

## Electronic Supplementary Information

# N-Heterocyclic Carbene-Catalyzed Cascade Reaction of 2-Aroylvinylcinnamaldehydes with 2-Aroylvinylchalcones: Rapid Assembly of Six Contiguous Stereocenters with High Diastereoselectivity

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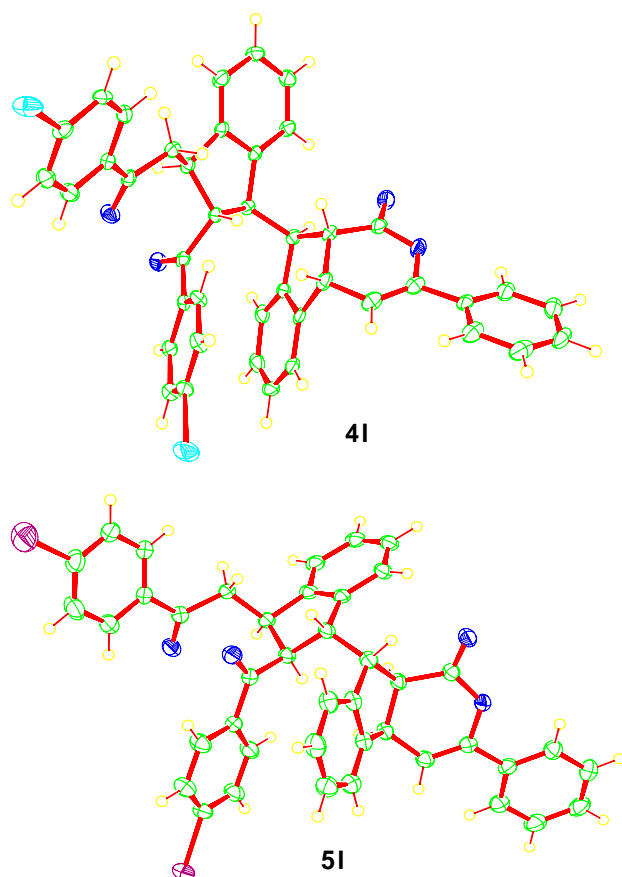
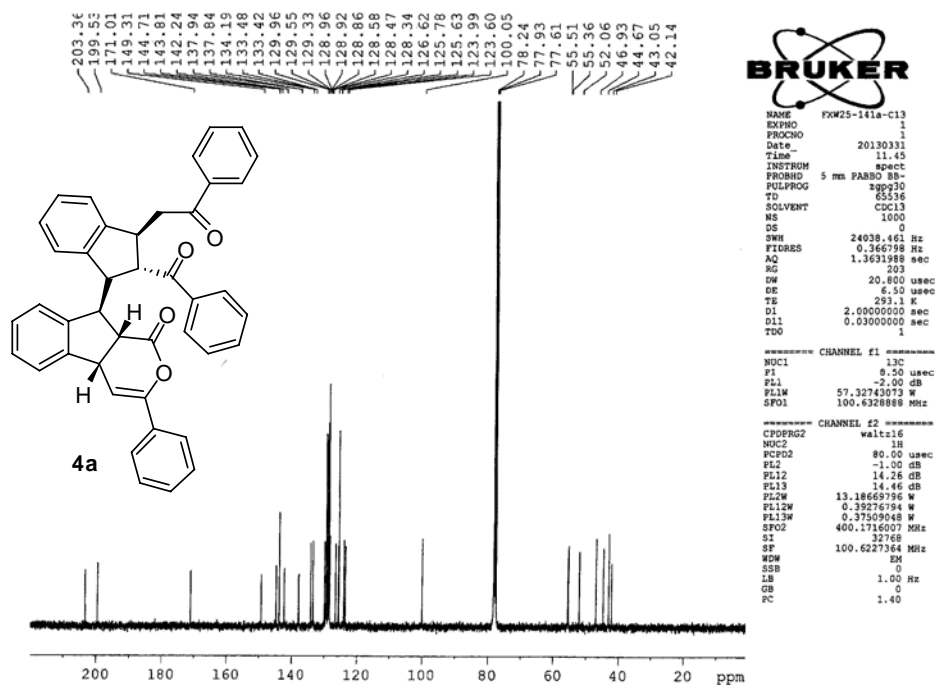
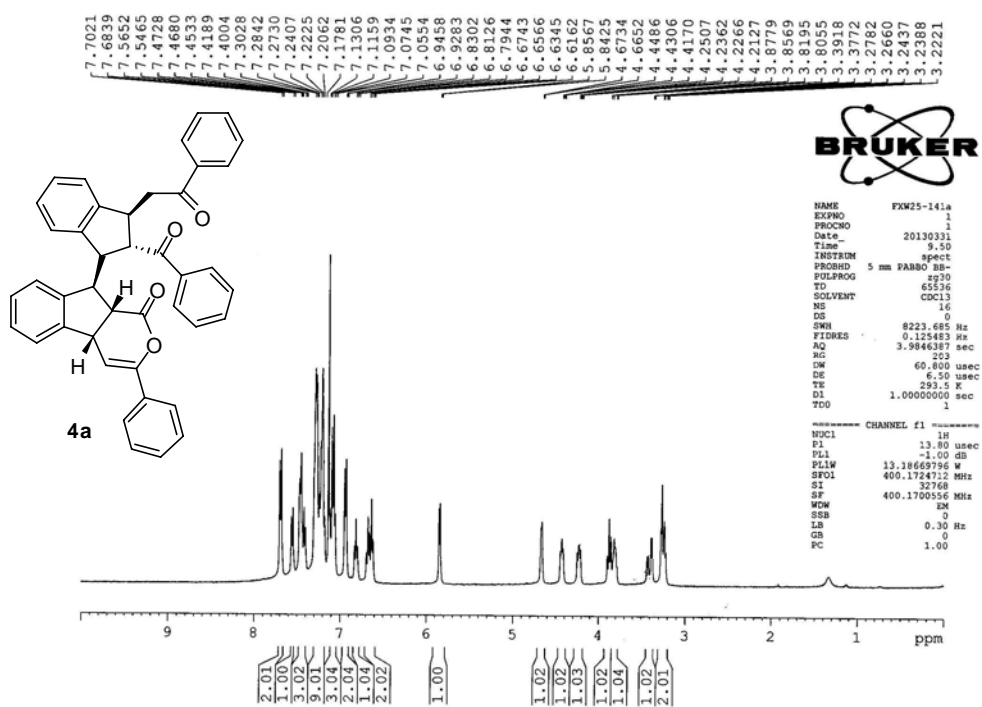
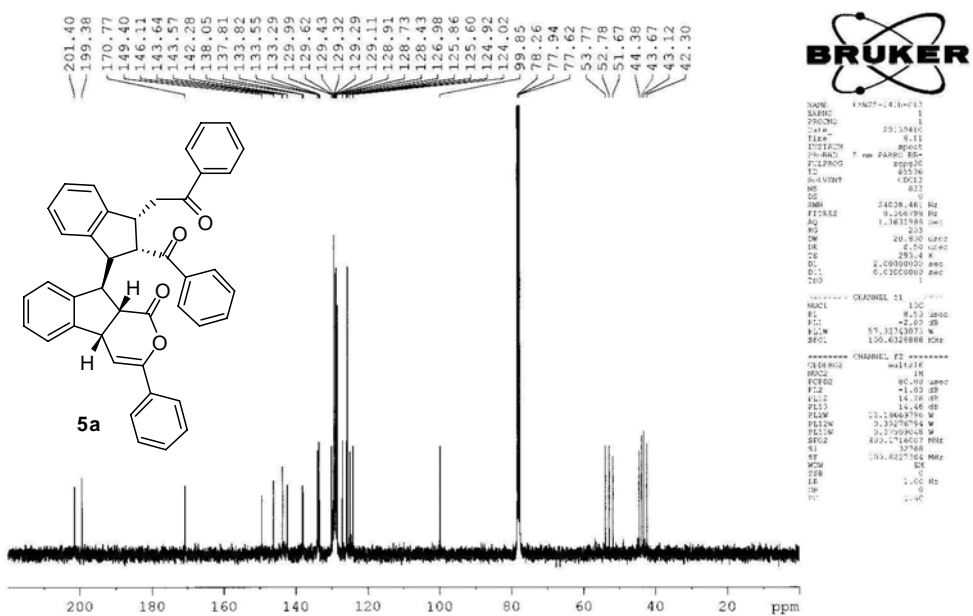
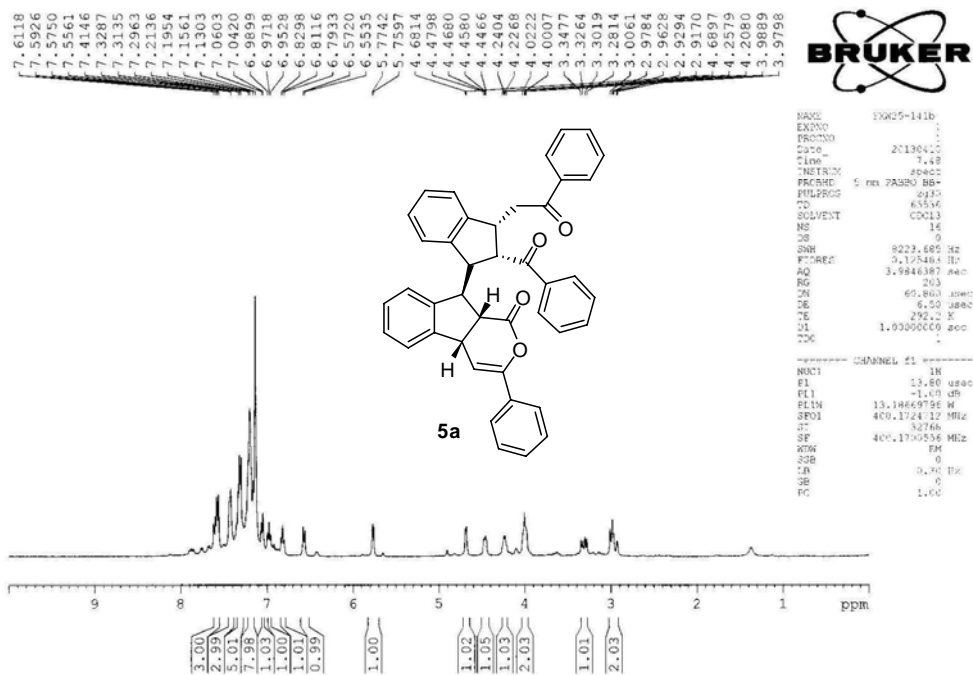
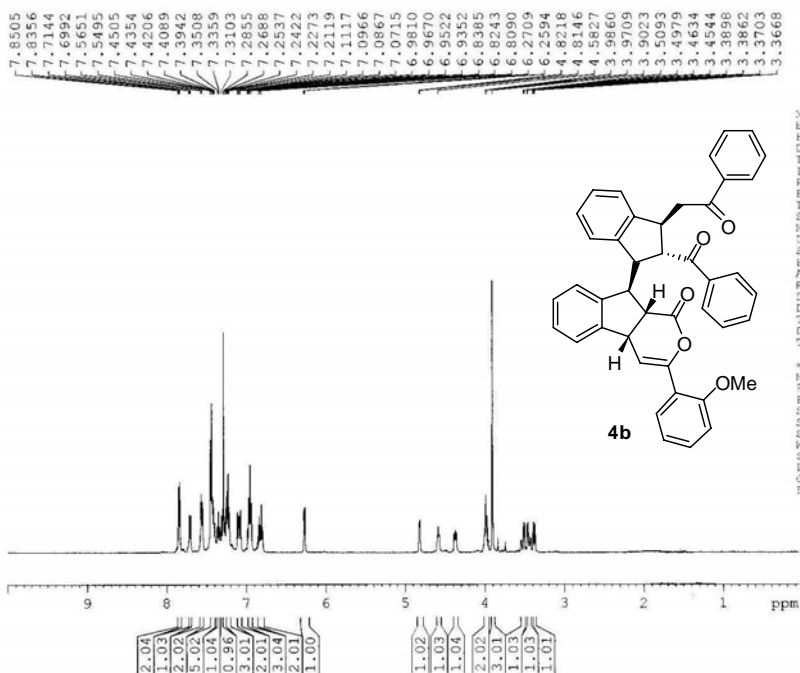


