

Supporting Information

Structure-Based and Molecular Modeling Studies for the Discovery of Cyclic Imides as Reversible Cruzain Inhibitors with Potent Anti-*Trypanosoma cruzi* Activity

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Supplementary Figures

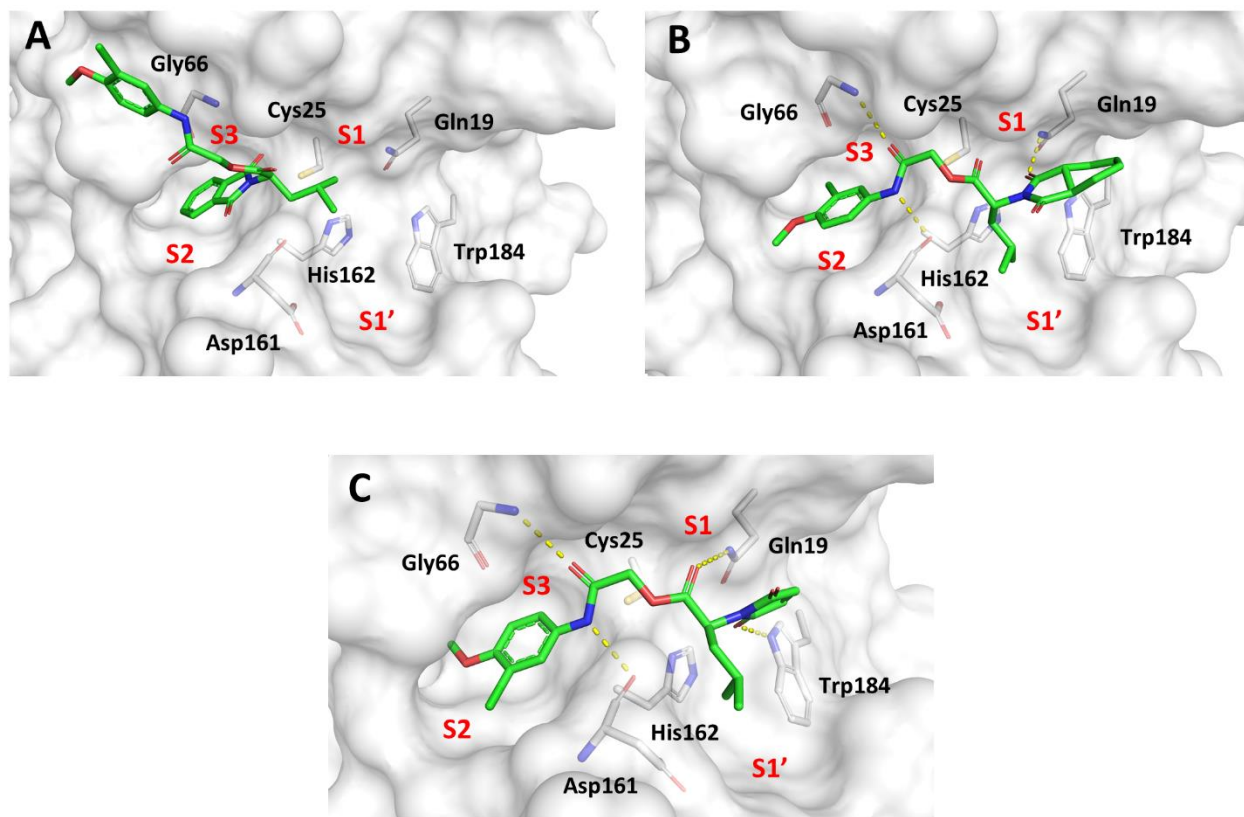


Figure S1. Molecular docking predicted binding mode of imide derivatives within the active site of cruzain. **(A)** Compound 10a. **(B)** Compound 10b. **(C)** Compound 10c. Cruzain (PDB 3KKU, 1.28 Å) is depicted in surface representation. Binding site residues (carbon in gray) and inhibitors (carbon in green) are shown as sticks. Hydrogen bonds are shown as dashed lines. Cruzain subsites are labeled as S1, S1', S2 and S3.

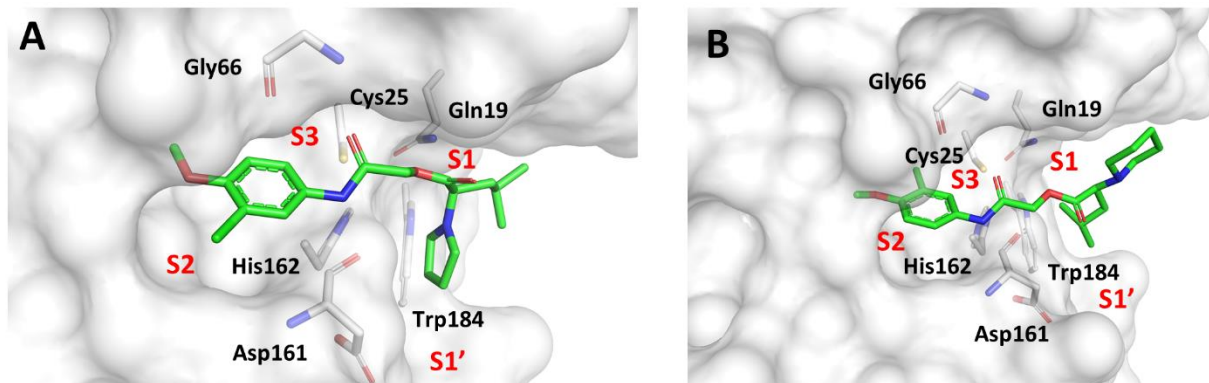


Figure S2. Molecular docking predicted binding mode of imide derivatives within the active site of cruzain. **(A)** Compound **10k**. **(B)** Compound **10l**. Cruzain (PDB 3KKU, 1.28 Å) is depicted in surface representation. Binding site residues (carbon in gray) and inhibitors (carbon in green) are shown as sticks. Hydrogen bonds are shown as dashed lines. Cruzain subsites are labeled as S1, S1', S2 and S3.

