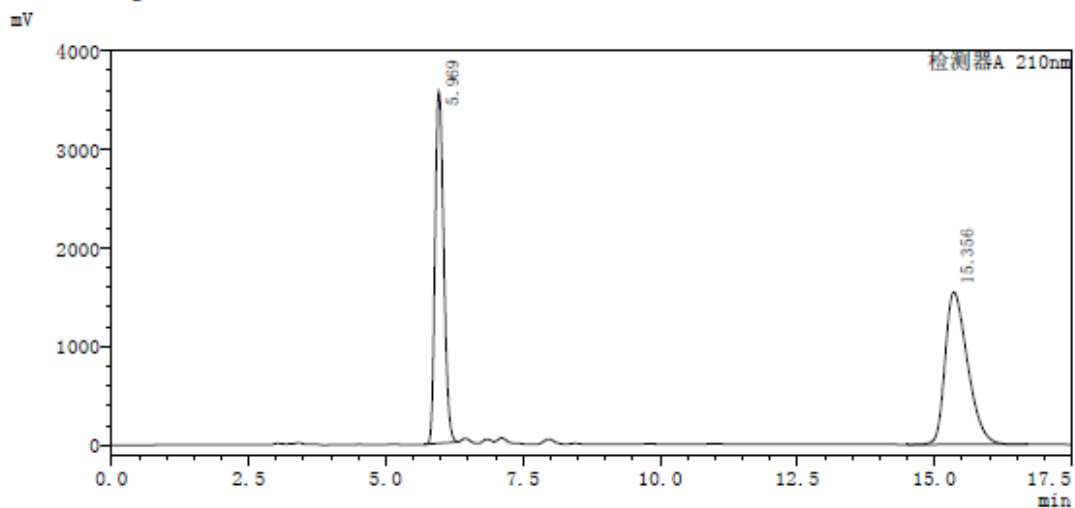
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CC4-140
C13CPD CDC13
NAME WXY20160629
EXPNO 107
PROCNO 1
Date_ 20160629
Time 20.10
INSTRUM spect
PROBHD 5 mm PATEO 19F
PULPROG zgpg30
ID 65536
SOLVENT CDC13
NS 512
DS 4
SWH 30030.029 Hz
FIDRES 0.458222 Hz
AQ 1.0912410 sec
RG 143.7
SW 16.650 usec
DE 6.00 usec
TE 296.7 K
D1 2.00000000 sec
d11 0.03000000 sec
DELTA 1.89999998 sec
TD 1
----- CHANNEL f1 -----
NUC1 13C
P1 9.50 usec
PL1 -0.50 dB
SFO1 125.7703643 MHz
----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC1 1H
PCPD2 80.00 usec
PL2 1.00 dB
PL13 15.99 dB
PL13 16.50 dB
SFO2 500.1330885 MHz
SI 32768
SF 125.7577890 MHz
WDW sc
SSB 0
LB 0.00 Hz
GB 0
FC 0.20

```



<chromatogram>

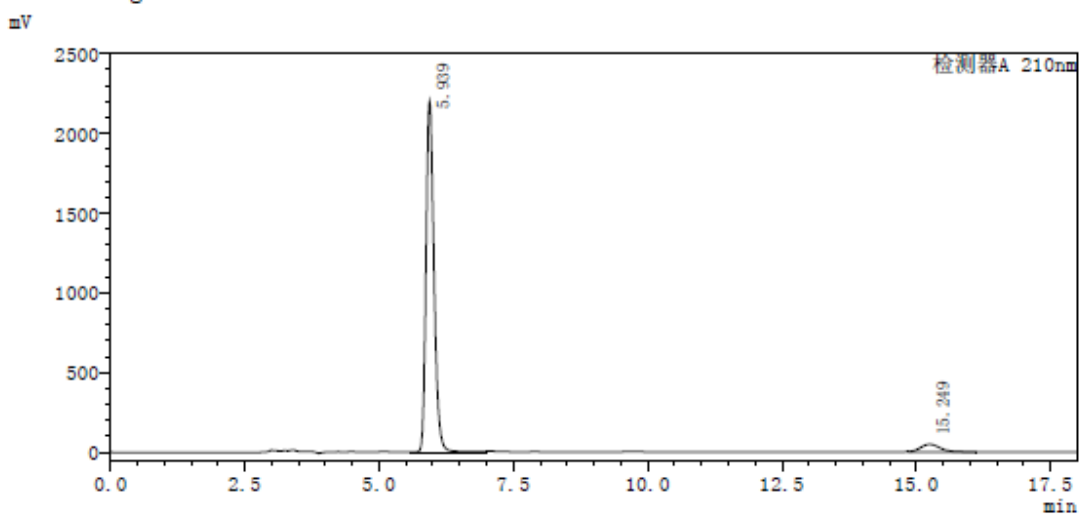


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	5.969	3571745	39227104	47.062
2	15.356	1545594	44125206	52.938
总计		5117339	83352309	100.000

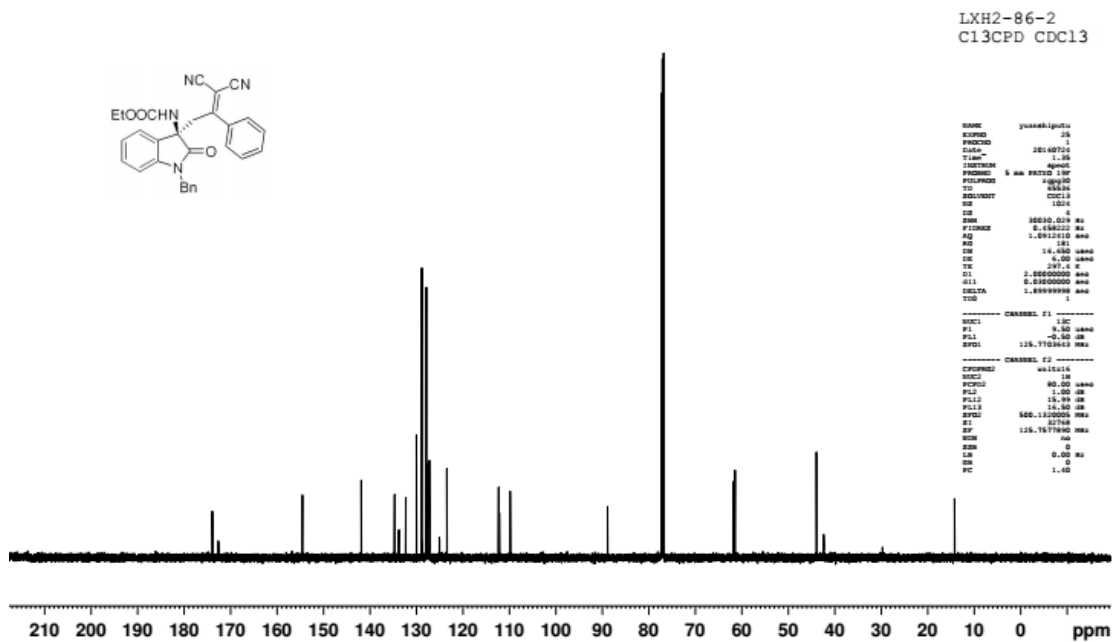
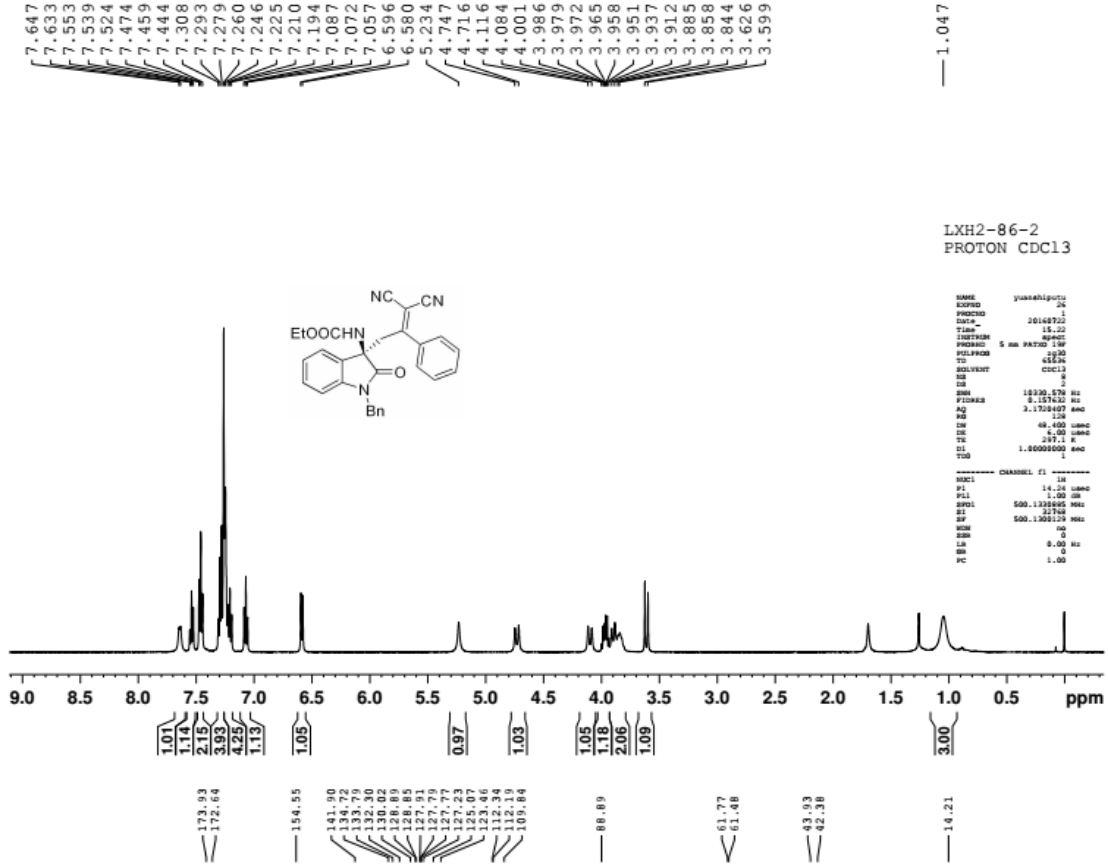
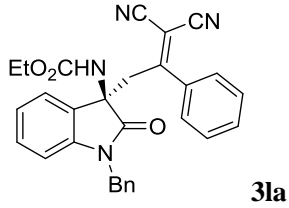
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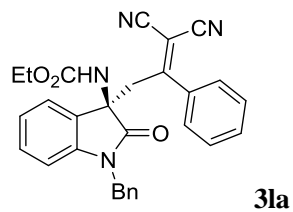
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	5.939	2201011	22573559	95.068
2	15.249	47644	1171036	4.932
总计		2248654	23744595	100.000

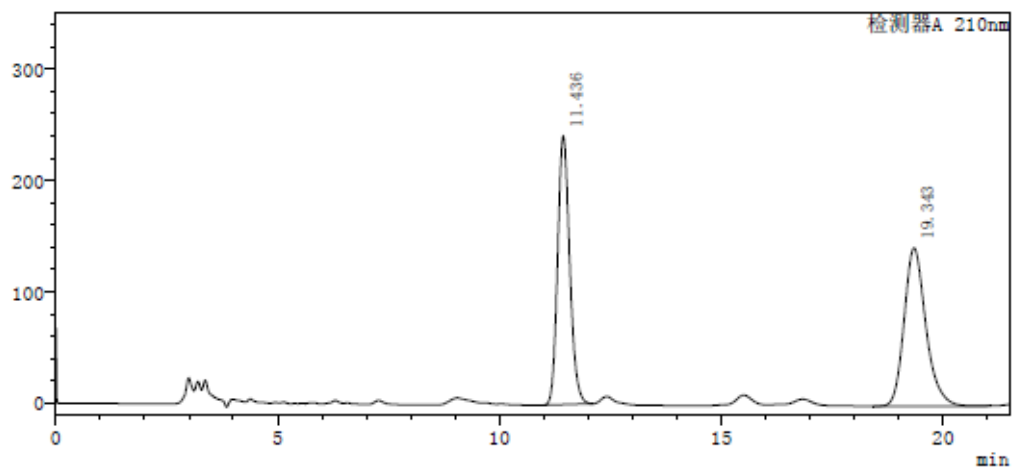






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mV



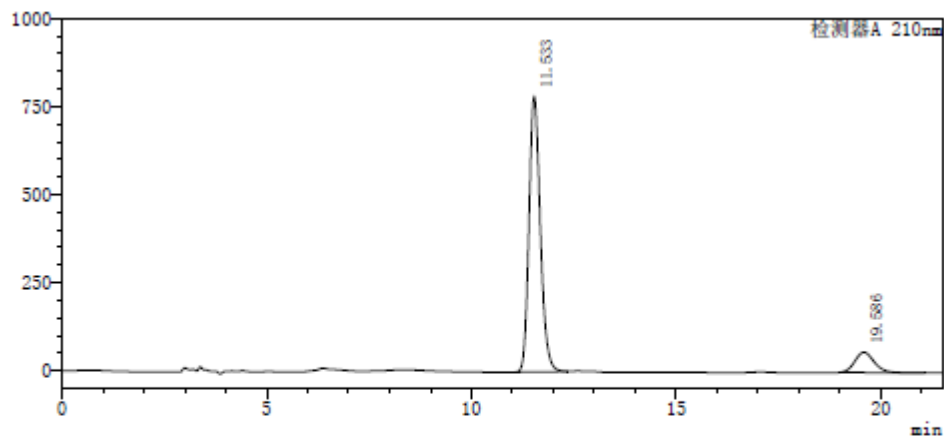
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	11.436	241202	4547435	48.413
2	19.343	141970	4845566	51.587
总计		383172	9393001	100.000

<chromatogram>

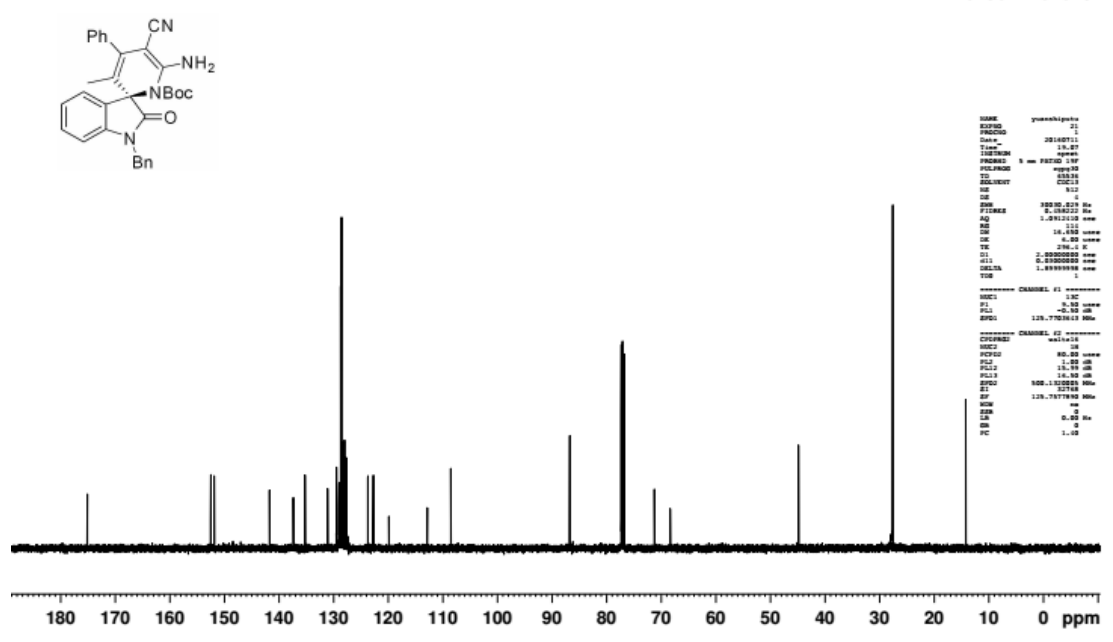
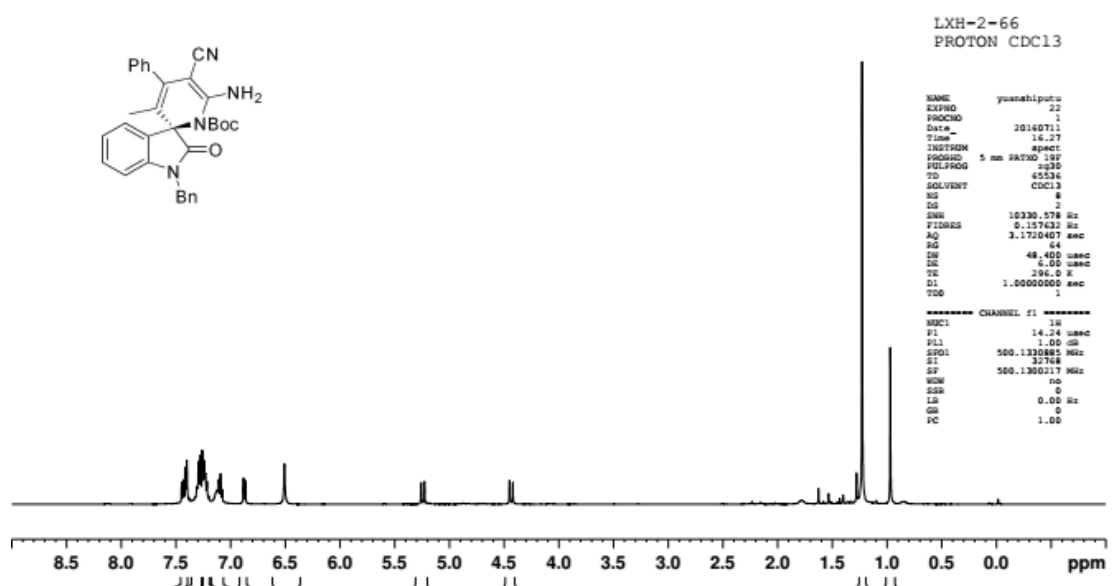
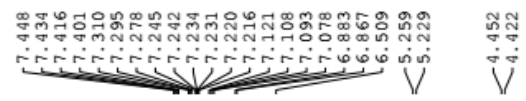
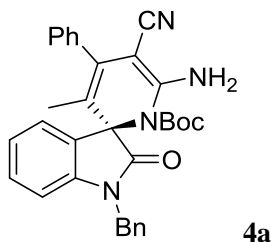
mV

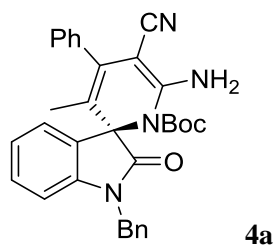


<Peak table>

检测器A 210nm

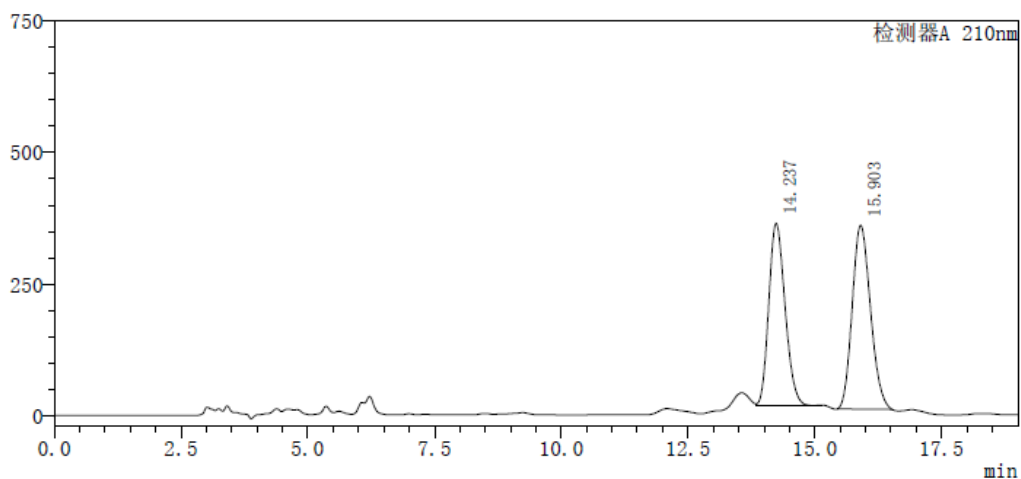
Peak#	Ret. Time	Height	Area	Area%
1	11.533	781473	15038700	88.726
2	19.586	57931	1910946	11.274
总计		839404	16949647	100.000





<chromatogram>

mV



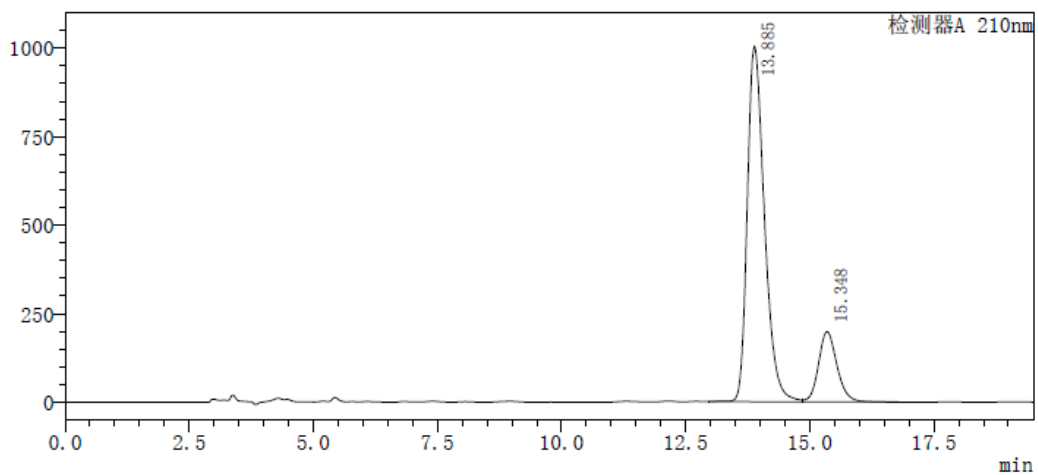
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	14.237	345159	7650298	46.611
2	15.903	349482	8762843	53.389
总计		694641	16413140	100.000

<chromatogram>

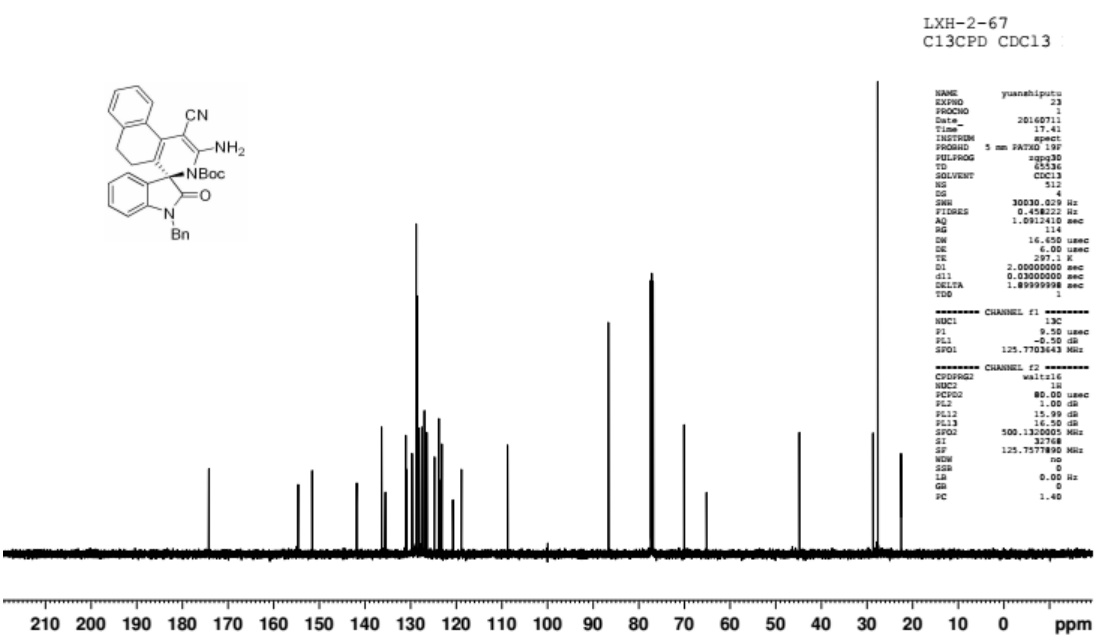
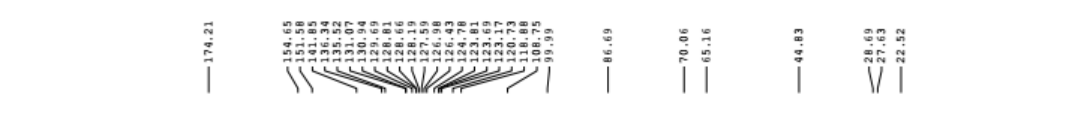
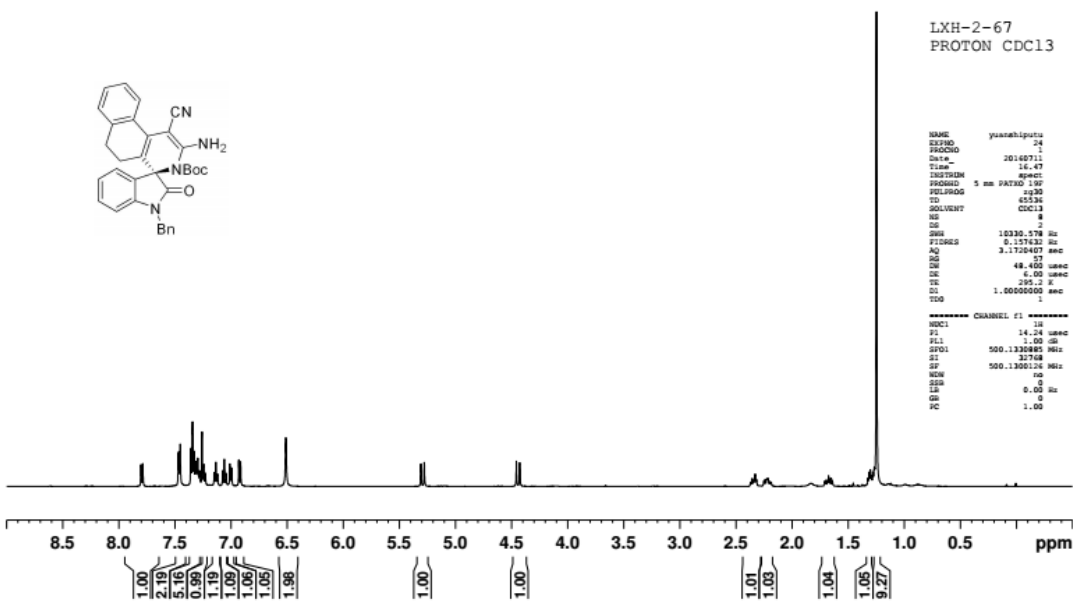
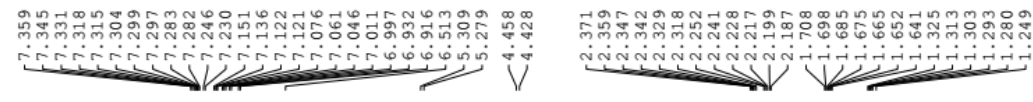
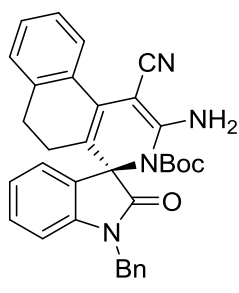
mV

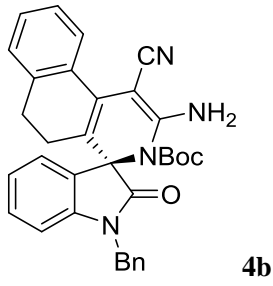


<Peak table>

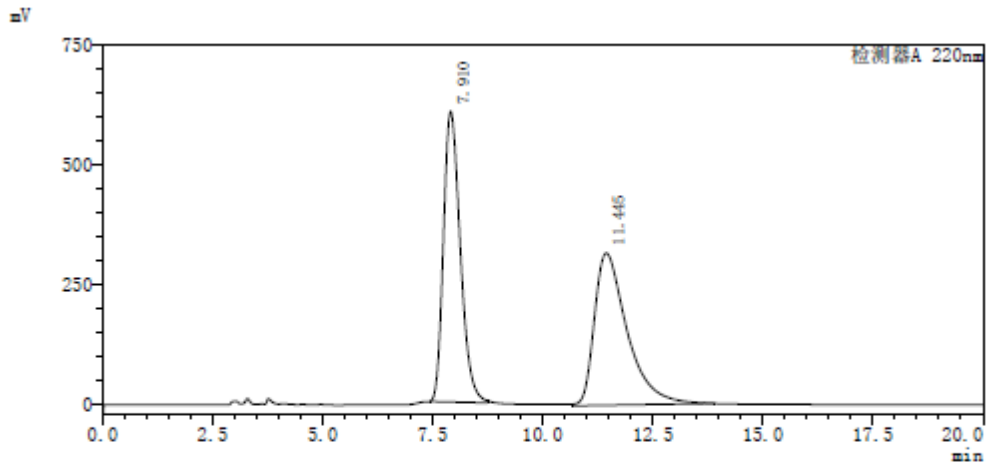
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	13.885	1003830	24172058	82.488
2	15.348	198548	5131702	17.512
总计		1202378	29303760	100.000





<chromatogram>

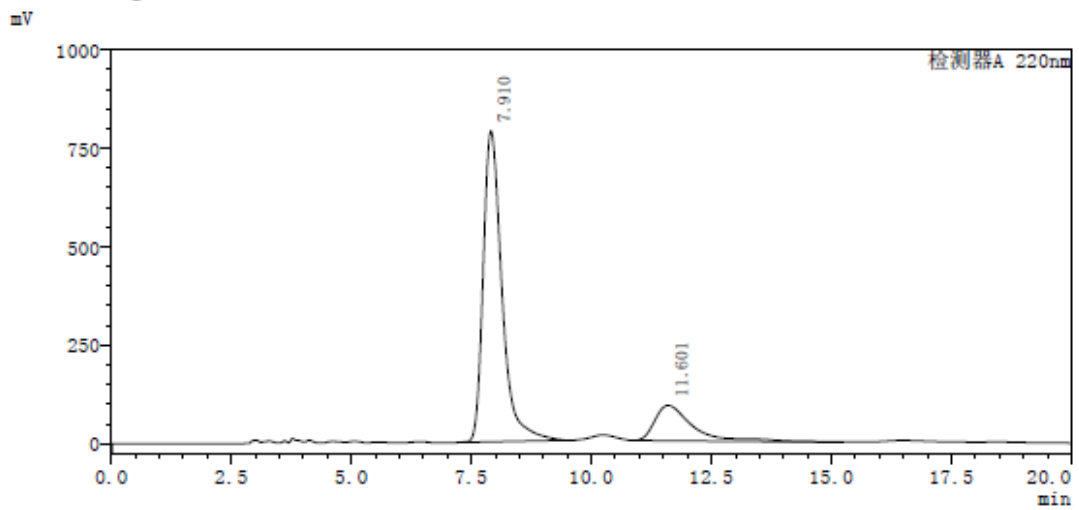


<Peak table>

检测器A 220nm

Peak#	Ret. Time	Height	Area	Area%
1	7.910	604543	16030038	49.407
2	11.445	316614	16414894	50.593
总计		921157	32444932	100.000

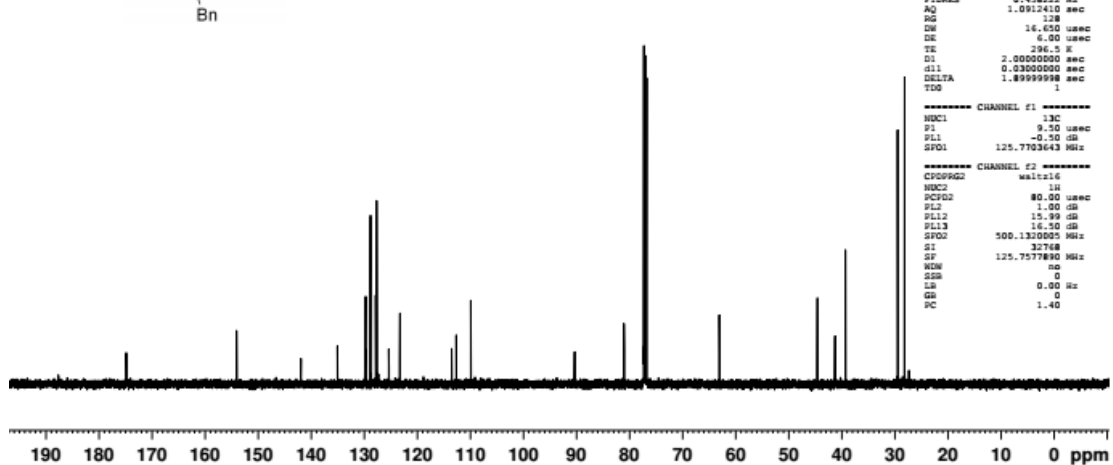
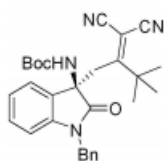
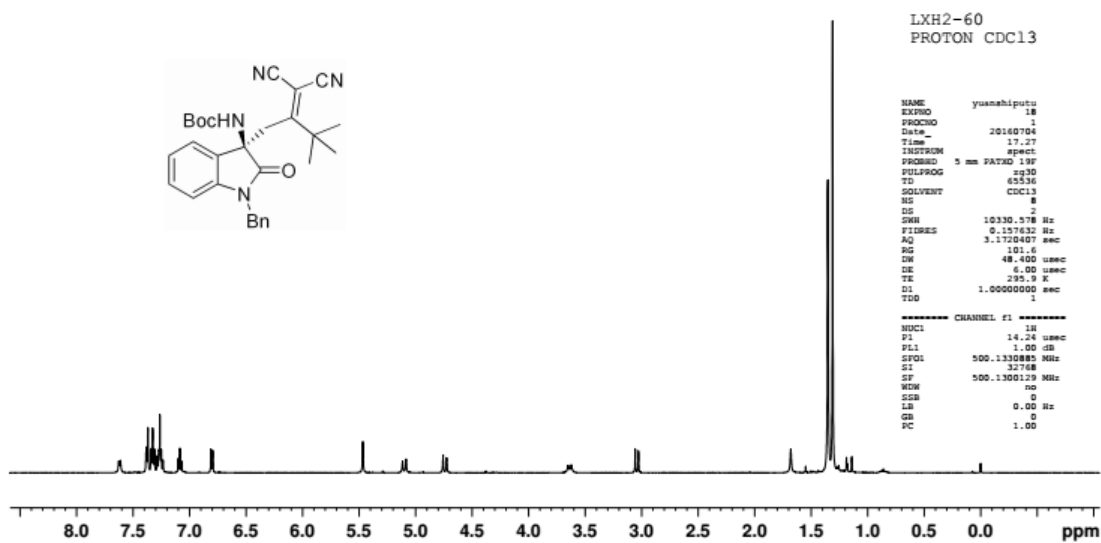
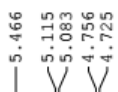
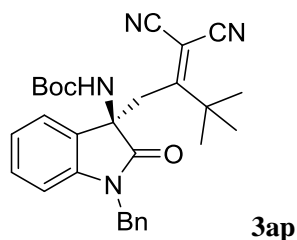
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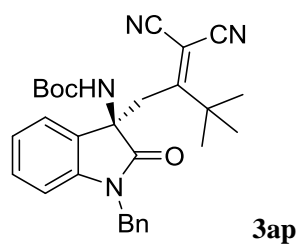


<Peak table>

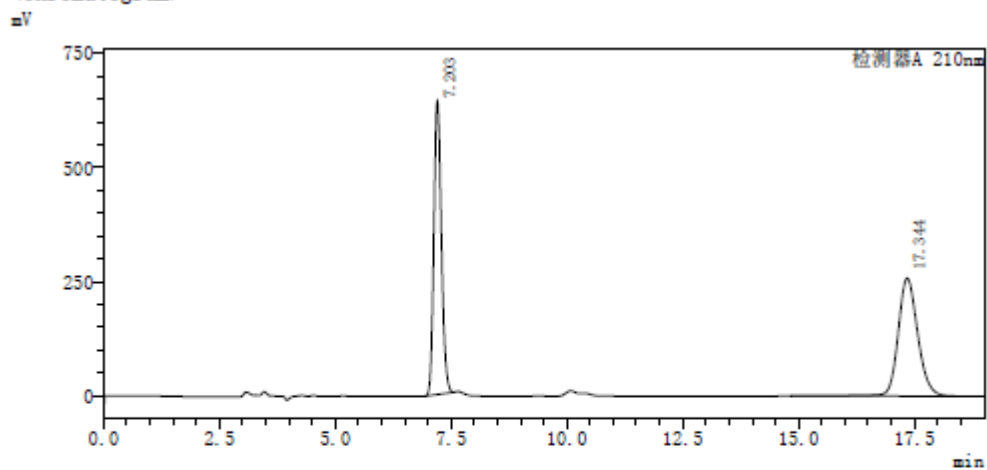
检测器A 220nm

Peak#	Ret. Time	Height	Area	Area%
1	7.910	789577	21398118	80.988
2	11.601	90109	5023126	19.012
总计		879686	26421244	100.000





<chromatogram>

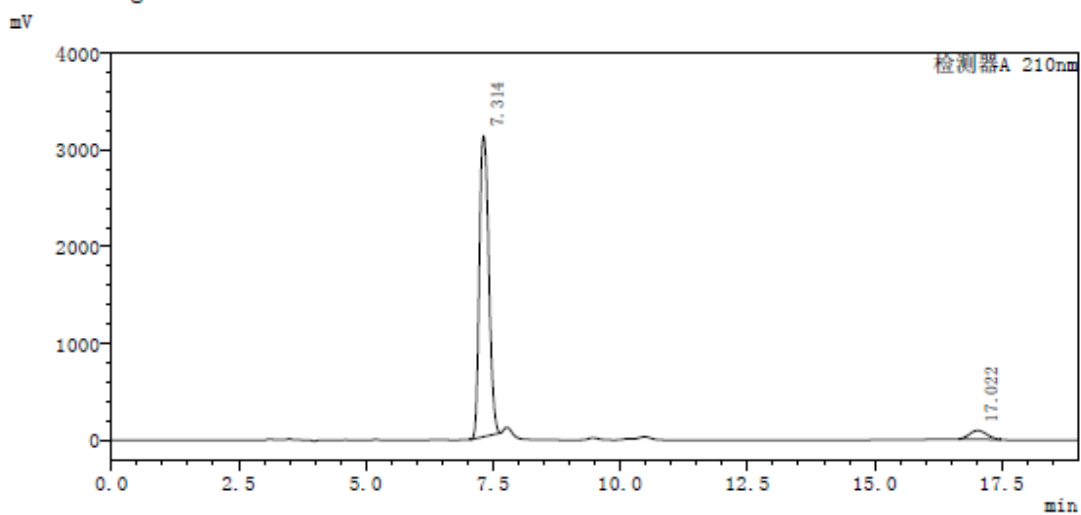


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.203	642914	7265364	48.813
2	17.344	258329	7618725	51.187
总计		901243	14884090	100.000

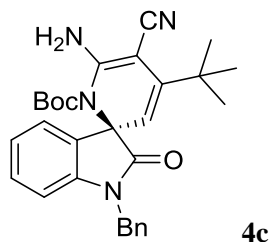
<chromatogram>



<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.314	3108117	39992437	94.928
2	17.022	91634	2136774	5.072
总计		3199751	42129211	100.000

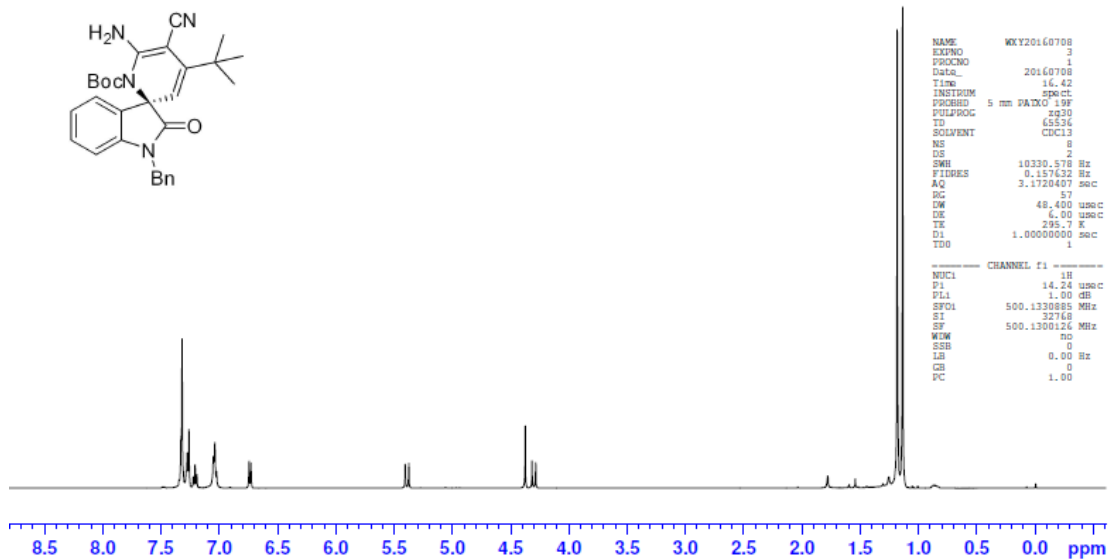
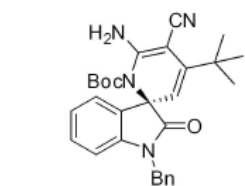


7.329  
7.324  
7.319  
7.288  
7.275  
7.260  
7.222  
7.207  
7.192  
7.052  
7.038  
7.022  
6.744  
6.728

5.404  
5.373

4.373  
4.314  
4.284

1.179  
1.133



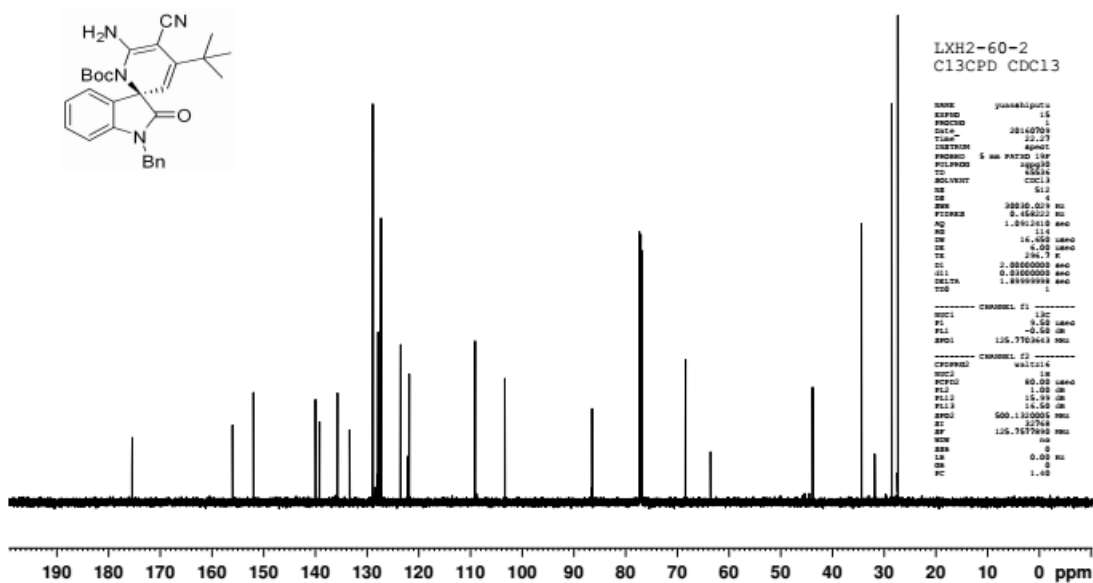
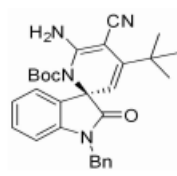
LXH2-60-2  
PROTON CDC13

