

Supporting Information-III

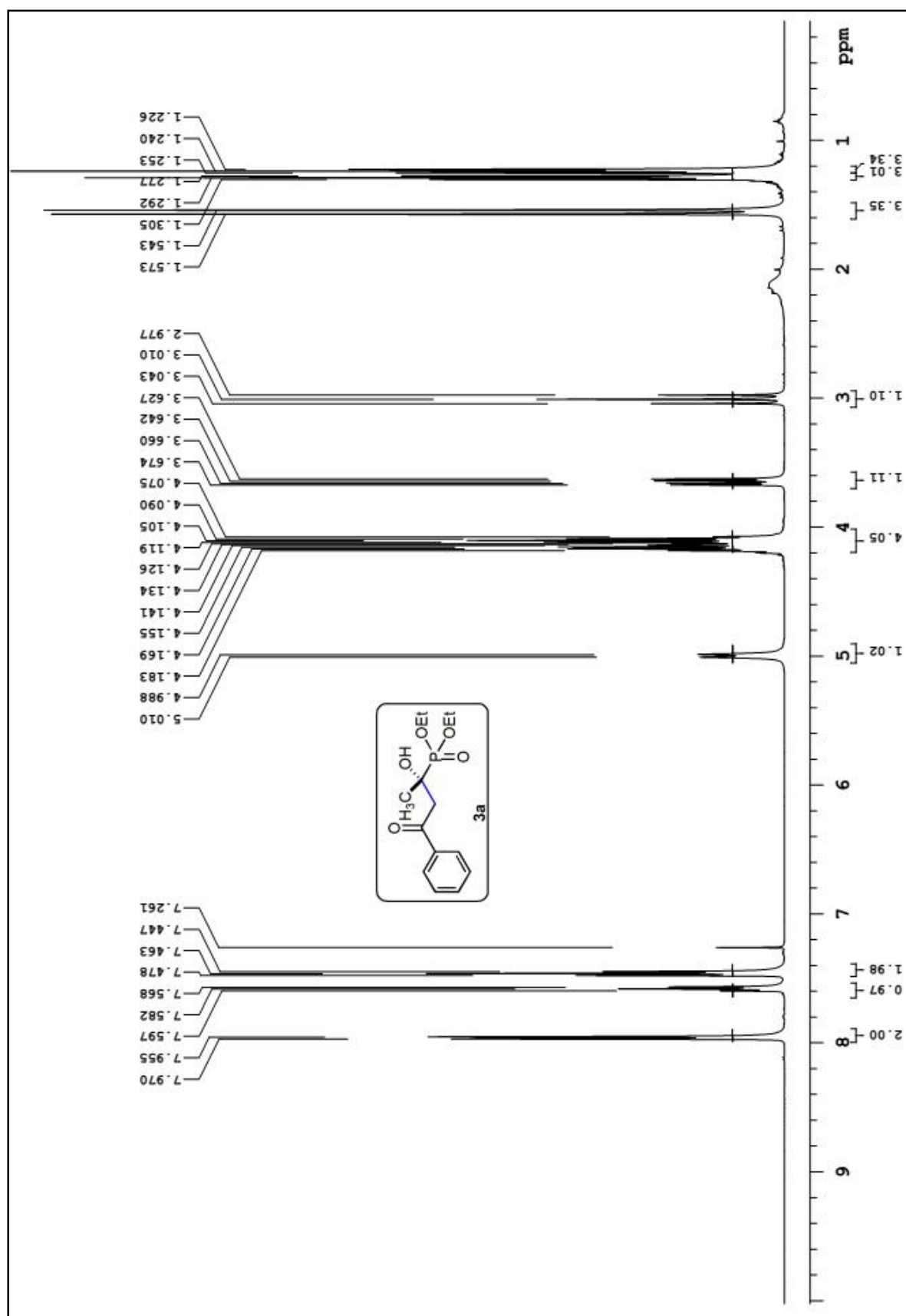
Organocatalytic Decarboxylative Aldol Reaction of β -Ketoacids with α -Ketophosphonates en route for the Enantioselective Synthesis of Tertiary α -Hydroxyphosphonates

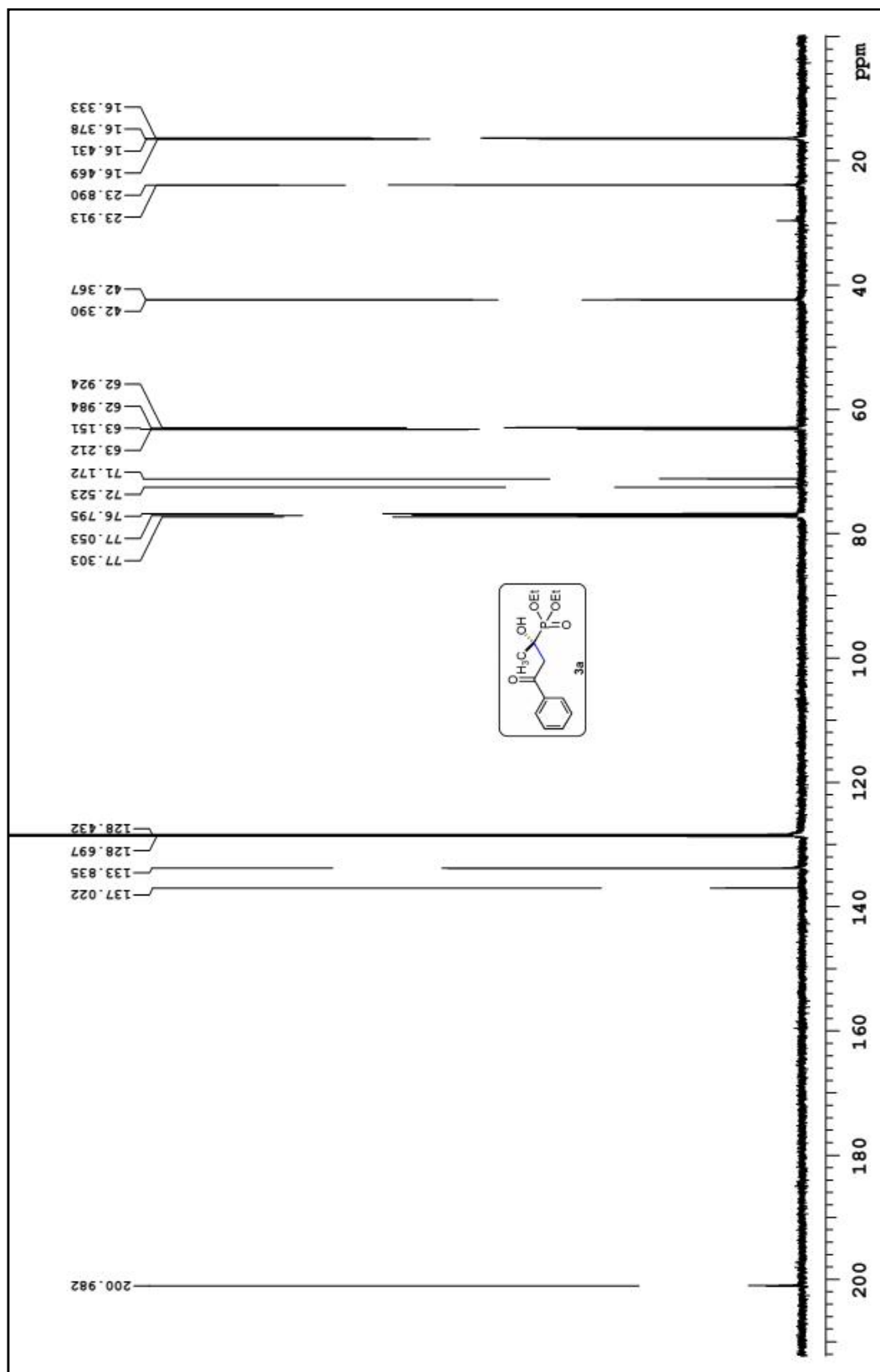
Ganga B. Vamiseti,^{a,b} Raghunath Chowdhury,^{*a} and Sunil K. Ghosh^{a,b}

^a*Bio-Organic Division*, ^bHomi Bhabha National Institute,
Bhabha Atomic Research Centre, Trombay, Mumbai 400085

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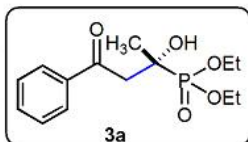


Current Data Parameters
 NAME sldg p
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20160824
 Time 15.57
 INSTRUM spect
 PROBHD 5 mm BBO BB-1H
 PULPROG zg
 TD 32768
 SOLVENT CDCl3
 NS 16
 DS 0
 SWH 49019.609 Hz
 FIDRES 1.494560 Hz
 AQ 0.332936 sec
 RG 327.68
 DE 10.200 use
 TE 300.0 K
 DE 6.00 use
 D1 2.0000000 sec
 TD0 1

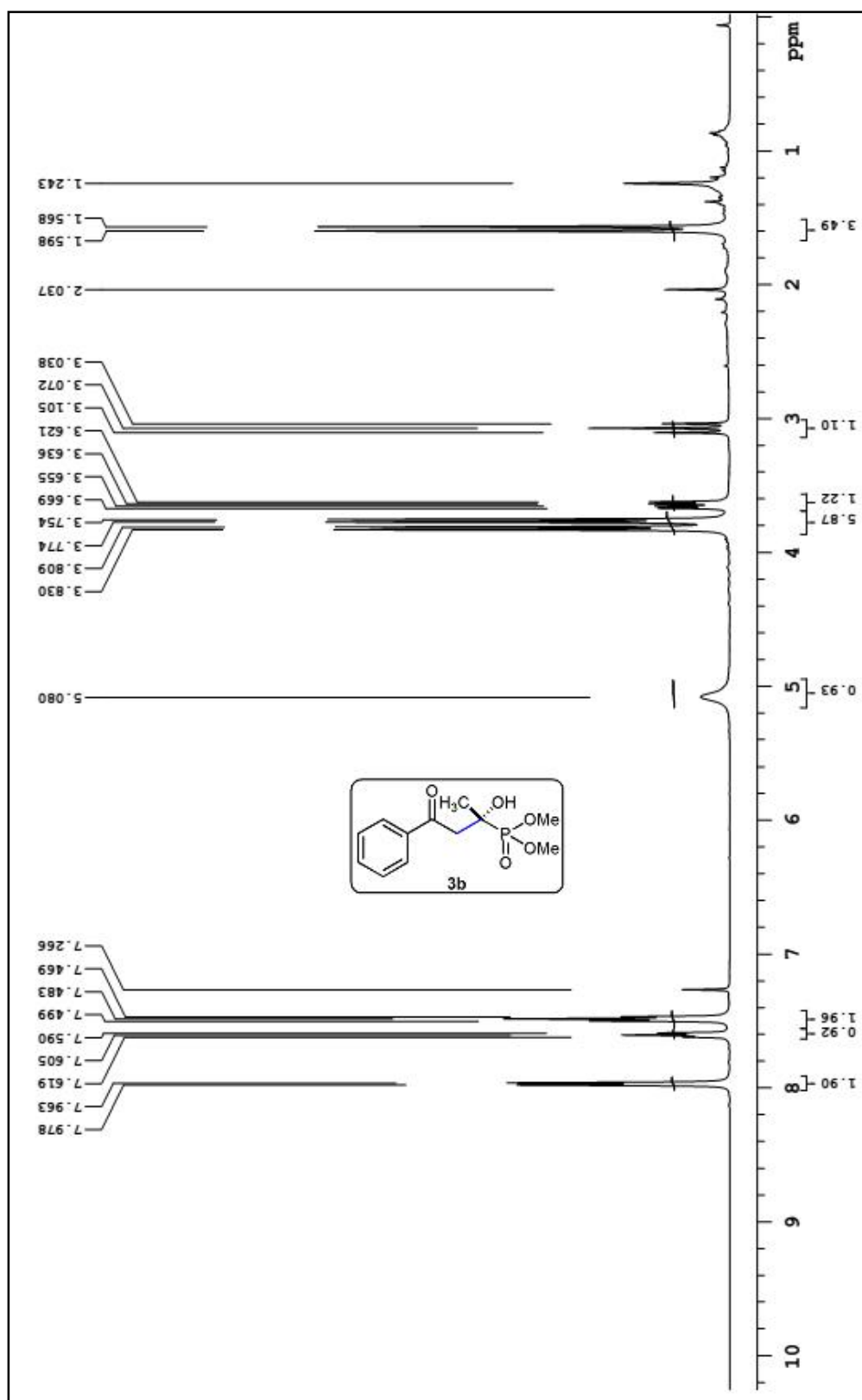
===== CHANNEL f1 =====
 NUC1 31P
 P1 7.30 use
 PL1 0.00 dB
 SFO1 121.4939257 MHz

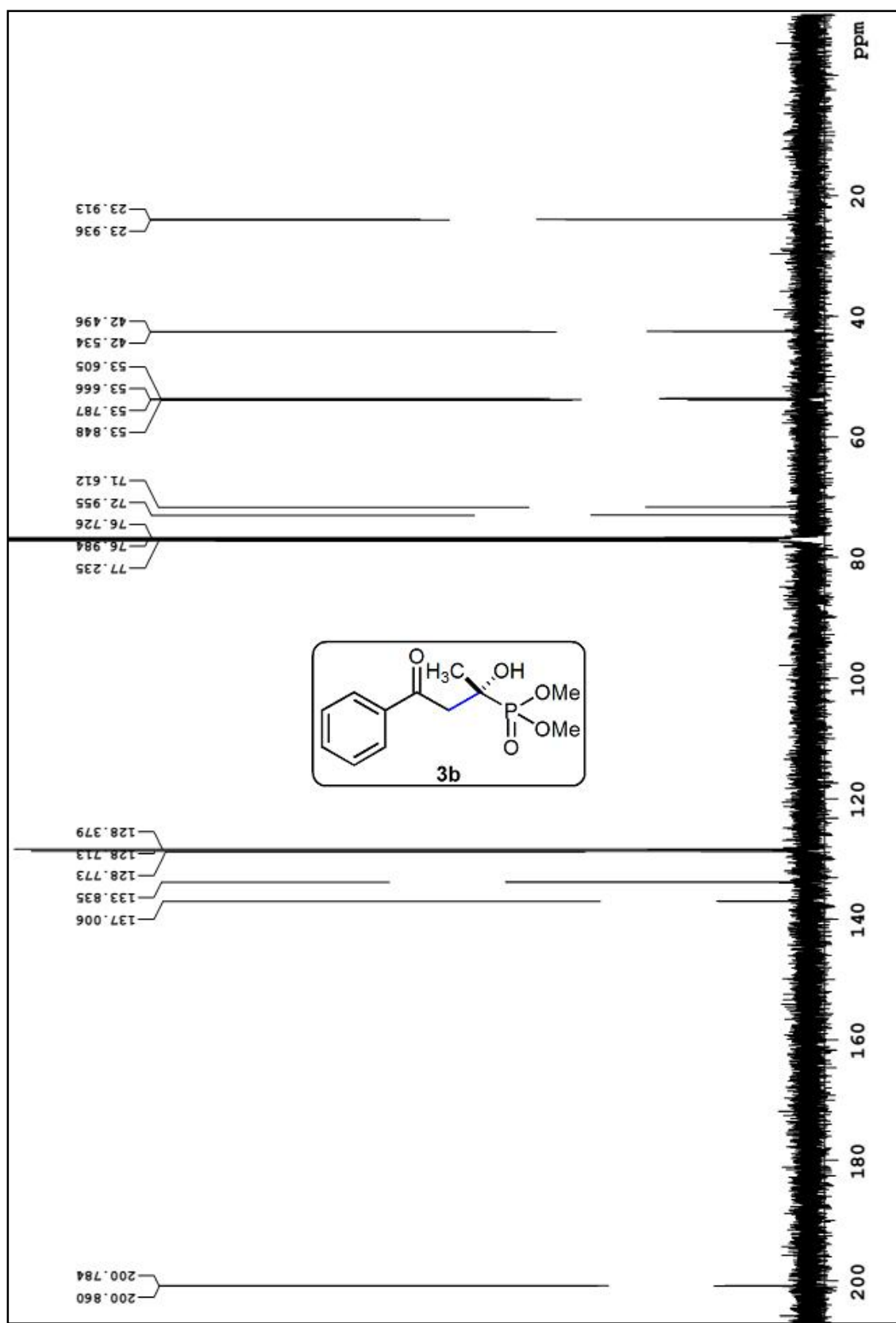
F2 - Processing parameters
 SI 16384
 SF 121.4948227 MHz
 WDW EM
 SSB 0
 LB 5.00 Hz
 GB 0
 PC 1.40



24.558





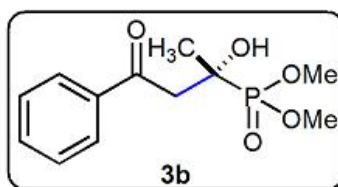


NAME barc-ragunath-31p-feb17
 EXPNO 2
 PROCNO 1
 Date_ 20170203
 Time 10.43
 INSTRUM av500
 PROBHD 5 mm BBI 1H-BB
 PULPROG zgpg30
 TD 8192
 SOLVENT CDCl3
 NS 75
 DS 2
 SWH 40650.406 Hz
 FIDRES 4.962208 Hz
 AQ 0.1008239 sec
 RG 3640
 DW 12.300 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 TD0 1

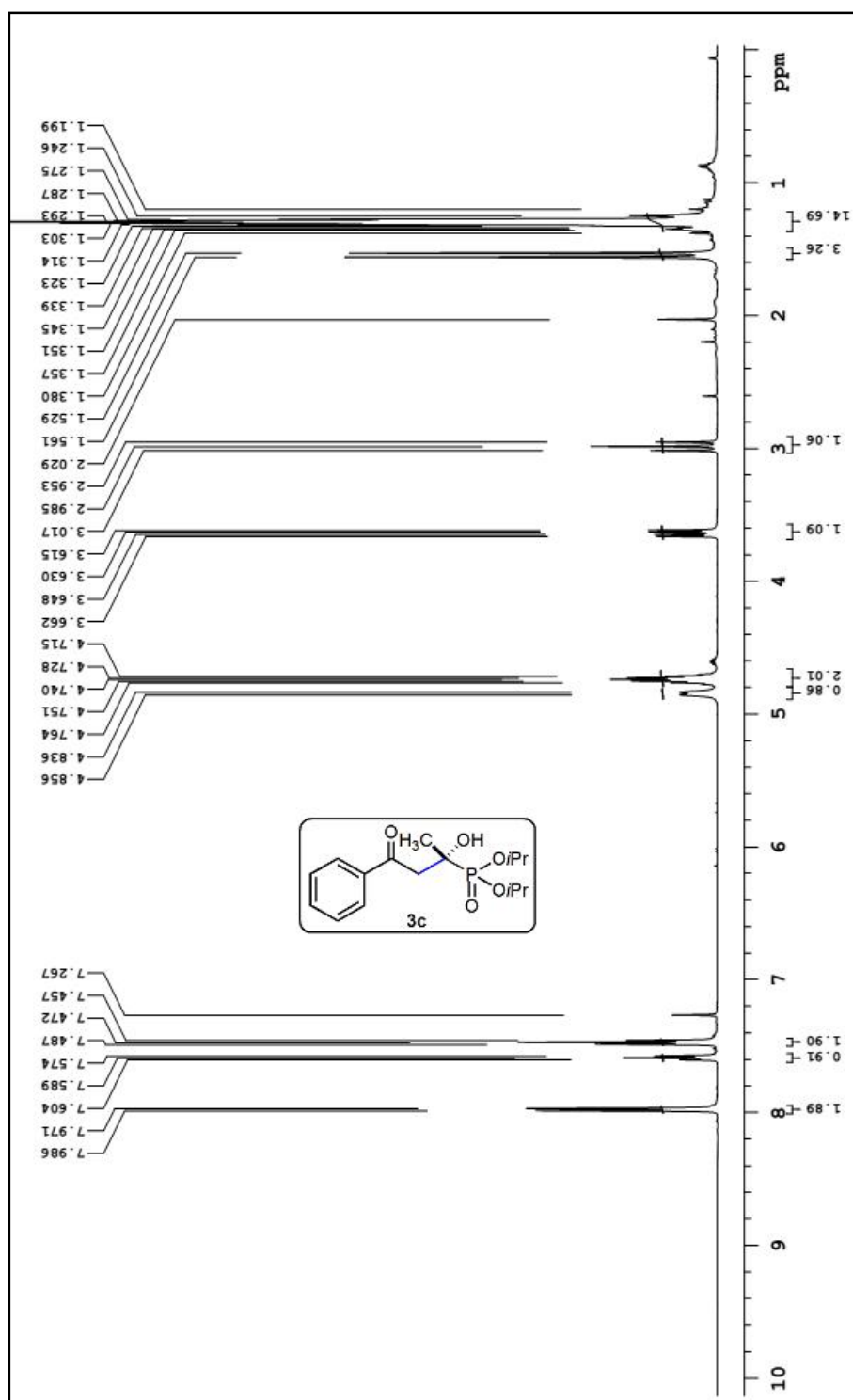
===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 0.00 dB
 PL12 20.1428001
 SFO1 202.4630090 MHz

