Supporting Information

Synthesis of α-Amino Acid Precursors Directly from Aldehydes using Masked Acyl Cyanide Reagents and N,O-Dialkylated Hydroxylamines

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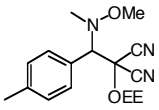
General Experimental Methods. Melting points were determined using Yanagimoto Micro Melting Point Apparatus and are uncorrected. IR spectra were recorded on PERKIN-ELMER 1720 or *JASCO* FT-IR/420 Infrared Fourier Transfer Spectrometer indicating with cm^{-1}. ^{1}H and ^{13}C NMR spectra were measured with JEOL JMN-AL300 Spectrometer at 300MHz and 75MHz, respectively, in chloroform-*d*, and chemical shifts are indicated as δ value in ppm from internal tetramethylsilane at 25˚C unless otherwise noted. High Resolution Mass Spectra (HRMS) were measured with JEOL JMS-DX303. Elementary analyses were performed on Yanagimoto CHN corder MT-3. HPLC was preformed on HITACHI L-7000 instrument equipped with HITACHI L-7400 UV detector. GPC (Gel Permeation Chromatography) was preformed on Shodex H 2001, 2002 with chloroform as the eluent. Optical rotations were measured with JASCO DIP-370 digital polarimeter. Methanol was distilled over magnesium methoxide. Pyridine, 2,6-lutidine, diisopropylethylamine (DIEA) and triethylamine (Et_3N) were distilled over potassium hydroxide. Dichloromathane (CH_2Cl_2) was distilled over phosphorous pentoxide. Acetonitrile was distilled over calcium hydride. Diethyl ether, benzene, toluene and hexane were distilled over sodium/benzophenone. Anhydrous tetrahydrofuran (THF) was purchased from Kanto Chemicals. All aldehydes and ketones were distilled or recrystallized before use. All the reactions were carried out under nitrogen atmosphere unless otherwise noted.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CN
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OEE

18a

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7
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5
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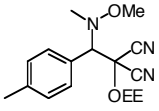
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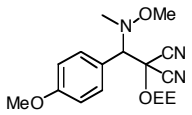
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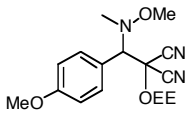
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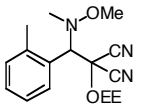
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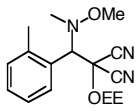
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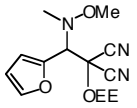
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O
OEE

18d

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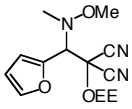
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CN
CN
O
OEE

18d

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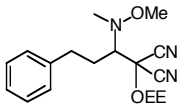
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OEE

18e

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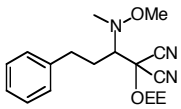
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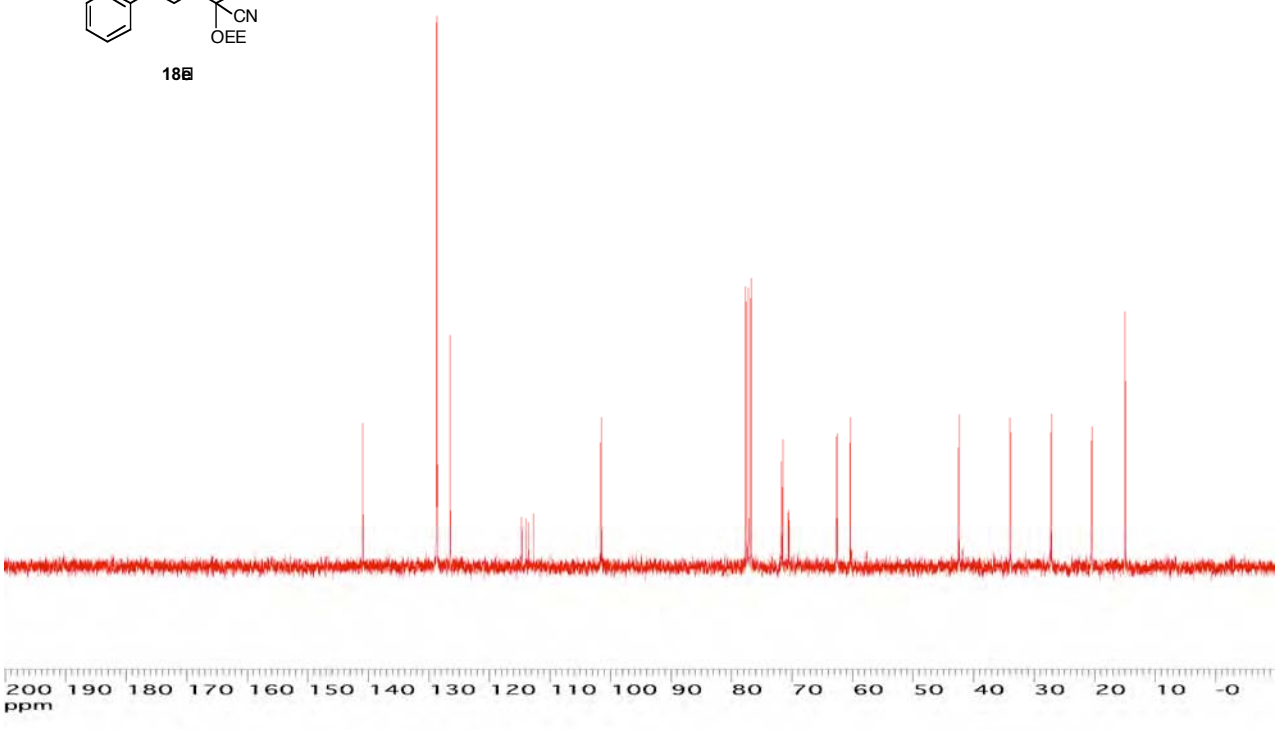
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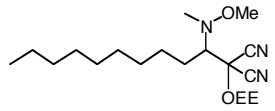
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CN
CN
OEE