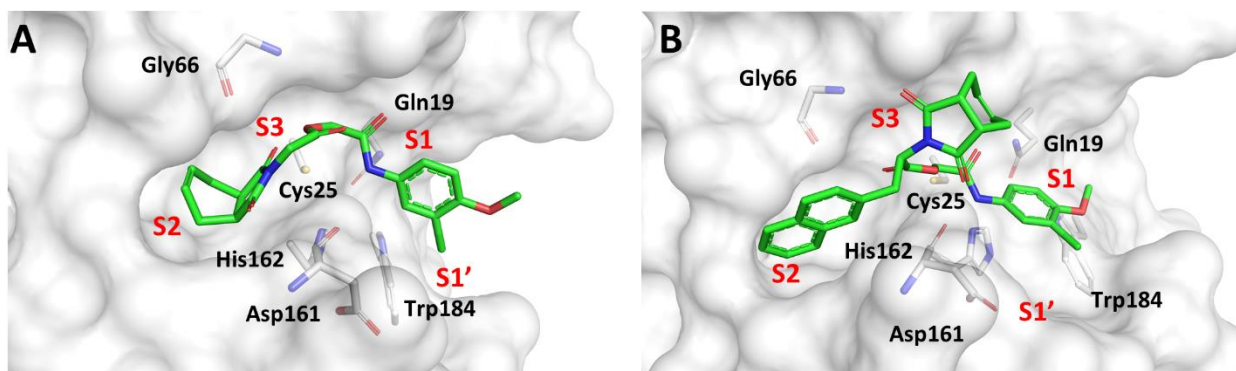


Figure S3. Molecular docking predicted binding mode of imide derivatives within the active site of cruzain. **(A)** Compound **10g**. **(B)** Compound **10i**. Cruzain (PDB 3KKU, 1.28 Å) is depicted in surface representation. Binding site residues (carbon in gray) and inhibitors (carbon in green) are shown as sticks. Hydrogen bonds are shown as dashed lines. Cruzain subsites are labeled as S1, S1', S2 and S3.

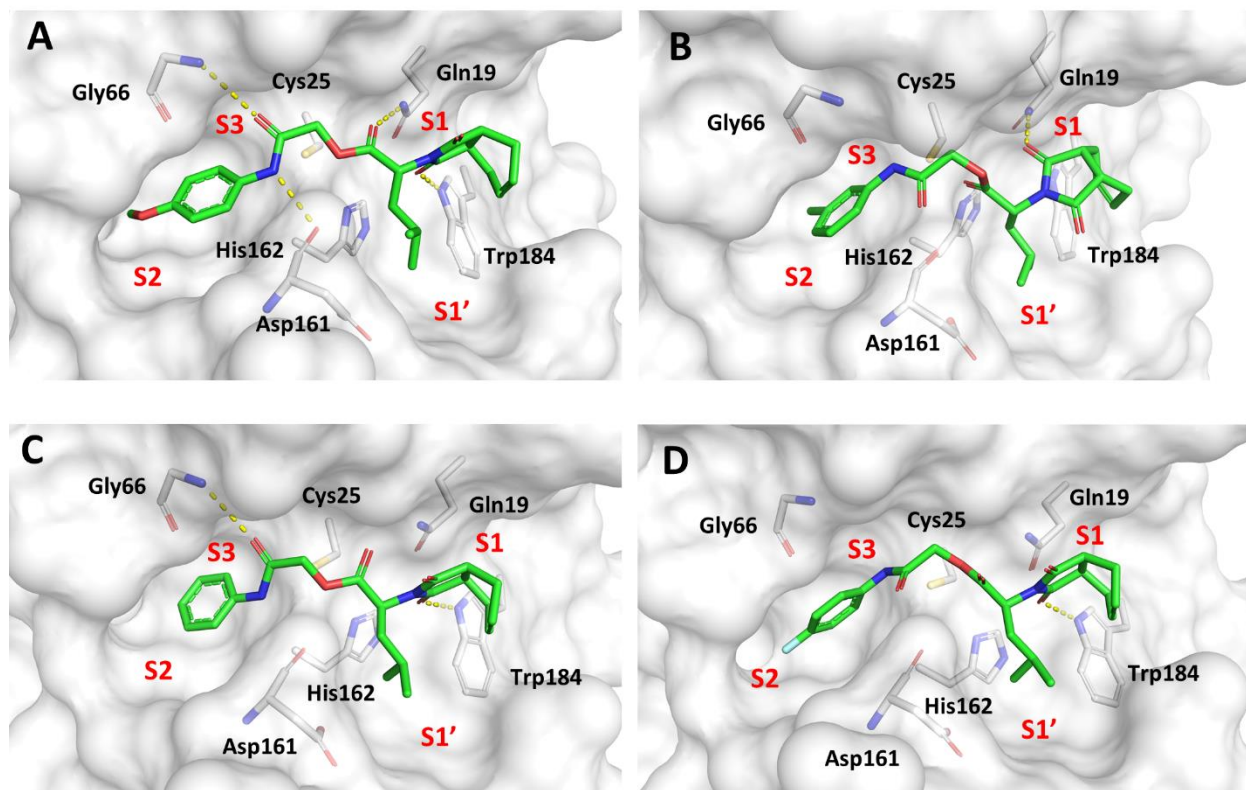


Figure S4. Molecular docking predicted binding mode of imide derivatives within the active site of cruzain. **(A)** Compound **3b**. **(B)** Compound **3c**. **(C)** Compound **3d** **(D)** Compound **3e**. Cruzain (PDB 3KKU, 1.28 Å) is depicted in surface representation. Binding site residues (carbon in gray) and inhibitors (carbon in green) are shown as sticks. Hydrogen bonds are shown as dashed lines. Cruzain subsites are labeled as S1, S1', S2 and S3.