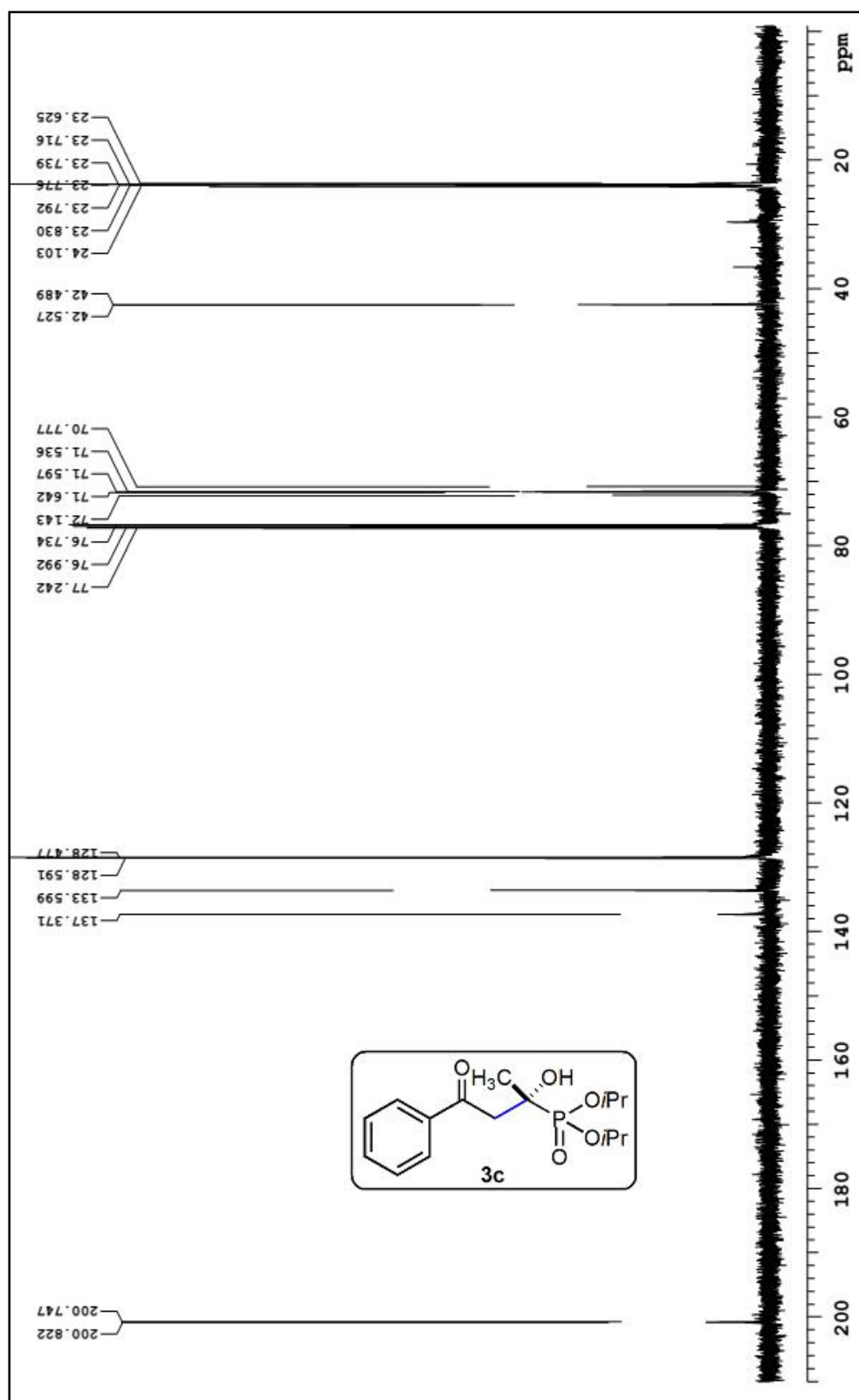
===== CHANNEL f2 =====
 CPDPRG2 Waltz16
 NUC2 1H
 P1 80.00 usec
 PL1 0.50 dB
 PL12 20.05 dB
 PL12W 15.67104816 W
 PL12W 0.17381935 W
 SFO2 500.1325000 MHz
 SI 16384
 SF 202.4562572 MHz
 WDW EM
 SSB 0
 LB 5.00 Hz
 GB 0
 PC 1.40

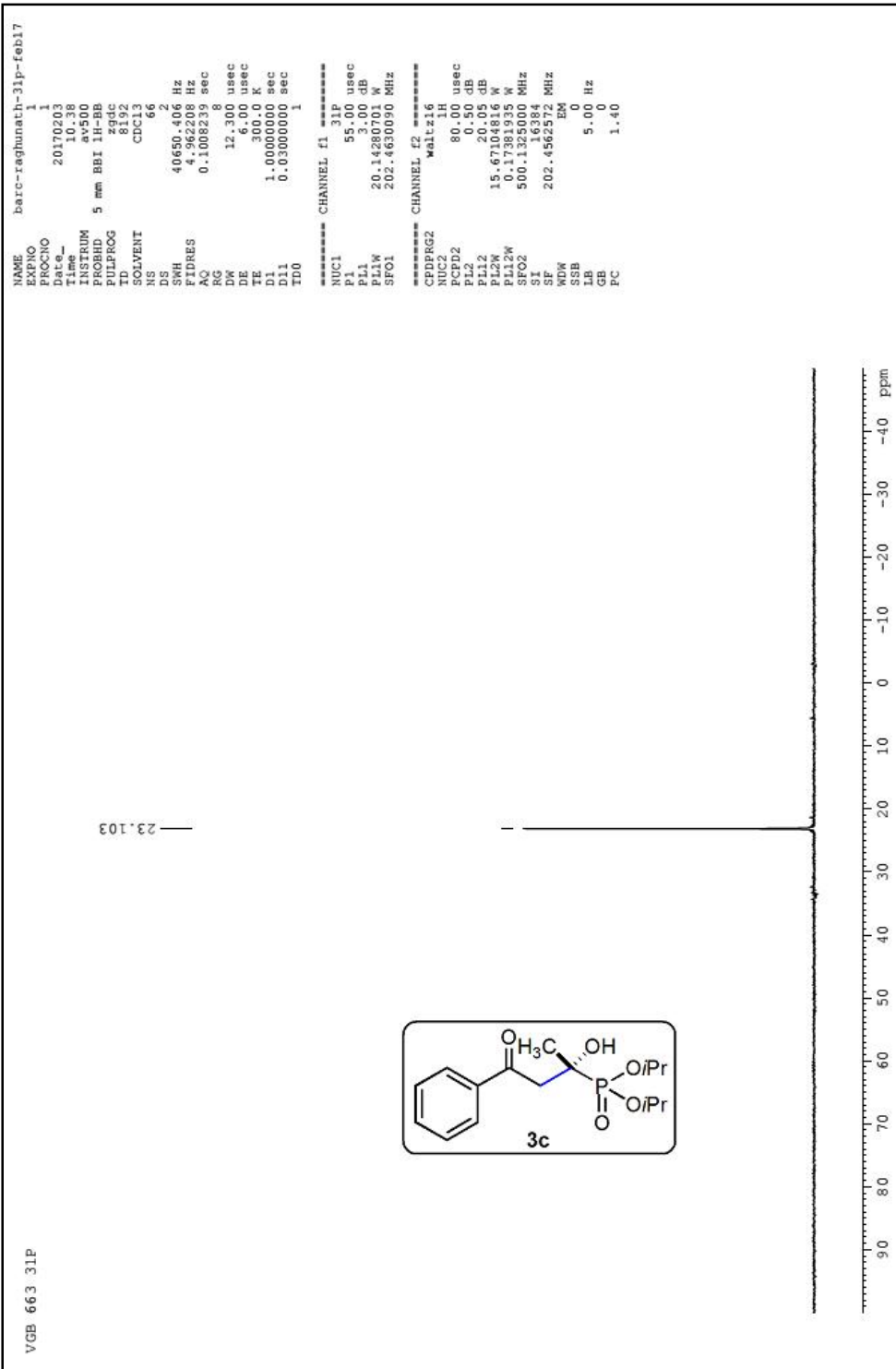
26.806

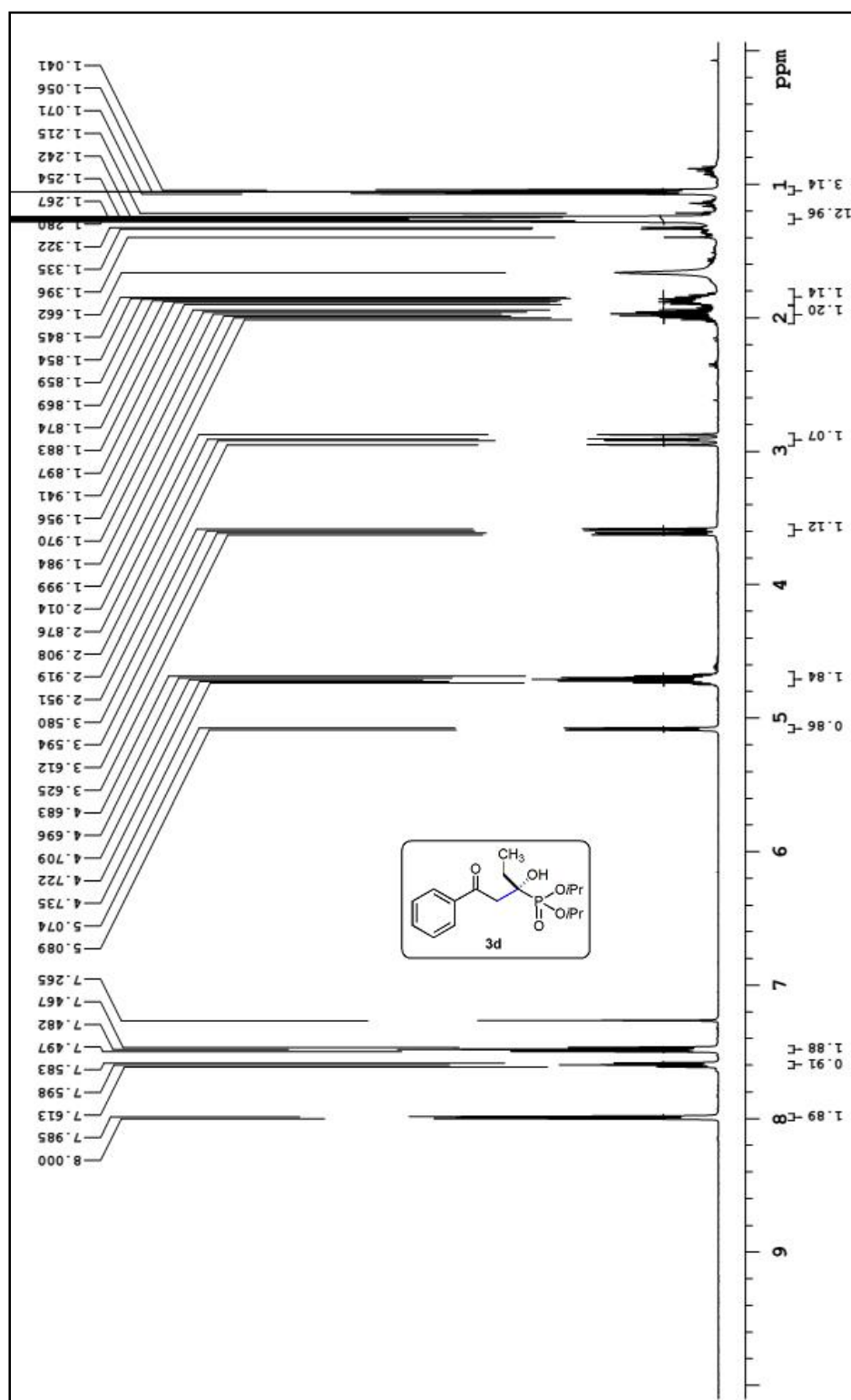


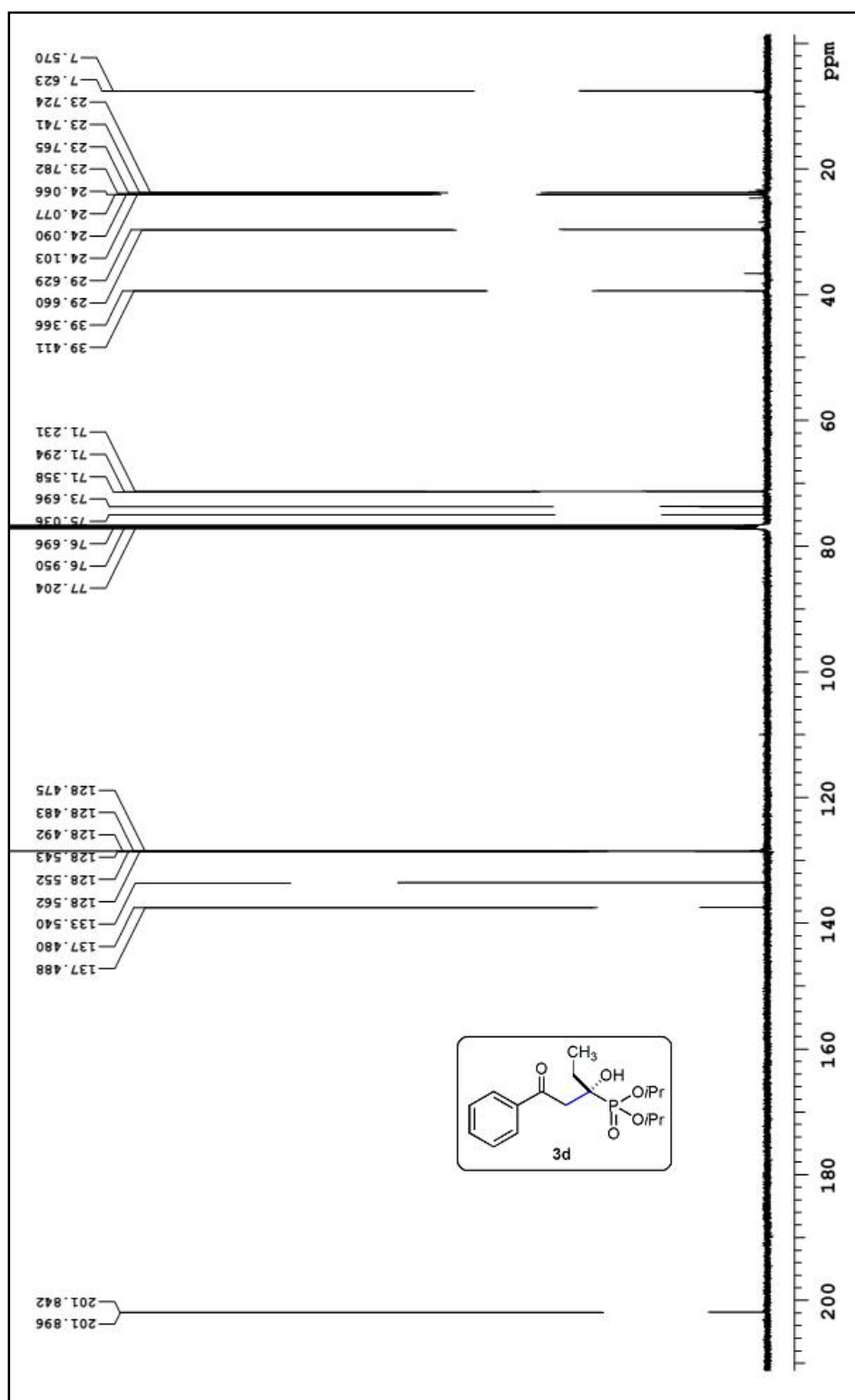
90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm











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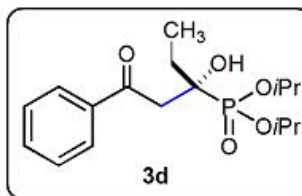
NAME      barc-raghunath-31p-feb17
EXPNO     7
PROCNO    1
Date_     20170203
Time      11.18
INSTRUM   av500
PROBHD    5 mm BBI 1H-BB
PULPROG   zgpg30
TD         16384
SOLVENT   CDCl3
NS         94
DS         2
SWH        40650.406 Hz
FIDRES     2.481104 Hz
AQ         0.2015855 sec
RG         3640
DE         12.300 usec
TE         300.1 K
D1         1.00000000 sec
D11        0.03000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       31P
P1         55.00 usec
PL1        3.00 dB
PL1W       20.14280701 W
SFO1       202.4630050 MHz

