

## Supporting Information for Publication

### Diastereoselective Synthesis of Substituted Dihydropyrans via Oxonium- Ene Cyclization Reaction

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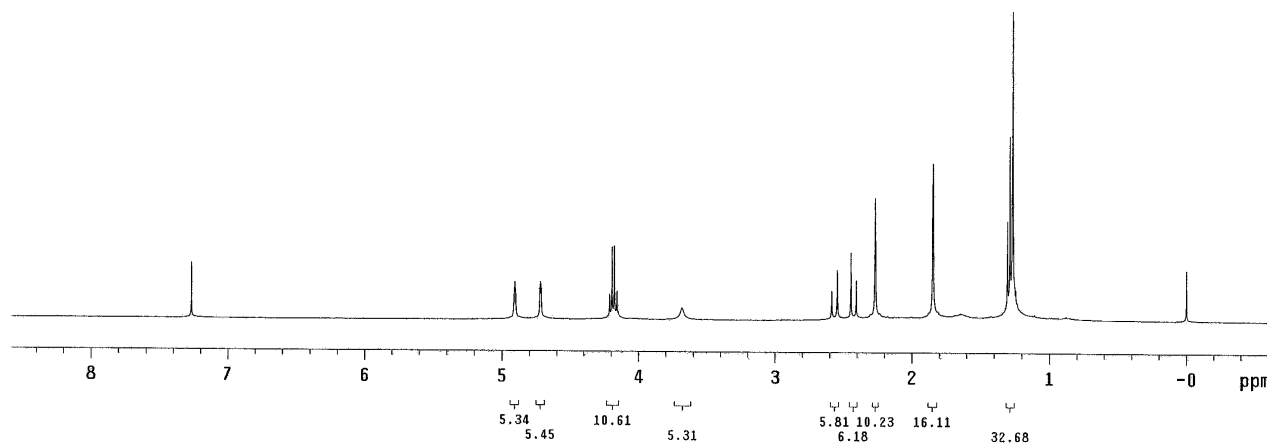
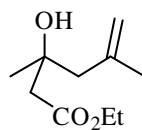
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1. General Information	S1
2. <sup>1</sup> H and <sup>13</sup> C NMR spectra of all compounds , <sup>19</sup> F NMR spectrum of <b>3e</b> and NOE spectrum of <b>3a</b> and <b>3k</b>	S2-S53

**General Information:** All reagents are commercially obtained. <sup>1</sup>H NMR spectra were recorded in CDCl<sub>3</sub> on 400 MHz NMR spectrometer using TMS as internal standard. The <sup>13</sup>C and <sup>19</sup>F NMR spectra were recorded at 100 MHz and 376 MHz, respectively. For <sup>13</sup>C and <sup>19</sup>F NMR CDCl<sub>3</sub> and C<sub>6</sub>F<sub>6</sub> were used as internal standard. IR spectra were recorded on FT-IR spectrometer. Mass spectra were recorded using Waters LC-MS/MS system (Q-TOF–Premier). HRMS (ESCI-TOF) were calibrated with sodium formate solution and leucine enkephalin (SIGMA) was used as an external standard.

### <sup>1</sup>H NMR spectra of 1a

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ACQUISITION alfa 20.000
sw 6389.8 FLAGS
at 1.998 il n
np 25528 in n
fb not used dp y
bs 8 hs nn
dl 1.000 PROCESSING
nt 200 lb 0.10
ct 184 fn 65536
TRANSMITTER H1 sp -263.3
sfrq 399.853 wp 3694.4
tof 362.8 rfi 792.1
tpwr 57 rfp 0
pw 9.850 rp 101.3
DECOUPLER lp -92.7
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dm nnn sc 0
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dpwr 50 th 5
dmf 15900 nm cdc ph
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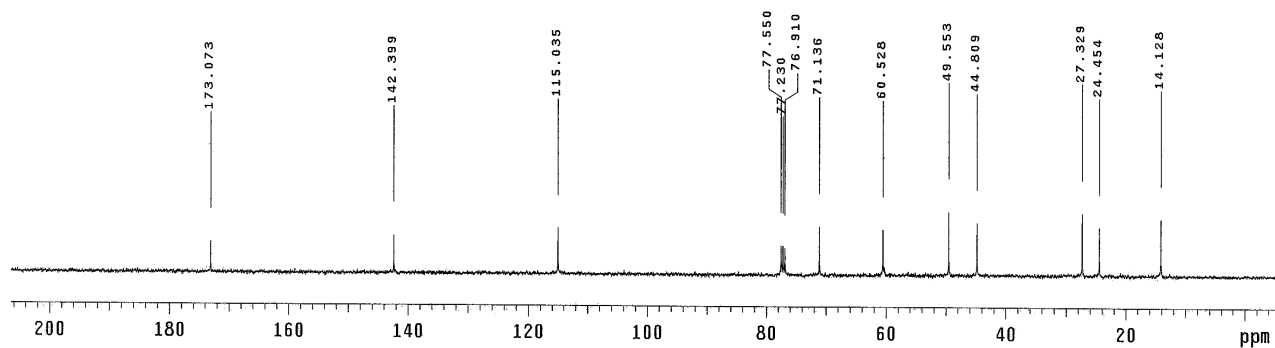
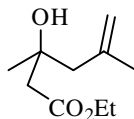


### <sup>13</sup>C NMR spectra of **1a**

PS\_570\_M

expl s2pu1

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solvent	CDCl3	gain	not used
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	alfa		20.000
ACQUISITION		FLAGS	
sw	25125.6		
at	1.199	fl	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	2000	lb	2.00
ct	384	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-527.2
sfrq	100.554	wp	21295.5
tof	1536.3	rf1	9282.1
tpwr	61	rfp	7764.9
pw	9.300	rp	-62.5
	DECOUPLER	lp	-334.9
		PLOT	
dn	H1		
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dmm	w	vs	10
dpwr	42	th	2
dmf	8900	nm	no
		ph	

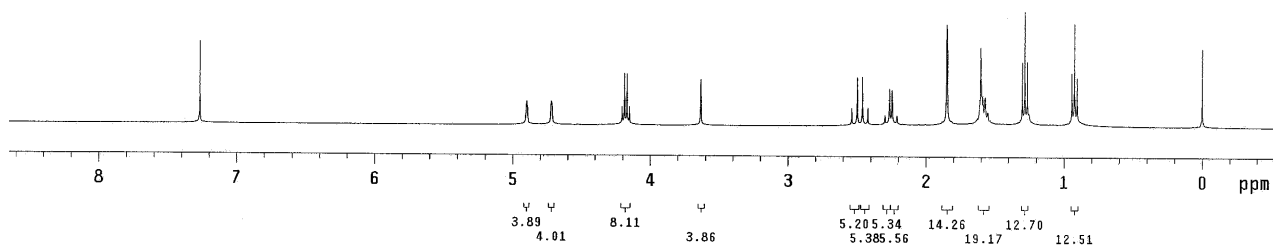
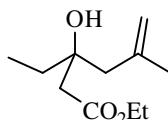


### <sup>1</sup>H NMR spectra of **1b**

PS\_577\_M

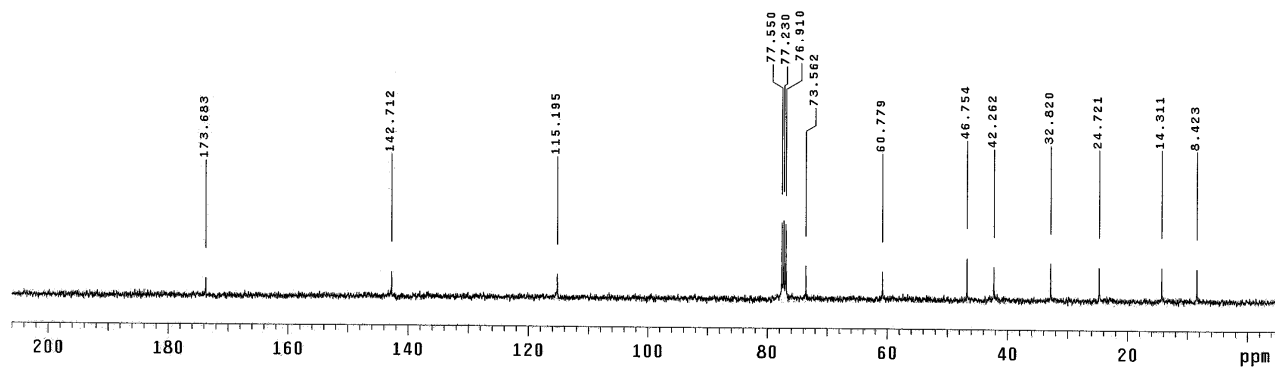
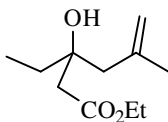
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	a1fa		20.000
ACQUISITION		FLAGS	
sw	6006.0		
at	1.995	il	n
np	23964	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	fn	not used
ct	200	DISPLAY	
TRANSMITTER		sp	-213.4
tn	H1	wp	3677.7
sfrq	399.853	rfl	963.1
tof	0	rfp	0
tpwr	57	rp	97.8
pw	7.000	lp	-79.9
DECOUPLER		PLOT	
dn	C13	wc	250
dof	0	sc	0
dm	nnh	vs	19
dmm	c	th	10
dpwr	50	nm	cdc ph
dmf	15900		



$^{13}\text{C}$  NMR spectra of **1b**

```
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solvent CDCl3 gain not used
file /export/home/~ spin not used
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M_C13.fid pw90 18.600
ACQUISITION alfa 20.000
sw 25125.6 FLAGS
at 1.199 fl n
np 60270 fn n
fb 13000 dp y
bs 16 hs nn
di 1.000 PROCESSING
nt 3000 lb 2.00
ct 1408 fn 65536
TRANSMITTER DISPLAY
tn C13 sp -484.3
sfrq 100.554 wp 21196.6
tof 1536.3 rfl 9272.1
tpwr 61 rfp 7764.9
pw 9.300 rp -91.1
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dmm w vs 13
dpwr 42 th 2
dmf 8900 nm no ph
```

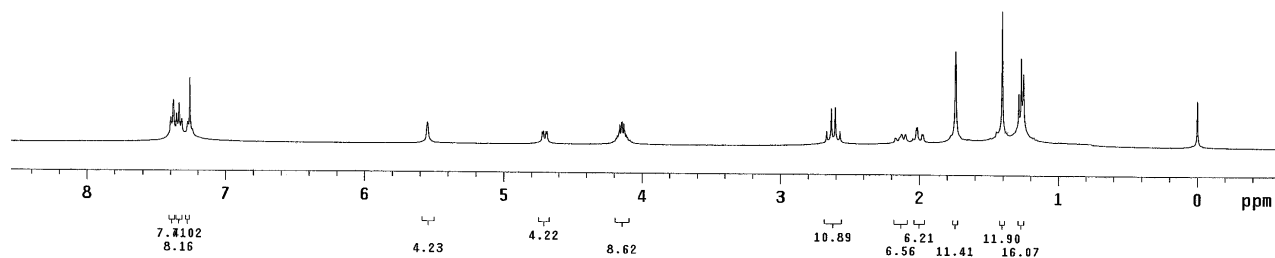
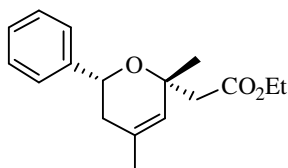


### <sup>1</sup>H NMR spectra of 3a

PS\_573\_M

exp1 s2pu1

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date	Feb 5 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_573~		hst	0.008
M_Pdt.fid		pw90	19.700
ACQUISITION		alpha	20.000
sv	6389.8	FLAGS	
at	1.998	il	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
di	1.000	PROCESSING	
nt	200	lb	0.10
ct	160	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-232.6
effrq	399.853	wp	3652.5
cof	362.8	rf1	795.0
tpwr	57	rfp	0
pw	9.850	rp	110.4
DECOUPLER		lp	-98.1
dn	C13	PLOT	
dof	0	wc	250
dm	nmn	sc	0
dmm	c	vs	24
dpwr	50	th	13
dmf	15900	nm	cdc ph

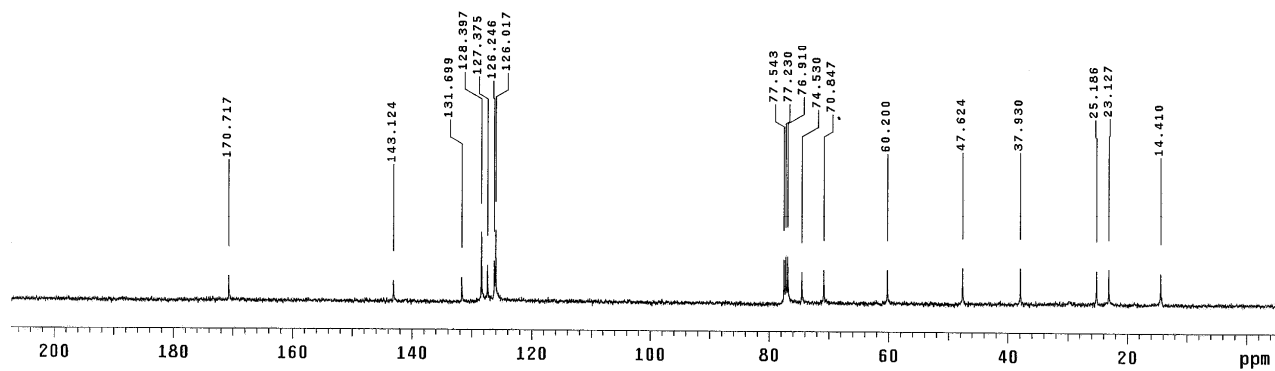
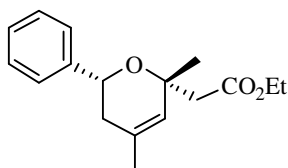


$^{13}\text{C}$  NMR spectra of **3a**

PS\_573\_M

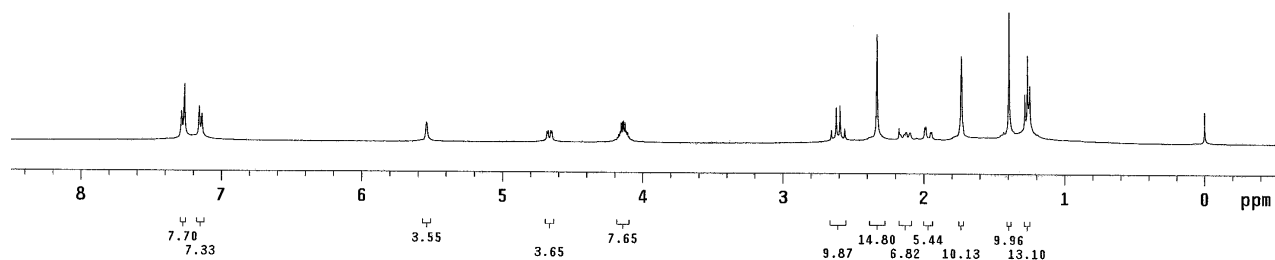
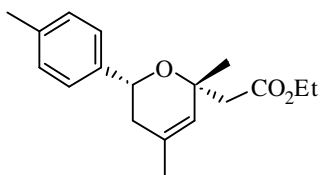
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	M_C13.fid	pv90	18.600
ACQUISITION		alfa	20.000
sw	25125.6	FLAGS	
at	1.199	fl	n
np	69270	in	n
Fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	4000	lb	2.00
ct	1808	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-498.1
sfrq	100.554	wp	21328.5
tof	1536.3	rfl	9285.9
tpwr	61	rfp	7764.9
pw	9.300	rp	-56.9
DECOUPLER		lp	-369.4
dn	H1	PLOT	
dof	0	wc	250
dm	yvy	sc	0
dmm	w	vs	12
dpwr	42	th	3
dmf	8900	nm	no ph



<sup>1</sup>H NMR spectra of **3b**

```
PS_579_M
exp1 s2pu1
SAMPLE
date Jan 23 2012 temp not used
solvent CDCl3 gain not used
file /export/home/~ spin not used
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M.Fid pu80 13.700
a1ra 20.000
ACQUISITION
sw 6389.8 FLAGS
at 1.998 f1 n
np 25528 in n
fb not used dp y
bs 8 hs nn
d1 1.000 PROCESSING
nt 200 lb 0.10
ct 200 fn 65536
TRANSMITTER
tn H1 sp DISPLAY -206.7
sfrq 399.853 wp 3610.3
tof 362.8 rf1 794.5
tpwr 57 rfp 0
pw 9.850 rp 101.1
DECOUPLER C13 lp -83.6
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dm nnn sc 0
dmm c vs 22
dpwr 50 th 20
dmf 15900 nm cdc ph
```



