Supplementary Material

A practical and mild Peterson olefination protocol mediated by $CuCl_2 \cdot 2H_2O$

Qin Han Teo and Pauline Chiu*

Department of Chemistry, and the State Key Laboratory of Synthetic Chemistry, The University of Hong Kong, Hong Kong, P.R. China
Email: pchiu@hku.hk

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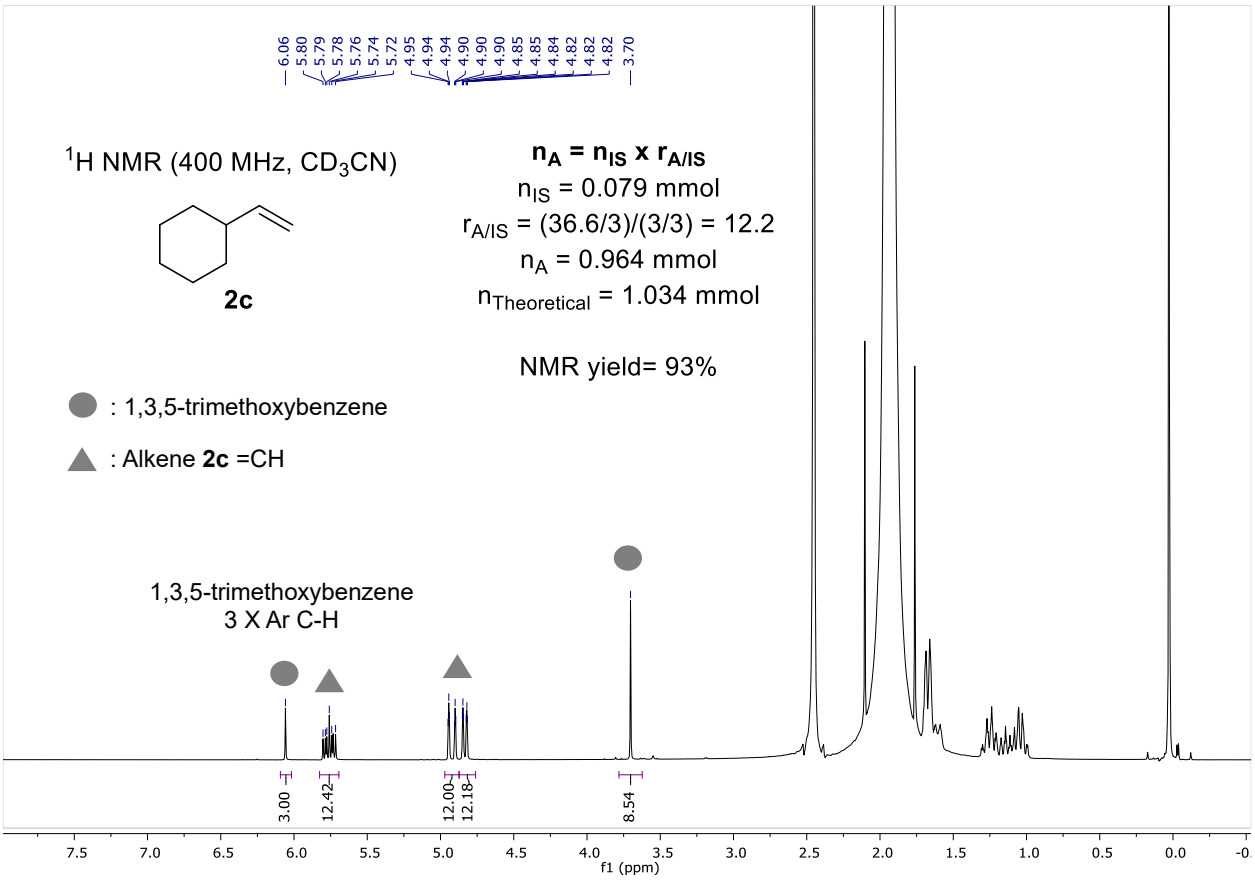
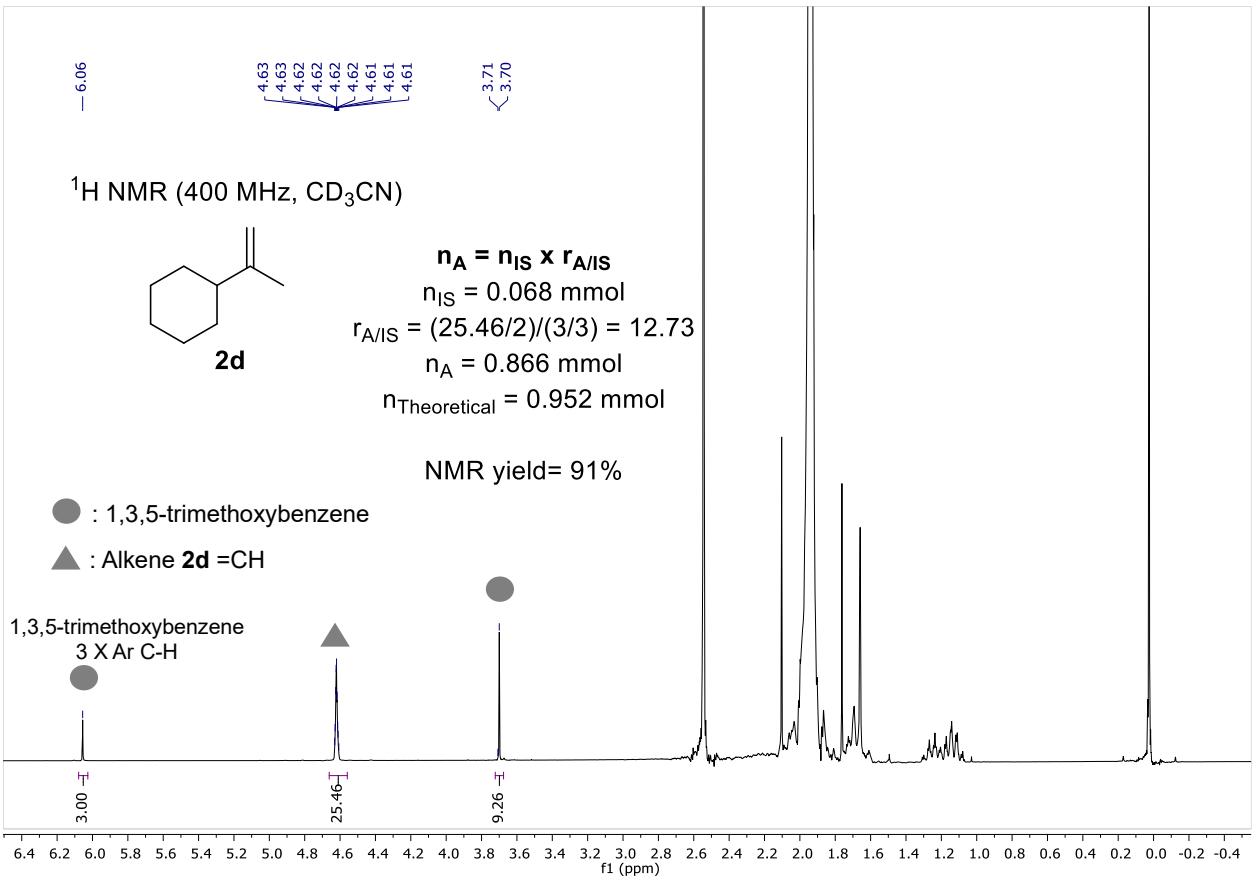
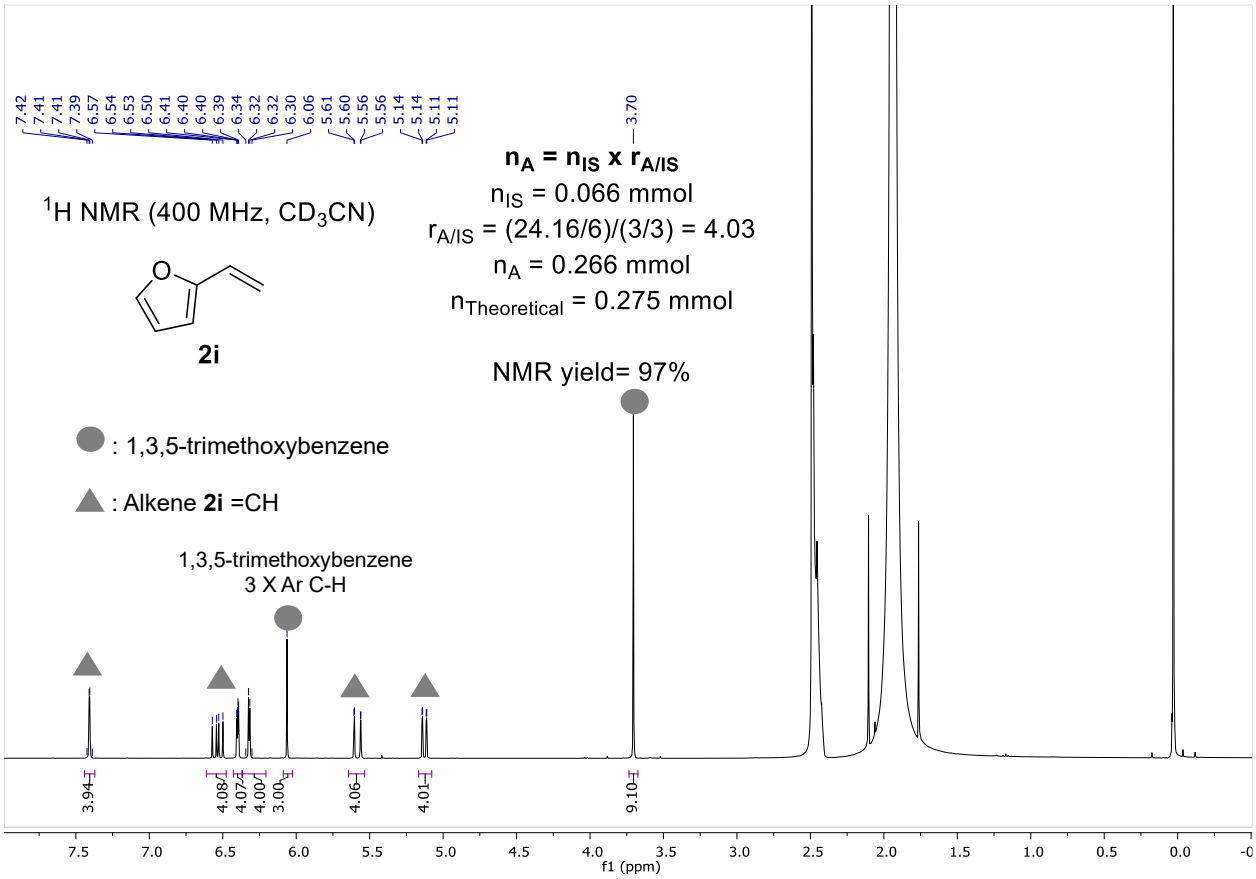
1. NMR Spectra for the Yields of Alkenes determined by ^{1}H-NMR

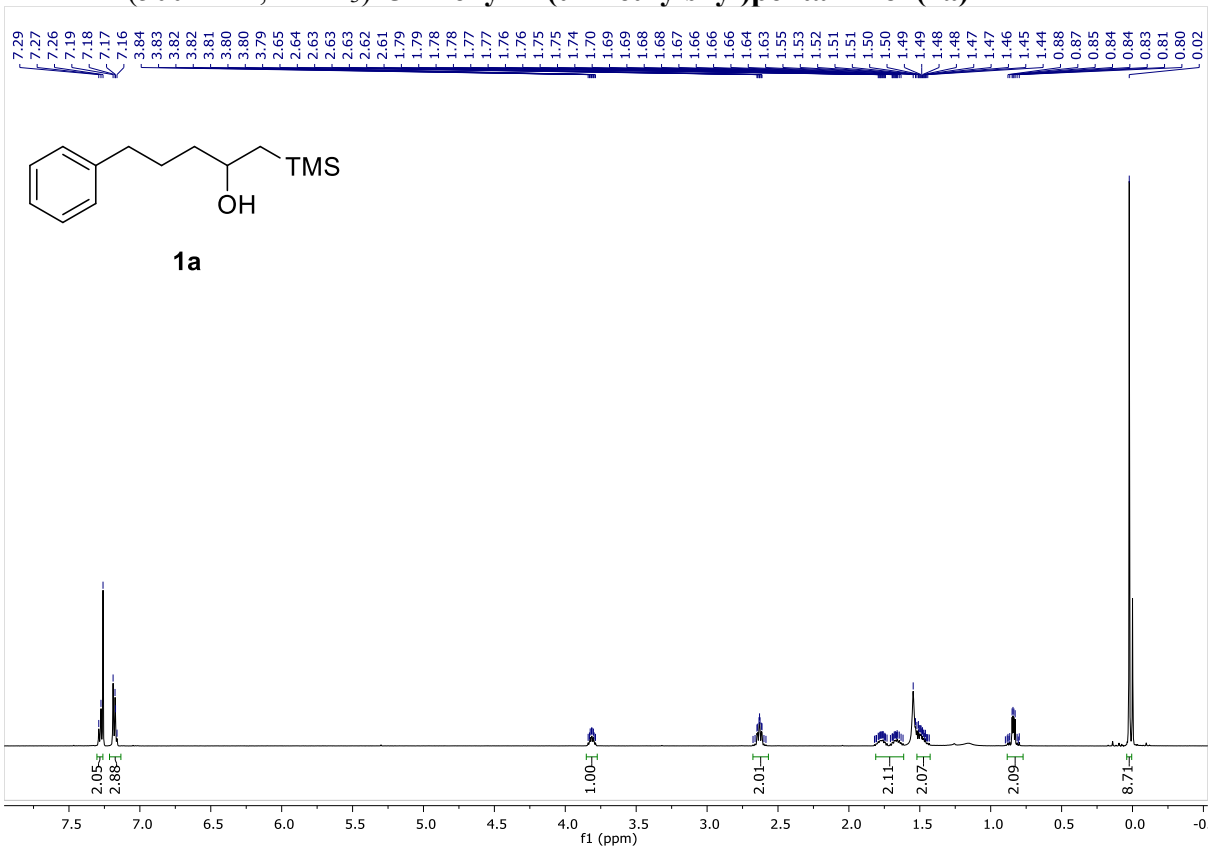




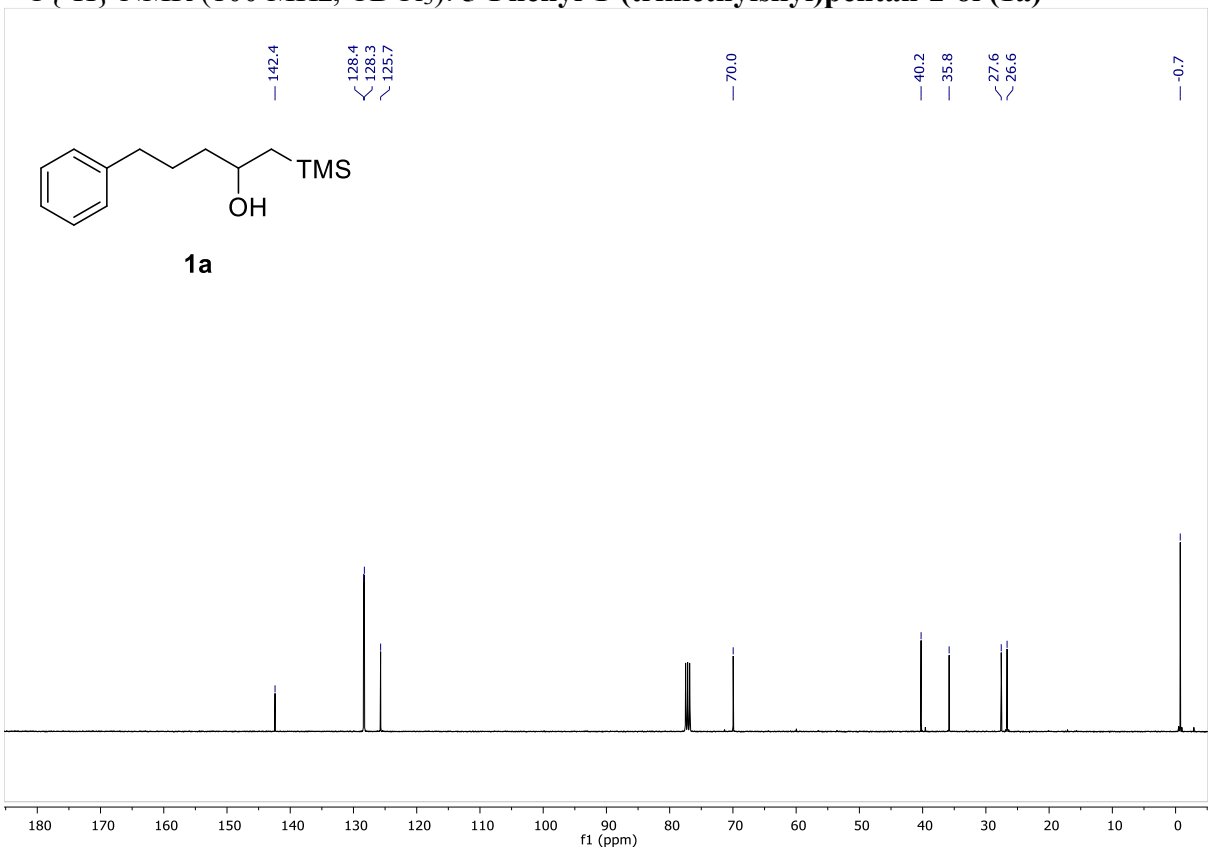

7.42
7.41
7.41
7.39
6.57
6.54
6.53
6.50
6.41
6.40
6.40
6.39
6.34
6.32
6.32
6.30
6.06
5.61
5.60
5.56
5.56
5.14
5.14
5.11
5.11
3.70
$n_A = n_{IS} \times r_{A/IS}$
n_{IS} = 0.066 mmol
$r_{A/IS}$ = (24.16/6)/(3/3) = 4.03
n_A = 0.266 mmol
$n_{Theoretical}$ = 0.275 mmol
NMR yield= 97%
^{1}H NMR (400 MHz, CD_3CN)
2i
: 1,3,5-trimethoxybenzene
: Alkene 2i =CH
1,3,5-trimethoxybenzene
3 X Ar C-H
3.94
4.08
4.07
4.00
3.00
4.06
4.01
9.10
f1 (ppm)

2. ^{1}H and ^{13}C NMR spectra β-hydroxysilanes 1a-1l

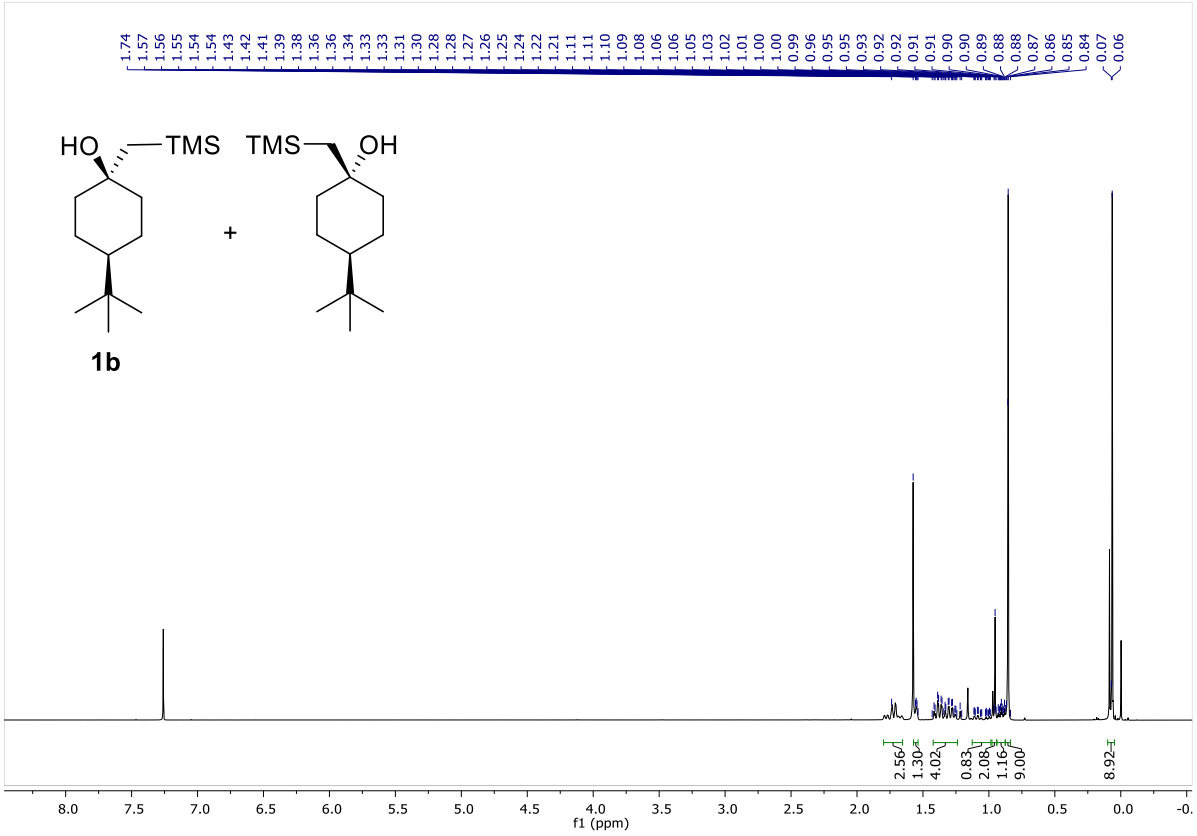
^{1}H NMR (500 MHz, $CDCl_3$): **5-Phenyl-1-(trimethylsilyl)pentan-2-ol (1a)**