Figure S1. ORTEP drawing of X-ray structures of **4I** and **5I**.

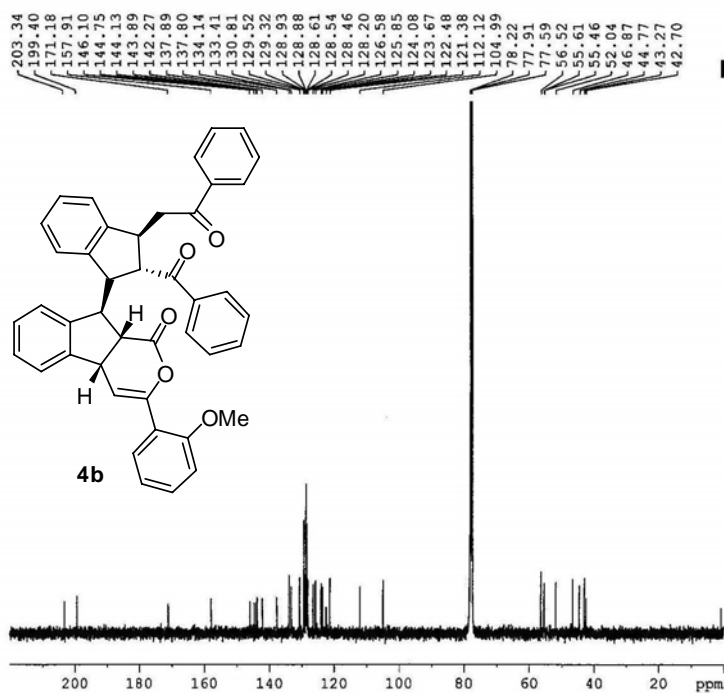
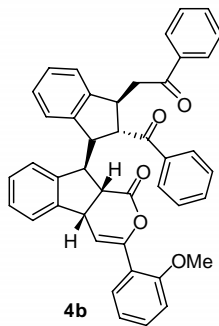






NAME: F0026-96a  
 EXPNO: 47  
 PROCNO: 1  
 Date\_ : 20130410  
 Time: 19.45  
 INSTRUM: spect  
 PROBHD: 5 mm DUA-13C/7  
 PULPROG: zgpg30  
 ID: 65536  
 SOLVENT: CDCl3  
 NS: 8  
 DS: 0  
 SFO: 10330.578 Hz  
 FIDRES: 0.157632 Hz  
 AQ: 3.1720200 sec  
 RG: 311  
 DW: 48.400 usec  
 DE: 6.00 usec  
 TE: 298.0 K  
 D1: 1.00000000 sec  
 TDO: 1

