

**Synthesis of 2,6-Trans-Disubstituted 5,6-Dihydropyrans from  
(Z)-1,5-Syn-Endiols**

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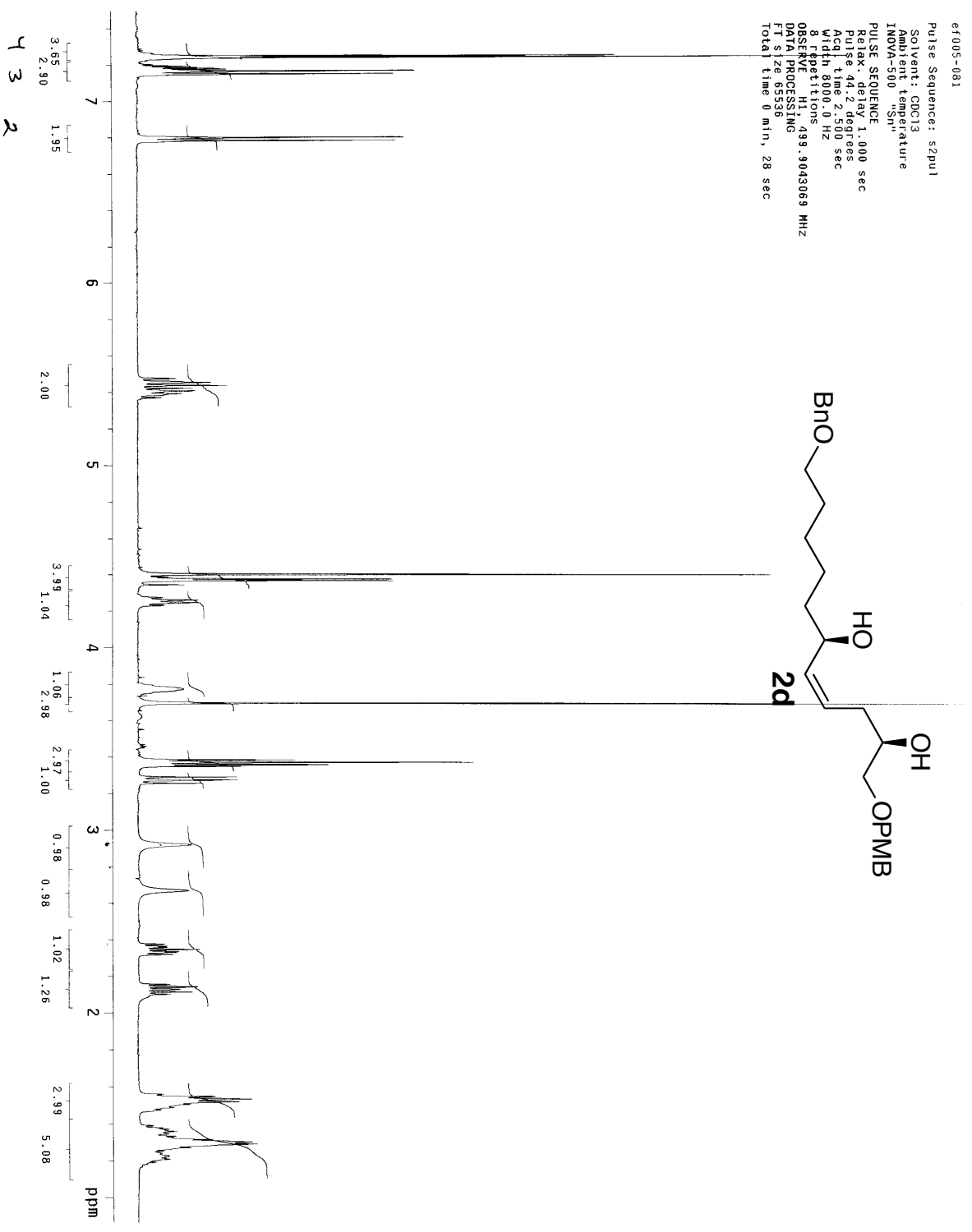
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Scripps Florida, Jupiter, FL 33458  
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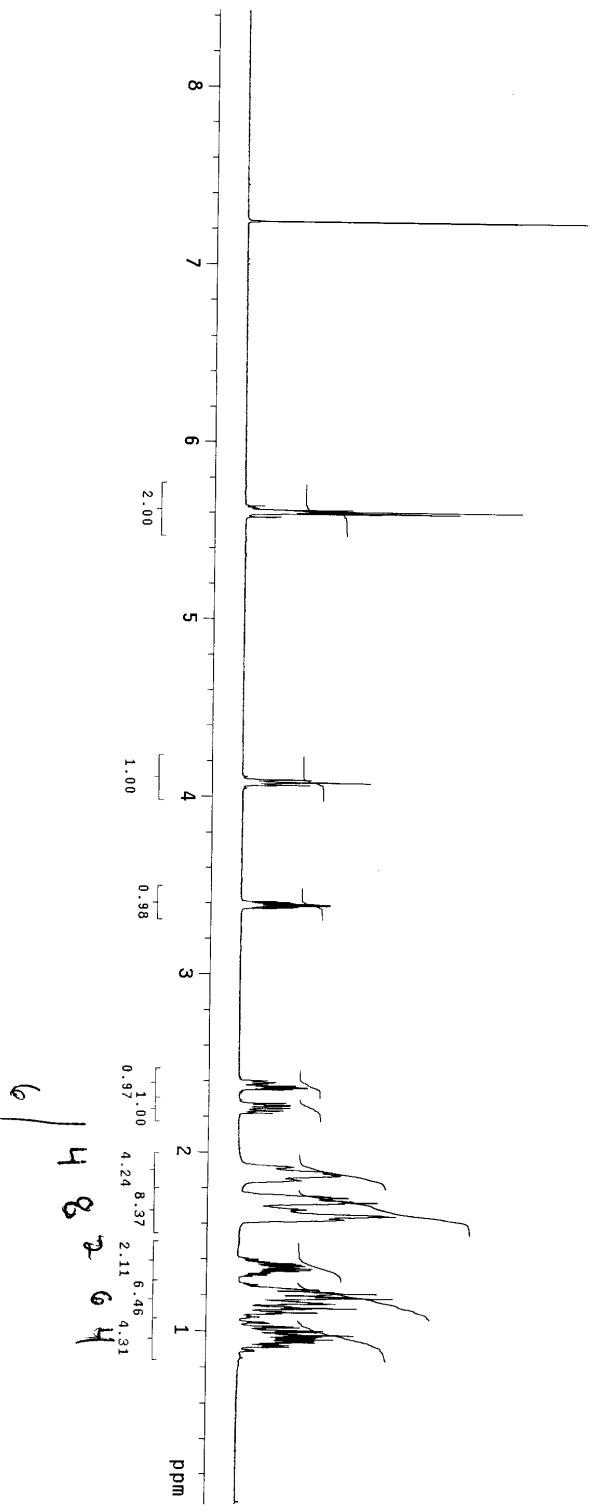
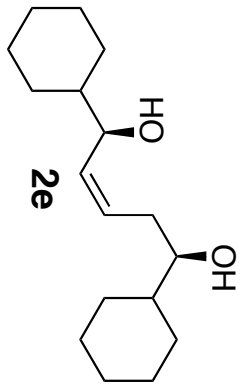
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**Supporting Information: Copies of <sup>1</sup>H NMR Spectra**

ef005-081  
 Pulse Sequence: s2pu1  
 Solvent: CDCl3  
 Acq/End Temperature  
 INOVA-500  
 S/N  
 PULSE SEQUENCE  
 Relax. delay 1.000 sec  
 Pulse 14.2 degrees  
 Acq 1.000 sec  
 Width 8000.0 Hz  
 8. Repeats  
 OBSERVE H1 499.9043069 MHz  
 DATA PROCESSING  
 FT size 65538  
 Total time 0 min, 28 sec