```

NAME      MXY20160708
EXPNO     3
PROCNO    1
Date_     20160708
Time      16.42
INSTRUM   spect
PROBHD    5 mm PAXCO 19F
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         2
SWH        10330.578 Hz
FIDRES     0.157432 Hz
AQ         3.1720407 sec
RG         57
RW         48.400 us/c
DE         6.00 us/c
TE         295.2 K
D1         1.00000000 sec
TD0        1
----- CHANNEL f1 -----
NUC1       1H
P1         14.24 us/c
PL1        1.00 dB
SFO1       500.1330885 MHz
SI         32768
SF         500.1300126 MHz
WDW        hc
SSB        0
LB         0.00 Hz
GB         0
PC         1.00
  
```

4.06  
2.95  
1.07  
3.02  
1.00  
1.02  
1.03  
1.01  
9.04  
9.10

175.48  
152.00  
139.99  
138.24  
135.40  
128.95  
128.82  
127.92  
127.36  
123.53  
122.14  
121.89  
109.16  
103.38  
86.51  
68.45  
63.59  
43.85  
34.41  
31.85  
28.56  
27.37

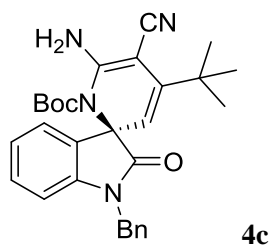


LXH2-60-2  
C13CPD CDC13

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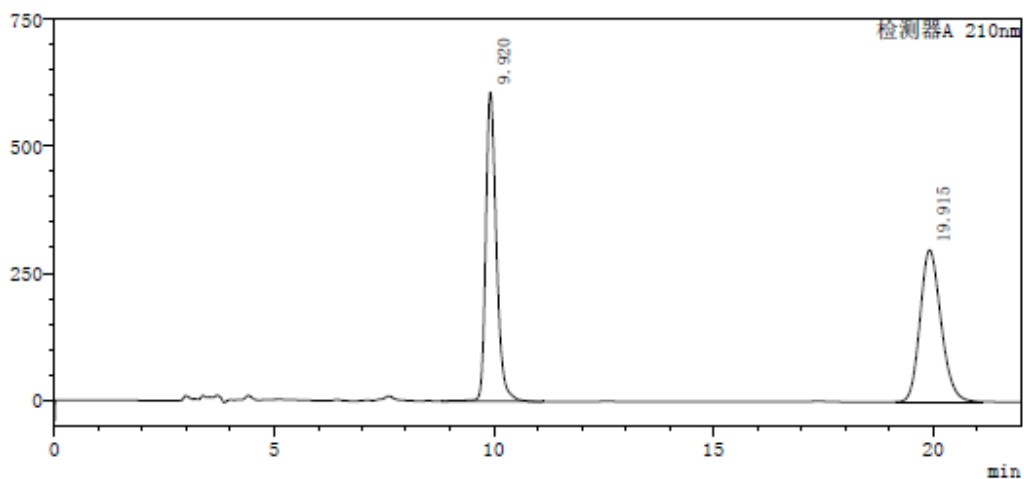
NAME      yuankuipuz
EXPNO     15
PROCNO    1
Date_     20160708
Time      12.37
INSTRUM   spect
PROBHD    5 mm PAXCO 19F
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         2
DS         2
SWH        20216.000 Hz
FIDRES     0.456222 Hz
AQ         1.2912610 sec
RG         114
RW         14.000 us/c
DE         4.00 us/c
TE         296.2 K
D1         2.00000000 sec
D11        0.21000000 sec
DELTA     1.89999998 sec
TD0        1
----- CHANNEL f1 -----
NUC1       13C
P1         9.50 us/c
PL1        0.50 dB
SFO1       125.7703643 MHz
----- CHANNEL f2 -----
CPDPRG2   waltz16
NUC2       1H
PCPD2     80.00 us/c
PL2       1.00 dB
PL12      15.19 dB
PL13      14.00 dB
SFO2      500.1330885 MHz
SF        125.7677036 MHz
WDW        hc
SSB        0
LB         0.00 Hz
GB         0
PC         1.00
  
```





<chromatogram>

mV



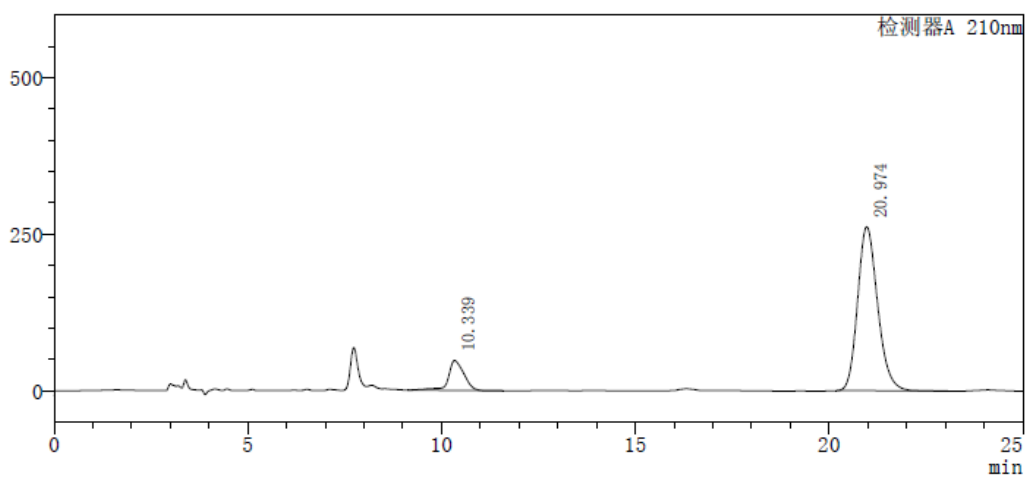
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	9.920	607871	10188014	50.530
2	19.915	299612	9974176	49.470
总计		907483	20162190	100.000

<chromatogram>

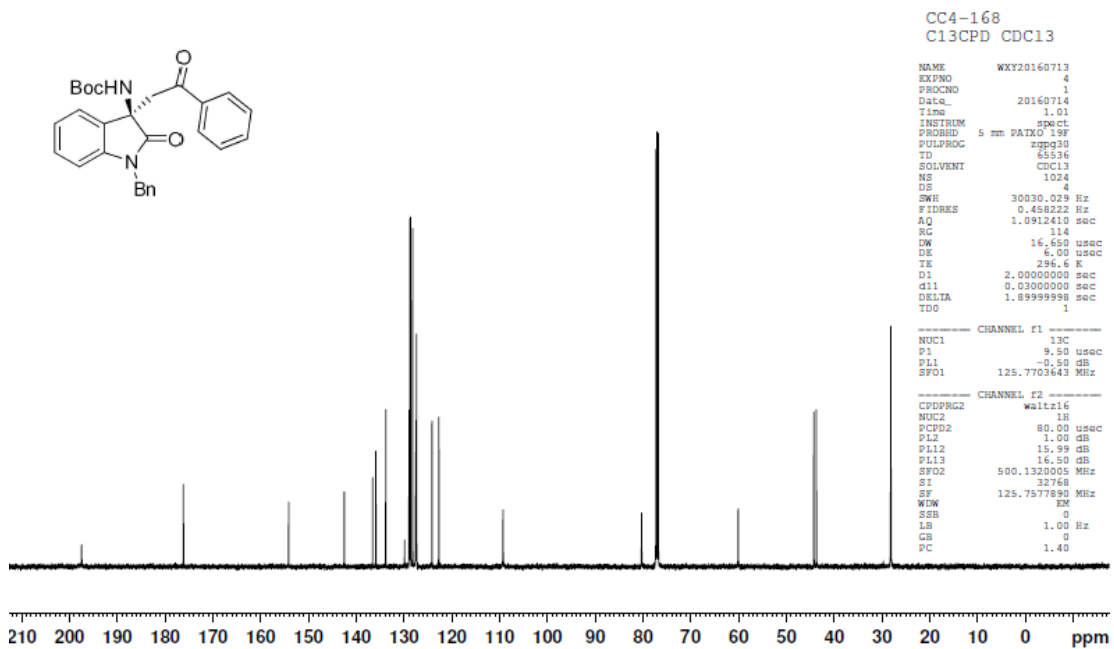
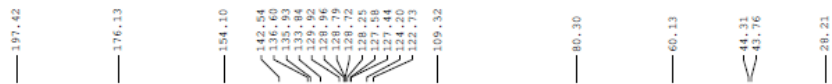
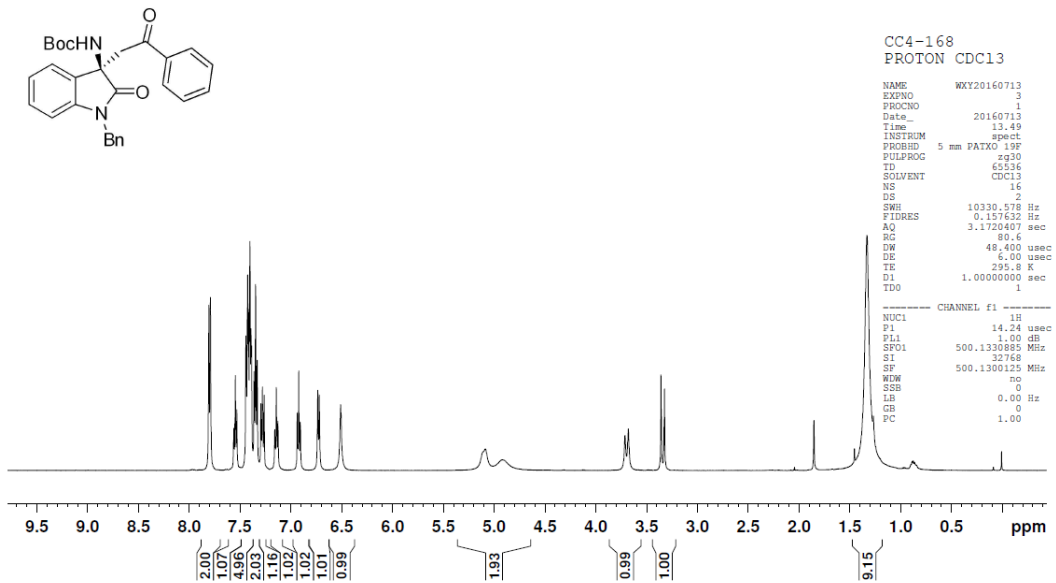
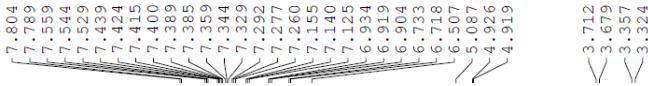
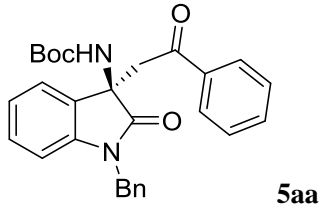
mV

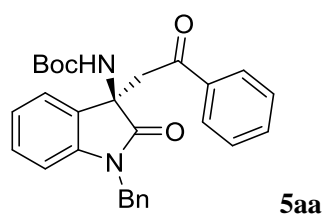


<Peak table>

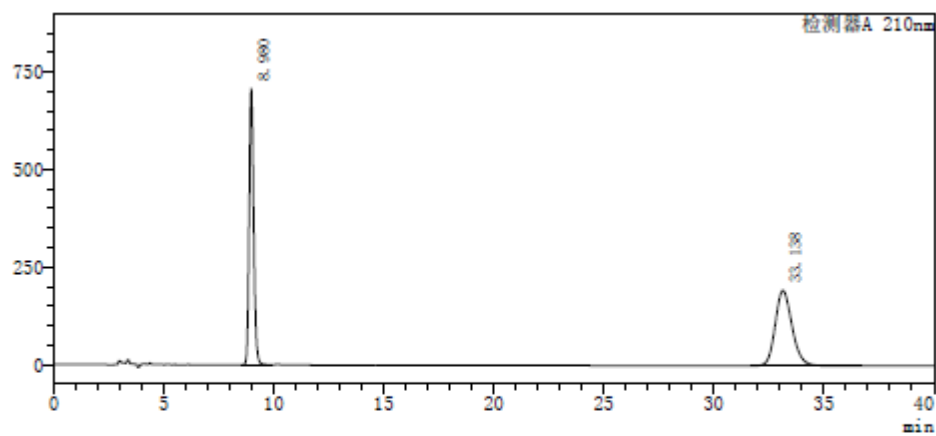
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	10.339	47716	1327207	12.420
2	20.974	261537	9358728	87.580
总计		309253	10685936	100.000





<chromatogram>  
mV

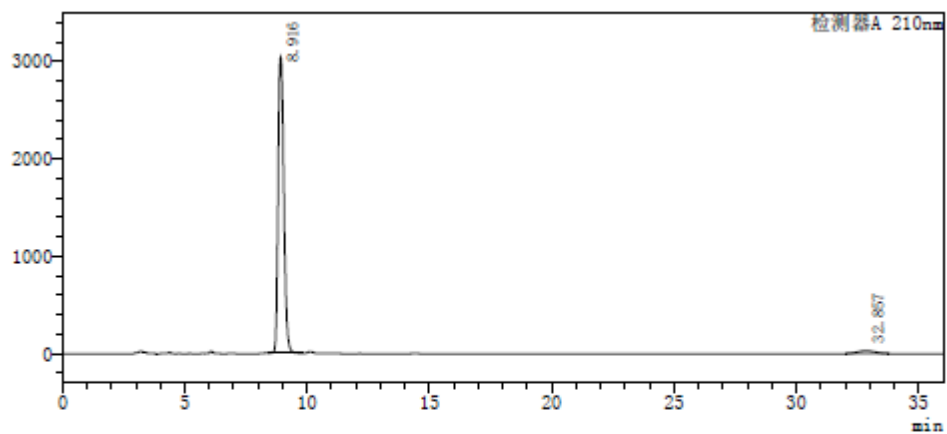


<Peak table>

检测器A 210nm				
Peak#	Ret. Time	Height	Area	Area%
1	8.980	709472	10089285	49.659
2	33.138	192675	10227752	50.341
总计		902148	20317037	100.000

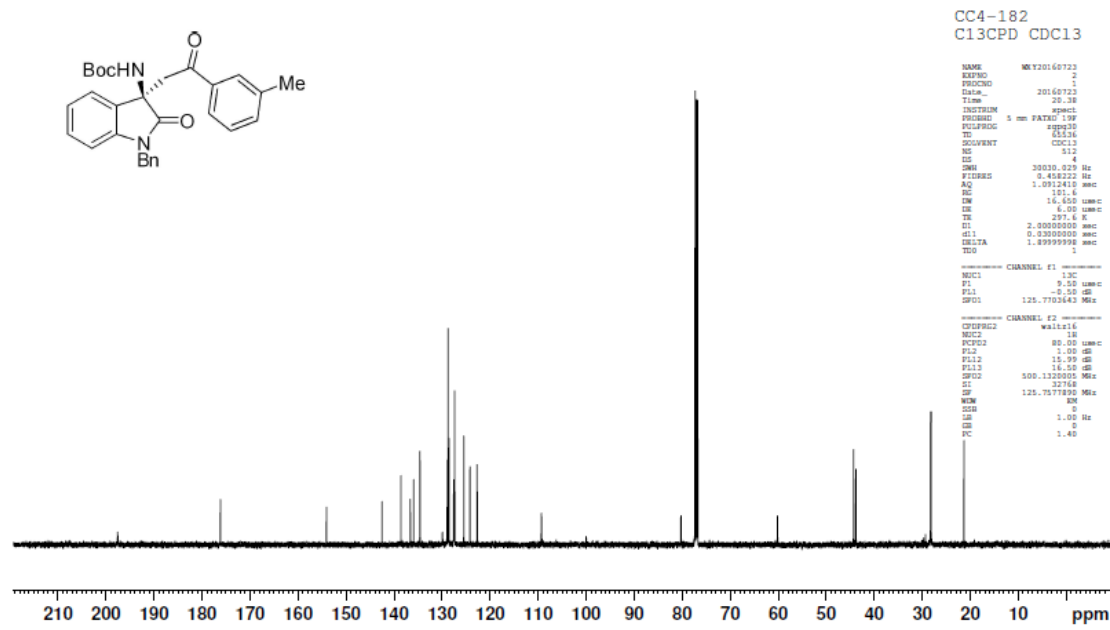
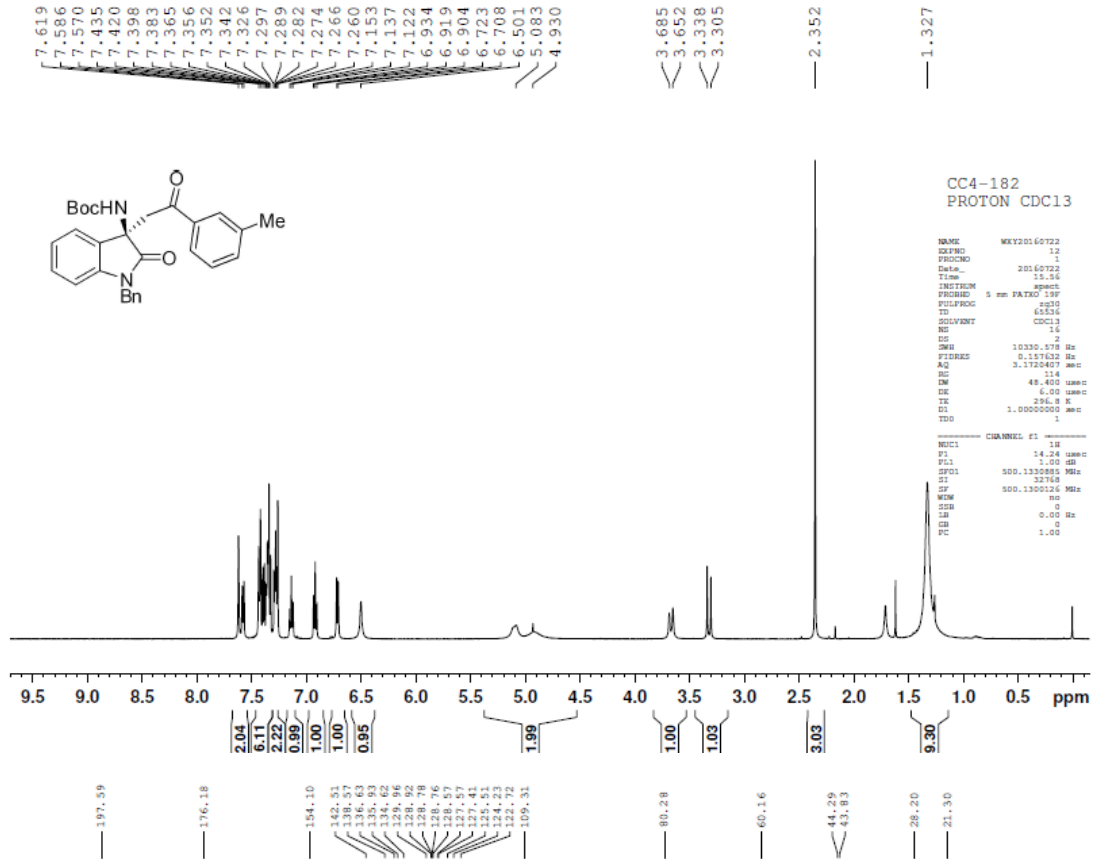
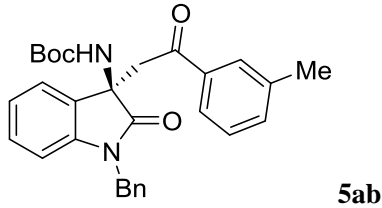
<chromatogram>