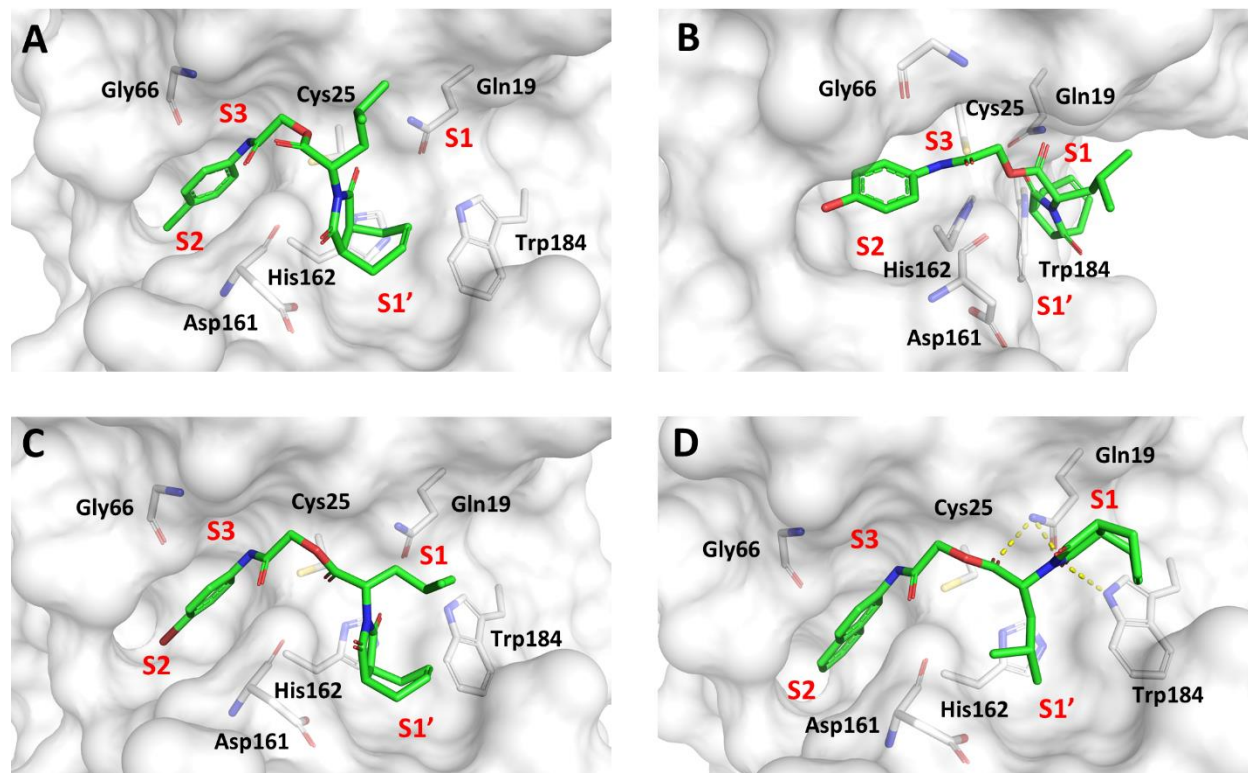
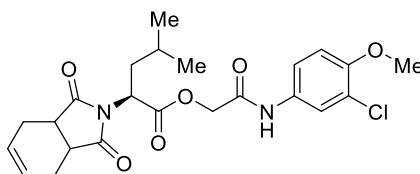


Figure S5. Molecular docking predicted binding mode of imide derivatives within the active site of cruzain. **(A)** Compound **3g**. **(B)** Compound **3h**. **(C)** Compound **3f**. **(D)** Compound **3i**. Cruzain (PDB 3KKU, 1.28 Å) is depicted in surface representation. Binding site residues (carbon in gray) and inhibitors (carbon in green) are shown as sticks. Hydrogen bonds are shown as dashed lines. Cruzain subsites are labeled as S1, S1', S2 and S3.

NMR Spectra



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File Name	E:\RMN Dissert\500 MHz\Set 15\set02rafH1 RAF 105_001001r	Frequency (MHz)	499.87	Nucleus	1H
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Solvent	CHLOROFORM-D	Sweep Width (Hz)	10302.20	Temperature (degree C)	25.150

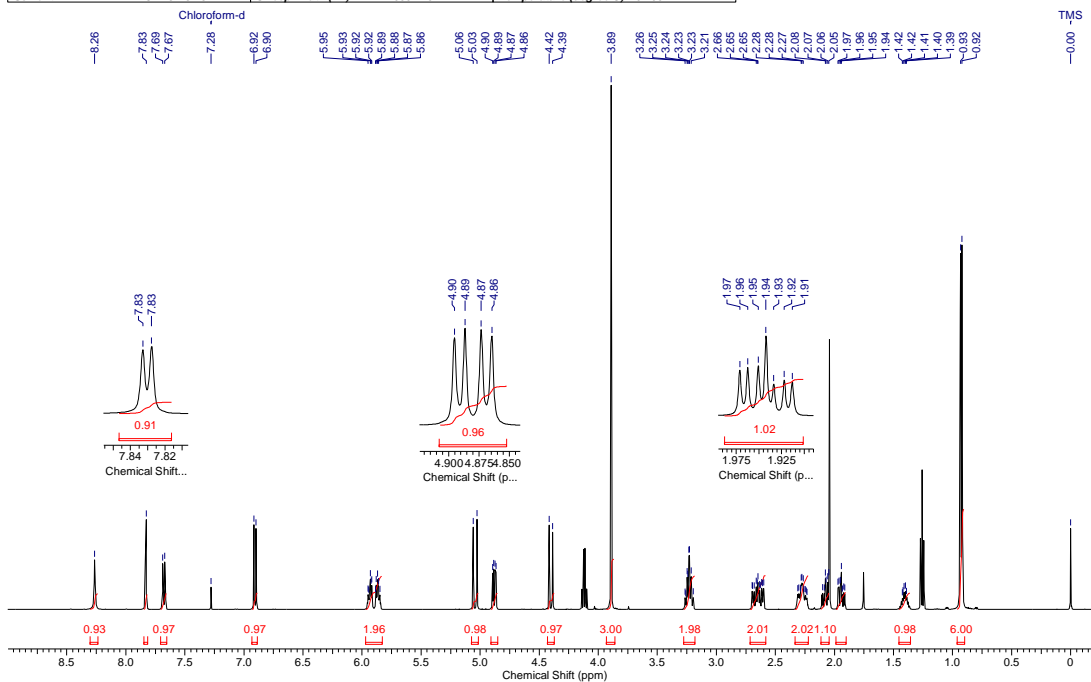
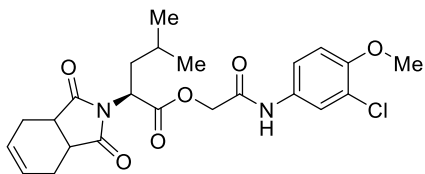