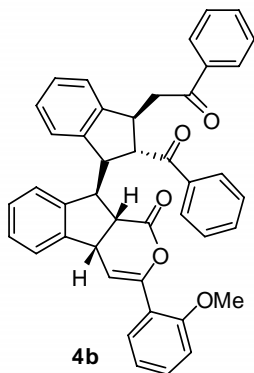
===== CHANNEL f1 =====  
 NUC1: 13C  
 P1: 13.20 usec  
 PL1: -1.00 dB  
 SFO1: 500.1330885 MHz  
 SI: 32768  
 SF: 500.1330885 MHz  
 KW: EM  
 SSB: 0  
 LB: 0.20 Hz  
 GB: 0  
 PC: 1.00



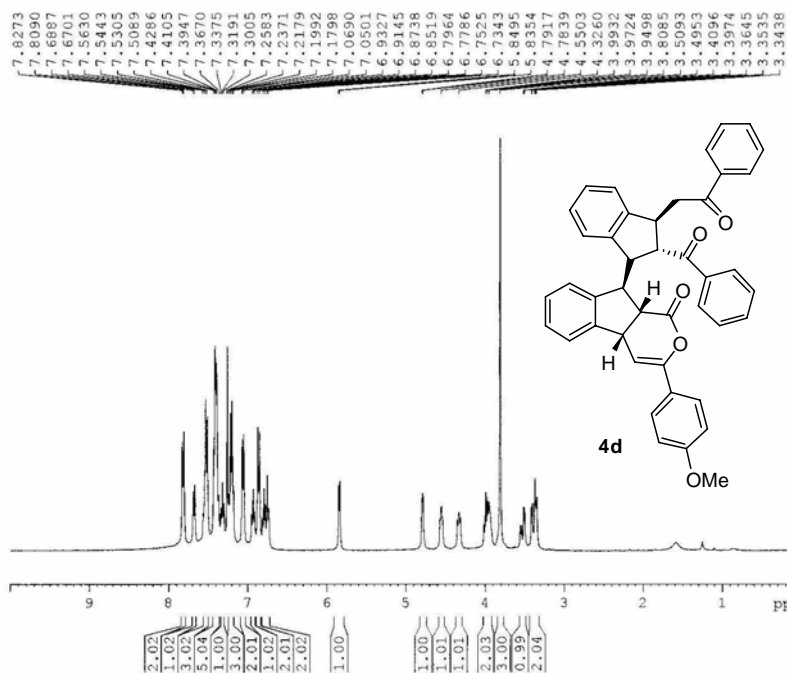
NAME: F0026-96a-C13  
 EXPNO: 1  
 PROCNO: 1  
 Date\_ : 20130409  
 Time: 20.48  
 INSTRUM: spect  
 PROBHD: 5 mm PABO BB-  
 PULPROG: zgpg30  
 TD: 65536  
 SOLVENT: CDCl3  
 NS: 2000  
 DS: 0  
 SFO: 24038.461 Hz  
 FIDRES: 0.366798 Hz  
 AQ: 1.3631988 sec  
 RG: 203  
 DW: 20.800 usec  
 DE: 6.50 usec  
 TE: 295.7 K  
 D1: 2.00000000 sec  
 D11: 0.03000000 sec  
 TDO: 1

===== CHANNEL f1 =====  
 NUC1: 13C  
 P1: 8.50 usec  
 PL1: -2.00 dB  
 SFO1: 57.32743073 MHz

===== CHANNEL f2 =====  
 CPDPRG2: waltz16  
 NUC2: 13C  
 P2P2: 80.00 usec  
 PL2: -1.00 dB  
 PL12: 14.26 dB  
 PL13: 14.46 dB  
 PL2W: 13.18669796 W  
 PL1W: 0.39276794 W  
 PL13W: 0.37505048 W  
 SFO2: 400.1716007 MHz  
 SI: 32768  
 SF: 100.6227364 MHz  
 KW: EM  
 SSB: 0  
 LB: 1.00 Hz  
 GB: 0  
 PC: 1.40