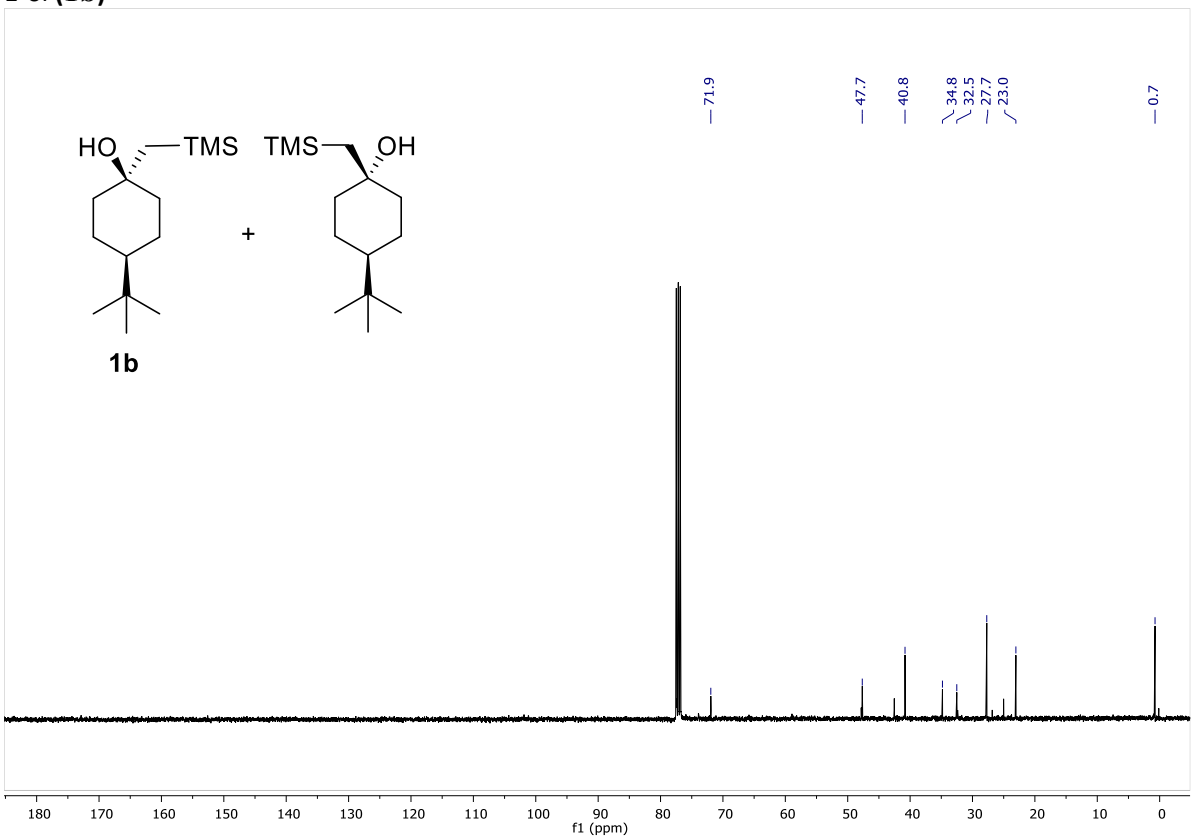
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **5-Phenyl-1-(trimethylsilyl)pentan-2-ol (1a)**



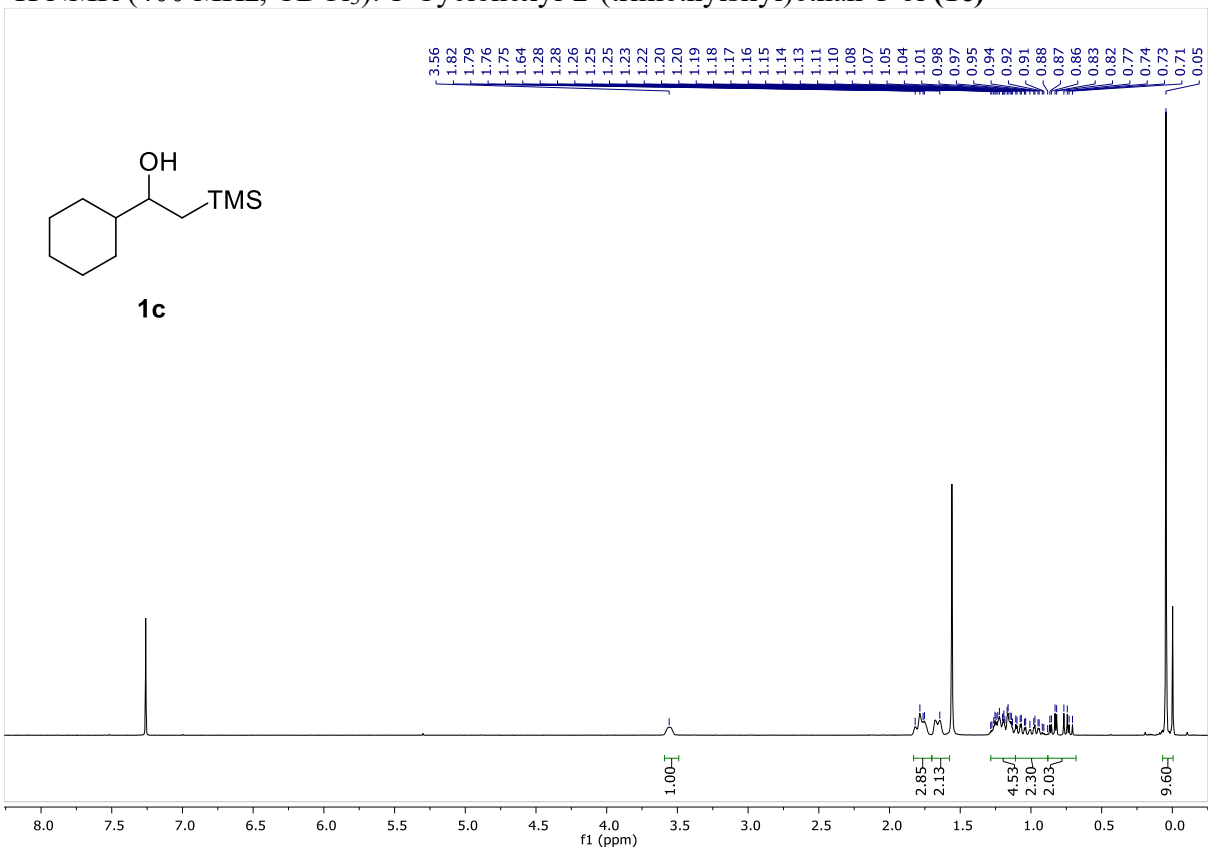
^{1}H NMR (500 MHz, $CDCl_3$): *(1r,4r)- and (1s,4s)*-4-(*tert*-Butyl)-1-((trimethylsilyl)methyl)cyclohexan-1-ol **(1b)**



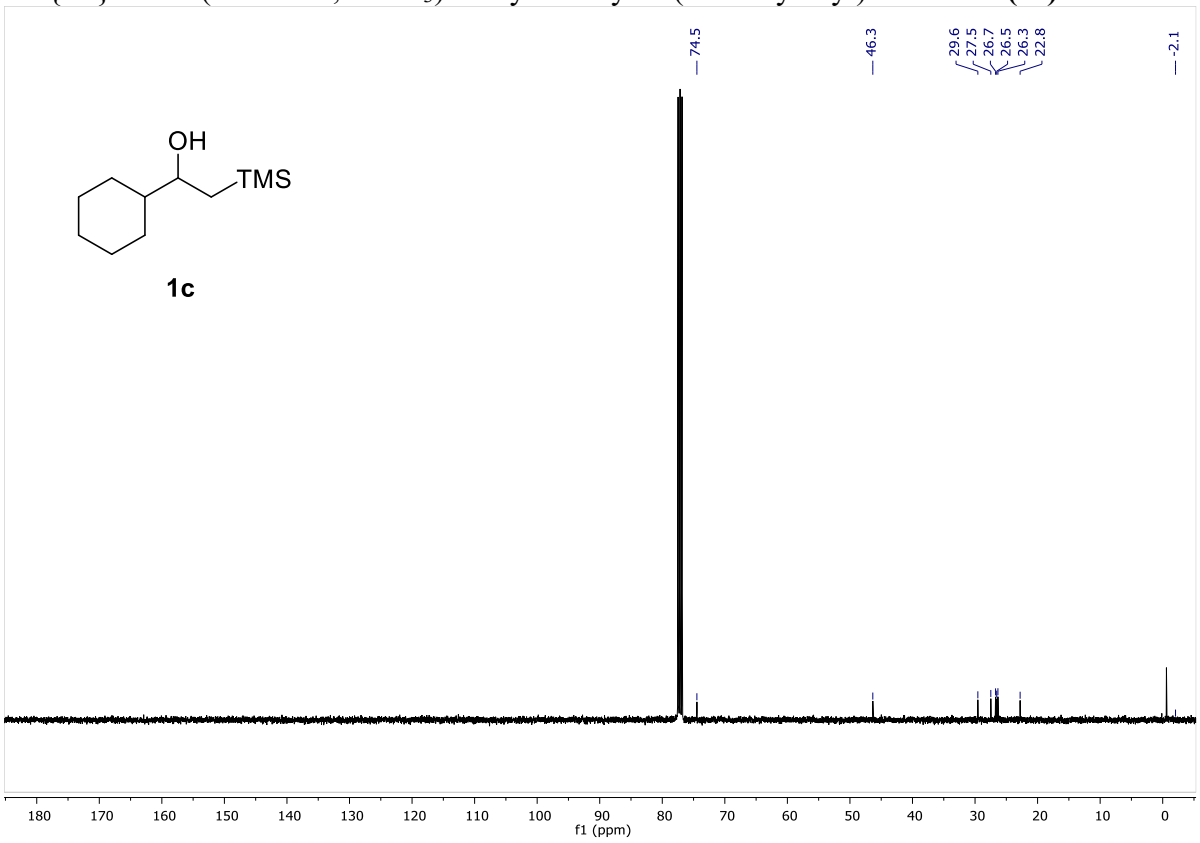
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): *(1r,4r)- and (1s,4s)*-4-(*tert*-Butyl)-1((trimethylsilyl)methyl)cyclohexan-1-ol **(1b)**



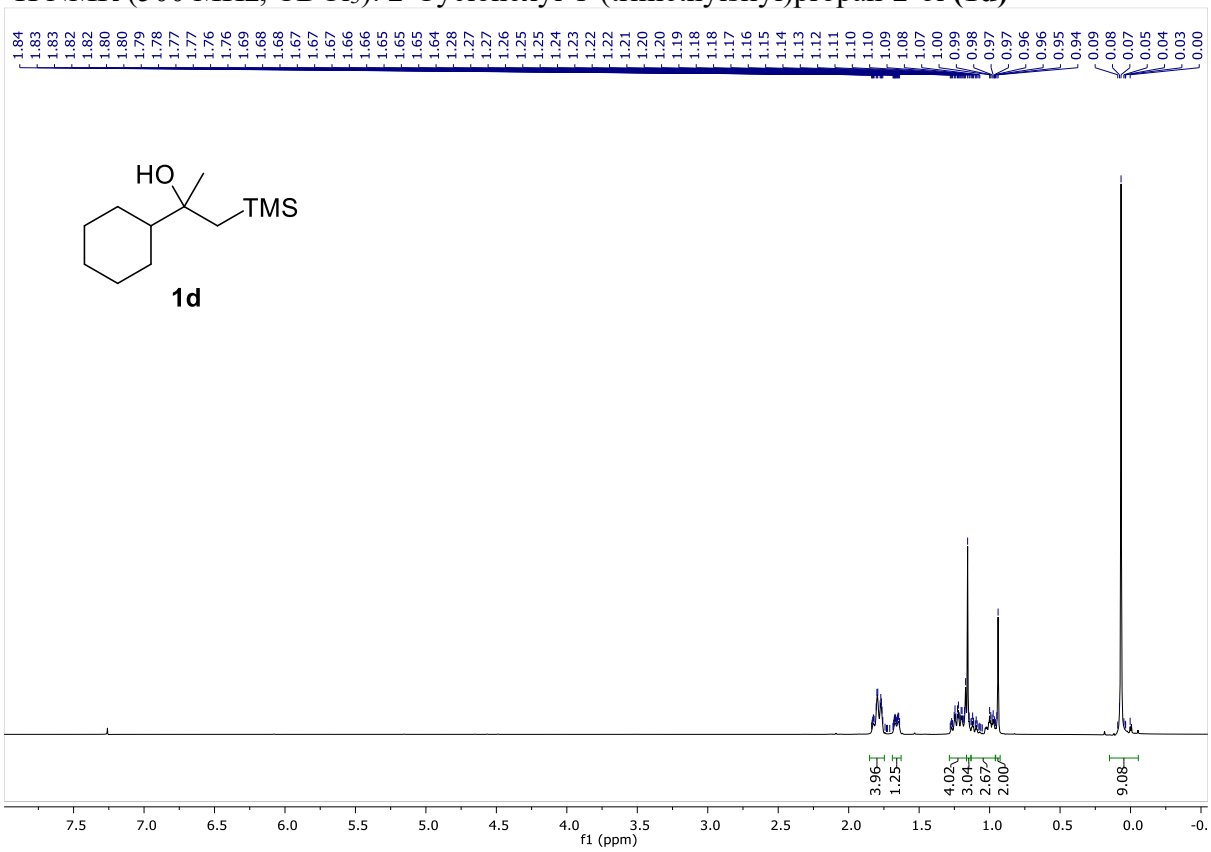
^{1}H NMR (400 MHz, $CDCl_3$): 1-Cyclohexyl-2-(trimethylsilyl)ethan-1-ol **(1c)**



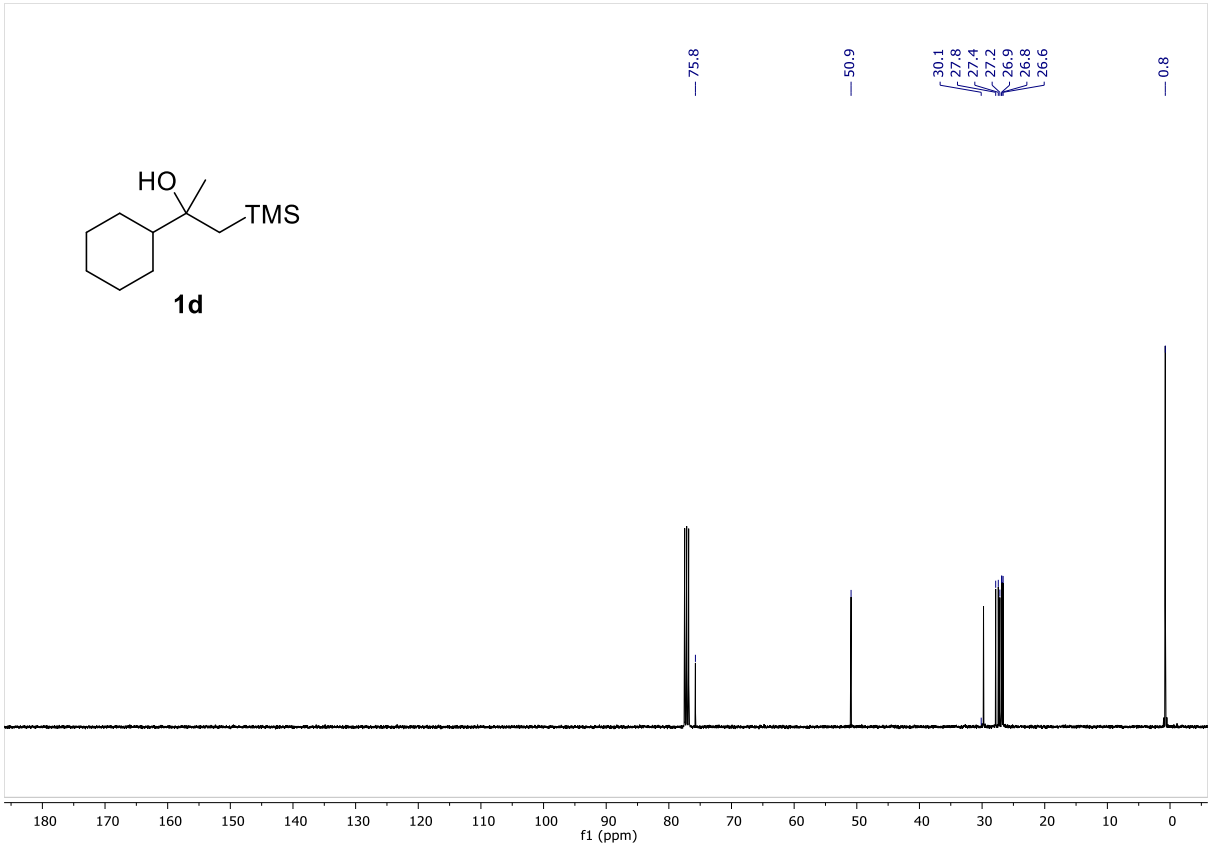
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): 1-Cyclohexyl-2-(trimethylsilyl)ethan-1-ol **(1c)**



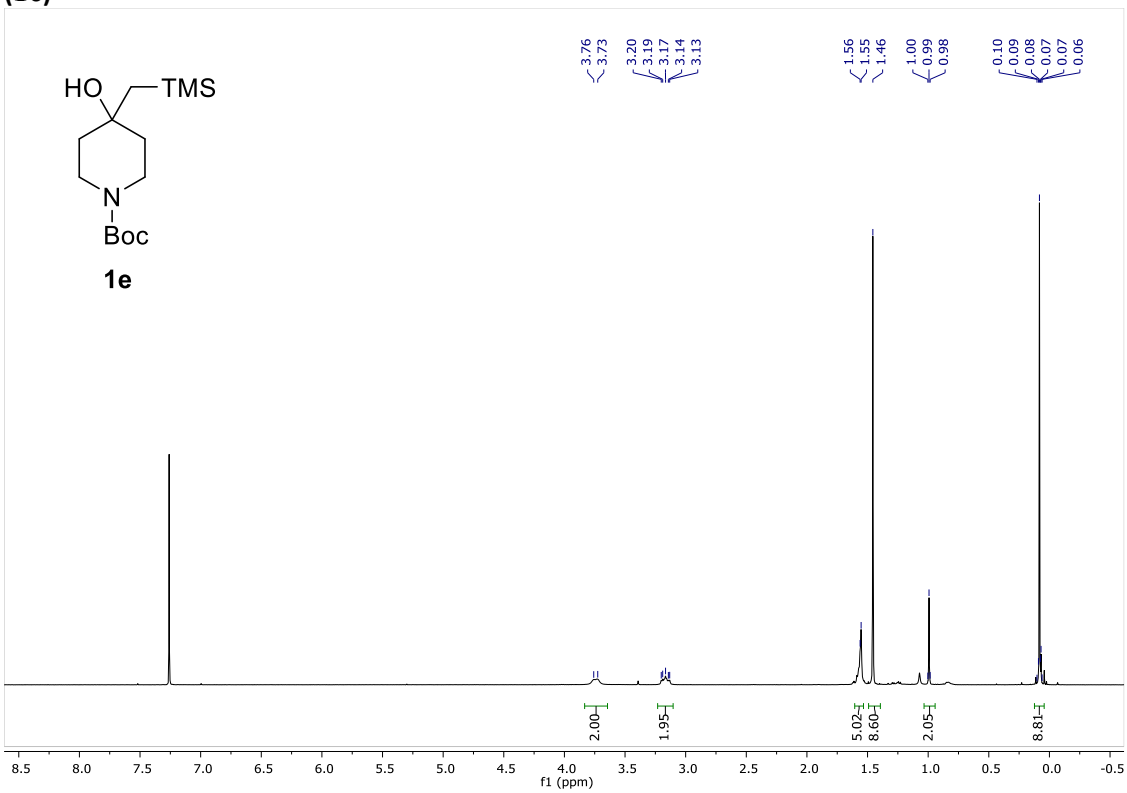
^{1}H NMR (500 MHz, $CDCl_3$): 2-Cyclohexyl-1-(trimethylsilyl)propan-2-ol **(1d)**



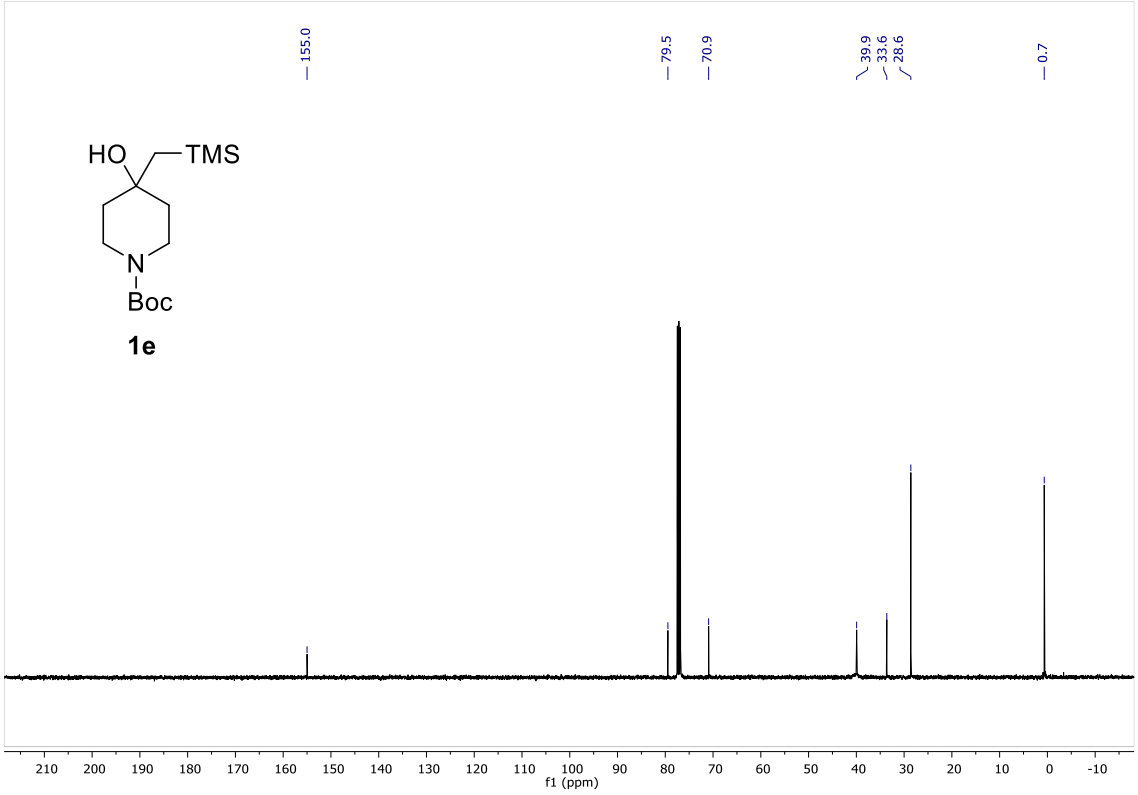
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): 2-Cyclohexyl-1-(trimethylsilyl)propan-2-ol **(1d)**