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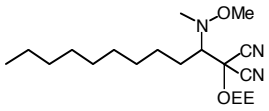
ppm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CN
CN
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18f

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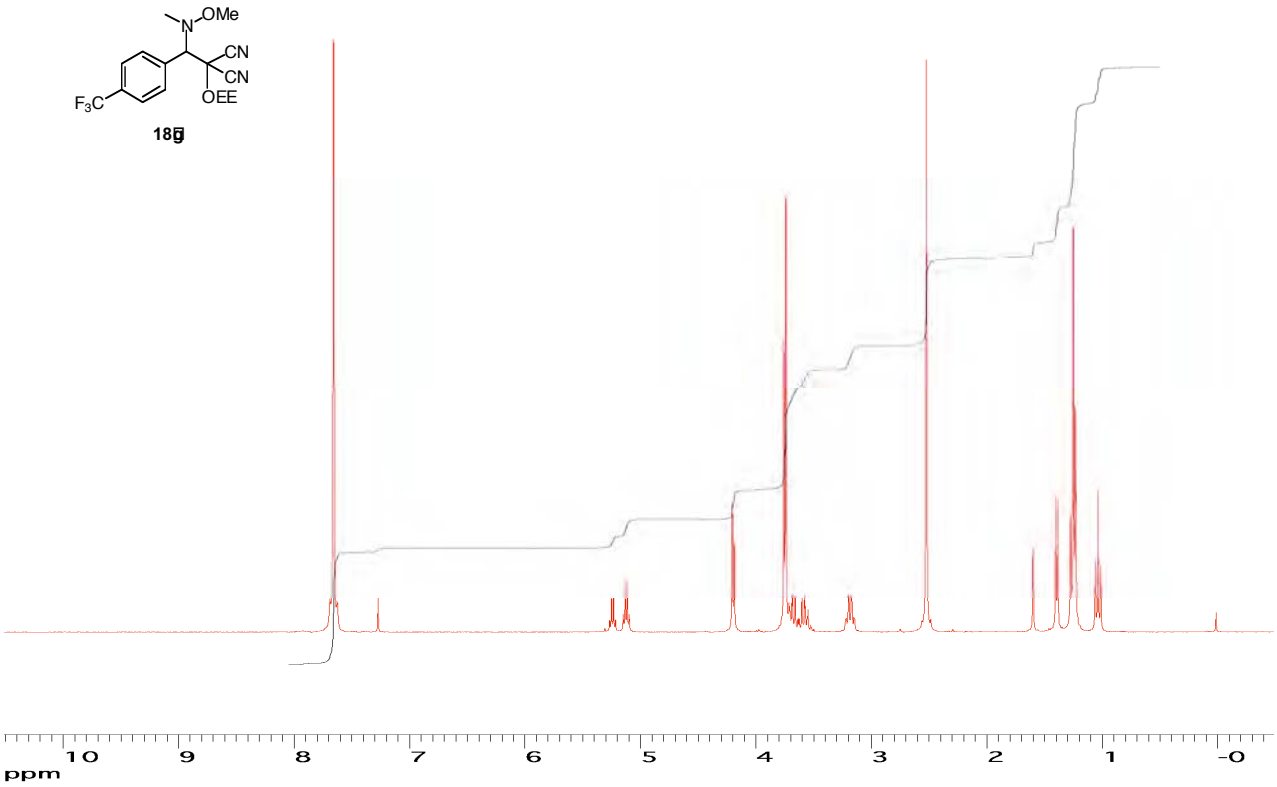
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CN
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OEE
F3C
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7
6
5
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3
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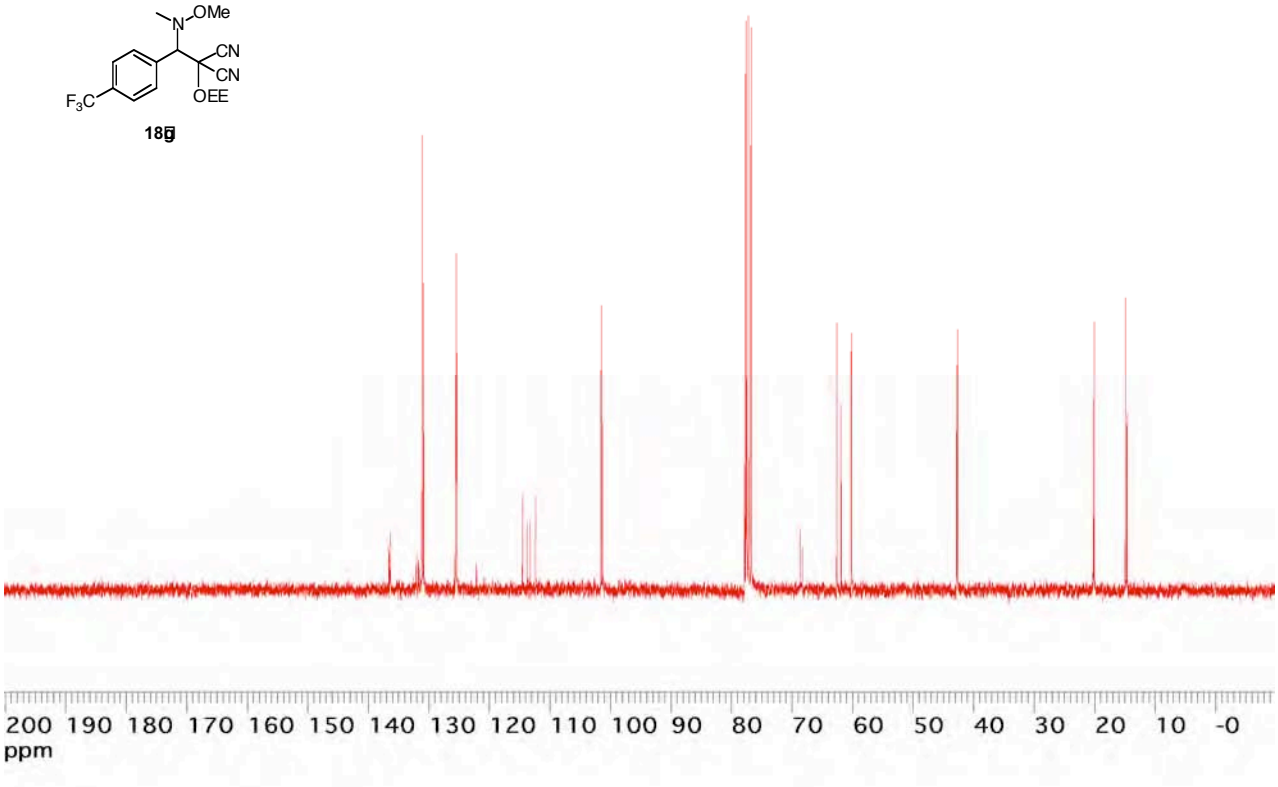
ppm