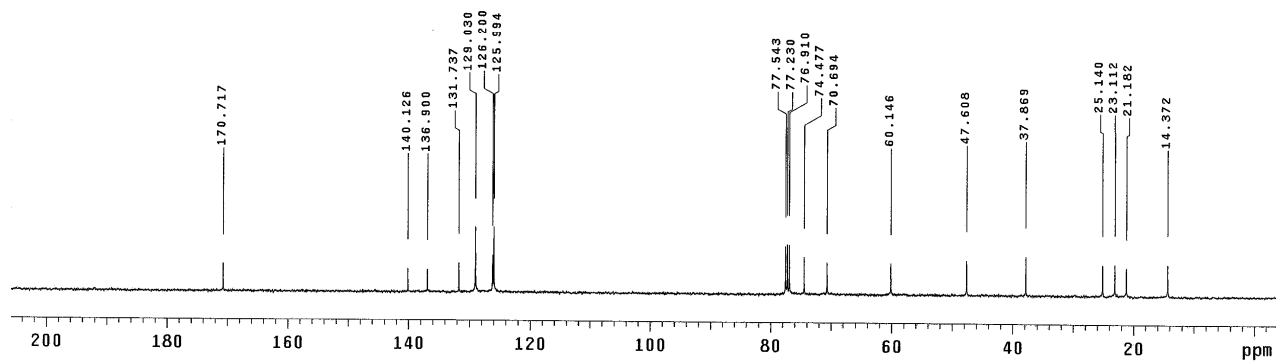
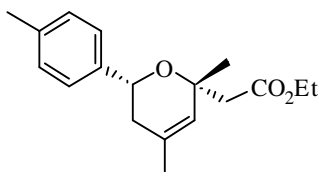


$^{13}\text{C}$  NMR spectra of **3b**

PS\_579\_M

exp1 s2pu1

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	M_C13.fid	pw90	18.600
	alfa		20.000
ACQUISITION		FLAGS	
sw	25125.6		n
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
dl	1.000	PROCESSING	
nt	4000	lb	2.00
ct	1072	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-399.9
sfrq	100.554	wp	21096.9
tof	1536.3	rfl	9286.7
tpwr	61	rfp	7764.9
pw	9.300	rp	-54.8
DECOUPLER		PLOT	
dn	H1	lp	-357.3
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dpwr	42	th	4
dmf	8900	nm	no ph

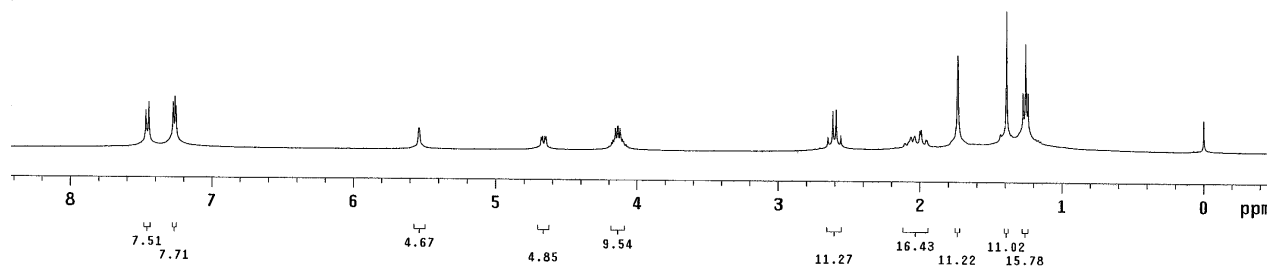
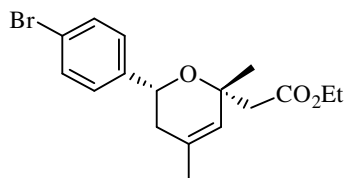


### <sup>1</sup>H NMR spectra of 3c

PS\_580\_M

expl s2pu1

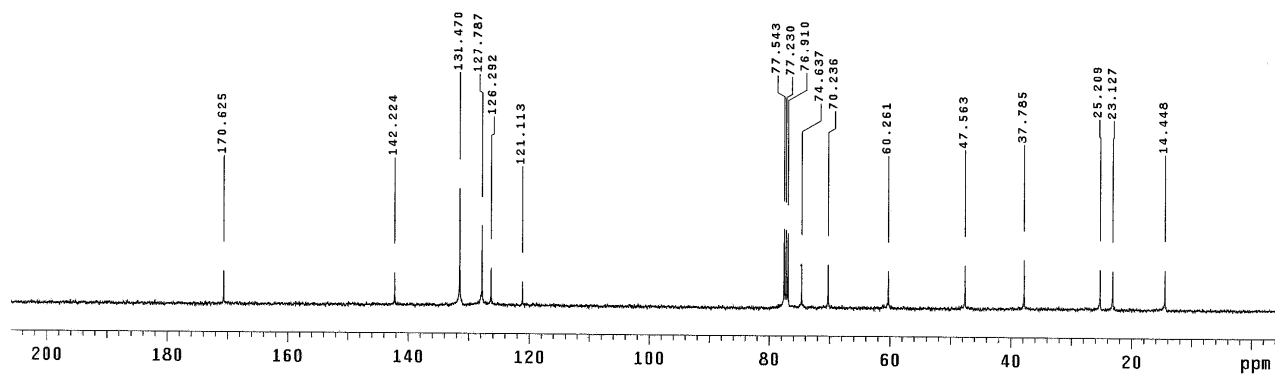
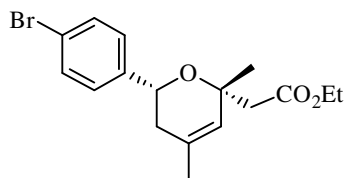
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M_Pdt_fid	pw90		19.700
ACQUISITION		alfa	20.000
sw	6389.8	FLAGS	
at	1.998	il	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	84	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-206.9
sfrq	399.853	wp	3576.8
tof	362.8	rfl	794.7
tpwr	57	rfp	0
pw	9.850	rp	100.7
DECOUPLER		lp	-87.0
dn	C13	PLOT	
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	25
dpwr	50	th	20
dmf	15900	nm	cdc ph



$^{13}\text{C}$  NMR spectra of **3c**

PS\_580\_M  
exp1 s2pu1

SAMPLE		SPECIAL	
date	Jan 28 2012	temp	not used
solvent	CDCl3	gain	not used
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	M_C13.fid	pw90	18.000
	alfa		20.000
ACQUISITION		FLAGS	
sw	25125.6		
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	5000	lb	2.00
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tn	C13	sp	-426.0
sfrq	100.554	wp	21130.6
tof	1536.3	rfl	9279.8
tpwr	61	rfp	7764.9
pw	9.300	rp	-49.3
	DECOUPLER	lp	-360.6
		PLOT	
dn	H1		
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dpwr	42	th	3
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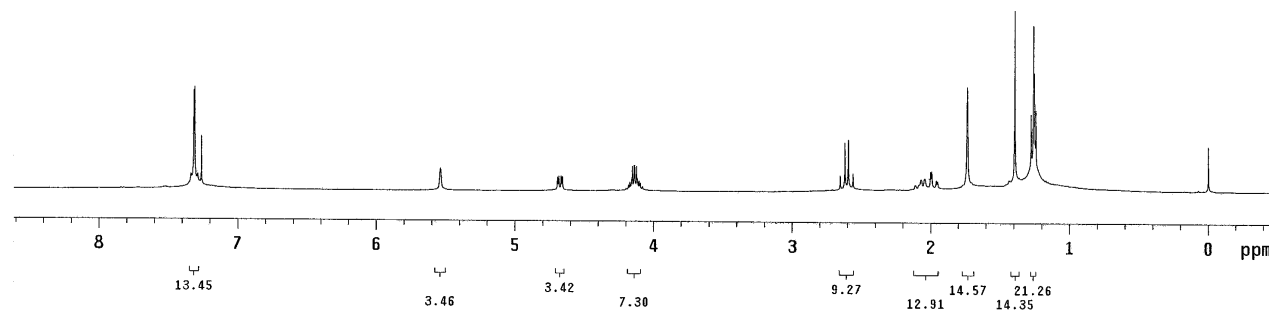
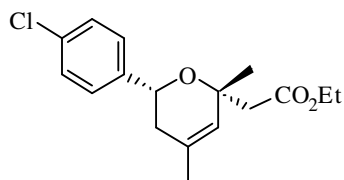


### <sup>1</sup>H NMR spectra of 3d

PS\_571\_M

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		alfa	20.000
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sw	6389.8		
at	1.998	fl	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	200	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-199.5
efrq	399.853	wp	3644.1
tof	362.8	rfl	795.6
tpwr	57	rfp	0
pw	9.850	rp	96.3
DECOUPLER		PLOT	
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dmm	c	vs	31
dpwr	50	th	7
dmf	15900	nm	cdc ph

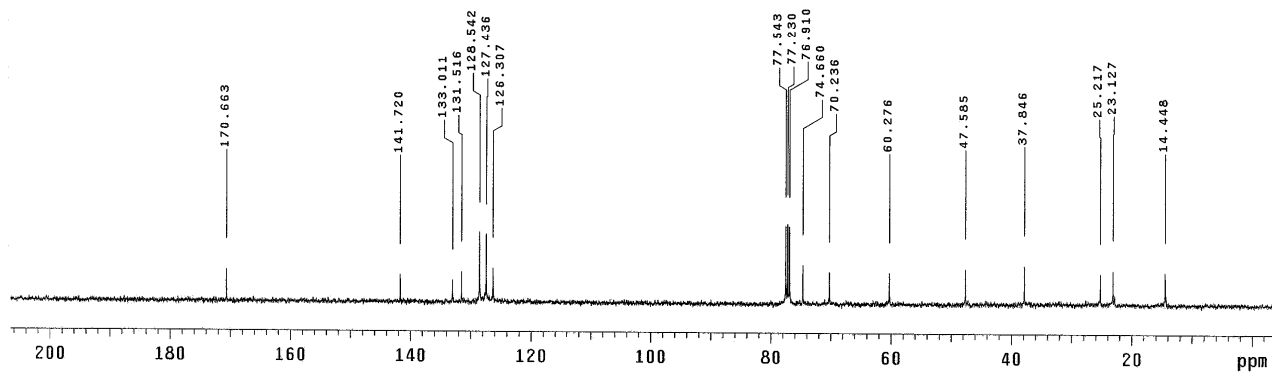
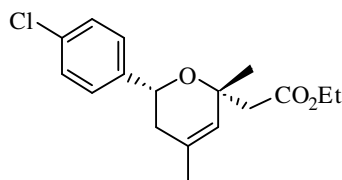


### <sup>13</sup>C NMR spectra of **3d**

PS\_571\_M

expl s2pu1

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		alfa	20.000
ACQUISITION		FLAGS	
sw	25125.6		
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
dl	1.000	PROCESSING	
nt	2000	lb	2.00
ct	1056	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-358.5
sfrq	100.554	wp	21130.6
tof	1536.3	rfl	9279.0
tpwr	61	rfp	7764.9
pw	9.300	rp	-47.1
		lp	-376.1
DECOUPLER		PLOT	
dn	H1		
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dm	yyv	sc	0
dmm	w	vs	13
dpwr	42	th	3
dmf	8900	nm	no ph

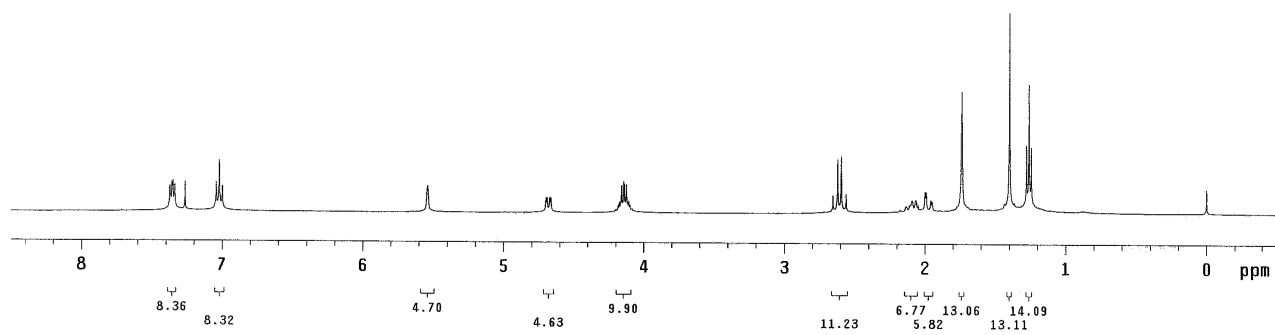
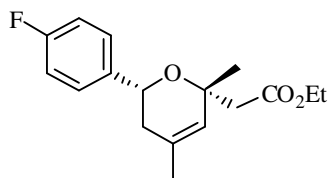


### <sup>1</sup>H NMR spectra of 3e

PS\_609\_M

exp1 s2pu1

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solvent	CDCl3	gain	not used
file	exp	spin	not used
ACQUISITION			
sw	6389.8	hst	0.008
at	1.995	pw90	19.700
np	25528	atfa	20.000
fb	not used	il	n
bs	8	in	n
d1	1.000	dp	y
nt	200	hs	nn
ct	112	PROCESSING	
tn	H1	lb	0.10
sfrq	399.853	fn	65536
tof	362.8	sp	-198.3
tpwr	57	wp	3602.0
pw	9.850	rfl	794.5
DECOUPLER			
dn	C13	rp	91.8
dof	0	lp	-87.5
dm	nnn	PLOT	
dmm	c	wc	250
dpwr	50	sc	0
dmf	15900	vs	34
		th	3
		nm	cdc ph

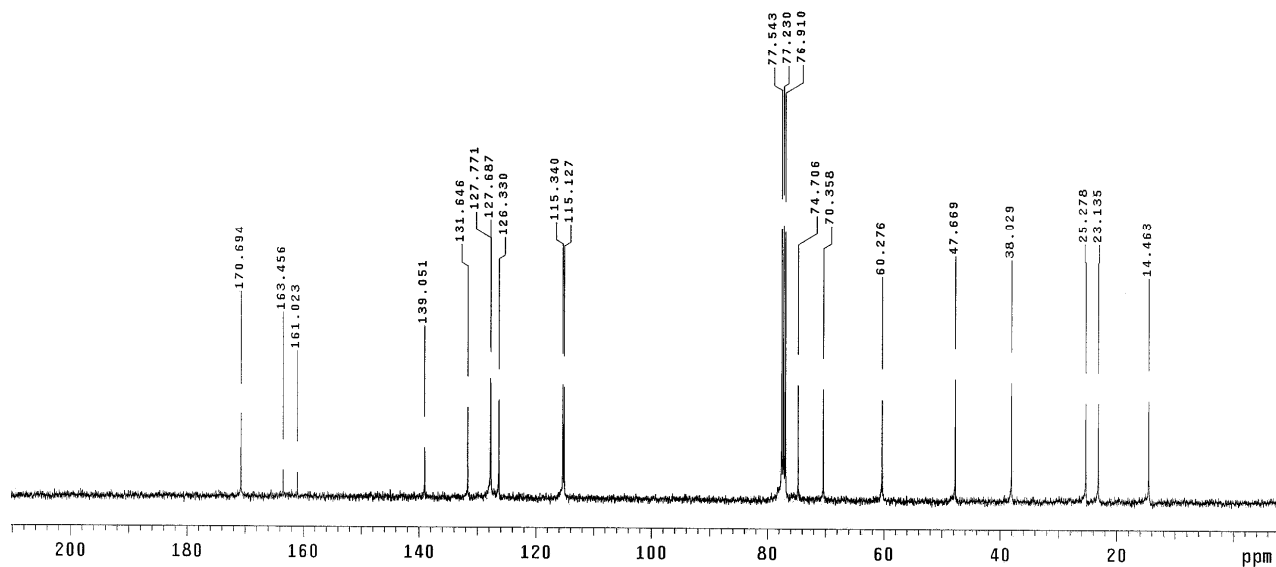
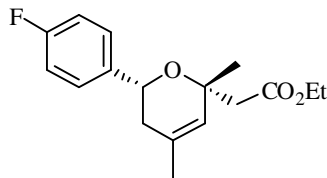