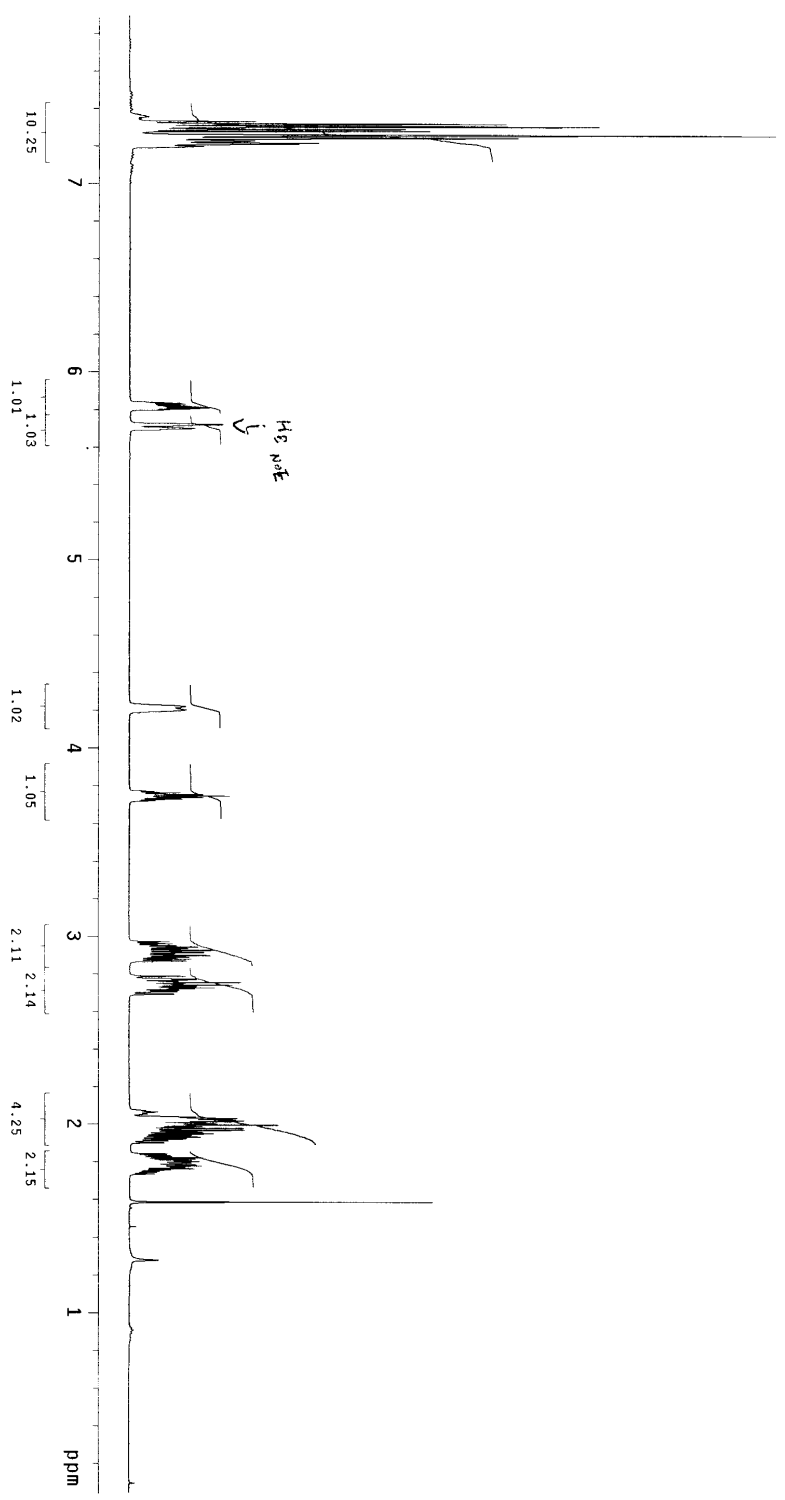
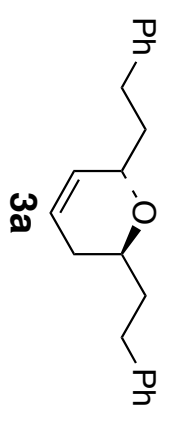


ef005-075  
 Pulse Sequence: s2pu1  
 Solvent: CDCl3  
 Ambient temperature  
 INOVA-500 "Sn"  
 PULSE SEQUENCE  
 Relax . delay 1.000 sec  
 Pulse 44.2 degrees  
 Acq. time 2.500 sec  
 Width 8000.0 Hz  
 8 repetitions  
 OBSERVE: H1, 499.9042708 MHz  
 DATA ACQUISITION  
 F1 ZONESS  
 Total time 0 min, 28 sec



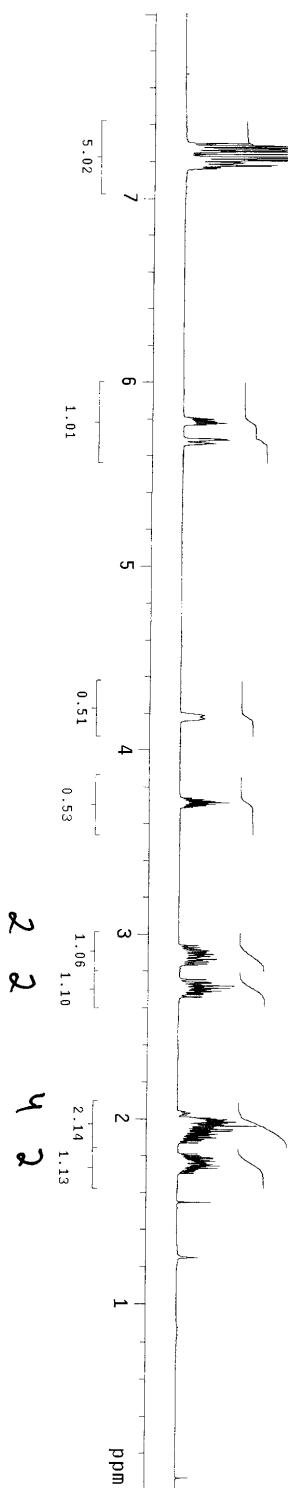
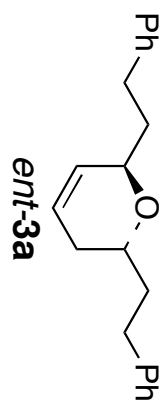


e1002-198  
 Pulse Sequence: s2pu1  
 Solvent: CDCl3  
 Ambient temperature  
 INOVA-500 "Sh.Chem.LSA.UMich.Edu"  
 PULSE SEQUENCE  
 Relax: delay 1.000 sec  
 Pulse: delay 40.0 degrees  
 Acq: time 2.500 sec  
 Width 8000.0 Hz  
 v Offset: 0 Hz  
 DSSF RV: 499.9042537 MHz  
 DATA PROCESSING  
 FT size 65536  
 Total time 0 min, 28 sec



ef003-184

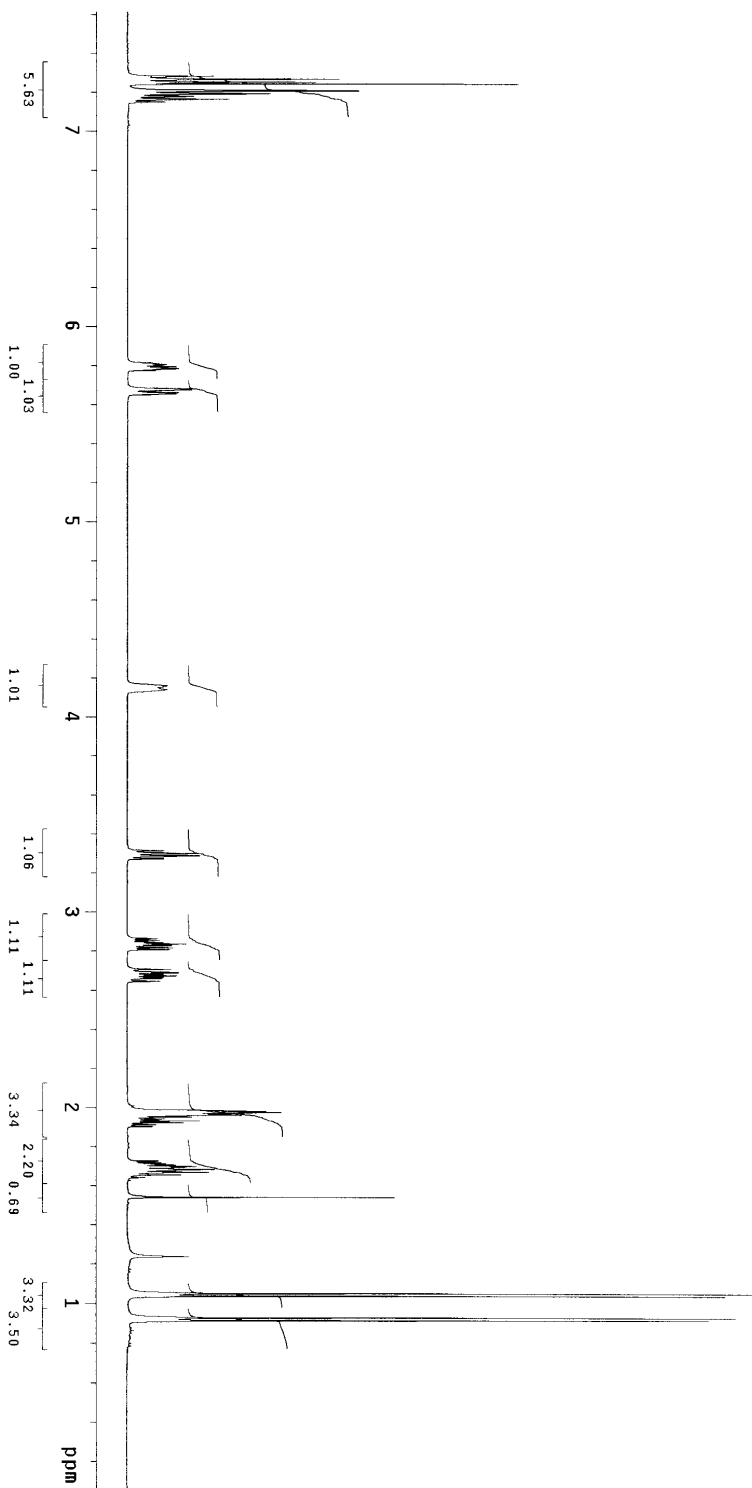
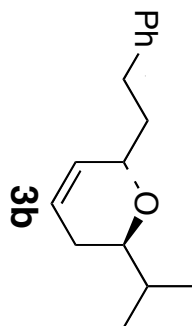
Pulse Sequence: szpu1  
Solvent: CDCl3  
Ambient Temperature  
INOVA-500 "Sp.Chem.LSA,UMich.Edu"  
PULSE SEQUENCE  
NUC1: 461AY, 1.000 sec  
NUC2: 461AY, 1.000 sec  
Acq. time: 2.570 sec  
Width: 8000.0 Hz  
8 repetitions  
OBSERVE: H1, 499.9042708 MHz  
DATA PROCESSING  
FI size: 65536  
Total time: 0 min, 28 sec