Figure S6 ¹H NMR spectrum of compound **3a** (500 MHz, CDCl₃).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF 105 - CDCl3 - Avance 500 MHz - set02rafH1 - 13C	Date	02 Sep 2015 07:41:38
File Name	E:\RMN Dissert\500 MHz\Set 15\set02rafH1 RAF 105_002001r	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	128	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	32894.74	Temperature (degree C)	25.211

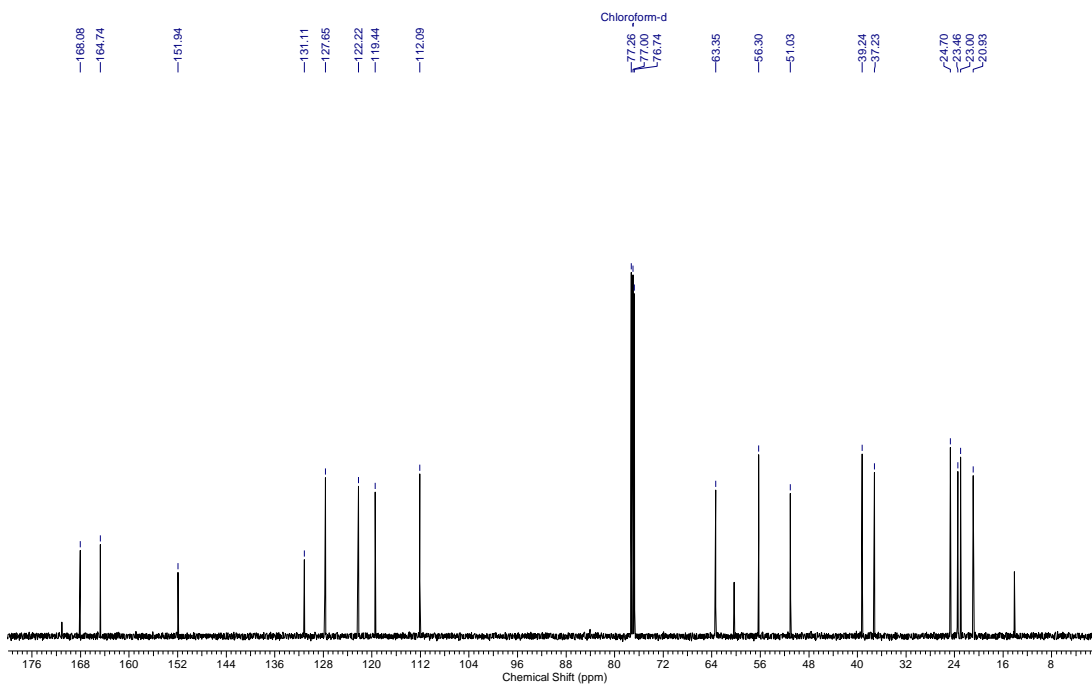
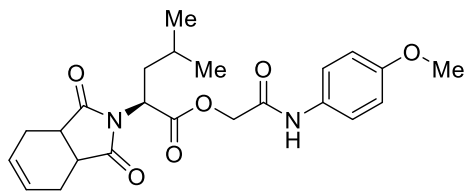


Figure S7 ^{13}C NMR spectrum of compound **3a** (125 MHz, CDCl_3).



Acquisition Time (sec)	3.1654	Comment	Thiago TSS-027 DMSO-d6 250 MHz set20tssH4	Date	20 Sep 2012 19:53:52
Date Stamp	20 Sep 2012 19:53:52	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS\250 - 2012\SET20TSSH4(1\PDAT)\111R	Origin	spect
Frequency (MHz)	250.13	Nucleus	1H	Number of Transients	16
Original Points Count	16384	Owner	root	Points Count	32768
Receiver Gain	456.10	SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	5175.83	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	1755.9128

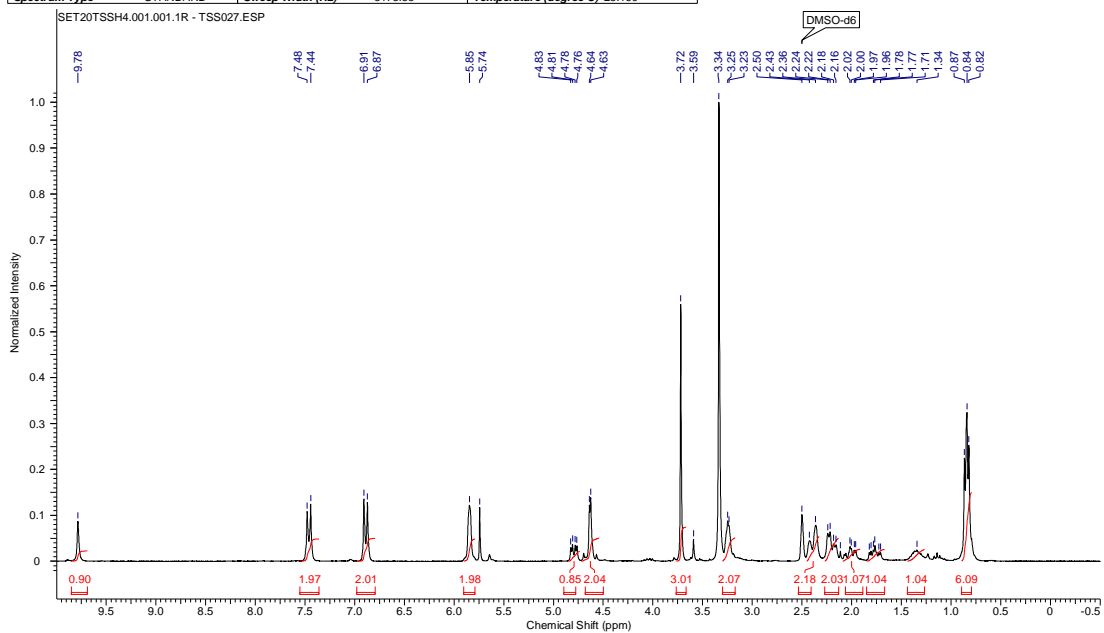
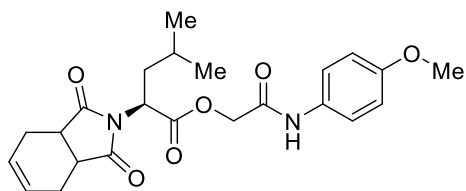


Figure S8 ¹H NMR spectrum of compound **3b** (250 MHz, DMSO).