### $^{13}\text{C}$ NMR spectra of **3e**

PS\_609\_M

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file		sp1n	not used	
ACQUISITION				
sw	25125.6	hst	0.008	
at	1.199	alfa	20.000	
np	60270	FLAGS		
fb	13800	il	n	
bs	16	in	n	
d1	1.000	dp	y	
nt	10000	hs	nn	
ct	8736	PROCESSING		
TRANSMITTER		lb	2.00	
tn	C13	fn	65536	
		DISPLAY		
sfrq	100.554	sp	-781.0	
tof	1536.3	wp	21922.7	
tpwr	61	rfl	9272.1	
pw	9.300	rfp	7764.9	
DECOUPLER		H1	rp	-48.2
dn	0	lp	-360.4	
dm		PLOT		
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dmf	8900	vs	45	
		th	2	
		nm	no	
		ph		

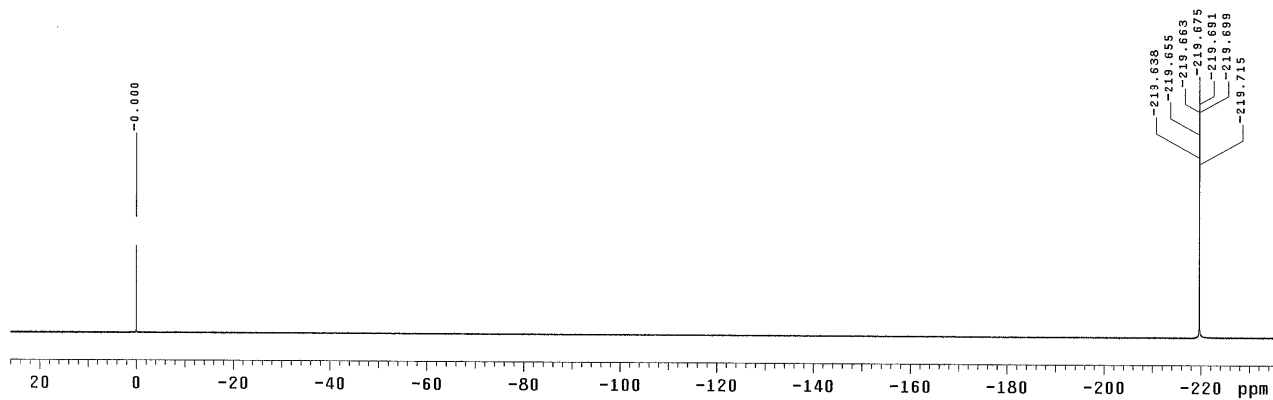
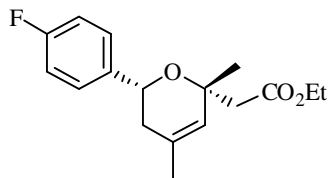


### $^{19}\text{F}$ NMR spectra of **3e**

PS\_609\_M

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SAMPLE		SPECIAL	
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solvent	CDCl3	gain	not used
file		exp	not used
ACQUISITION		hst	0.008
sw	100000.0	pw90	15.600
at	0.600	alfA	90.000
np	119936	FLAGS	
fb	55000	il	n
bs	16	in	n
d1	1.500	dp	y
nt	64	hs	nn
ct	64	PROCESSING	
TRANSMITTER		lb	0.30
tn	F19	lsfid	-10
sfrq	376.236	fn	not used
tof	40099.4	DISPLAY	
tpwr	58	sp	-88487.1
pw	5.200	wp	98291.0
DECOUPLER		rfl	89012.0
dn	H1	rtp	0
dof	0	rp	-132.1
dm		nnn	18.0
dmm	c	PLOT	
dpwr	42	wc	250
dmf	8900	sc	0
		vs	15
		th	8
		ai	no ph



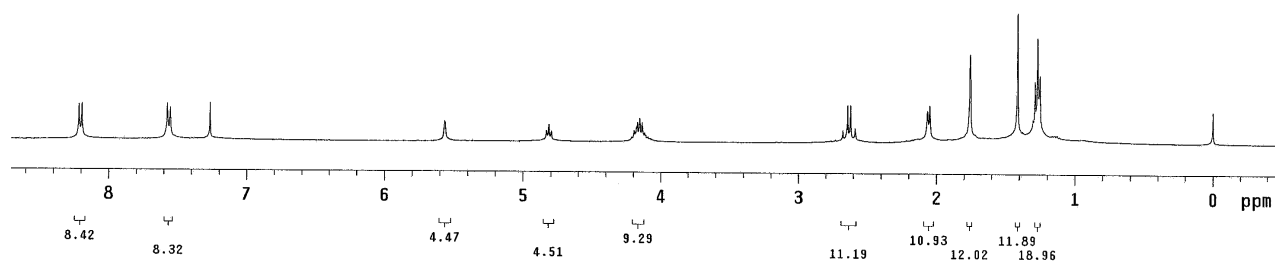
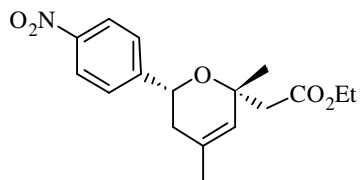


### <sup>1</sup>H NMR spectra of **3f**

PS\_585\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 5 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_585~		hst	0.008
		M.fid	pw90
		alfa	20.000
ACQUISITION		FLAGS	
sw	6389.8		
at	1.998	il	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	136	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-189.0
sfrq	399.853	wp	3677.6
tof	362.8	rfl	793.5
tpwr	57	rfp	0
pw	9.850	rp	109.5
DECOUPLER		PLOT	
dn	C13	lp	-100.6
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	22
dpr	50	th	4
dmf	15900	nm	cdc ph

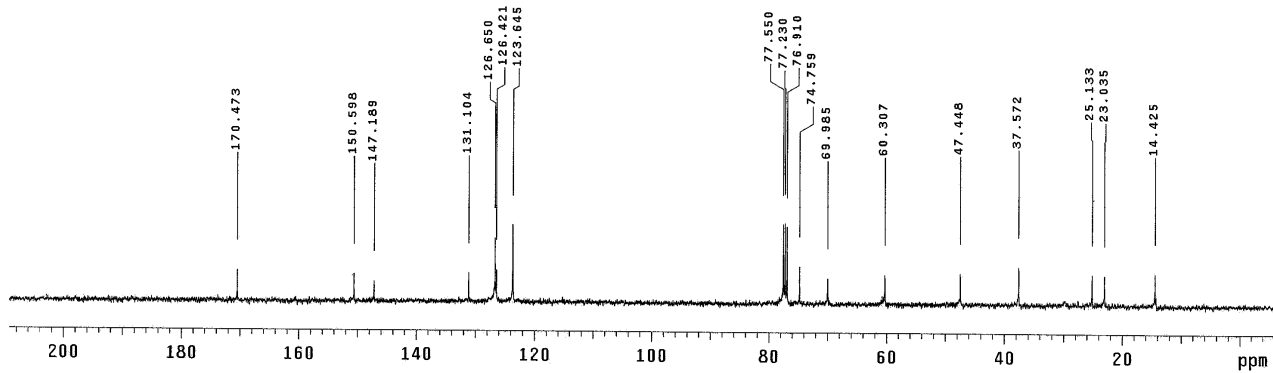
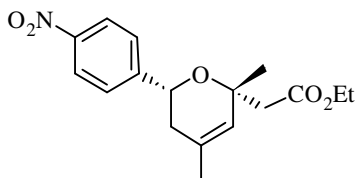


### $^{13}\text{C}$ NMR spectra of **3f**

PS\_585\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 5 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
clftemp	AKS_PS_585~	hst	0.008
ACQUISITION		pw90	18.600
		alfa	20.000
sw	25125.6	FLAGS	
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	5000	lb	2.00
ct	1424	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-590.1
sfrq	100.554	wp	21625.2
tof	1536.3	rfl	9279.0
tpwr	61	rffp	7764.9
DECOUPLER		rp	-42.0
		lp	-363.4
dn	H1	PLOT	
dof	0	wc	250
dm	yvy	sc	0
dmm	w	vs	14
dpwr	42	th	3
dmf	8900	nm	no ph

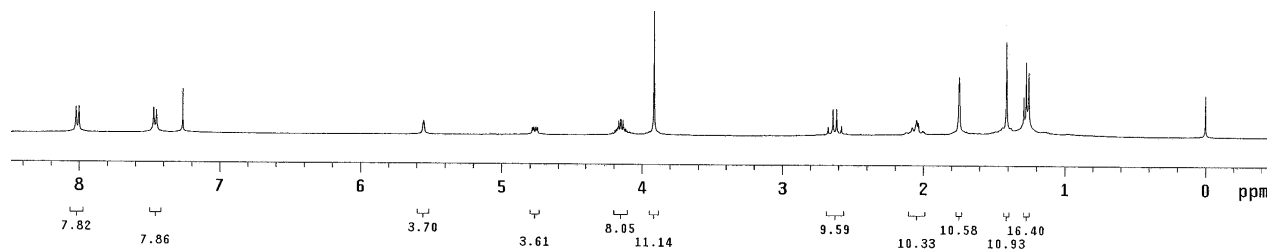
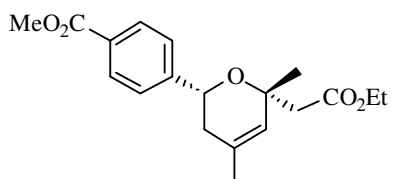


### <sup>1</sup>H NMR spectra of **3g**

PS\_574\_M

exp1 s2pu1

```
SAMPLE          SPECIAL
date Jan 15 2012 temp not used
solvent CDCl3 gain not used
file /export/home/~ spin not used
ciftemp/AKS_PS_574~ hst 0.008
M_Pdt.fid pw90 19.700
ACQUISITION alfa 20.000
sw 6389.8 FLAGS
at 1.998 fl n
np 25528 in n
fb not used dp y
bs 8 hs nn
d1 1.000 PROCESSING
nt 200 lb 0.10
ct 200 fn 65536
TRANSMITTER H1 sp DISPLAY
tn H1 sp -196.8
sfrq 399.853 wp 3593.6
tof 362.8 rfl 792.9
tpwr 57 rfp 0
pw 9.850 rp 104.6
DECOUPLER lp -89.4
dn C13 PLOT
dof 0 wc 250
dm nnn sc 0
dmm c vs 22
dpwr 50 th 20
dmf 15900 nm cdc ph
```

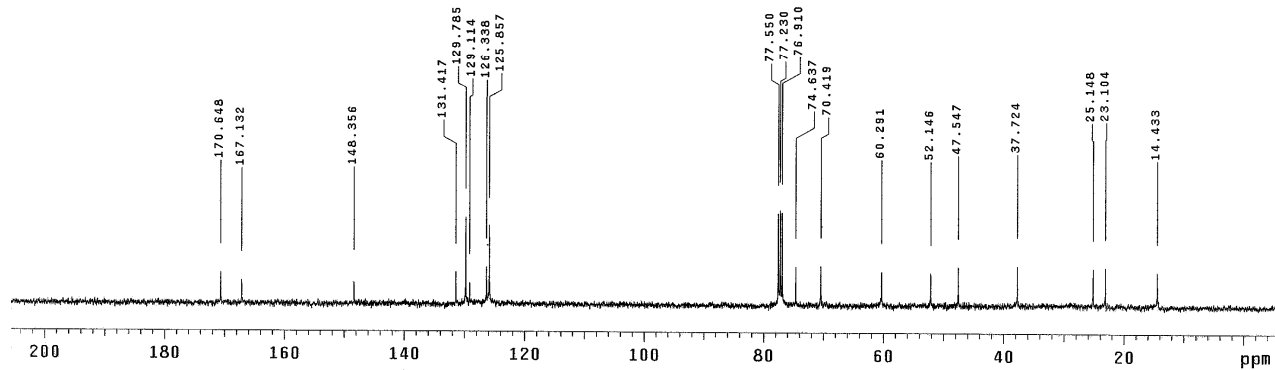
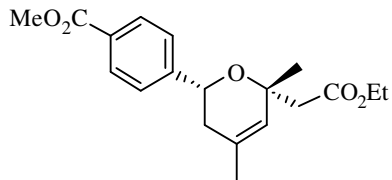


### <sup>13</sup>C NMR spectra of **3g**

PS\_574\_M

exp1 s2pu1

```
SAMPLE          SPECIAL
date   Jan 10 2012  temp   not used
solvent CDCl3      gain   not used
file   /export/home/~ spin  not used
ciftemp/AKS_PS_574- hst   0.008
M_pdt_C13_fid      pu90   18.500
ACQUISITION      alfa     20.000
sw       25125.6      FLAGS
at       1.199      il     n
np       60270      in     n
fb       13800      dp     y
bs       16        hs     nn
dl       1.000      PROCESSING
nt       2000      lb     2.00
ct       1264      fn     65536
TRANSMITTER      C13      sp     -557.1
sfrq     100.554     wp     21262.5
tof      1536.3     rfl     9279.0
tpwr     61        rfp     7764.9
pw       9.300     rp     -46.6
DECOUPLER      H1        lp     -381.5
dn       0         wc     250
dof      0         YVY    sc     0
dm       12        w      vs     17
dpmr     42        th     nm     3
dmf      8900      no     ph
```

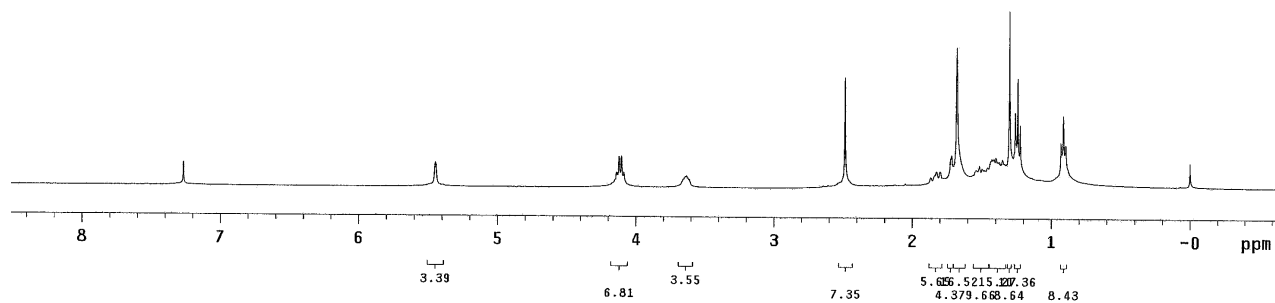
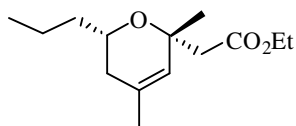


### <sup>1</sup>H NMR spectra of **3h**

PS\_575\_M

exp1 s2pu1

```
SAMPLE          SPECIAL
date   Jan 12 2012  temp   not used
solvent CDC13      gain   not used
file   /export/home/~ spin  not used
ciftemp/AKS_PS_575~ hst   0.008
M_Pdt.fid pw30     19.700
ACQUISITION a1fa   20.000
sw      6389.8      FLAGS
at      1.998      i1    n
np      25528      in    n
fb      not used   dp    y
bs      8          hs    nn
d1      1.000      PROCESSING
nt      100       lb     0.10
ct      100       fn     65536
TRANSMITTER      DISPLAY
tn      H1       sp     -254.5
cfrq    399.853  wp     3660.9
tof     362.8    rf1    791.7
tpwr    57      rfp    0
pw      9.850    rp     96.2
DECOUPLER C13     lp     -63.9
dn      0       wc     250
dof     0       nnn    sc    0
dm      0       c     vs    32
dpmr    50     th    nm    10
dmf     15900   nm    cdc   ph
```

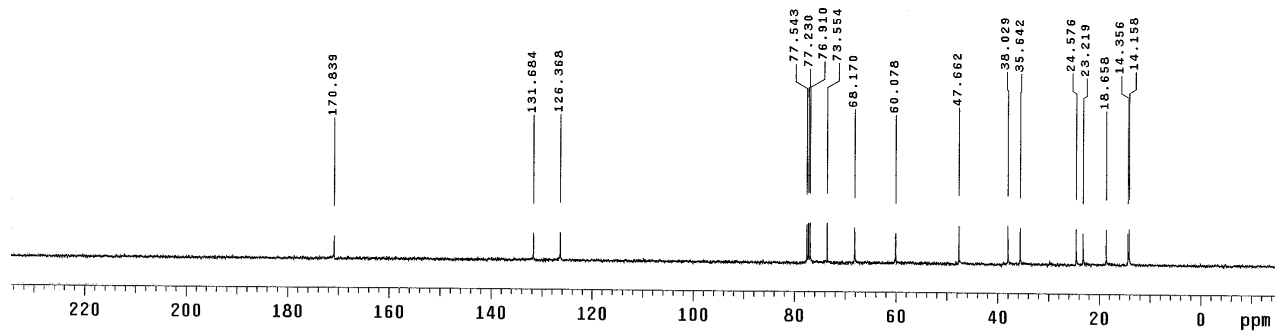
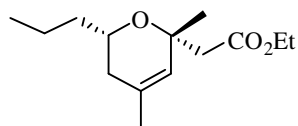