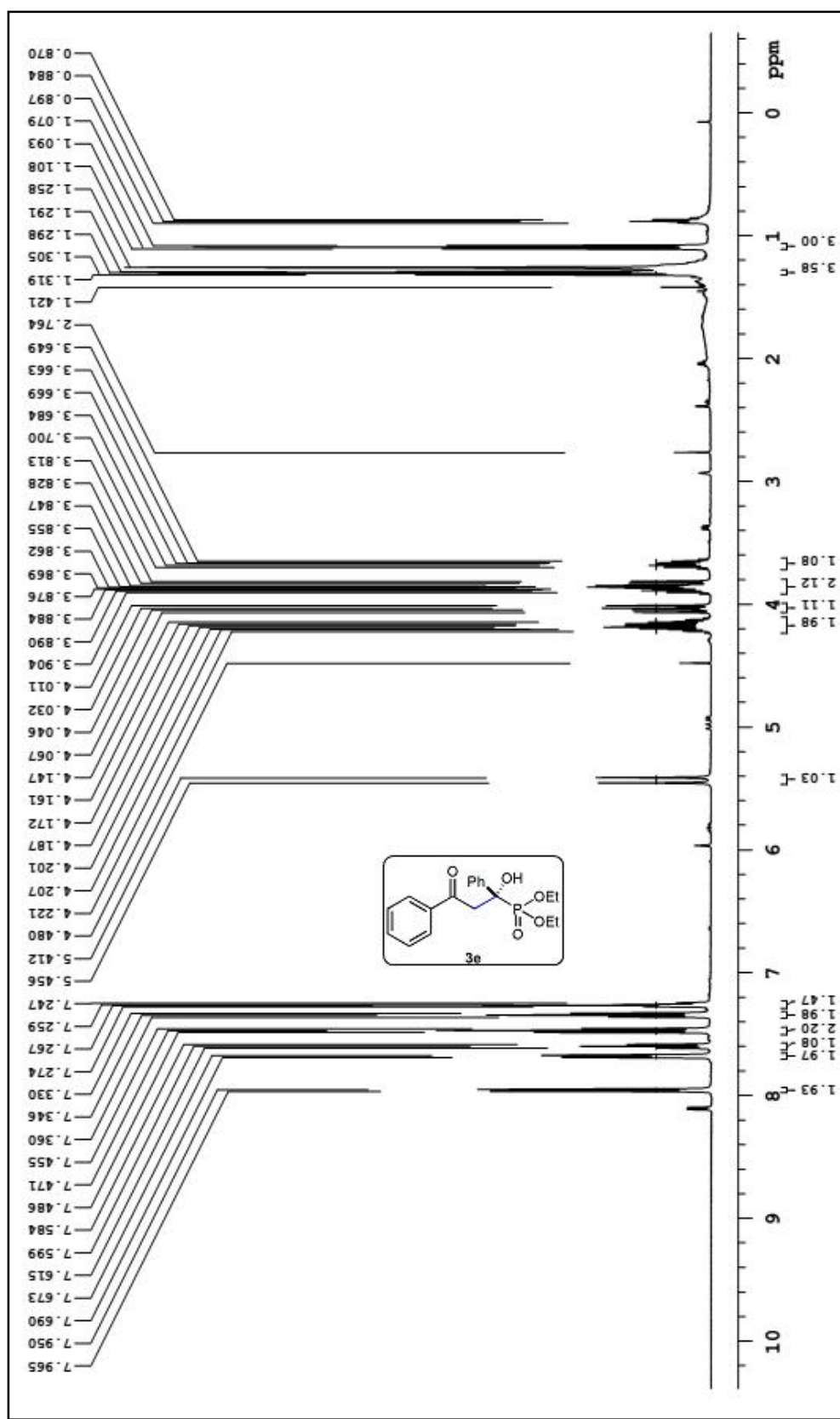
===== CHANNEL f2 =====
CPDPRG2    waltz16
NUC2       1H
PCPD2      80.00 usec
PL2         0.50 dB
PL12       20.05 dB
PL12W      15.67104816 W
SFO2       500.1325000 MHz
SI         16384
SF         202.4562572 MHz
WDW        EM
SSB        0
LB         5.00 Hz
GB         0
PC         1.40

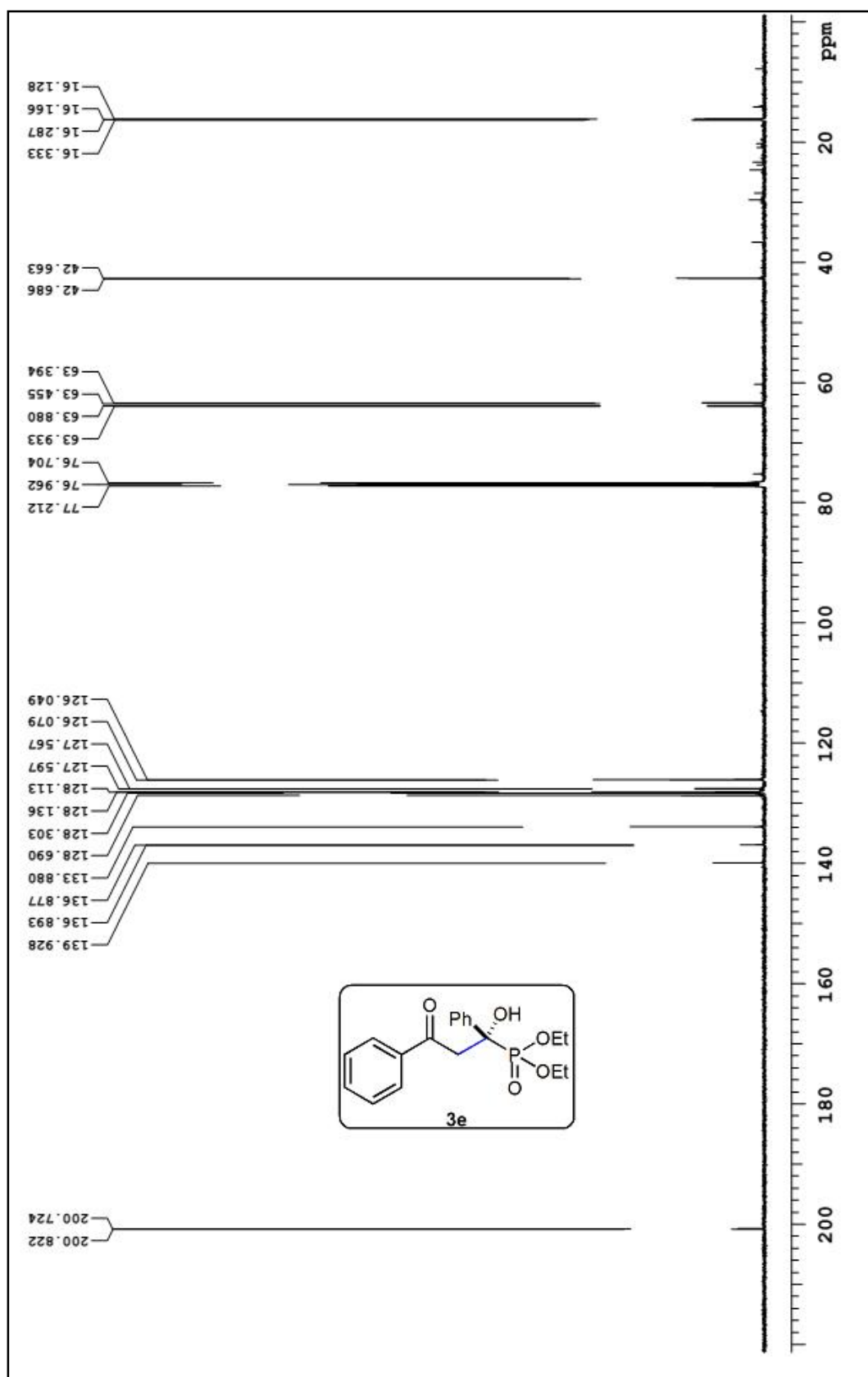
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— 23.377



90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm





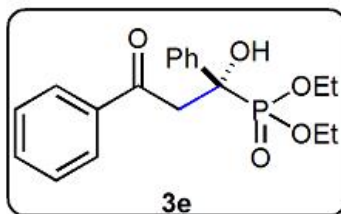
NAME barc-raghunath-31p-feb17
 EXPNO 16
 PROCNO 1
 Date_ 20170203
 Time 12.02
 INSTRUM av500
 PROBHD 5 mm BBI 1H-BB
 PULPROG zgpg30
 TD 16384
 SOLVENT CDCl3
 NS 99
 DS 2
 SWH 40650.406 Hz
 FIDRES 2.481104 Hz
 AQ 0.2013835 sec
 RG 327.5
 DW 12.500 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 3.00 dB
 PL1W 20.14280701 W
 SFO1 202.4630090 MHz

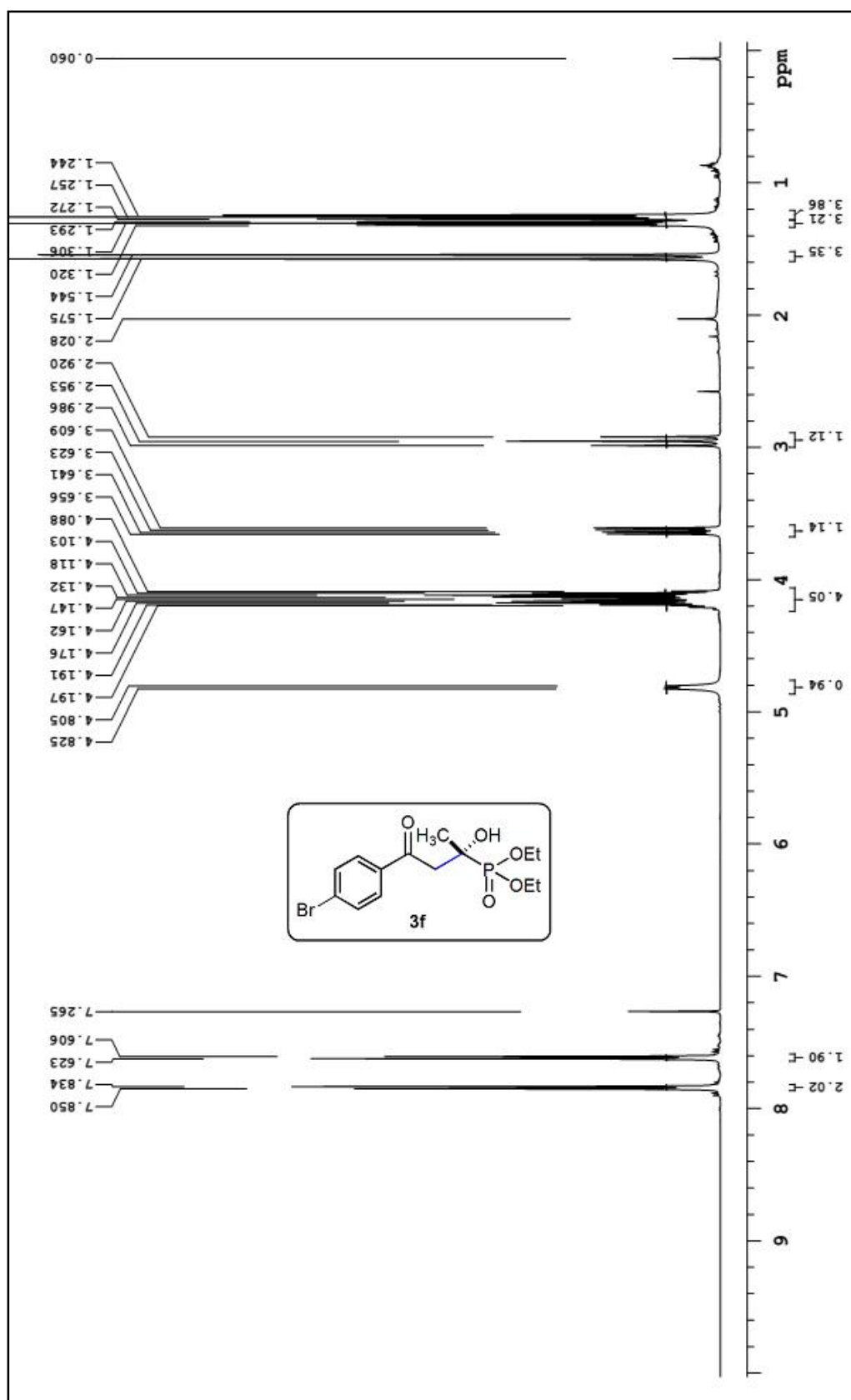
===== CHANNEL f2 =====
 CPDPRG2 Waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 0.50 dB
 PL12 20.05 dB
 PL12W 15.67104816 W
 PL2W 0.17351005 W
 SFO2 500.1326000 MHz
 SF 500.1326000 MHz
 SF 202.4630090 MHz
 WDW EM
 SSB 0
 LB 5.00 Hz
 GB 0
 PC 1.40

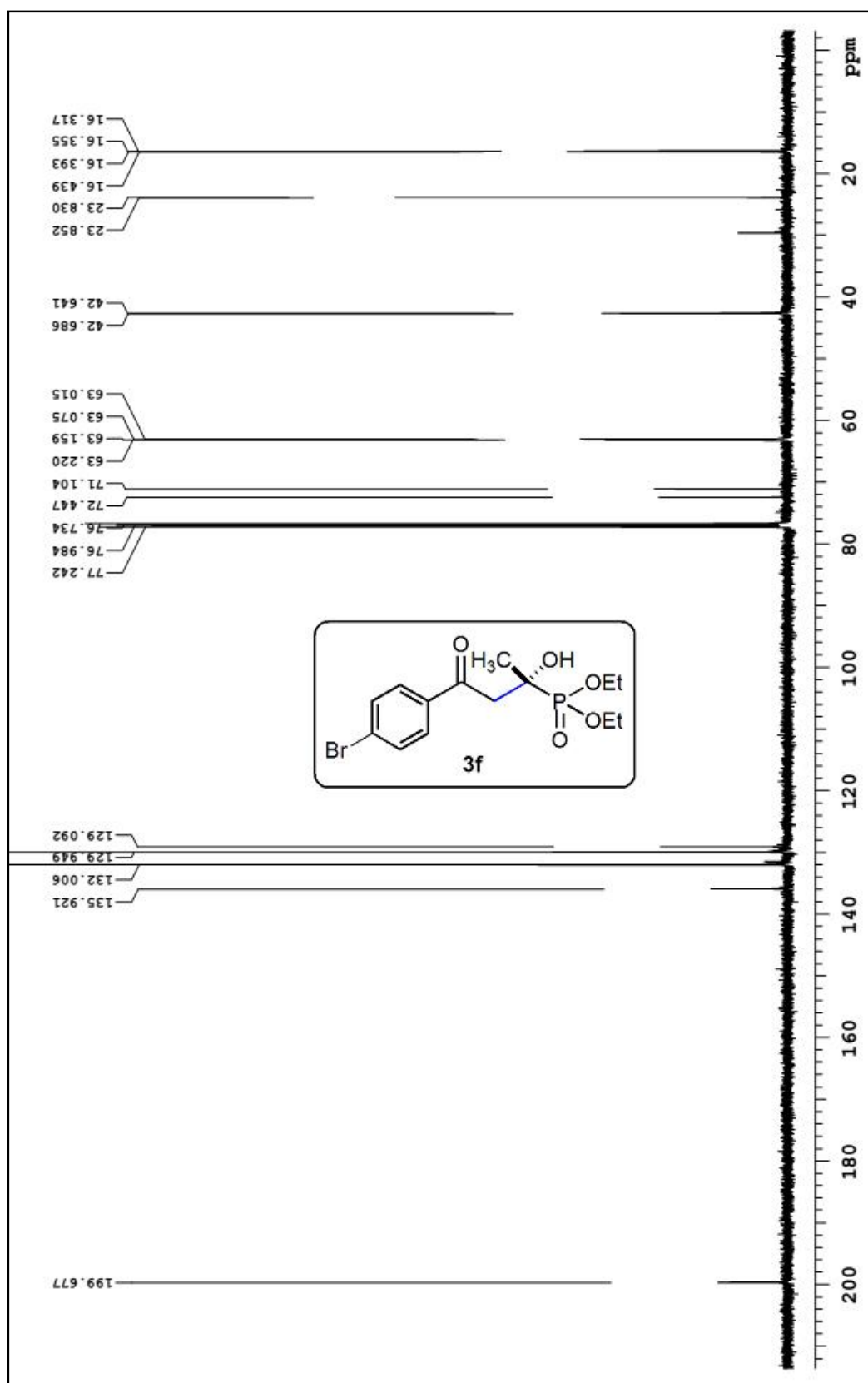
VGB 709 31P

— 20.724



90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm





vqb-649

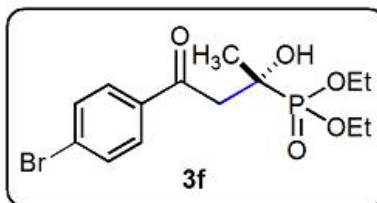


Current Data Parameters
NAME Kamal P
EXPNO 116
PROCNO 1

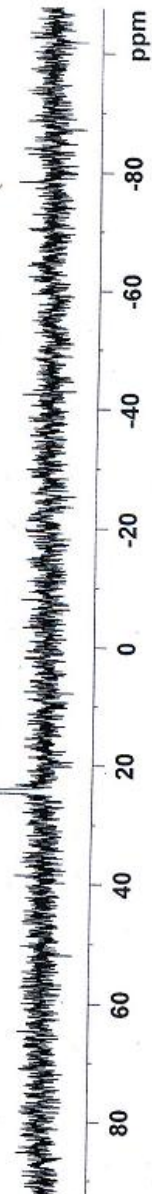
F2 - Acquisition Parameters
Date_ 20161117
Time_ 11:30
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zg
TD 32768
SOLVENT CDCl3
NS 26
DS 0
SWH 24350.648 Hz
FIDRES 0.743123 Hz
AQ 0.6728863 sec
RG 287
DW 20.533 usec
DE 6.00 usec
TE 294.0 K
D1 2.00000000 sec
TD0 1

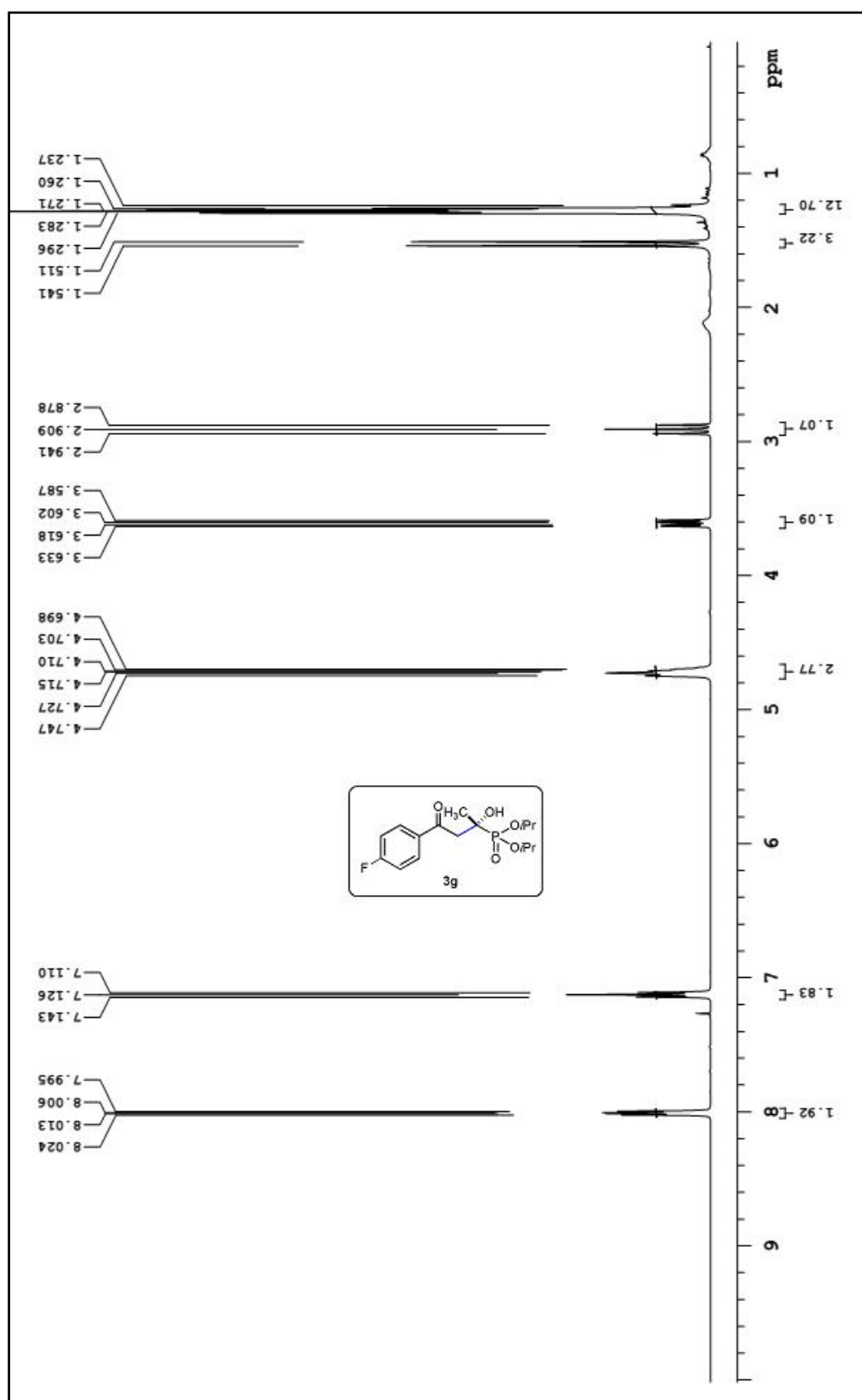
===== CHANNEL f1 =====
NUC1 31P
P1 7.30 usec
PL1 0.00 dB
SF01 121.4939237 MHz