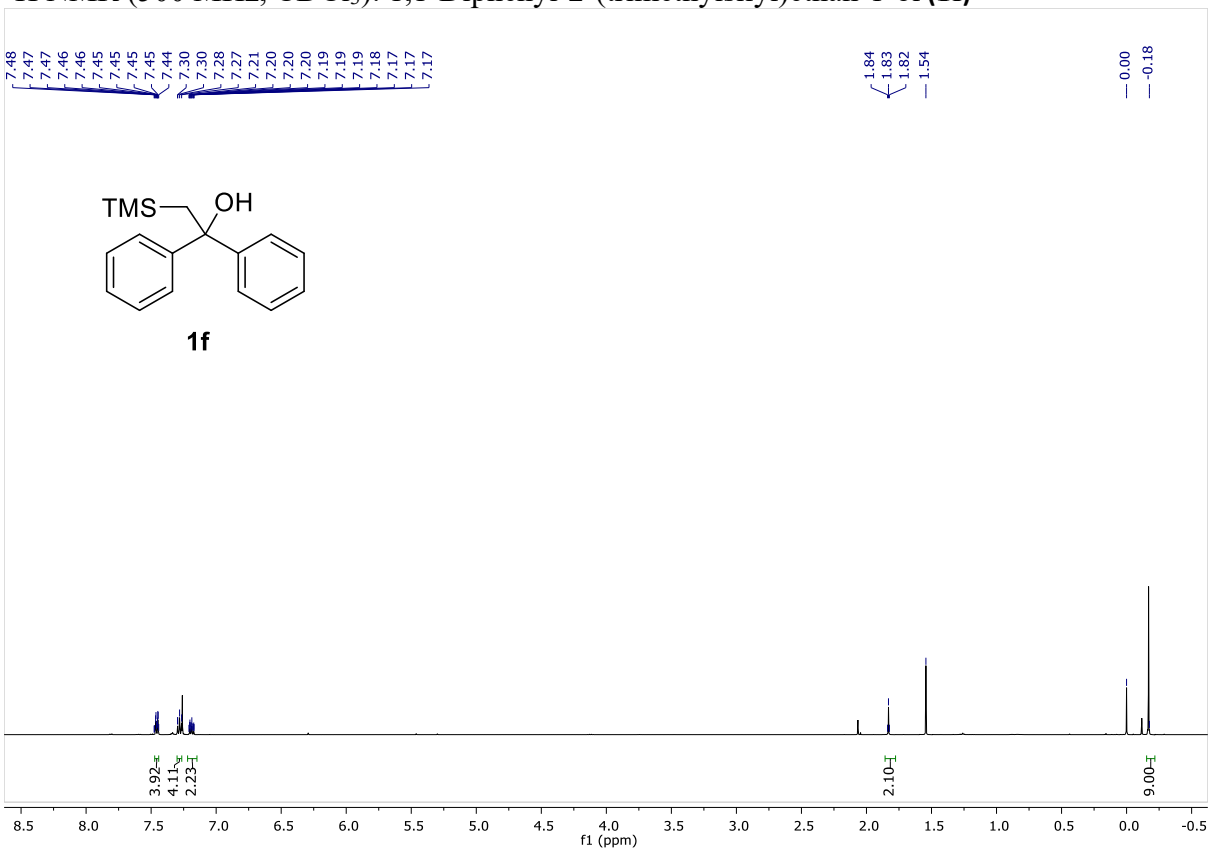
^{1}H NMR (400 MHz, $CDCl_3$): *tert*-Butyl 4-hydroxy-4-((trimethylsilyl)methyl)piperidine-1-carboxylate **(1e)**



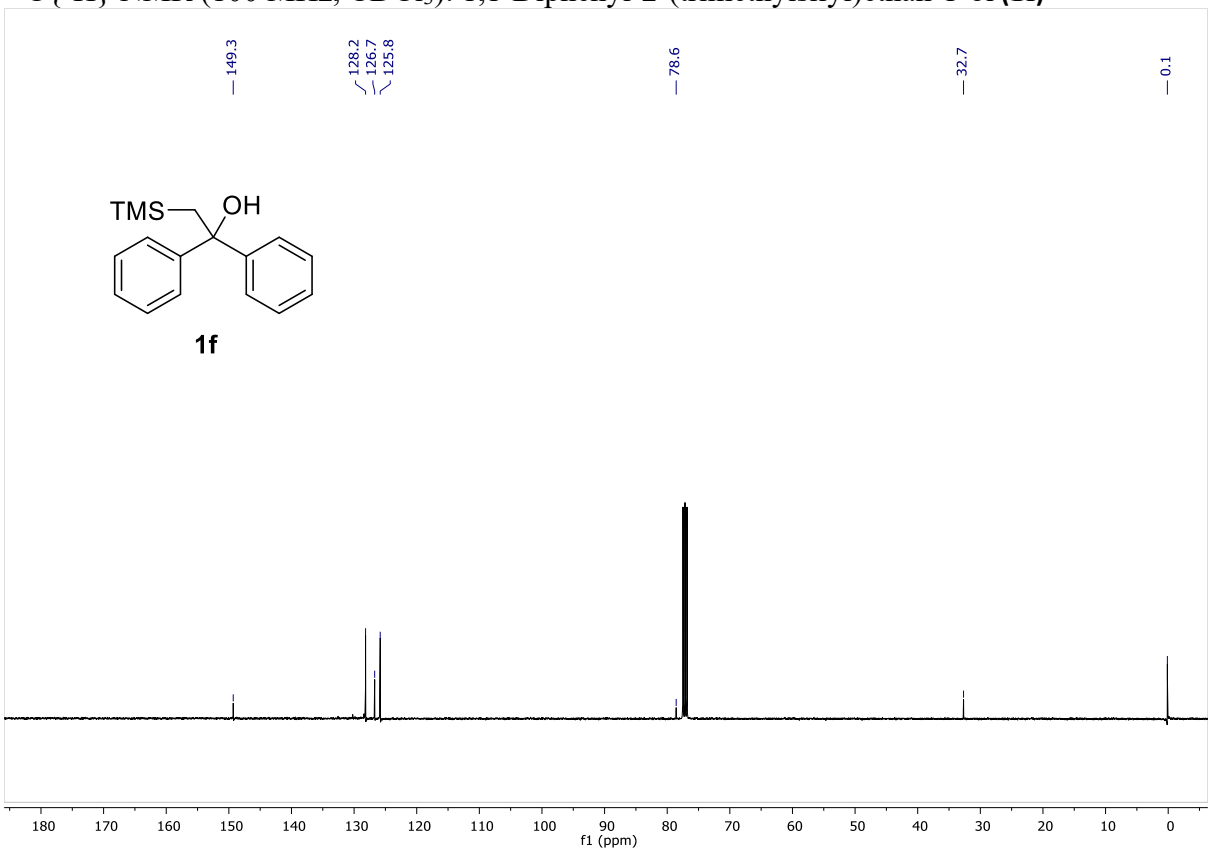
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): *tert*-Butyl 4-hydroxy-4-((trimethylsilyl)methyl)piperidine-1-carboxylate **(1e)**



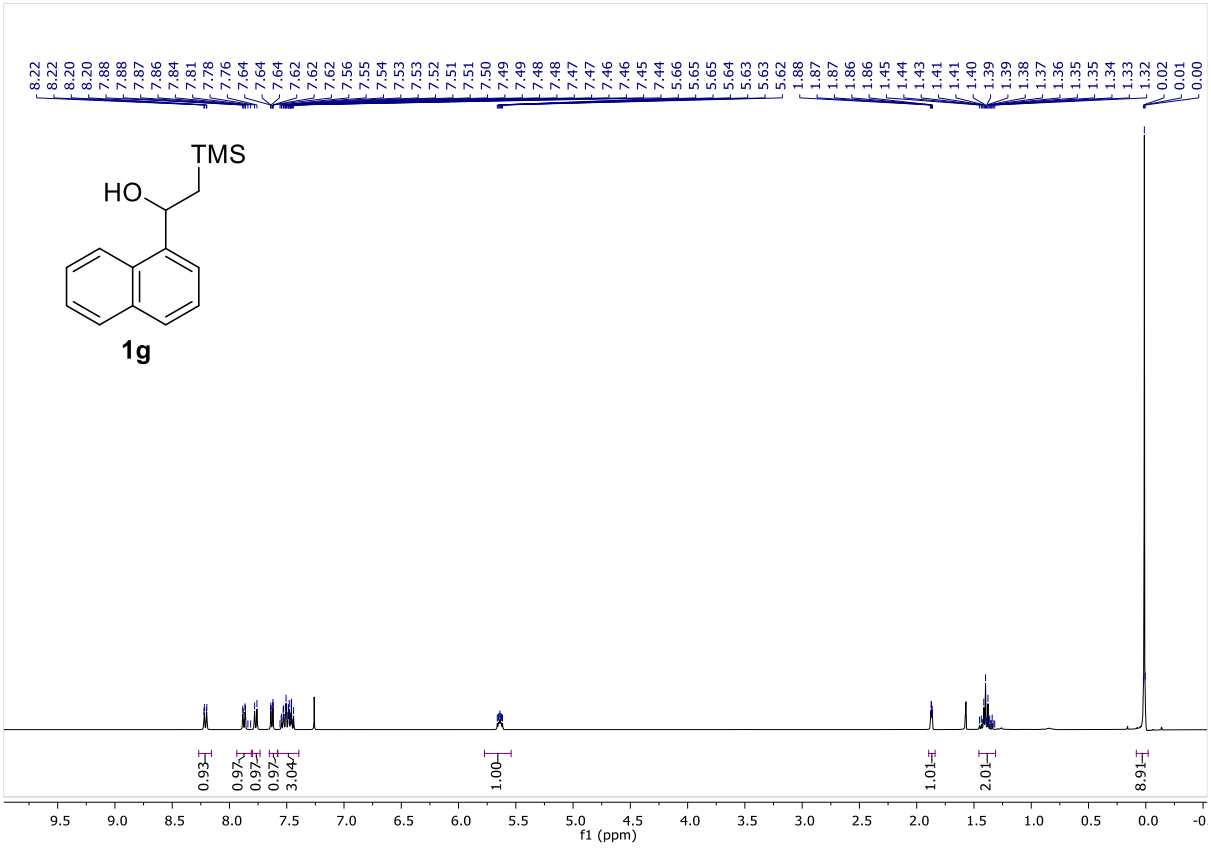
^{1}H NMR (500 MHz, $CDCl_3$): 1,1-Diphenyl-2-(trimethylsilyl)ethan-1-ol **(1f)**



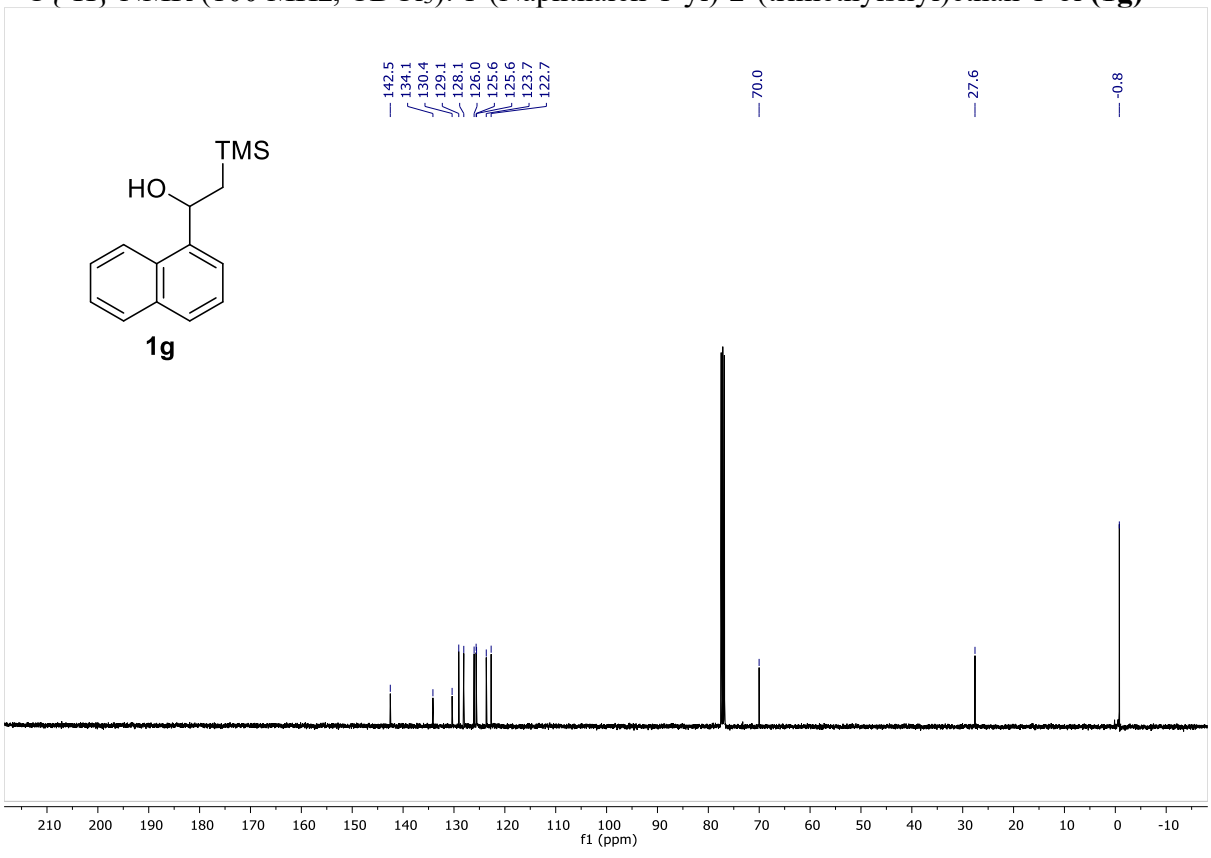
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): 1,1-Diphenyl-2-(trimethylsilyl)ethan-1-ol **(1f)**



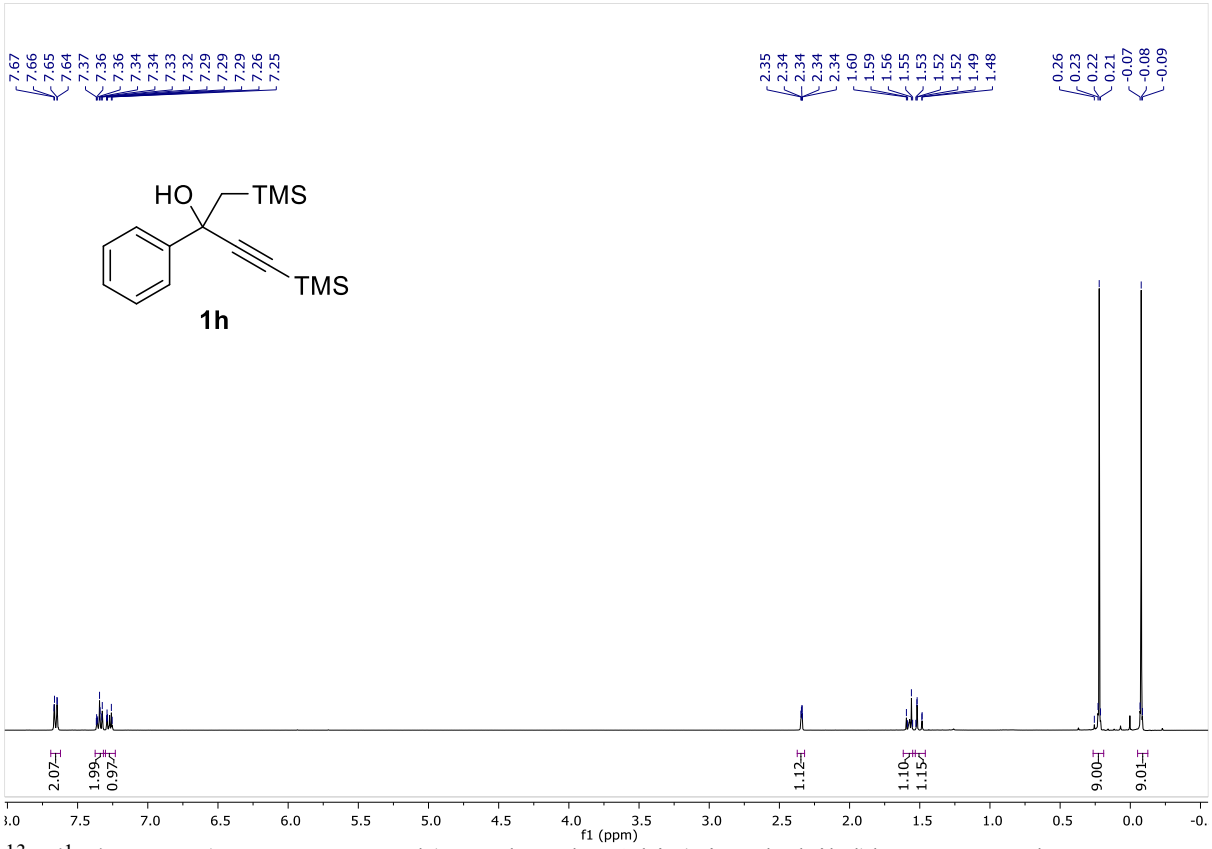
^{1}H NMR (400 MHz, $CDCl_3$): 1-(Naphthalen-1-yl)-2-(trimethylsilyl)ethan-1-ol **(1g)**



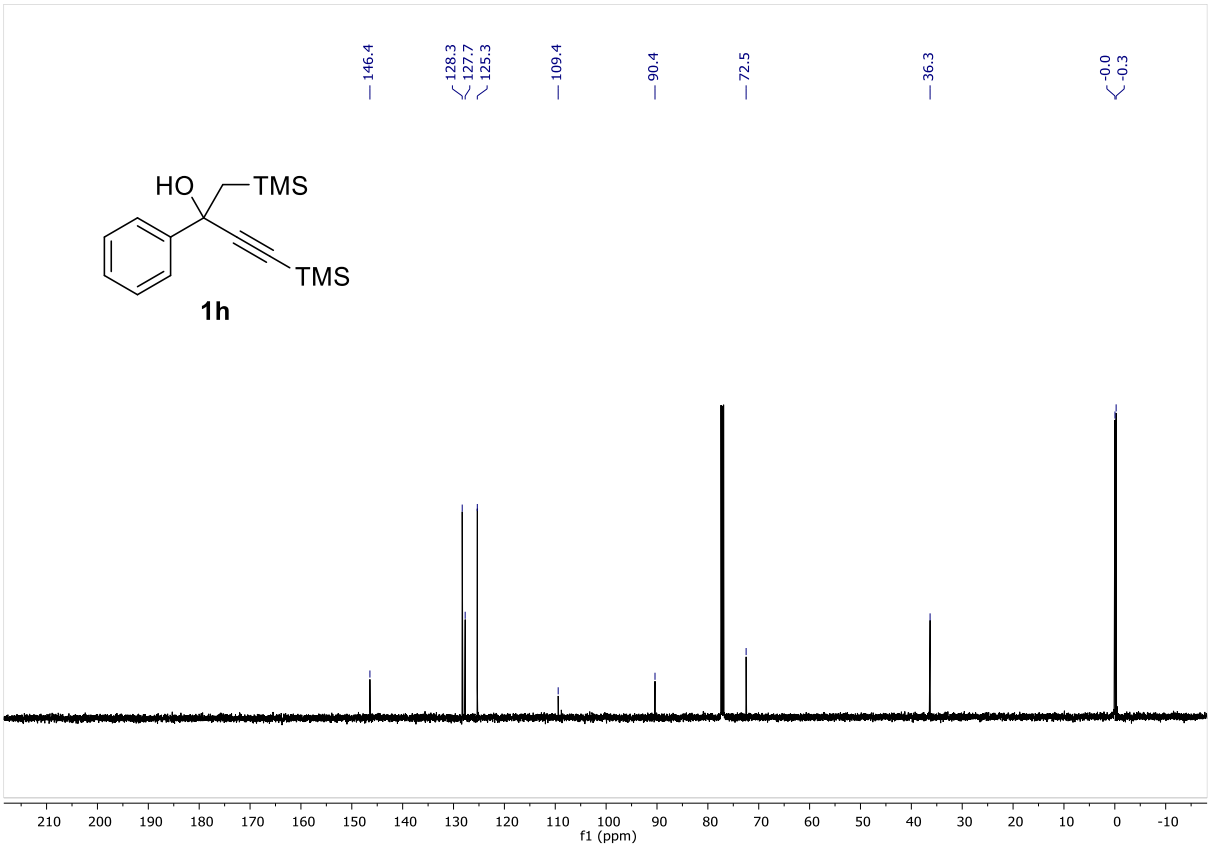
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): 1-(Naphthalen-1-yl)-2-(trimethylsilyl)ethan-1-ol **(1g)**



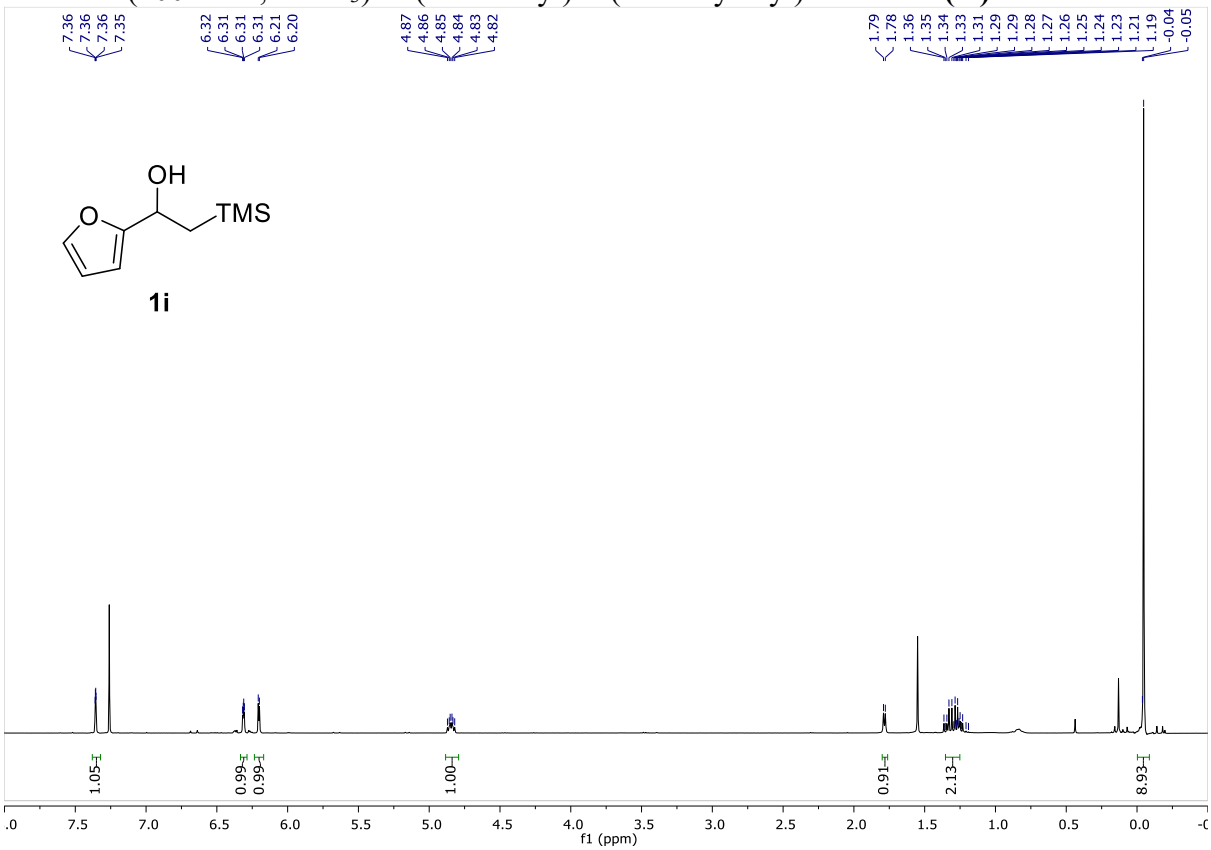
^{1}H NMR (400 MHz, $CDCl_3$): 2-Phenyl-1,4-bis(trimethylsilyl)but-3-yn-2-ol **(1h)**