### <sup>13</sup>C NMR spectra of **3h**

PS\_575\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Jan 12 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_575~	hst	0.008
	M_C13.fid	pw90	18.600
	alfa		20.000
ACQUISITION		FLAGS	
sw	25125.6		n
at	1.139	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	2000	lb	2.00
ct	544	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-1511.0
sfrq	100.554	wp	25125.6
tof	1536.3	rfl	9275.9
tpwr	61	rfp	7764.9
pw	9.300	rp	-92.8
DECOUPLER		PLOT	
dn	H1	lp	-271.4
dof	0	wc	250
dm	yyv	sc	0
dmm	w	vs	7
dpwr	42	th	2
dmf	8900	nm	no ph

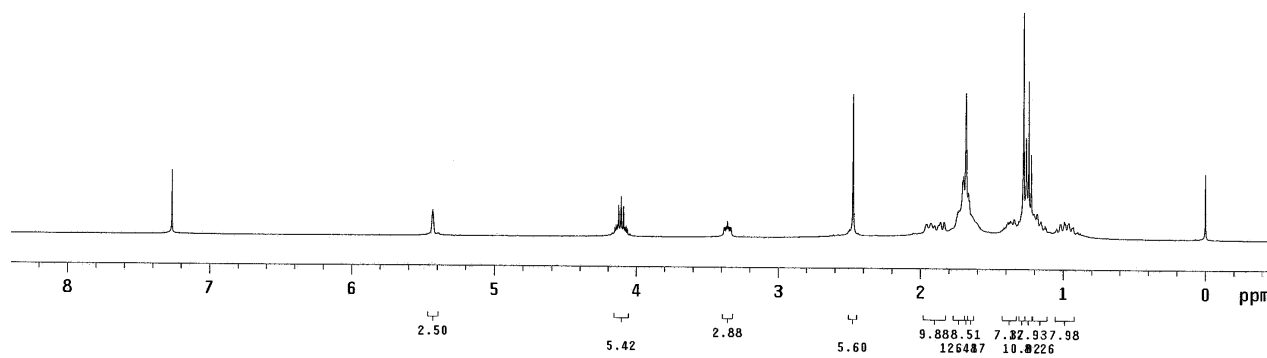
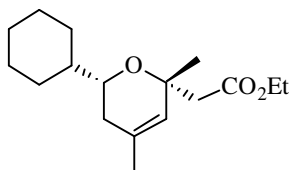


### $^1\text{H}$ NMR spectra of **3i**

PS\_581\_M

exp1 s2pu1

```
SAMPLE SPECIAL
date Jan 31 2012 temp not used
solvent CDCl3 gain not used
file /export/home/~ spin not used
ciftemp/AKS_PS_581~ hst 0.008
M.fid pw90 19.700
ACQUISITION alfa 20.000
sw 6389.8
at 1.998 f1 n
np 25528 in n
fb not used dp y
bs 8 hs nn
di 1.000
nt 200 lb 0.10
ct 200 fn 65536
TRANSMITTER H1 sp -197.7
sfrq 399.853 wp 3560.0
tof 362.8 rfl 793.9
tpwr 57 rfp 0
pw 9.850 rp 112.8
DECOUPLER C13 lp -94.0
dn dof 0 wc 250
dm dmm nnn sc 0
dmm c vs 40
dpwr 50 th 20
dmf 15900 nm cdc ph
```

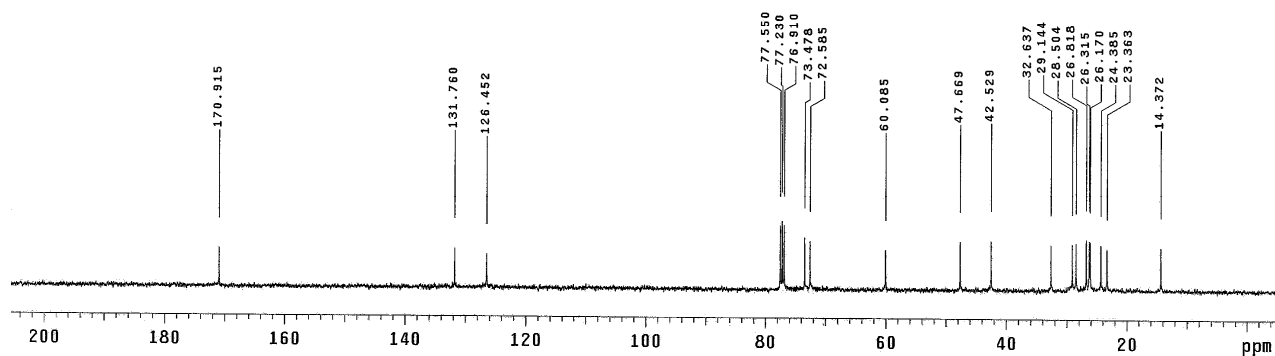
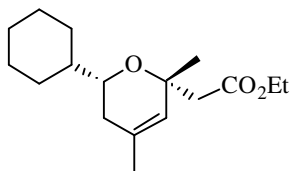


### $^{13}\text{C}$ NMR spectra of **3i**

PS\_581\_M

expl s2pu1

SAMPLE		SPECIAL	
date	Jan 31 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_581~	hst	0.008
M_C13.fid		pw90	18.000
ACQUISITION	alfa		20.000
sw	25125.6	FLAGS	
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	4000	lb	2.00
ct	992	fn	65536
TRANSMITTER	C13	sp	-520.3
sfrq	100.554	wp	21196.6
tof	1536.3	rfl	9275.2
tpwr	61	rfp	7764.9
pw	9.300	rp	-71.0
DECOUPLER	H1	lp	-322.6
dn	0	PLOT	
dof	0	wc	250
dm	yyv	sc	0
dmm	w	vs	12
dpwr	42	th	3
dmf	8900	nm	no ph



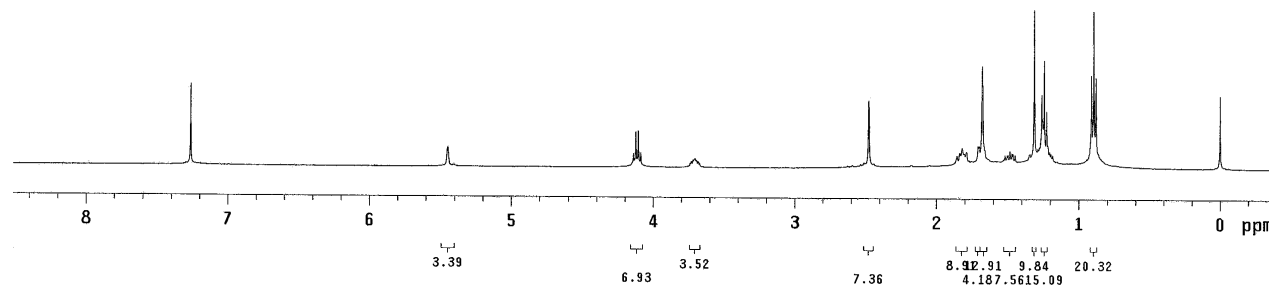
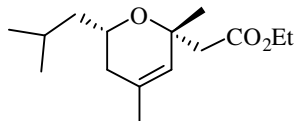


### $^1\text{H}$ NMR spectra of **3j**

PS\_587\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 8 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_587		hst	0.008
	M.fid	pw90	19.700
	alfa		20.000
ACQUISITION		FLAGS	
sw	6389.8		
at	1.998	fl	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	200	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-164.0
sfrq	399.853	wp	3568.4
cof	362.8	rfl	793.7
tpwr	57	rfp	0
pw	9.850	rp	110.6
DECOUPLER		PLOT	
dn	C13	lp	-90.4
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	27
dpwr	50	th	9
dmf	15900	nm	cdc ph

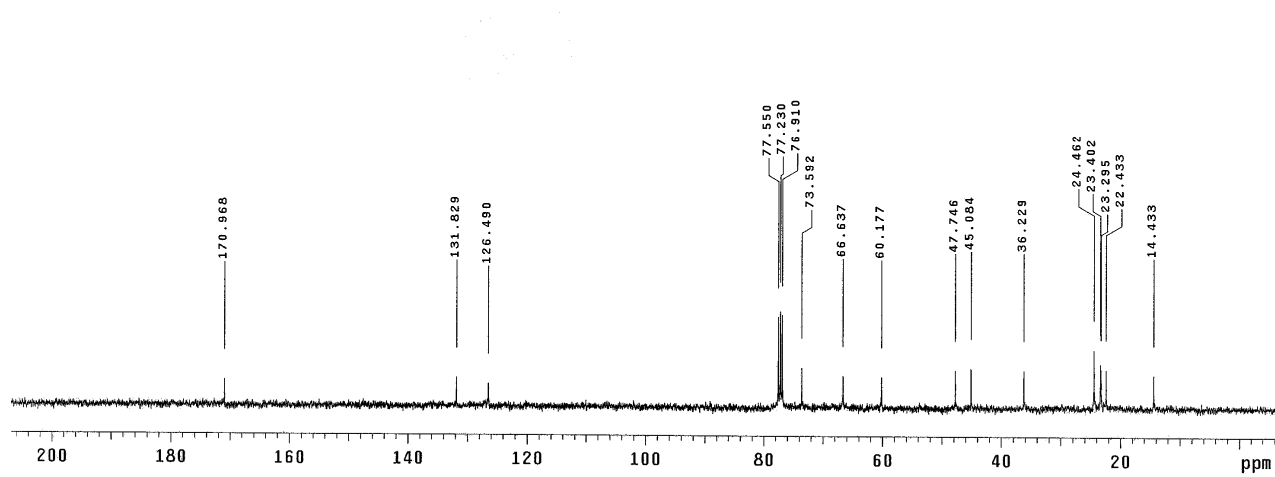
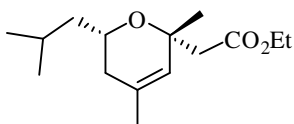


### $^{13}\text{C}$ NMR spectra of **3j**

PS\_587\_M

exp1 s2pu1

```
SAMPLE          SPECIAL
date   Feb  8 2012  temp   not used
solvent CDC13      gain   not used
file   /export/home/~ spin  not used
ciftemp/AKS_PS_587~ hst   0.008
M_C13.fid pu90     18.600
ACQUISITION     alfa    20.000
sw      25125.6      FLAGS
at      1.199       il   n
np      60270       in   n
fb      13800       dp   y
us      16         hs   nn
d1      1.000
nt      4000       lb   2.00
ct      992       fn   65536
TRANSMITTER     DISPLAY
tn      C13       sp   -649.2
sfrq    100.554   wp   21493.3
tof     1536.3   rfl  9272.1
tpwr    61      rfp  7764.9
pw      9.300   rp   -88.6
DECOUPLER       lp   -271.4
dn      H1      PLOT
dof     0       wc   250
dm      yyy    sc   0
dmm     w     vs   16
dpwr    42    th   4
dmf     8900  nm   no ph
```

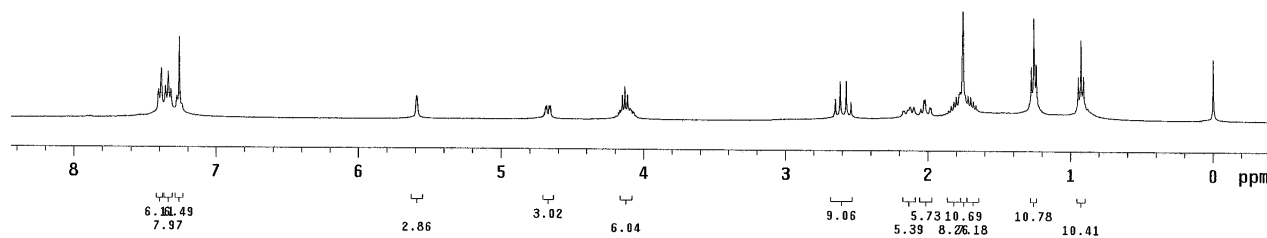
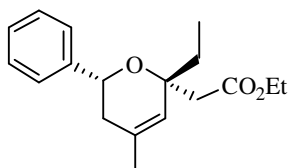


### <sup>1</sup>H NMR spectra of 3k

PS\_582\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 1 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_582~	hst		0.008
	_M_fid	pw90	19.700
ACQUISITION	alfa		20.000
sw	6389.8	FLAGS	
at	1.998	il	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	200	fn	65536
TRANSMITTER	H1	sp	-173.6
sfrq	399.853	wp	3551.7
tof	362.8	rfl	794.8
tpwr	57	rfp	0
pw	9.850	rp	107.6
DECOUPLER	C13	lp	-91.2
dn	0	PLOT	
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	19
dpwr	50	th	7
dmf	15900	nm	cdc ph

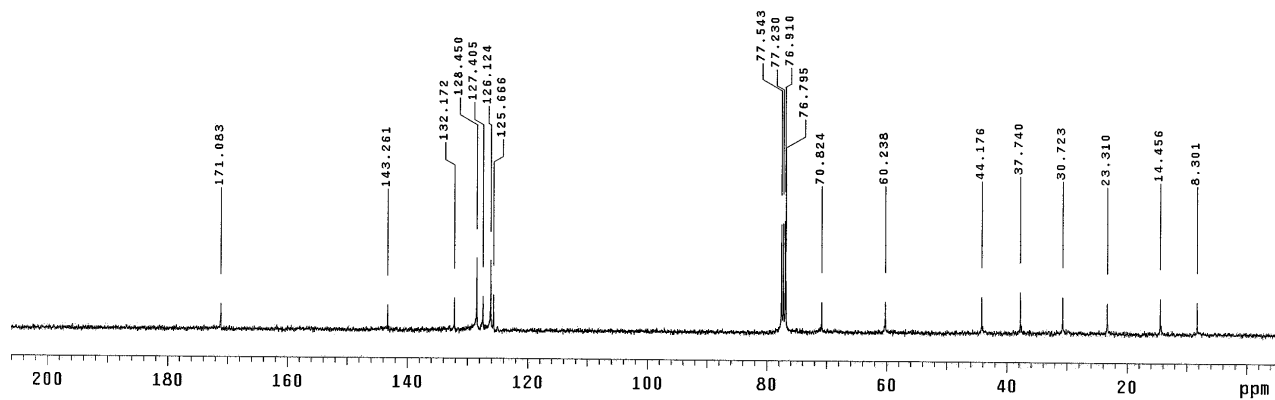
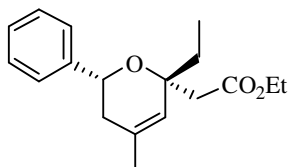


### $^{13}\text{C}$ NMR spectra of **3k**

PS\_582\_M

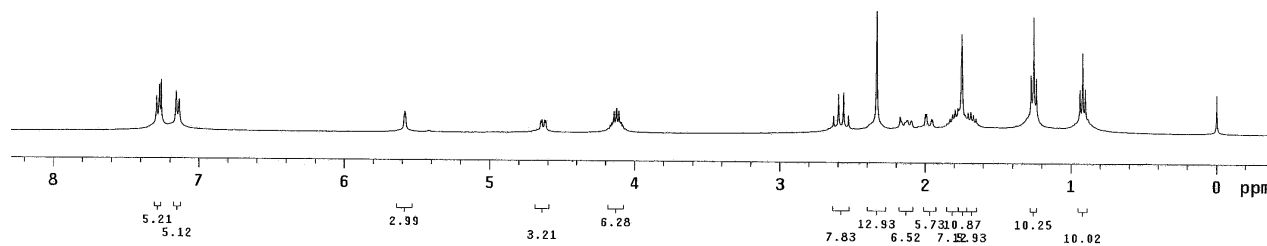
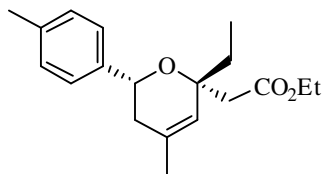
exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 1 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_582	hst		0.008
M_C13.fid	pw90		18.600
ACQUISITION	alfa		20.000
sw	25125.6	FLAGS	
at	1.199	fl	n
np	60270	in	n
Fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	8000	lb	2.00
ct	3232	fn	65536
TRANSMITTER	C13	sp	-489.7
sfrq	100.554	wp	21223.5
tof	1536.3	rfl	9277.5
tpwr	61	rfp	7764.9
pw	9.300	rp	-78.5
DECOUPLER	H1	lp	-293.2
dn		PLOT	
dof	0	wc	250
dm	yyy	sc	0
dmm	w	vs	19
dpwr	42	th	3
dmf	8900	nm	no ph