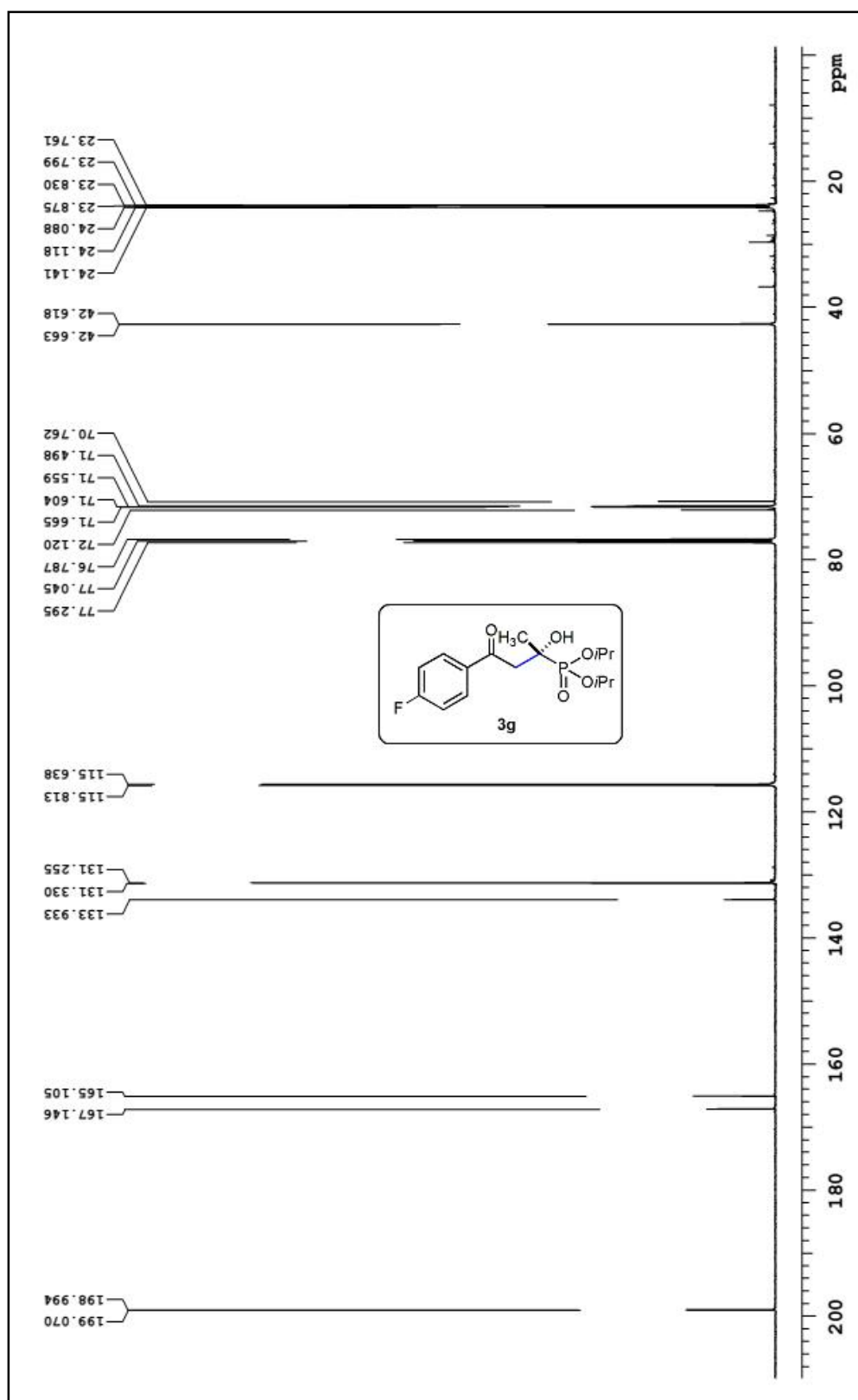
F2 - Processing parameters
SI 16384
SF 121.4948227 MHz
WDW EM
SSB 0
IB 5.00 Hz
GB 0
PC 1.40



24.398



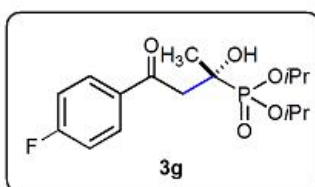




NAME barc-ragunath-31p-feb17
 EXPNO 6
 PROCNO 1
 Date_ 20170203
 Time 11.12
 INSTRUM av500
 PROBHD 5 mm BBI 1H-BB
 PULPROG zgpg30
 TD 16384
 SOLVENT CDCl3
 NS 84
 DS 2
 SWH 40650.406 Hz
 FIDRES 2.481104 Hz
 AQ 0.2015855 sec
 RG 3640
 DW 12.300 usec
 DE 6.00 usec
 TE 300.1 K
 D1 1.0000000 sec
 D11 0.0300000 sec
 TD0 1

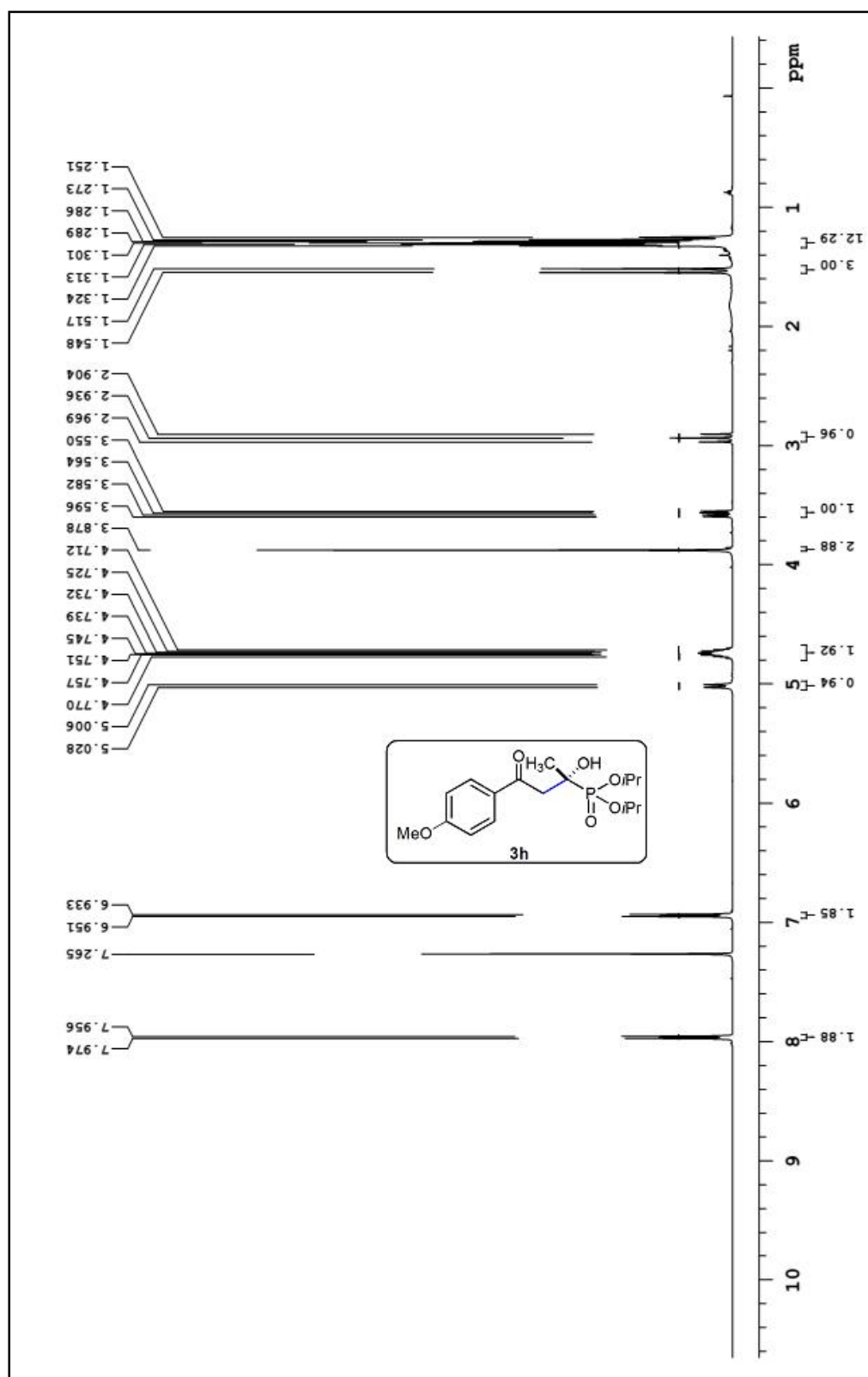
===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 3.00 dB
 PL1W 20.14280701 W
 SFO1 202.4630090 MHz

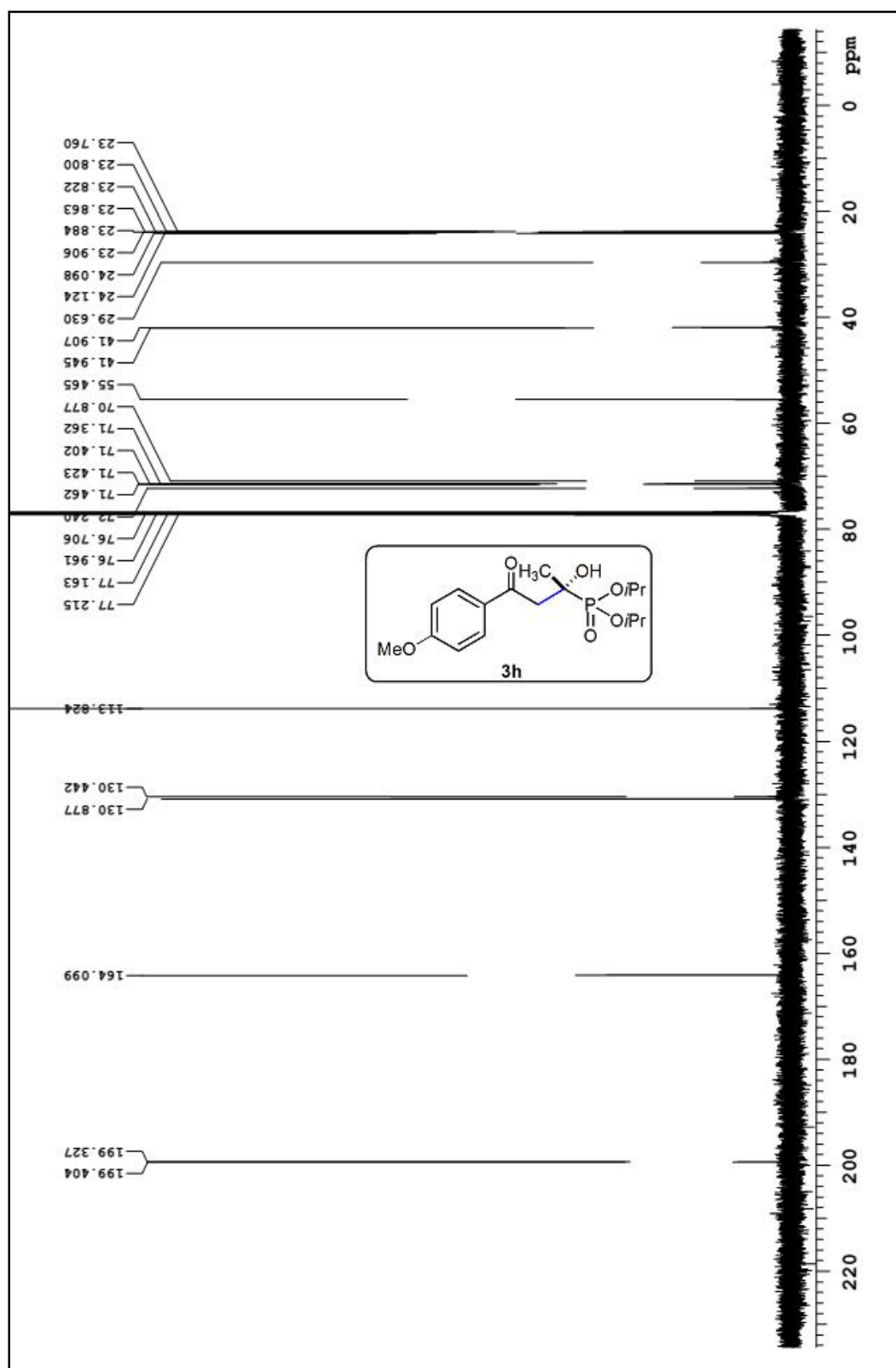
===== CHANNEL f2 =====
 CPDPRG2 Waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 0.50 dB
 PL12 20.05 dB
 PL12W 15.67104816 W
 PL12W 0.17381935 W
 SFO2 500.1325000 MHz
 SI 16384
 SF 202.4562572 MHz
 EQ
 RRG 0
 SSB 0
 LB 0
 GB 0
 PC 1.40



23.046

90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm





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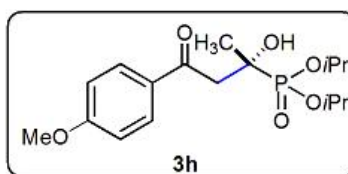
NAME      barc-raghunath-3lp-feb17
EXPNO     8
PROCNO    1
Date_     20170203
Time      11.23
INSTRUM   5 mm BBI 1H-BB
PROBHD    av500
PULPROG   zgdc
TD         16384
SOLVENT   CDCl3
NS         123
DS         2
SWH        40650.406 Hz
FIDRES     2.48104 Hz
AQ          0.201585 sec
RG          380
DE         12.300 usec
TE          300.1 K
D1          1.00000000 sec
D11         0.03000000 sec
TD0        1

===== CHANNEL f1 =====
NUC1       31P
P1          55.00 usec
PL1         3.00 dB
PL1W        20.14280701 MHz
SFO1        202.4630090 MHz

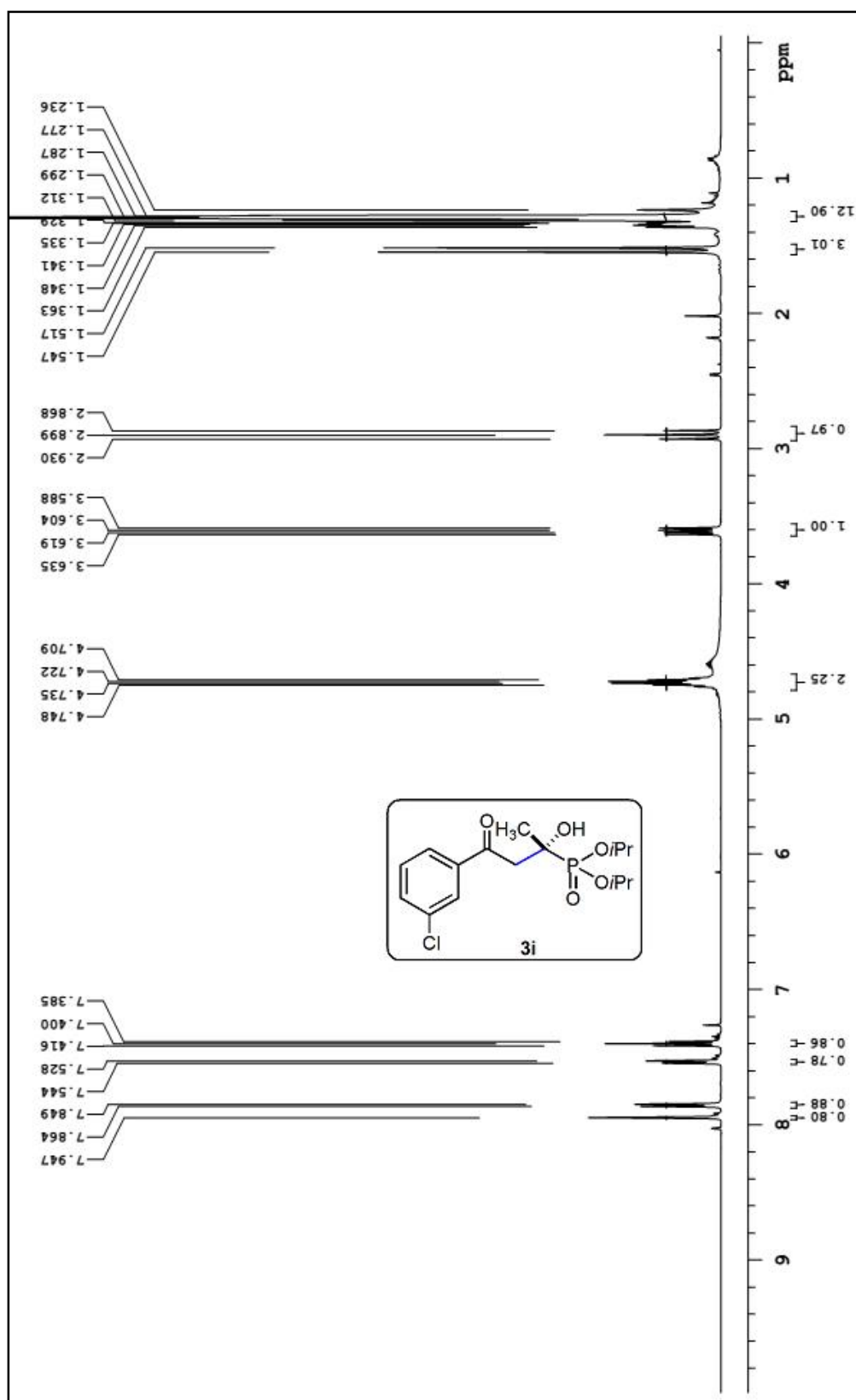
===== CHANNEL f2 =====
CPDPRG2    Maltz16
NUC2       1H
PCPD2       80.00 usec
PL2          0.50 dB
PL12        20.05 dB
PL12W       15.67104816 W
PL12W       0.17381935 W
SFO2        500.1325000 MHz
SI          16384
SF          202.4562512 MHz
RG          380
DE          6.00 usec
TE          300.1 K
D1          1.00000000 sec
D11         0.03000000 sec
TD0        1
PC          1.40