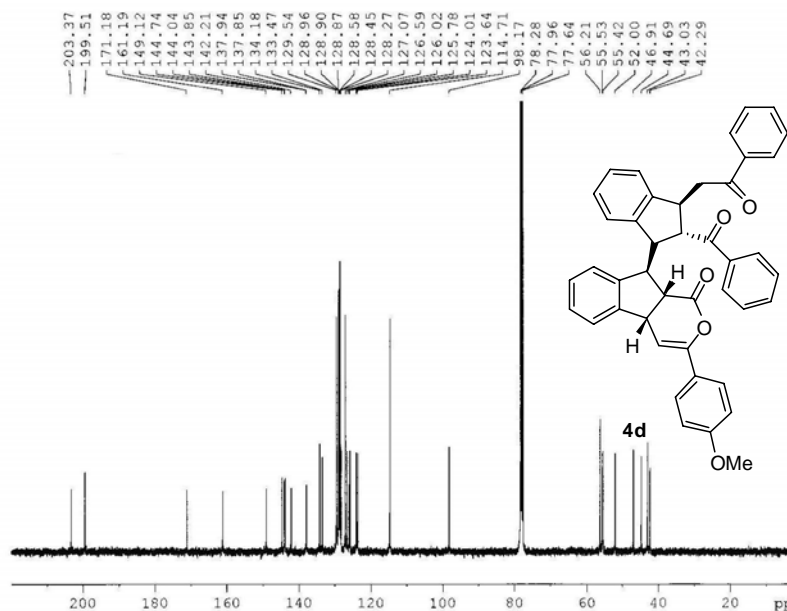


```

NAME      F0026-H1a
EXPNO    2
PROCNO   1
Date_    20130410
Time     2.58
INSTRUM  spect
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
ID       05536
SOLVENT  CDCl3
NS       6
DS       2
SWH      8023.625 Hz
F2RES    0.125493 Hz
AQ       3.0946397 sec
RG       181
DM       90.800 usec
DE       6.50 usec
TE       295.8 K
D1       1.2000000 sec
TD       1
    
```

```

----- CHANNEL f1 -----
NUC1     13C
P1       13.00 usec
PL1     -1.00 dB
PL1P    13.18669796 W
SFO1    400.1724710 MHz
SI       32768
SF      400.1700047 MHz
MDM     DM
SFO     0
LB      0.30 Hz
RU      0
GR      0
PC      1.50
    
```



```

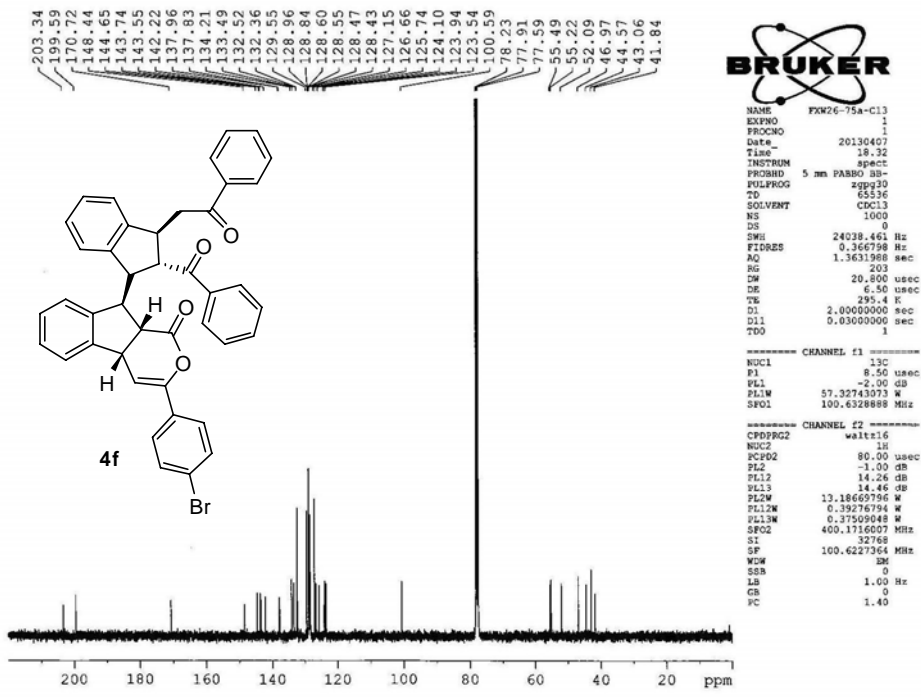
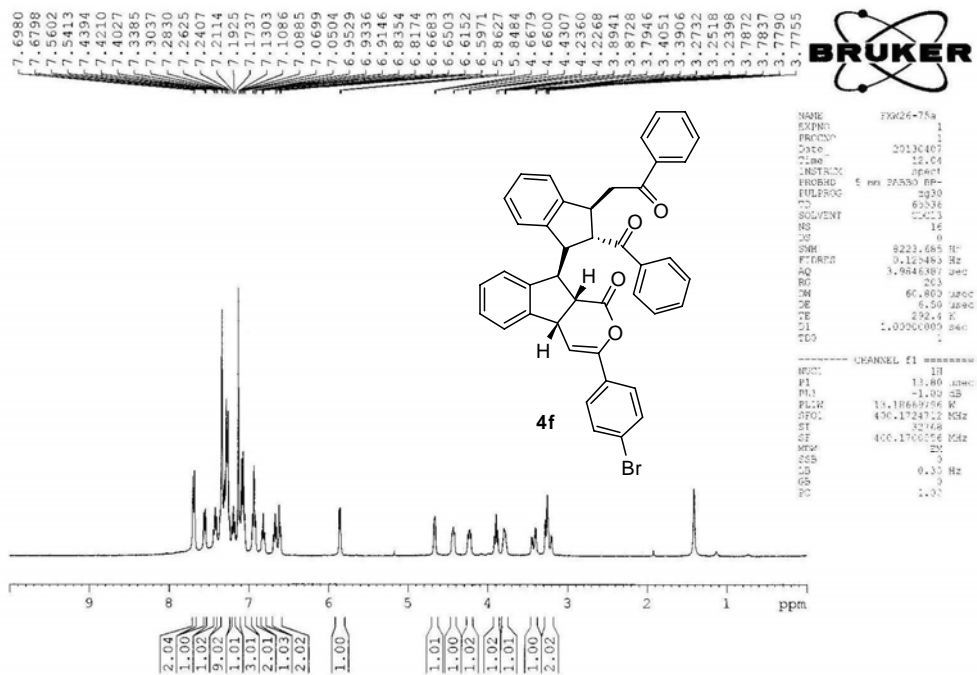
NAME      F0026-H1a-131
EXPNO    1
PROCNO   1
Date_    20130410
Time     3.32
INSTRUM  spect
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
ID       05536
SOLVENT  CDCl3
NS       6
DS       2
SWH      24338.461 Hz
F2RES    0.161868 Hz
AQ       3.0946397 sec
RG       181
DM       90.800 usec
DE       6.50 usec
TE       295.8 K
D1       2.0000000 sec
D11     0.3300000 sec
TD       1
    
```

```

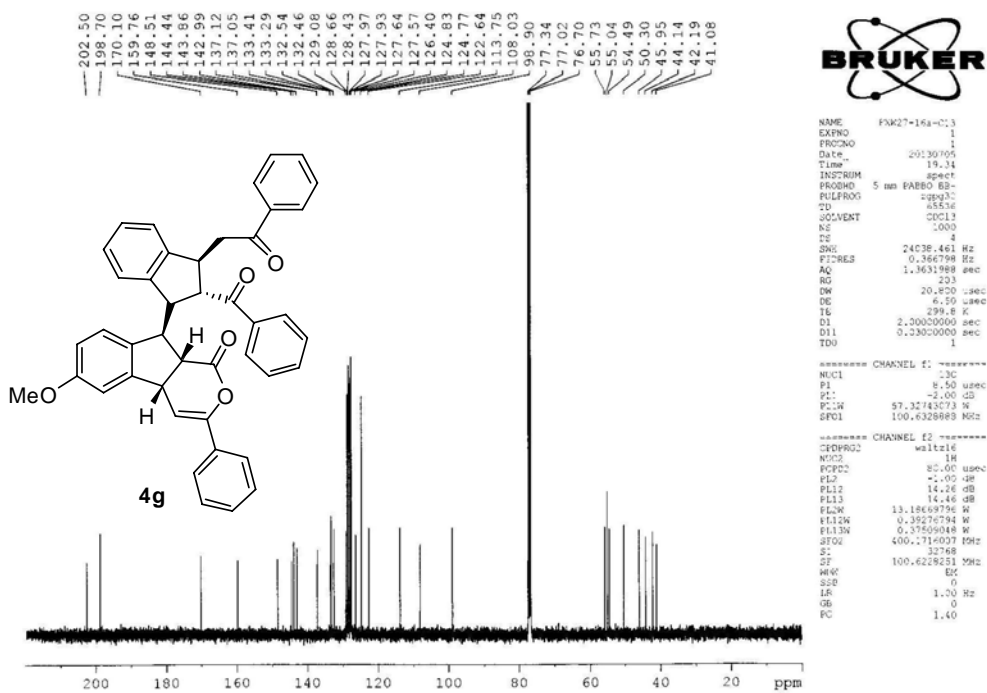
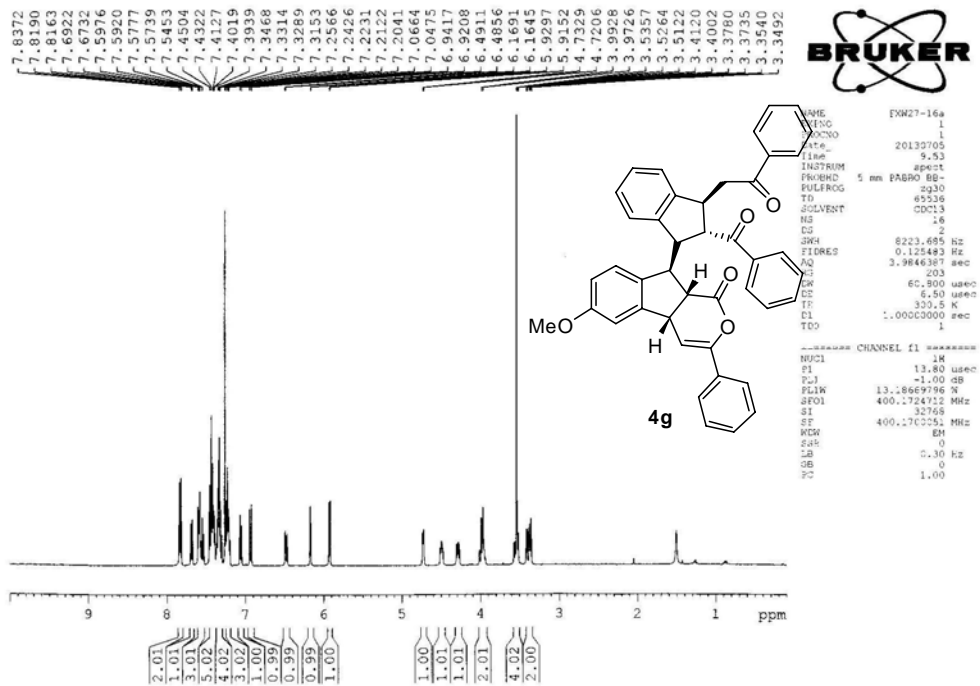
----- CHANNEL f1 -----
NUC1     13C
P1       9.50 usec
PL1     -2.00 dB
PL1P    17.12941373 W
SFO1    100.6288680 MHz
----- CHANNEL f2 -----
NUC2     1H
P2       80.00 usec
PL2     -1.00 dB
PL2P    14.56 usec
PL1P    13.18669796 W
SFO2    400.1724710 MHz
SF      400.1716227 MHz
SI       32768
SF      100.6277164 MHz
MDM     DM
SFO     0
LB      0.30 Hz
RU      0
GR      0
PC      1.50
    
```