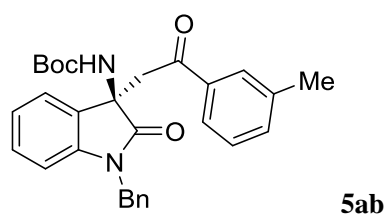
mV



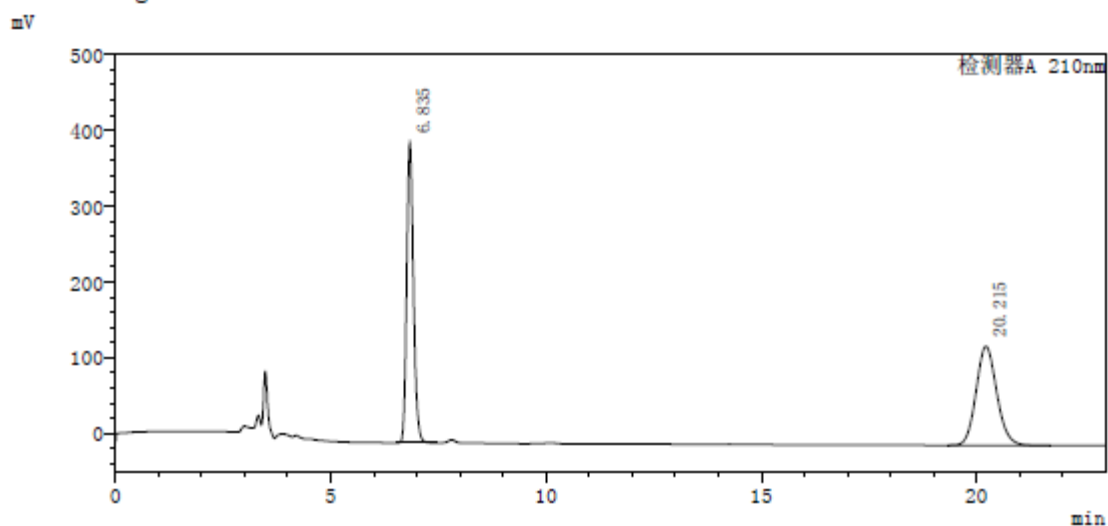
<Peak table>

检测器A 210nm				
Peak#	Ret. Time	Height	Area	Area%
1	8.916	3043456	49716508	97.318
2	32.857	28272	1369974	2.682
总计		3071729	51086482	100.000





<chromatogram>

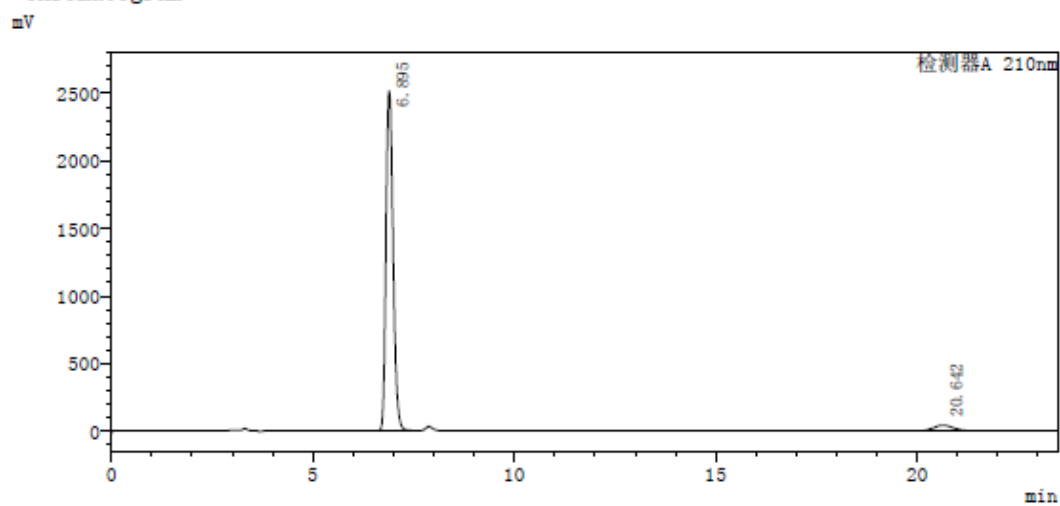


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	6.835	395978	4329385	49.799
2	20.215	130568	4364270	50.201
总计		526546	8693655	100.000

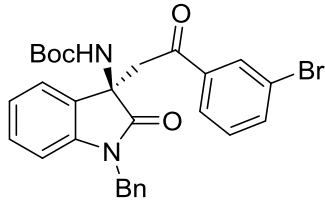
<chromatogram>



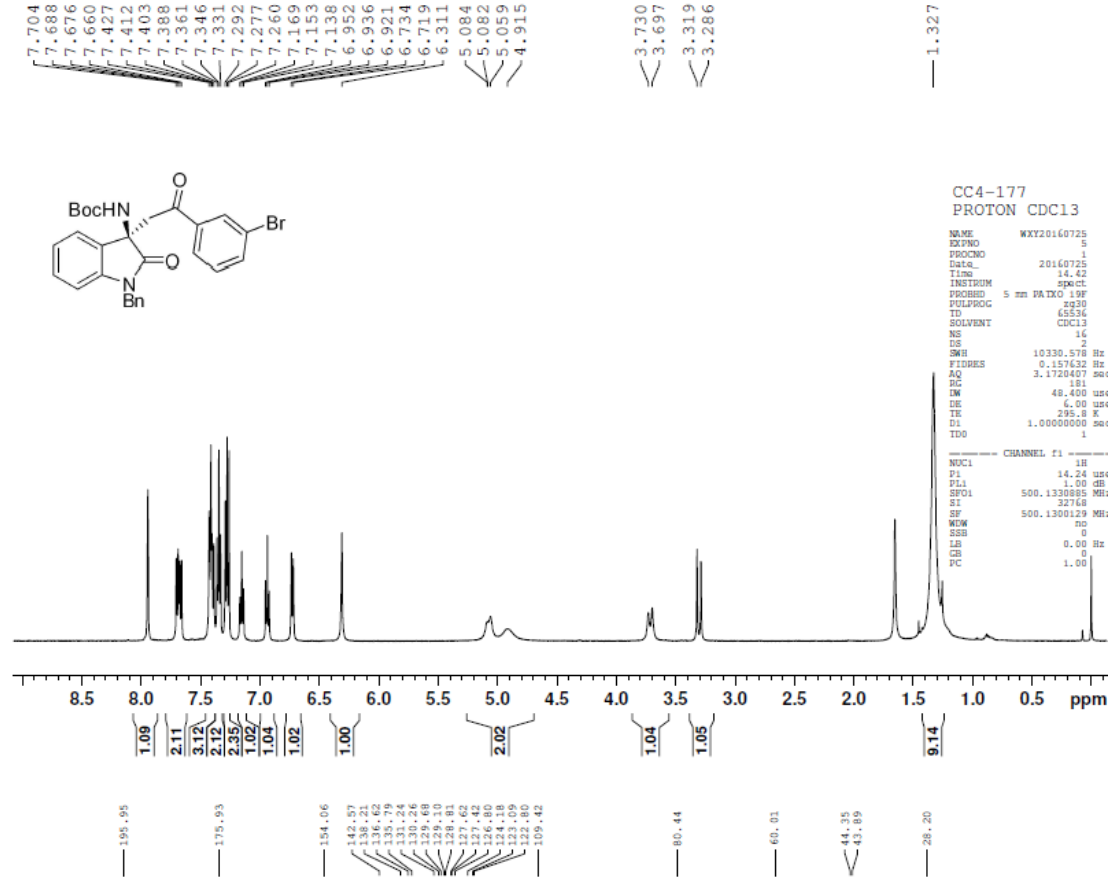
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	6.895	2513626	31037295	96.085
2	20.642	40121	1264546	3.915
总计		2553746	32301841	100.000



**5ad**



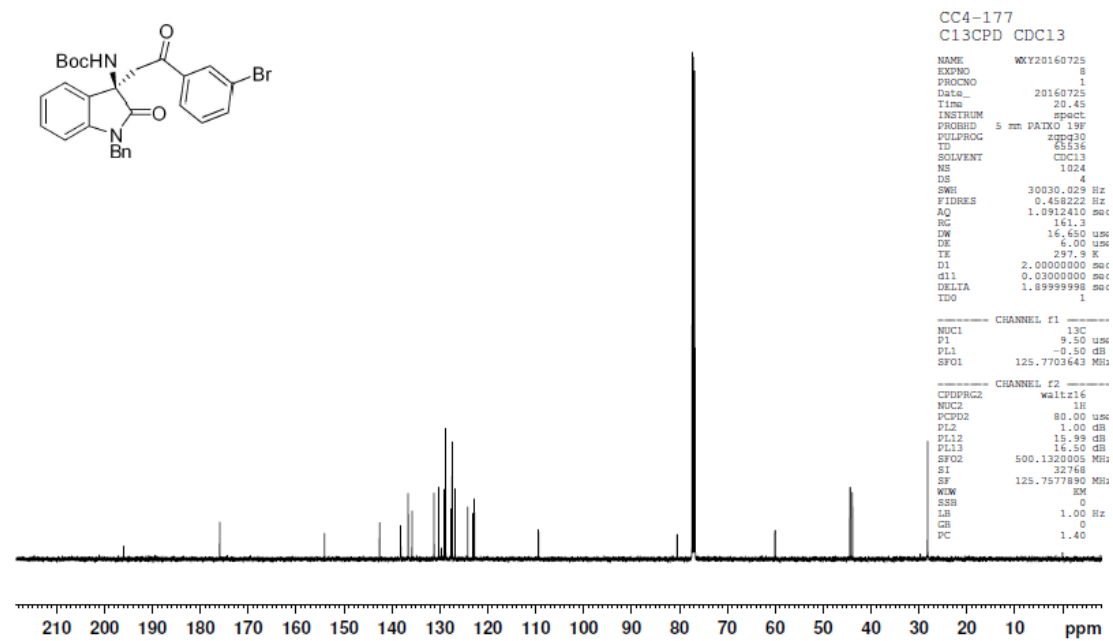
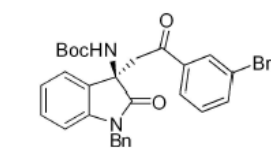
CC4-177  
PROTON CDCl3

```

NAME      WKY20160725
EXPNO    5
PROCNO   1
Date_    20160725
Time     14.42
INSTRUM  spect
PROBHD   5 mm PAIXO 19F
PULPROG  zg30
TD        65536
SOLVENT  CDCl3
NS        16
DS        2
SWH       10330.578 Hz
FIDRES   0.157632 Hz
AQ        3.1720407 sec
RG        181
DW        48.400 usec
DE        6.00 usec
TE        295.2 K
D1        1.00000000 sec
TDO       1
  
```

```

CHANNEL f1
NUC1      1H
P1        14.24 usec
PL1       1.00 dB
SFO1     500.1320000 MHz
SI        32768
SF        500.1300129 MHz
WVM       0
SSB       0
LB        0.00 Hz
GB        0
PC        1.00
  
```



CC4-177  
C13CPD CDCl3

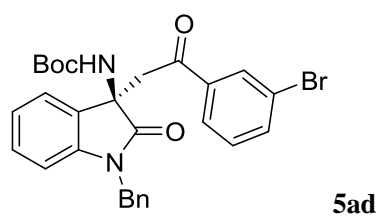
```

NAME      WKY20160725
EXPNO    8
PROCNO   1
Date_    20160725
Time     20.45
INSTRUM  spect
PROBHD   5 mm PAIXO 19F
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        1024
DS        4
SWH       30030.029 Hz
FIDRES   0.458222 Hz
AQ        1.0912410 sec
RG        161.3
DW        16.450 usec
DE        6.00 usec
TE        297.2 K
D1        2.00000000 sec
d11      0.03000000 sec
DELTA    1.89999998 sec
TDO       1
  