18g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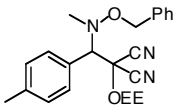
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CN
CN
OEE

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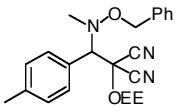
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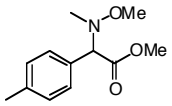
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OMe
O

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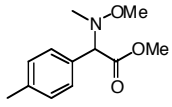
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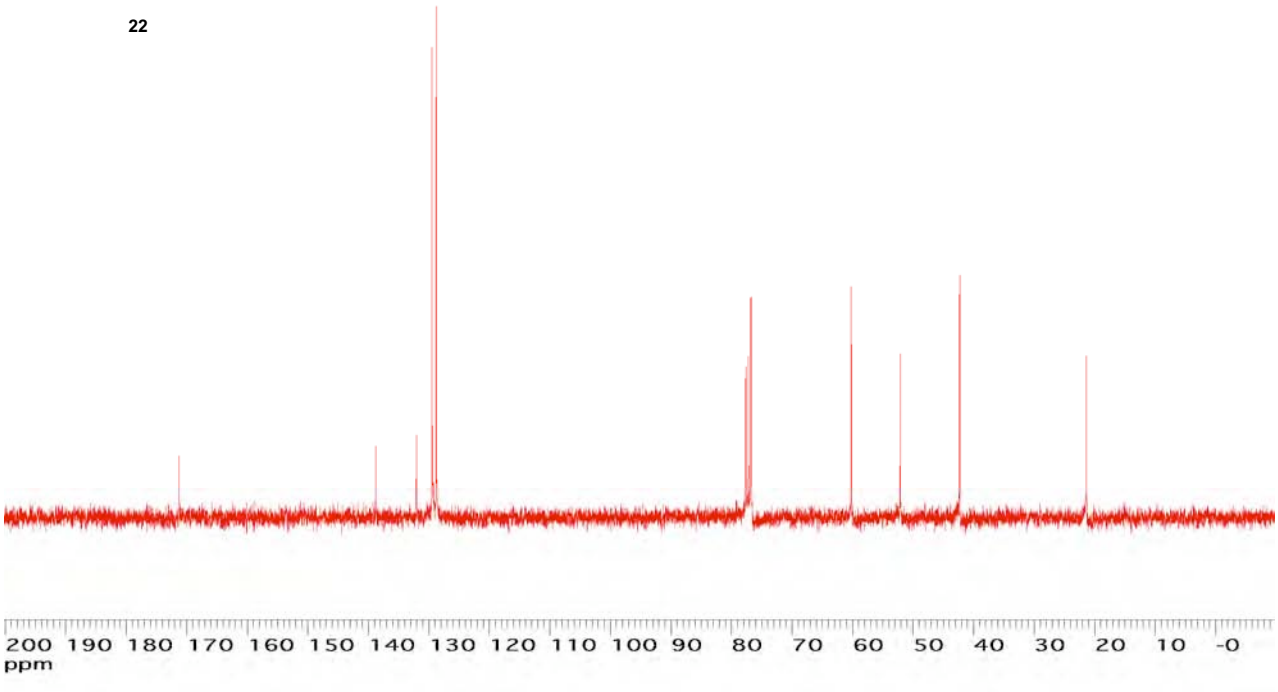
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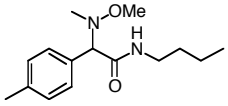
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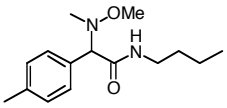
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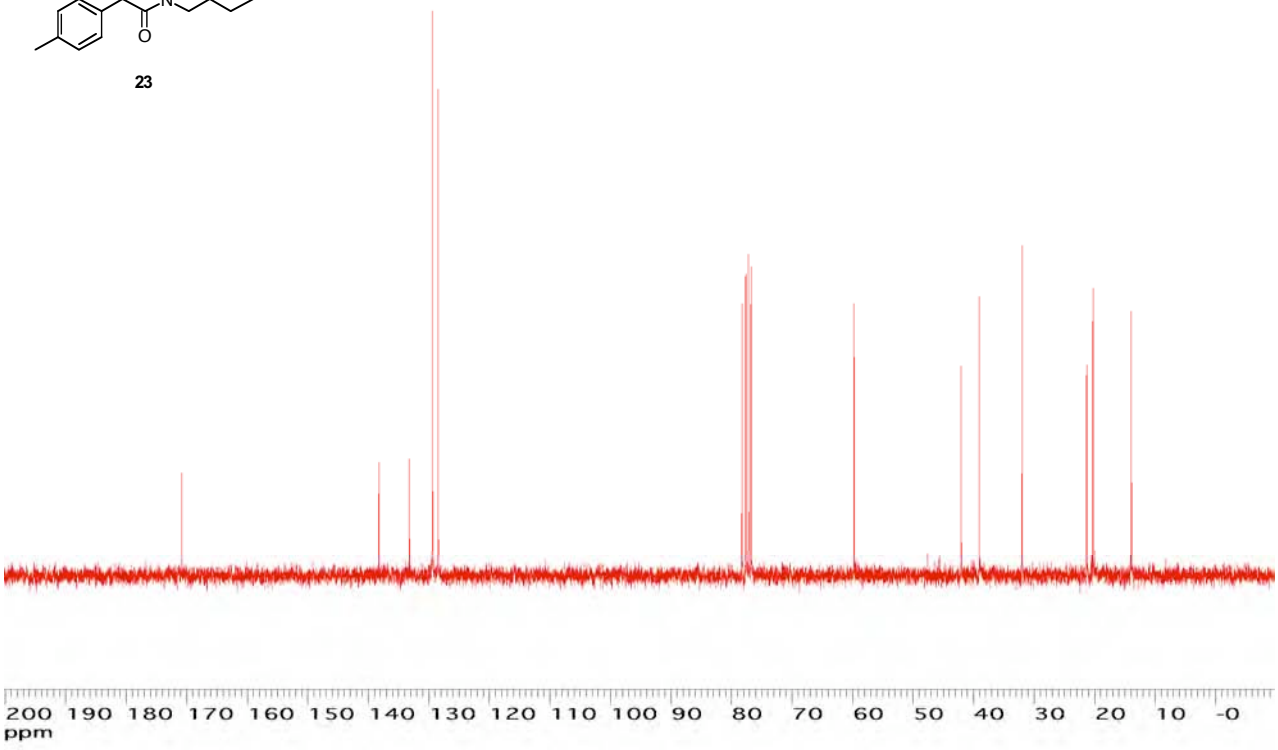
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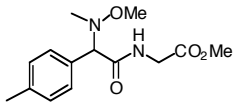
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N
CO2Me
O