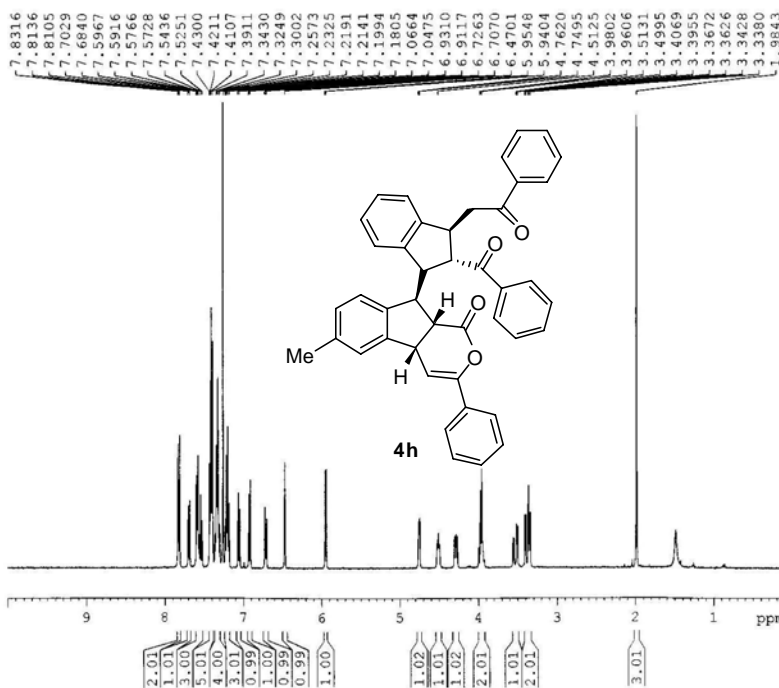








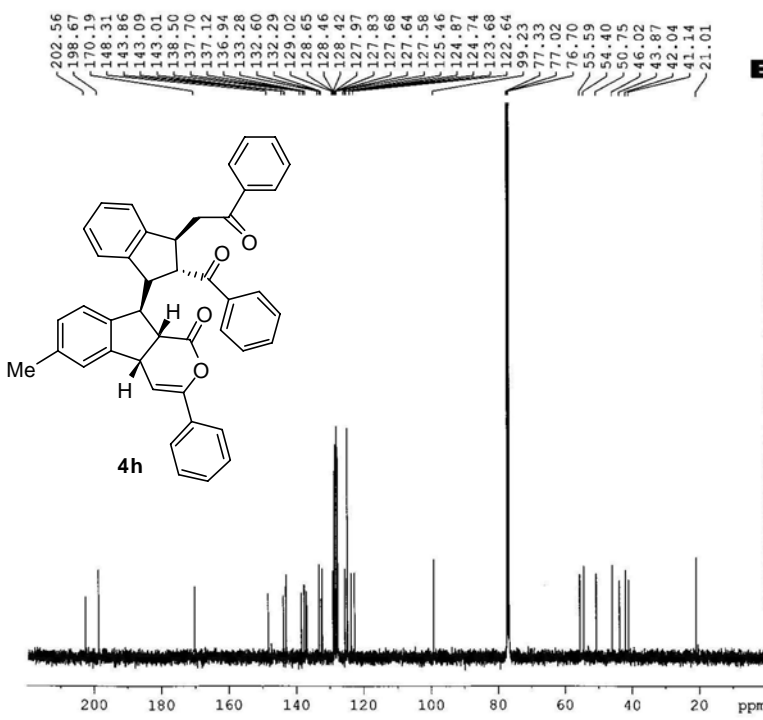




```

NAME          FXW27-17a
EXPNO         1
PROCNO        1
Date_         20130705
Time          20.35
INSTRUM       spect
PROBHD        5 mm F4BBO BB-
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            16
DS            2
SWH           8223.685 Hz
FREQS         0.125483 Hz
AQ            3.9846387 sec
RG            203
DE           60.800 usec
OE            6.50 usec
TE            300.5 K
D1            1.0000000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            13.80 usec
PL1           -1.00 dB
PL12         13.18669796 W
SFO1         400.1724722 MHz
SI            32768
SF           400.1700048 MHz
WDW           EM
SSB           0
LB            0.30 Hz
GB            0
PC            1.00
    
```

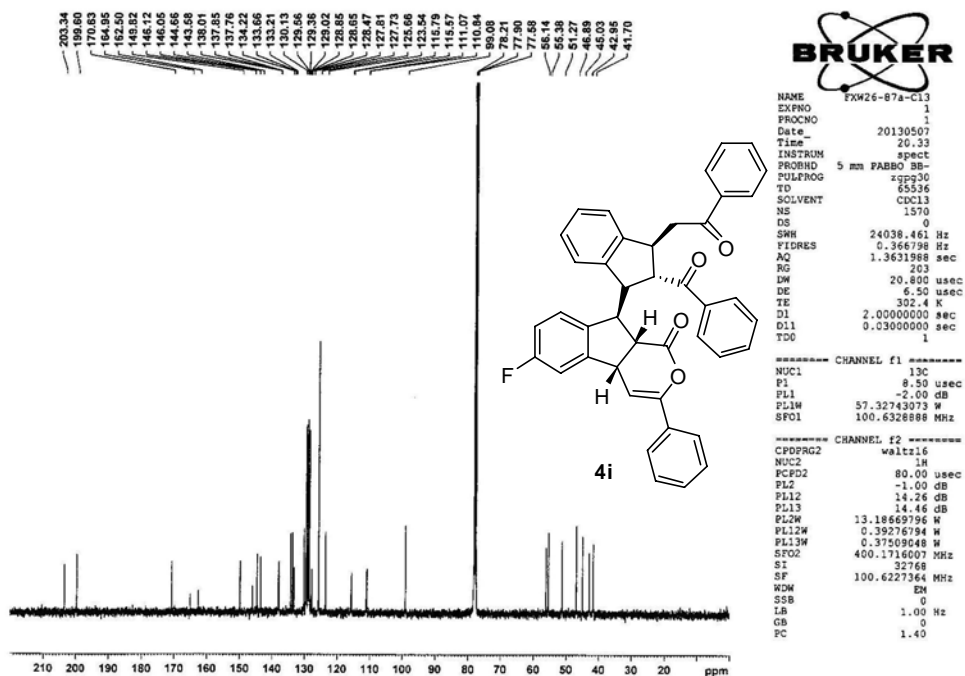
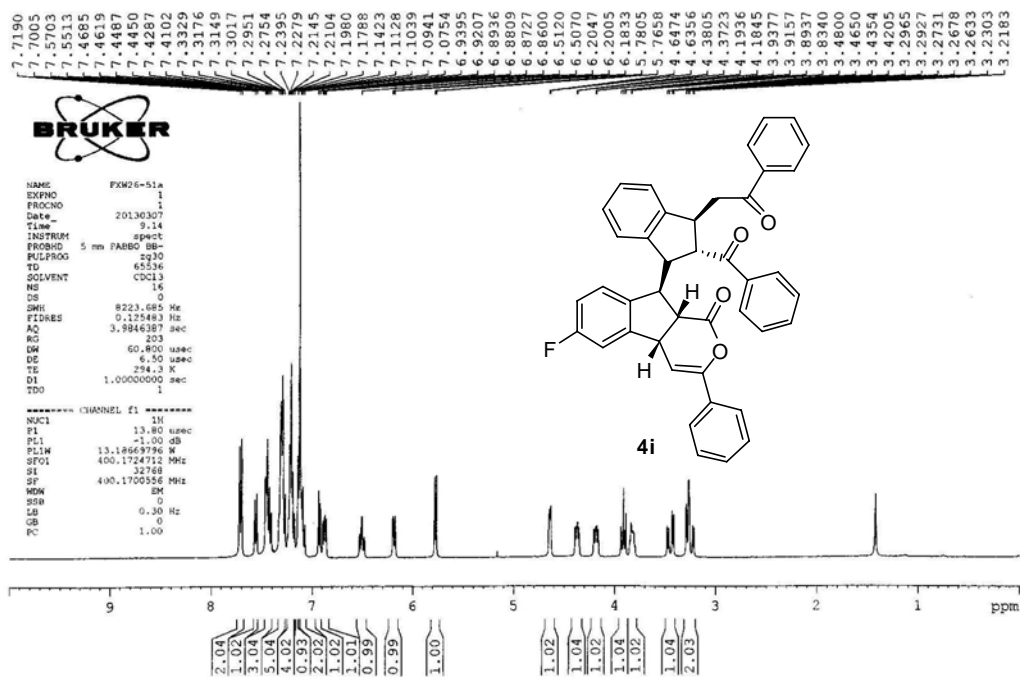