2 2

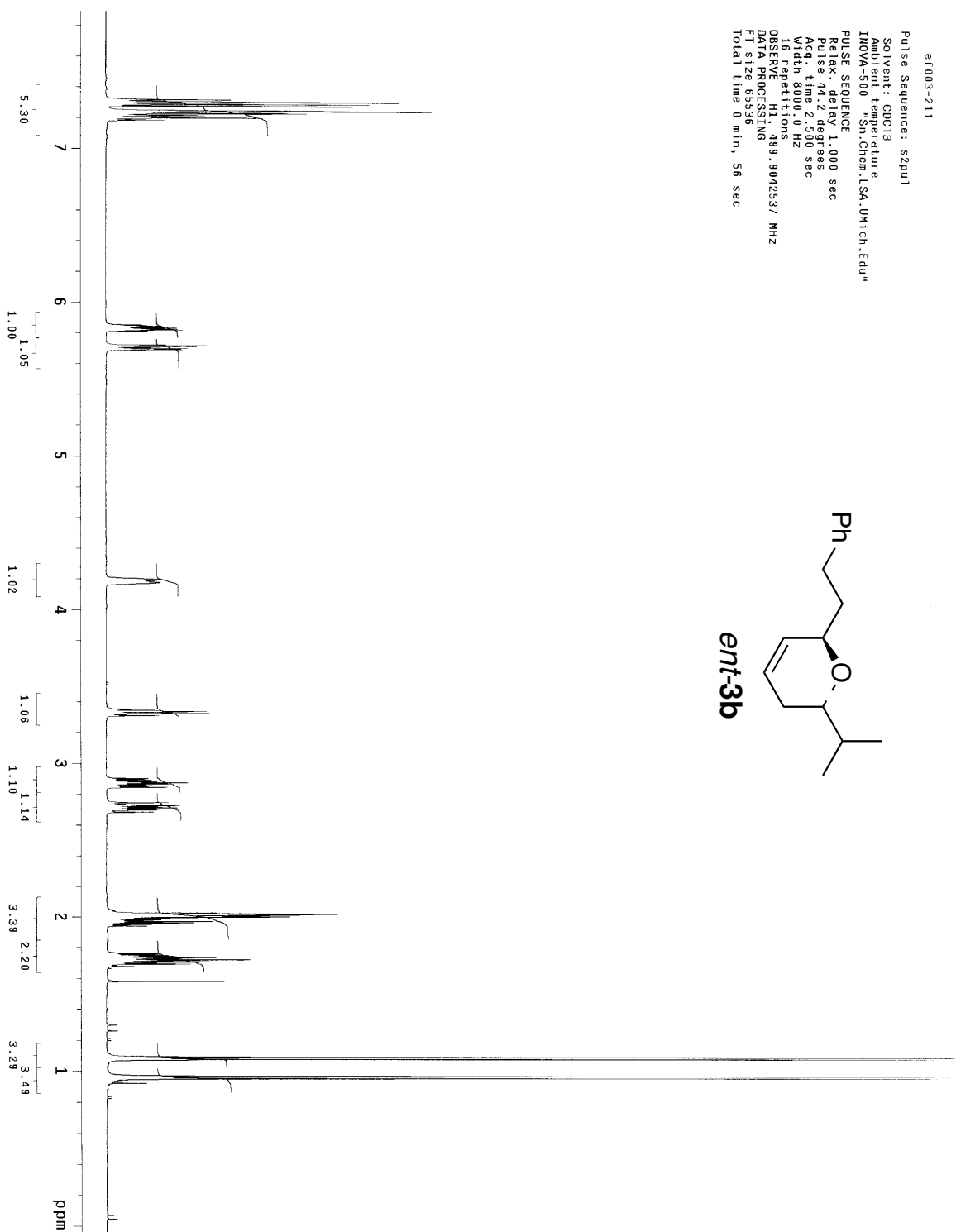
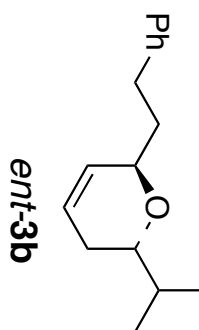
4 2

e f003-201  
Pulse Sequence: sZpu1  
Solvent: CDCl3  
Ambient temperature  
INNOVA-500 "Sr. Chem. LSA. UMICH. EDU"  
PULSE SEQUENCE  
Relax. delay: 1.000 sec  
Pulse: 41.2 degrees  
Acq. time: 2.500 sec  
Width: 8000.0 Hz  
8 repetitions  
OBSERVE: H1, 499.9042705 MHz  
DATA PROCESSING  
FT size: 65536  
Total time: 0 min, 28 sec



ef003-211

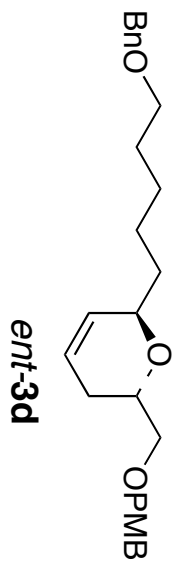
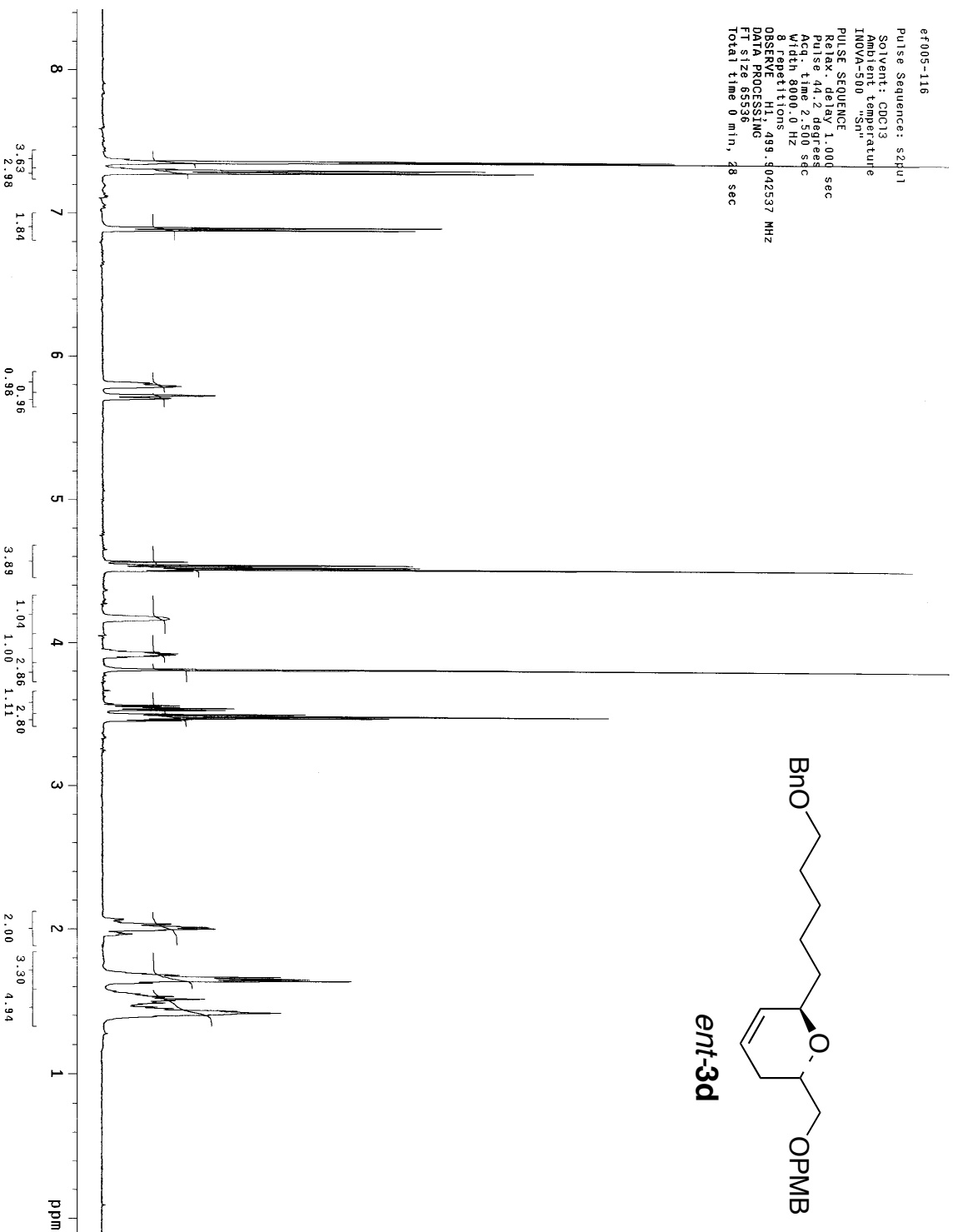
Pulse Sequence: s2pul  
Solvent: CDCl3  
Ambient temperature  
INOVA-500 "Sn-Chem.LSA.UH.Ch.Edu"  
PULSE SEQUENCE  
Relaxation time 1.000 sec  
Pulse 44.2 degrees  
Acq. time 2.500 sec  
Width 8000.0 Hz  
16 Repetitions  
OBSERVE HI, 499.9042537 MHz  
DATA PROCESSING  
FT size 65536  
Total time 0 min, 56 sec