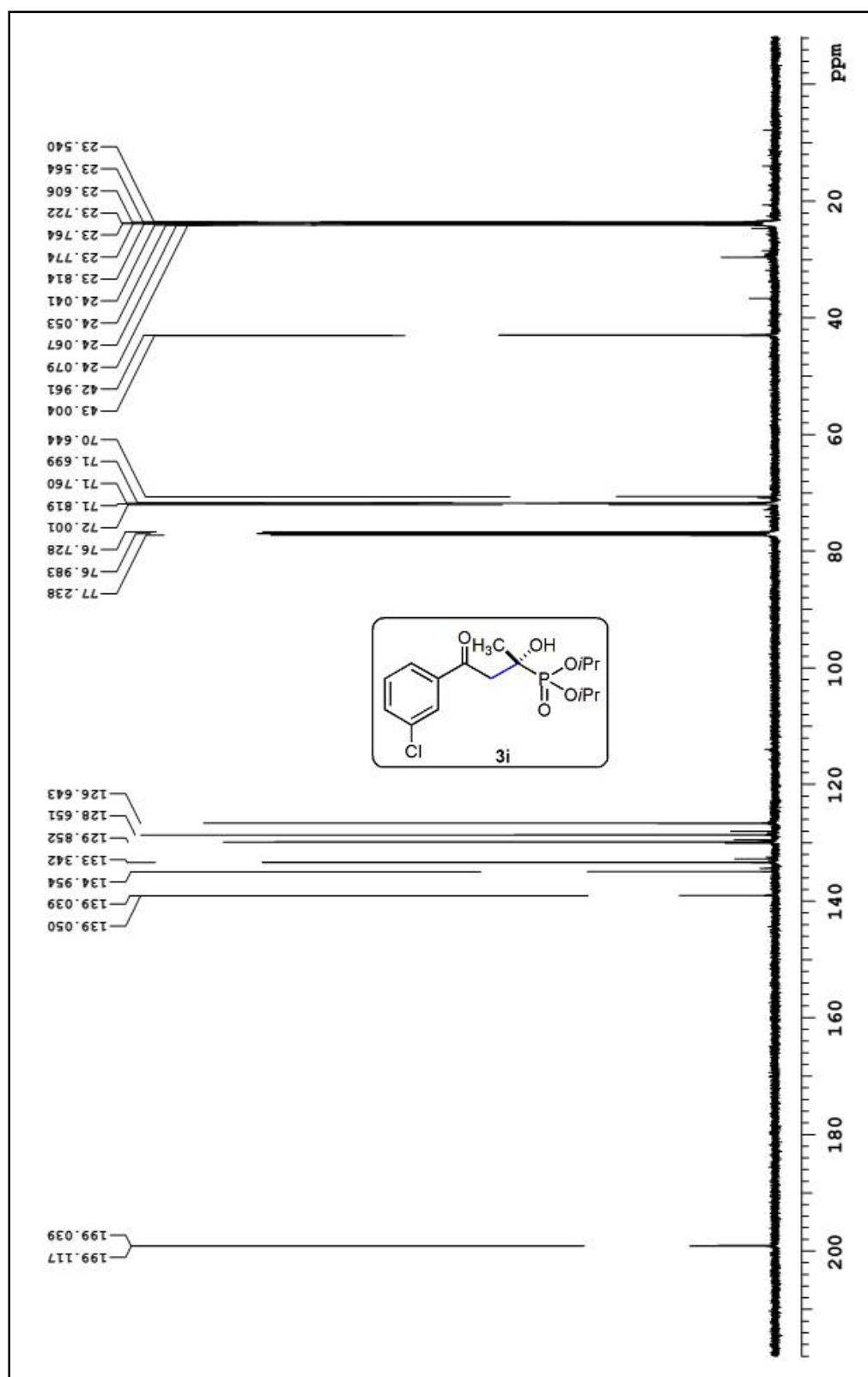
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23.184



90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm





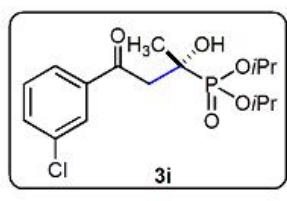
NAME barc-radhnath-31p-feb17

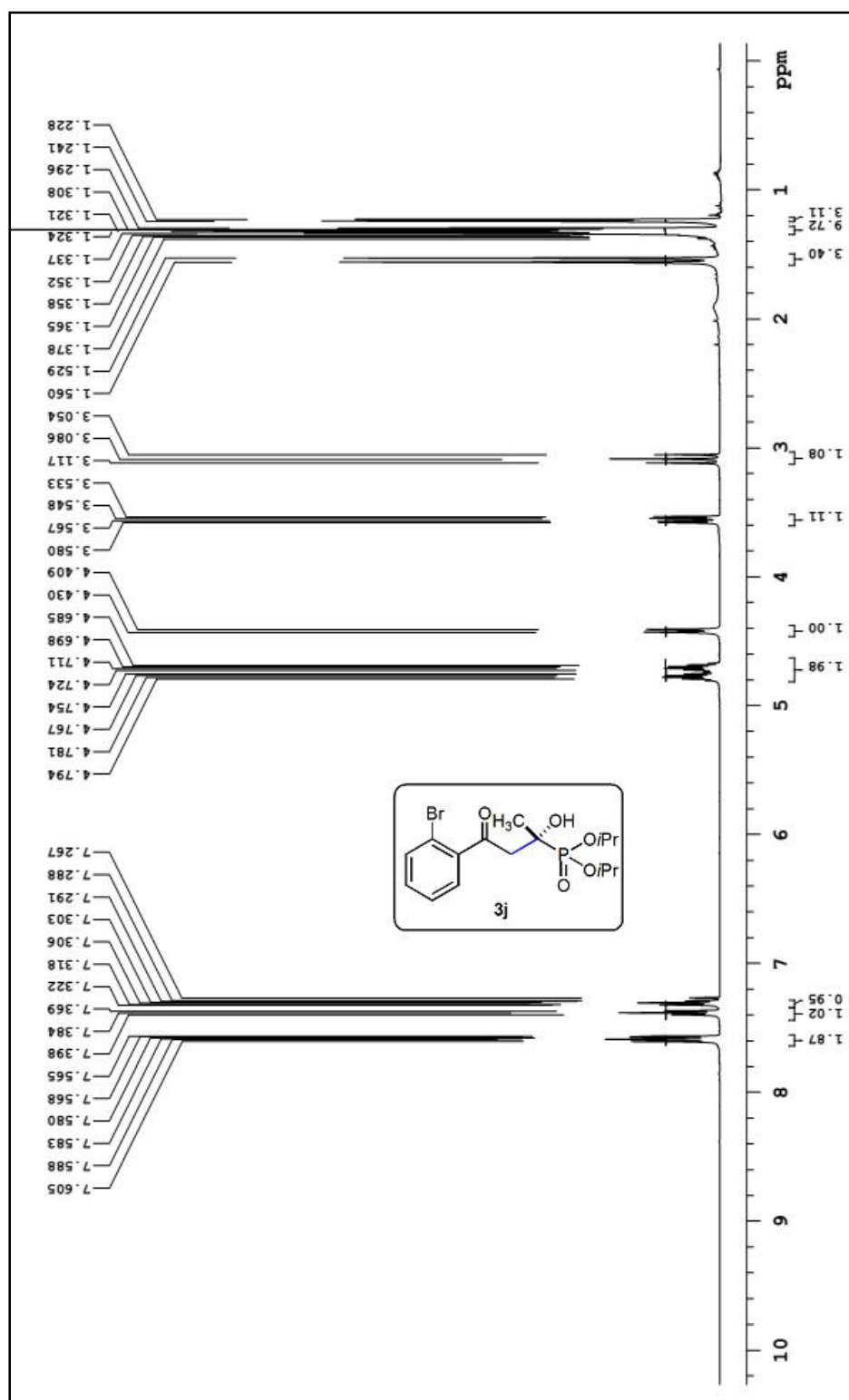
EXPNO 1
PROCNO 4
Date_ 20170201
Time 11:04
INSTRUM spect
PROBHD 5 mm BBI 1H-BB
PULPROG zgpg30
TD 16384
SOLVENT CDCl3
NS 82
DS 2
SWH 40650.406 Hz
FIDRES 2.481104 Hz
AQ 0.2015855 sec
RG 3640
DW 12.300 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1

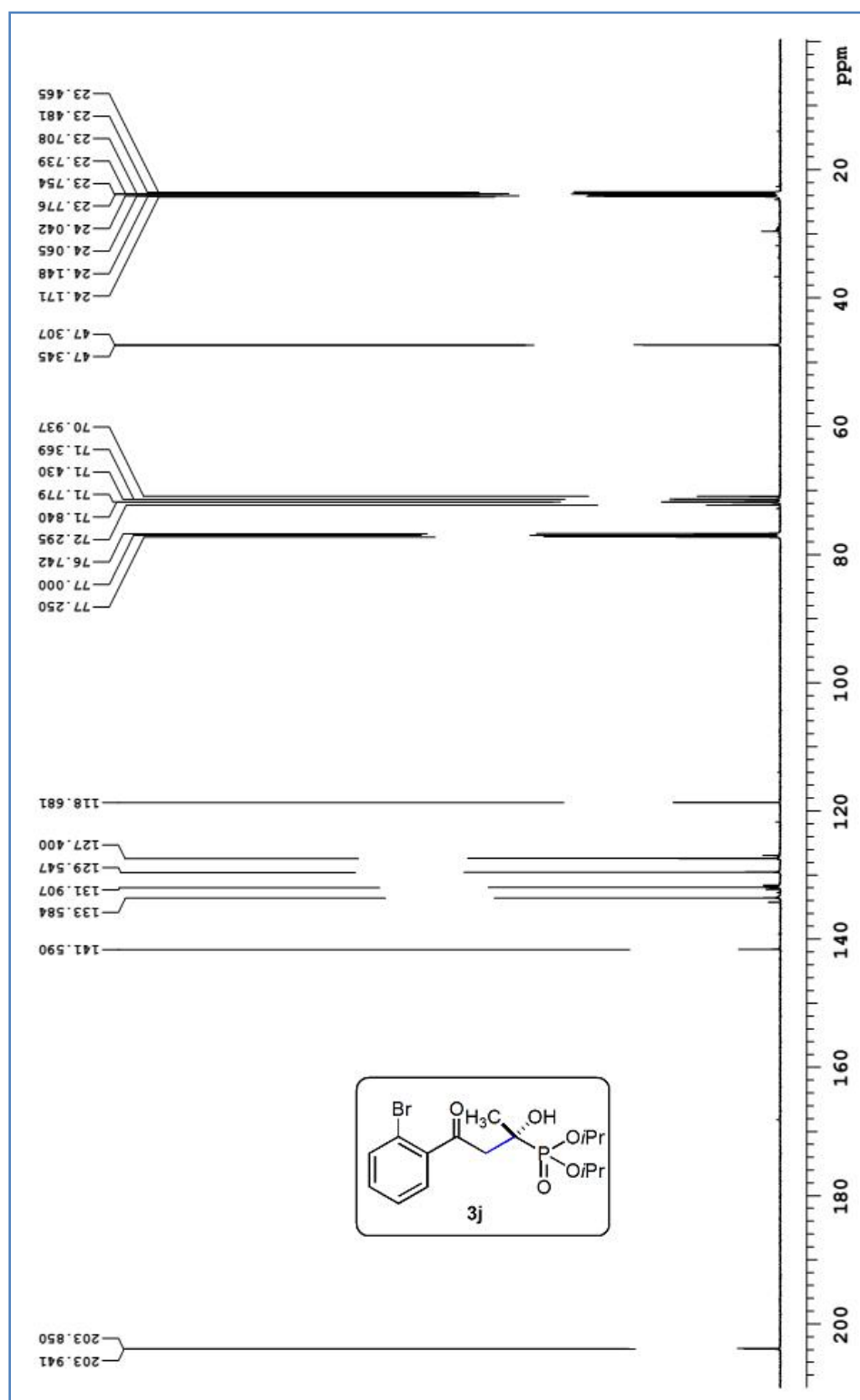
===== CHANNEL f1 =====
NUC1 31P
P1 55.00 usec
PL1 3.00 dB
PL1W 20.14280701 W
SFO1 202.4630090 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 1H
PCPD2 80.00 usec
PL2 0.50 dB
PL12 20.05 dB
PL2W 15.67104816 W
PL2W 0.11953333 W
SFO2 500.1365000 MHz
SI 6384
SF 202.4562572 MHz
WDW EM
SSB 0
LB 5.00 Hz
GB 0
PC 1.40

23.026





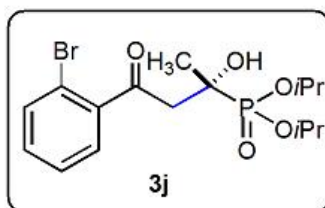


NAME barc-raghunath-31p-feb17
 EXPNO 5
 PROCNO 1
 Date_ 20170203
 Time 11.08
 INSTRUM av500
 PROBHD 5 mm BBI 1H-BB
 PULPROG zgpg30
 TD 16384
 SOLVENT CDCl3
 NS 2
 DS 2
 SWH 40650.406 Hz
 FIDRES 2.481104 Hz
 AQ 0.2015855 sec
 RG 3640
 DW 12.300 usec
 DE 6.00 usec
 TE 300.1 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 TD0 1

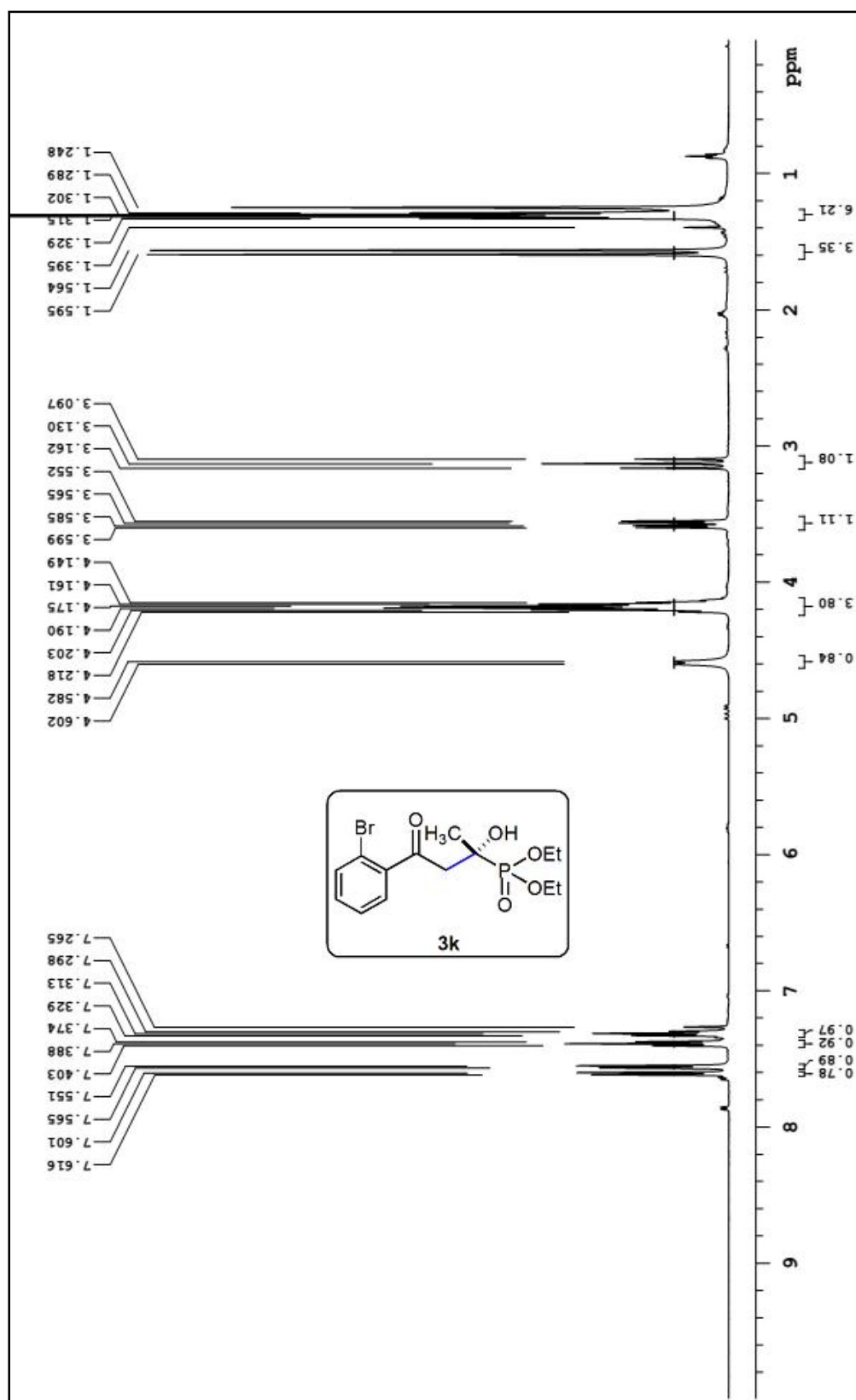
===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 3.00 dB
 PL1W 20.14280701 W
 SFO1 202.4630090 MHz

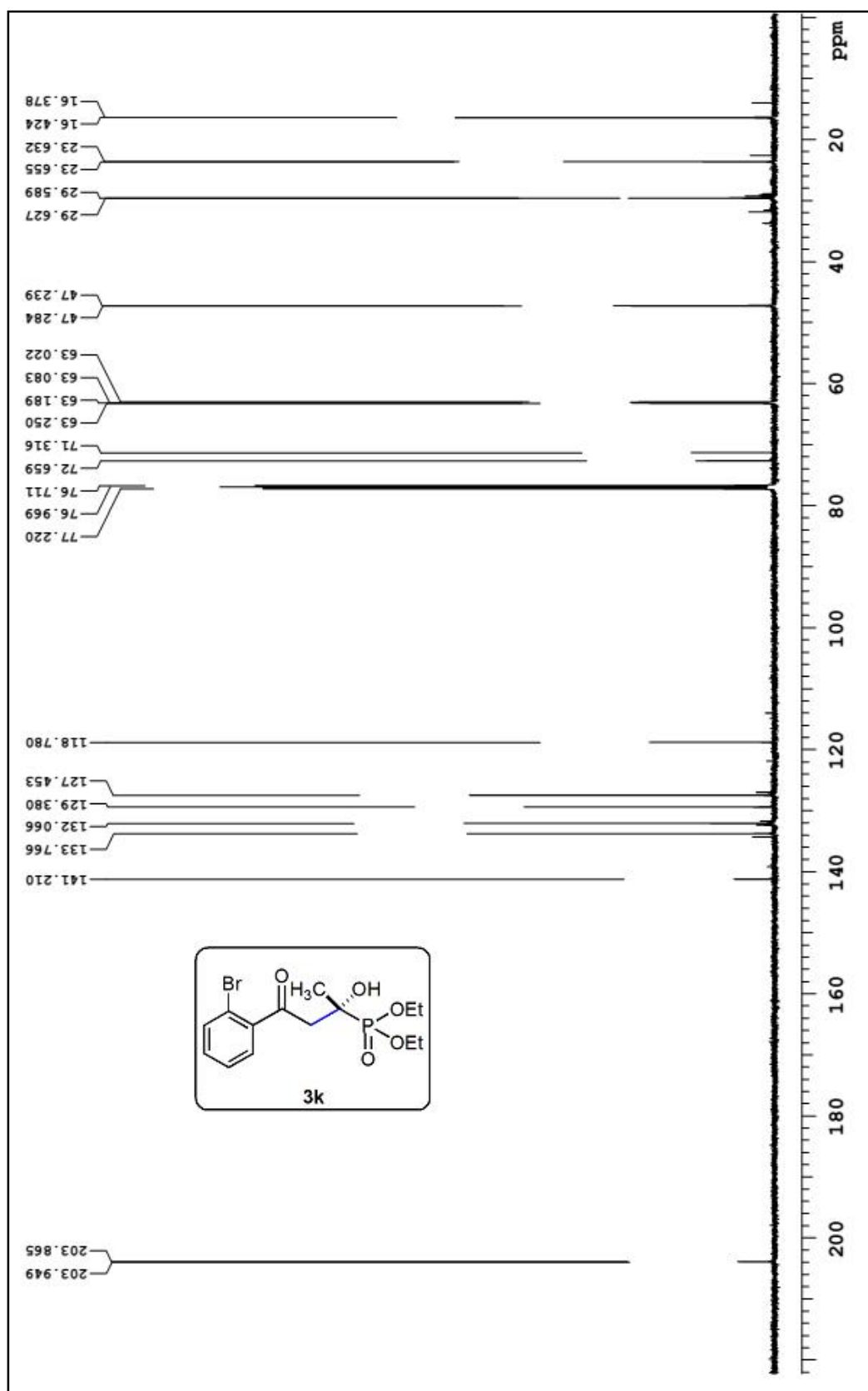
===== CHANNEL f2 =====
 CPDPRG2 Waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 0.50 dB
 PL2W 15.67104816 W
 PL2W 0.17351753 W
 SFO2 500.1362680 MHz
 SF 500.1362680 MHz
 SF 202.4562572 MHz
 MDW EM
 SSB 0
 LB 5.00 Hz
 GB 0
 PC 1.40