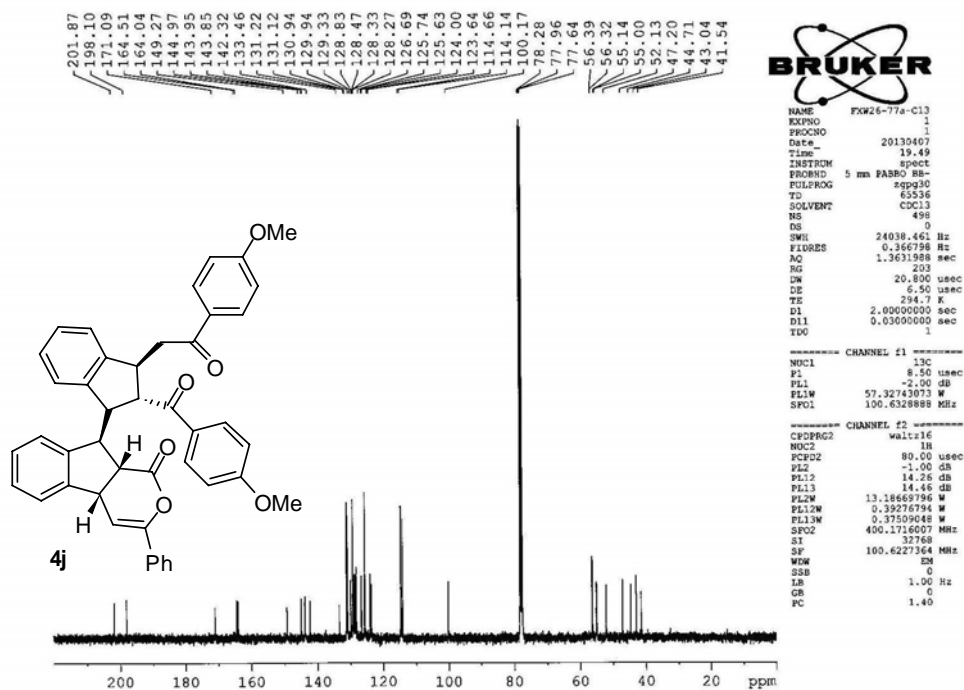
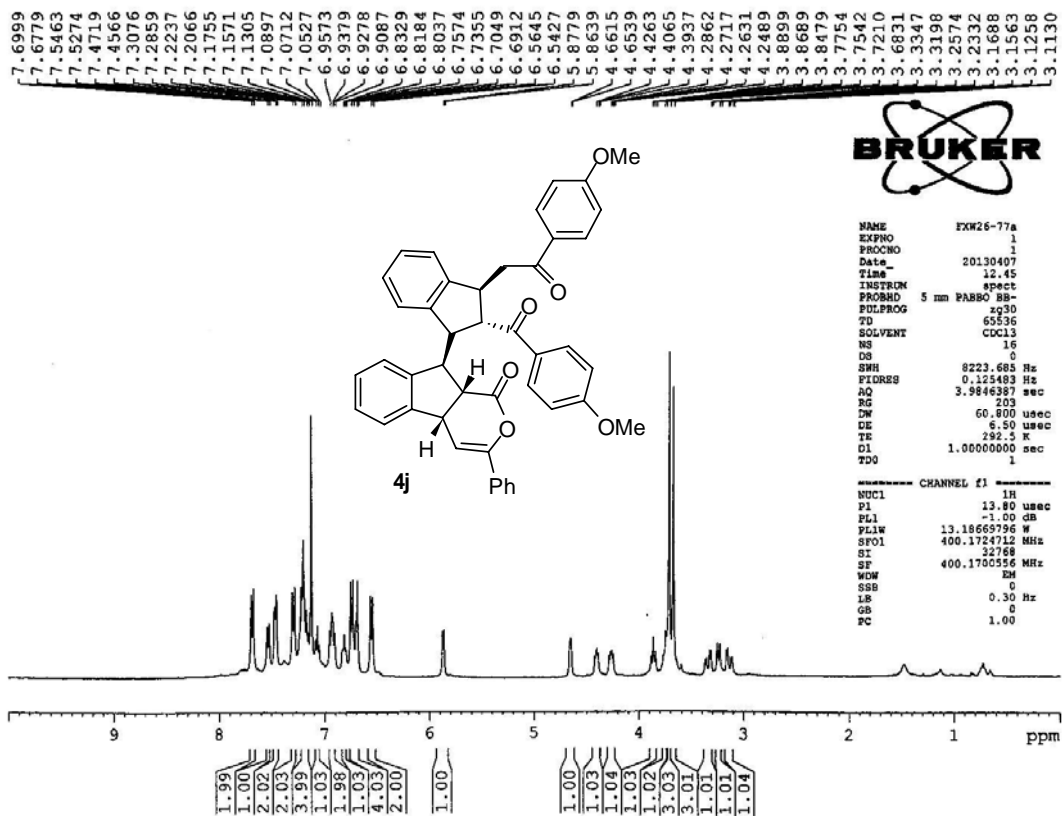
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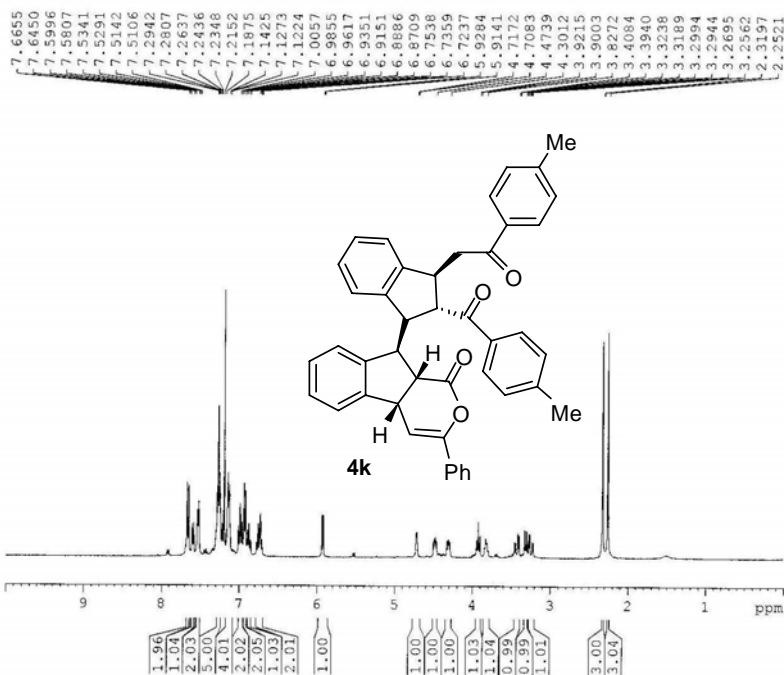
NAME          FXW27-17a-C13
EXPNO         1
PROCNO        1
Date_         20130705
Time          20.35
INSTRUM       spect
PROBHD        5 mm F4BBO BB-
PULPROG       zgpg30
TD            65536
SOLVENT       CDCl3
NS            1600
DS            4
SWH           24038.461 Hz
FREQS         0.167798 Hz
AQ            1.3631988 sec
RG            203
DE           20.800 usec
OE            6.50 usec
TE            299.8 K
D1            2.0000000 sec
D11           0.0300000 sec
TD0           1