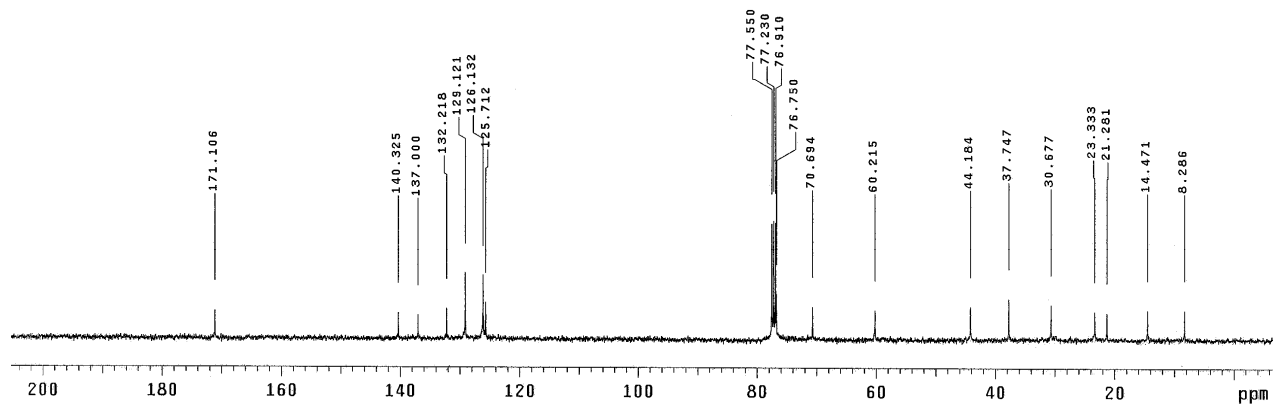
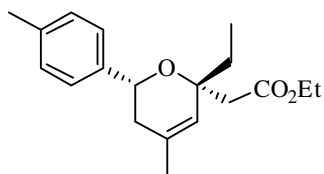
### <sup>1</sup>H NMR spectra of **31**

```
PS_592_M
exp1 s2pu1
SAMPLE
date Feb 19 2012 temp not used
solvent CDCl3 gain not used
file /export/home/~ spin not used
ciftemp/AKS_PS_592~ hst 0.008
M.fid pw90 19.700
ACQUISITION a1fa 20.000
sw 6389.8 FLAGS
at 1.998 f1 n
np 25528 in n
fb not used dp y
bs 8 hs nn
dl 1.000 PROCESSING
nt 200 lb 0.10
ct 200 fn 65536
TRANSMITTER H1 sp -166.0
effq 399.853 wp 3484.6
tof 362.8 rfl 795.6
tpwr 57 rfp 0
pw 9.850 rp 109.2
DECOUPLER C13 lp -97.8
dn 0 wc 250
dof 0 nnn sc 0
dm c vs 23
dpwr 50 th 6
dmf 15900 nm cdc ph
```



### <sup>13</sup>C NMR spectra of 31

```
PS_592_M
exp1 s2pu1
SAMPLE
date Feb 19 2012 temp not used
solvent CDCl3 gain not used
file /export/home/~ spin not used
ciftemp/AKS_PS_592~ hst 0.008
M_C13.fid pw90 18.600
ACQUISITION alfa 20.000
sw 25125.6
at 1.199 fl
np 60270 in
fb 13800 dp
bs 16 hs
d1 1.000
nt 8000 lb
ct 3200 fn
SPECIAL
PROCESSING
2.00
65536
TRANSMITTER
C13 sp
tn 100.554 wp
sfrq 1536.3 rfl
tof 9275.2
tpwr 61 rfp
pw 9.300 rp
DECOUPLER H1 lp
PLOT
dn 0 wc
doF 0
dm yyy Sc
dmm w vs
dpwr 42 th
dmf 8900 nm no ph
-685.2
21361.4
9275.2
7764.9
-60.3
-349.0
250
0
20
3
```

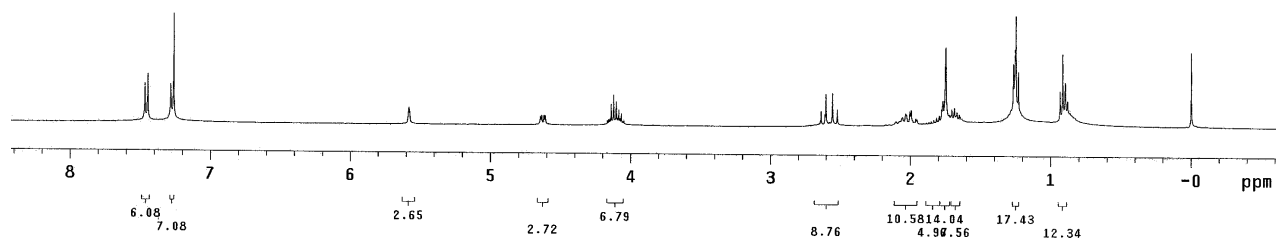
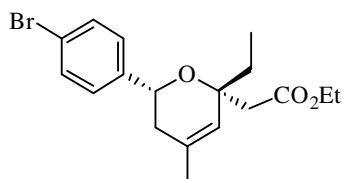


### <sup>1</sup>H NMR spectra of **3m**

PS\_590\_M

exp1 s2pu1

```
SAMPLE          SPECIAL
date    Feb 15 2012  temp    not used
solvent  CDCl3      gain    not used
file     /export/home/~  spin    not used
ciftemp/AKS_PS_590~  hst     0.008
ACQUISITION  M.fid    pw90    19.700
           a1fa     20.000
sw        6389.8      FLAGS
at        1.998      il      n
np        25528      in      n
fb        not used   dp      y
bs        8         hs      nn
di        1.000      PROCESSING
nt        200       lb      0.10
ct        200       fn      65536
TRANSMITTER H1      sp      -248.4
           H1      wp      3618.7
           H1      rf1     794.1
           H1      rfp     0
           H1      rp      98.1
           H1      lp      -71.9
DECOUPLER  C13      PLOT
dn         0        wc      250
dm         nm       sc      0
dmm        c       vs      20
dpwr       50      th      20
dmf        15900   nm      cdc  ph
```

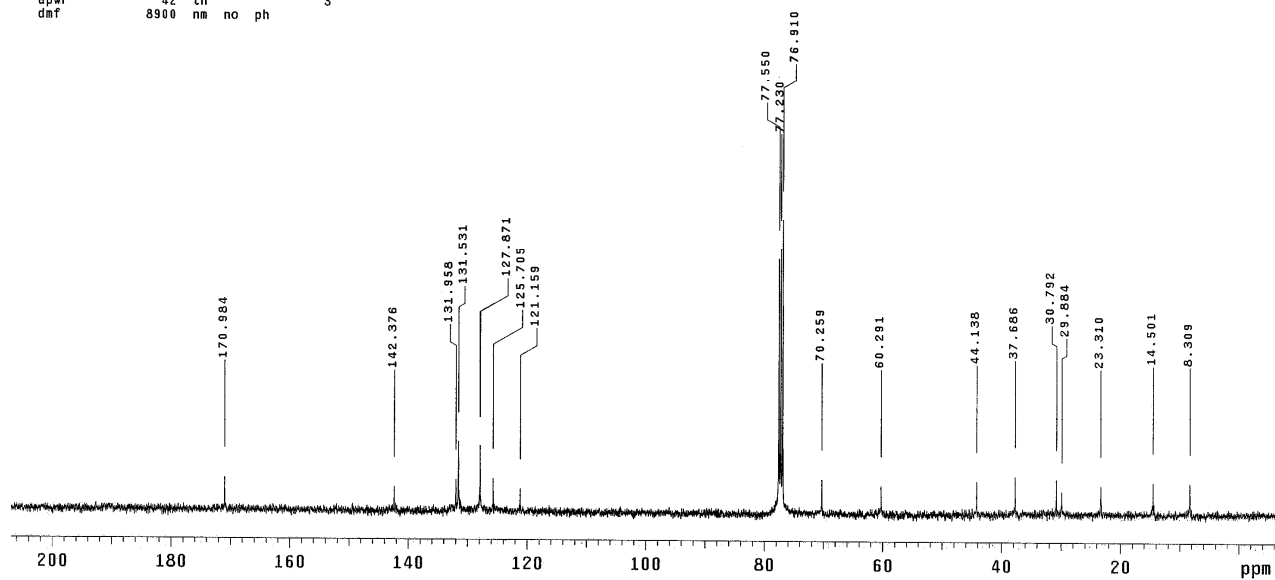
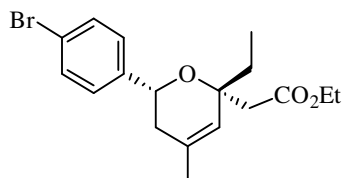


### <sup>13</sup>C NMR spectra of **3m**

PS\_590\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 14 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_590~	hst	0.008
ACQUISITION		pw90	18.000
		alfa	20.000
sw	25125.6	FLAGS	
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	8000	lb	2.00
ct	6000	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-649.2
sfrq	100.554	wp	21460.3
tof	1536.3	rfl	9272.1
tpwr	61	rfp	7764.9
pw	9.300	rp	-44.6
DECOUPLER		lp	-379.8
dn	H1	PLOT	
dof	0	wc	250
dm	vvy	sc	0
dmm	w	vs	50
dpwr	42	th	3
dmf	8900	nm	no
		ph	3



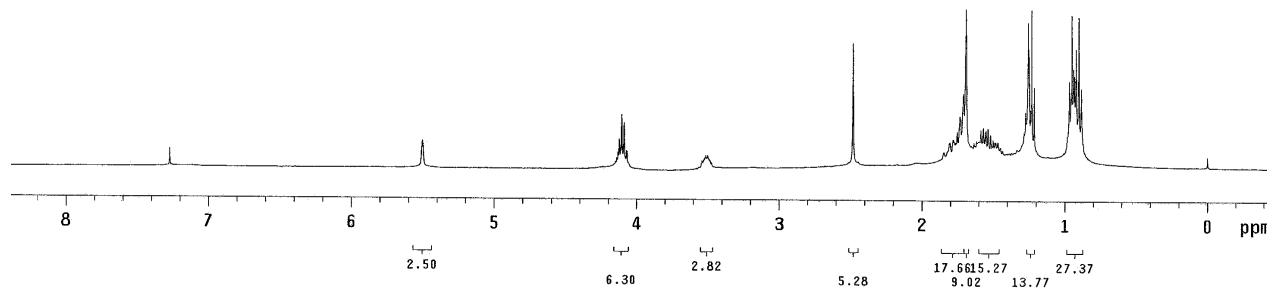
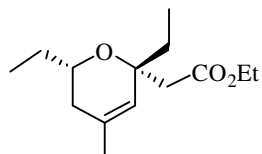


### <sup>1</sup>H NMR spectra of **3n**

PS\_591\_M

exp1 s2pu1

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solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_591~	hst		0.008
_M.fid	pw90		19.700
ACQUISITION	alfa		20.000
sw	6389.8	FLAGS	
at	1.998	il	n
np	25328	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	168	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-193.4
sfrq	399.853	wp	3551.7
cof	362.8	rfl	789.6
tpwr	57	rfp	0
pw	9.850	rp	114.1
DECOUPLER	lp		-100.4
dn	C13	PLOT	
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	27
dpwr	50	th	16
dmf	15900	nm	cdc ph

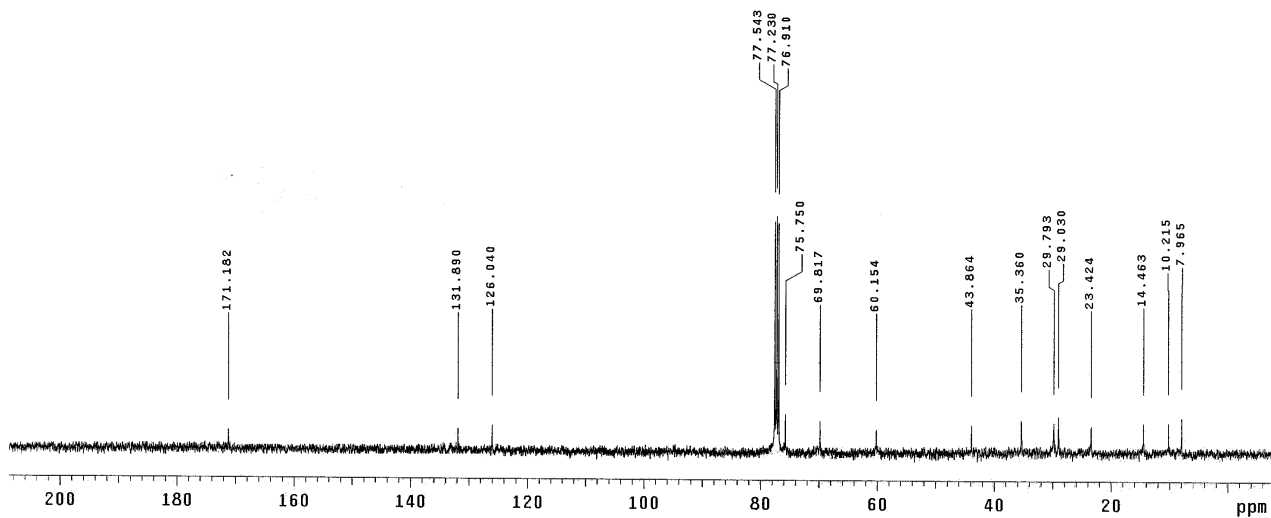
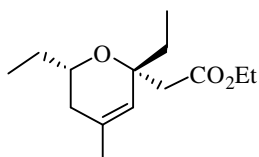


### $^{13}\text{C}$ NMR spectra of **3n**

PS\_591\_M

exp1 s2pu1

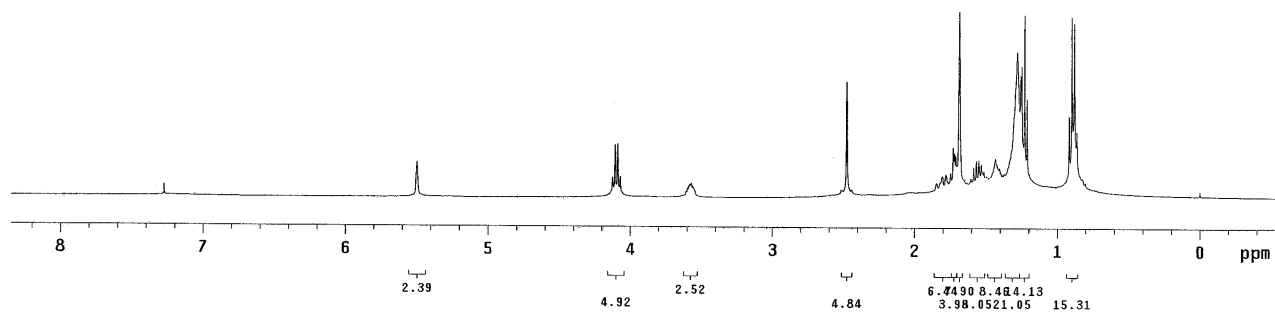
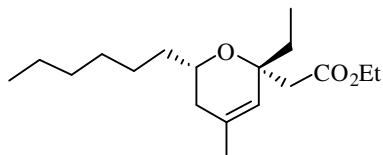
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date	Feb 18 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/	spin	not used
ciftemp/AKS_PS_591	hst		0.008
M_C13.fid	pw90		18.600
ACQUISITION	alfa		20.000
sw	25125.6	FLAGS	
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	5000	lb	2.00
ct	3040	fn	65536
TRANSMITTER	C13	sp	-778.7
sfrq	100.554	wp	21790.8
tof	1536.3	rfl	9269.8
tpwr	61	rfl	7764.9
pw	9.300	rp	-44.3
DECOUPLER	H1	lp	-382.8
dn		PLOT	
dcf	0	wc	250
dm	yyy	sc	0
dmm	wy	vs	40
dpwr	42	th	3
dmf	8900	nm	no ph