— 22.772



90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm

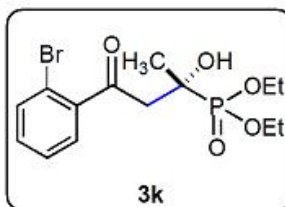




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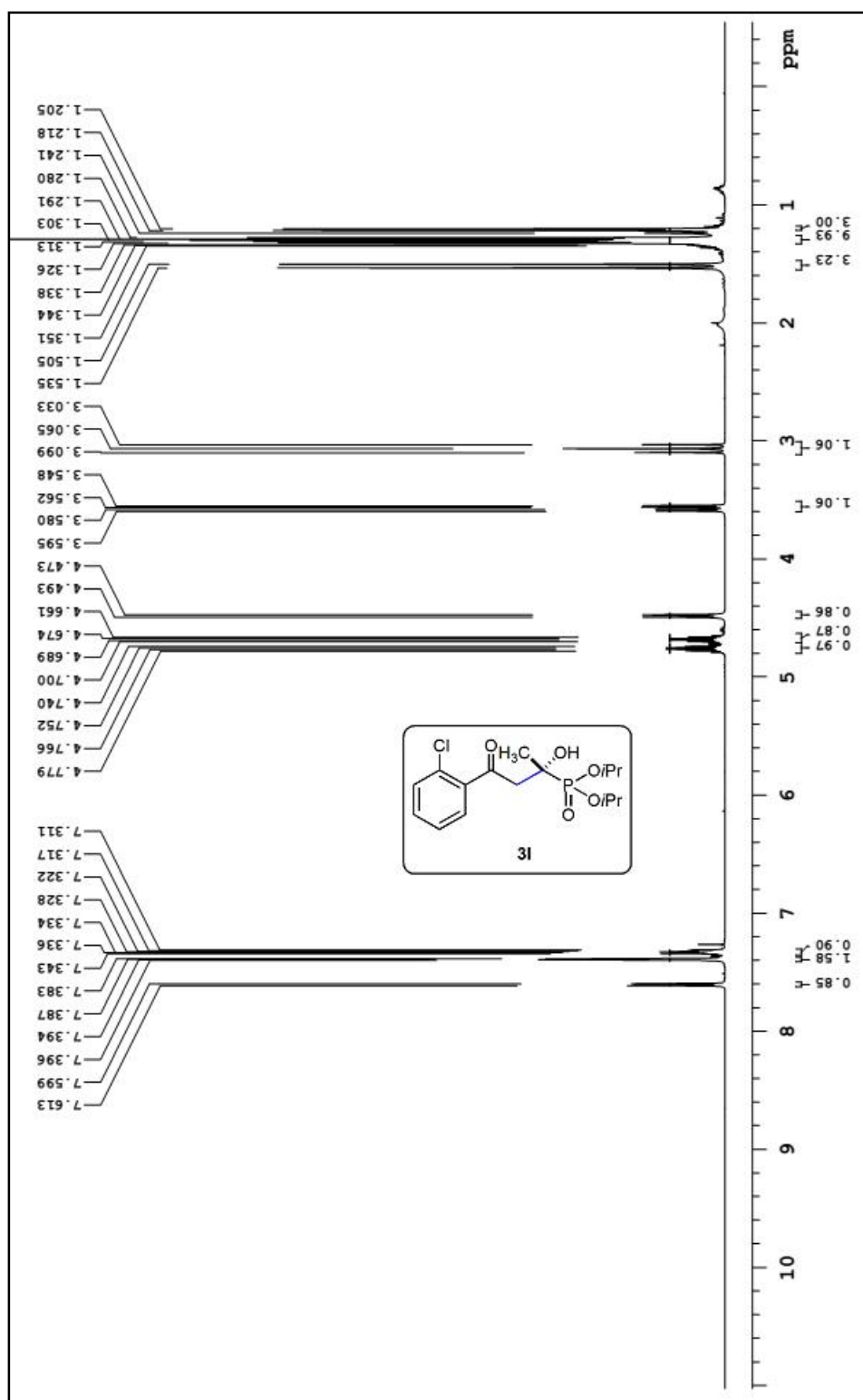
NAME      barc-raqhunath-31p-feb17
EXPNO     9
PROCNO    1
Date_     20170203
Time      11.36
INSTRUM   5 mm BBI 1H-BB
PROBHD    av500
PULPROG   zgpg30
TD         65536
SOLVENT   DMSO-d6
NS         68
DS         2
SWH        40650.406 Hz
FIDRES     2.481104 Hz
AQ         0.2015855 sec
RG         3640
DW         12.300 usec
DE         6.00 usec
TE         300.1 K
D1         1.00000000 sec
D11        0.03000000 sec
TD0        1
=====
CHANNEL f1 =====
NUC1       31P
P1         55.00 usec
PL1        3.00 dB
PL1W       20.14280701 W
SFO1       202.4630090 MHz
=====
CHANNEL f2 =====
CPDPRG2    maltz16
NUC2       1H
PCPD2      80.00 usec
PL2         0.50 dB
PL12       20.05 dB
PL12W      15.67104816 W
PL12W      0.17381935 W
SFO2       500.1325000 MHz
SI         16384
SF         202.4562572 MHz
WDW        EM
SSB         0
LB          5.00 Hz
GB          0
PC         1.40

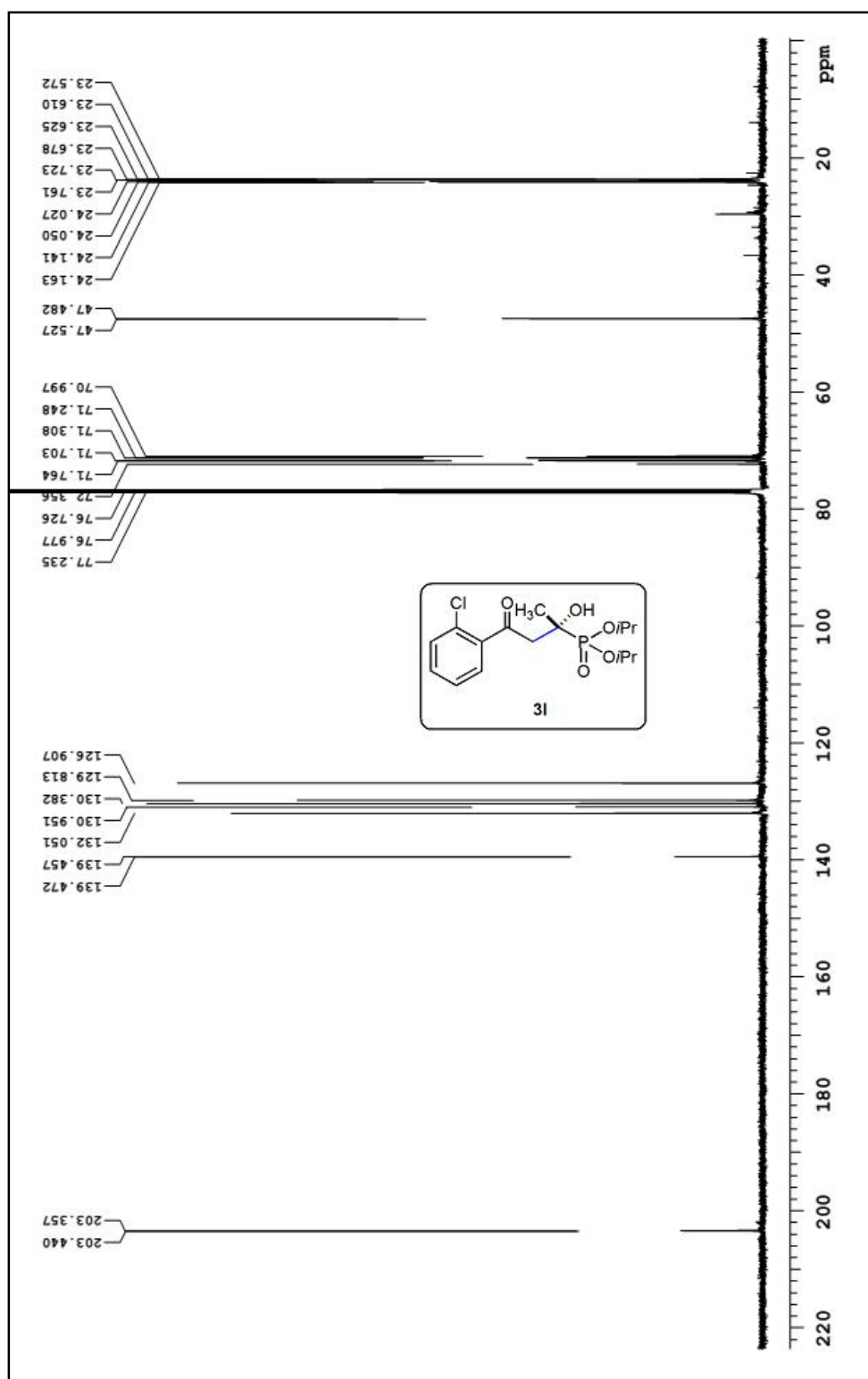
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— 24.458







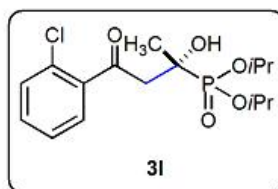
NAME barc-radunath-31p-feb17
 EXPNO 13
 PROCNO 1
 Date_ 20170203
 Time 11:47
 INSTRUM av500
 PROBHD 5 mm BBI 1H-BB
 PULPROG zgpg30
 TD 16384
 SOLVENT CDCl3
 NS 68
 DS 2
 SWH 40650.406 Hz
 FIDRES 2.481104 Hz
 AQ 0.2015855 sec
 RG 3640
 DW 12.300 usec
 DE 6.00 usec
 TE 300.1 K
 D1 1.0000000 sec
 D11 0.0300000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 3.00 dB
 PL1W 20.14280701 W
 SFO1 202.4630090 MHz

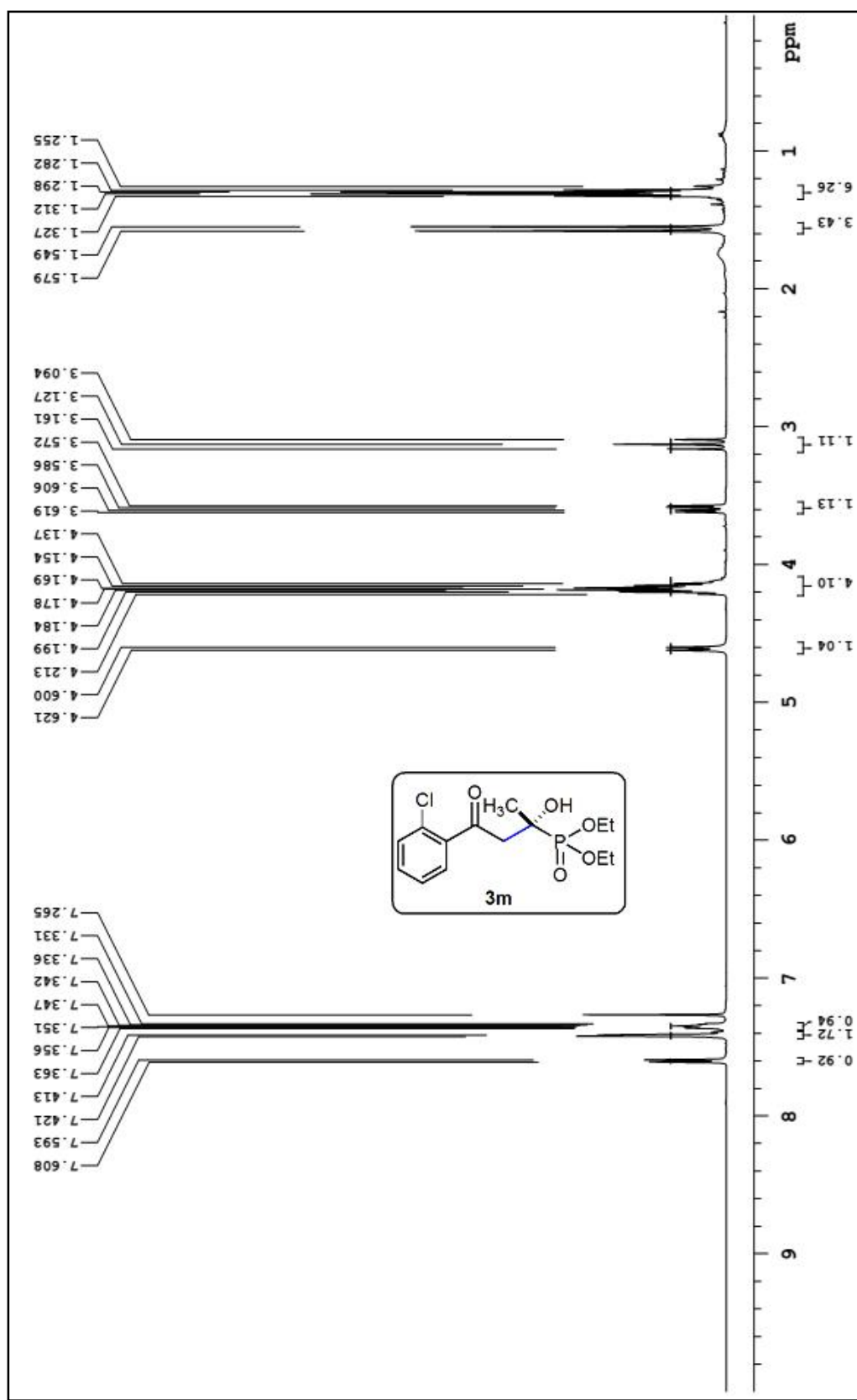
===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 P2 80.00 usec
 PL2 0.50 dB
 PL2W 20.00000000 W
 PL12W 15.67104816 W
 SFO2 500.1325000 MHz
 SI 16384
 SF 202.4562572 MHz
 WDW EM
 SSB 0
 LB 5.00 Hz
 GB 0
 PC 1.40

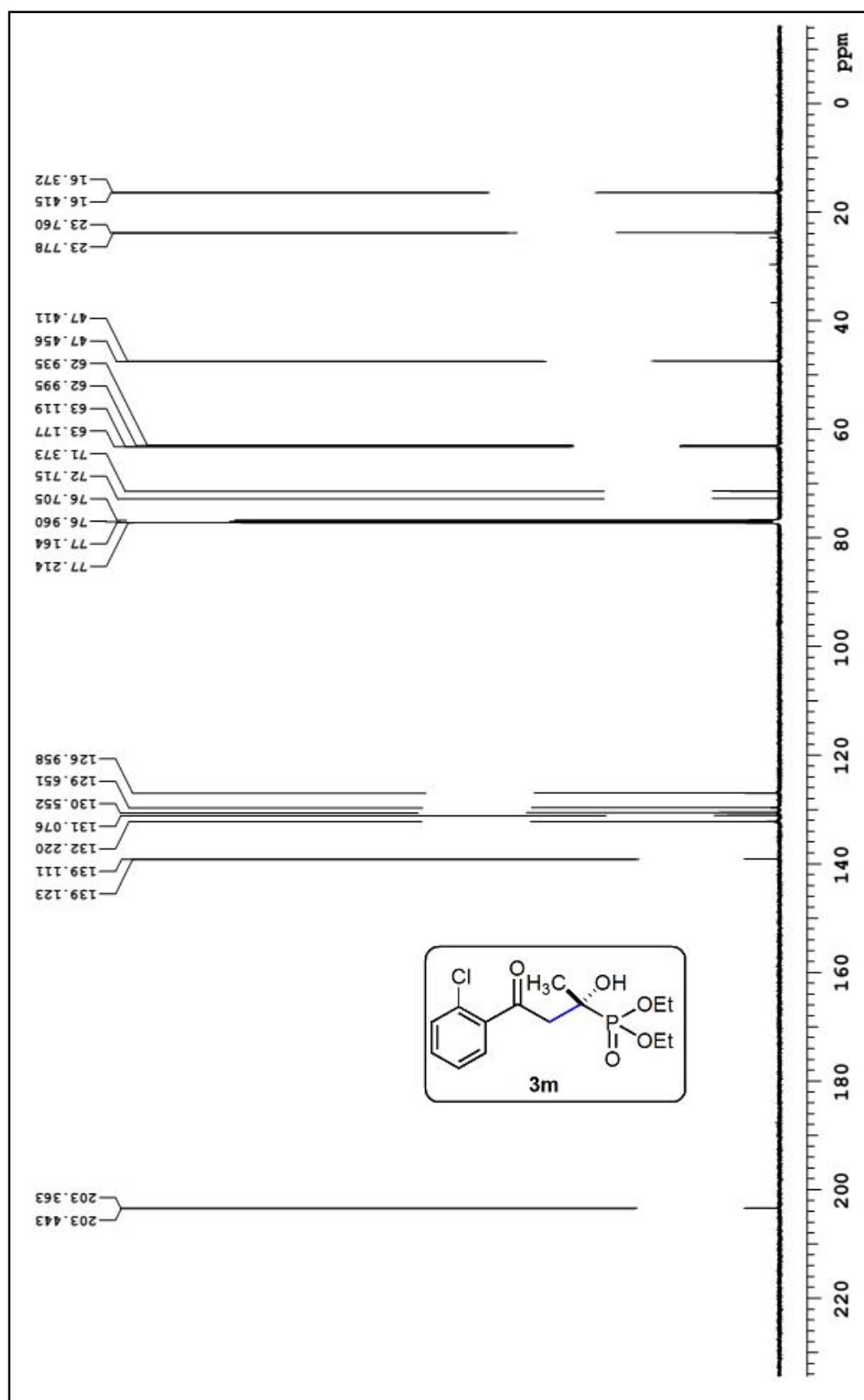
VGB 695 31P

22.813



90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm





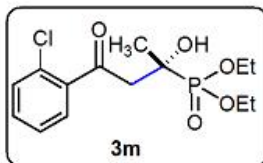
NAME barc-raghunath-31p-feb17
 EXPNO 1
 PROCNO 14
 Date_ 20170203
 Time 11:52
 INSTRUM aw500
 PULPROG zgpg30
 PCPD 5 mm BBI 1H-BB
 TD 65536
 F2 16384
 SOLVENT CDCl3
 NS 70
 DS 2
 SMH 40650.406 Hz
 FIDRES 2.481104 Hz
 AQ 0.2015855 sec
 RG 3640
 DW 12.300 usec
 DE 6.00 usec
 TE 300.1 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 3.00 dB
 PL1W 20.14280701 W
 SFO1 202.4630090 MHz