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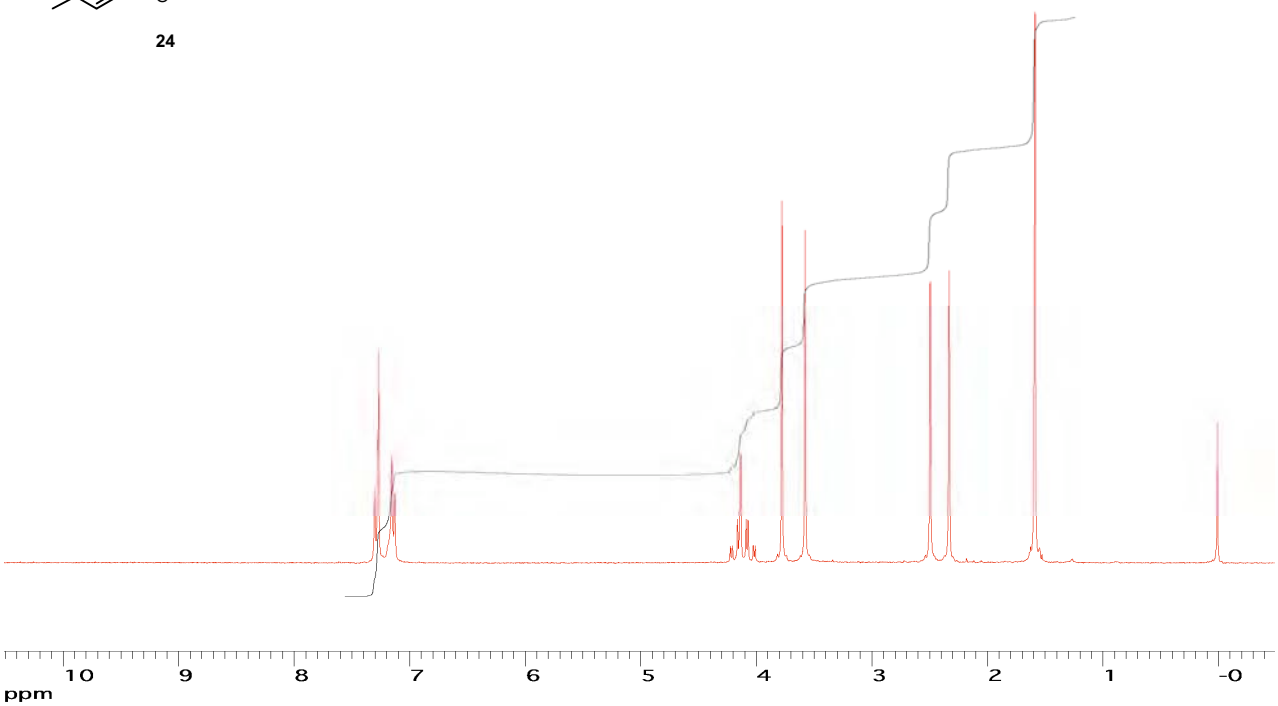
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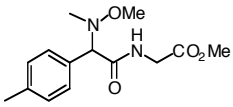
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CO2Me
O

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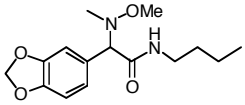

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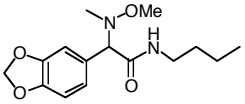