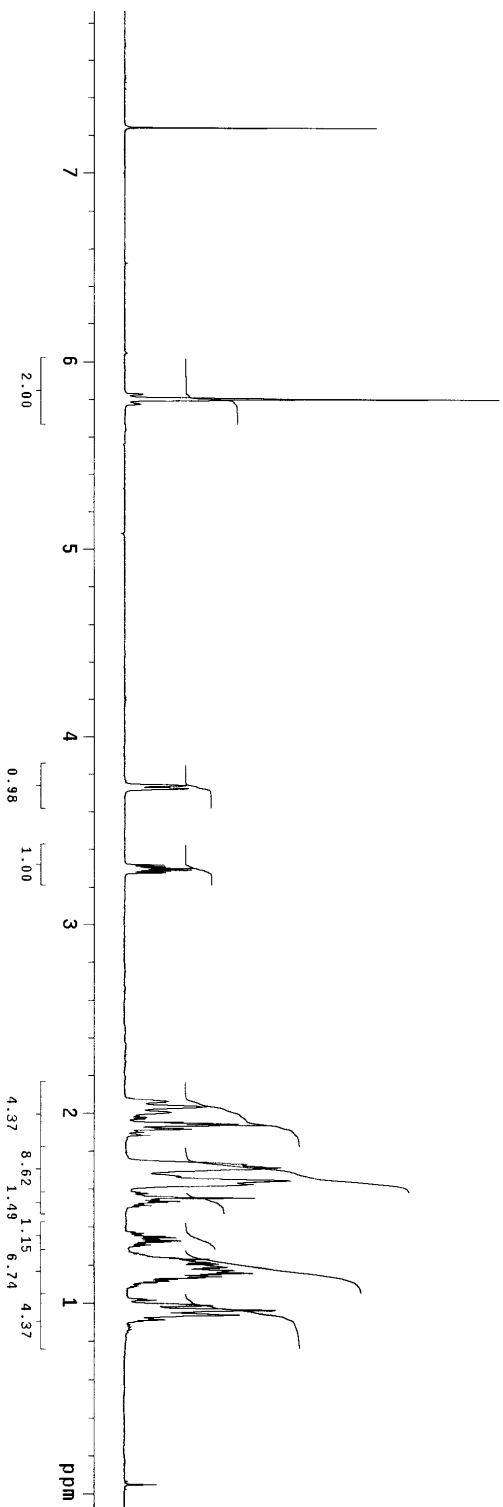
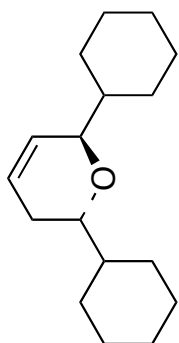




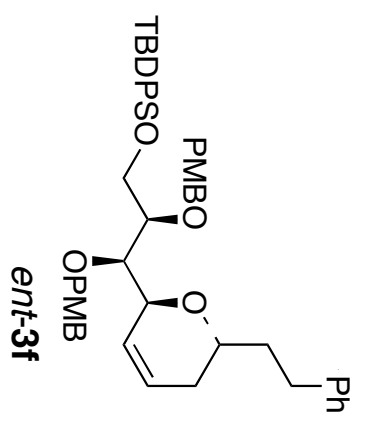
ef005-116  
 Pulse Sequence: s2h1  
 Solvent: CDCl3  
 Ambient temperature  
 INOVA-500 "5H"  
 PULSE SEQUENCE  
 Pulse: 49.000 sec  
 Pulse width: 2.400 sec  
 Acq. time: 2.500 sec  
 Width: 8000.0 Hz  
 8 repetitions  
 OBSERVE H1, 499.5042537 MHz  
 DATA PROCESSING  
 FT size: 65536  
 Total time: 0 min, 28 sec



STANDARD PROTON PARAMETERS  
Pulse Sequence: s2pul  
Solvent: CDCl3  
Ambient Temperature  
INOVA-500 <sup>1</sup>Sn  
PULSE SEQUENCE  
Puls 46.24 sec  
Puls 46.24 sec  
Acq time 2.500 sec  
Width 8000.0 Hz  
8 repetitions  
OBSERVE H1, 499.9042705 MHz  
DATA PROCESSING  
FT size 65536  
Total time 0 min, 28 sec

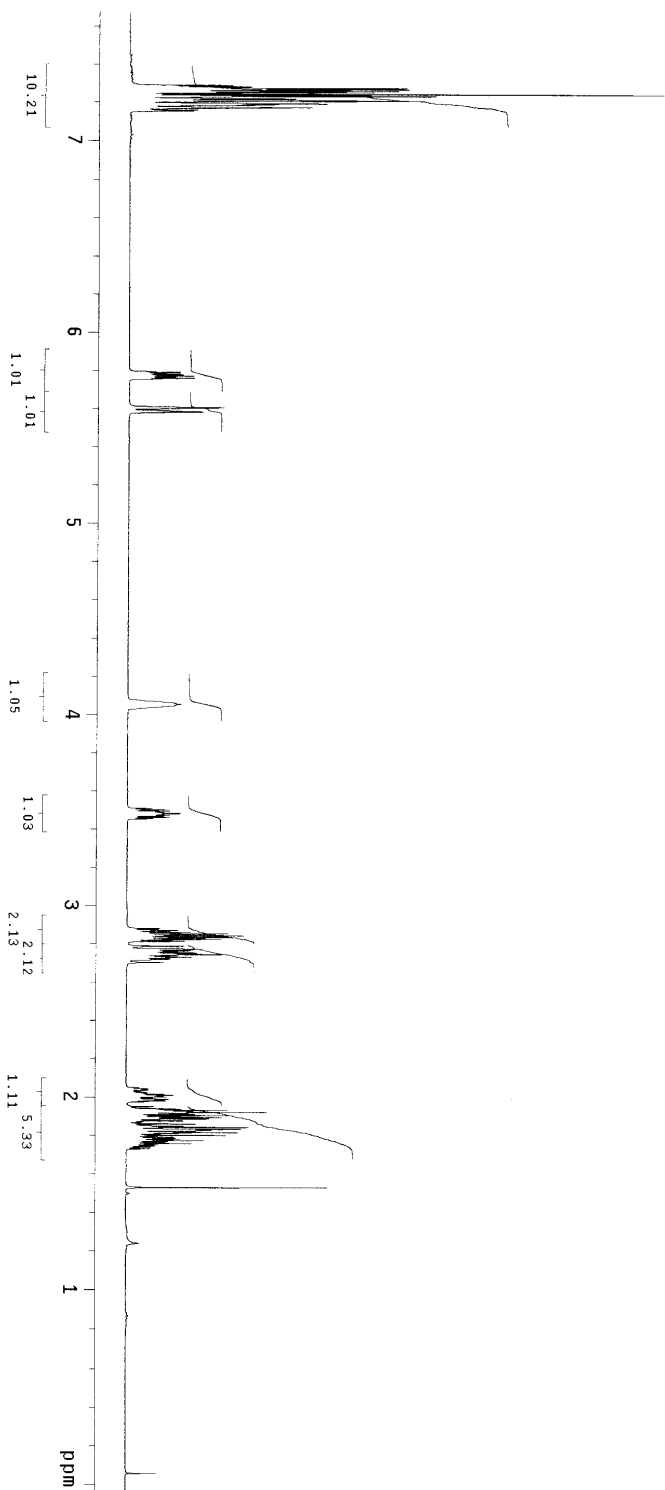
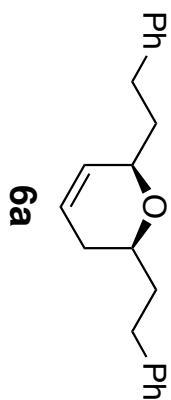


e4005-170  
 Pulse Sequence: s2pul  
 Solvent: CDCl3  
 Ambient temperature  
 INOVA-500 5Sm  
 PULSE SEQUENCE  
 Relax. delay 1.000 sec  
 Pulse 42.7 degrees  
 Acq. time 2.500 sec  
 F1den 8000.0 Hz  
 F2den 111.0 Hz  
 OBSERVE 1H 499.9042537 MHz  
 DATA PROCESSING  
 FT size 65536  
 Total time 0 min, 28 sec