===== CHANNEL f1 =====
NUC1          13C
P1            8.50 usec
PL1           -2.00 dB
PL12         57.32743973 W
SFO1         100.6328888 MHz

===== CHANNEL f2 =====
CFDPRG2      waltz16
NUC2          1H
PCPD2        80.00 usec
PL2           -1.00 dB
PL12         14.26 dB
PL13         14.46 dB
PL2W         13.18669796 W
FL12W        0.39276794 W
FL13W        0.37509048 W
SFO2         400.1716007 MHz
SI            32768
SF           100.6228248 MHz
WDW           DM
SSB           0
LB            1.00 Hz
GB            0
PC            1.40
    
```



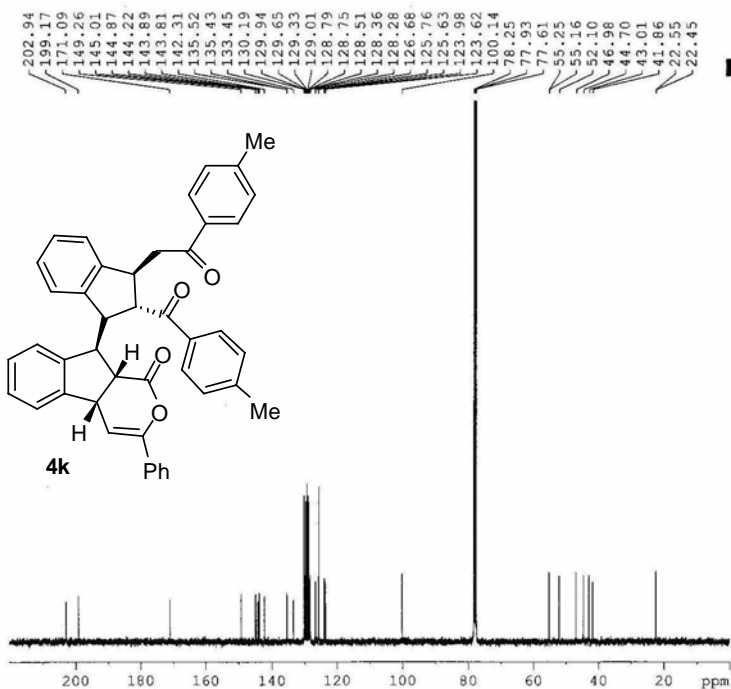




```

NAME      EXM25-124x
EXPNO     1
PROCNO    1
Date_     20130110
Time      15:44
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         16
DS         2
SWH        8223.465 Hz
FIDRES     0.125463 Hz
AQ         3.948387 sec
RG         203
DM         60.800 usec
DE         8.50 usec
TE         293.2 K
D1         1.0000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       1H
P1         13.00 usec
PL1        -1.00 dB
PL12W     13.16669796 W
SFO1       400.1709325 MHz
SI         32768
SF         400.1709325 MHz
WDW        EM
SSB        0
GB         0.30 Hz
PC         1.03
    
```

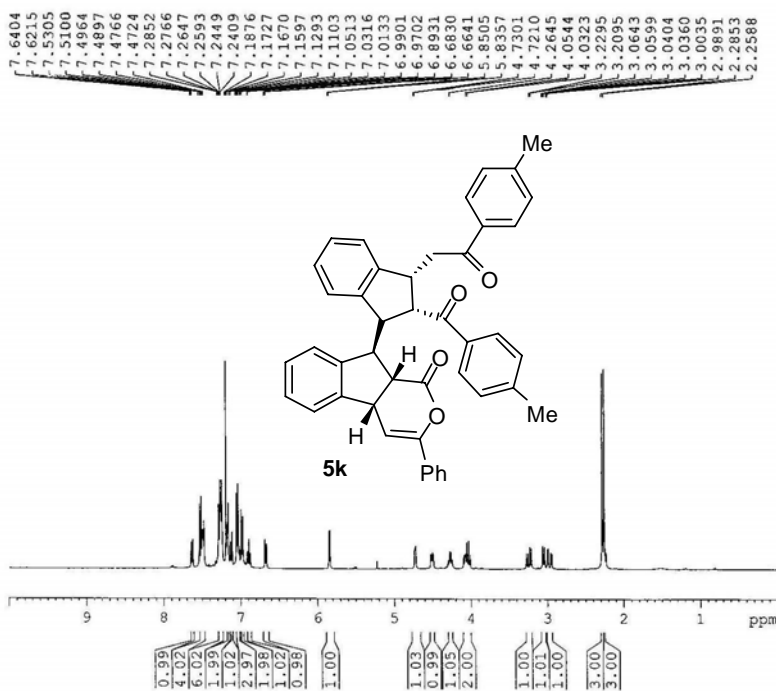


```

NAME      EXM25-128a-C13a
EXPNO     1
PROCNO    1
Date_     20130111
Time      12:13
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   zgpg30
TD         65536
SOLVENT   CDCl3
NS         1000
DS         0
SWH        24038.461 Hz
FIDRES     0.366798 Hz
AQ         1.3631988 sec
RG         203
DM         20.800 usec
DE         6.50 usec
TE         293.2 K
D1         2.0000000 sec
D11        0.0300000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       13C
P1         8.50 usec
PL1        -2.00 dB
PL12W     57.32743073 W
SFO1       100.6258888 MHz

===== CHANNEL f2 =====
CPDPRG2   waltz16
NUC2       1H
PCPD2     80.00 usec
PL2        -1.00 dB
PL12      14.26 dB
PL13      14.46 dB
PL12W    13.18669796 W
PL12W    0.39276794 W
SFO2     400.1716007 MHz
SI         32768
SF         100.6227364 MHz
WDW        EM
SSB        0
GB         1.00 Hz
PC         1.40
    