### <sup>1</sup>H NMR spectra of **3o**

```
PS_589_M
exp1 s2pu1

SAMPLE          SPECIAL
date    Feb 12 2012  temp    not used
solvent  CDCl3      gain    not used
file    /export/home/~  spin    not used
ciftemp/AKS_PS_589~  hst     0.008
M_Pdt.fid  pw90    19.700
ACQUISITION  alfa    20.000
sw       6389.8
at       1.998  il      FLAGS    n
np       25528  in      n
fb       not used  dp      y
bs       8     hs      nn
dl       1.000
nt       100   lb      PROCESSING  0.10
ct       88   fn      65536
TRANSMITTER  H1    sp      DISPLAY  -215.5
sfrq       399.853  wp      3560.0
tof        362.8  rfl     786.3
tpwr        57   rfp     0
pw         9.850  rp     109.6
DECOUPLER  C13   lp     -95.0
dn         0     wc      PLOT     250
dof        nn   sc      0
dmm        c    vs     34
dpwr       50   th     20
dmf       15900 nm  cdc  ph
```

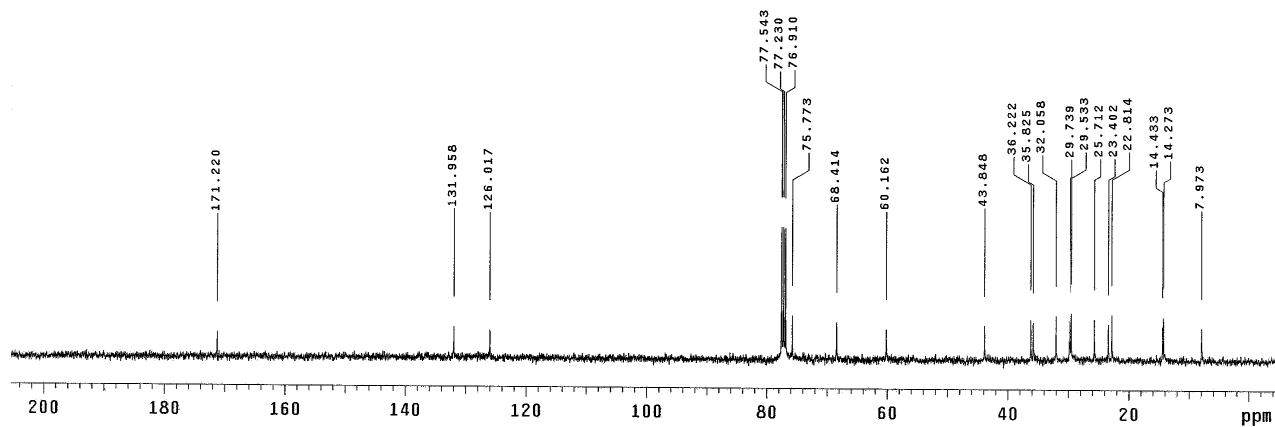
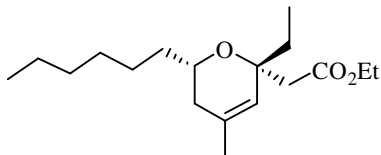


### $^{13}\text{C}$ NMR spectra of **30**

PS\_589\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 12 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_589~	hst	0.008
M_C13.fid		pw90	18.600
ACQUISITION	alfa		20.000
sw	25125.6	FLAGS	
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	5000	lb	2.00
ct	1568	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-482.8
sfrq	100.554	wp	21163.6
tof	1536.3	rfl	9270.6
tpwr	61	rfp	7764.9
pw	9.300	rp	-89.7
DECOUPLER		lp	-271.4
dn	H1	PLOT	
scf	0	wc	250
dm	yy	sc	0
dmm	w	vs	22
dpwr	42	th	3
dmf	8900	nm	no
		ph	

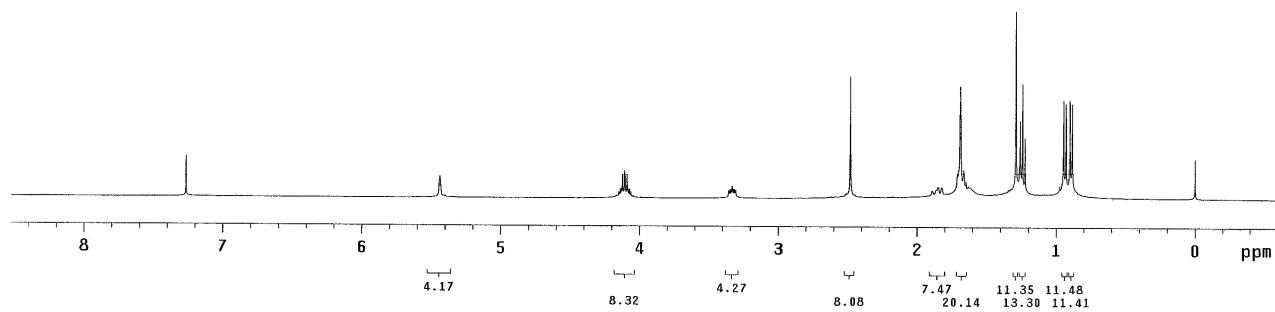
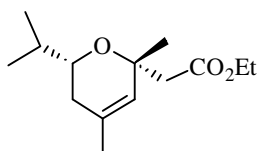


### $^1\text{H}$ NMR spectra of **7b**

PS\_594\_M

exp1 s2pu1

```
SAMPLE          SPECIAL
date    Feb 24 2012  temp      not used
solvent  CDCl3      gain      not used
file     /export/home/~ spin     not used
ciftemp/AKS_PS_594~ hst       0.008
          .M.fid     pw90      19.700
ACQUISITION  alfa     20.000
sw       6389.8      FLAGS
at       1.998      il       n
np       25528      in       n
fb       not used   dp       y
bs       0         hs       nn
d1       1.000
nt       200       lb       0.10
ct       200       fn       65536
TRANSMITTER  H1      sp       -238.9
sfrq       399.853  wp       3652.5
tof        362.8    rfl      792.9
tpwr       57      rfp      0
pw         9.850    rp       115.9
DECOUPLER  C13      lp       -100.4
dn         0
dof        0       wc       250
dm         nnn     sc       0
dmm        c      vs       34
dpwr       50     th       6
dmf        15900  nm      cdc  ph
```

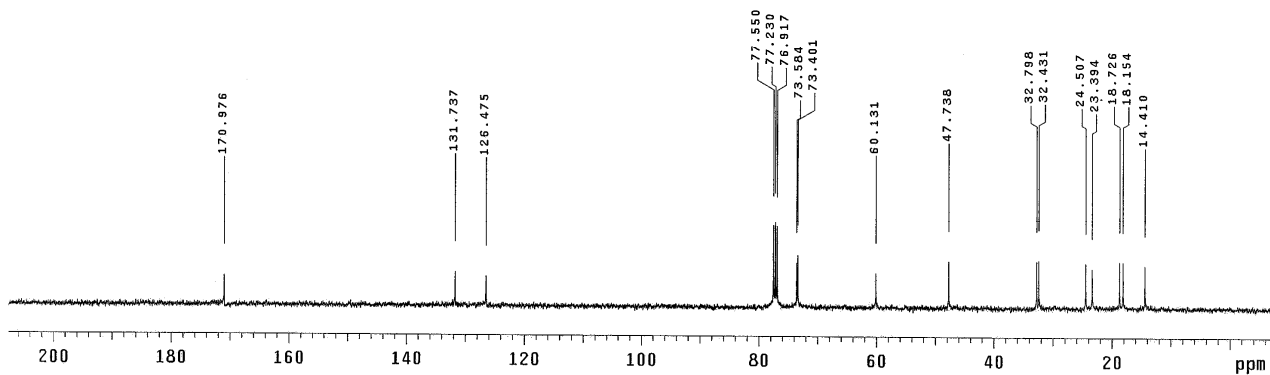
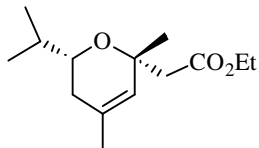


### $^{13}\text{C}$ NMR spectra of **7b**

PS\_594\_M

expl s2pu1

SAMPLE		SPECIAL	
date	Feb 25 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~ spin	not used	
ciftemp	AKS_PS_594~	hst	0.008
M_Pdt_C13.fid		pw90	18.600
ACQUISITION	alfa		20.000
sw	25125.6	FLAGS	
at	1.199	fl	n
np	60270	in	n
Fb	13800	dp	y
bs	16	hs	nn
di	1.000	PROCESSING	
nt	4000	lb	2.00
ct	2000	fn	65536
TRANSMITTER	C13	sp	-714.3
sfrq	100.554	wp	21592.2
tof	1536.3	rfl	9271.3
tpwr	61	rffp	7764.9
pw	9.300	rp	-88.9
DECOUPLER	H1	lp	-271.4
dn	0	wc	250
dof	0	sc	0
dm	yyy	vs	14
dmm	w	th	3
dpwr	42	no	ph
dmf	8900		

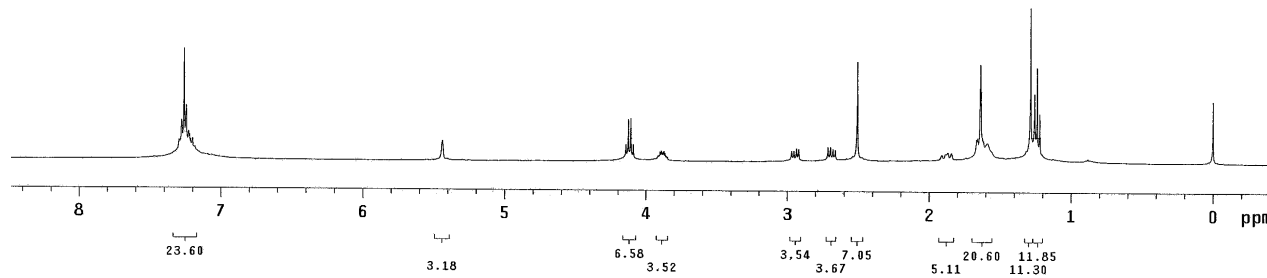
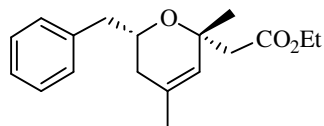


### <sup>1</sup>H NMR spectra of 7c

PS\_595\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 25 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_595	hst	0.008
	_M.Fid	pu90	19.700
		alra	20.000
ACQUISITION		FLAGS	
sw	6389.8		
at	1.998	il	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
dl	1.000	PROCESSING	
nt	300	lb	0.10
ct	264	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-181.9
sfrq	399.853	wp	3576.8
tof	362.8	rfl	794.8
tpwr	57	rff	0
pw	9.850	rp	108.6
		lp	-88.8
DECOUPLER		PLOT	
dn	C13	wc	250
dof	0	sc	0
dm	nm	vs	27
dpwr	50	th	4
dmf	15900	nm	cdc ph

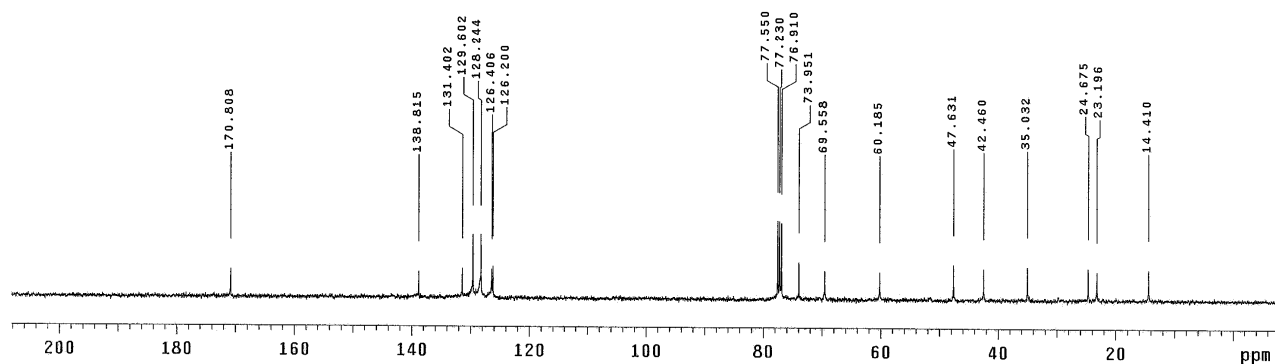
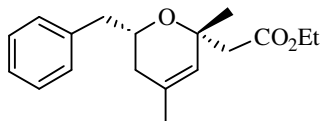


### $^{13}\text{C}$ NMR spectra of 7c

PS\_595\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 25 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
ciftemp	/AKS_PS_595~	hst	0.008
	W_C13.fid	pw90	18.600
	alfa		20.000
ACQUISITION		FLAGS	
sw	25125.6		
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	5000	lb	2.00
ct	2240	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-756.5
sfrq	100.554	wp	21691.1
tof	1536.3	rfl	9280.5
tpwr	61	rfp	7764.9
pw	9.300	rp	-76.1
DECOUPLER		lp	
dn	H1		-301.3
PLOT			
dof	0	wc	250
dm	yyy	sc	0
dmm	w	vs	13
dpmr	42	th	2
dmaf	8900	nm	no ph



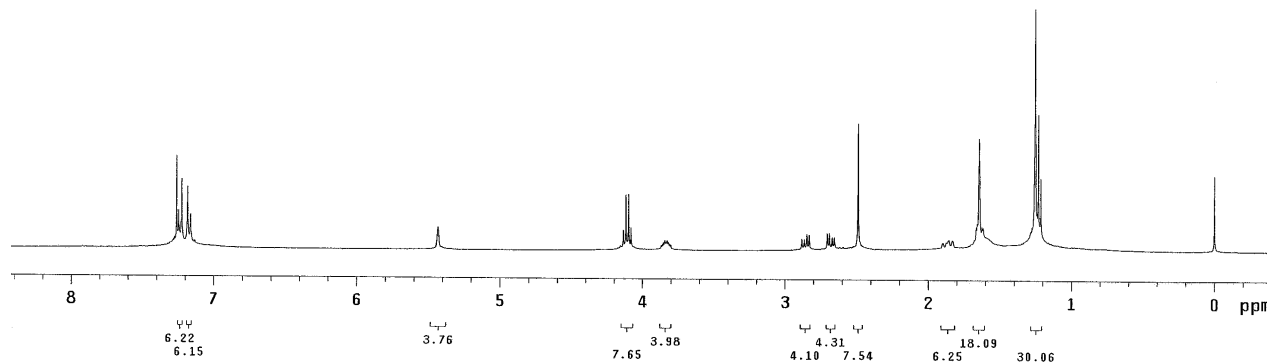
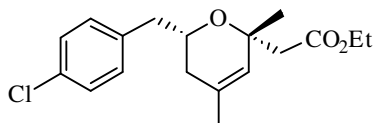


### <sup>1</sup>H NMR spectra of 7d

PS\_604\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Mar 11 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_604~	hst		0.008
ACQUISITION	M.fid	pw90	19.700
	alfa		20.000
sw	6389.8		
at	1.998	il	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000		
nt	200	lb	0.10
ct	176	fn	65536
TRANSMITTER	H1	sp	-173.2
sfrq	399.853	wp	3543.3
tof	362.8	rfl	794.5
tpwr	9.57	rfp	0
pw	9.850	rp	104.1
DECOUPLER	C13	lp	-84.7
dn	0		
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	44
dpwr	50	th	6
dmf	15900	nm	cdc ph