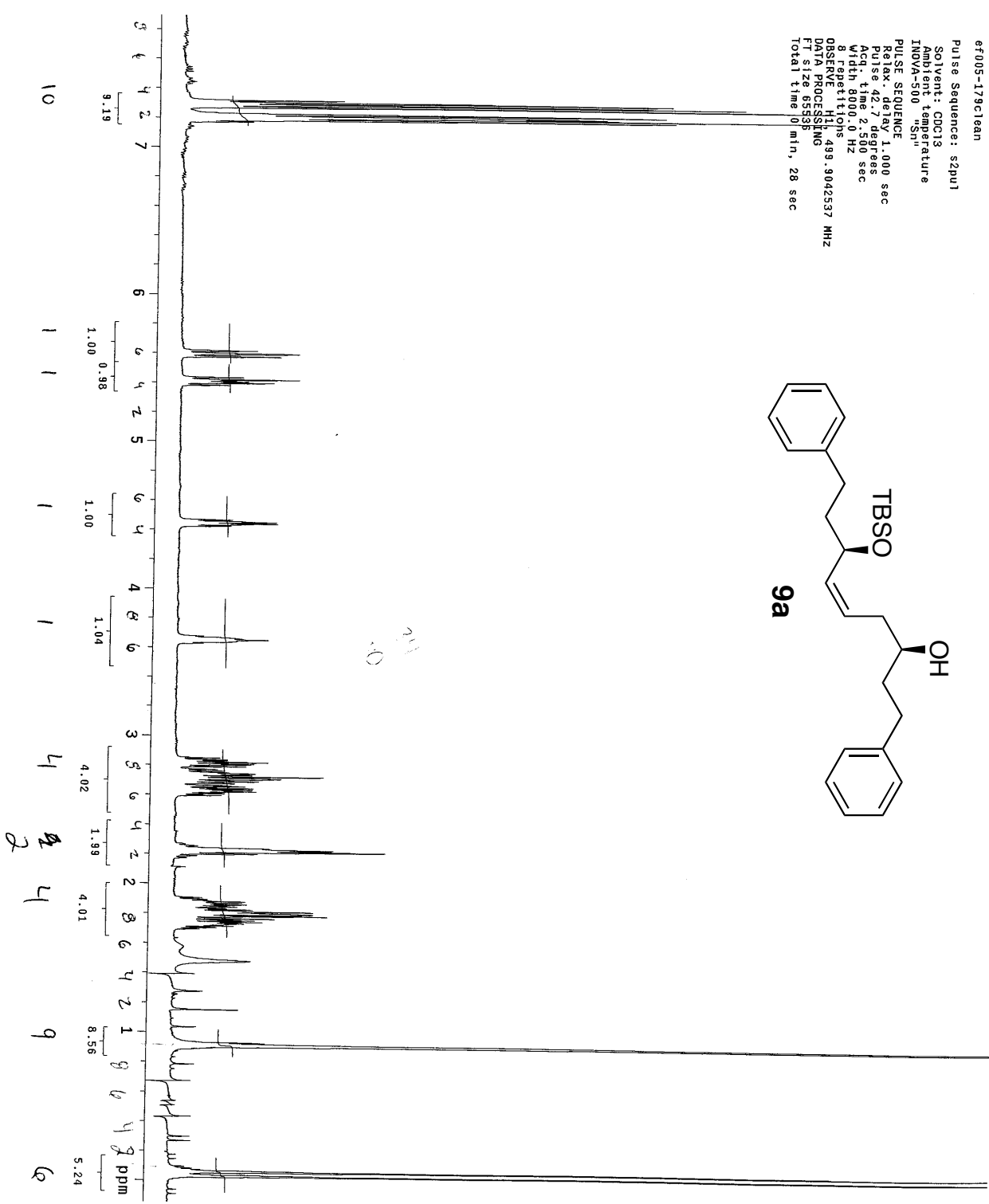
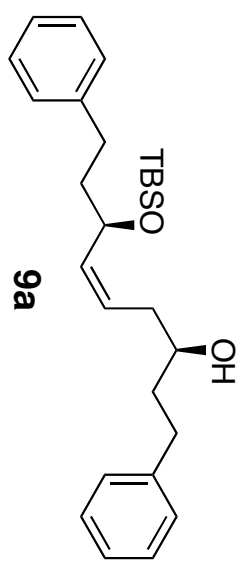


ef003-158 top product isomer

Pulse Sequence: s2pu1  
Solvent: CDCl3  
Ambient temperature  
INOVA-500 "Sn.Chem.LSA.UMich.Edu"  
PULSE SEQUENCE  
Relax delay: 1.000 sec  
Pulse: 42.3 degrees  
Acq. time: 2.500 sec  
Width: 8000.0 Hz  
16 repetitions  
OBSERVE: H1, 499.9042705 MHz  
DATA PROCESSING  
FI size: 65536  
Total time: 0 min, 56 sec

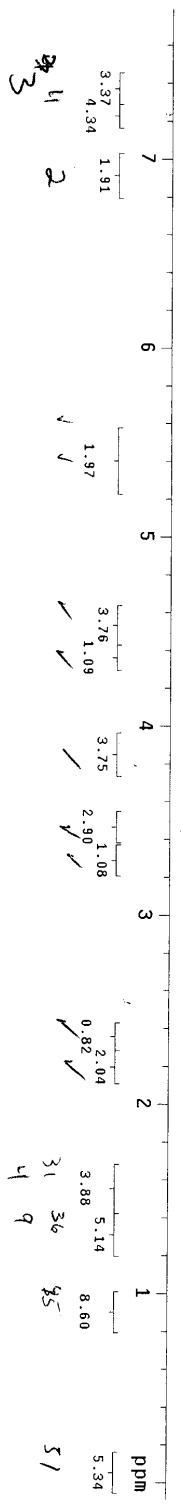
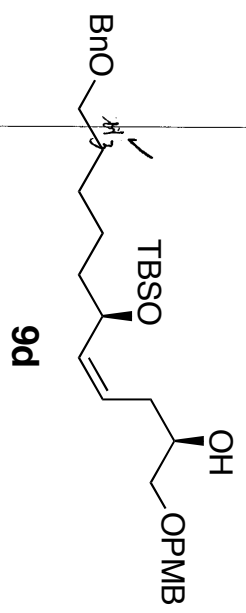


ef005-179c1ean  
Pulse Sequence: szpu1  
Solvent: CDCl3  
Ambient temperature  
INOVA-500 "SPL"  
PULSE SEQUENCE  
Relax: delay: 1.000 sec  
Pulse: 42.7 degrees  
Acq: time: 2.500 sec  
Width: 8000.0 Hz  
8 repetitions  
OBSERVE: H1, 499.9042537 MHz  
DATA PROCESSING  
F1 size: 65536  
Total time: 0 min, 28 sec