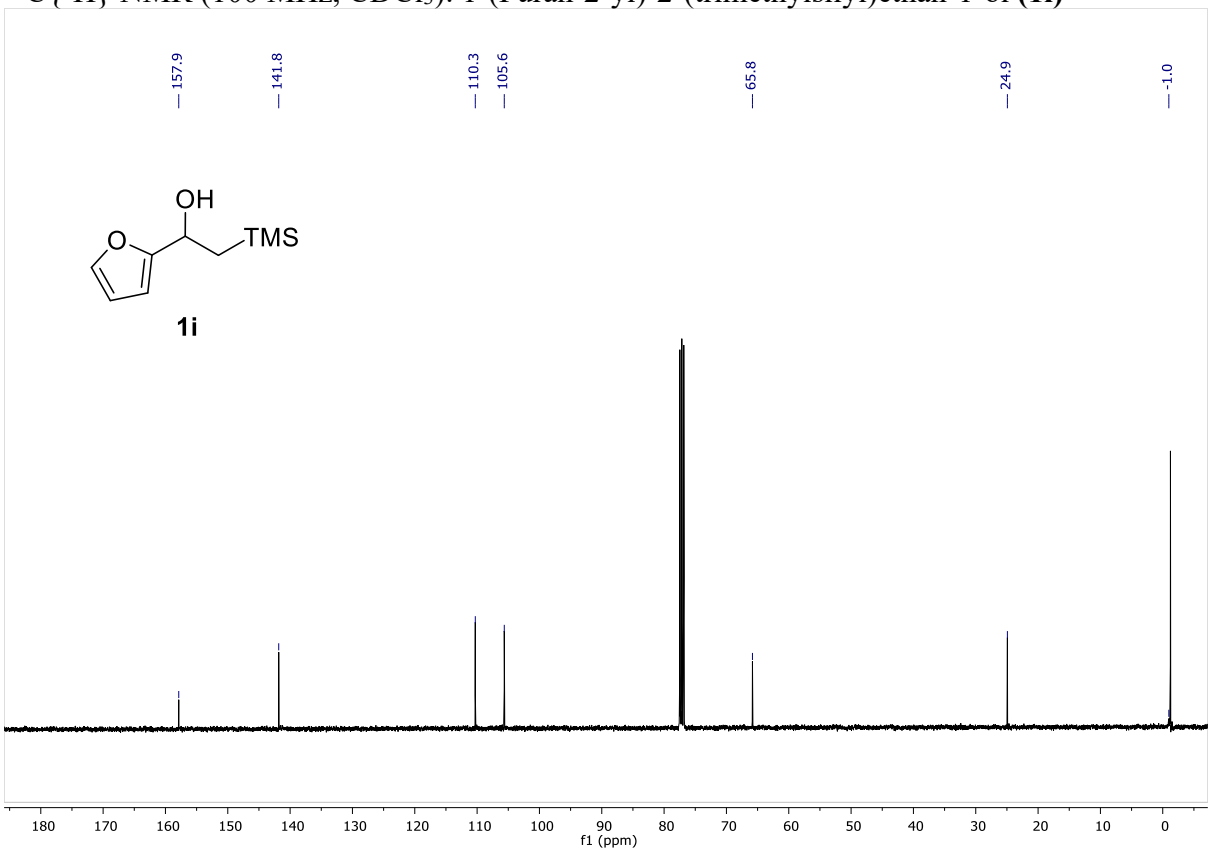
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): 2-Phenyl-1,4-bis(trimethylsilyl)but-3-yn-2-ol **(1h)**



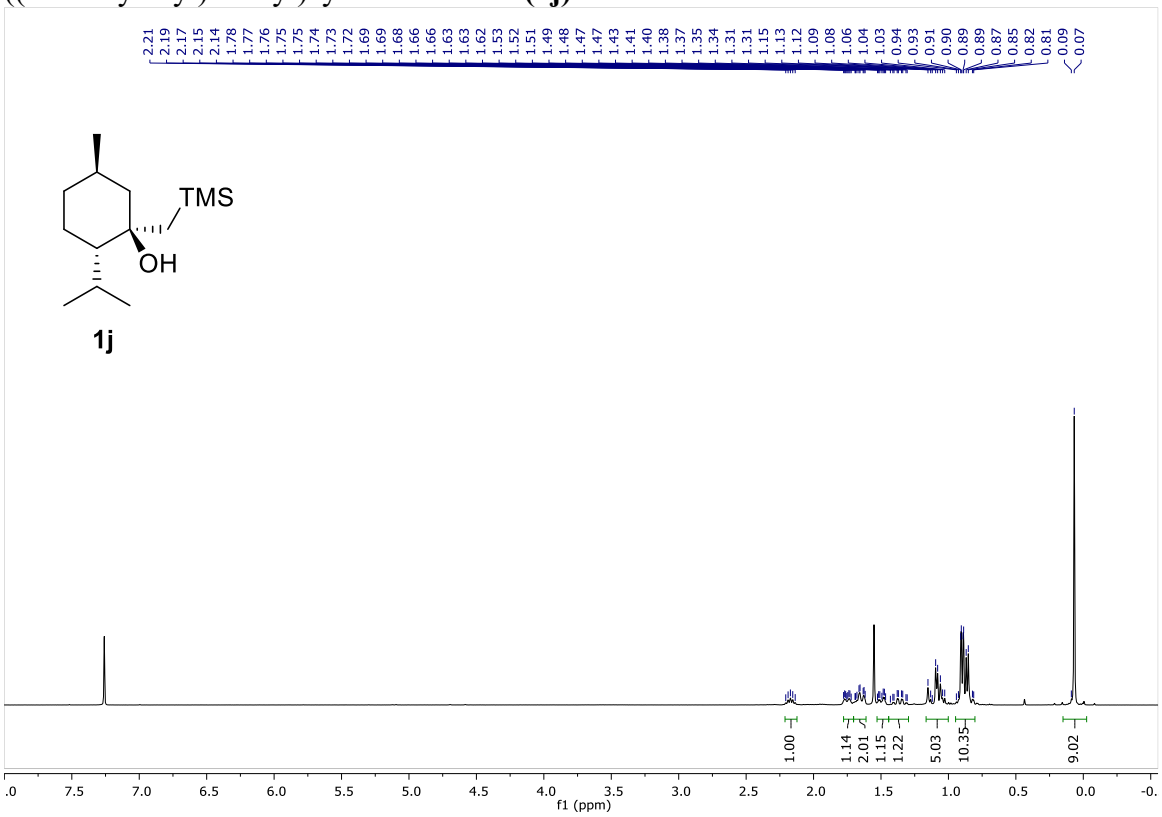
^{1}H NMR (400 MHz, $CDCl_3$): 1-(Furan-2-yl)-2-(trimethylsilyl)ethan-1-ol **(1i)**



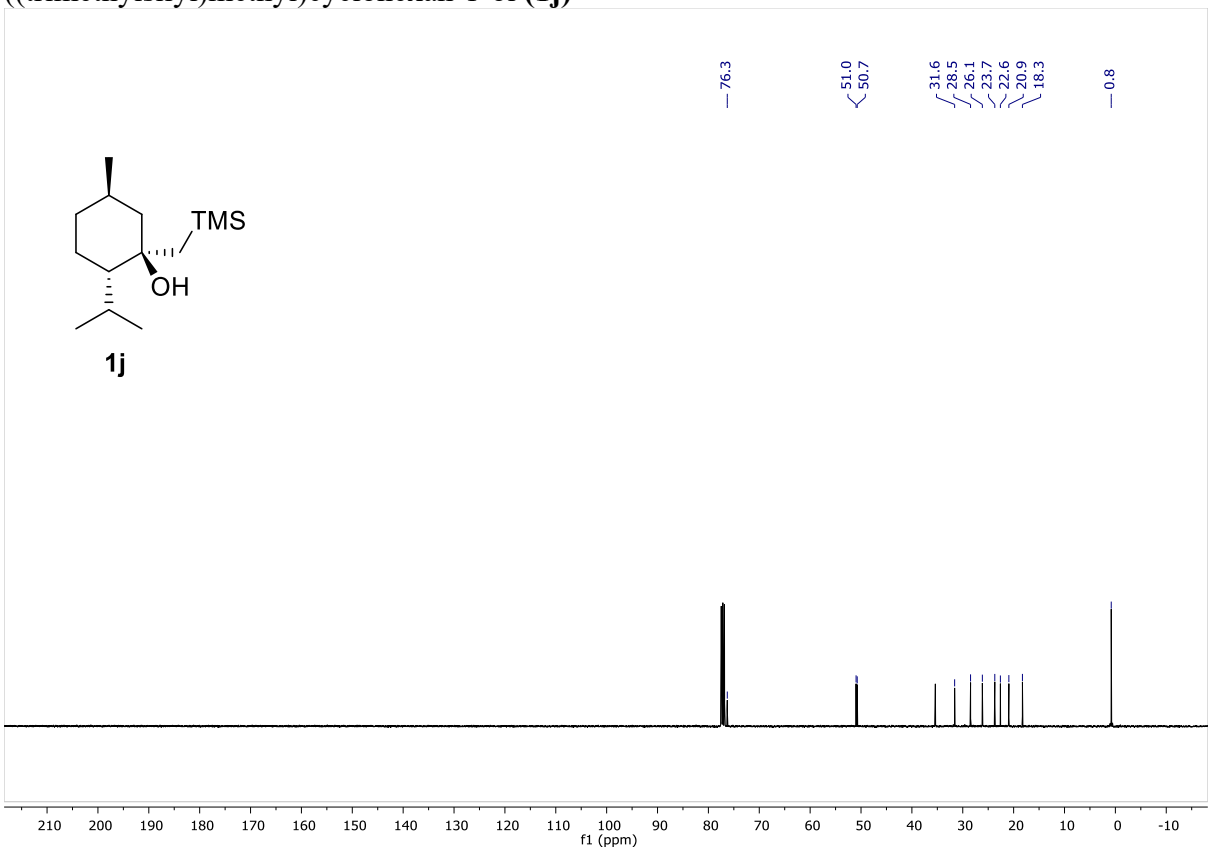
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): 1-(Furan-2-yl)-2-(trimethylsilyl)ethan-1-ol **(1i)**

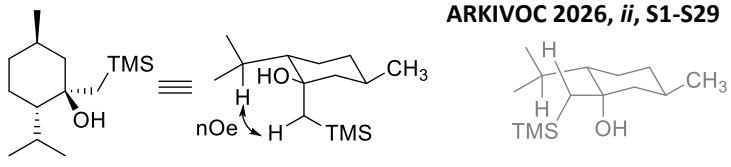


^{1}H NMR (400 MHz, $CDCl_3$): (*1R,2S,5R*)-2-Isopropyl-5-methyl-1-((trimethylsilyl)methyl)cyclohexan-1-ol **(1j)**



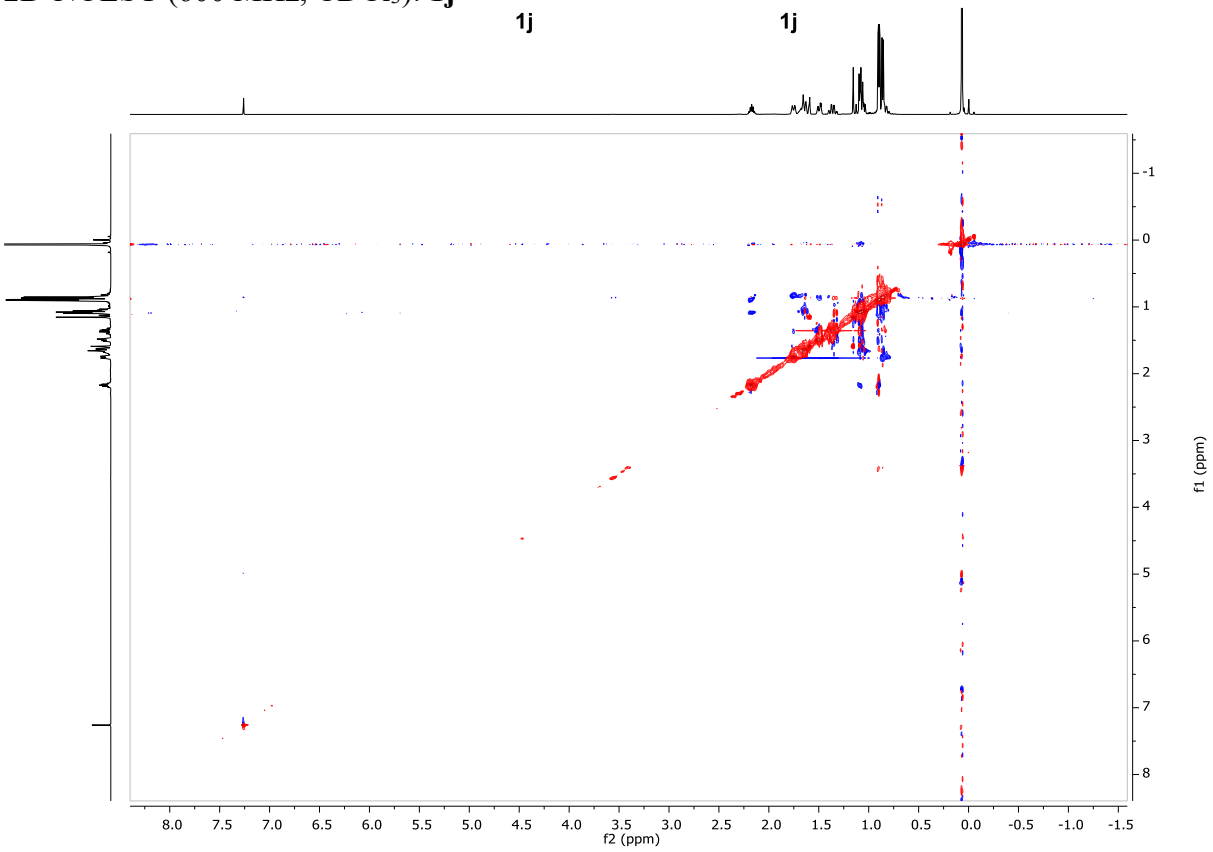
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): (*1R,2S,5R*)-2-Isopropyl-5-methyl-1-((trimethylsilyl)methyl)cyclohexan-1-ol **(1j)**