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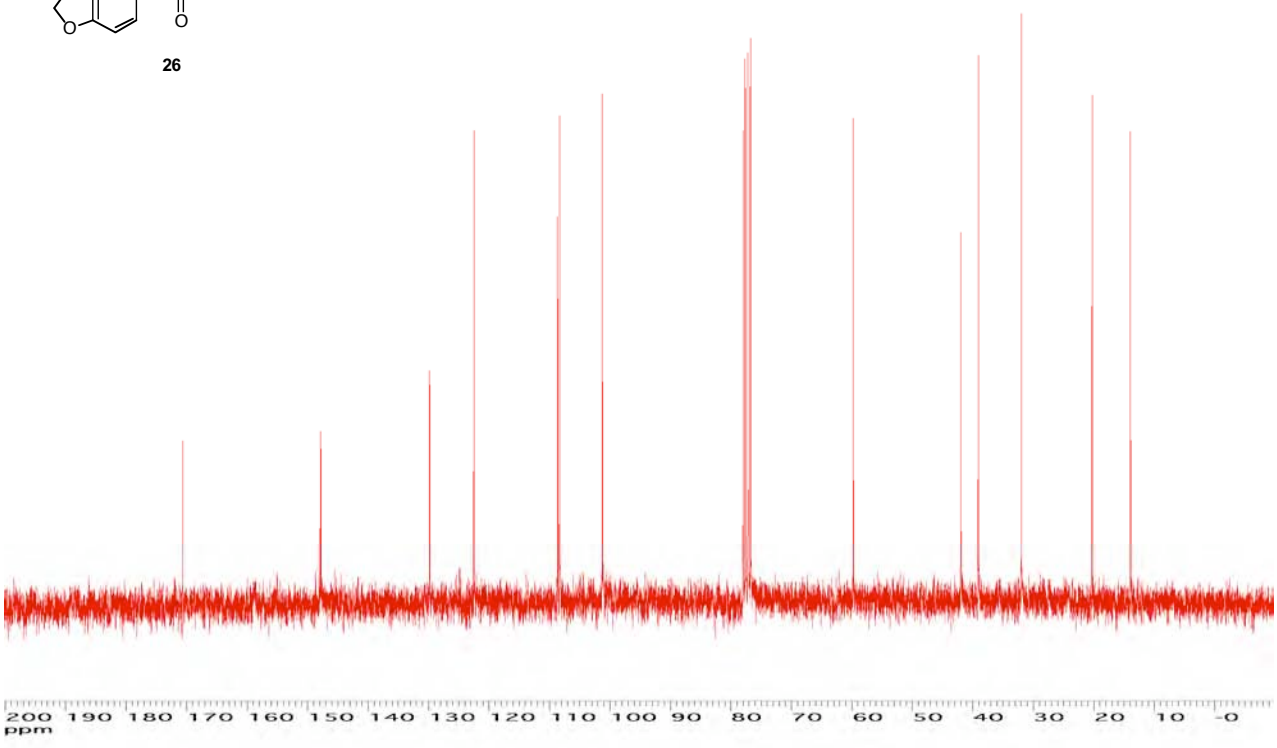
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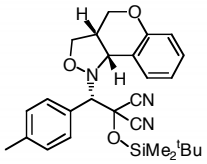
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O
N
H
CN
CN
O
SiMe2tBu

(-)-E29

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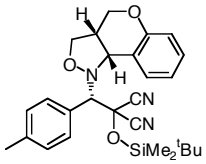
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(-)-E29

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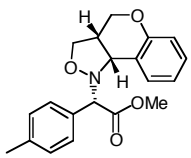
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O
N
H
OMe
O

(+)-3130

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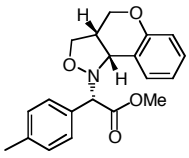
-0
ppm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O
O
N
H
OMe
O

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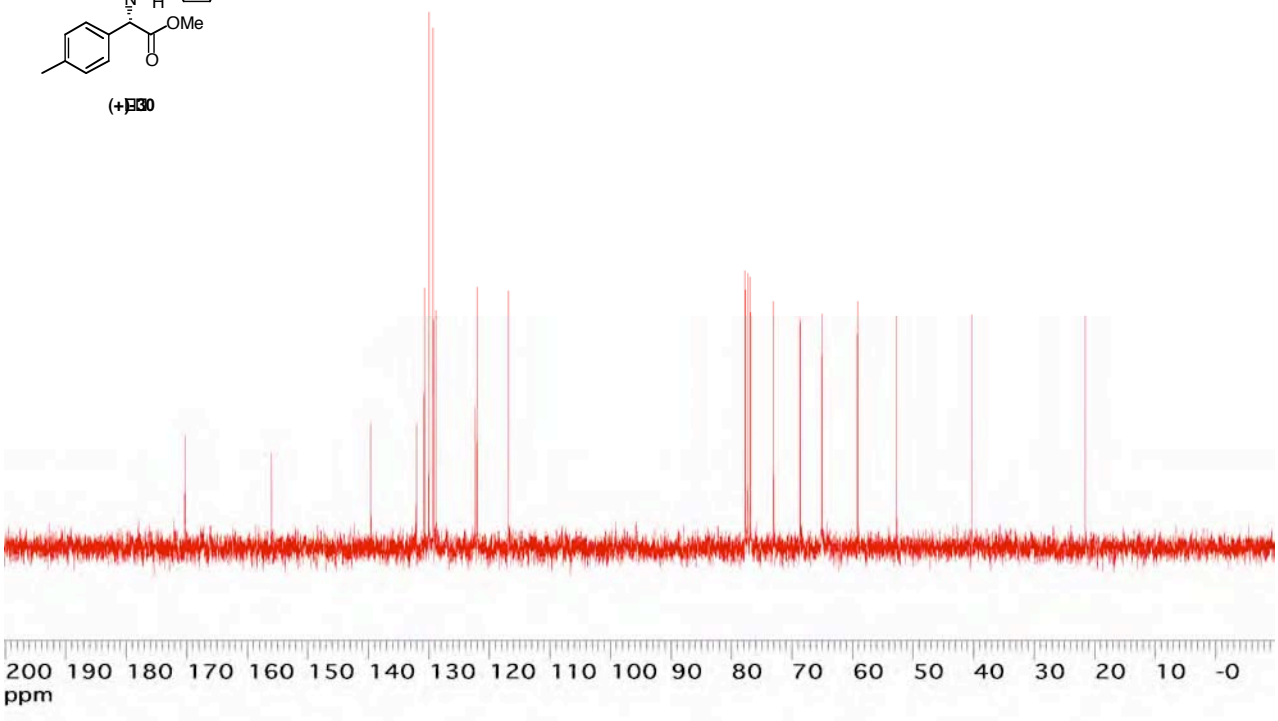
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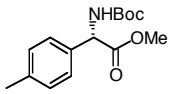
NHBoc
OMe
O