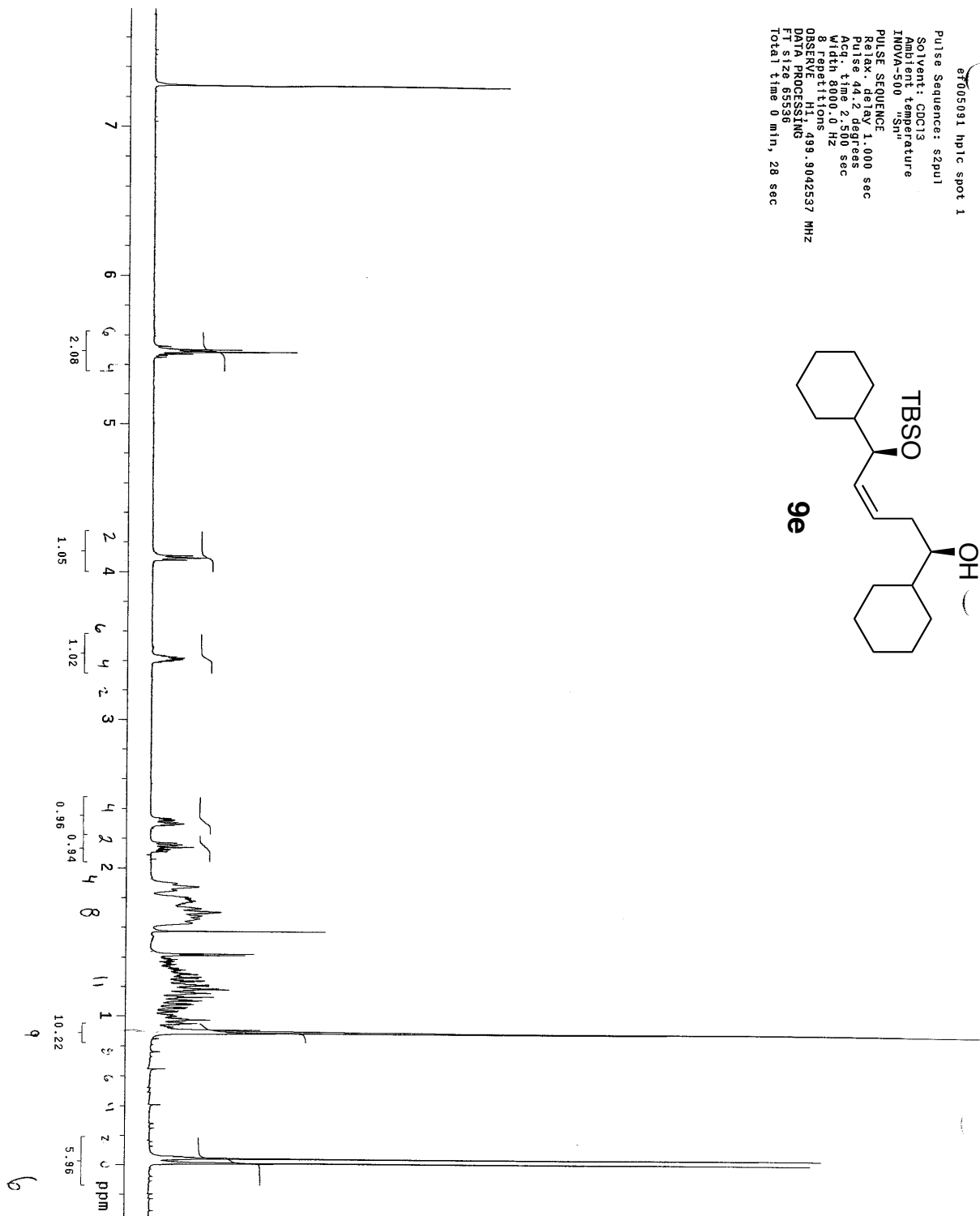
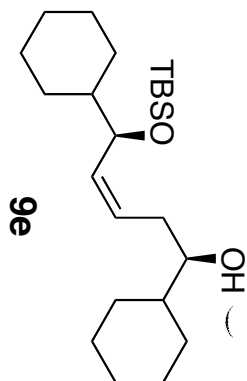


ef005-100  
Pulse Sequence: szpul1  
Solvent: CDCl3  
Ambient temperature  
File: ef005-100  
INDVA-500 .N1\*

PULSE SEQUENCE  
Relax. delay 1.000 sec  
Pulse 44.2 degrees  
Acq. time 2:500 sec  
Width 8000.0 Hz  
OBSERVE: H1  
F1: 499.9042708 MHz  
DATA PROCESSING  
FT size 68538  
Total time 0 min, 28 sec



8705091 hplc spot 1  
 Pulse Sequence: szpul  
 Solvent: CDCl3  
 Ambient temperature  
 INOVA-500 13H  
 PULSE SEQUENCE  
 Relax. delay 1.000 sec  
 Pulse 44.2 degrees  
 Acq. time 2.500 sec  
 Wdth 1090.0 Hz  
 8 scans 190.0 Hz  
 OBSERVE 1Hims 499.9042537 MHz  
 DATA PROCESSING  
 FT size 65536  
 Total time 0 min, 28 sec





ef005-181

Pulse Sequence: s2pul

Solvent: CDCl3

Ambient temperature

INOVA-500 <sup>1</sup>H NMR

PULSE SEQUENCE

Relax. delay 1.000 sec

Pulse 42.7 degrees

Acq. time 2.500 sec

Width 8000.0 Hz

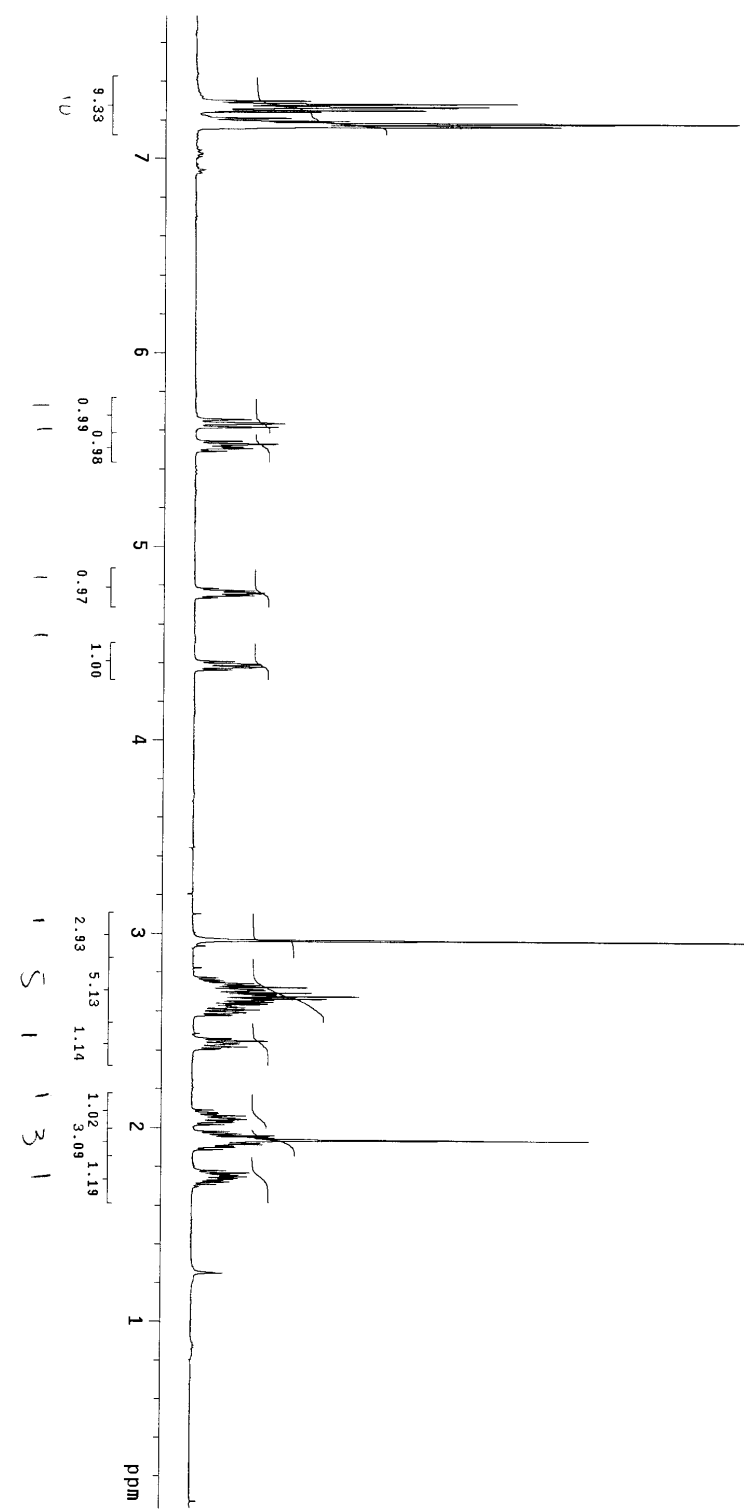
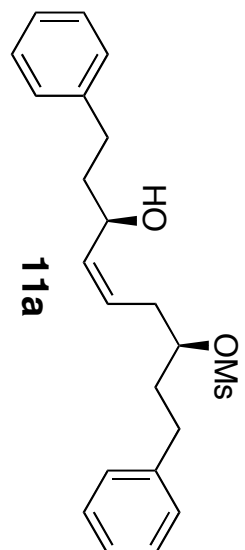
Repetitions 8