```

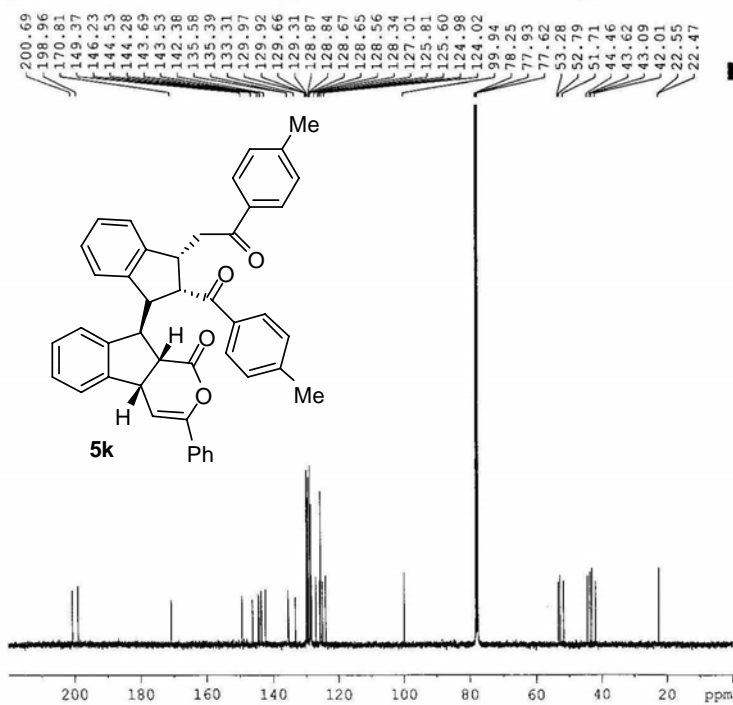


```

NAME      FXW25-128b
EXPNO    1
PROCNO   1
Date_    20130110
Time     15.49
INSTRUM  spect
PROBHD   5 mm PABBO B
PULPROG  zg30
TD        65536
SOLVENT  CDCl3
NS        16
DS        2
SWH       8223.685 Hz
FIDRES    0.125483 Hz
AQ        3.994587 sec
RG        203
DW        60.800 usec
DE        6.50 usec
TE        293.2 K
D1        1.0000000 sec
TD0       1
    
```

```

----- CHANNEL f1 -----
NUC1      1H
P1         13.80 usec
PL1        -1.00 dB
PL1W      13.18669796 W
SFO1      400.1724712 MHz
SI         32768
SF         400.1700325 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
    
```



```

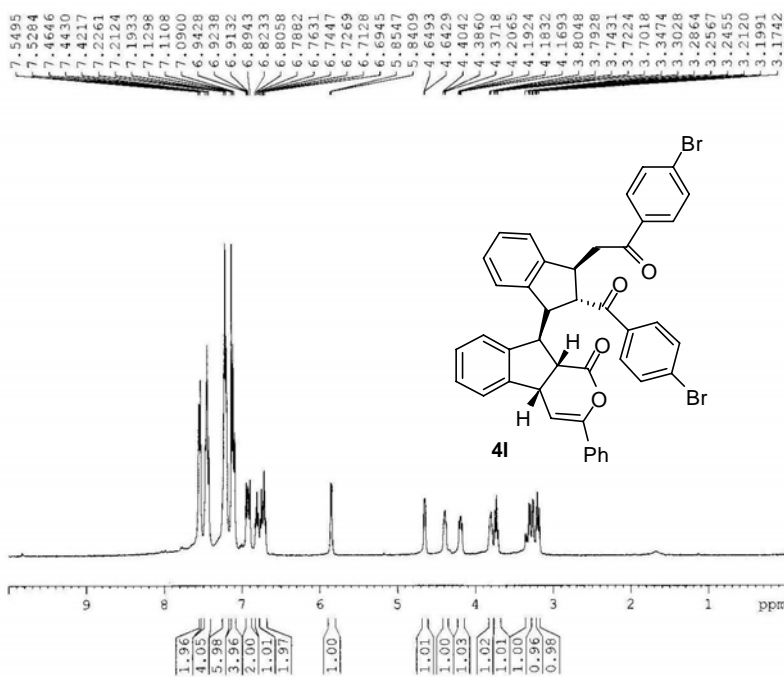
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EXPNO    1
PROCNO   1
Date_    20130111
Time     13.17
INSTRUM  spect
PROBHD   5 mm PABBO B
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        0
DS        0
SWH       24038.461 Hz
FIDRES    0.368798 Hz
AQ        1.3631988 sec
RG        203
DW        20.800 usec
DE        6.50 usec
TE        293.4 K
D1        2.0000000 sec
D11       0.0300000 sec
TD0       1
    
```

```

----- CHANNEL f1 -----
NUC1      13C
P1         8.50 usec
PL1        -2.00 dB
PL1W      57.32743073 W
SFO1      100.6328888 MHz

----- CHANNEL f2 -----
CPDPRG2  waltz16
NUC2      1H
PCPD2     80.00 usec
PL2        -1.00 dB
PL12      14.76 dB
PL13      14.46 dB
PL2W      13.18669796 W
PL12W     0.39276794 W
PL13W     0.37509048 W
SFO2      400.1716007 MHz
SI         32768
SF         100.6227364 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
    
```

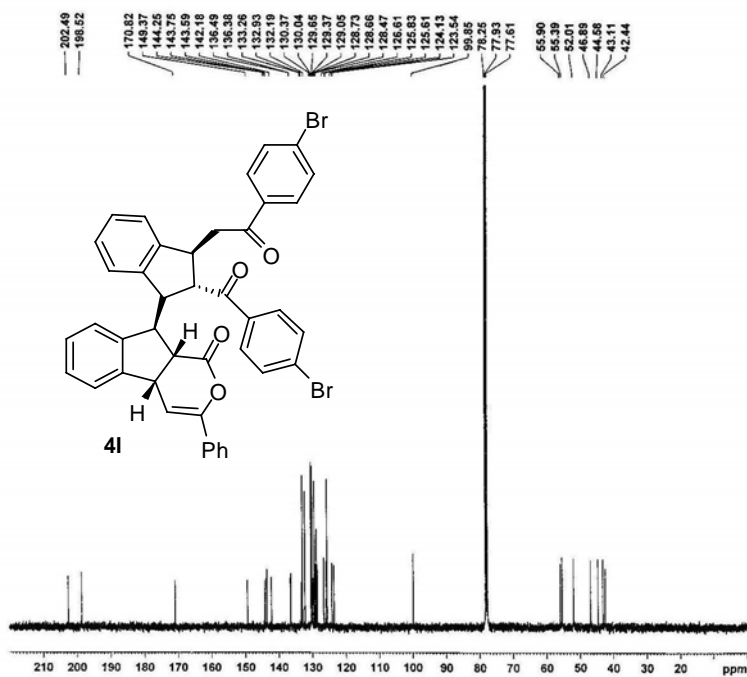




```

NAME      FXW25-84a-C13
EXPNO    1
PROCNO   1
Date_    20130111
Time     14.13
INSTRUM  spect
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        618
DS        0
SWH       24038.461 Hz
FIDRES   0.366798 Hz
AQ        1.3631988 sec
RG        203
DW        20.800 usec
DE        6.50 usec
TE        293.6 K
D1        2.0000000 sec
D11       0.0300000 sec
TD0       1

===== CHANNEL f1 =====
NUC1      1H
P1        13.83 usec
PL1       -1.00 dB
PL12      13.58669756 W
SFO1      400.142412 MHz
SI        32768
SF        400.142412 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
    
```



```

NAME      FXW25-84a-C13
EXPNO    1
PROCNO   1
Date_    20130111
Time     14.13
INSTRUM  spect
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD        65536
SOLVENT  CDCl3
NS        618
DS        0
SWH       24038.461 Hz
FIDRES   0.366798 Hz
AQ        1.3631988 sec
RG        203
DW        20.800 usec
DE        6.50 usec
TE        293.6 K
D1        2.0000000 sec
D11       0.0300000 sec
TD0       1

===== CHANNEL f1 =====
NUC1      13C
P1        8.50 usec
PL1       -2.00 dB
PL1W      57.32743073 W
SFO1      100.6227364 MHz

===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2      1H
PCPD2    80.00 usec
PL2       80.00 dB
PL12     14.26 dB
PL13     14.46 dB
PL12W    13.186669796 W
PL13W    0.39276794 W
SFO2     400.1416007 MHz
SI        32768
SF        100.6227364 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
    
```