(+)-31

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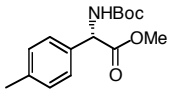
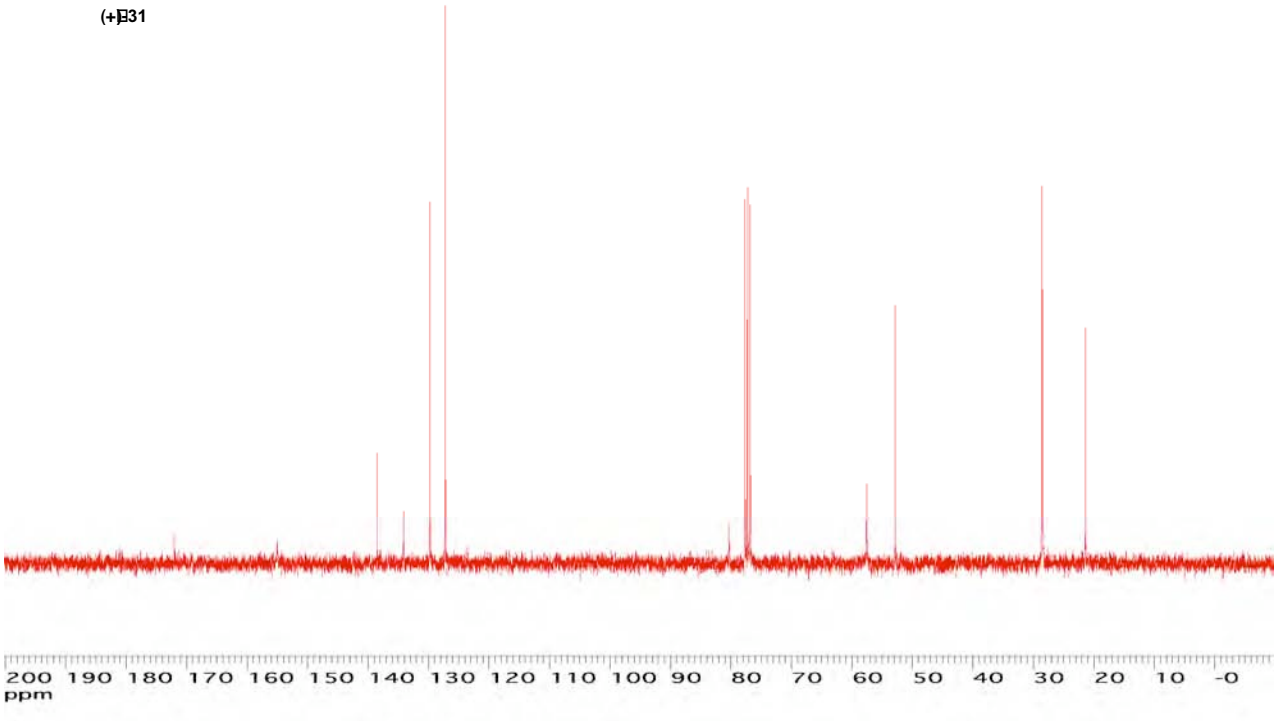
-0
ppm