Acquisition Time (sec)	0.5439	Comment	Thiago TSS-027 DMSO-d6 250 MHz set20tssC4 13C	Date	20 Sep 2012 20:17:20
Date Stamp	20 Sep 2012 20:17:20	Nucleus	13C	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS\250 - 2012\SET20TSSC4\2\PDATA\111R
Frequency (MHz)	62.90	Number of Transients	1024	Origin	spect
Original Points Count	8192	Owner	root	Points Count	32768
Receiver Gain	724.10	SW(cyclical) (Hz)	15060.24	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	15059.78	Temperature (degree C)	25.160
				Pulse Sequence	zgpg30
				Spectrum Offset (Hz)	6261.3115

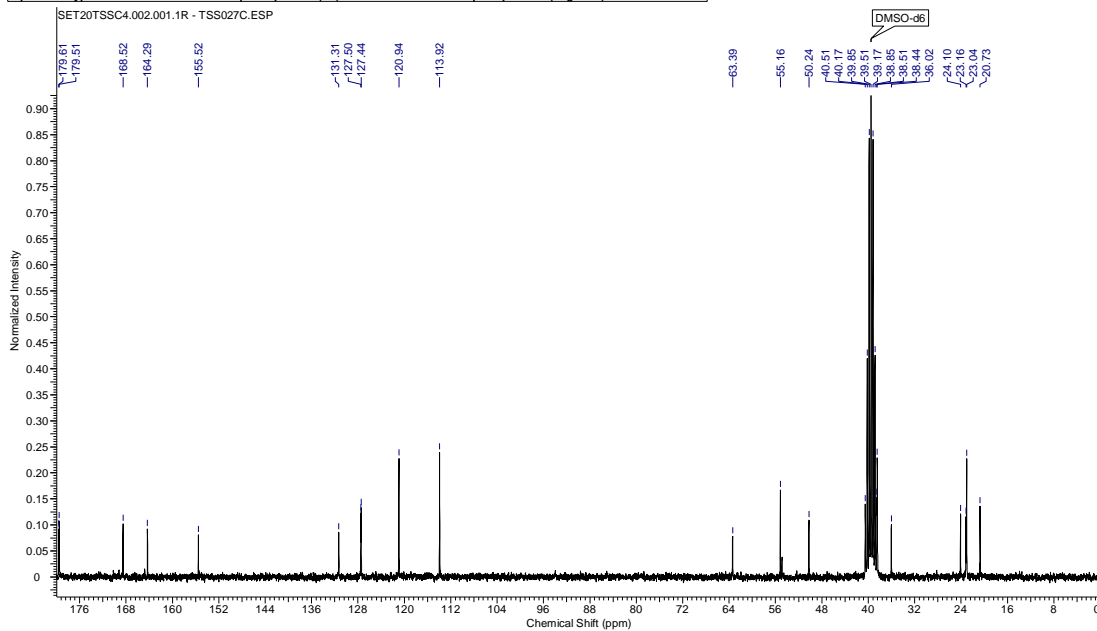
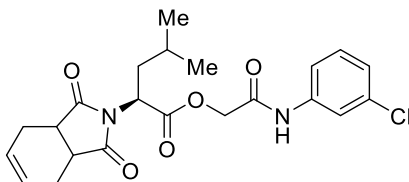


Figure S9 ^{13}C NMR spectrum of compound **3b** (62.5 MHz, DMSO).



Acquisition Time (sec)	3.1654	Comment	Thiago DMSO 250mHz TSS-028 set25tssH1	Date	25 Sep 2012 11:13:20
Date Stamp	25 Sep 2012 11:13:20	File Name	C:\USERS\IRAFEL\DESKTOP\SPECTROS TSS\250 - 2012\SET25TSSH1\1\PDAT\111R	Origin	spect
Frequency (MHz)	250.13	Nucleus	1H	Number of Transients	16
Original Points Count	16384	Owner	root	Points Count	32768
Receiver Gain	114.00	SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	5175.83	Temperature (degree C)	25.160
				Pulse Sequence	zg30
				Spectrum Offset (Hz)	1756.0708

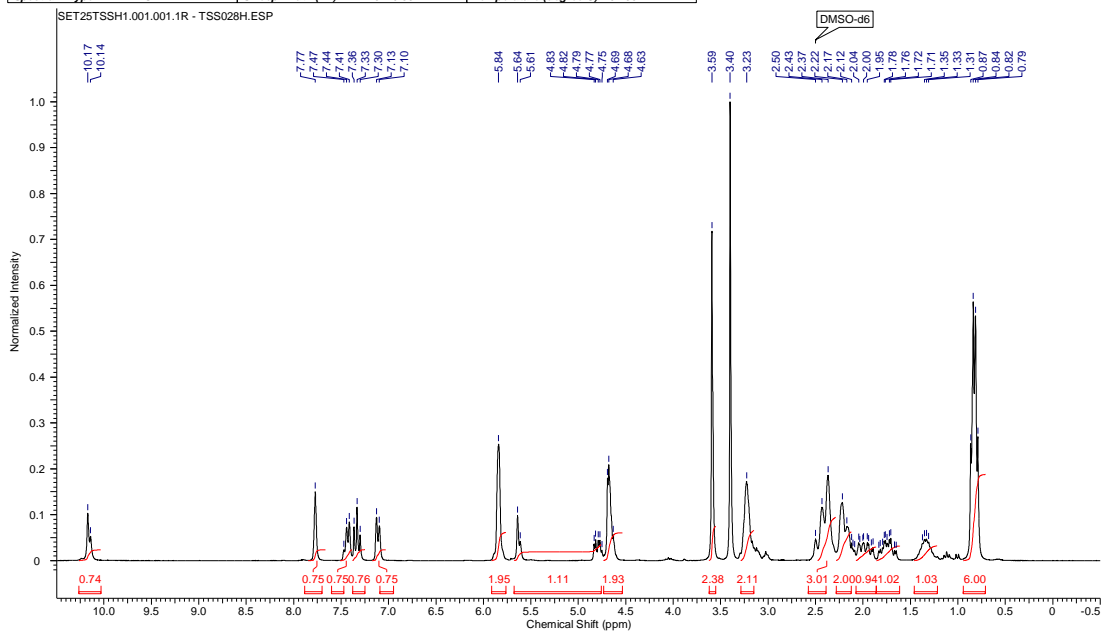
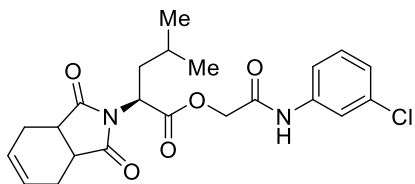