```

```

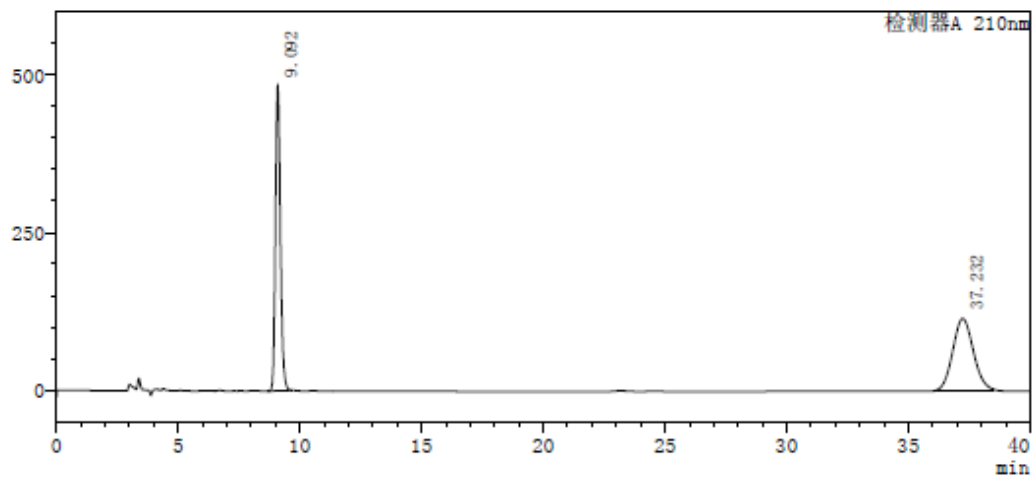
CHANNEL f1
NUC1      13C
P1        9.50 usec
PL1       -0.50 dB
SFO1     125.7703643 MHz

CHANNEL f2
CPDPRG2  waltz16
NUC2      1H
PCPD2    80.00 usec
PL2       1.00 dB
PL12     15.99 dB
PL13     16.50 dB
SFO2     500.1320000 MHz
SI        32768
SF        125.7577890 MHz
WVM       0
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```



<chromatogram>

mV



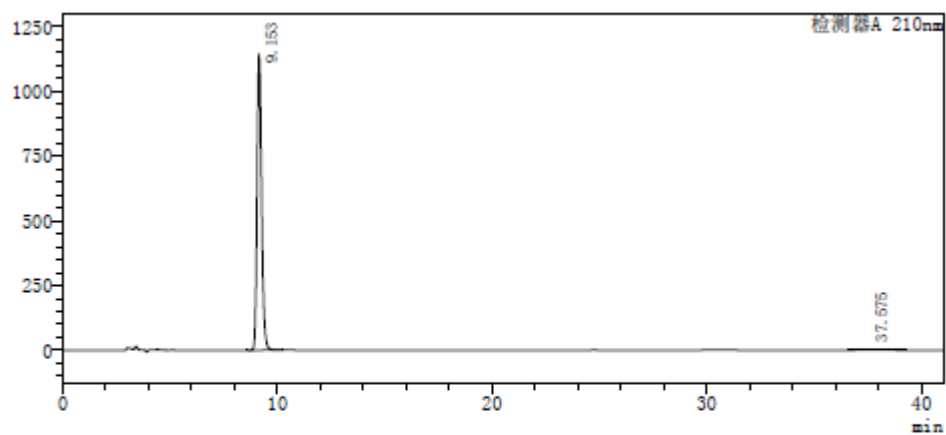
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	9.092	484287	6931690	50.642
2	37.232	114517	6755814	49.358
总计		598804	13687503	100.000

<chromatogram>

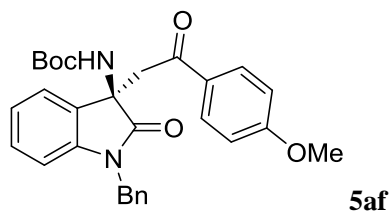
mV



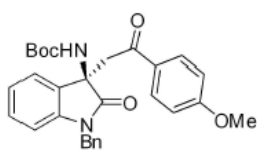
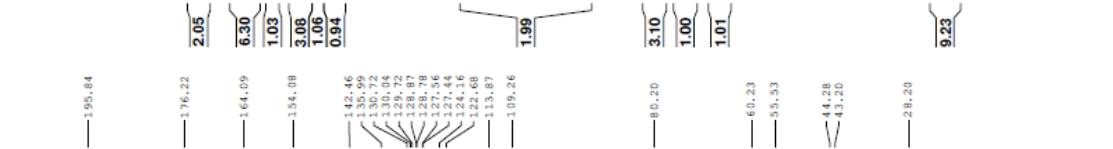
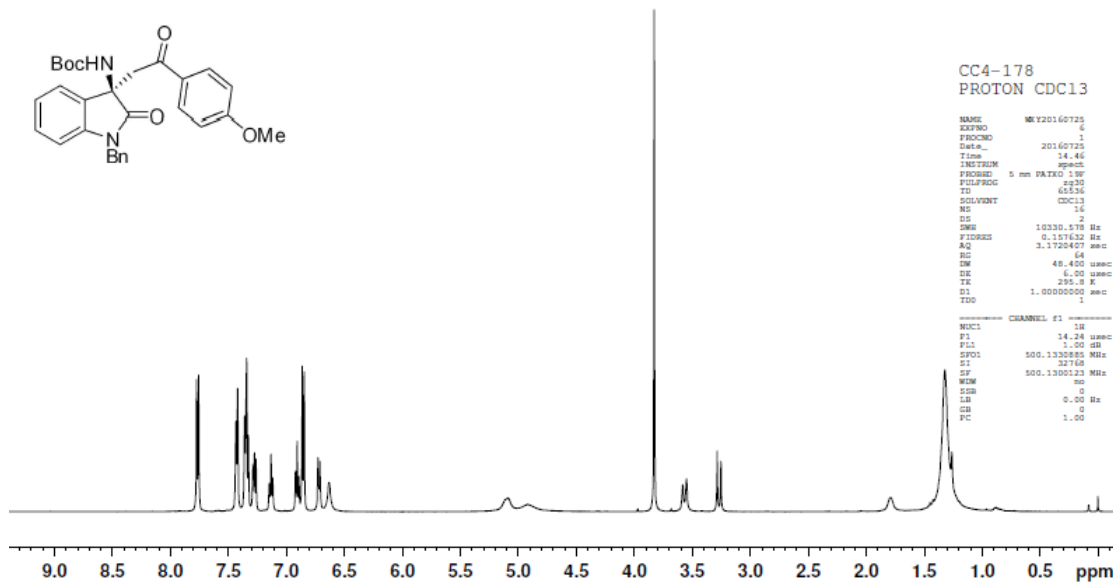
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	9.153	1143350	16794526	99.294
2	37.575	1579	119445	0.706
总计		1144929	16913971	100.000



7.773  
 7.755  
 7.434  
 7.419  
 7.358  
 7.341  
 7.326  
 7.288  
 7.273  
 7.260  
 7.146  
 7.131  
 7.115  
 6.920  
 6.905  
 6.890  
 6.862  
 6.845  
 6.725  
 6.709  
 6.630  
 5.089  
 4.921  
 3.829  
 3.583  
 3.551  
 3.286  
 3.253  
 1.322

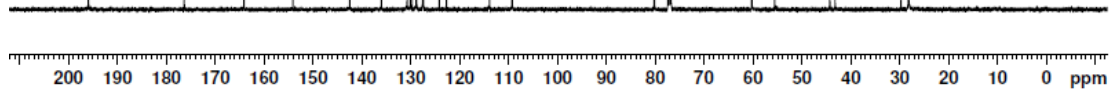


**CC4-178**  
**C13CPD CDC13**

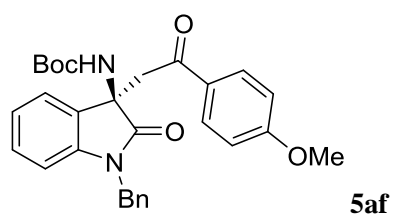
NAME	WX20160725
EXPNO	9
PROCNO	1
Date_	20160725
Time	21.44
INSTRUM	spc01
PROBHD	5 mm PATXO 19F
PULPROG	zgpg30
TD	53336
SOLVENT	CDC13
NS	1024
DS	4
SWH	30030.029 Hz
FIDRES	0.458222 Hz
AQ	1.0912419 sec
RG	101.6
DW	16.650 usec
DE	6.00 usec
TE	298.0 K
D1	2.00000000 sec
d11	0.03000000 sec
DELTA	1.89999999 sec
TD0	1

CHANNEL f1 ---  
 NUC1 13C  
 P1 9.50 usec  
 PL1 -0.50 dB  
 SFO1 125.7703643 MHz

CHANNEL f2 ---  
 CPDPRG2 waltz16  
 NUC2 1H  
 PCPD2 80.00 usec  
 PL2 1.00 dB  
 PL12 15.99 dB  
 PL13 16.50 dB  
 SFO2 500.1320003 MHz  
 SI 32768  
 SF 125.7577890 MHz  
 NS 1024  
 DS 4  
 SSB 0  
 LB 1.00 Hz  
 GB 0  
 PC 1.40

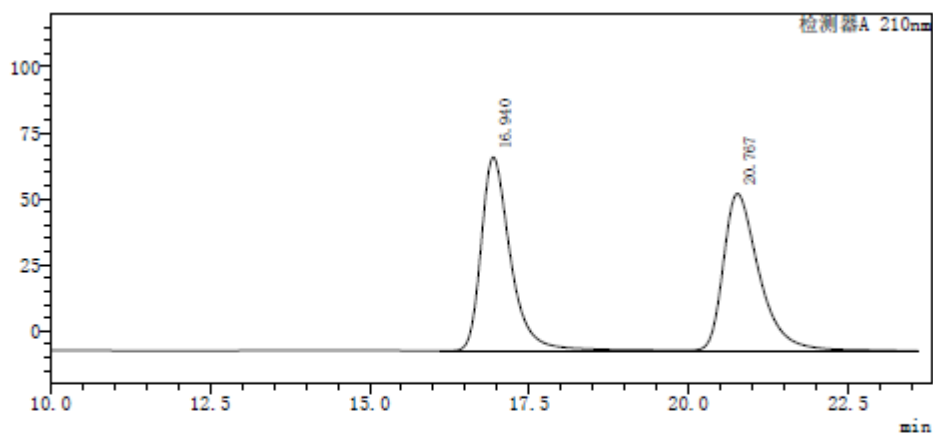






<chromatogram>

mV



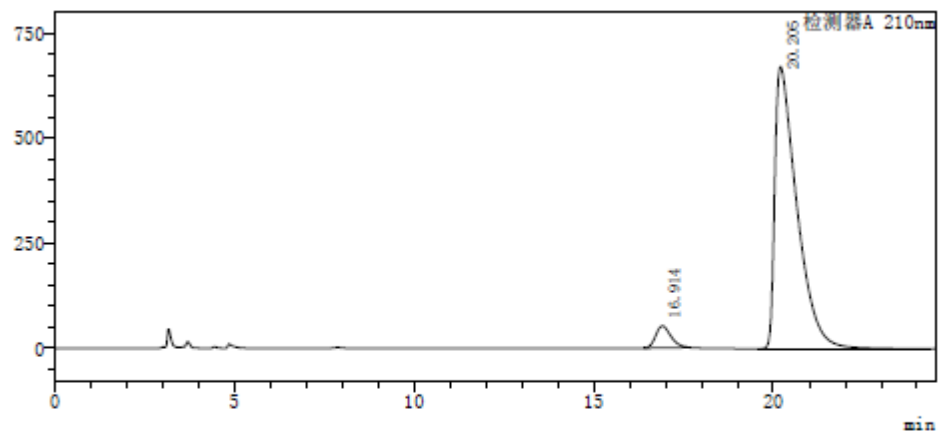
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	16.940	73239	2374231	50.363
2	20.767	59455	2339972	49.637
总计		132694	4714203	100.000

<chromatogram>

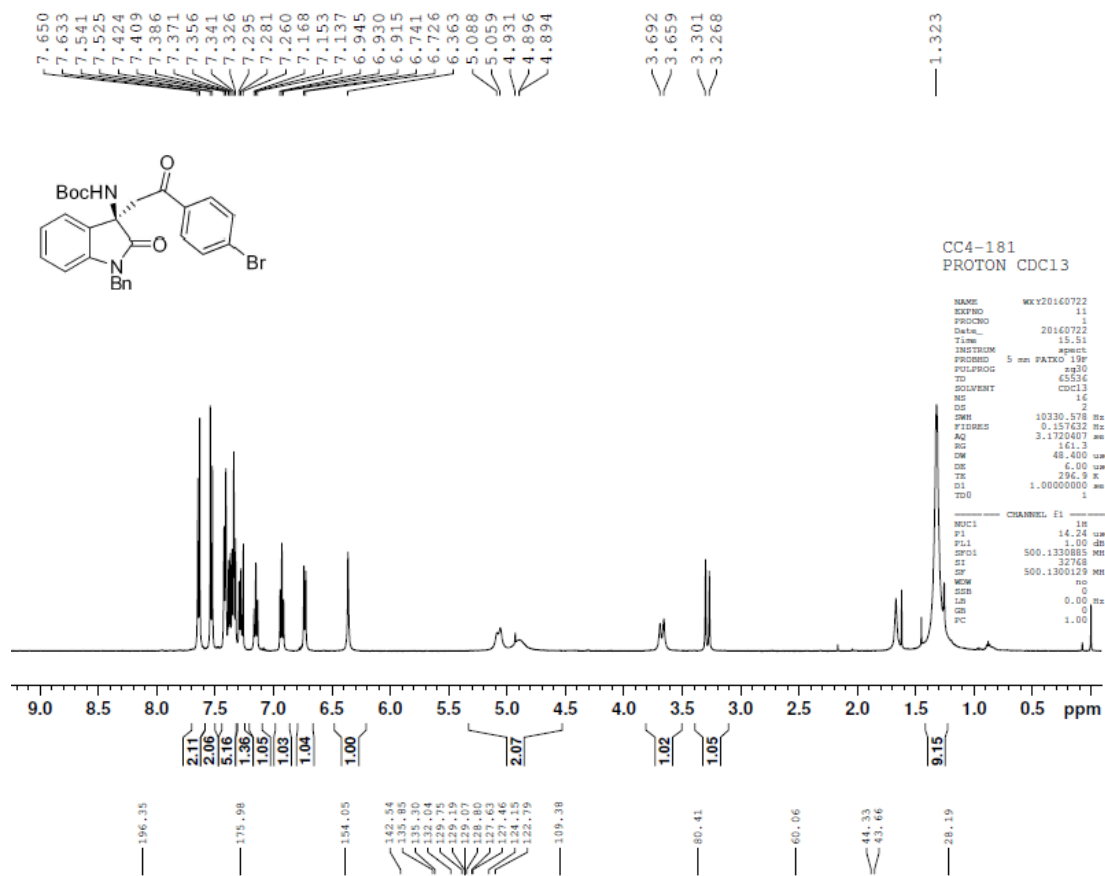
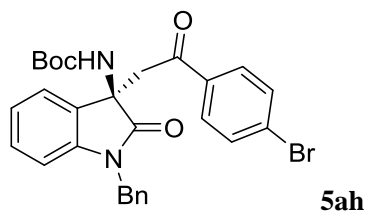
mV



<Peak table>

检测器A 210nm

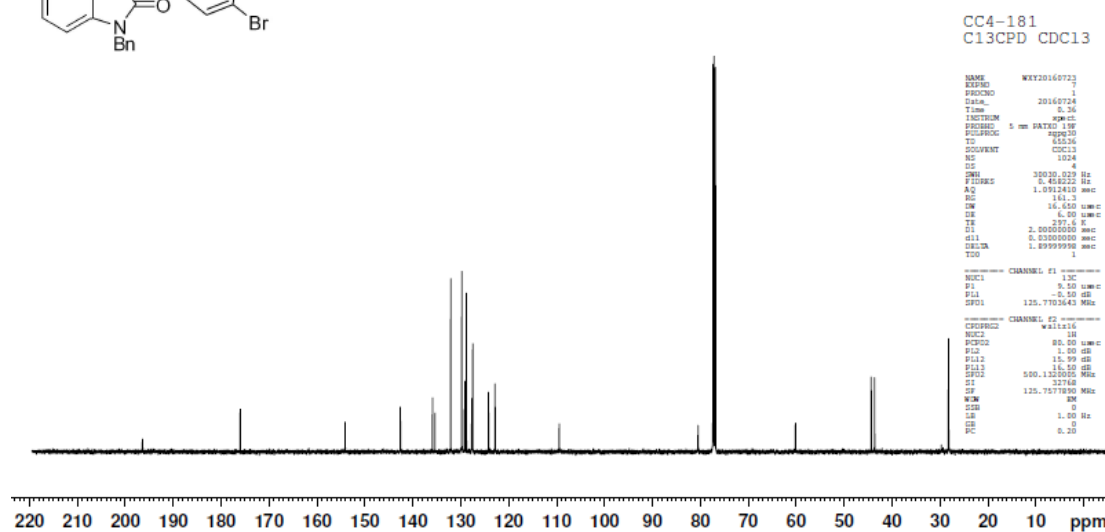
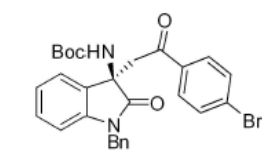
Peak#	Ret. Time	Height	Area	Area%
1	16.914	52151	1533594	3.069
2	20.205	670529	28723470	94.931
总计		722680	30257064	100.000



CC4-181  
 PROTON CDC13

```

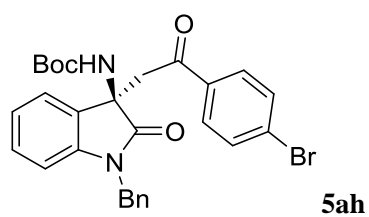
NAME WXY20160722
EXPNO 1
PROCNO 1
Date_ 20160722
Time 15.51
INSTRUM spect
PROBHD 5 mm PAKO 13P
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 16
DS 2
SWH 10230.578 Hz
FIDRES 0.157632 Hz
AQ 3.1720407 sec
RG 161.3
CW 48.400 usec
DE 6.00 usec
TE 296.9 K
D1 1.00000000 sec
TD0 1
----- CHANNEL f1 -----
NUC1 1H
P1 14.24 usec
PL1 0.00 dB
SFO1 500.1330885 MHz
SI 32768
SF 500.1300129 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00
  
```



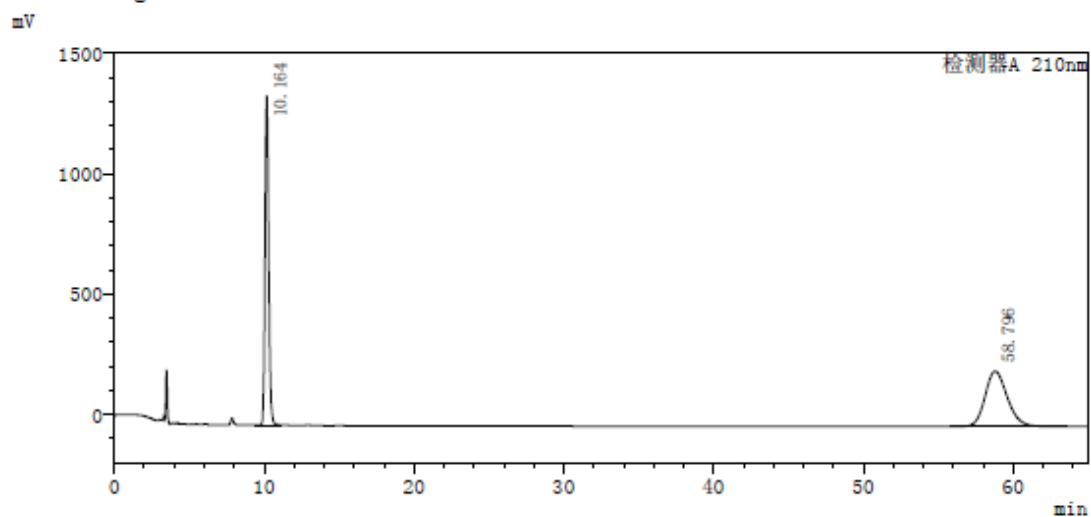
CC4-181  
 C13CPD CDC13