Frequency 99.9042705 MHz

DATA PROCESSING

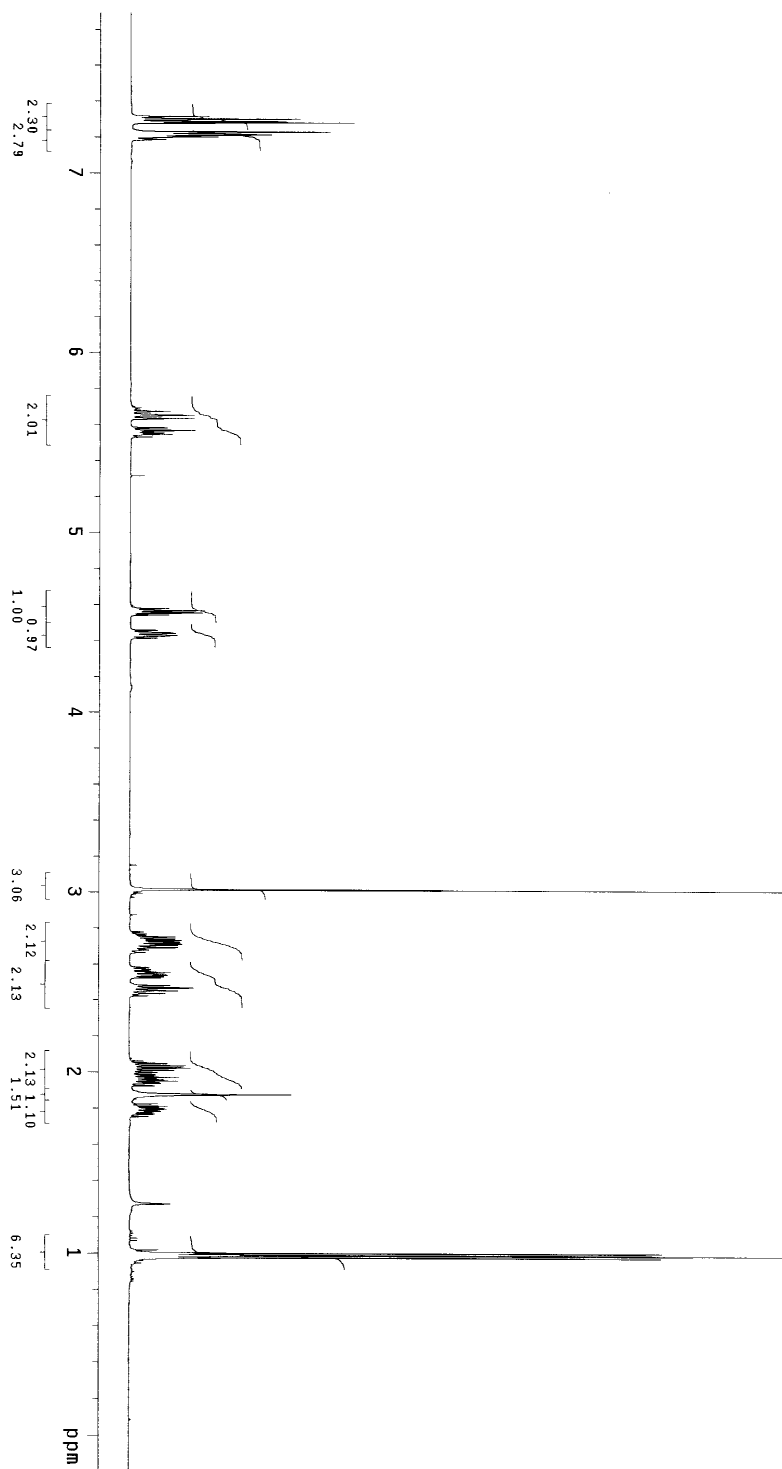
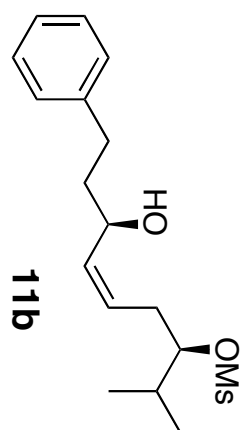
FT size 65536

Total time 0 min, 28 sec



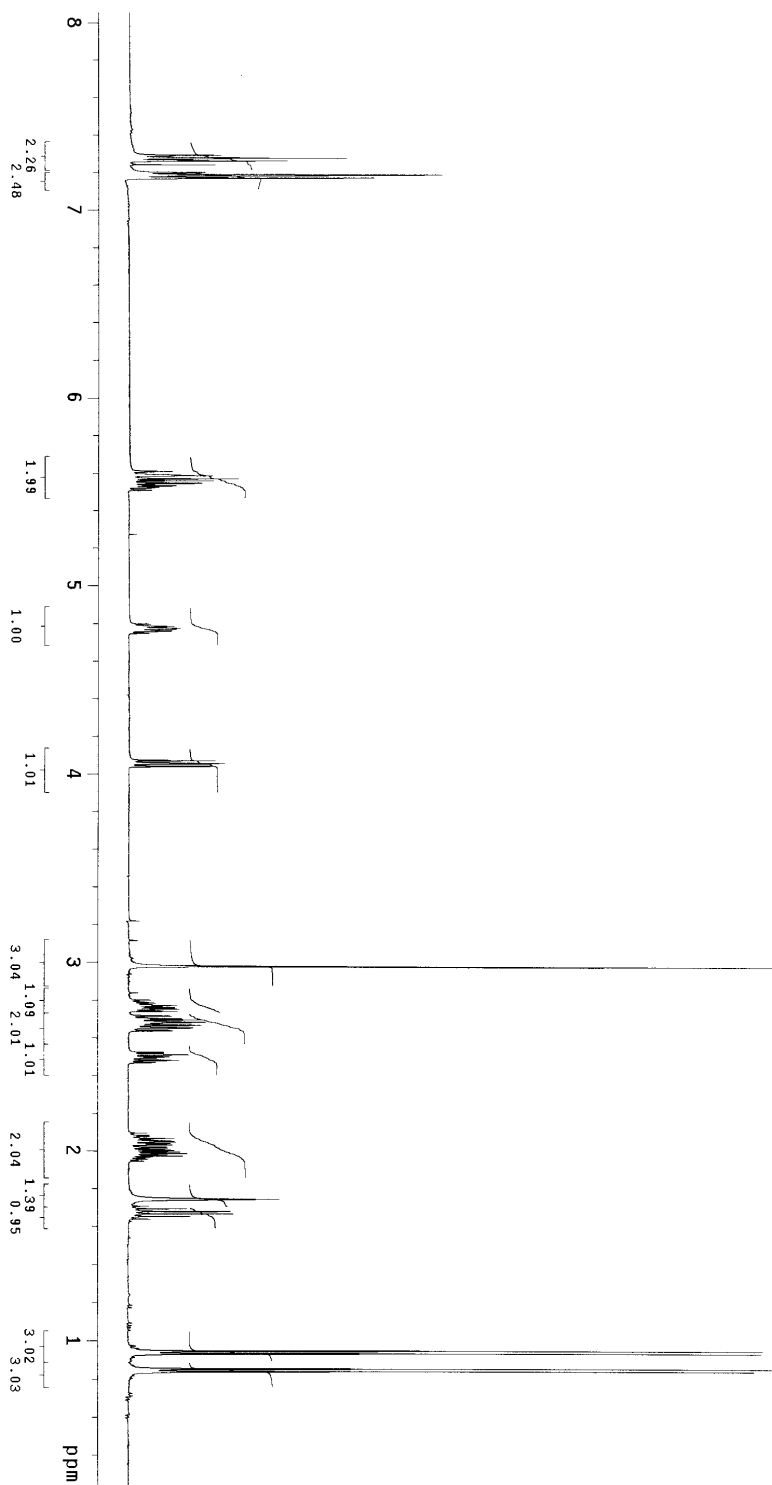
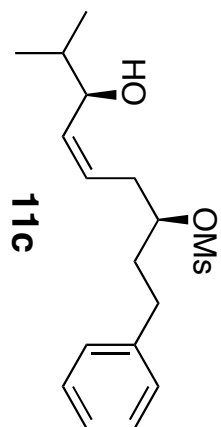
ef003-222

Pulse Sequence: s2pu1  
Solvent: CDCl3  
Ambient Temperature  
INNOVA-500 "500" Chem. LSA, UMICH, EDU"  
PULSE SEQUENCE  
P1: 14.000 sec  
P2: 14.000 sec  
Acq. time: 2.500 sec  
Width: 8000.0 Hz  
16 repetitions  
OBSERVE H1, 499.9042537 MHz  
DATA PROCESSING  
FT size: 65536  
Total time: 0 min, 56 sec