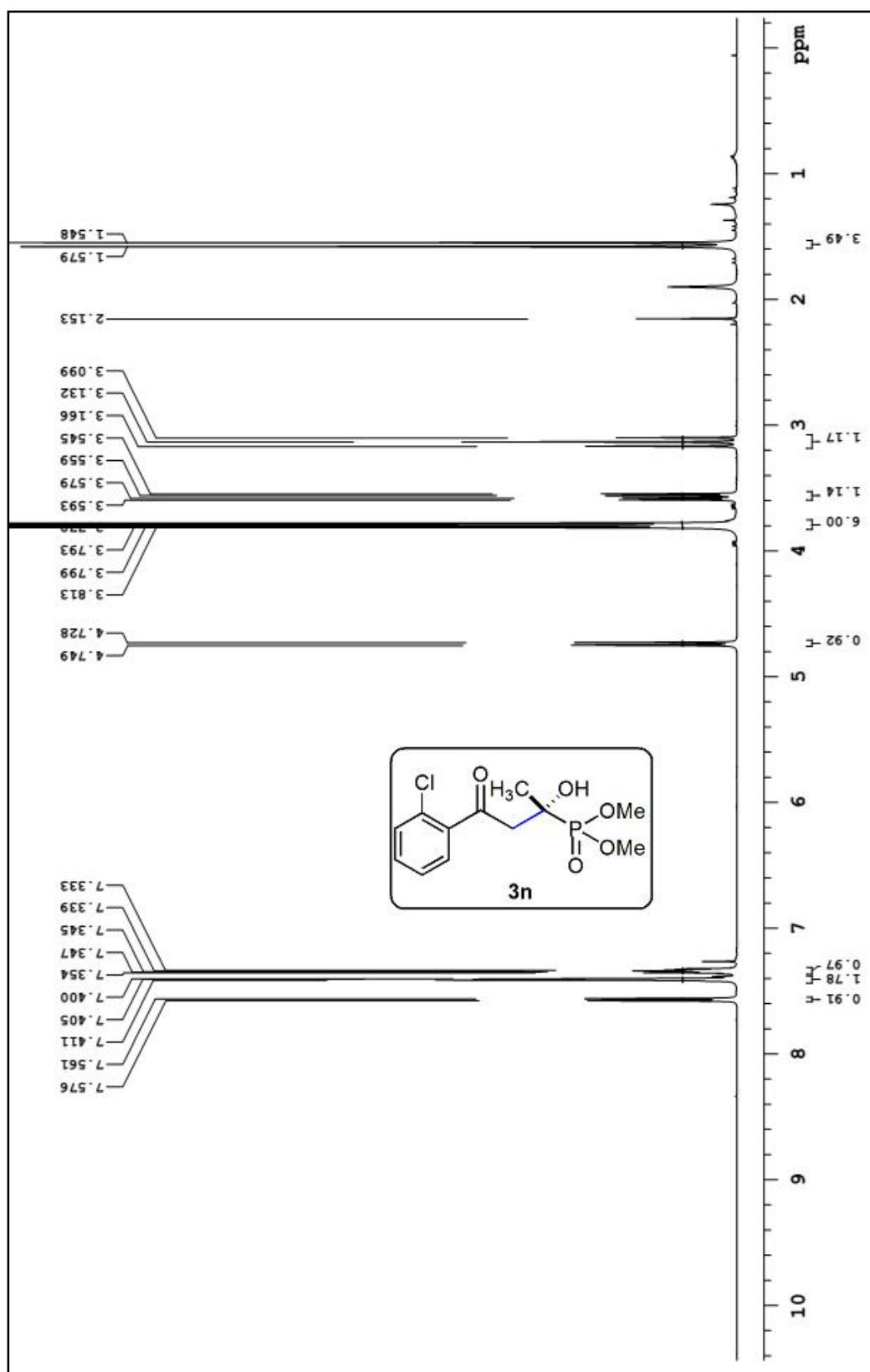
===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 F2 500.136052 MHz
 P2 80.00 usec
 PL2 0.50 dB
 PL2W 20.14280701 W
 PL12W 15.67104802 W
 SFO2 500.136052 MHz
 SI 0.17381935 %
 SF 202.4562572 MHz
 WDW EM
 SSB 0
 LB 5.00 Hz
 GB 0
 PC 1.40

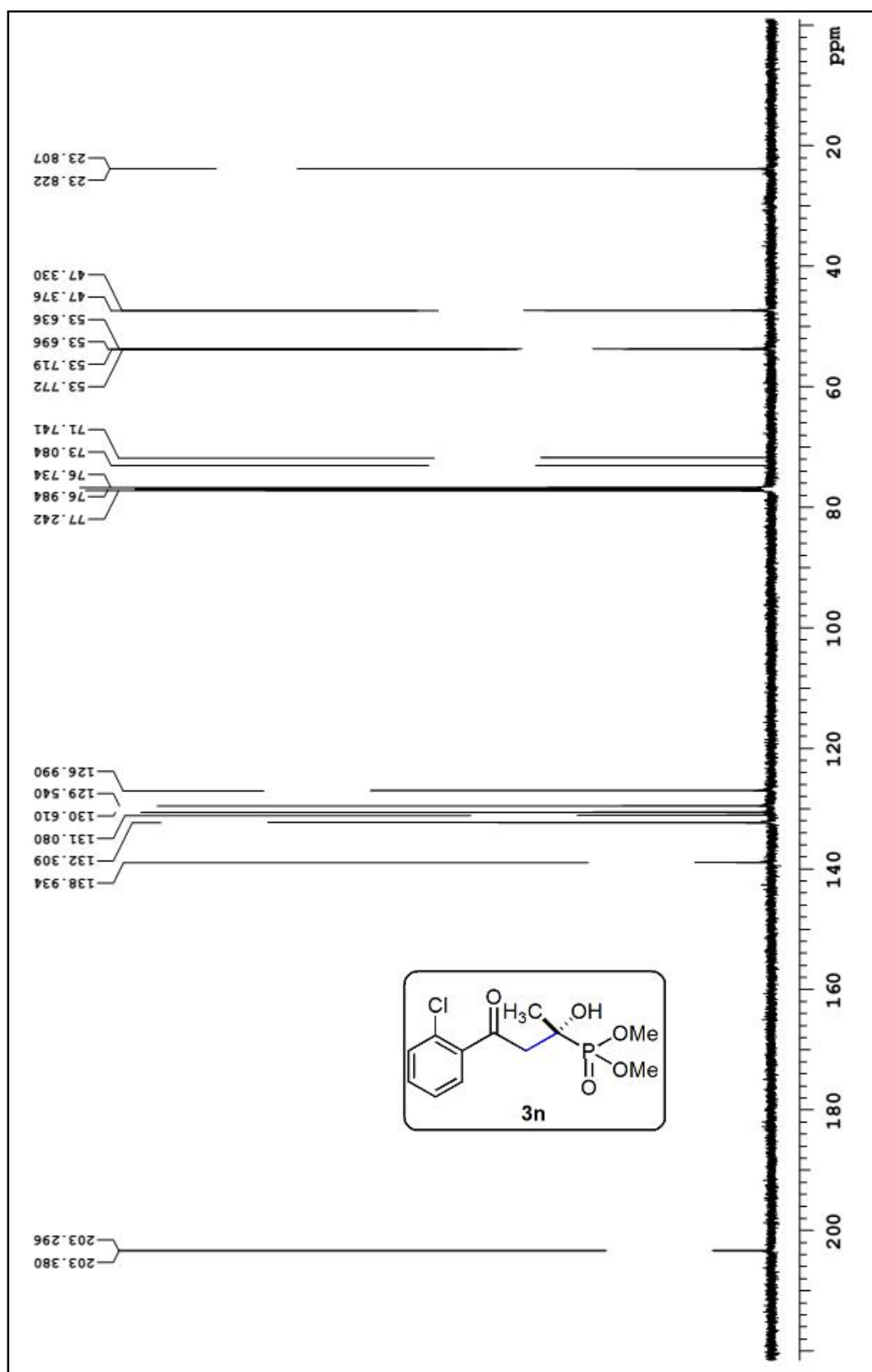
VGB 702 31P

24.492



90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm





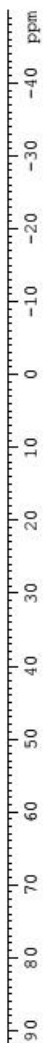
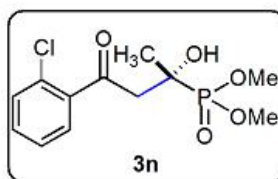
NAME barc-ragunath-31p-feb17
 EXPNO 11
 PROCNO 1
 Date_ 20170203
 Time 11:39
 INSTRUM av500
 PROBHD 5 mm BBI 1H-BB
 PULPROG zgpg30
 TD 16384
 SOLVENT CDCl3
 NS 66
 DS 2
 SWH 40650.406 Hz
 FIDRES 2.481104 Hz
 AQ 0.2015855 sec
 RG 3640
 DW 12.300 usec
 DE 6.00 usec
 TE 300.1 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 TD0 1

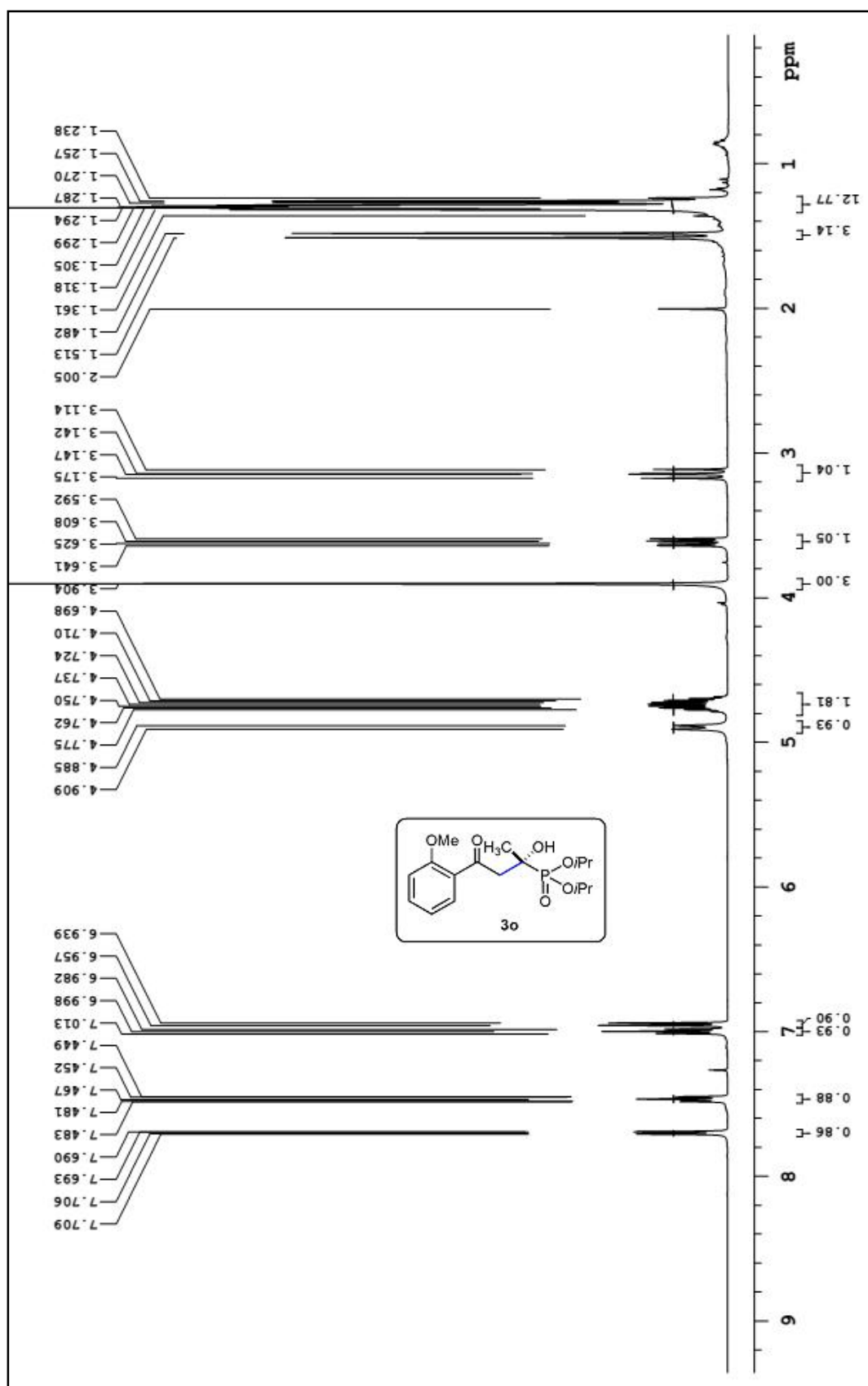
===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 3.00 dB
 PL1W 20.14280701 W
 SFO1 202.4630090 MHz

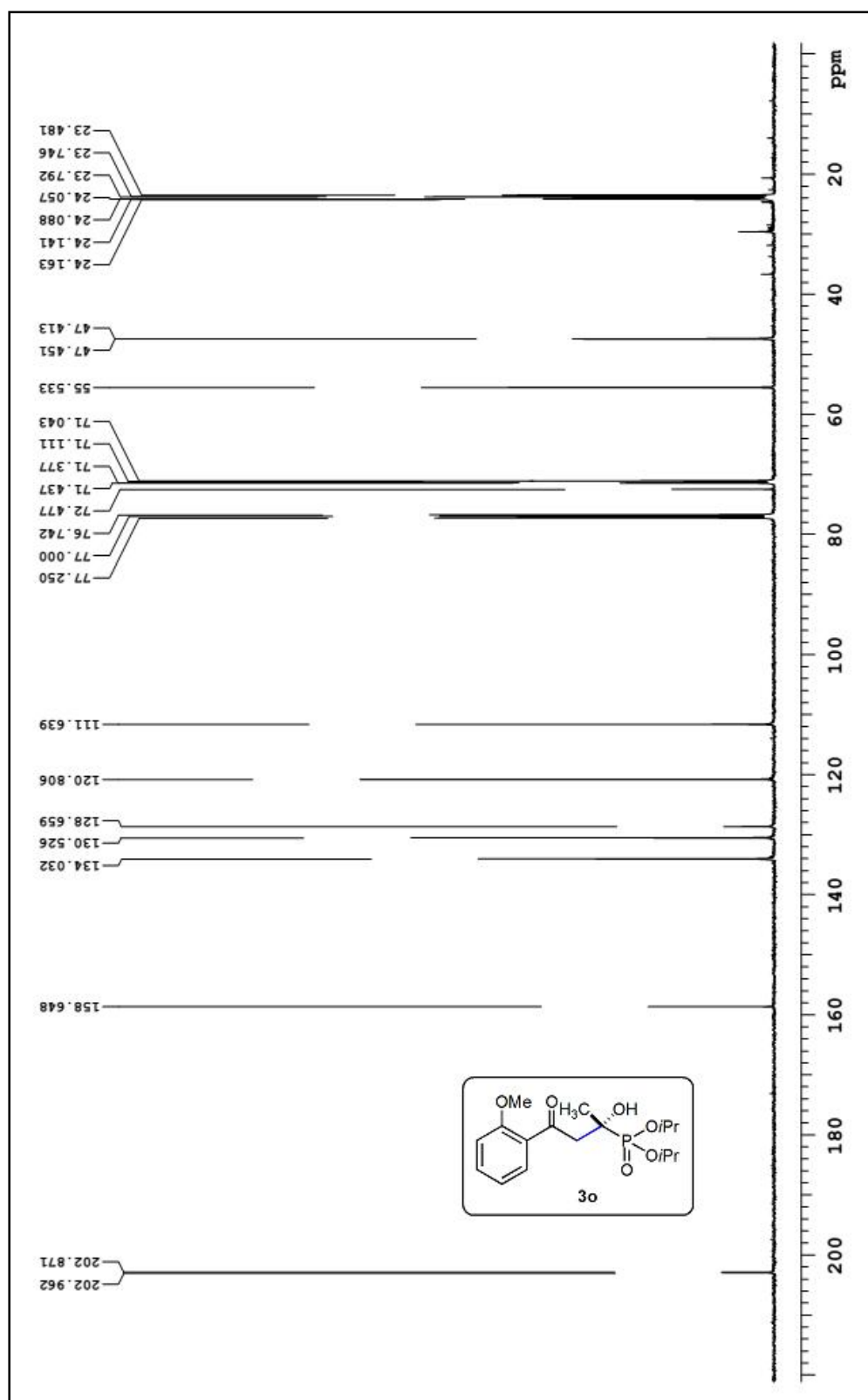
===== CHANNEL f2 =====
 CPDPRG2 Waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 0.50 dB
 PL12 20.05 dB
 PL12W 15.67104816 W
 PL12W 0.17381935 W
 SFO2 500.1325000 MHz
 SI 16384
 SF 202.4562572 MHz
 WDW EM
 SSB 0
 LB 5.00 Hz
 GB 0
 PC 1.40

VGB 693 31P

26.642







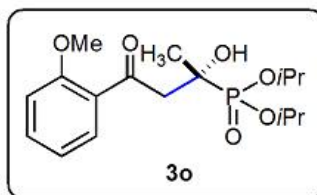
NAME barc-ragunath-31p-feb17
 EXPNO 12
 PROCNO 1
 Date_ 20170203
 Time 11.43
 INSTRUM av500
 PROBHD 5 mm BBI 1H-BB
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 66
 DS 2
 SWH 40650.406 Hz
 FIDRES 2.481104 Hz
 AQ 0.2015855 sec
 RG 3640
 DW 12.300 usec
 DE 6.00 usec
 TE 300.1 K
 D1 1.00000000 sec
 D11 0.03000000 sec
 TD0 1

===== CHANNEL f1 =====
 NUC1 31P
 P1 55.00 usec
 PL1 3.00 dB
 PL1W 20.14280701 W
 SFO1 202.4630090 MHz