```

NAME WXY20160722
EXPNO 1
PROCNO 1
Date_ 20160724
Time 0.36
INSTRUM spect
PROBHD 5 mm PAKO 13P
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 1024
DS 30030.029 Hz
SWH 8.402222 Hz
AQ 1.9018418 sec
RG 161.3
CW 14.400 usec
DE 6.00 usec
TE 297.2 K
D1 2.50000000 sec
d11 0.53000000 sec
DETA 1.89999999 sec
TD0 1
----- CHANNEL f1 -----
NUC1 13C
P1 9.10 usec
PL1 0.00 dB
SFO1 125.767890 MHz
----- CHANNEL f2 -----
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 1.00 dB
PL12 10.00 dB
PL13 10.00 dB
SFO2 500.1320000 MHz
SI 32768
SF 125.767890 MHz
WDW no
SSB 0
LB 1.00 Hz
GB 0
PC 0.20
  
```



<chromatogram>

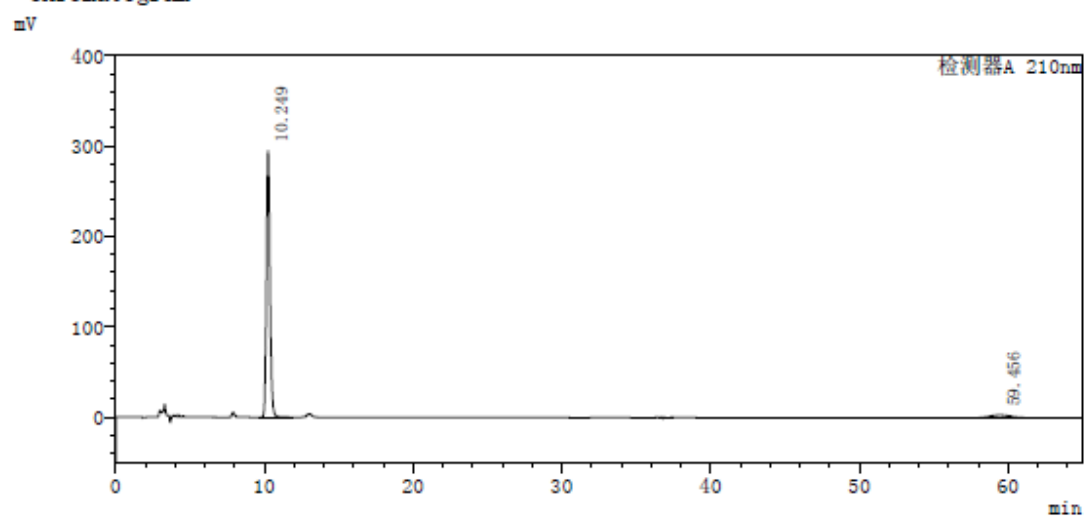


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	10.164	1368883	23081489	49.423
2	58.796	229756	23620527	50.577
总计		1598639	46702016	100.000

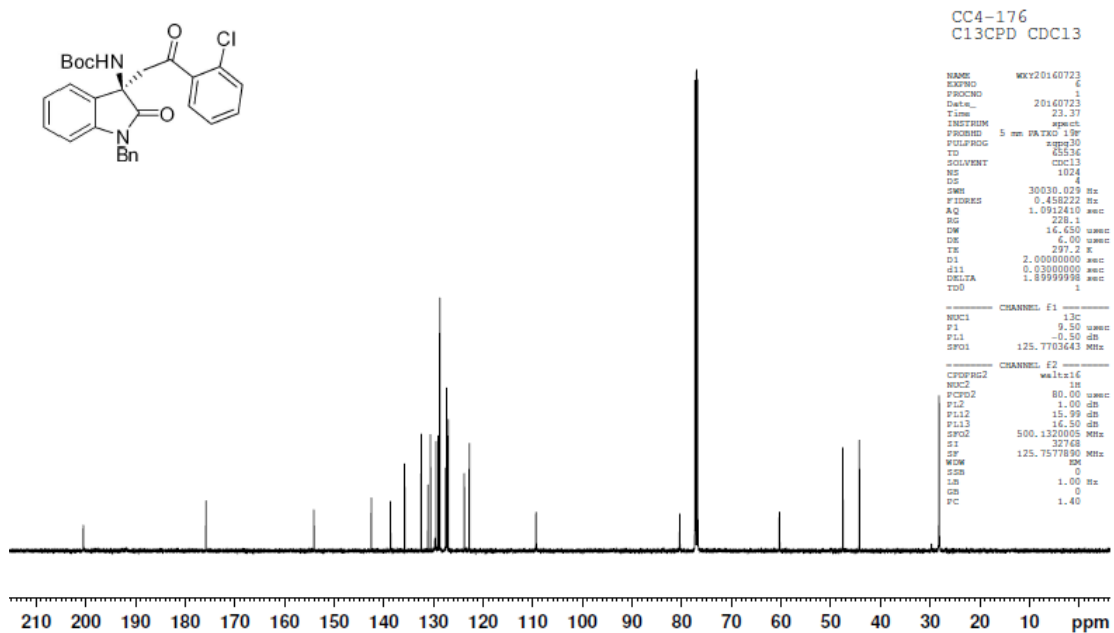
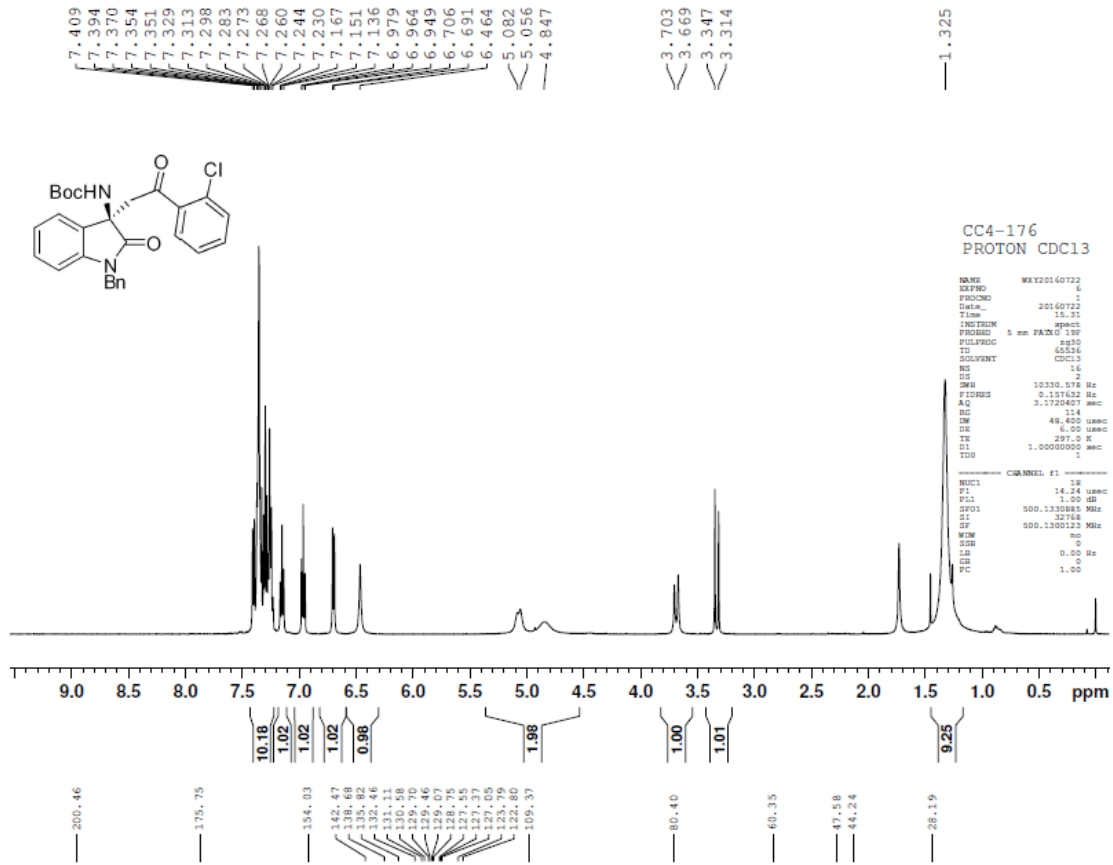
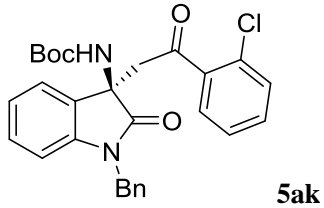
<chromatogram>

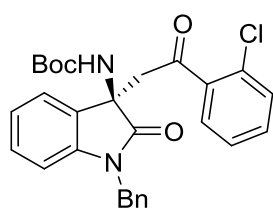


<Peak table>

检测器A 210nm

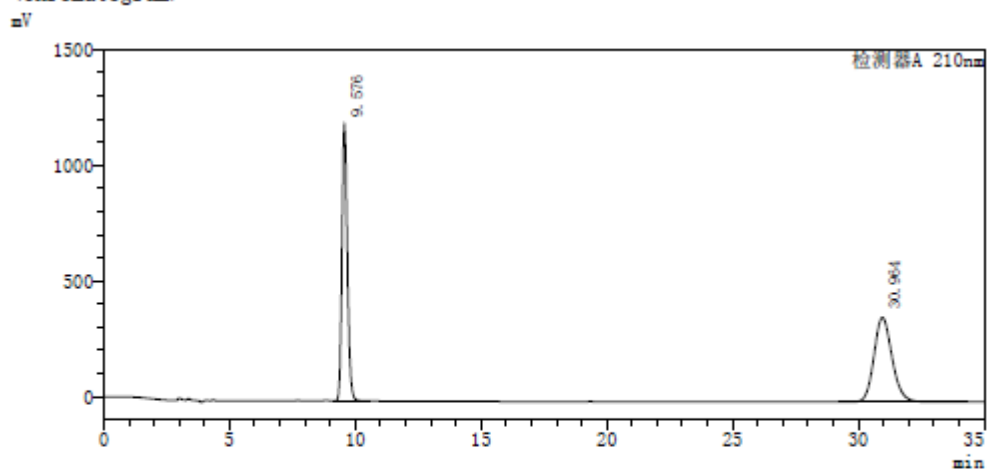
Peak#	Ret. Time	Height	Area	Area%
1	10.249	294945	4976116	94.820
2	59.456	2922	271856	5.180
总计		297867	5247972	100.000





5ak

<chromatogram>

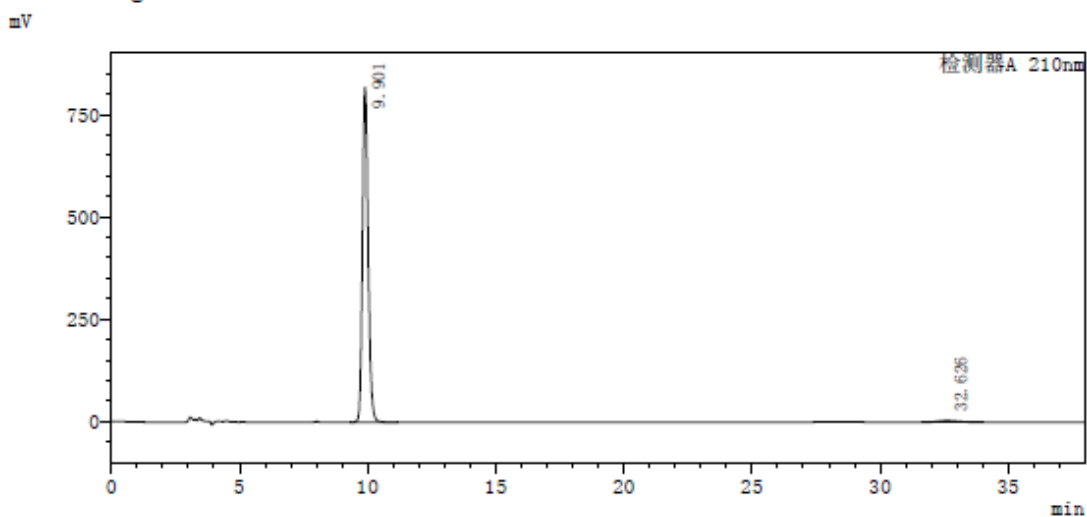


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	9.576	1194871	17902612	49.545
2	30.964	364350	18231493	50.455
总计		1559221	36134104	100.000

<chromatogram>

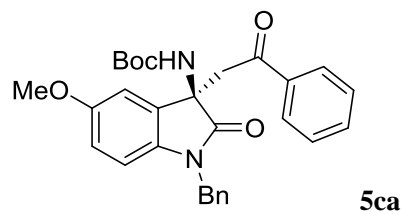


<Peak table>

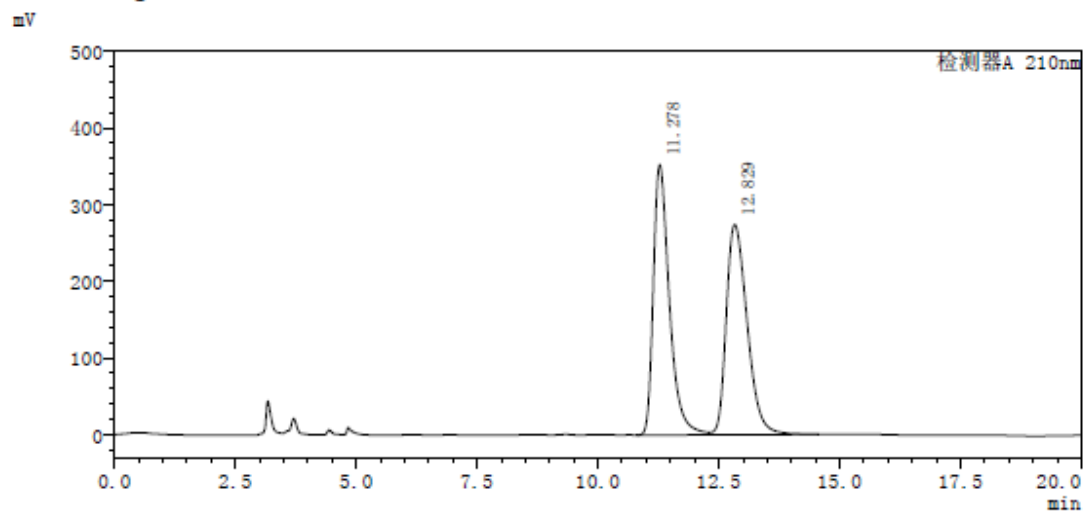
检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	9.901	819318	12684369	98.382
2	32.626	4062	208592	1.618
总计		823380	12892961	100.000





<chromatogram>

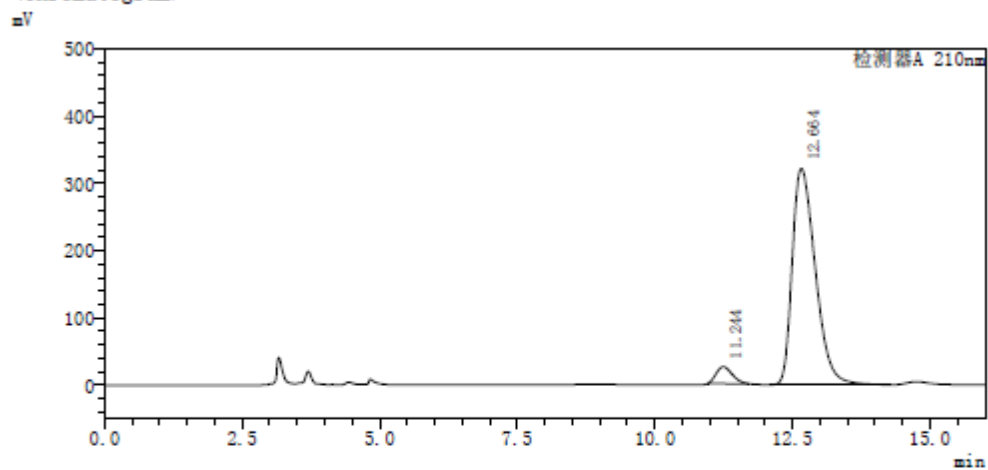


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	11.278	352459	8163165	49.687
2	12.829	274260	8265881	50.313
总计		626719	16429046	100.000

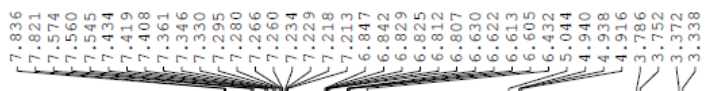
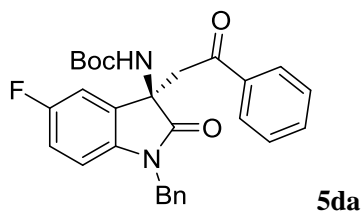
<chromatogram>



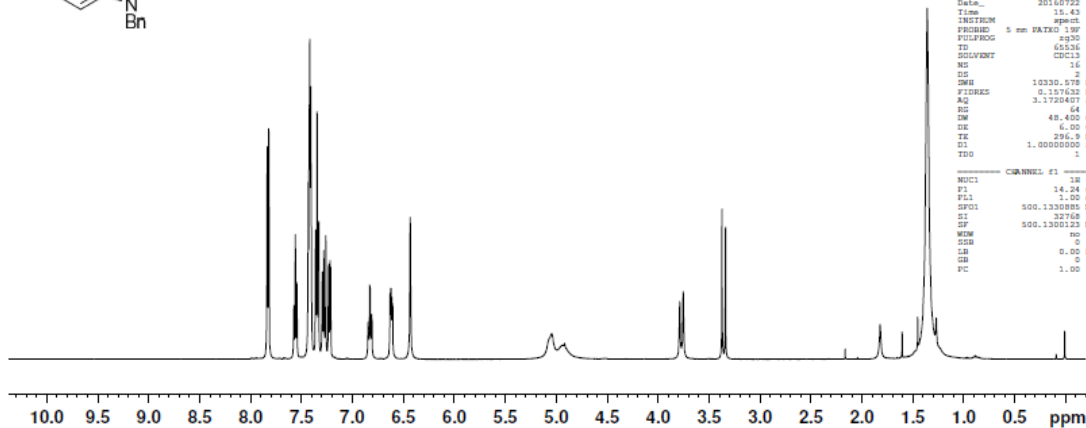
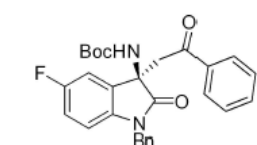
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	11.244	25066	509163	5.133
2	12.664	321693	9410646	94.867
总计		346760	9919809	100.000

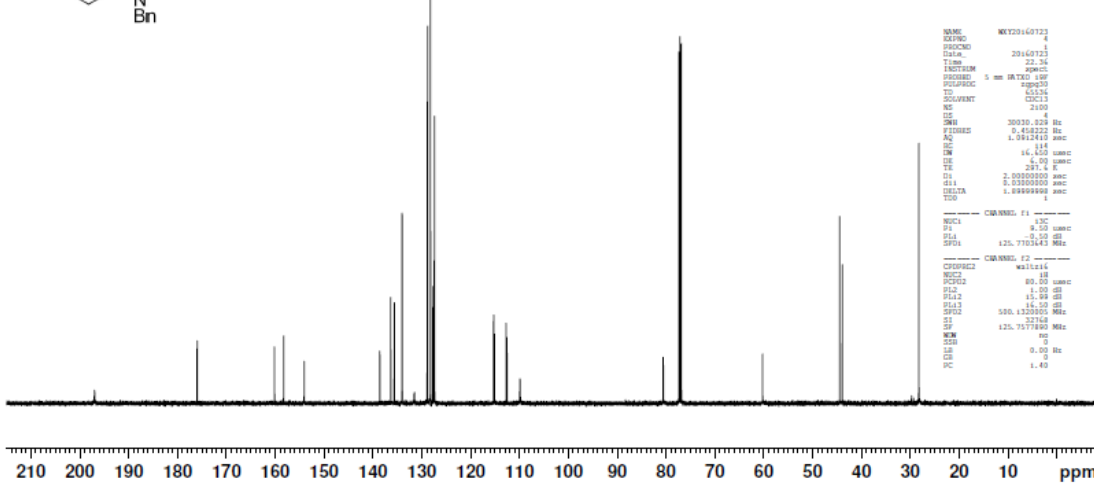
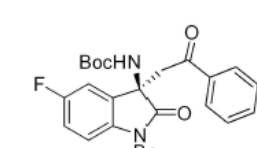
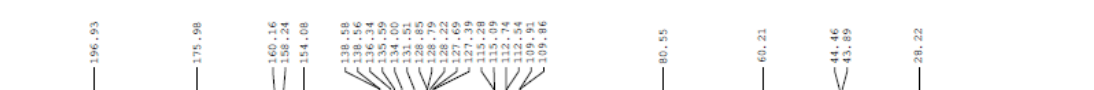


1.357



```

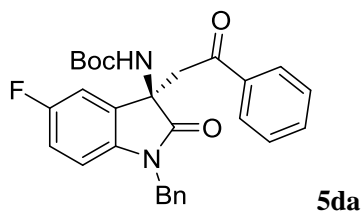
NAME      MXY20160722
EXPNO    2
PROCNO   1
Date_    20160722
Time     15.43
INSTRUM  spect
PROBHD   5 mm PATEO 1H
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        2
DS        2
SWH       10330.578 Hz
FIDRES   0.1517632 Hz
AQ        3.1720407 sec
RG        64
DM        48.400 um
DE        6.00 um
TE        296.2 K
SI        1.00000000 sec
TD0       1
----- CHANNEL f1 -----
NUC1      13C
P1        18.00 um
PL1       0.00 dB
SFO1      500.1330980 MHz
SI        32768
SF        500.1330980 MHz
WDW       EM
SSB       0
GB        0
PC        1.00
  
```