Figure S10 ^1H NMR spectrum of compound **3c** (250 MHz, DMSO).



Acquisition Time (sec)	0.5439	Comment	Thiago, DMSO, 250mHZ, TSS-028, set25tssC113C	Date	25 Sep 2012 12:00:16
Date Stamp	25 Sep 2012 12:00:16	File Name	C:\USERS\IRAFEL\DESKTOP\ESPECTROS TSS\250 - 2012\SET25TSSC1\2\PDATA\111R		
Frequency (MHz)	62.90	Nucleus	13C	Number of Transients	1024
Original Points Count	8192	Owner	root	Points Count	32768
Receiver Gain	1448.20	SW(cyclical) (Hz)	15060.24	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	15059.78	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	6264.9883

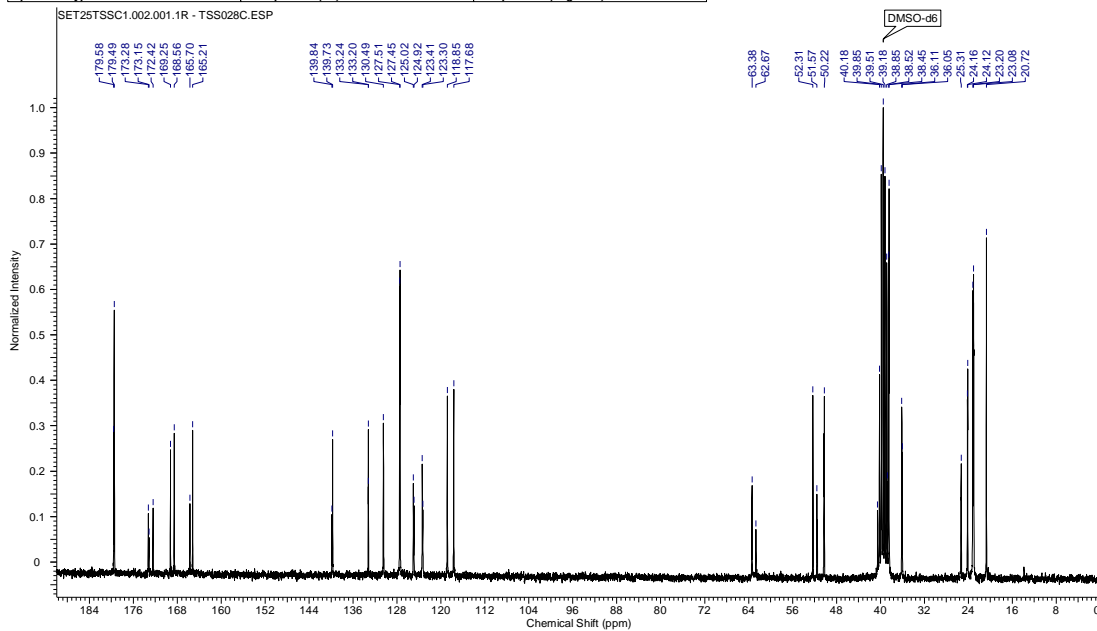
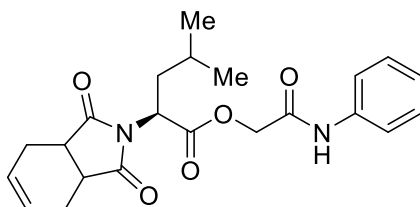


Figure S11 ¹³C NMR spectrum of compound 3c (62.5 MHz, DMSO).



Acquisition Time (sec)	1.9923	Comment	Thiago - TSS-085 - dmsol - Avance 400MHz - fev04tssH1	Date	04 Feb 2013 12:34:40
Date Stamp	04 Feb 2013 12:34:40	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS\400 - 2013\FEV04TSSH1\1\PDATA\111R		
Frequency (MHz)	400.18	Nucleus	1H	Number of Transients	16
Original Points Count	16384	Owner	avance	Points Count	32768
Receiver Gain	64.00	SW(cyclical) (Hz)	8223.68	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	8223.43	Temperature (degree C)	25.160
				Pulse Sequence	zg30
				Spectrum Offset (Hz)	2463.7126