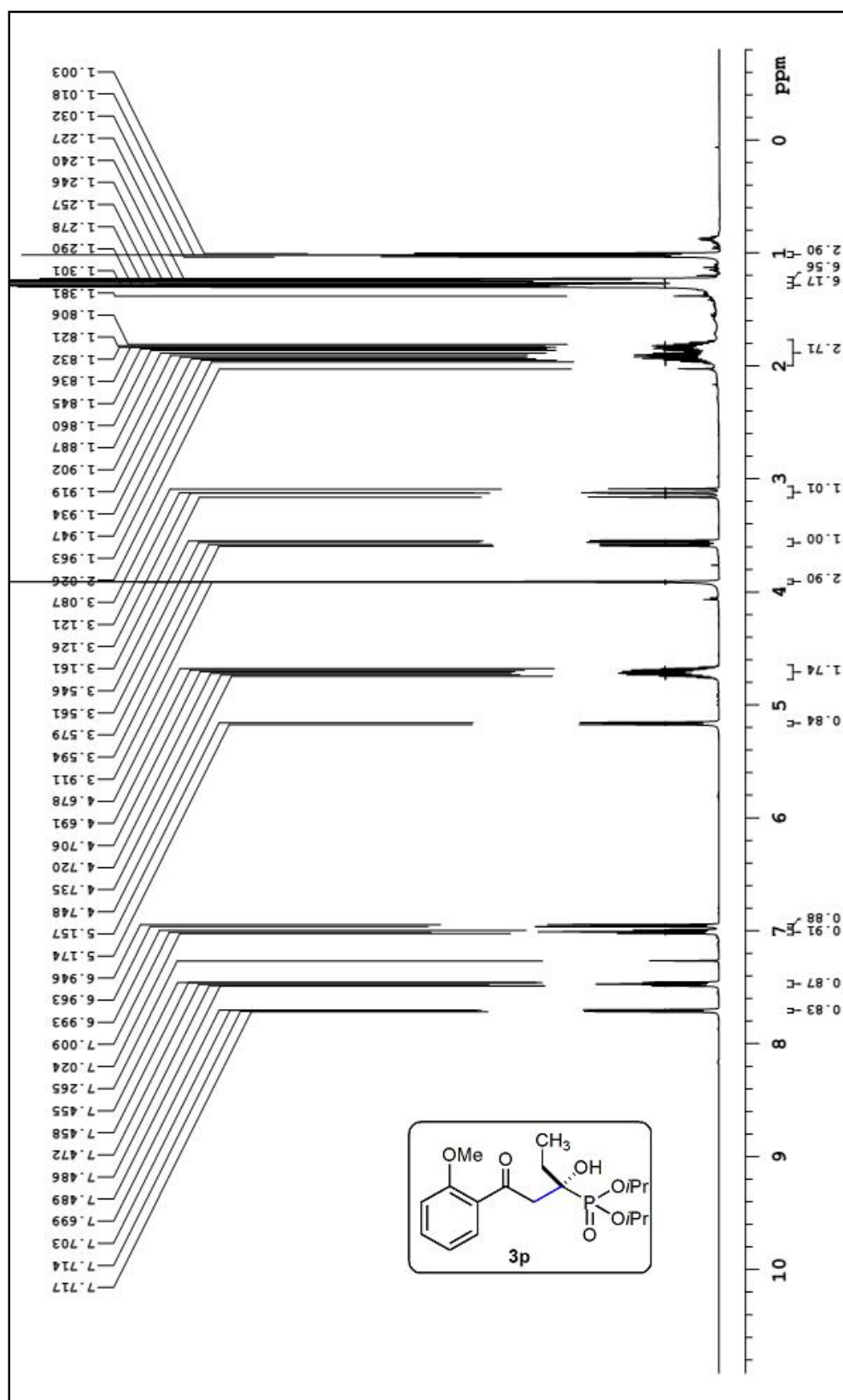
===== CHANNEL f2 =====
 CDPORG2 Waltz16
 NUC2 1H
 PCPD2 80.00 usec
 PL2 0.50 dB
 PL12 20.05 dB
 PL12W 15.67104816 W
 PL2W 0.17381935 W
 SFO2 500.1325000 MHz
 SI 16384
 SF 202.4562572 MHz
 XDW 0
 YDW 0
 ZDW 0
 LB 5.00 Hz
 GB 0
 PC 1.40

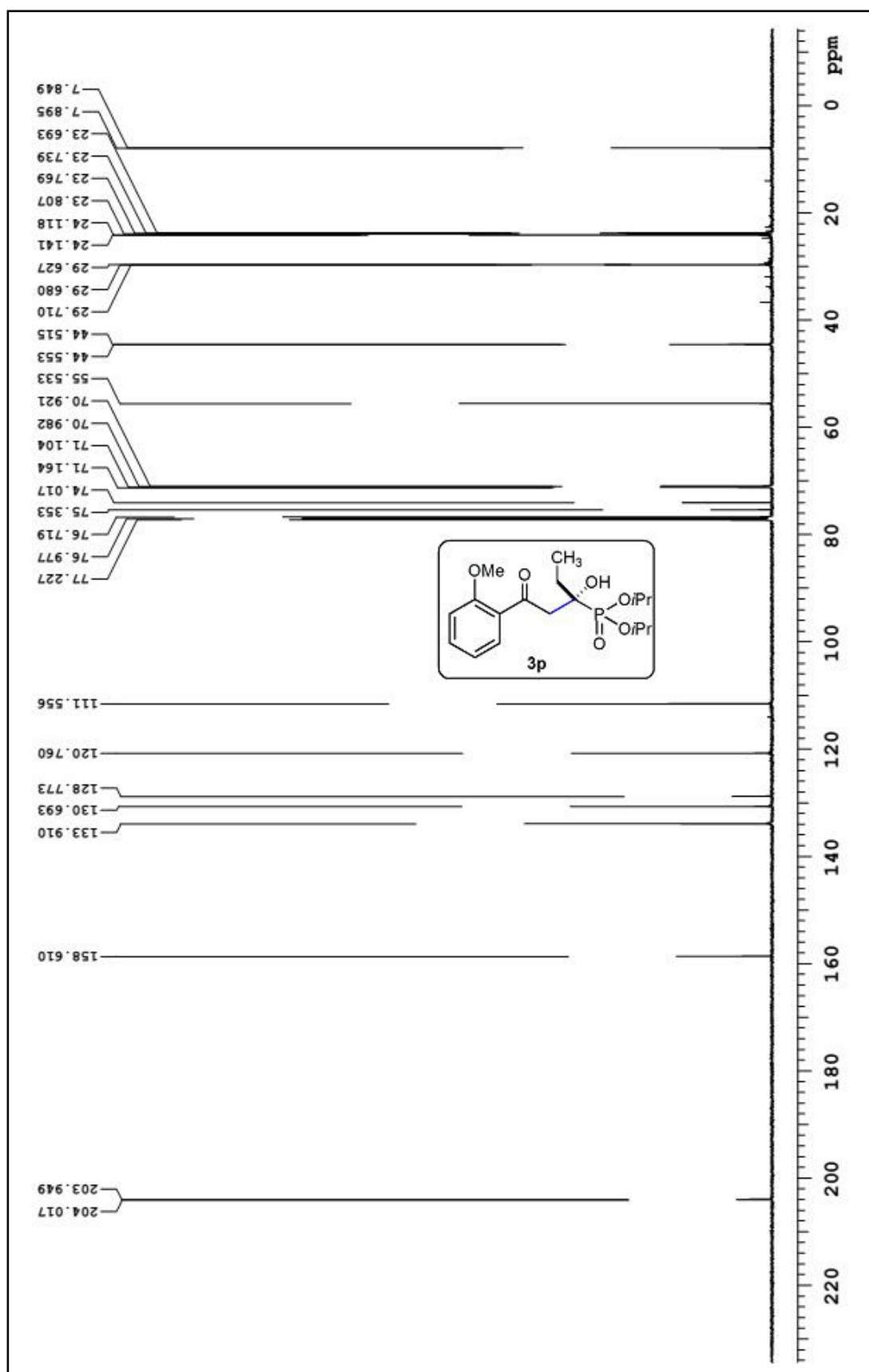
VGB 705 31P

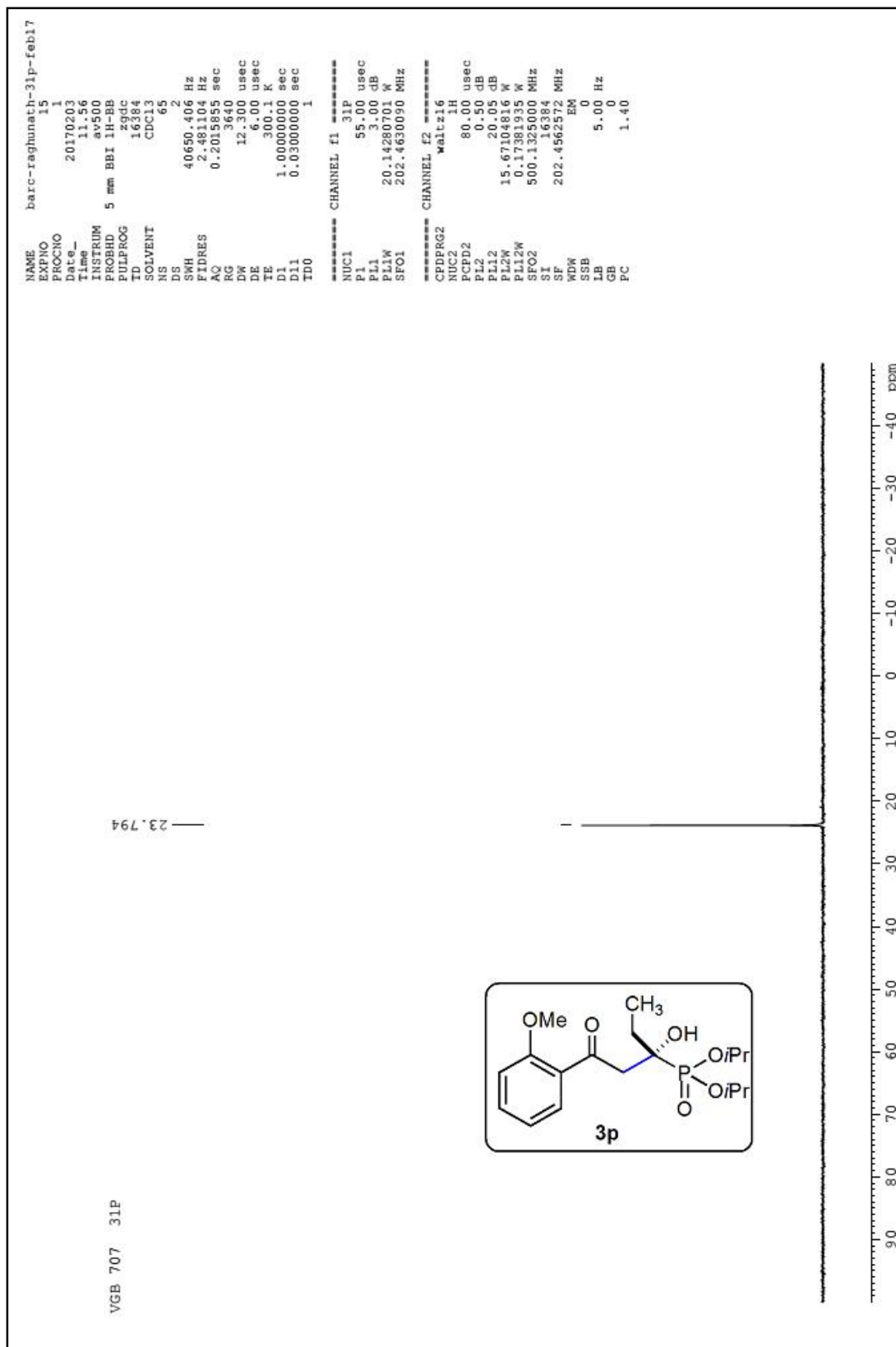
23.476

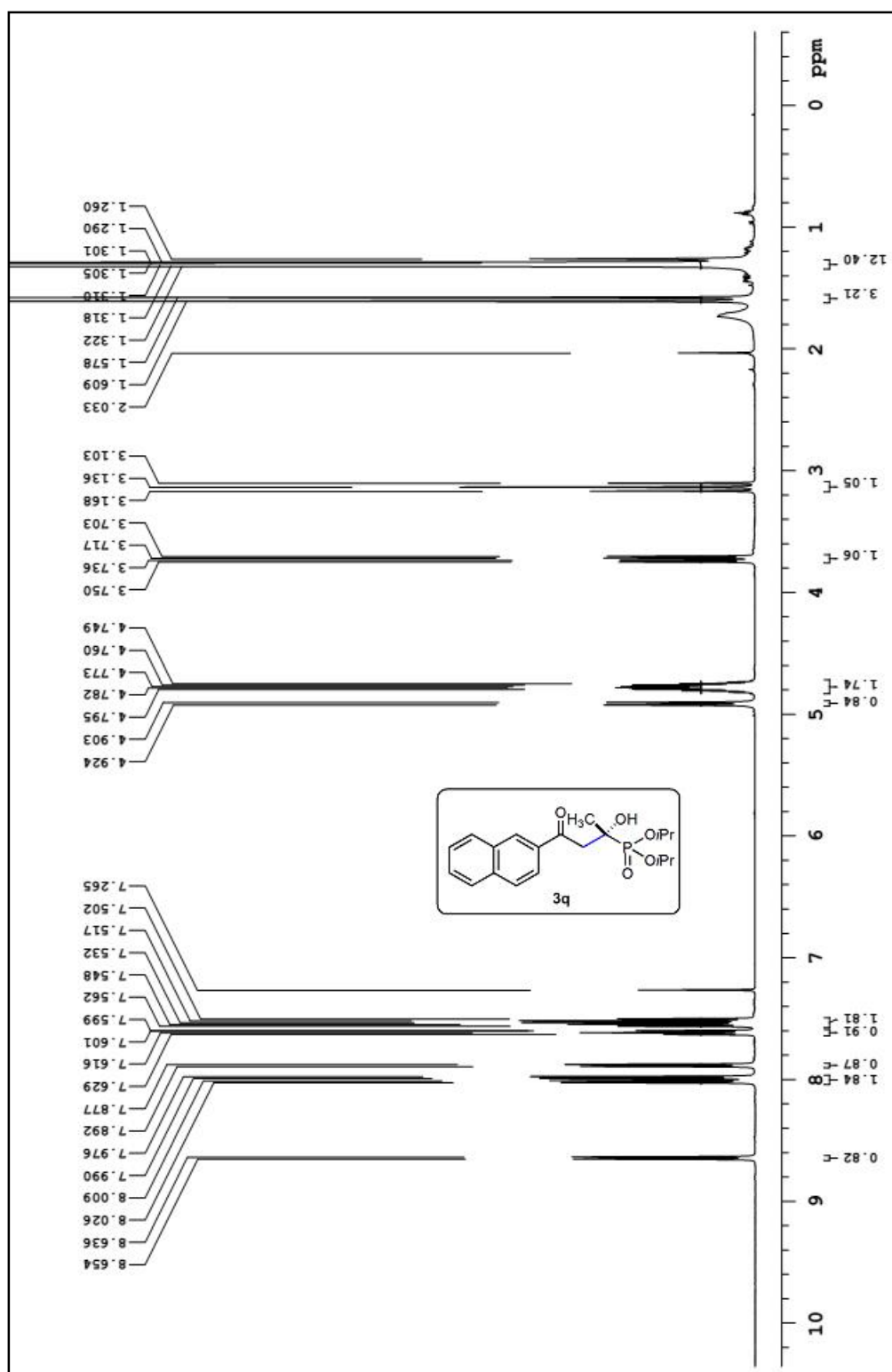


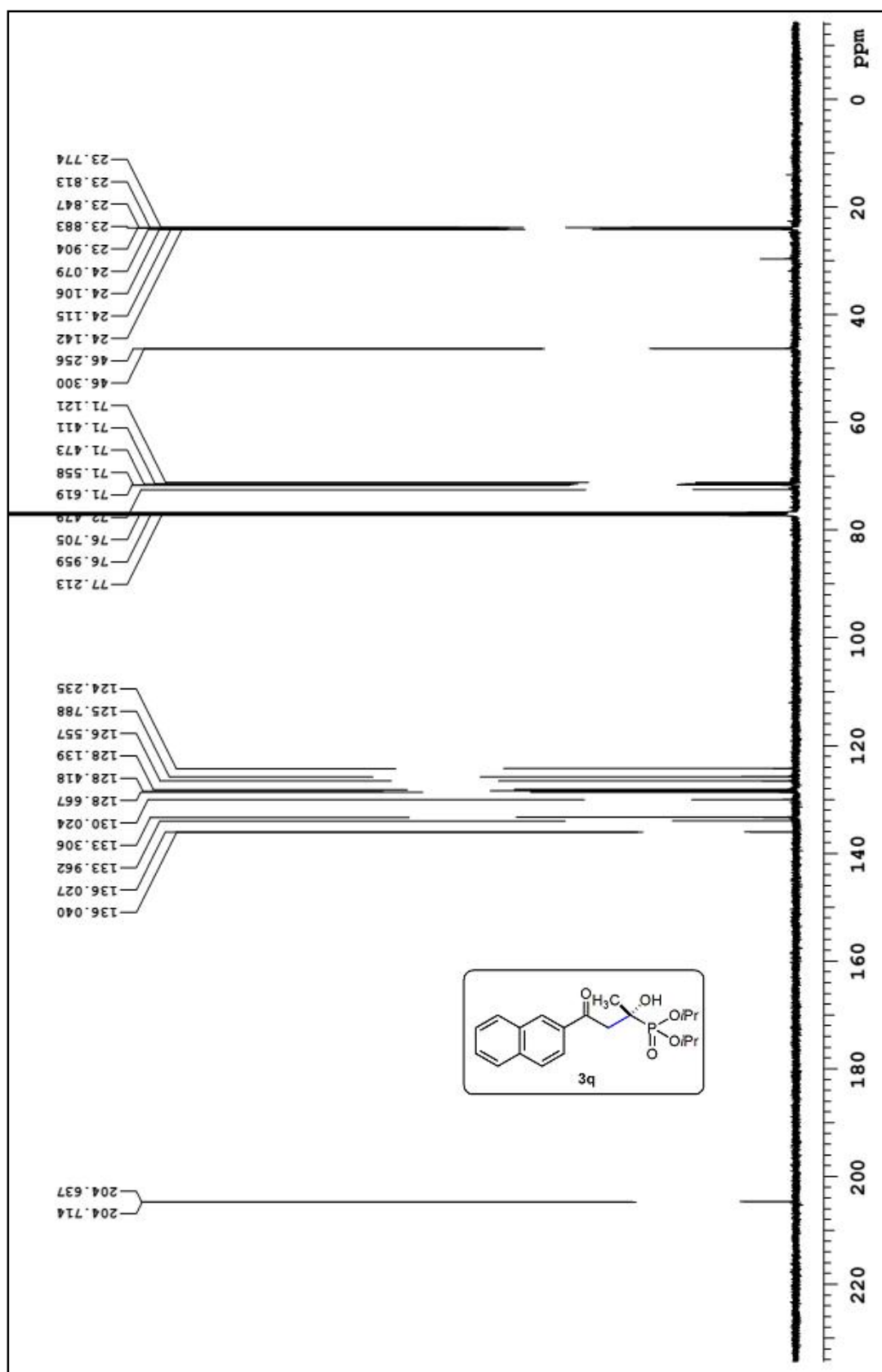
90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm









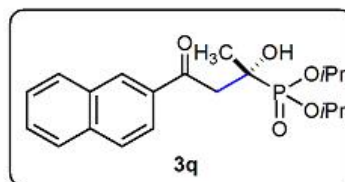


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NAME      barc-raghunath-31p-feb17
EXPNO     3
PROCNO    1
Date_     20170203
Time      10.53
INSTRUM   5 mm BBI 1H-BB
PROBHD    av500
PULPROG   zgpg30
PCPD2     16014
SOLVENT   CDCl3
NS         655
DS         2
SWH        40650.406 Hz
FIDRES     2.481104 Hz
AQ         0.2015855 sec
RG         3640
DW         12.300 usec
DE         6.00 usec
TE         300.0 K
D1         1.00000000 sec
D11        0.03000000 sec
TD0        1
===== CHANNEL f1 =====
NUC1       31P
PI1        55.00 usec
PL1        3.00 dB
PL1W       20.14280701 W
SFO1       202.4630090 MHz
===== CHANNEL f2 =====
CPDPRG2    maltz16
NUC2        1H
PCPD2       80.00 usec
PL2         0.50 dB
PL2W       15.67104816 W
PL2W       0.17381935 W
SFO2       500.1323000 MHz
SF         500.1323000 MHz
WDW         EM
SSB         0
LB          5.00 Hz
GB          0
PC          1.40

```

— 23.200



90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40 ppm