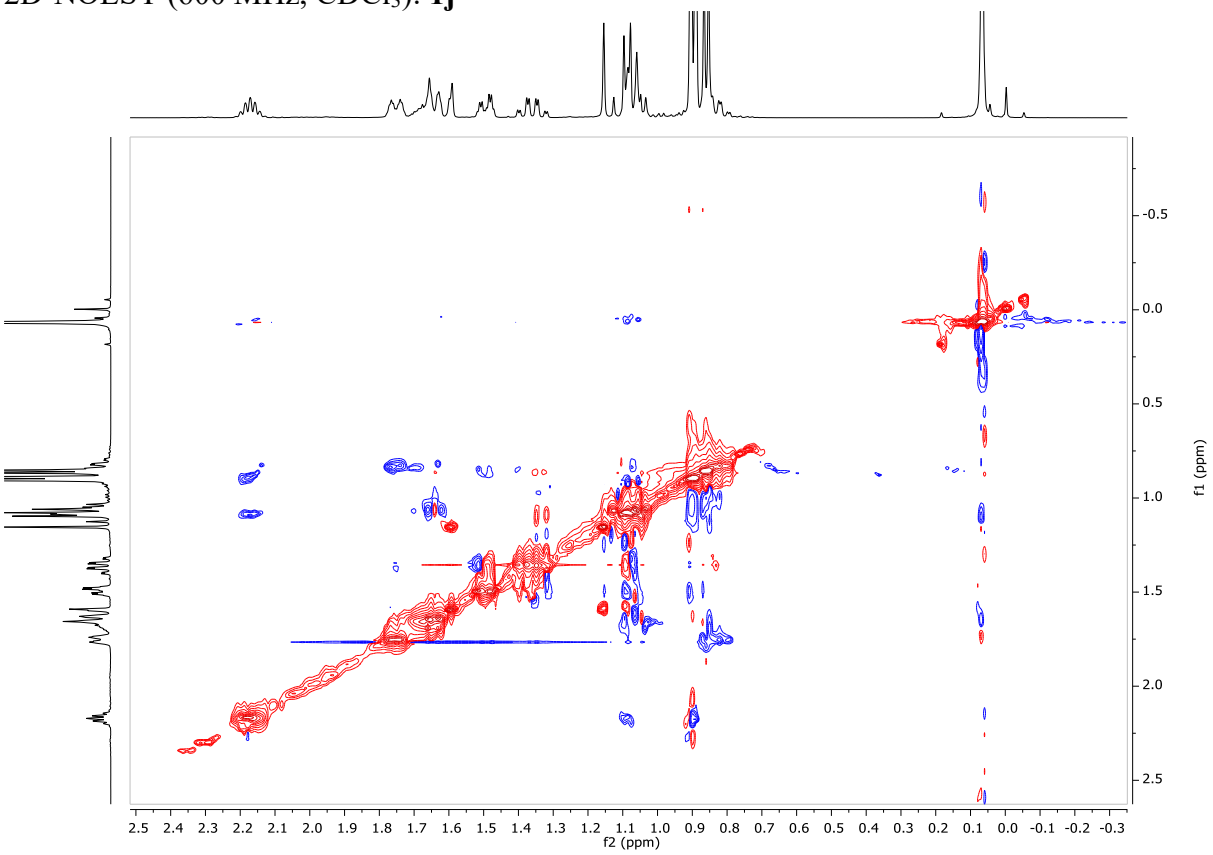


1j **1j**

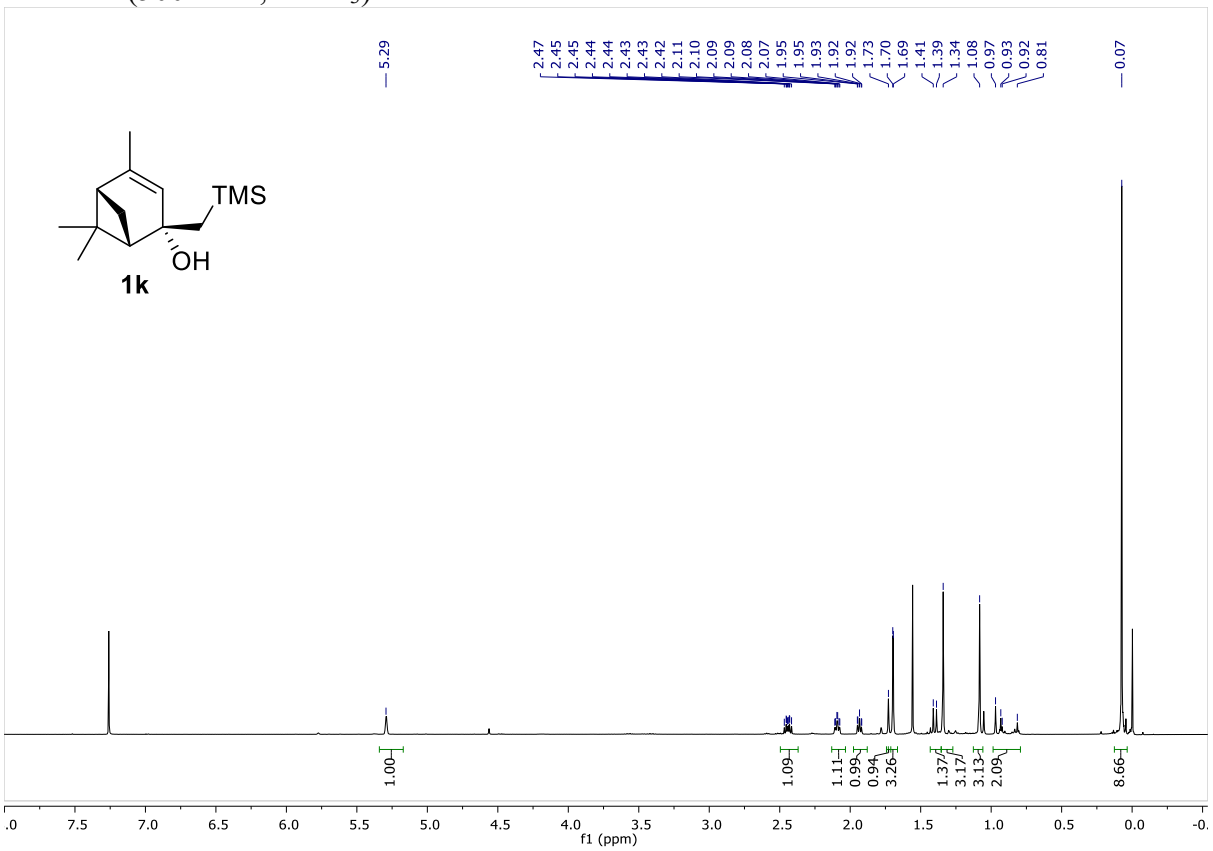
2D-NOESY (600 MHz, $CDCl_3$): **1j**



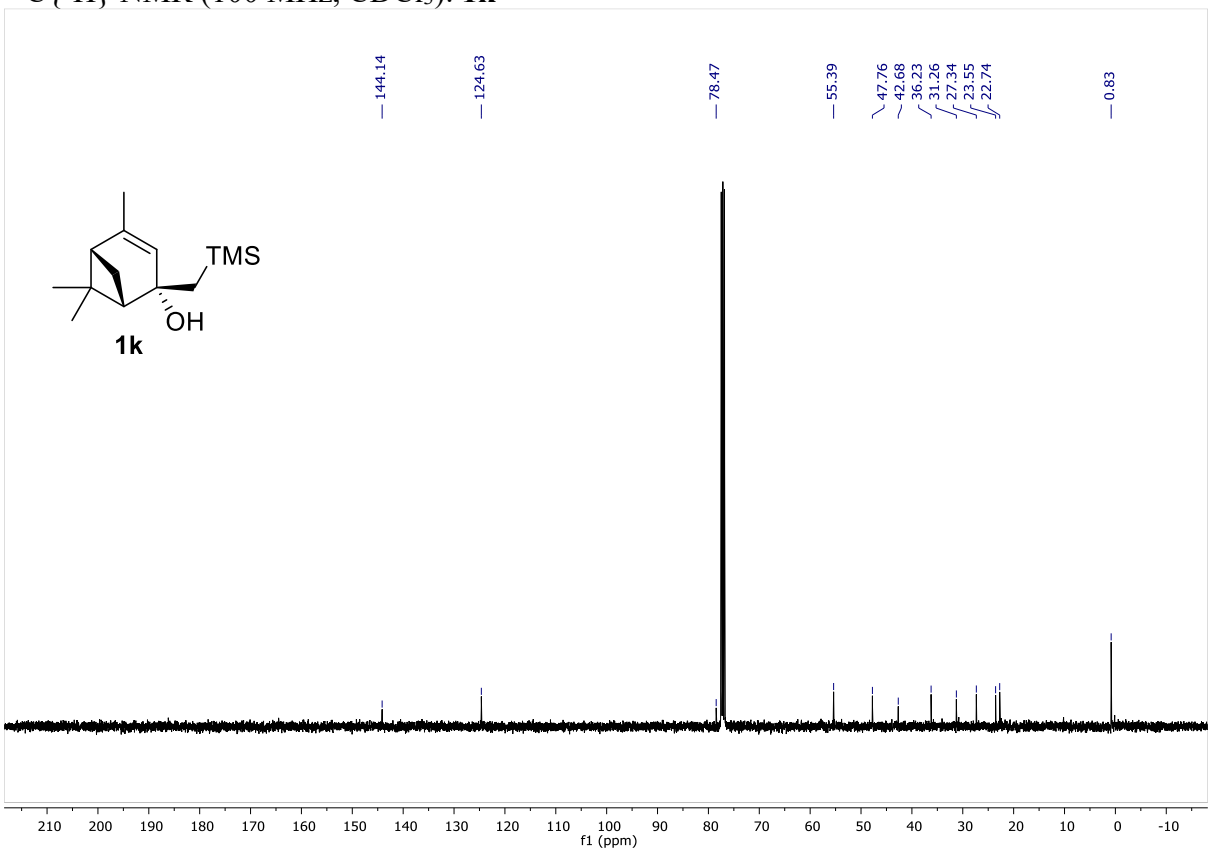
2D-NOESY (600 MHz, $CDCl_3$): **1j**

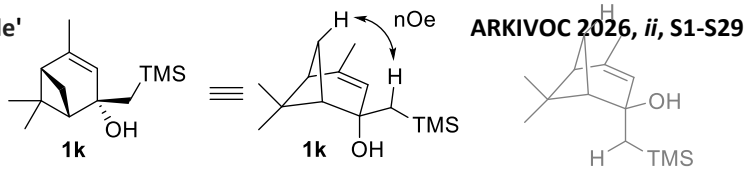


^{1}H NMR (500 MHz, $CDCl_3$): **1k**

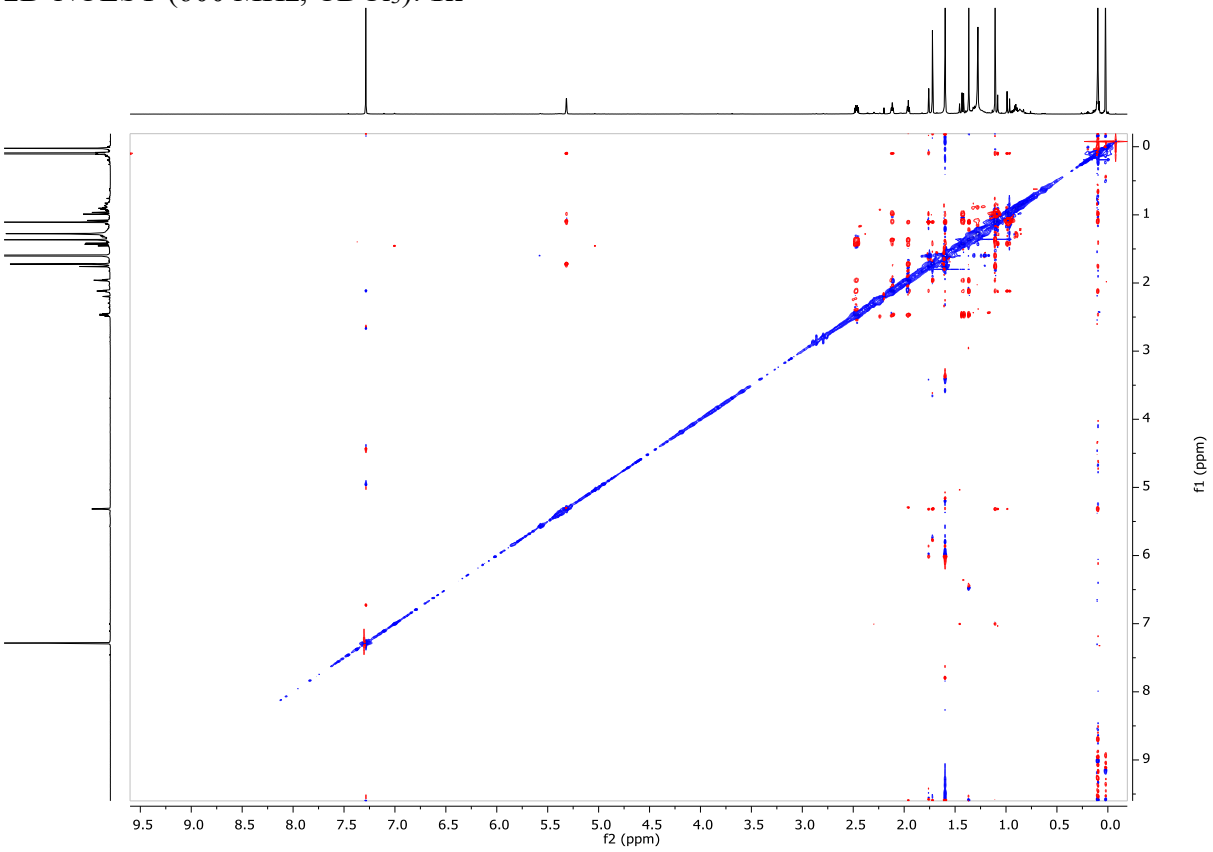


^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **1k**

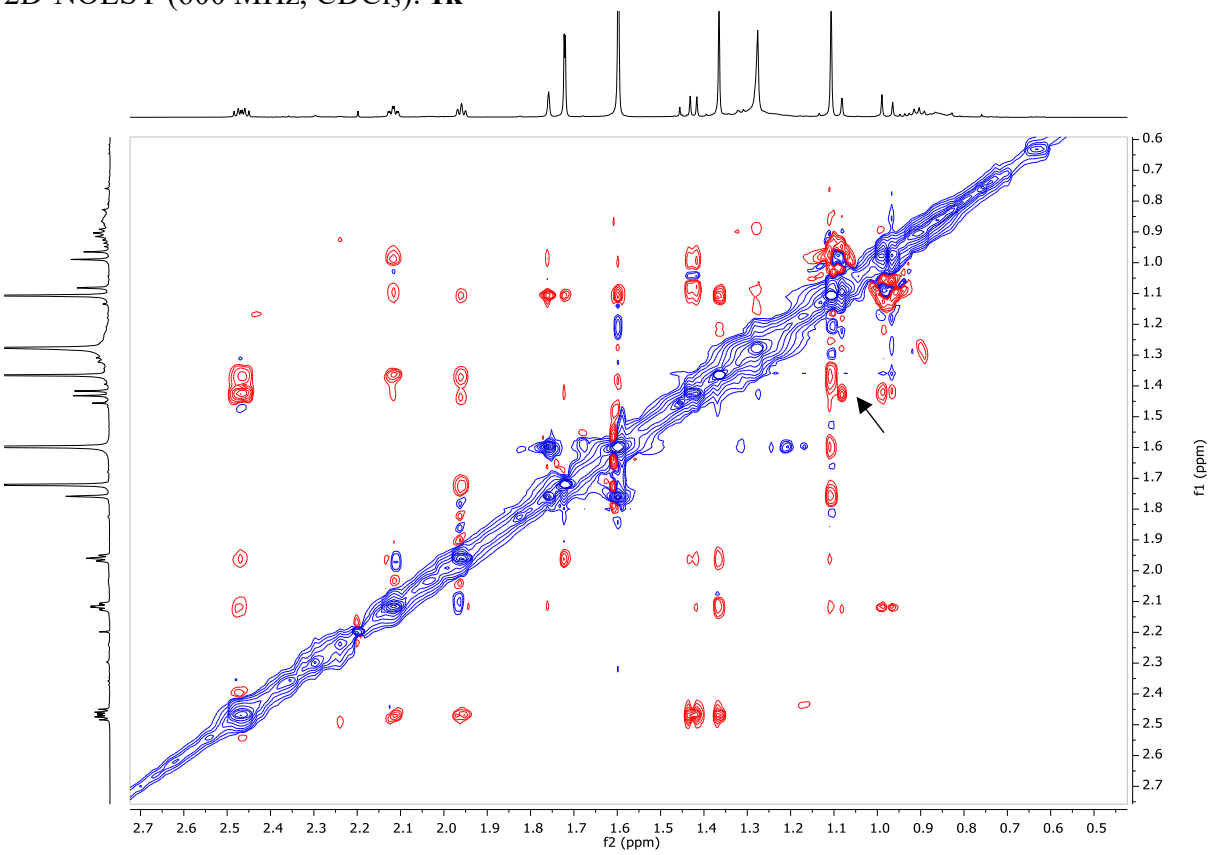




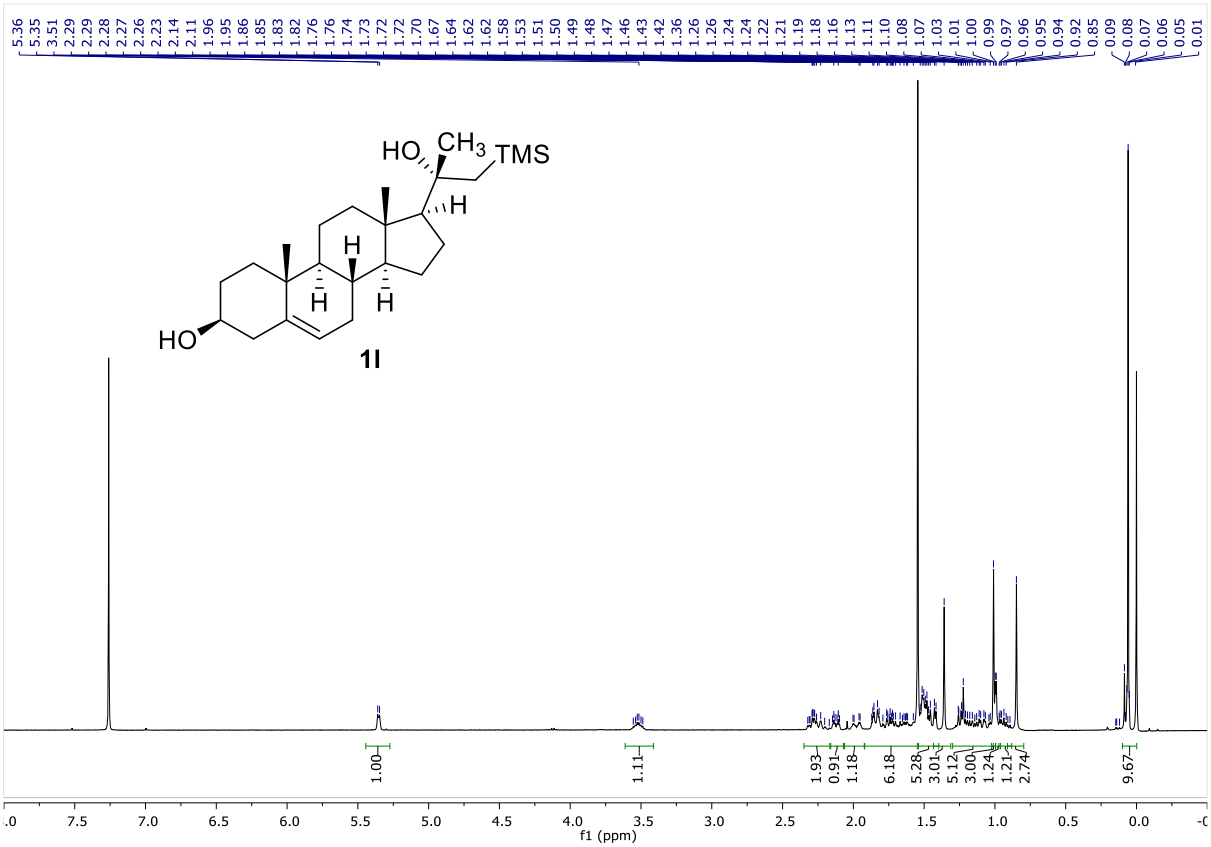
2D-NOESY (600 MHz, $CDCl_3$): **1k**



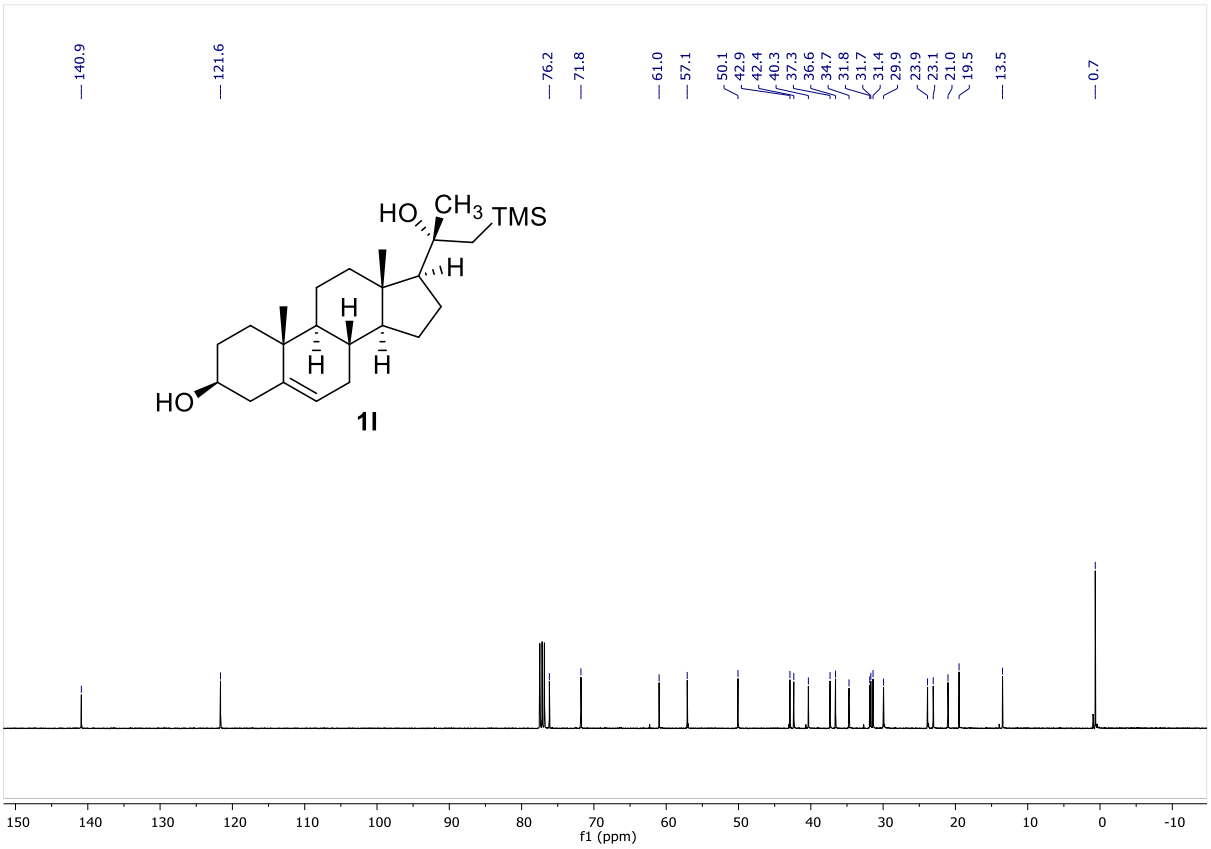
2D-NOESY (600 MHz, $CDCl_3$): **1k**



^{1}H NMR (400 MHz, $CDCl_3$): **1l**

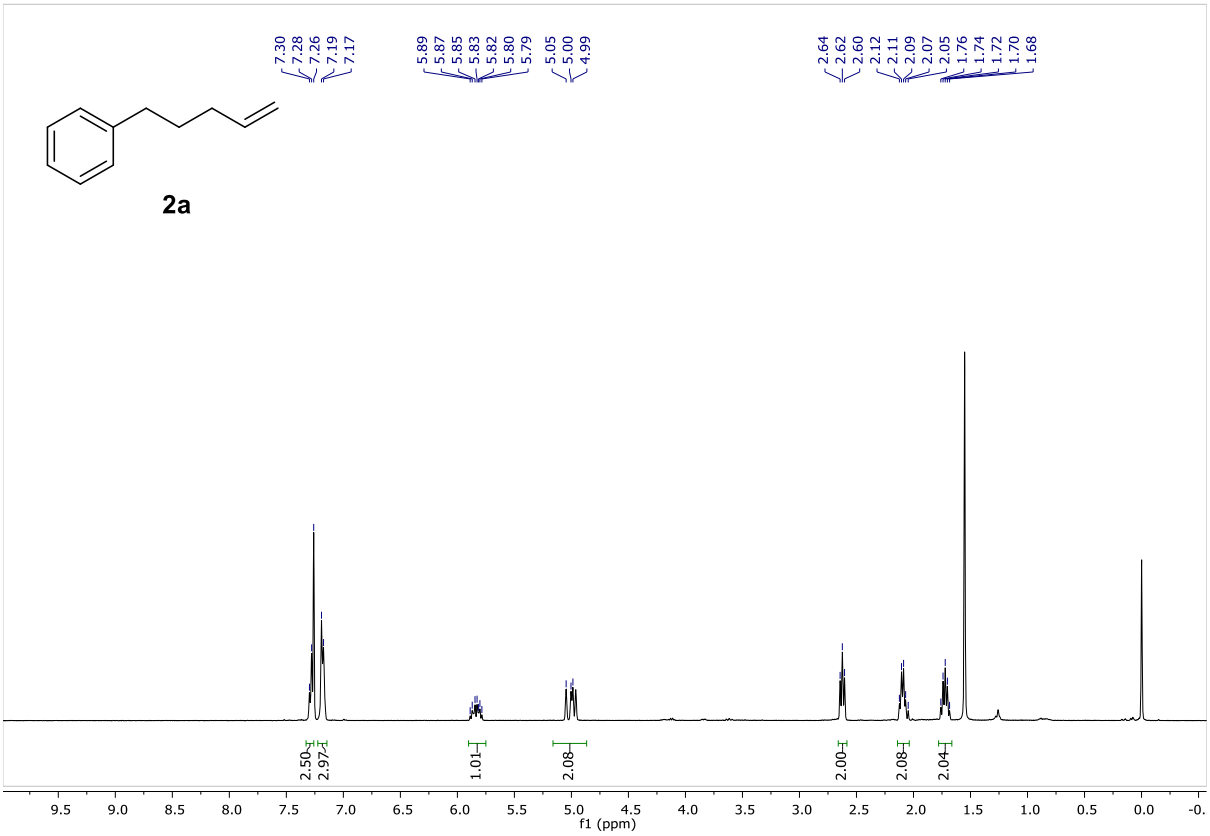


^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **1l**

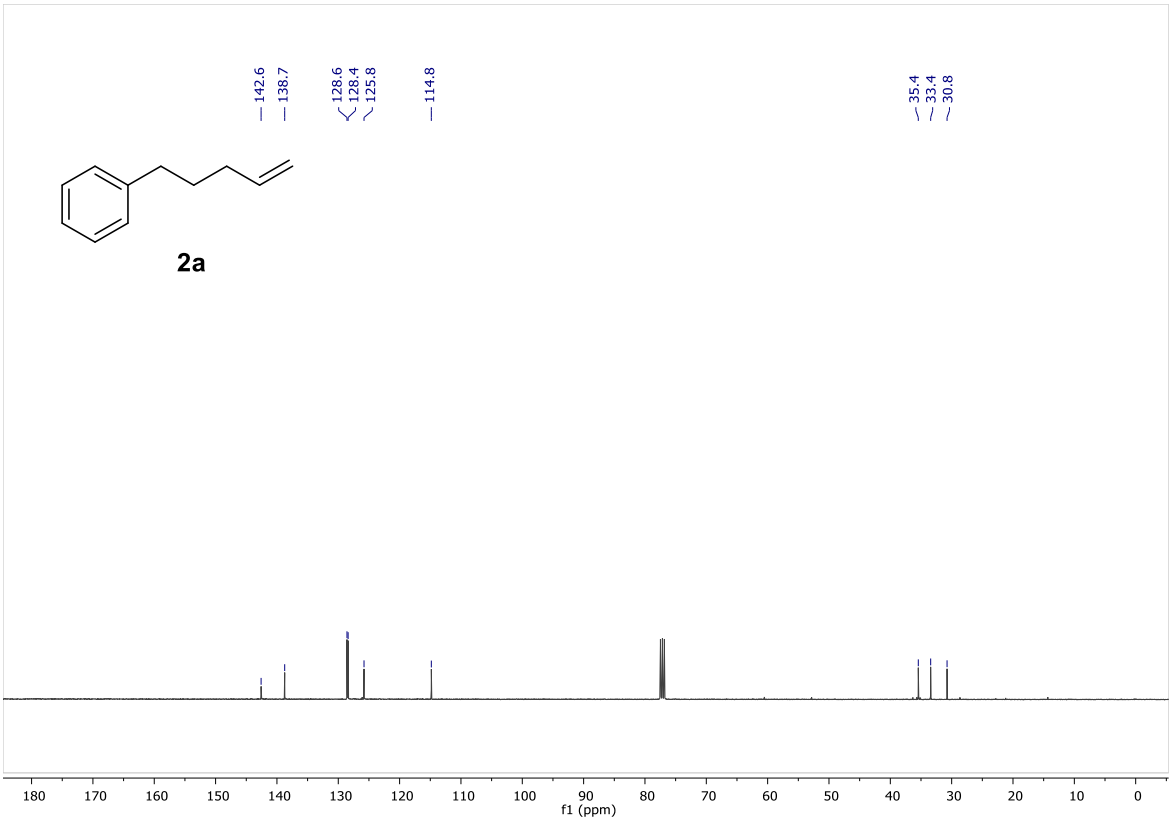