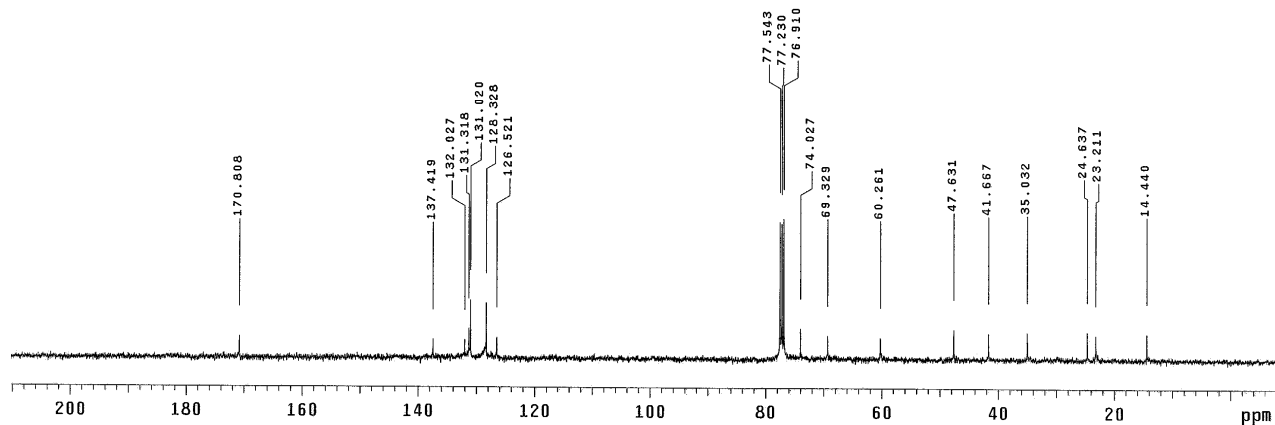
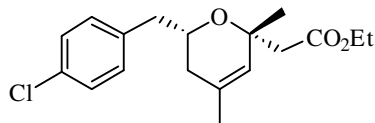


### <sup>13</sup>C NMR spectra of 7d

PS\_604\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Mar 12 2012	temp	not used
solvent	CDC13	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_604~	hst	0.008
M1_C13.fid	pw90	18.600	
ACQUISITION	alfa	20.000	
sw	25125.6	FLAGS	n
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	2.00
nt	5000	lb	65536
ct	3424	fn	
TRANSMITTER	C13	sp	-815.6
sfrq	100.554	wp	21955.7
tof	1536.3	rfl	9272.1
tpwr	61	rffp	7764.9
pw	9.300	rp	-90.0
DECOUPLER	H1	lp	-271.4
dn	0	PLOT	250
dof	0	wc	0
dm	yvy	sc	0
dmm	w	vs	24
dpwr	42	th	2
dmf	8900	nm	no ph

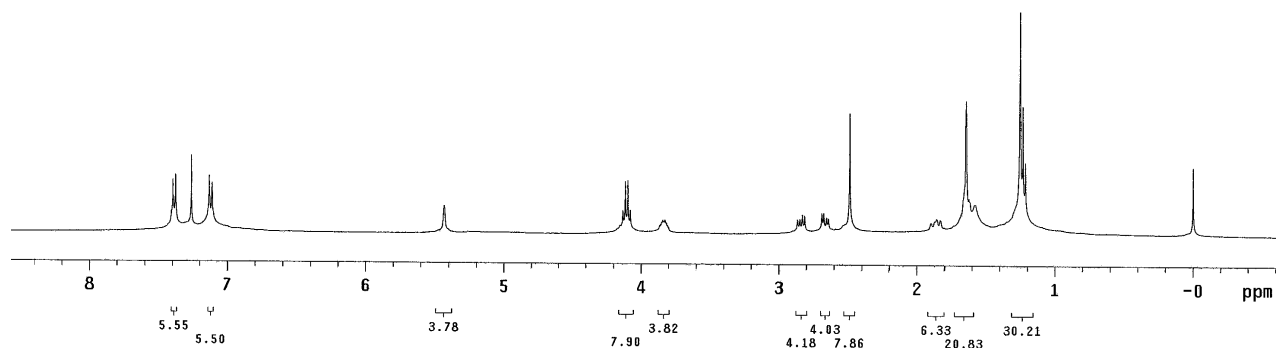
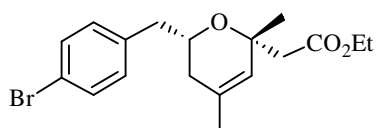


### <sup>1</sup>H NMR spectra of 7e

PS\_596\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 28 2012	temp	not used
solvent	CDC13	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_596~	hst	0.008
M_Pdt.fid	pw90		19.700
ACQUISITION	alFa		20.000
sw	6389.8	FLAGS	
at	1.998	il	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	200	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-248.8
sfrq	399.853	wp	3677.6
tof	362.8	rfl	794.5
tpwr	57	rfp	0
pw	9.850	rp	98.8
DECOUPLER	lP		-81.9
dn	C13	PLOT	
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	39
dpwr	50	th	10
dmf	15900	nm	cdc ph

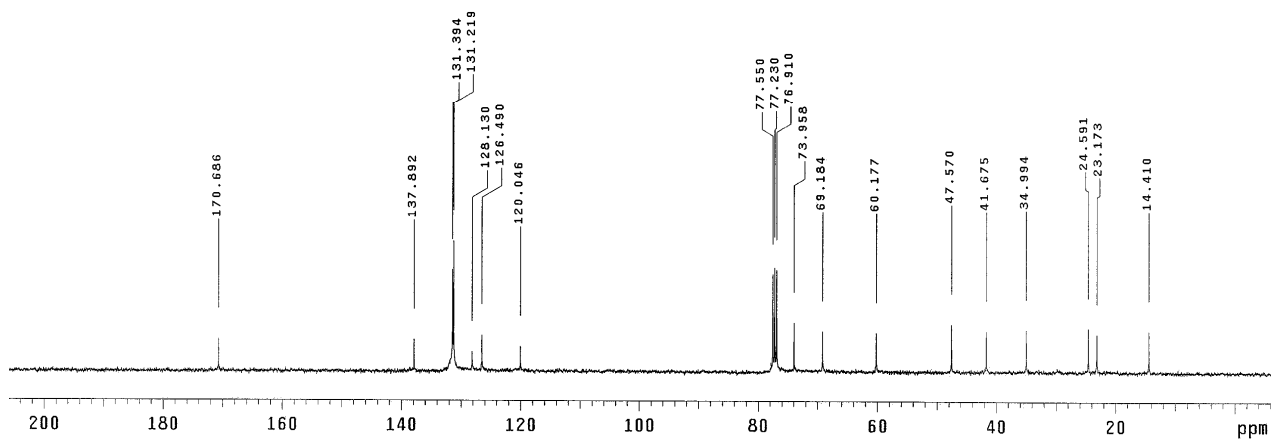
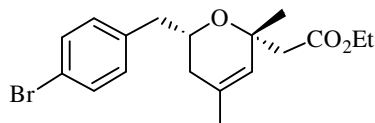


### $^{13}\text{C}$ NMR spectra of **7e**

PS\_596\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Feb 26 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_596	hst	0.008
	M_C13.fid	pw90	18.600
ACQUISITION	alfa		20.000
sw	25125.6	FLAGS	
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	4000	lb	2.00
ct	4000	fn	65536
TRANSMITTER	C13	DISPLAY	
tn		sp	-655.3
sfrq	100.554	wp	21361.4
tof	1536.3	rfl	9278.2
tpwr	61	rfd	7764.9
pw	9.300	rp	-64.4
DECOUPLER	H1	lp	-349.1
dn		PLOT	
dof	0	wc	250
dmm	yyv	sc	0
dmm	w	vs	22
dpr	42	th	3
dmf	8900	nm	no ph

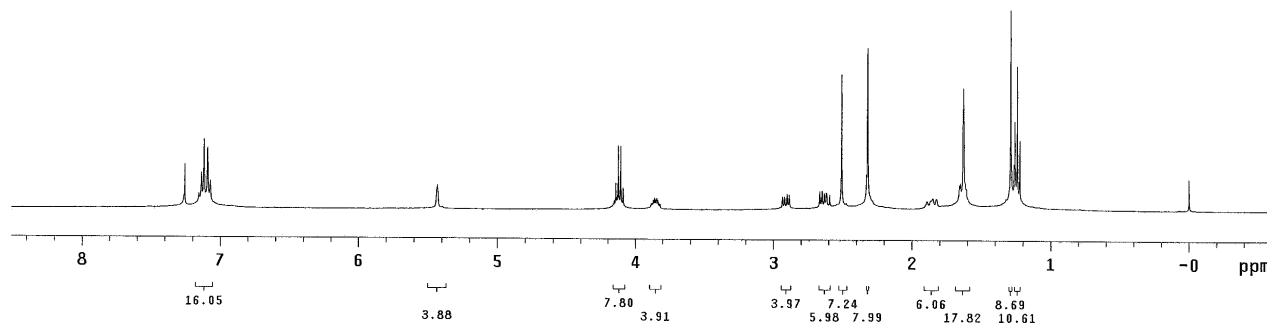
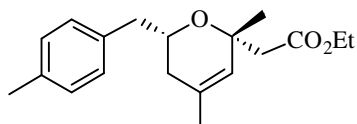


### <sup>1</sup>H NMR spectra of 7f

PS\_607\_M

exp1 s2pu1

SAMPLE		SPECIAL	
date	Mar 24 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_607~	hst		0.008
	M.fid	pv90	19.700
ACQUISITION	alfa		20.000
sw	6389.8	FLAGS	
at	1.998	fl	n
np	25528	in	n
fb	not used	dp	y
bs	8	hs	nn
dl	1.000	PROCESSING	
nt	200	lb	0.10
ct	200	fn	65536
TRANSMITTER	H1	sp	-249.6
sfrq	399.853	wp	3652.5
tof	362.8	rfl	795.2
tpwr	57	rfp	0
pw	9.850	rp	104.9
DECOUPLER	C13	lp	-84.8
dn		PLOT	
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	36
dpwr	50	th	5
dmf	15900	nm	cdc ph

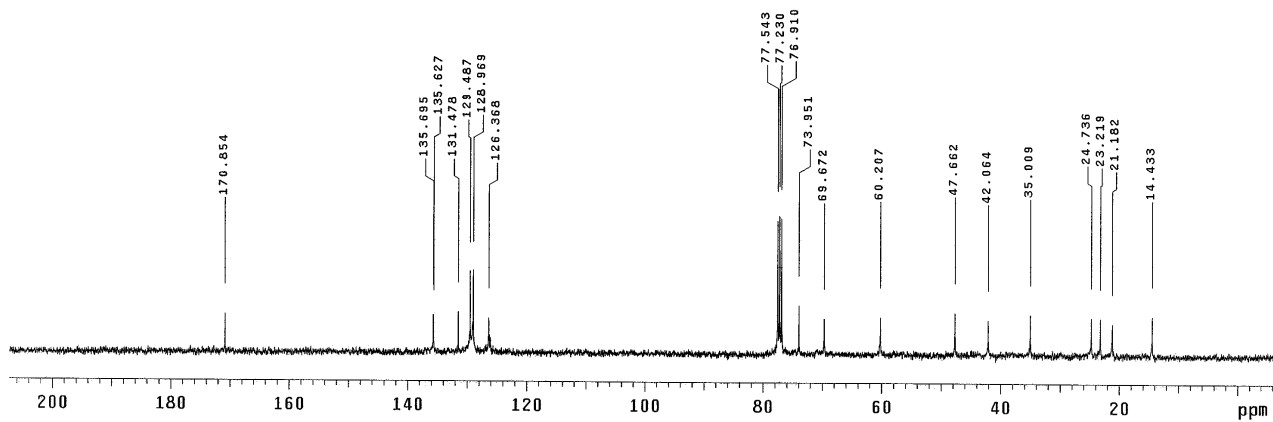
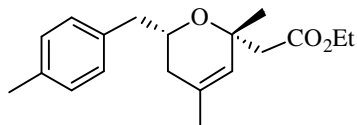


### $^{13}\text{C}$ NMR spectra of **7f**

PS\_607\_M

expl s2pu1

SAMPLE		SPECIAL	
date	Mar 24 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_607~	hst	0.008
	M_C13.fid	pw90	18.600
		alfa	20.000
ACQUISITION		FLAGS	
sw	25125.6		
at	1.199	fl	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	
d1	1.000	PROCESSING	
nt	4000	lb	2.00
ct	2464	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-620.8
sfrq	100.554	wp	21460.3
tof	1536.3	rf1	9276.7
tpwr	61	rfp	7764.9
pw	9.300	rp	-53.9
DECOUPLER		PLOT	
dn	H1	lp	-355.9
dof	0	wc	250
dm	vyv	sc	0
dmm	w	vs	24
dpwr	42	th	4
dmf	8900	nm	no ph

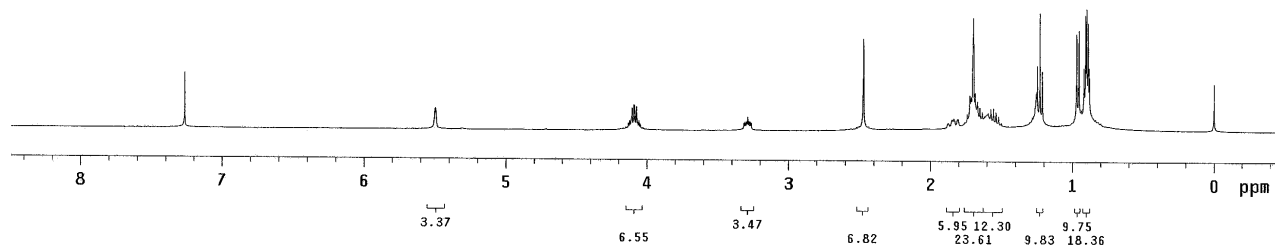
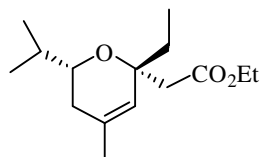


### <sup>1</sup>H NMR spectra of **7g**

PS\_598\_M

exp1 std1h

```
SAMPLE          SPECIAL
date Mar 1 2012 temp not used
solvent CDCl3 gain not used
file /export/home/ spin not used
ciftemp/AKS_PS_598 hst 0.008
_M_fid pw90 19.700
ACQUISITION alfa 20.000
sw 6006.0 FLAGS
at 1.995 il n
np 23964 in n
fb not used dp y
bs 8 hs nn
dl 1.000 PROCESSING
nt 200 fn not used
ct 128 DISPLAY
TRANSMITTER sp -174.9
tn H1 wp 3575.1
cfrq 399.853 rfl 363.0
tof 0 rfp 0
tpwr 57 rp 97.6
pw 7.000 lp -77.1
DECOUPLER C13 PLOT
dn C13 wc 250
dof 0 sc 0
dm nnn vs 22
dmm c th 6
dpwr 50 nm cdc ph
dmf 15900
```

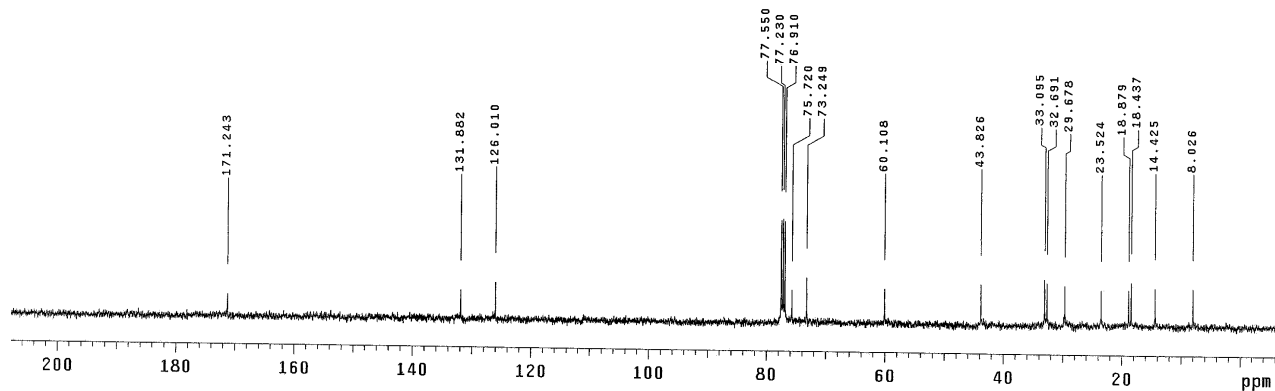
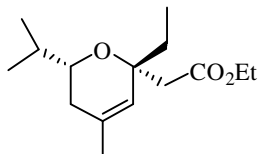


### $^{13}\text{C}$ NMR spectra of **7g**

PS\_598\_M

expl s2pu1

```
SAMPLE          SPECIAL
date Mar 2 2012 temp      not used
solvent CDCl3 gain      not used
file /export/home/~ spin  not used
ciftemp/AKS_PS_598 hst    0.008
M_C13.fid pw90 18.600
ACQUISITION alfa 20.000
sw 25125.6 FLACS
at 1.199 f1 n
np 60270 fn n
fb 13800 dp y
bs 16 hs
dl 1.000 PROCESSING
nt 4000 lb 2.00
ct 1376 fn 65536
TRANSMITTER C13 sp -646.9
sfrq 100.554 wp 21559.3
tof 1536.3 rfi 9269.8
tpwr 61 rfp 7764.9
pw 9.300 rp -92.3
DECOUPLER H1 lp -271.4
dn
dof 0 wc 250
dm yy sc 0
dmm w vs 18
dpwr 42 th 3
dmf 8900 nm no ph
```