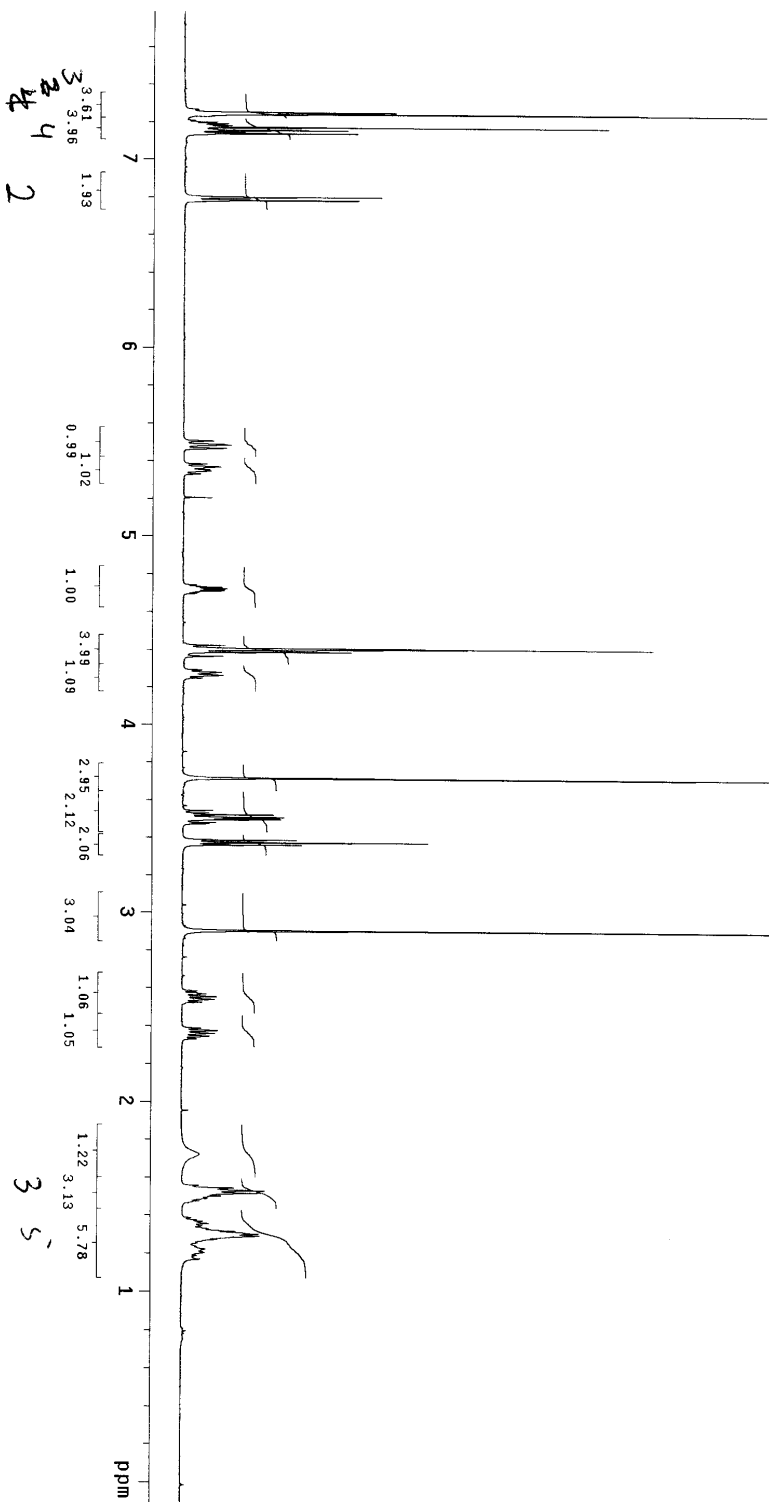
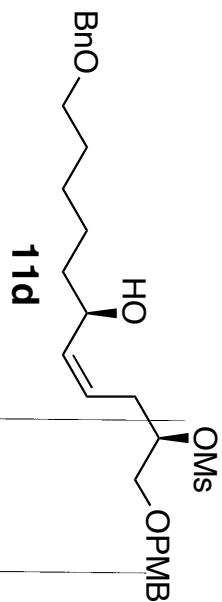
41005-90

Pulse Sequence: szpu1  
Solvent: CDCl3  
Acquisition Temperature  
INOVA-500 MHz  
PULSE SEQUENCE 1.000 sec  
Relax: delay 1.000 sec  
Pulse: 9.2 degrees  
Acq: 9.2 degrees  
Width: 8000.0 Hz  
8 repetitions  
OBSERVE H1, 499.9042705 MHz  
DATA PROCESSING  
FT size 65536  
Total time 0 min, 28 sec



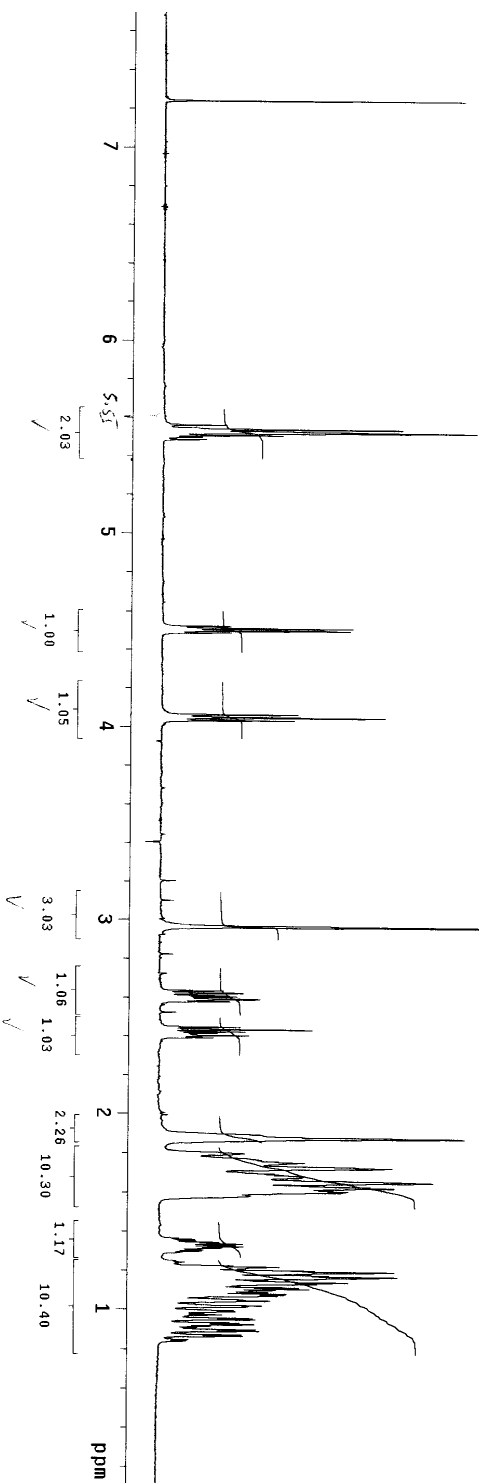
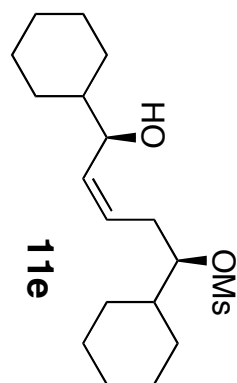
ef005-114

Pulse Sequence: s2pul  
Solvent: CDCl3  
AcqMeth: temperature  
INOVA-500 "SP"  
PULSE SEQUENCE  
Relax. delay: 1.000 sec  
K1: 4.000 sec  
Acq. time: 2.250 sec  
Width: 8000.0 Hz  
8 repetitions  
OBSERVE: H1, 499.9043059 MHz  
DATA PROCESSING  
FT size: 65536  
Total time: 0 min, 28 sec

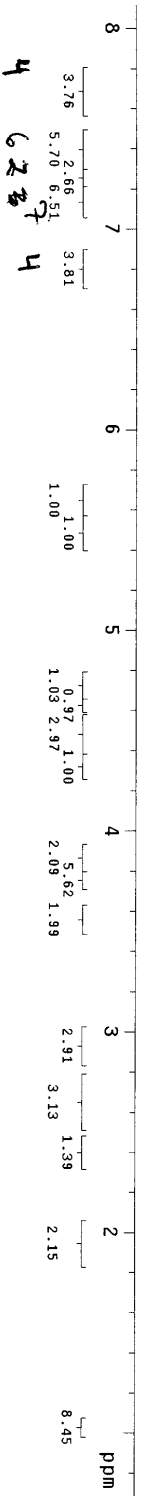
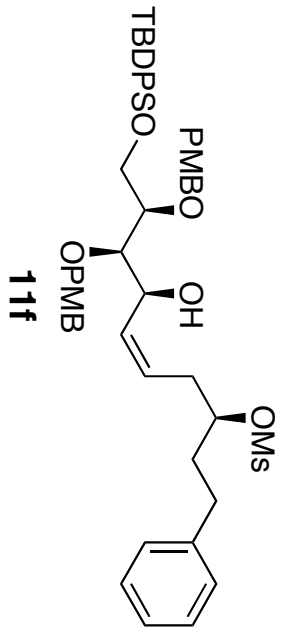


ef005-107

Pulse Sequence: s2pu1  
Solvent: CDCl3  
Ambient temperature  
INOVA-500 13C NMR  
PULSE SEQUENCE  
Relax: 401.000 sec  
Pulse: 44.2 degrees  
Acq. time: 2.580 sec  
Width: 8000.0 Hz  
8 Repetitions  
OBSERVE: H1, 499.9042708 MHz  
DATA PROCESSING  
FT size: 65536  
Total time: 0 min, 28 sec



ef005-161  
 Pulse Sequence: szpu1  
 Solvent: CDCl3  
 Ambient temperature  
 INOVA-500 <sup>1</sup>H NMR  
 PULSE SEQUENCE  
 Relax: delay 1.000 sec  
 Pulse: 42.7 degrees  
 Acq: time 2.500 sec  
 Aft: 800.0 Hz  
 8  
 DSSFVE H1 439.9042700 MHz  
 DATA PROCESSING  
 FT size 65536  
 Total time 0 min, 28 sec



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