3. ^{1}H and ^{13}C NMR spectra alkene 2a-2l

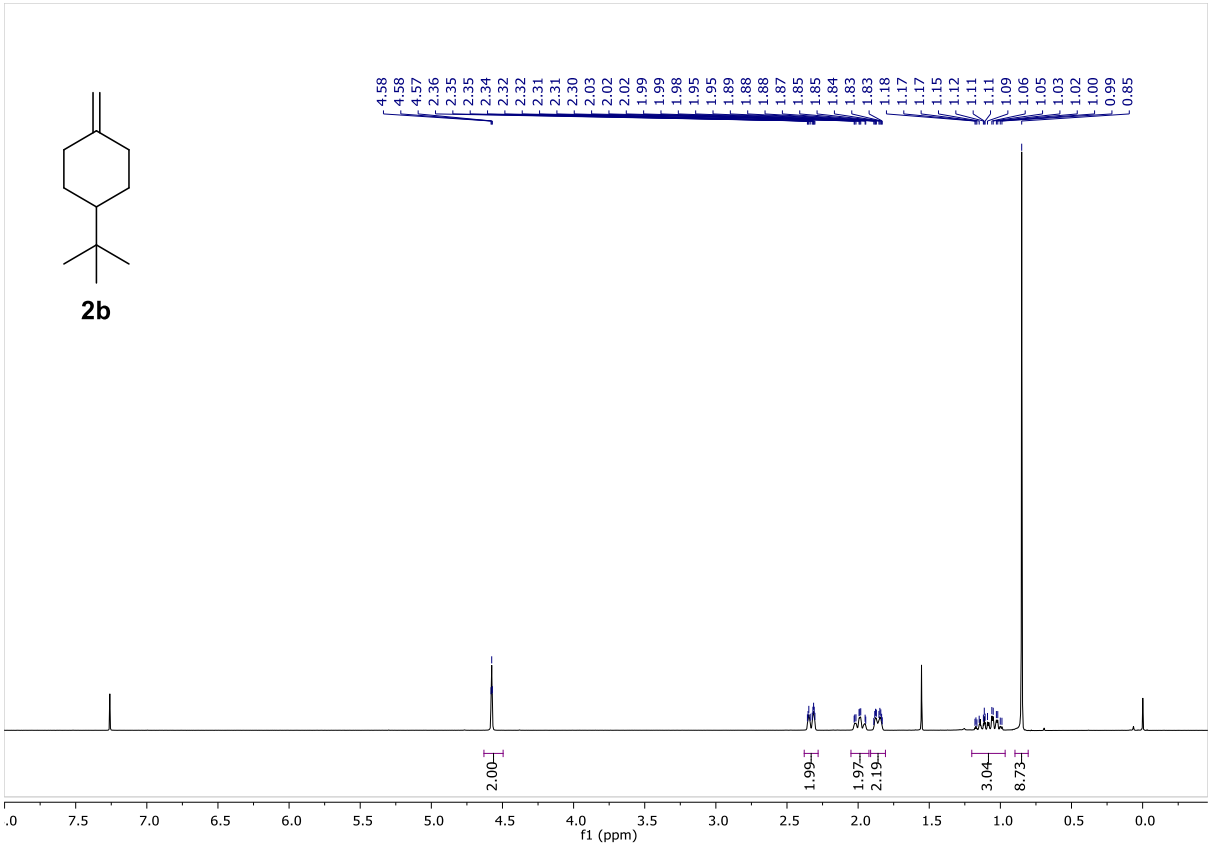
^{1}H NMR (400 MHz, $CDCl_3$): **2a**



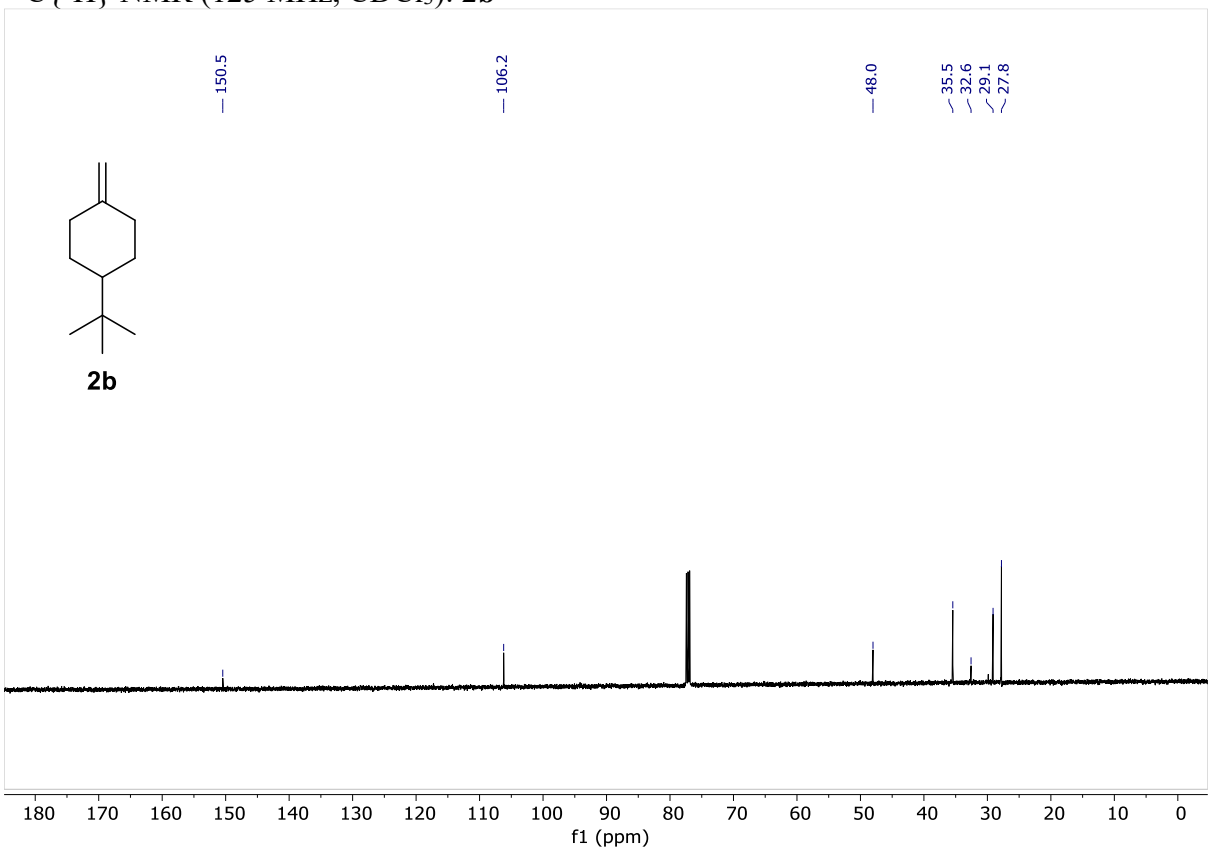
^{13}C{^{1}H}NMR (100 MHz, $CDCl_3$): **2a**



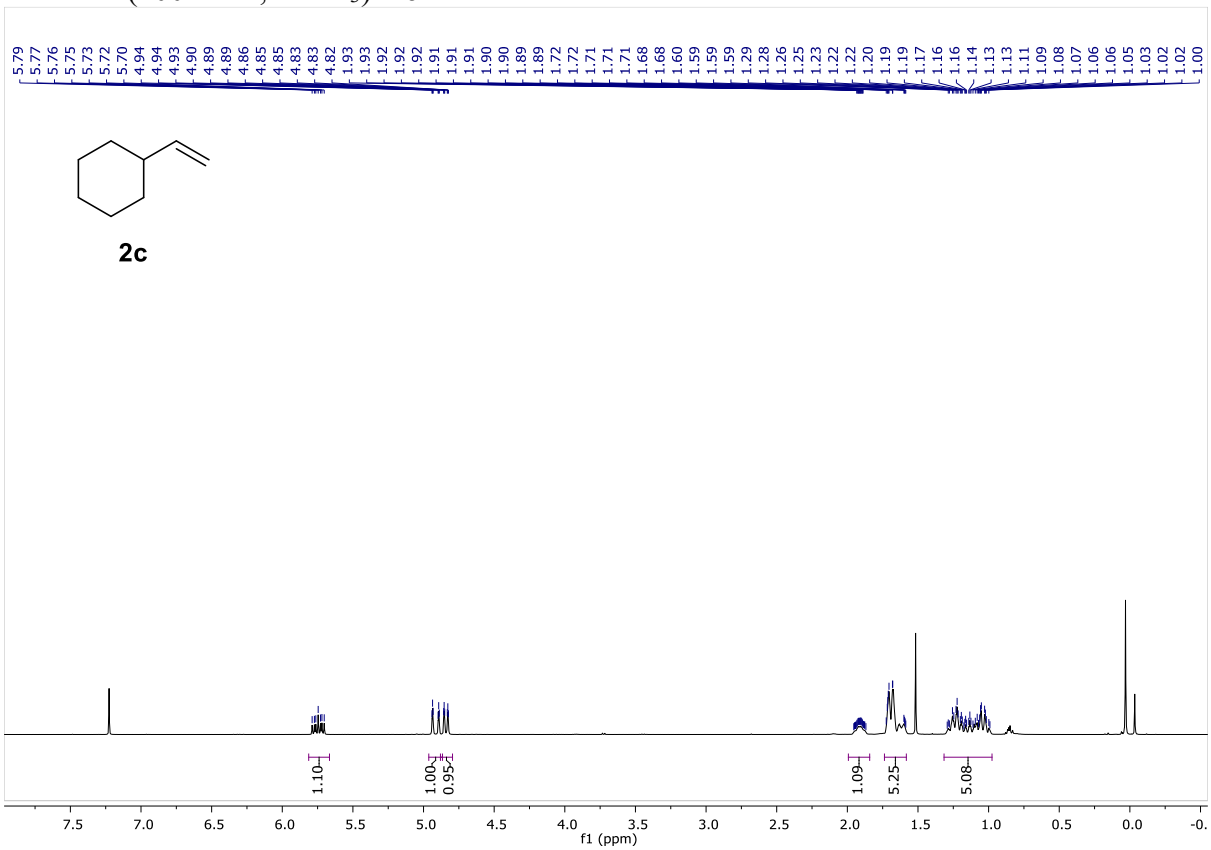
^{1}H NMR (500 MHz, $CDCl_3$): **2b**



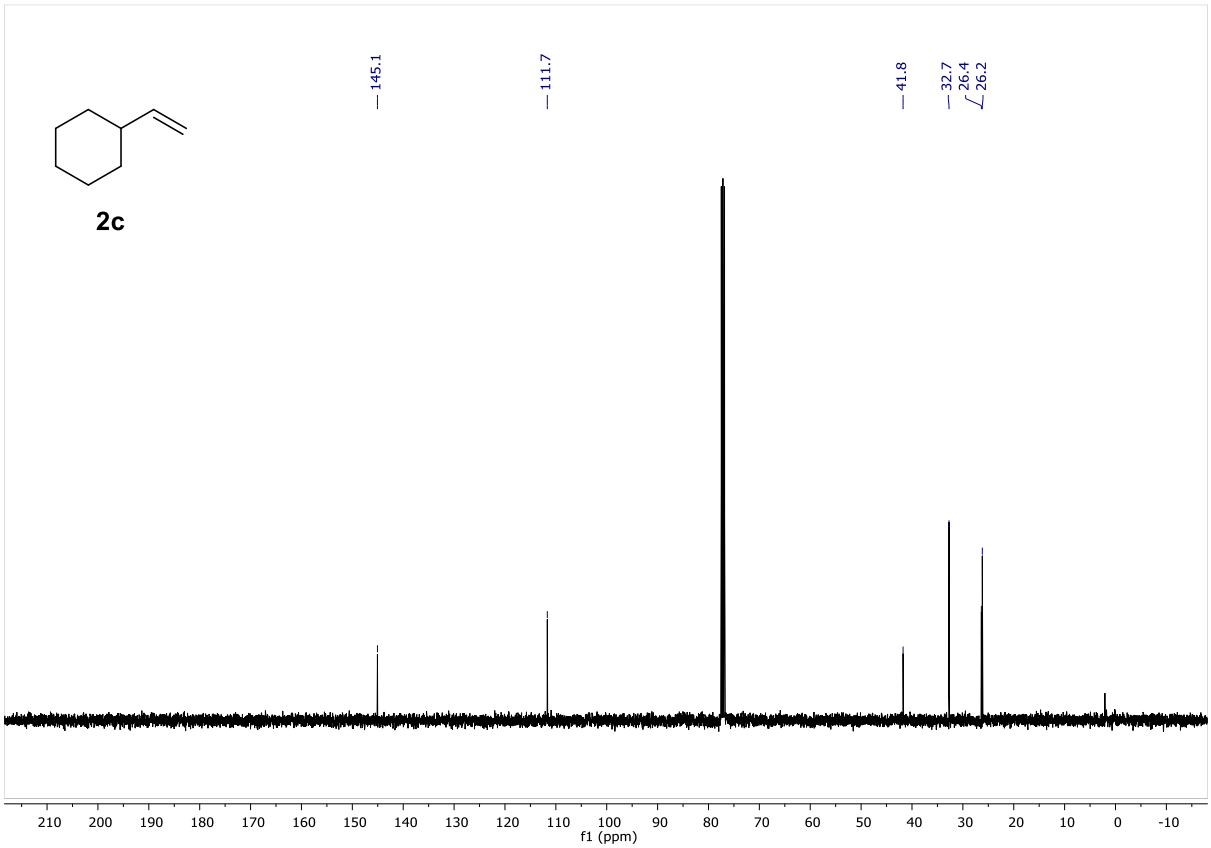
^{13}C{^{1}H} NMR (125 MHz, $CDCl_3$): **2b**



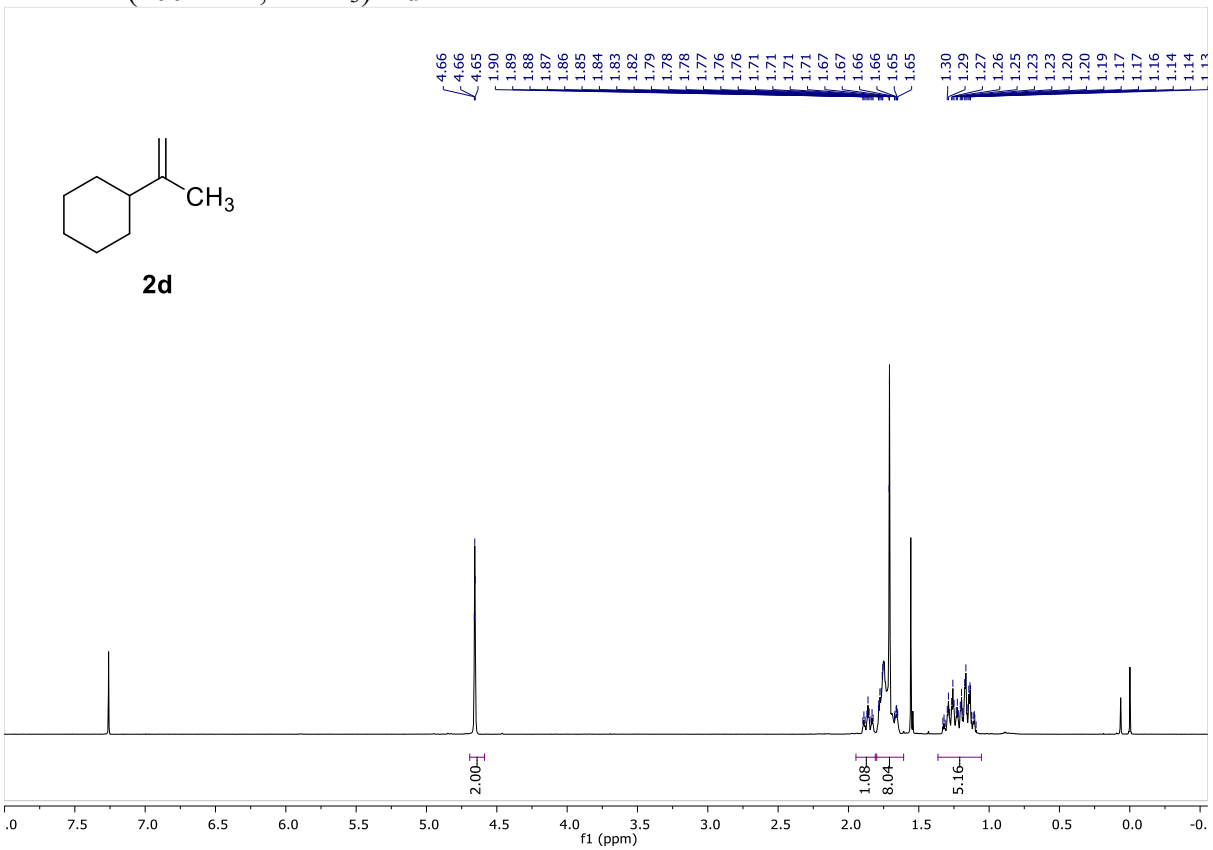
^{1}H NMR (400 MHz, $CDCl_3$): **2c**



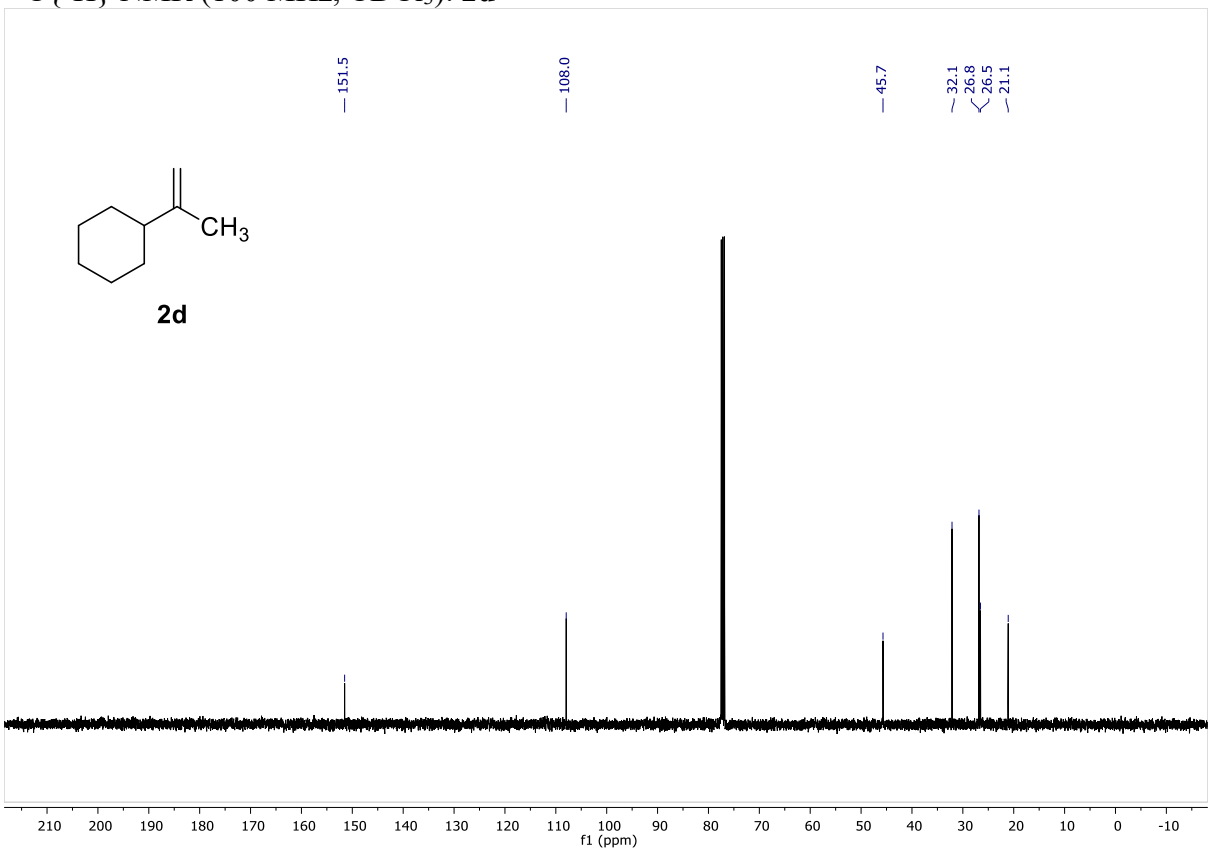
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **2c**



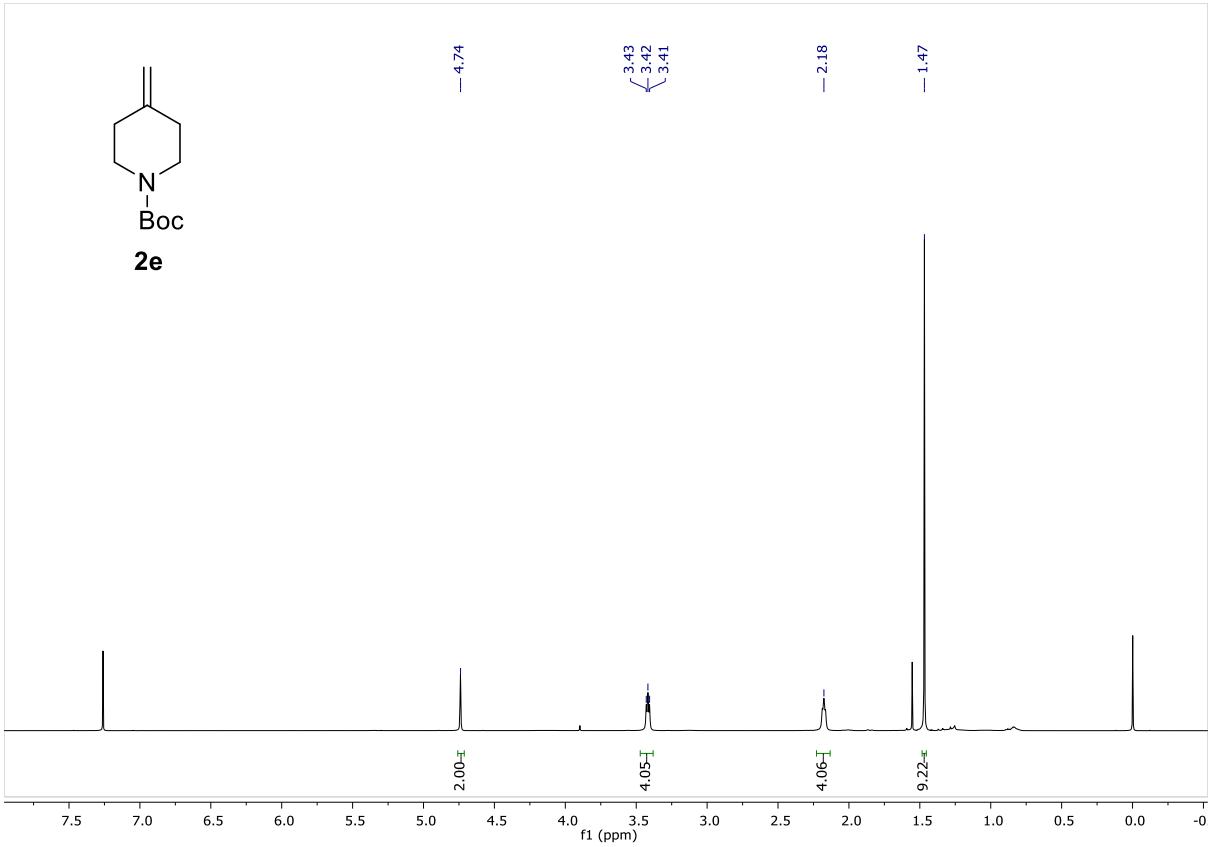
^{1}H NMR (400 MHz, $CDCl_3$): **2d**



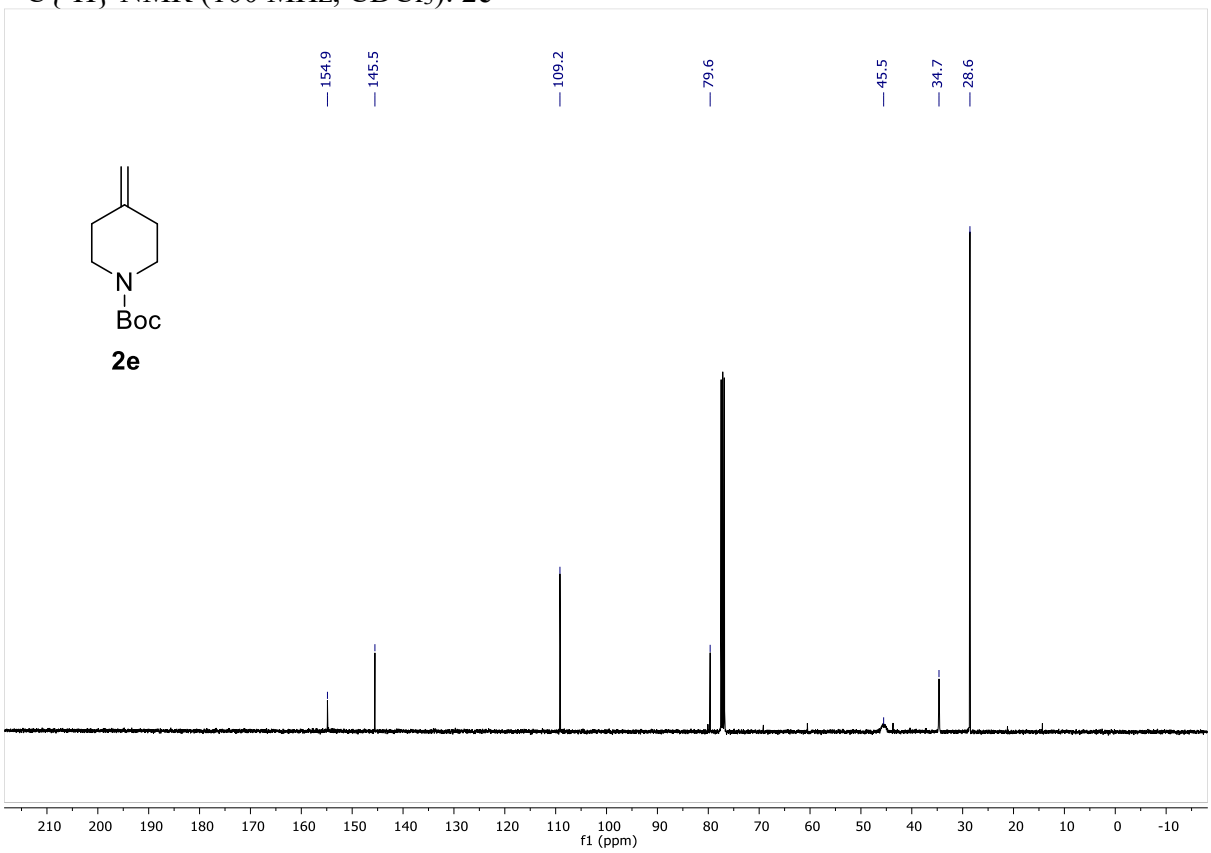
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **2d**