```

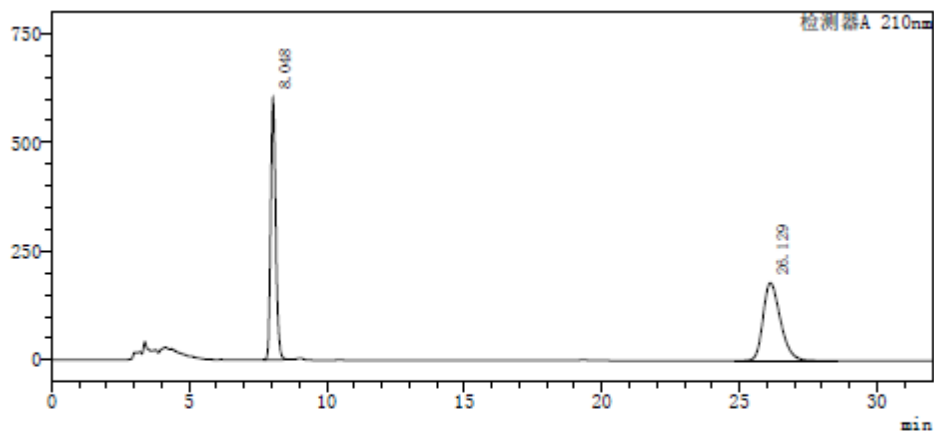
NAME      MXY20160722
EXPNO    4
PROCNO   1
Date_    20160722
Time     22.34
INSTRUM  spect
PROBHD   5 mm PATEO 1H
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        2
DS        2
SWH       30030.828 Hz
FIDRES   0.462232 Hz
AQ        1.391410 sec
RG        114
DM        16.400 um
DE        6.00 um
TE        296.2 K
SI        0.00000000 sec
d11      0.03000000 sec
DECTA    1.00000000 sec
TD0       1
----- CHANNEL f1 -----
NUC1      13C
P1        8.50 um
PL1       0.00 dB
SFO1      125.7603443 MHz
----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2      13C
P2        80.00 um
PL2       0.00 dB
SFO2      125.7603443 MHz
SI        15.00 dB
SF        500.1330980 MHz
WDW       EM
SSB       0
GB        0
PC        1.00
  
```





<chromatogram>

mV



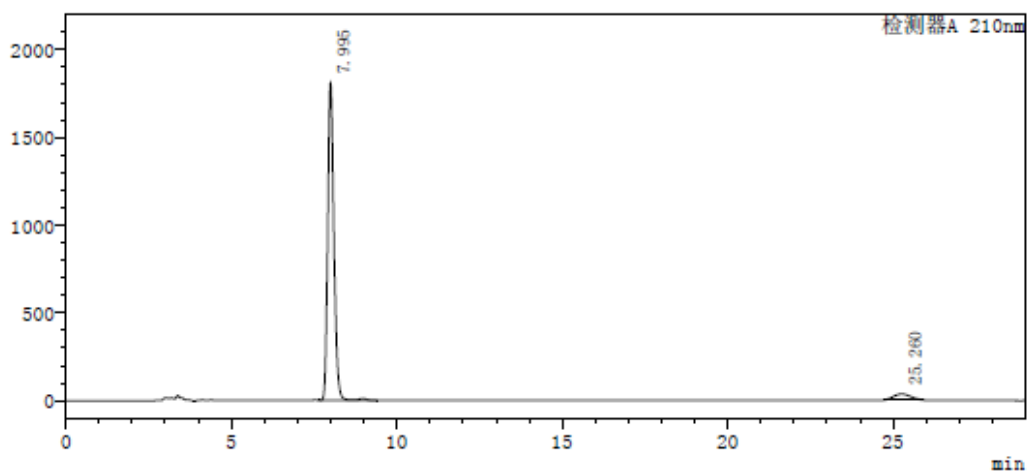
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	8.048	601429	7678463	49.434
2	26.129	178764	7854207	50.566
总计		780193	15532670	100.000

<chromatogram>

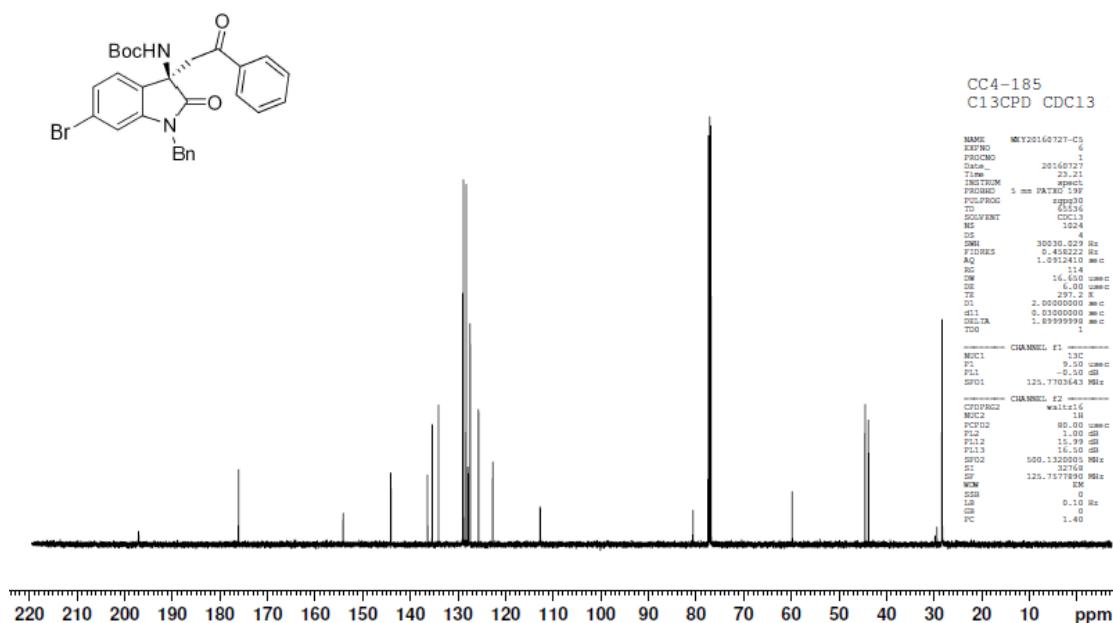
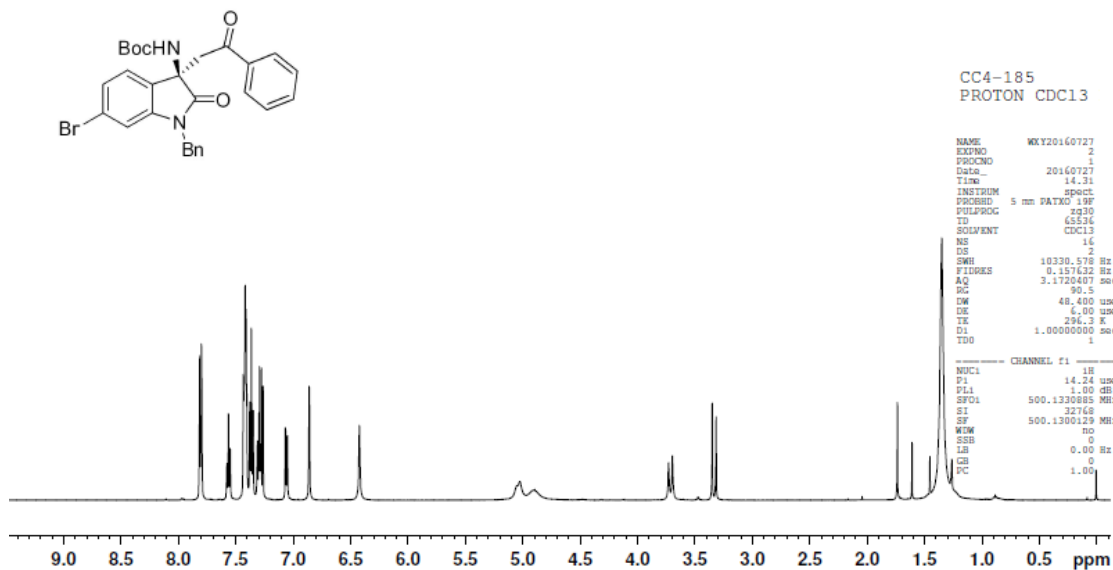
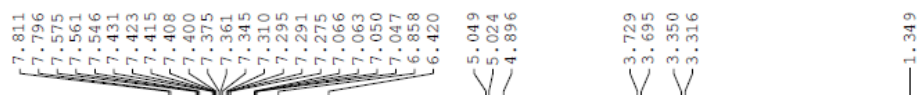
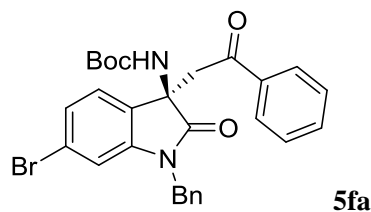
mV

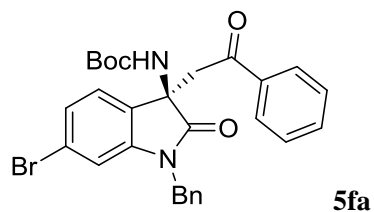


<Peak table>

检测器A 210nm

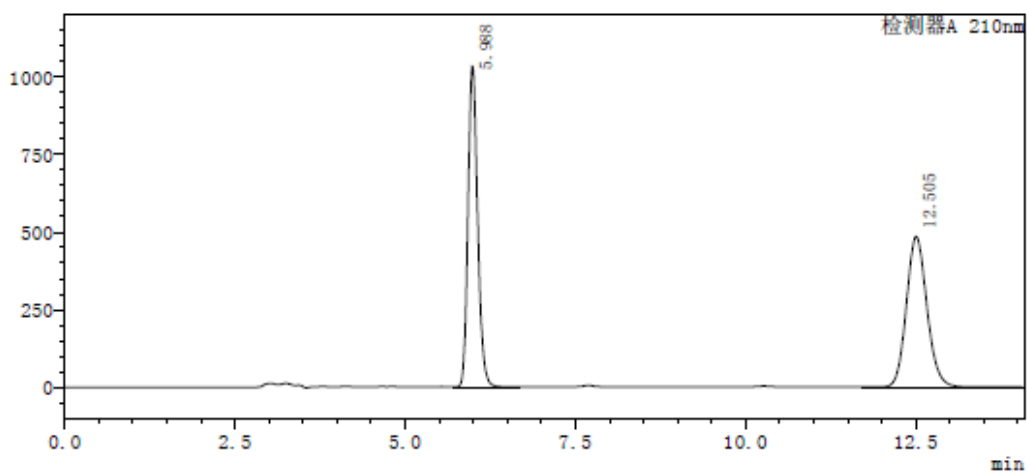
Peak#	Ret. Time	Height	Area	Area%
1	7.995	1809478	23599713	94.984
2	25.260	34937	1246268	5.016
总计		1844415	24845981	100.000





<chromatogram>

mV



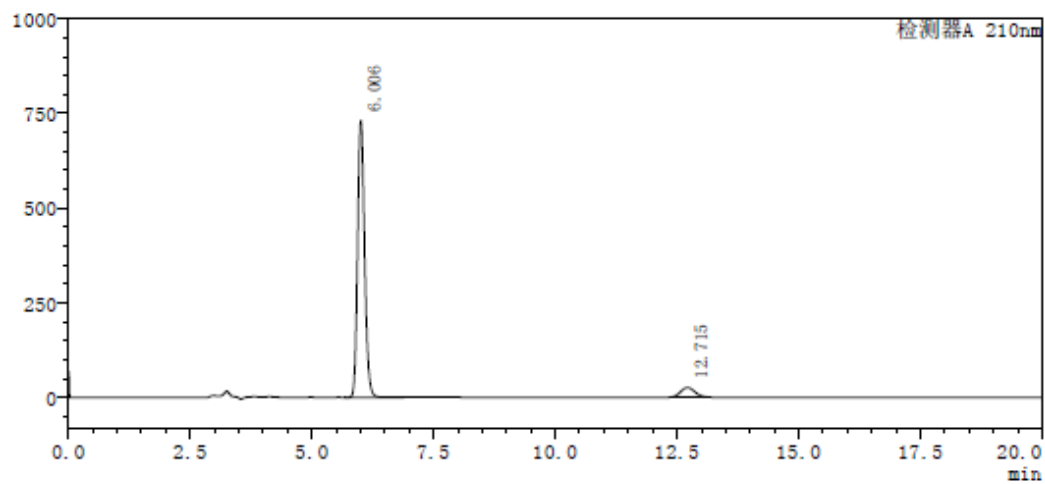
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	5.988	1033692	10189869	49.994
2	12.505	484946	10192114	50.006
总计		1518638	20381983	100.000

<chromatogram>

mV

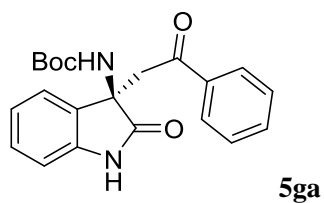


<Peak table>

检测器A 210nm

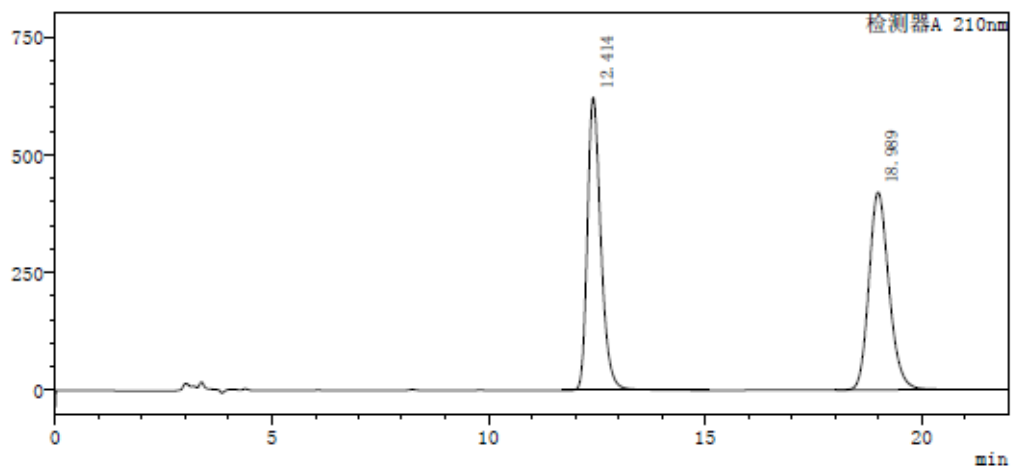
Peak#	Ret. Time	Height	Area	Area%
1	6.006	731510	7202183	93.505
2	12.715	25064	500315	6.495
总计		756574	7702498	100.000





<chromatogram>

mV



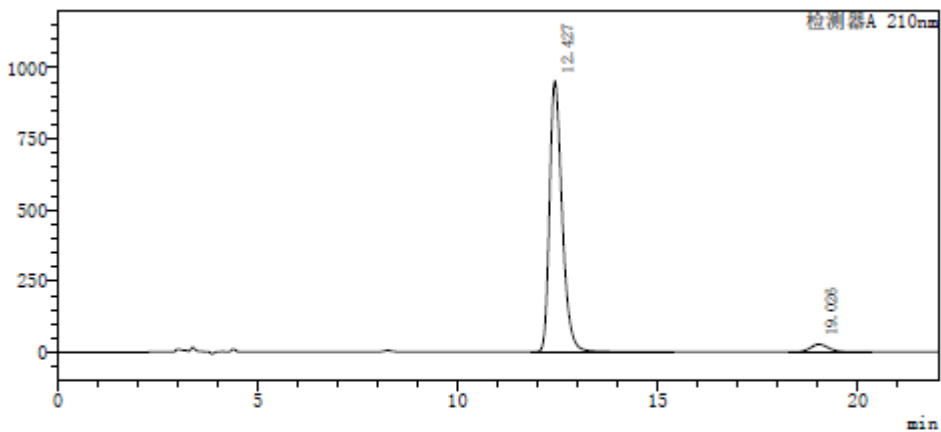
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	12.414	621001	13446664	49.896
2	18.989	419266	13502587	50.104
总计		1040266	26949252	100.000

<chromatogram>

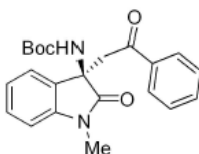
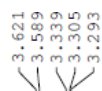
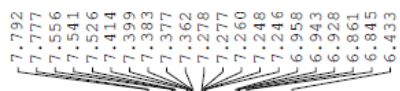
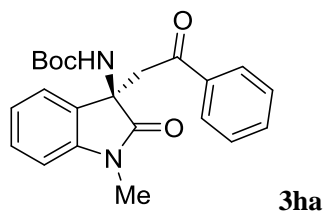
mV



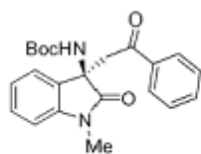
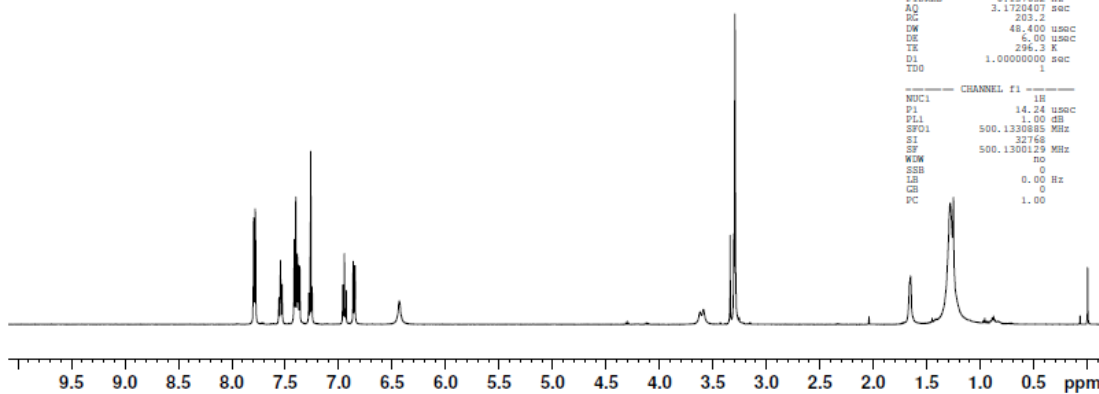
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	12.427	951272	20816113	96.143
2	19.026	26399	835166	3.857
总计		977672	21651279	100.000



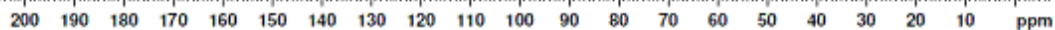
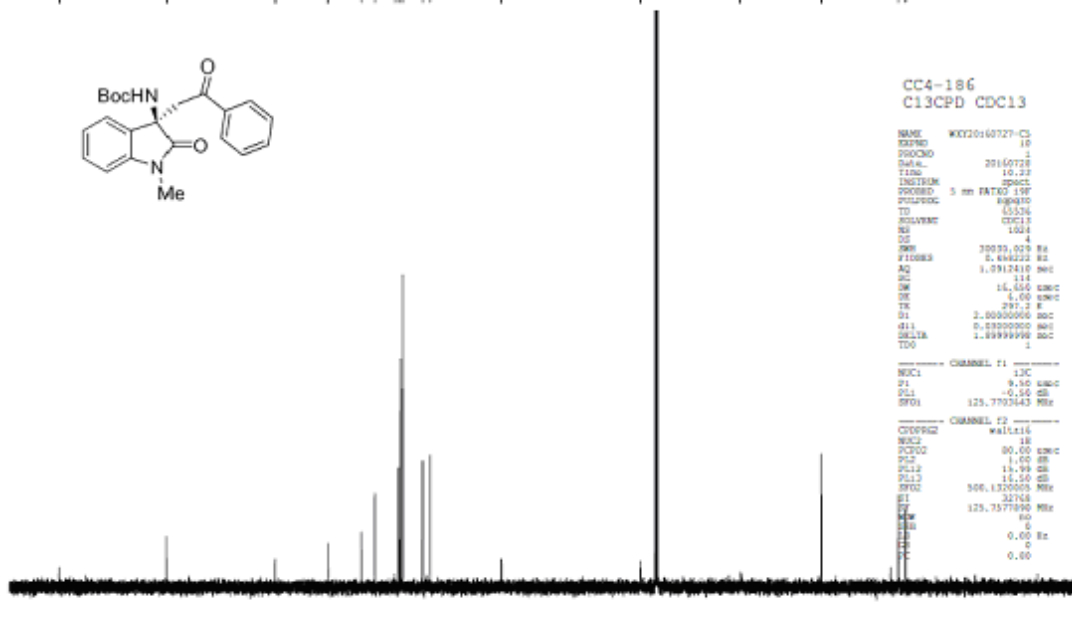