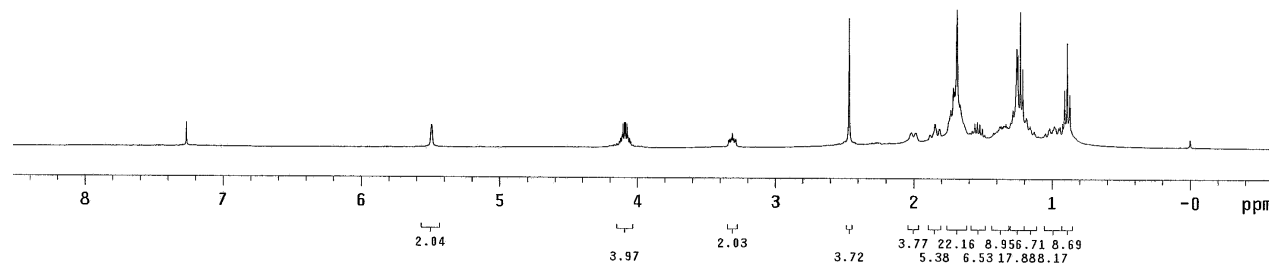
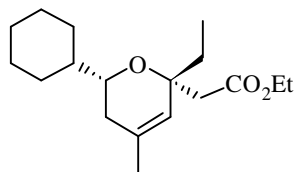


### <sup>1</sup>H NMR spectra of 7h

PS\_599\_U

exp1 s2pu1

SAMPLE		SPECIAL	
date	Mar 2 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_599~	hst	0.008
	M. fid	pw90	19.700
	alfa		20.000
ACQUISITION		FLAGS	
sw	6389.8	il	n
at	1.998	in	n
np	25528	dp	y
fb	not used	hs	nn
bs	8		
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	200	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-254.3
sfrq	399.853	wp	3669.2
tof	362.8	rfl	791.5
tpwr	57	rfl	0
pw	9.850	rp	106.8
DECOUPLER		lp	-97.5
dn	C13	PLOT	
dof	0	wc	250
dm	nnn	sc	0
dmm	c	vs	24
dpwr	50	th	2
dmt	15900	nm	cdc ph

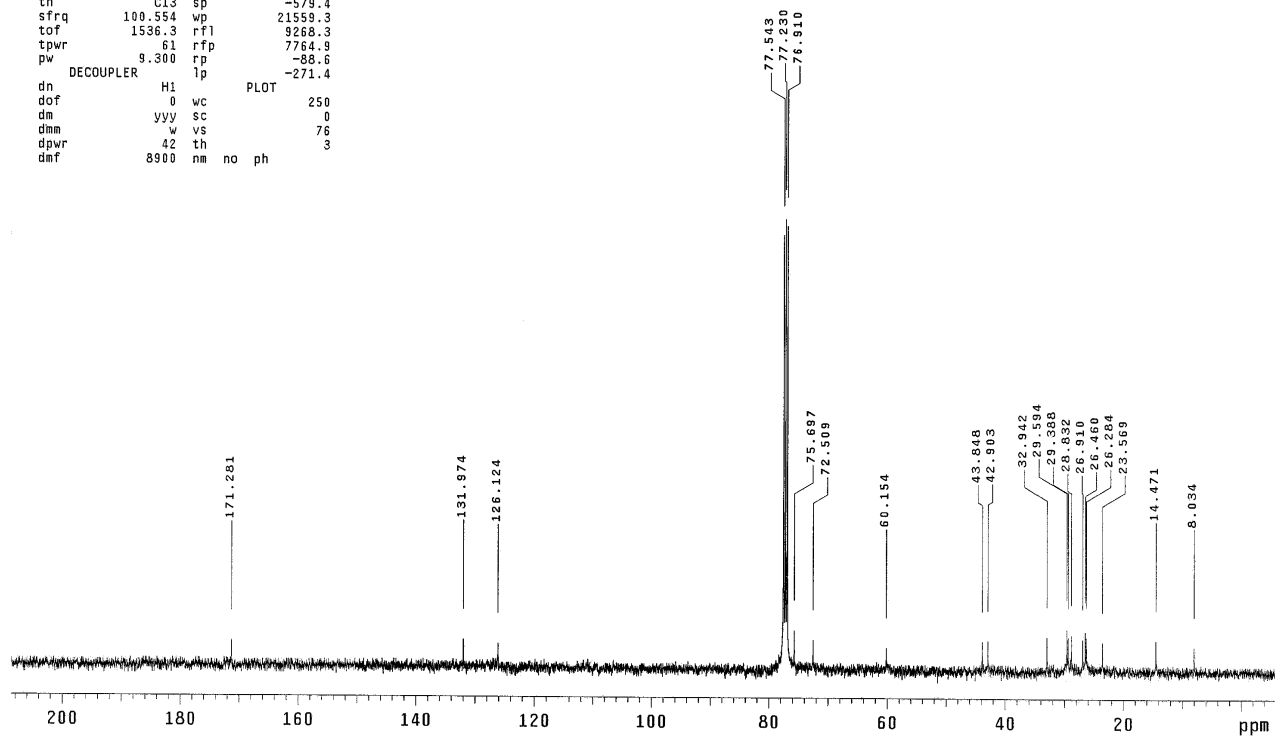
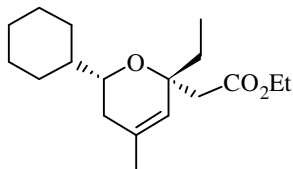


### $^{13}\text{C}$ NMR spectra of **7h**

PS\_599\_M

expl s2pu1

SAMPLE		SPECIAL	
date	Mar 6 2012	temp	not used
solvent	CDCl <sub>3</sub>	gain	not used
file	/export/home/~	spin	not used
ciftemp/AKS_PS_599~		hst	0.008
M_C13.fid		pw90	18.600
ACQUISITION	alfa	alpha	20.000
sw	25125.6	FLACS	
at	1.199	il	n
np	60270	in	n
fb	13800	dp	y
bs	16	hs	nn
d1	1.000	PROCESSING	
nt	10000	lb	2.00
ct	10000	fn	65536
TRANSMITTER		DISPLAY	
tn	C13	sp	-579.4
sfrq	100.554	wp	21559.3
tof	1536.3	rfl	9268.3
tpwr	61	rfp	7764.9
pw	9.300	rp	-88.6
DECOUPLER		lp	-271.4
dn	H1	PLOT	
dof	0	wc	250
dm	yyy	sc	0
dmm	w	vs	76
dpwr	42	th	3
dmf	8900	nm	no ph

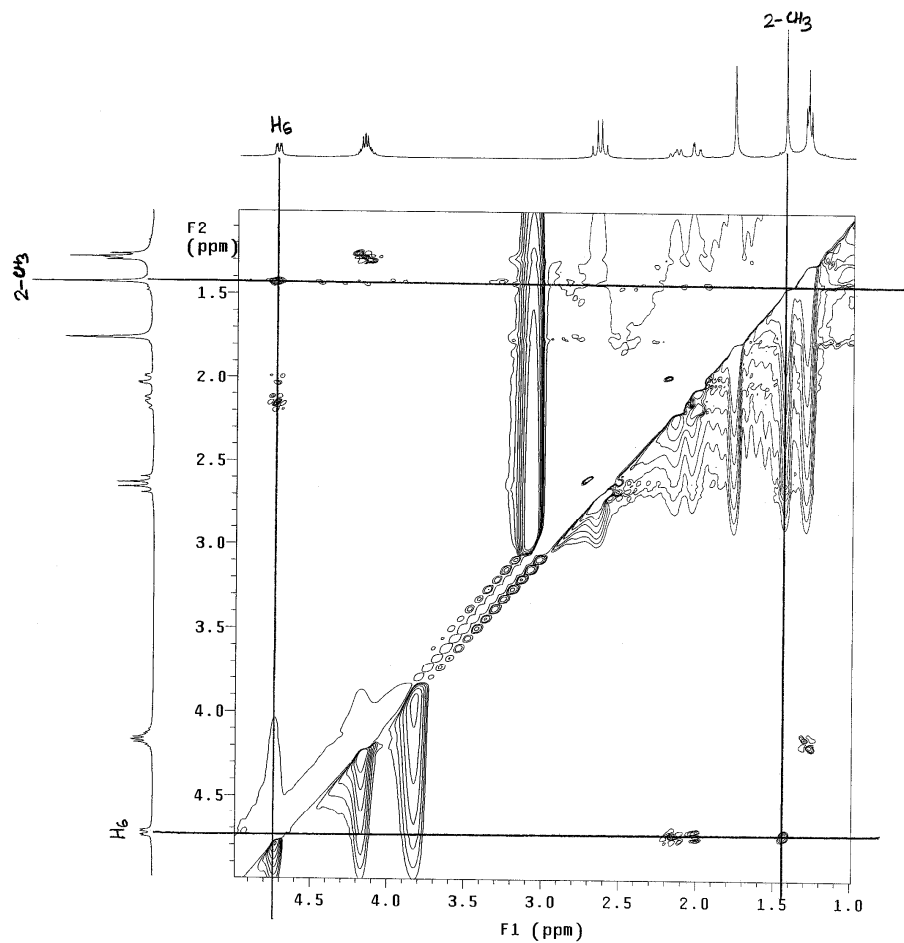
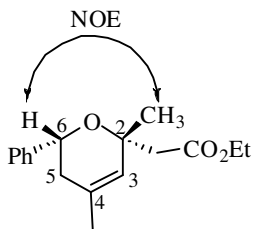


### NOESY spectrum of 3a

PS\_573M\_NOESY

exp1 NOESY

SAMPLE		FLAGS	
date	Feb 6 2012	hs	n
solvent	CDC13	sspul	y
sample ciftemp_06F	~	PGF1g	y
eb2012-01:45:14	hsglv1	SPECIAL	2000
ACQUISITION		SPECIAL	
cw	3191.8	temp	not used
at	0.160	gain	2
np	1024	spin	0
fb	not used	F2	PROCESSING
ss	32	gf	9.074
d1	2.000	gfs	not used
nt	32	fn	2048
2D ACQUISITION		F1 PROCESSING	
sw1	3191.8	gf1	0.037
ni	128	gfs1	not used
TRANSMITTER		PROC1	
tn	H1	fn1	2048
SFRQ		DISPLAY	
sfrq	399.853	sp	403.1
tof	-237.0	wp	1594.4
tpwr	57	sp1	395.3
pw	19.700	wp1	1597.5
mix	NOESY	rf1	-203.4
PRESATURATION	nnn	rff	0
satmode	nnn	rfp	-201.9
satpwr	0	rffp1	0
satdly	0	PLOT	
satfrq	0	wc	155.0
DECOUPLER		sc	10.0
dn	C13	wc2	155.0
dm	nnn	sc2	0
		vs	1036
		th	4
		ai	ph



### NOESY spectrum of 3k

PS\_582\_M

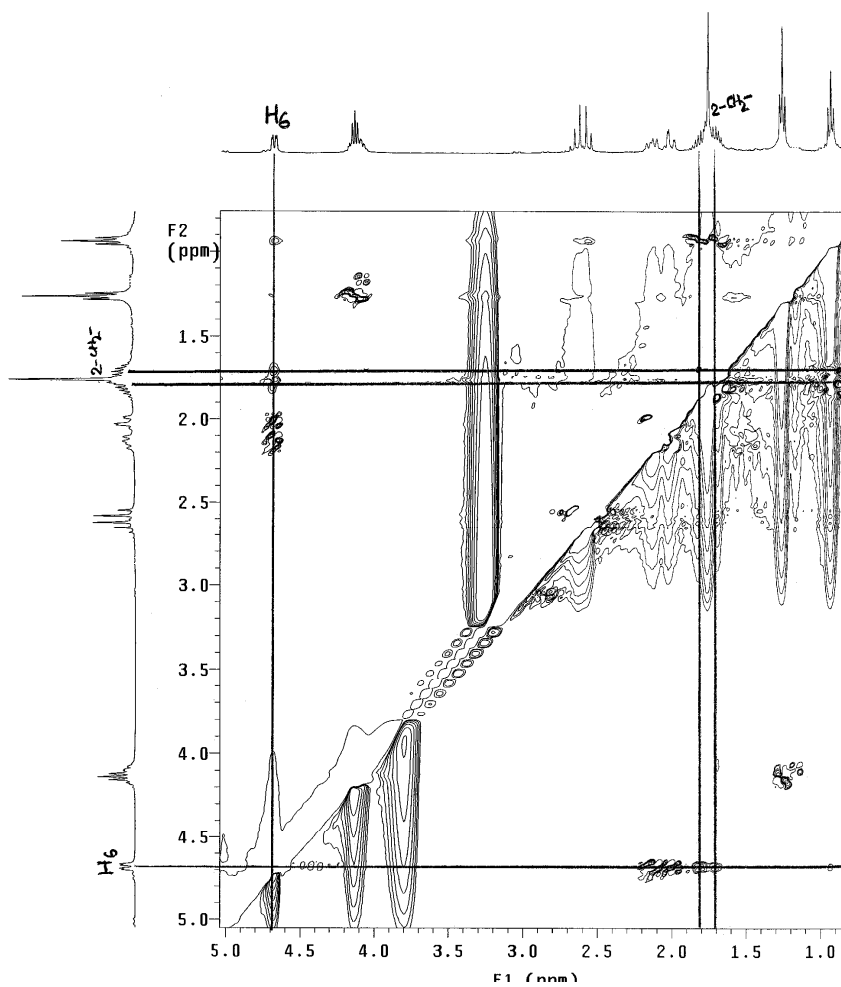
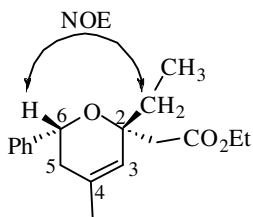
exp1 NOESY

```
SAMPLE          FLAGS
date Jun 2 2012 hs          n
solvent CDC13  sspul       y
sample cftemp_02J~ PFGflg  y
un2012 hsglvi 2000

ACQUISITION     SPECIAL
sw 3191.8 temp not used
at 0.160 gain 10
np 1024 spin 0
fb not used F2 PROCESSING
ss 32 gf 0.074
dl 1.000 gfs not used
nt 64 fn 2048

2D ACQUISITION  F1 PROCESSING
sw1 3191.8 gf1 0.037
ni 128 gfs1 not used

TRANSMITTER     proc1 1p
tn H1 fn1 2048
sfrq 399.853 sp DISPLAY
tof -237.0 sp 303.3
tpwr 57 wp 1716.0
pw 19.700 sp1 314.2
NOESY wp1 1700.4
mix 0.200 rfp -203.4
PRESATURATION  rfp 0
satmode nnnn rfl1 -201.9
satpwr 0 rfp1 0
sattdly 0
satfrq 0 wc PLOT
DECOUPLER      sc 124.0
dn C13 wc2 124.0
dm nnn sc2 0
vs 1592
ai th 3
ph
```



### Crude <sup>1</sup>H NMR spectra of **3c**

PS\_621\_Crude

exp1 s2pu1

SAMPLE		SPECIAL	
date	Apr 29 2012	temp	not used
solvent	CDCl3	gain	not used
file	/export/home/~	spin	not used
ciftemp	AKS_PS_621~	hst	0.008
	Crude.fid	pw90	19.700
		alfa	20.000
ACQUISITION		FLAGS	
sw	6389.8	il	n
at	1.998	in	n
np	25528	dp	y
fb	not used	hs	nn
bs	8		
d1	1.000	PROCESSING	
nt	200	lb	0.10
ct	80	fn	65536
TRANSMITTER		DISPLAY	
tn	H1	sp	-272.0
sfrq	399.653	wp	3744.7
tof	362.8	rfl	792.5
tpwr	57	rfp	0
pw	9.850	rp	105.4
		lp	-76.4
DECOUPLER		PLOT	
dn	C13	wc	250
dof	0	sc	0
dm	nnn	vs	31
dmm	c	th	20
dpwr	50	nm	cdc ph
dmf	15900		