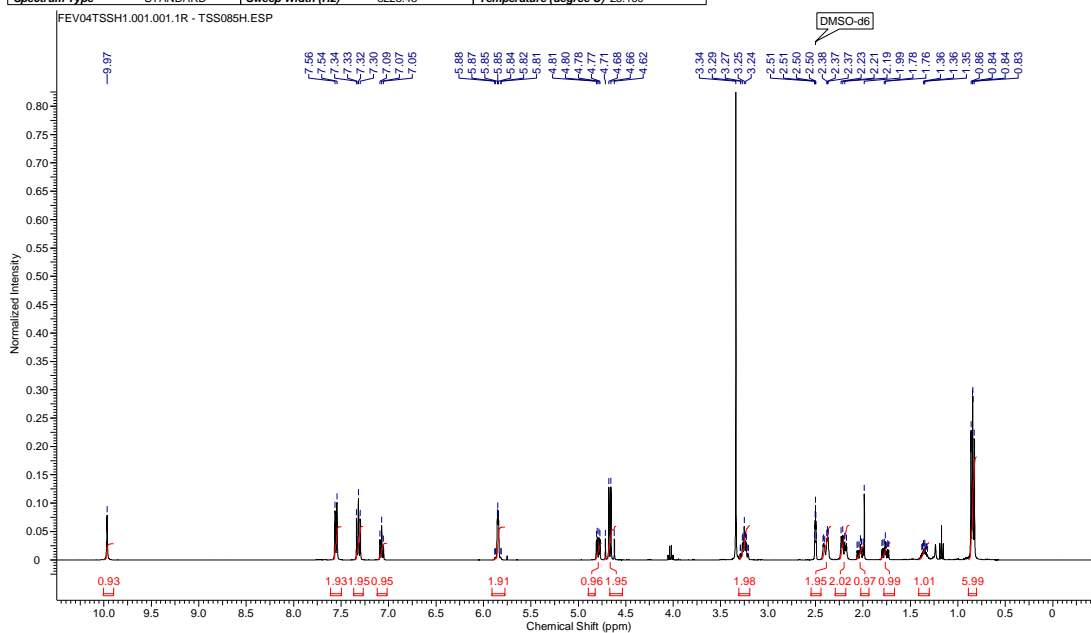
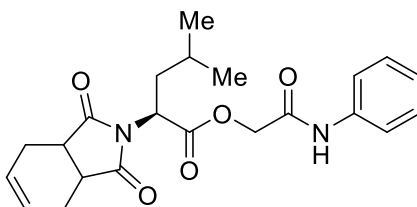


Figure S12 ^1H NMR spectrum of compound 3d (400 MHz, DMSO).



Acquisition Time (sec)	0.6816	Comment	Thiago - TSS-085 - dmsc - Avance 400MHz - fev04tssH1 - 13C	Date	04 Feb 2013 12:58:08
Date Stamp	04 Feb 2013 12:58:08	File Name	C:\USERS\IRFAEL\DESKTOP\ESPECTROS TSS400 - 2013\FEV04TSSH1\2\PDATA\111R		
Frequency (MHz)	100.63	Nucleus	13C	Number of Transients	5120
Original Points Count	16384	Owner	avance	Points Count	131072
Receiver Gain	203.00	SW(cyclical) (Hz)	24038.46	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	24038.28	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	10012.3740

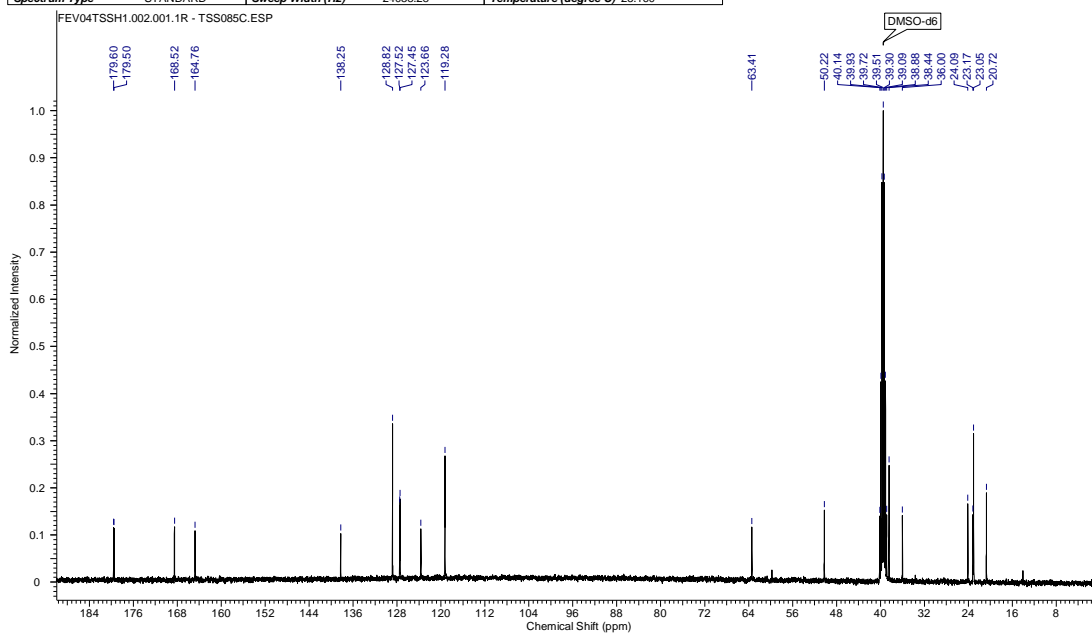
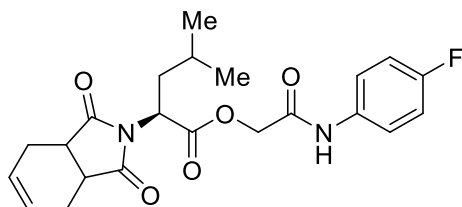


Figure S13 ^{13}C NMR spectrum of compound 3d (100 MHz, DMSO).



Acquisition Time (sec)	3.1654	Comment	Thiago TSS-053 DMSO-d6 250 MHz set27tssH1	Date	27 Sep 2012 18:17:52
Date Stamp	27 Sep 2012 18:17:52	File Name	C:\USERS\IRAFEL\DESKTOP\SPECTROS TSS\250 - 2012\SET27TSSH1\1\PDATA\111R		
Frequency (MHz)	250.13	Nucleus	1H	Number of Transients	8
Original Points Count	16384	Owner	root	Points Count	32768
Receiver Gain	256.00	SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	5175.83	Temperature (degree C)	25.160
				Pulse Sequence	zg30
				Spectrum Offset (Hz)	1756.2288