CC4-186  
 PROTON CDC13  
 NAME WXY20160727  
 EXPNO 3  
 PROCNO 1  
 Date\_ 20160727  
 TIME 14.37  
 INSTRUM spect  
 PROBHD 5 mm PAXCO 19F  
 PULPROG zg30  
 TO 65.26  
 SOLVENT CDC13  
 NS 16  
 DS 2  
 SWH 10330.578 Hz  
 FIDRES 0.157432 Hz  
 AQ 3.1720407 sec  
 RG 203.2  
 FM 48.400 usec  
 DE 6.00 usec  
 TE 296.2 K  
 D1 1.00000000 sec  
 TDO 1  
 CHANNEL F1 -----  
 NUC1 1H  
 P1 14.24 usec  
 PL1 1.00 dB  
 SFO1 500.130085 MHz  
 S1 32768  
 SF 500.1300129 MHz  
 KW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 1.00

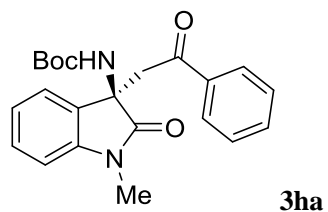


CC4-186  
 C13CPD CDC13

NAME WXY20160727-C3  
 EXPNO 10  
 PROCNO 1  
 Date\_ 20160728  
 TIME 18.22  
 INSTRUM spect  
 PROBHD 5 mm PAXCO 19F  
 PULPROG zgpg30  
 TO 65.26  
 SOLVENT CDC13  
 NS 1624  
 DS 4  
 SWH 30033.029 Hz  
 FIDRES 0.646222 Hz  
 AQ 1.9312416 sec  
 RG 114  
 FM 14.456 usec  
 DE 4.00 usec  
 TE 297.2 K  
 D1 2.00000000 sec  
 d11 0.00000000 sec  
 DELTA 1.99999999 sec  
 TDO 1

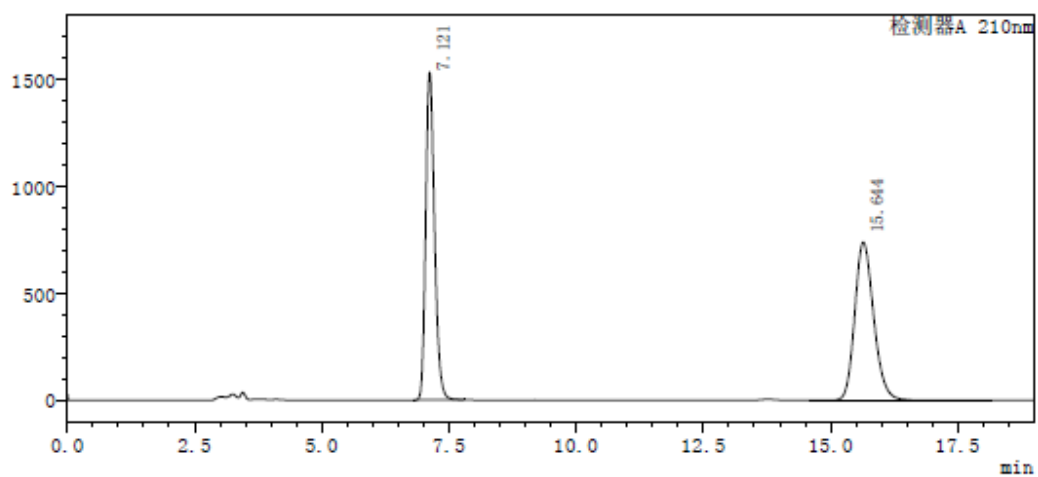
CHANNEL F1 -----  
 NUC1 13C  
 P1 9.50 usec  
 PL1 0.50 dB  
 SFO1 125.7703143 MHz  
 CHANNEL F2 -----  
 C13PFG2 waltz16  
 NUC2 1H  
 P2 80.00 usec  
 PL2 1.00 dB  
 PL1.2 14.99 dB  
 PL2.2 14.50 dB  
 SFO2 500.1300003 MHz  
 S1 32768  
 SF 125.7577810 MHz  
 KW no  
 SSB 0  
 LB 0.00 Hz  
 GB 0  
 PC 0.00





<chromatogram>

mV



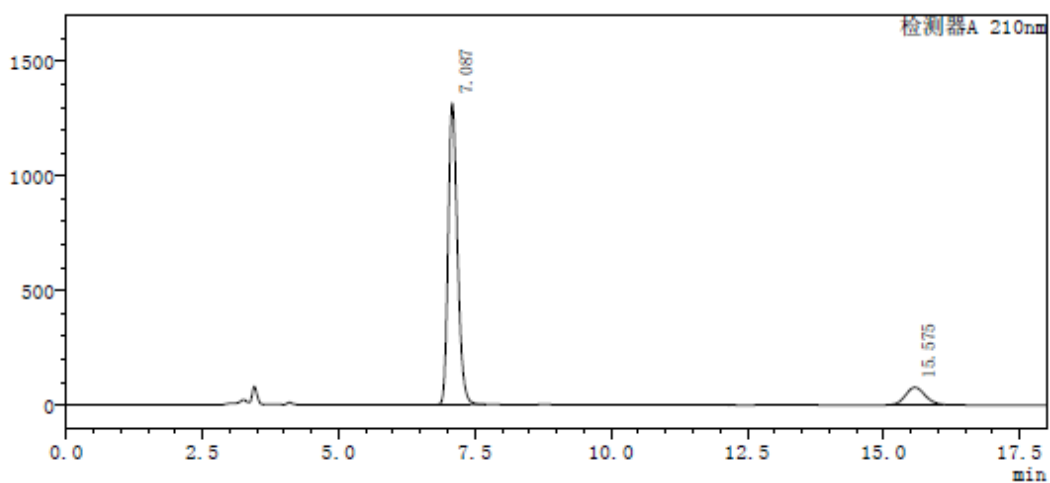
<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	7.121	1531986	18475860	49.077
2	15.644	739493	19170500	50.923
总计		2271479	37646360	100.000

<chromatogram>

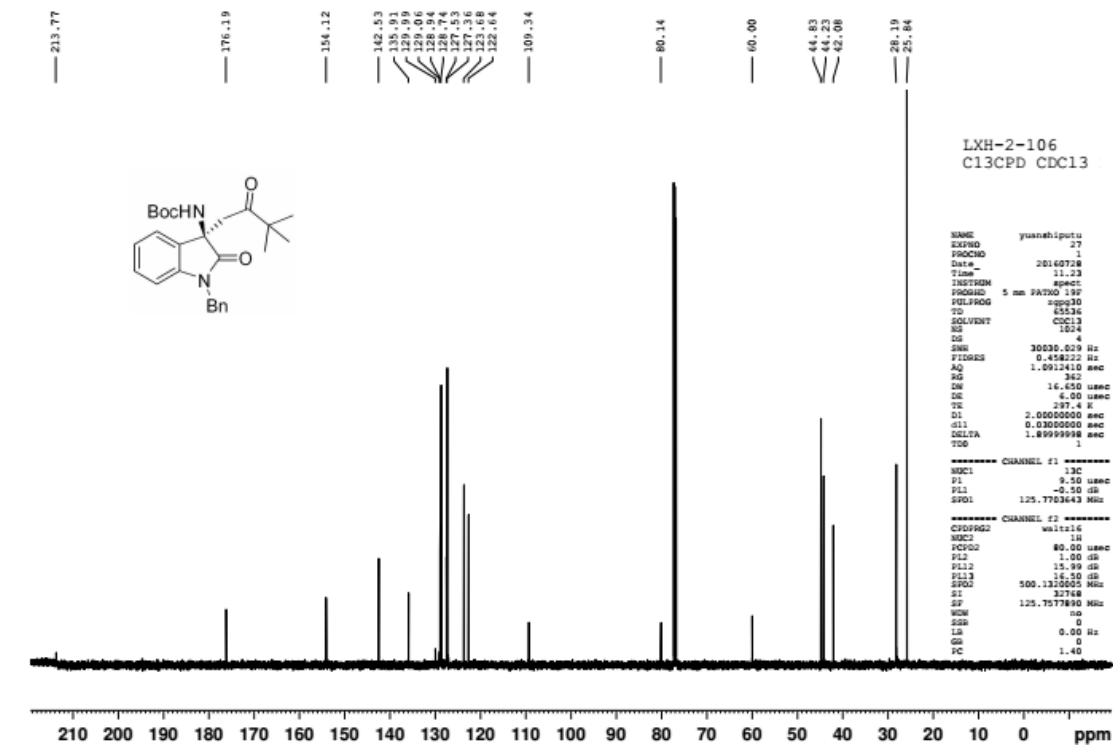
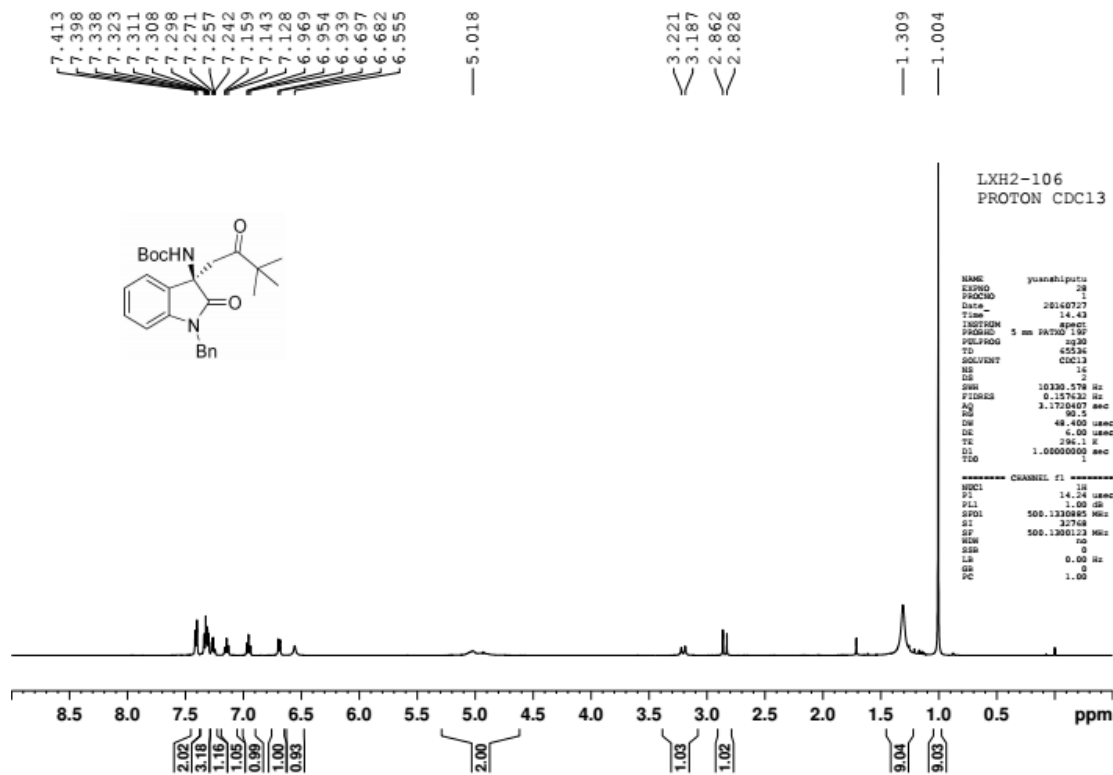
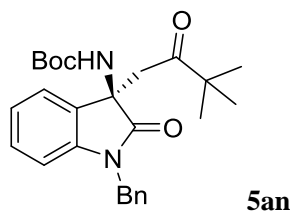
mV



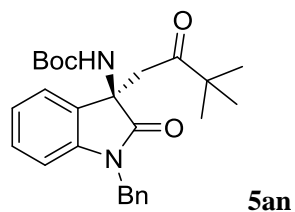
<Peak table>

检测器A 210nm

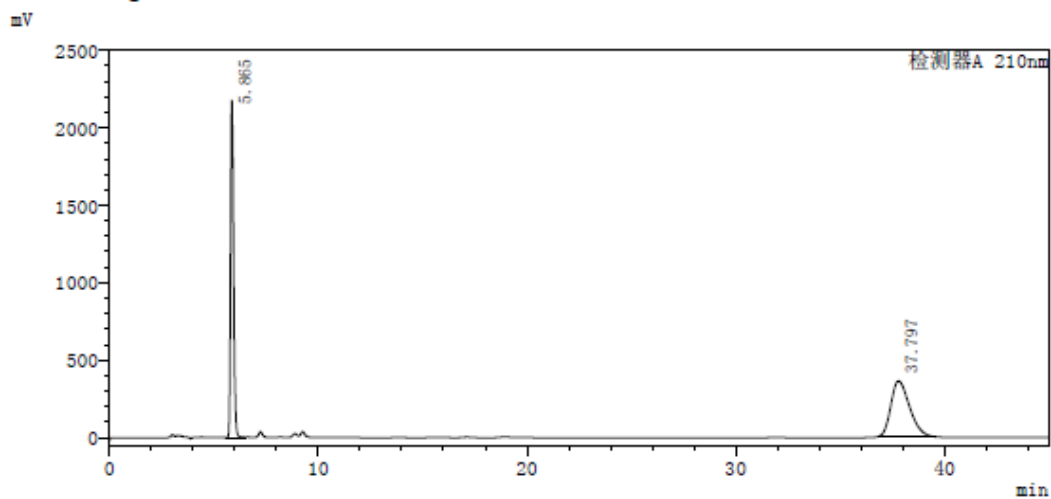
Peak#	Ret. Time	Height	Area	Area%
1	7.087	1315514	15618677	89.737
2	15.575	74209	1786302	10.263
总计		1389723	17404979	100.000







<chromatogram>

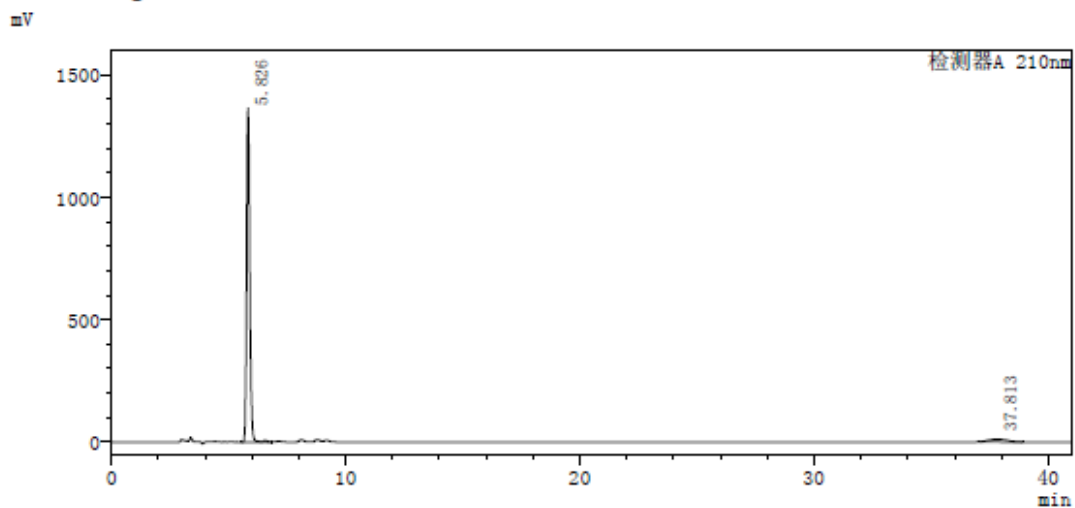


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	5.865	2180014	21598833	49.410
2	37.797	357991	22114877	50.590
总计		2538005	43713710	100.000

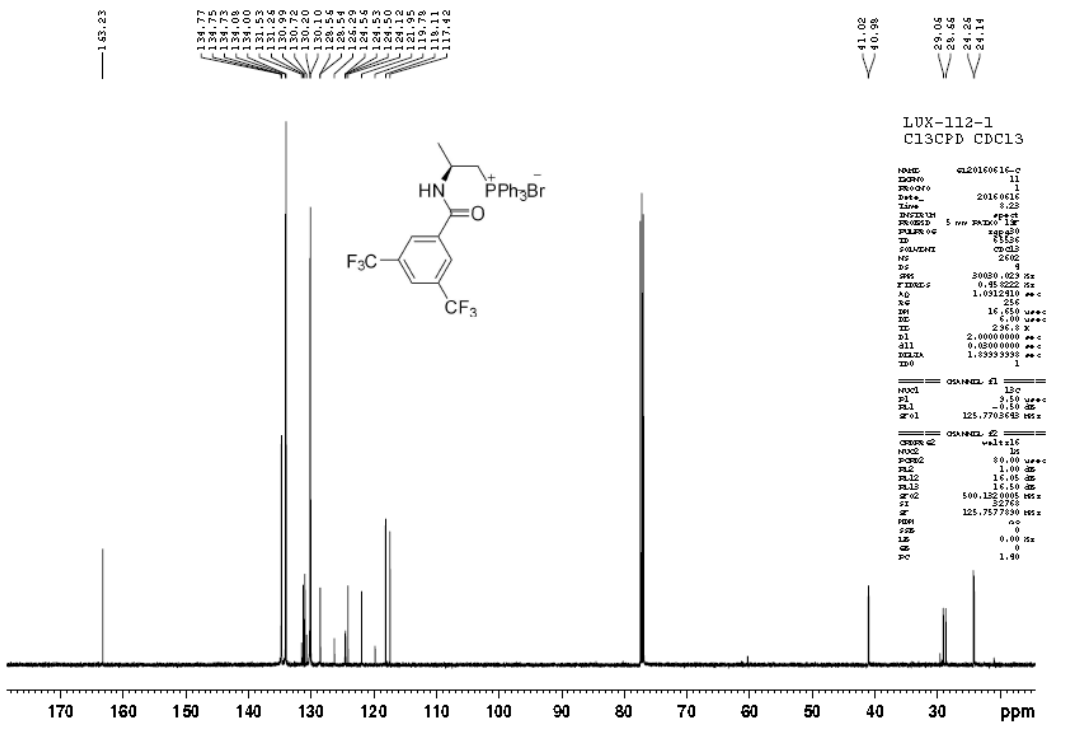
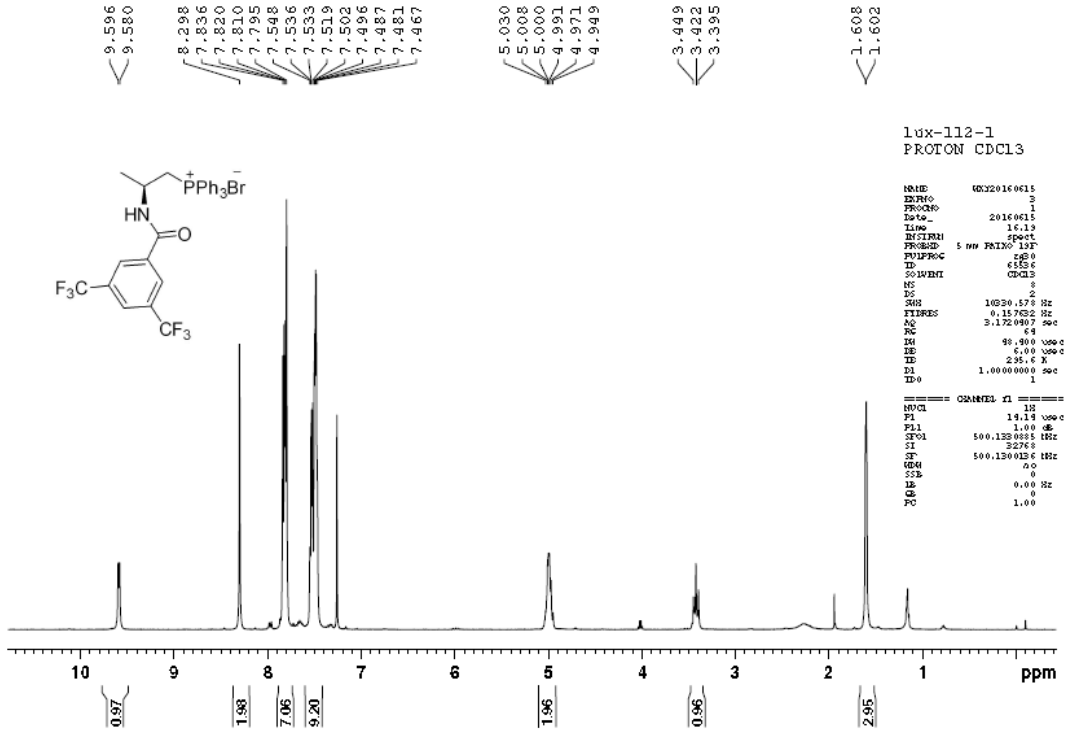
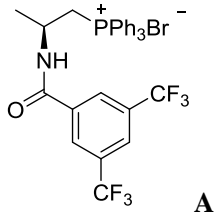
<chromatogram>

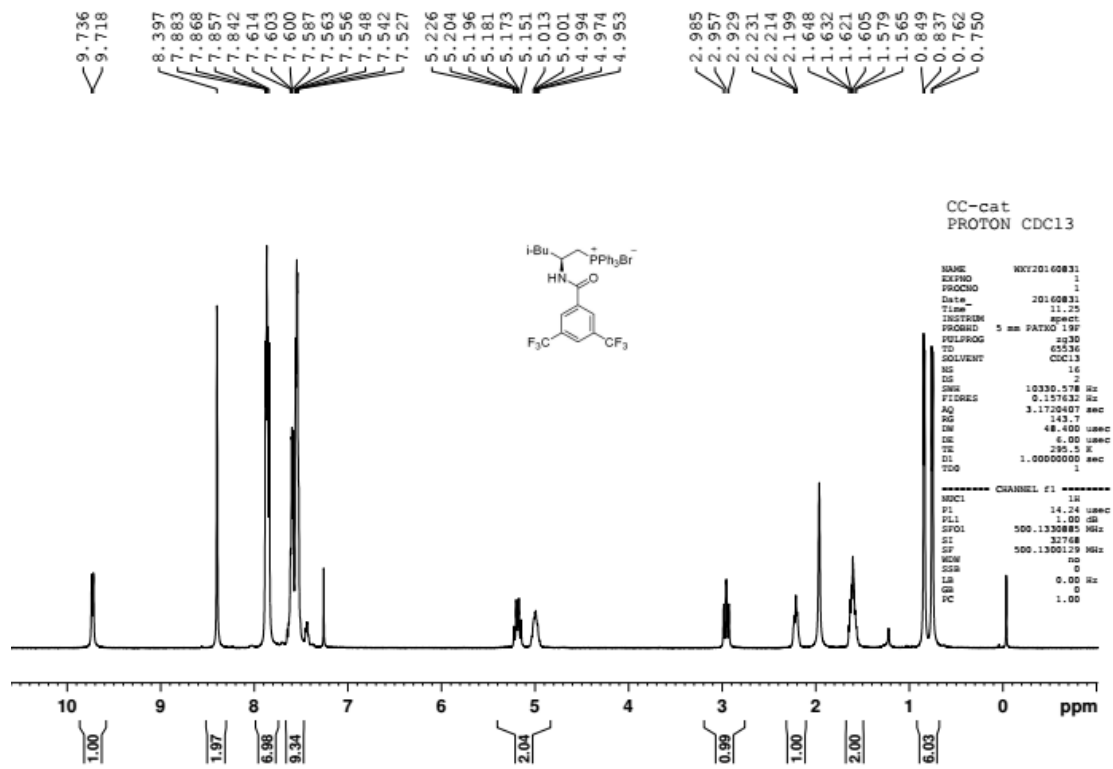
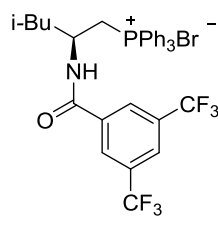


<Peak table>

检测器A 210nm

Peak#	Ret. Time	Height	Area	Area%
1	5.826	1367738	13048340	95.226
2	37.813	11418	654220	4.774
总计		1379155	13702560	100.000

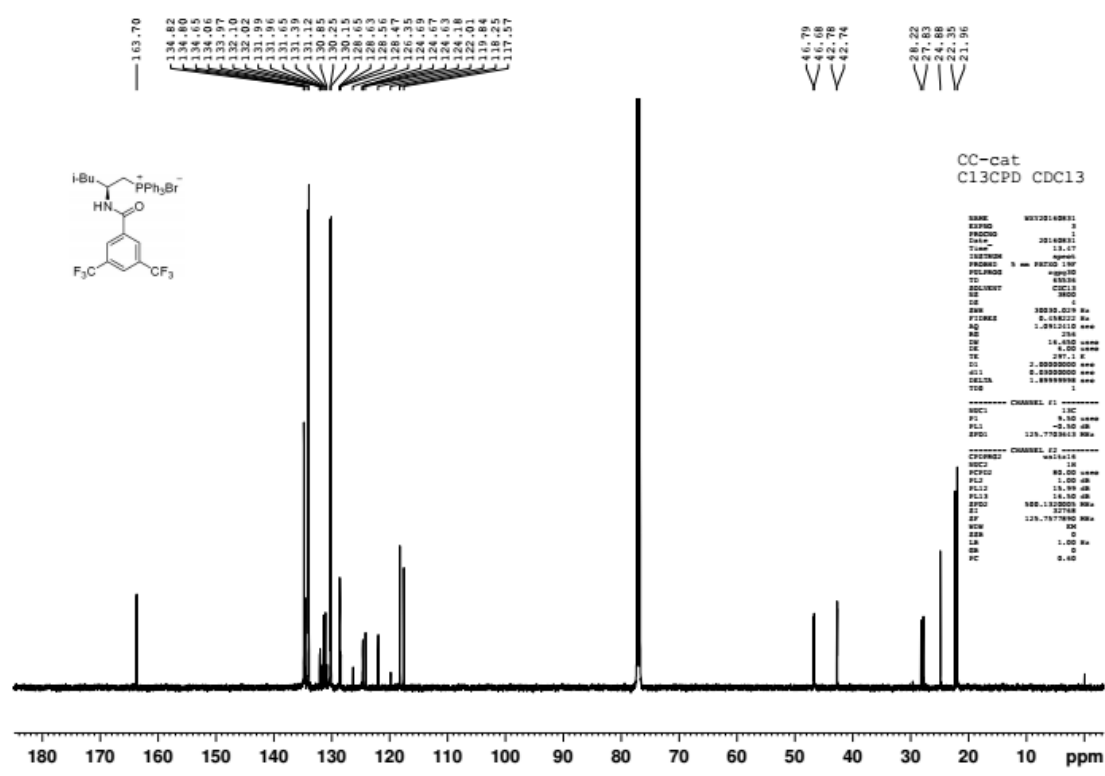




CC-cat  
PROTON CDCl3