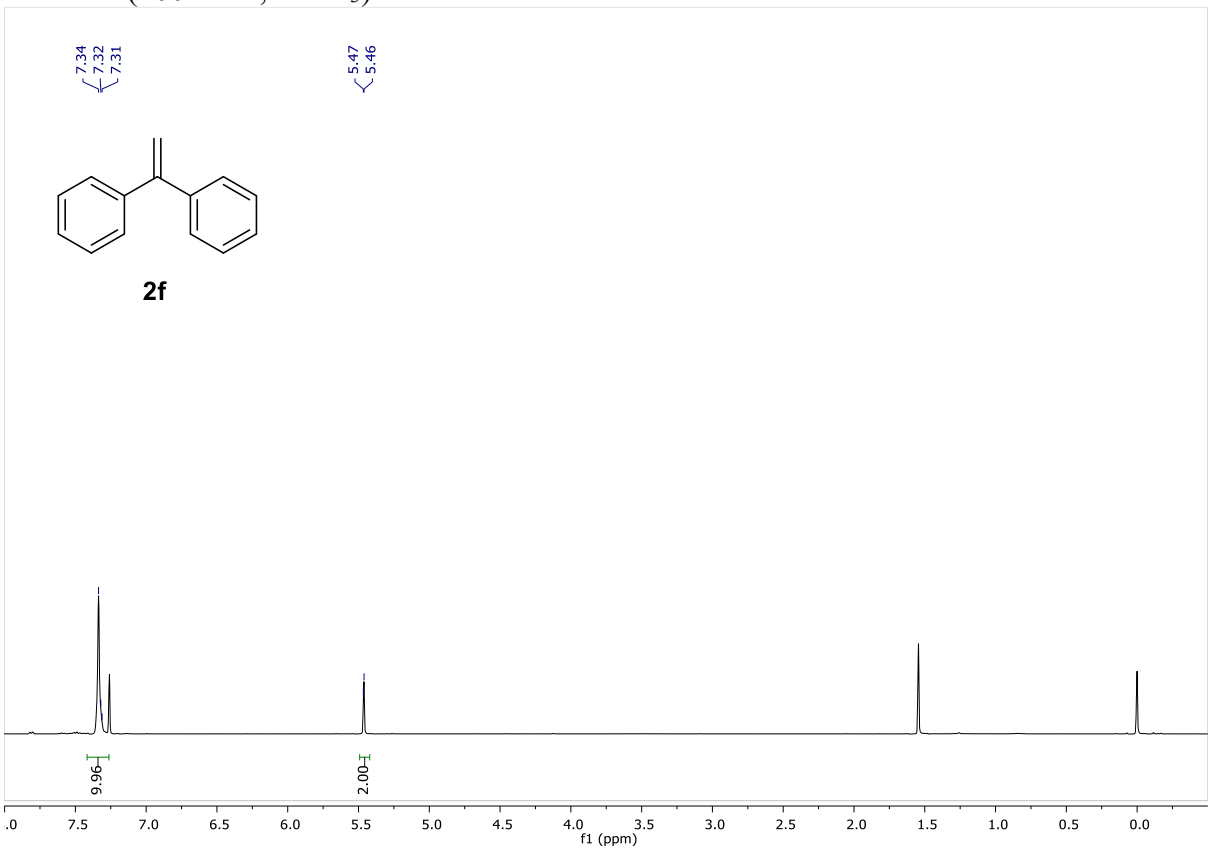
^{1}H NMR (500 MHz, $CDCl_3$): **2e**



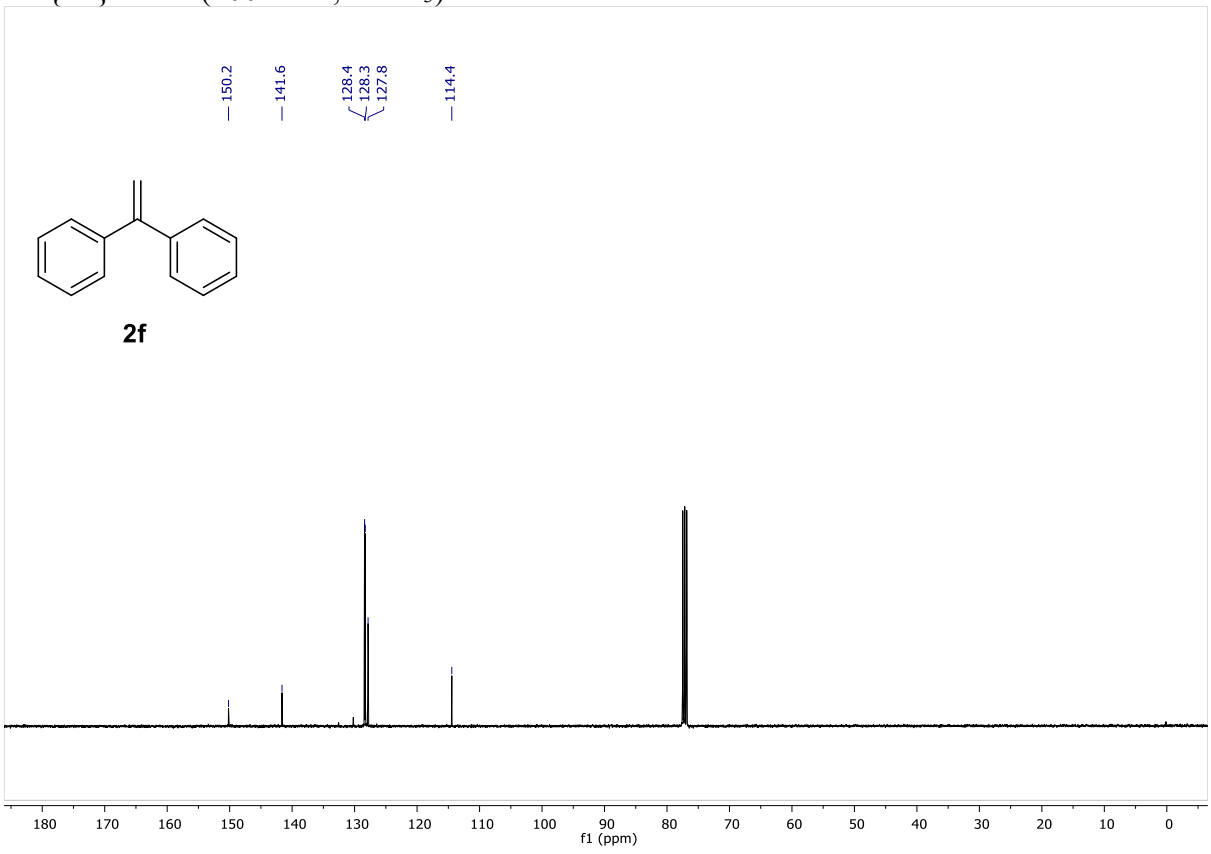
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **2e**



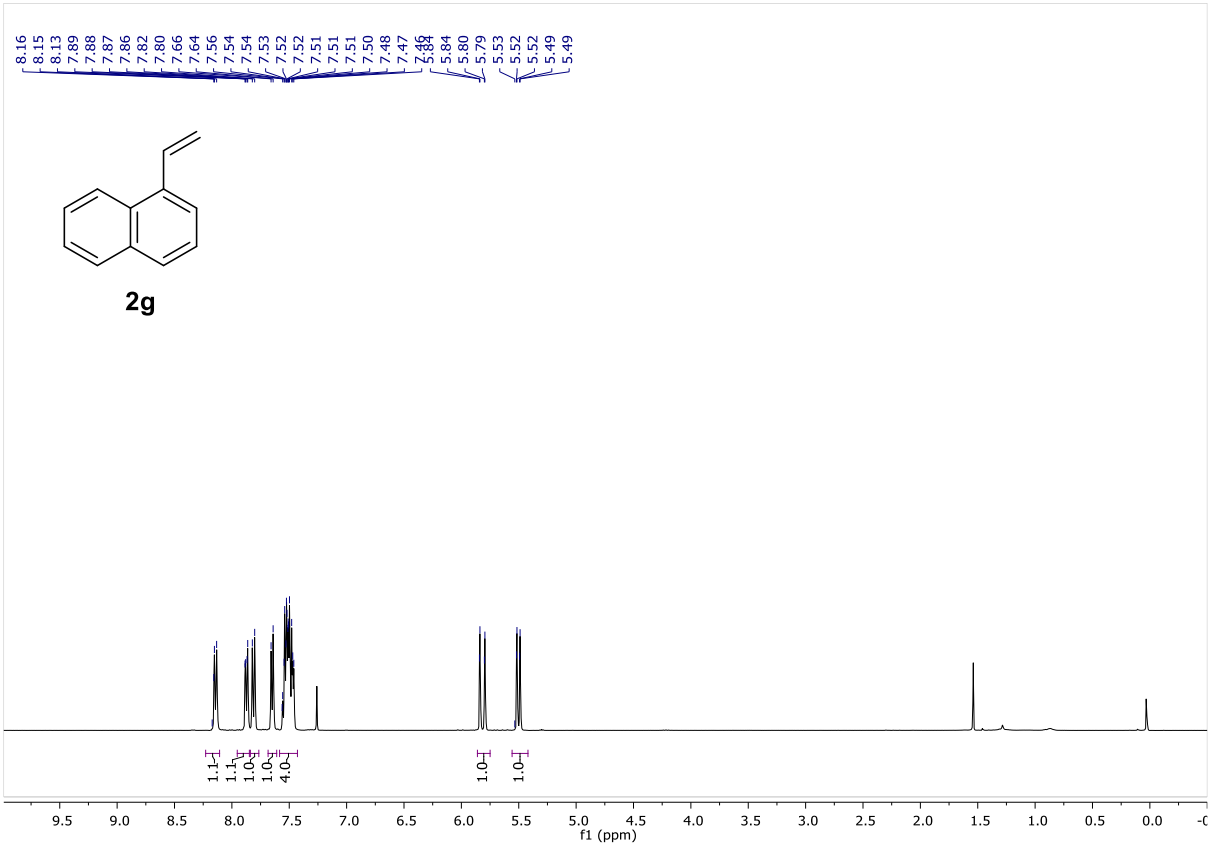
^{1}H NMR (400 MHz, $CDCl_3$): **2f**



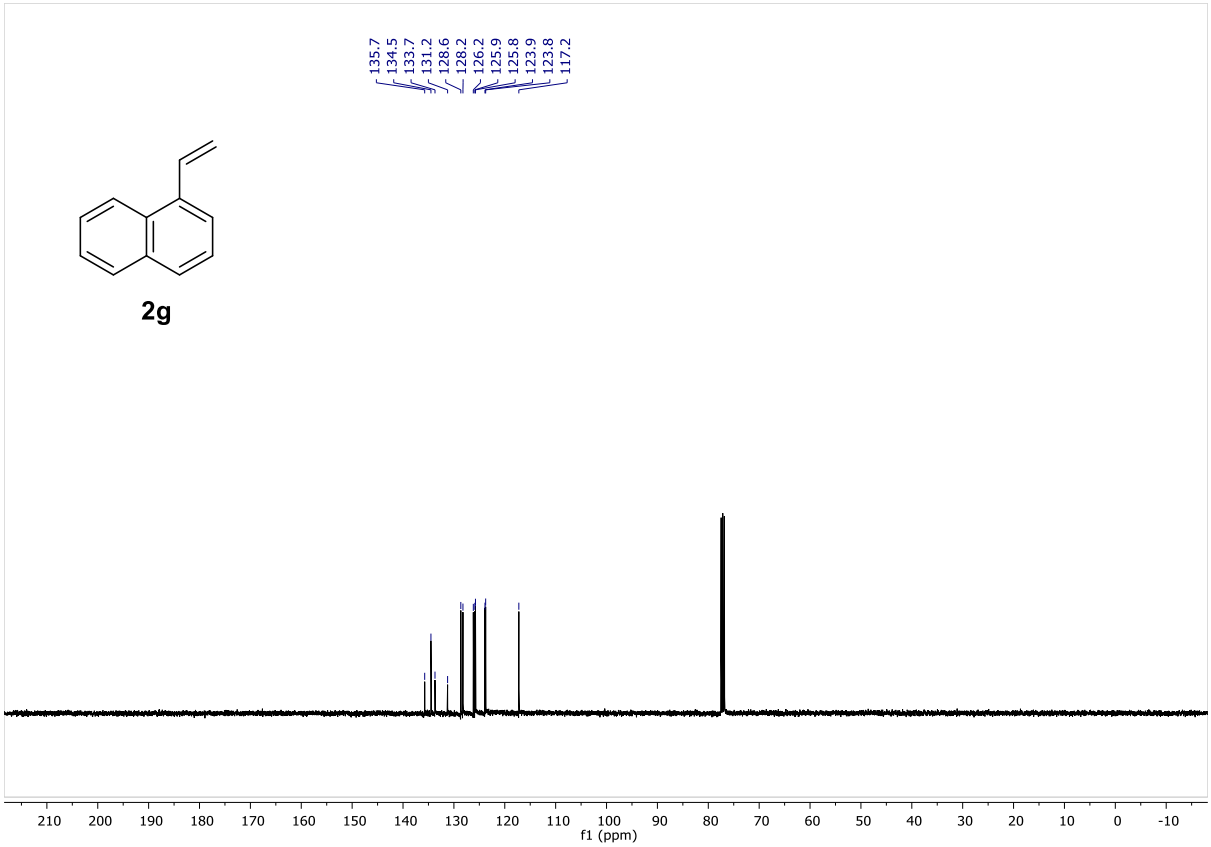
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **2f**



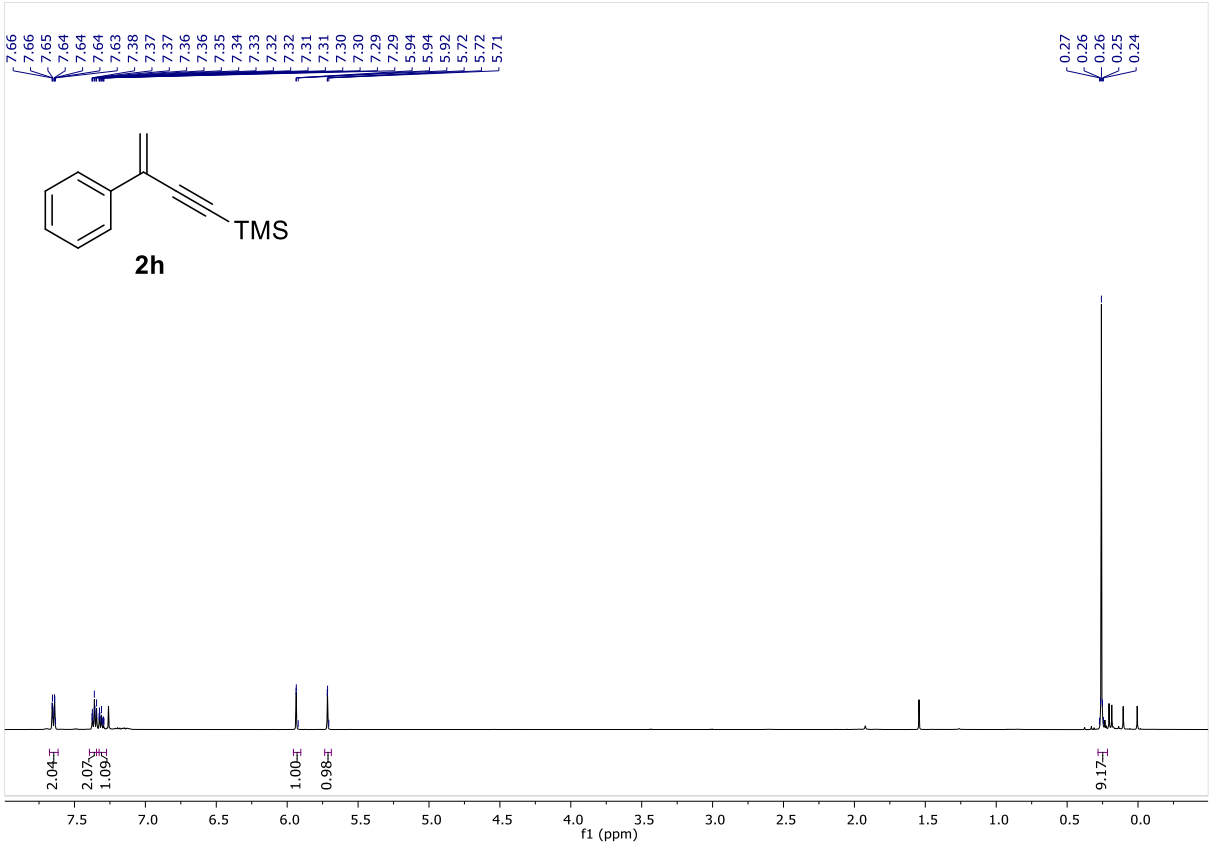
^{1}H NMR (400 MHz, $CDCl_3$): **2g**



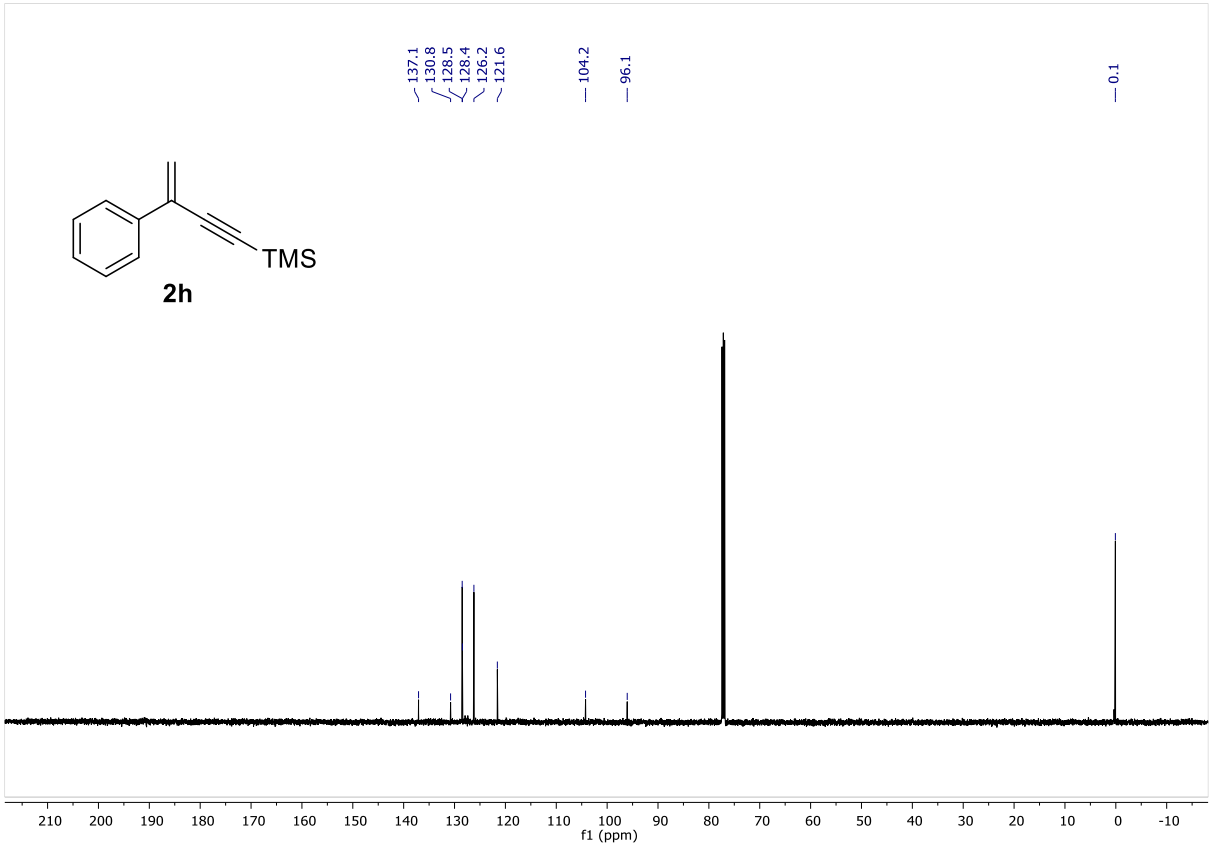
^{13}C{^{1}H} NMR (100 MHz, $CDCl_3$): **2g**