NHBoc
OMe
O

(+)-31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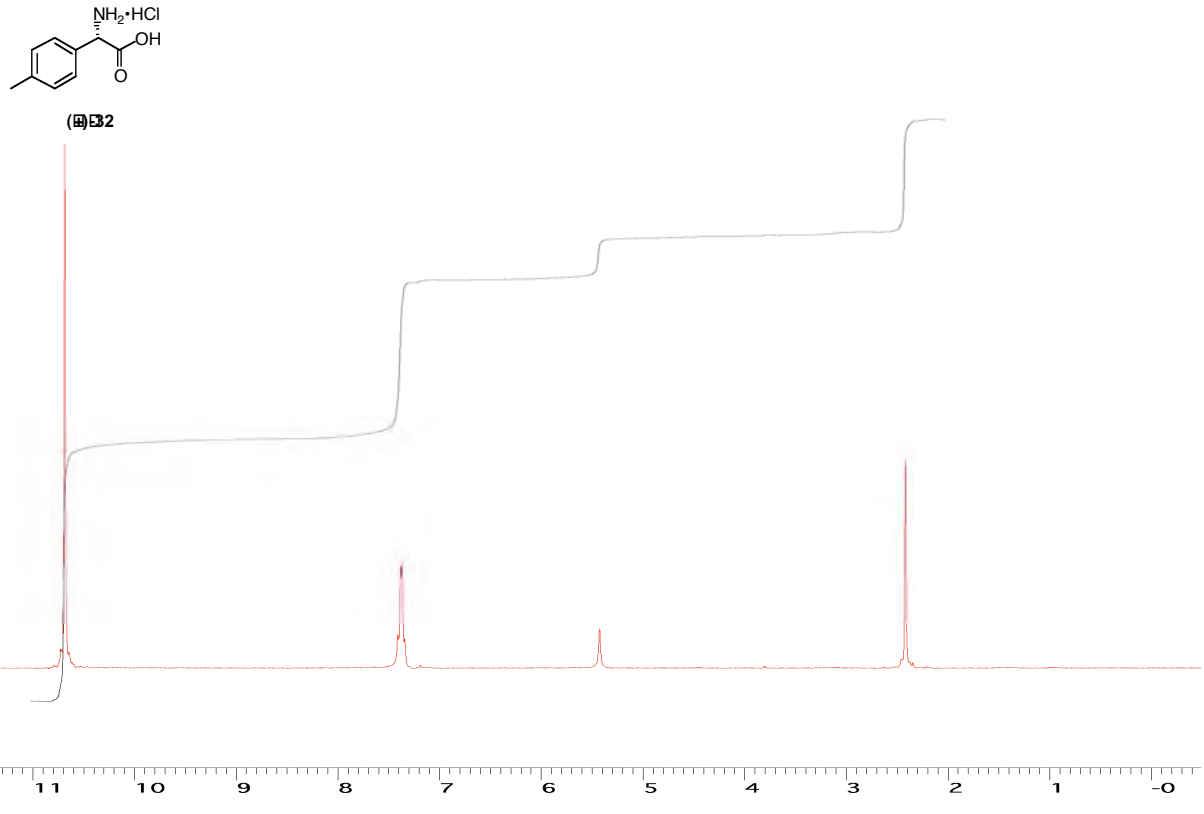
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O
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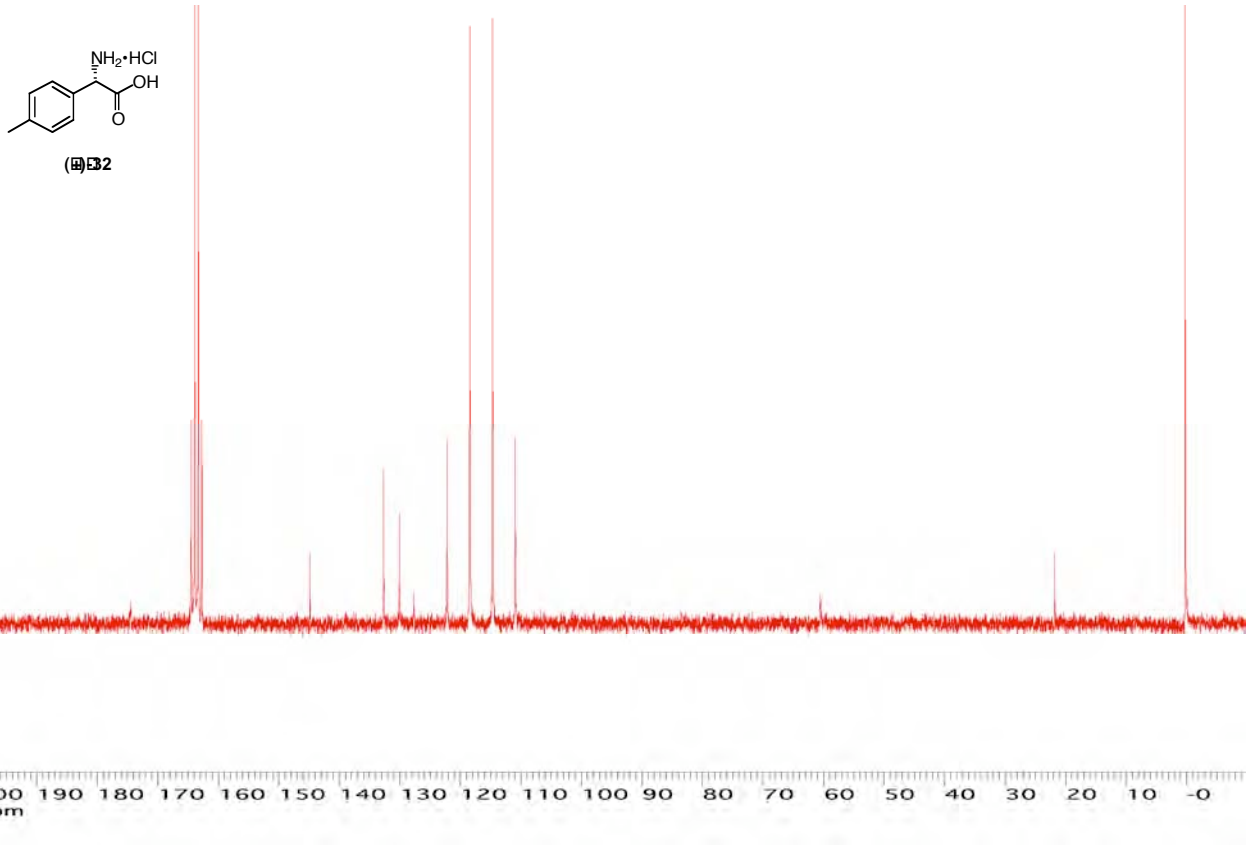
ppm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OH
O
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180
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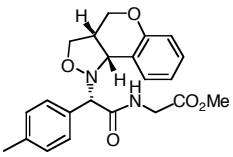
30
20
10
-0
ppm