```

NAME      WXYZ0160831
EXPNO    1
PROCNO    1
Date_    20160831
Time     11.23
INSTRUM  spect
PROBHD   5 mm PABBO 150
PULPROG  zg30
TD        65536
SOLVENT  CDCl3
NS        16
DS        2
SWH       10330.578 Hz
FIDRES    0.157632 Hz
AQ        3.1726407 sec
RG        143.7
IN        48.400 usec
DE        6.00 usec
TE        295.5 K
SI        1.00000000 sec
TOD       1
----- CHANNEL f1 -----
NUC1      1H
P1        14.24 usec
PL1       0.00 dB
SFO1      500.1330885 MHz
SI        32768
SF        500.1330129 MHz
WDW       no
SSB       no
LB        0.00 Hz
GB        0
PC        1.00
  
```



CC-cat  
C13CPD CDCl3

```

NAME      WXYZ0160831
EXPNO    2
PROCNO    1
Date_    20160831
Time     13.47
INSTRUM  spect
PROBHD   5 mm PABBO 150
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        16
DS        2
SWH       10330.578 Hz
FIDRES    0.157632 Hz
AQ        3.1726407 sec
RG        143.7
IN        48.400 usec
DE        6.00 usec
TE        295.5 K
SI        1.00000000 sec
TOD       1
----- CHANNEL f1 -----
NUC1      13C
P1        8.00 usec
PL1       -9.00 dB
SFO1      125.7678813 MHz
----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2      1H
P2        80.00 usec
PL2       1.00 dB
PL12     19.99 dB
PL13     14.30 dB
SFO2      500.1330885 MHz
SI        32768
SF        125.7678813 MHz
WDW       no
SSB       no
LB        1.00 Hz
GB        0
PC        0.40
  
```