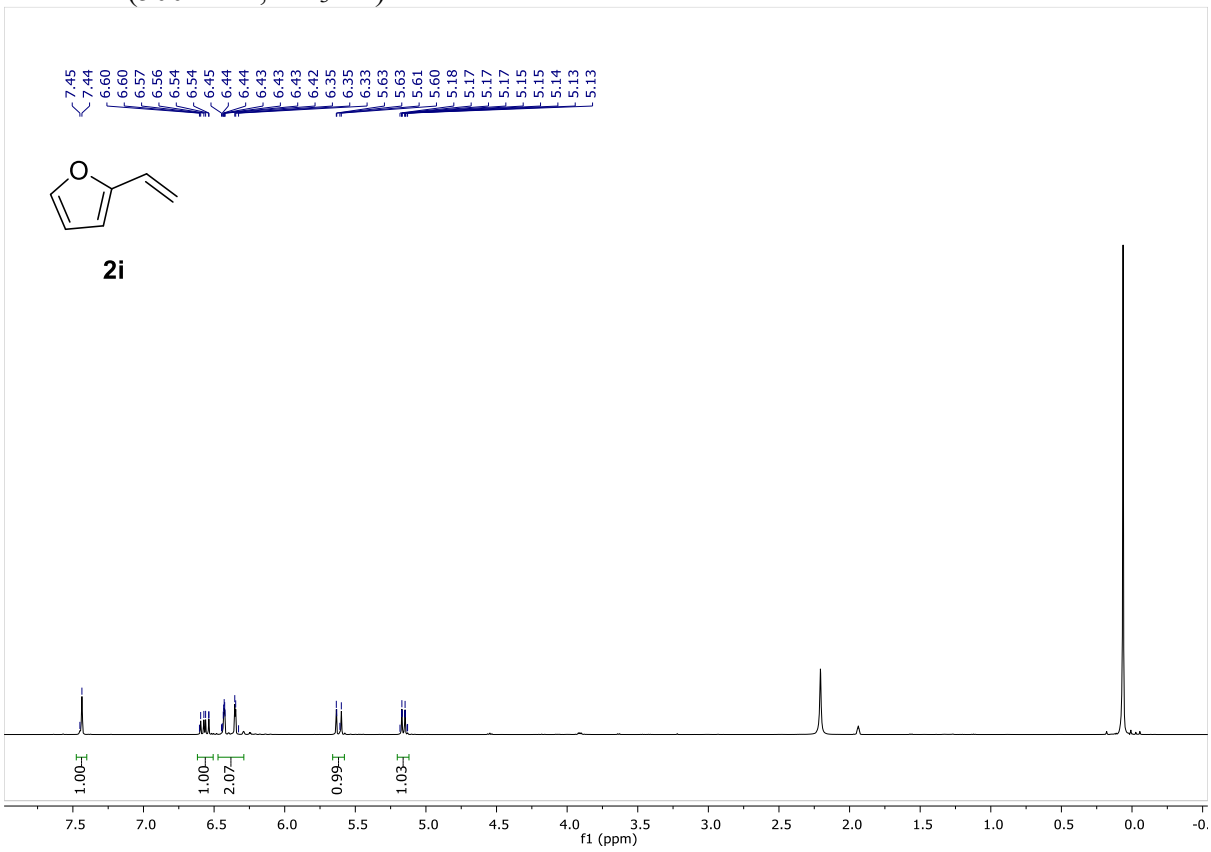
^{1}H NMR (500 MHz, $CDCl_3$): **2h**



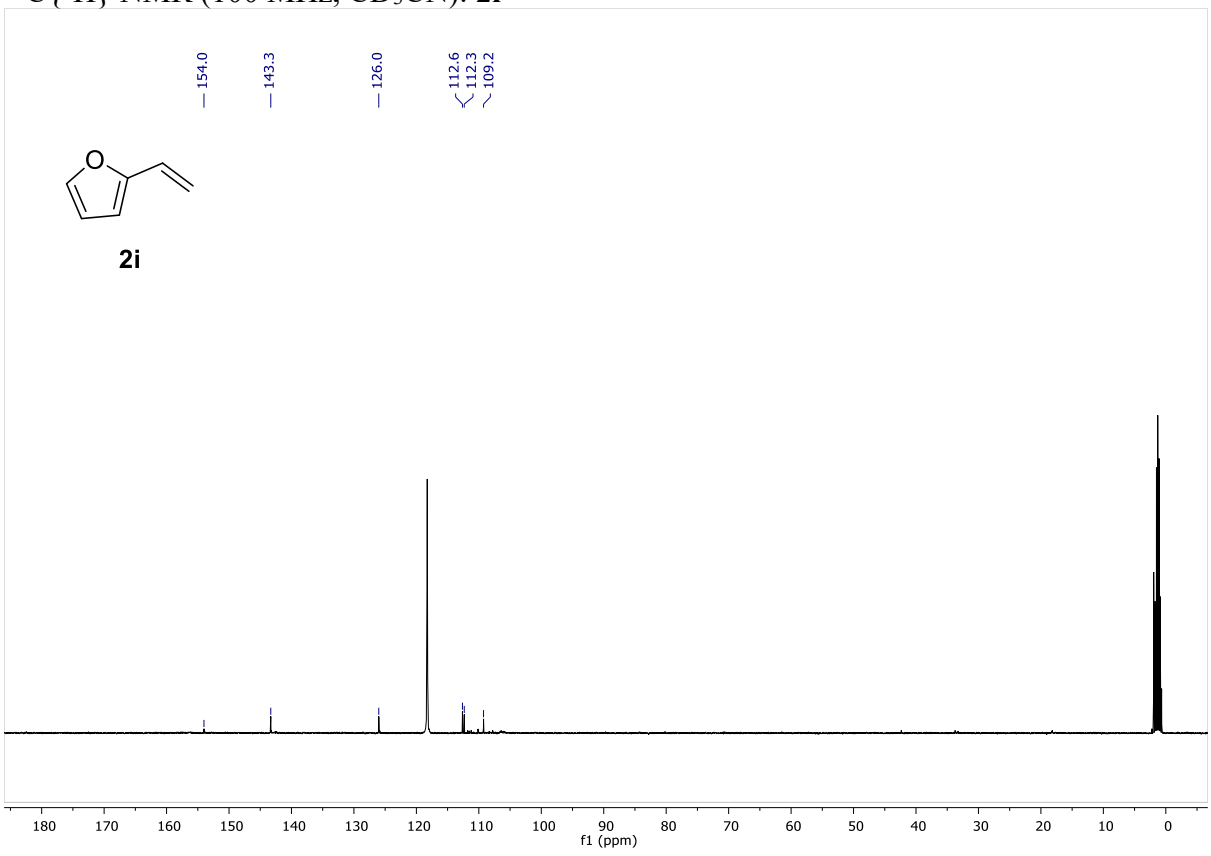
^{13}C{^{1}H} NMR (125 MHz, $CDCl_3$): **2h**



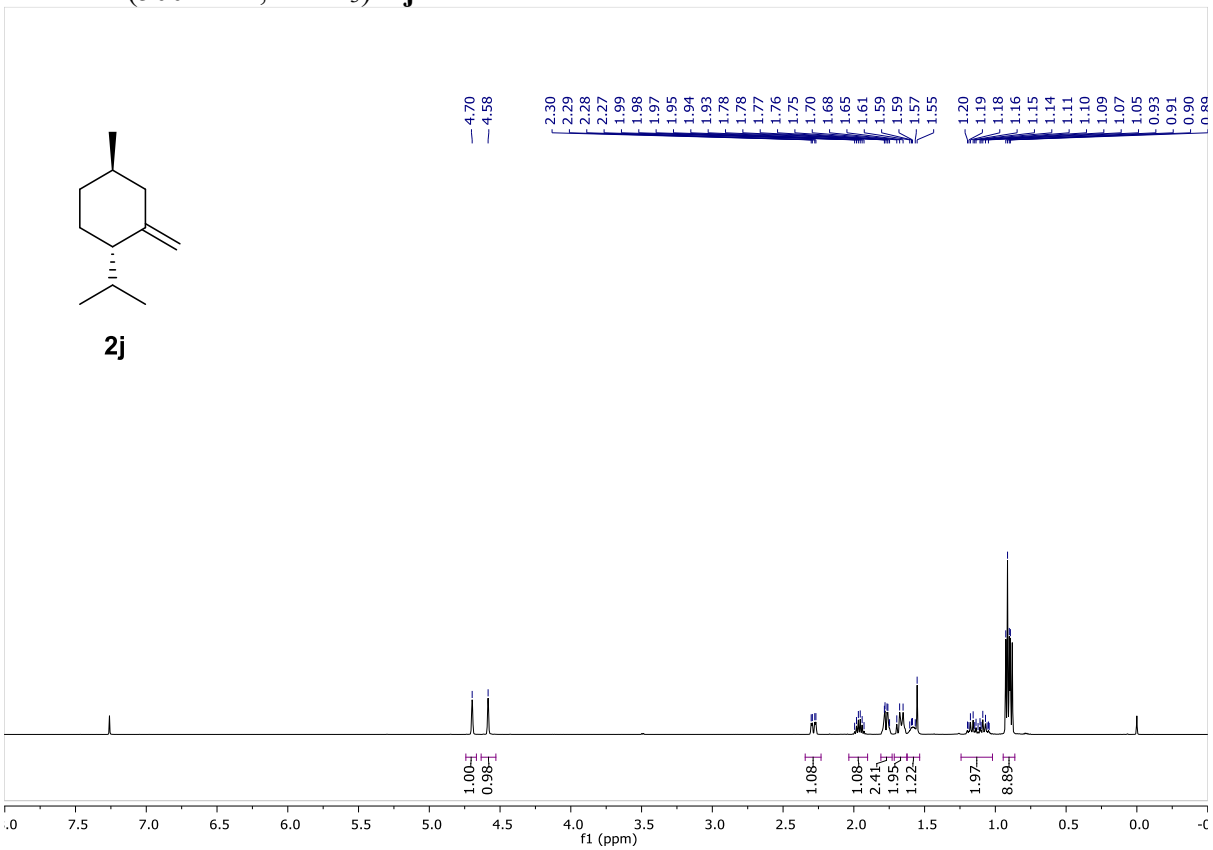
^{1}H NMR (500 MHz, CD_3CN): **2i**



^{13}C{^{1}H} NMR (100 MHz, CD_3CN): **2i**

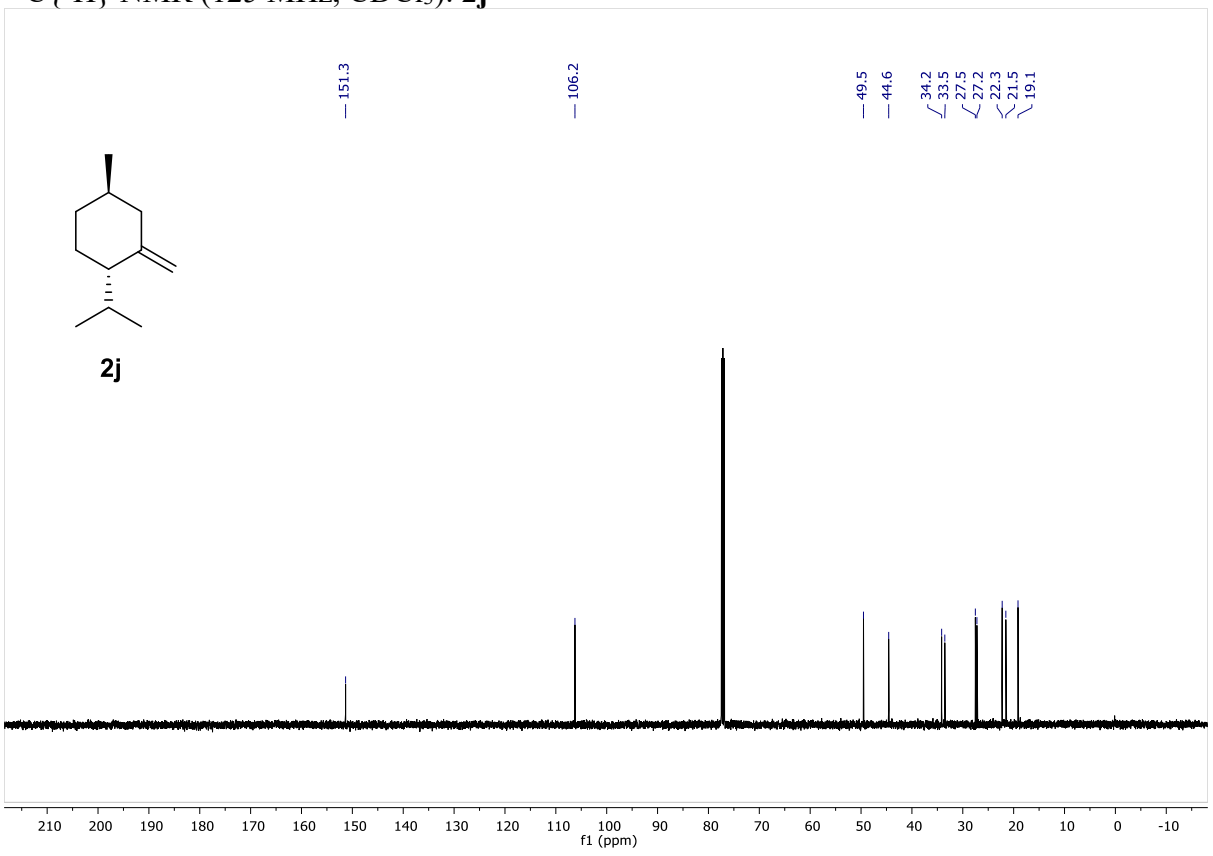


^{1}H NMR (500 MHz, $CDCl_3$): **2j**



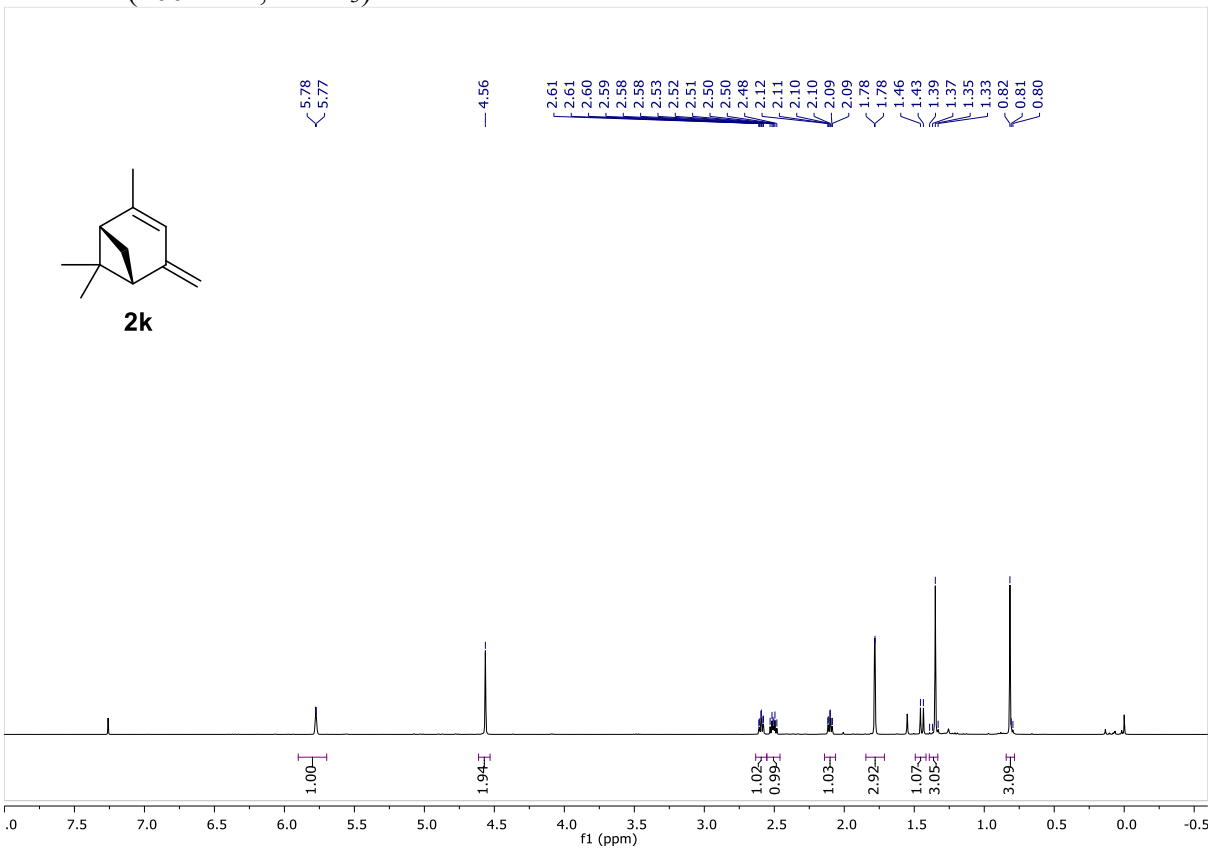
2j

^{13}C{^{1}H} NMR (125 MHz, $CDCl_3$): **2j**

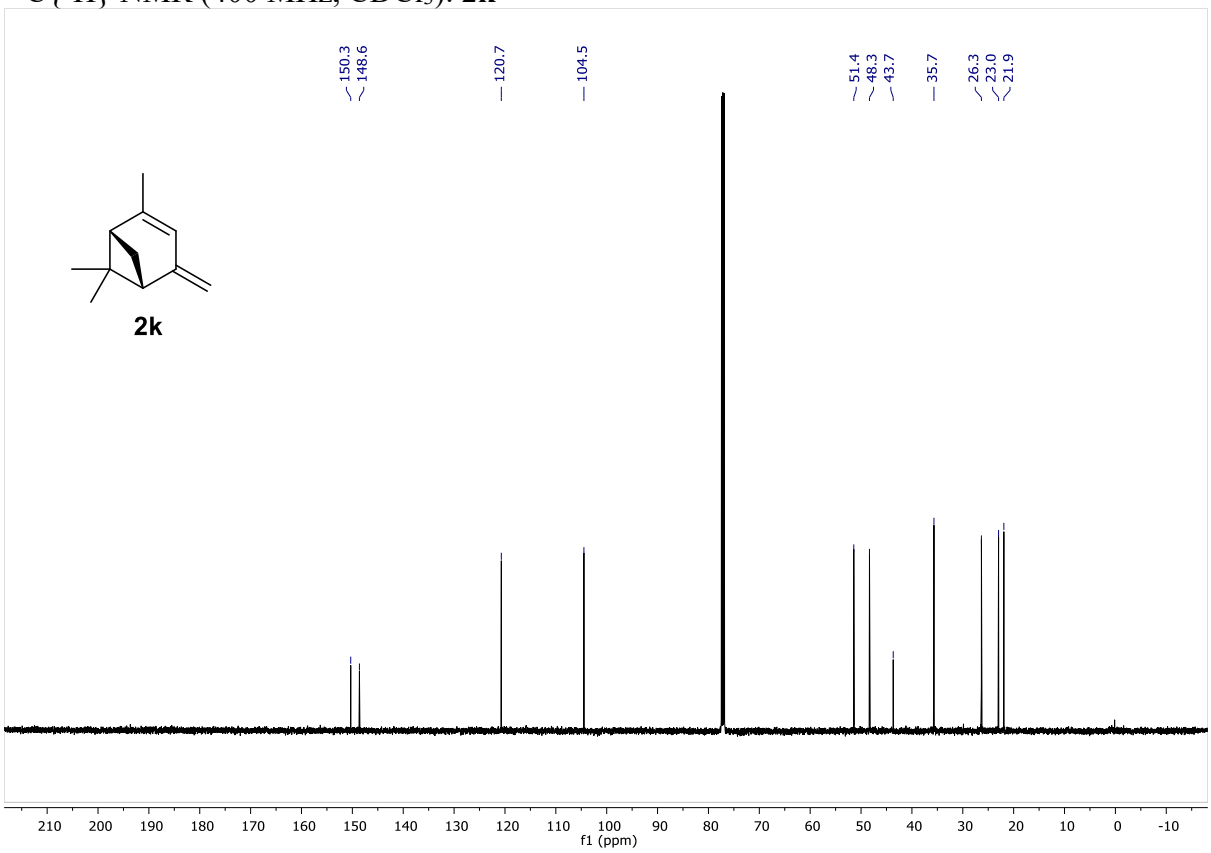


2j

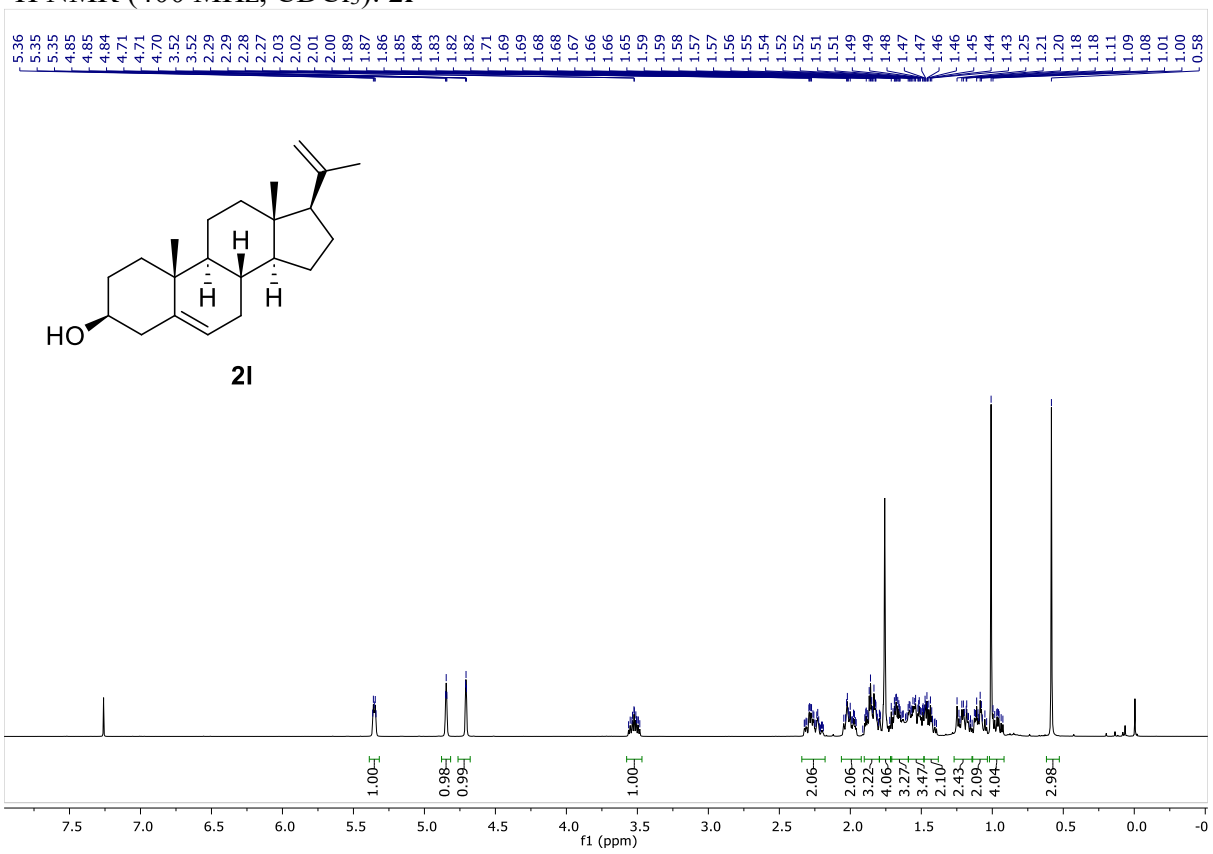
^{1}H NMR (400 MHz, $CDCl_3$): **2k**



^{13}C{^{1}H} NMR (400 MHz, $CDCl_3$): **2k**



^{1}H NMR (400 MHz, $CDCl_3$): **2l**



^{13}C{^{1}H} NMR (125 MHz, $CDCl_3$): **2l**