H
O
O
N
H
H
N
CO2Me
O

(+)-33

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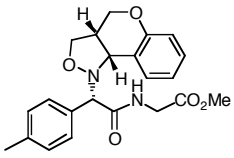
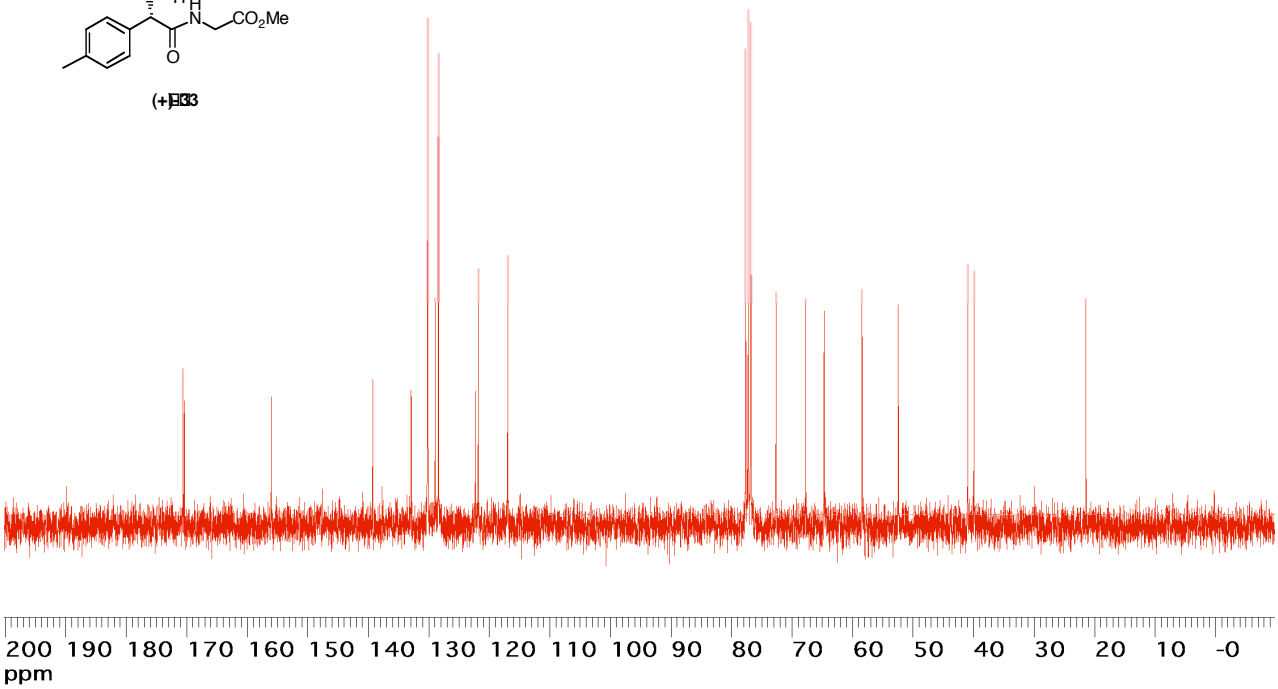
9
8
7
6
5
4
3
2
1
-0
ppm


H
O
O
N
H
H
N
CO2Me
O

(+)-33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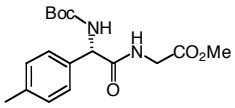
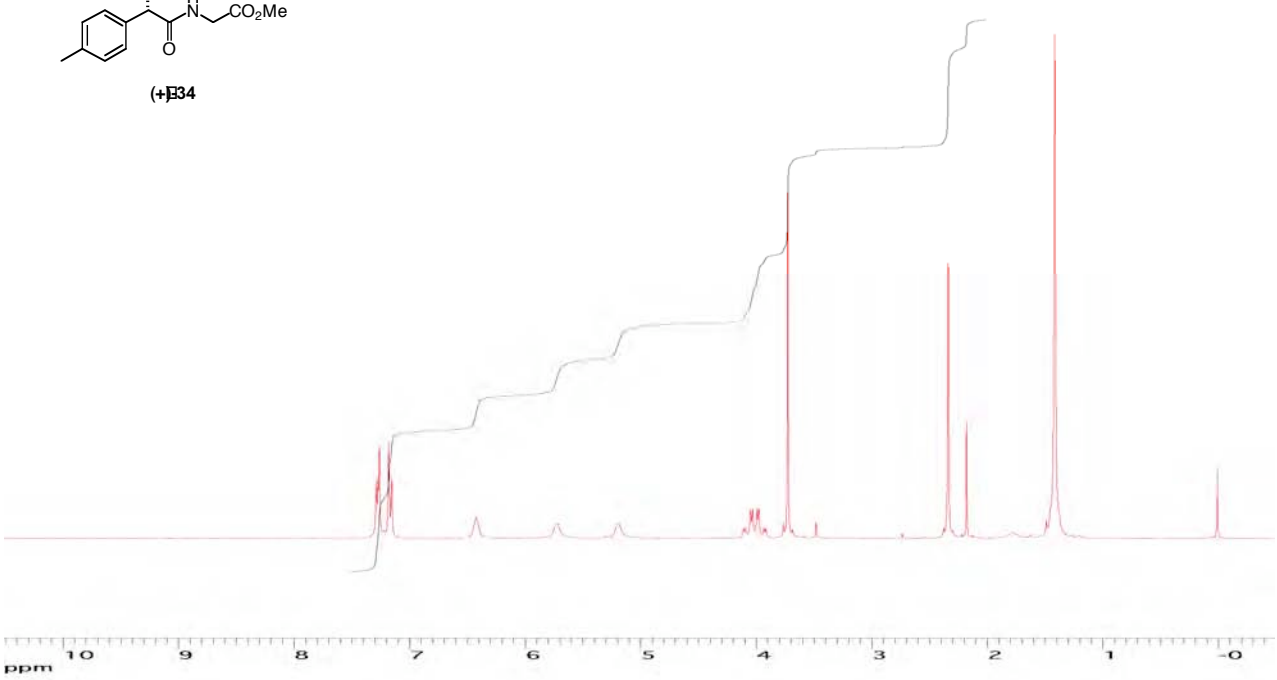
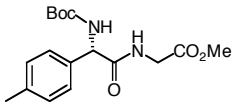

Boc
NH
H
N
CO2Me
O

(+)-34


ppm
10
9
8
7
6
5
4
3
2
1
-0


Boc
NH
H
N
CO2Me
O

(+)-34

ppm
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
-0