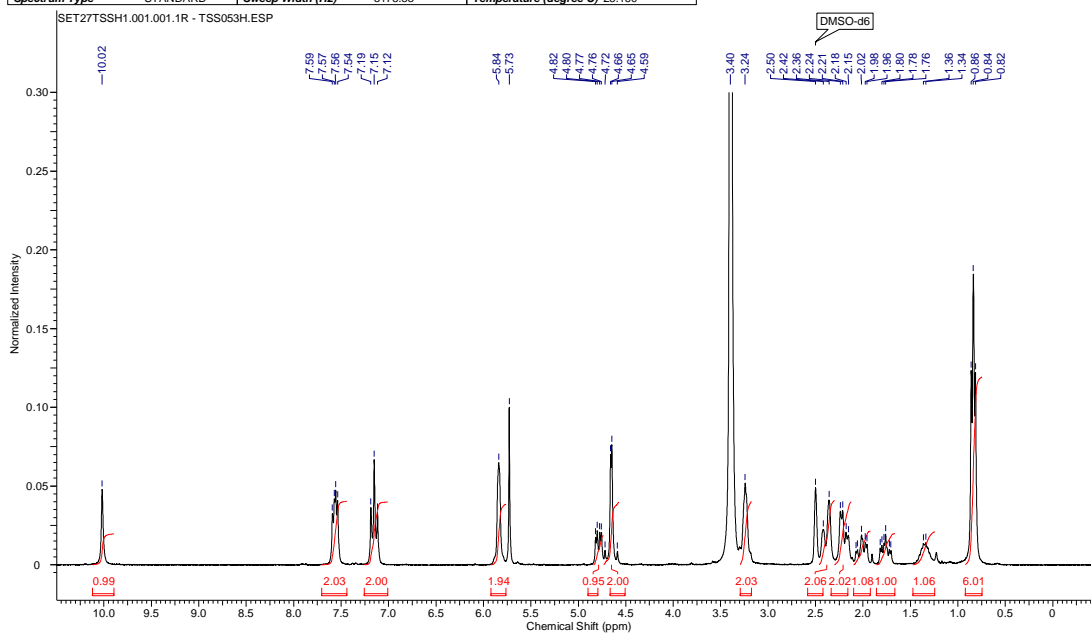
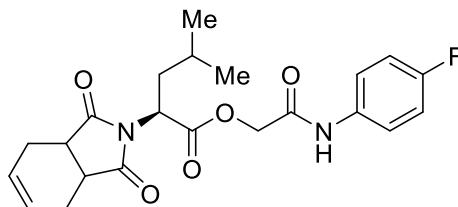


Figure S14 ¹H NMR spectrum of compound 3e (250 MHz, DMSO).



Acquisition Time (sec)	0.5439	Comment	Thiago 250Mhz, DMSO, TSS-053, oct02tssC3	Date	02 Oct 2012 12:06:40
Date Stamp	02 Oct 2012 12:06:40	File Name	C:\USERS\RAFAEL\DESKTOP\SPECTROS TSS\250 - 2012.OCT02TSSC3\1\FID		
Frequency (MHz)	62.90	Nucleus	13C	Number of Transients	2191
Original Points Count	8192	Owner	root	Points Count	8192
Receiver Gain	256.00	SW(cyclical) (Hz)	15060.24	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	15058.40	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	6264.0869

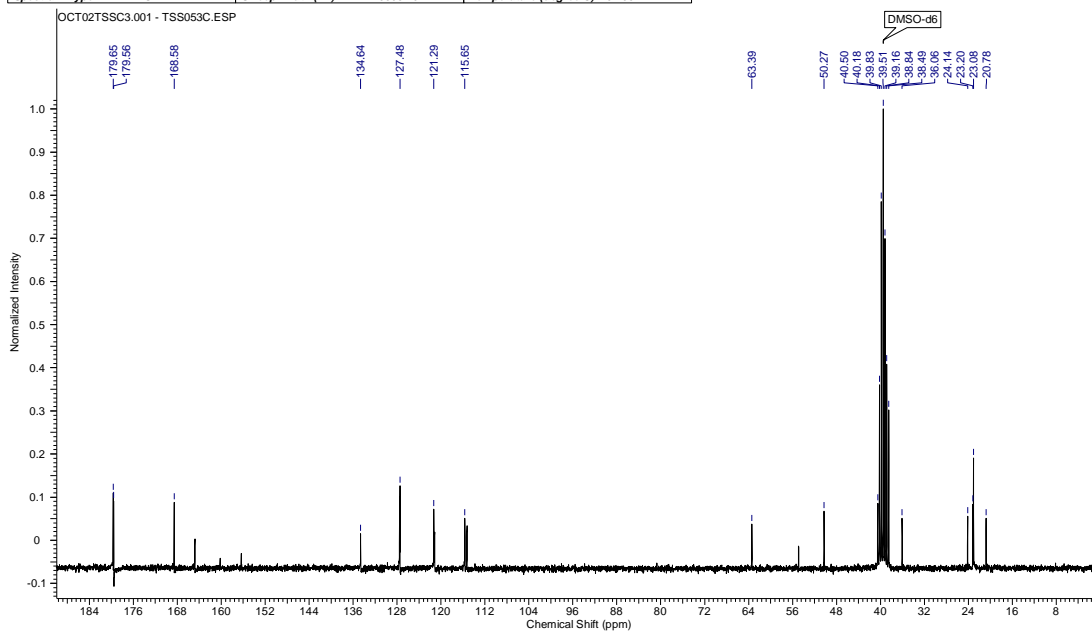
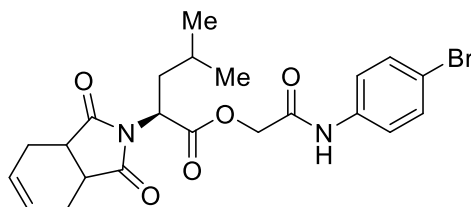


Figure S15 ^{13}C NMR spectrum of compound **3e** (62.5 MHz, DMSO).



Acquisition Time (sec)	3.1654	Comment	Thiago 250MHz DMSO-d6 TSS-055 out04tssH5	Date	04 Oct 2012 20:19:28
Date Stamp	04 Oct 2012 20:19:28	File Name	C:\USERS\IRFAEL\DESKTOP\SPECTROS TSS\250 - 2012\OUT04TSSH5\1\PDATA\111R		
Frequency (MHz)	250.13	Nucleus	1H	Number of Transients	16
Original Points Count	16384	Owner	root	Points Count	32768
Receiver Gain	456.10	SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	5175.83	Temperature (degree C)	25.260
				Pulse Sequence	zq30
				Spectrum Offset (Hz)	1755.7549

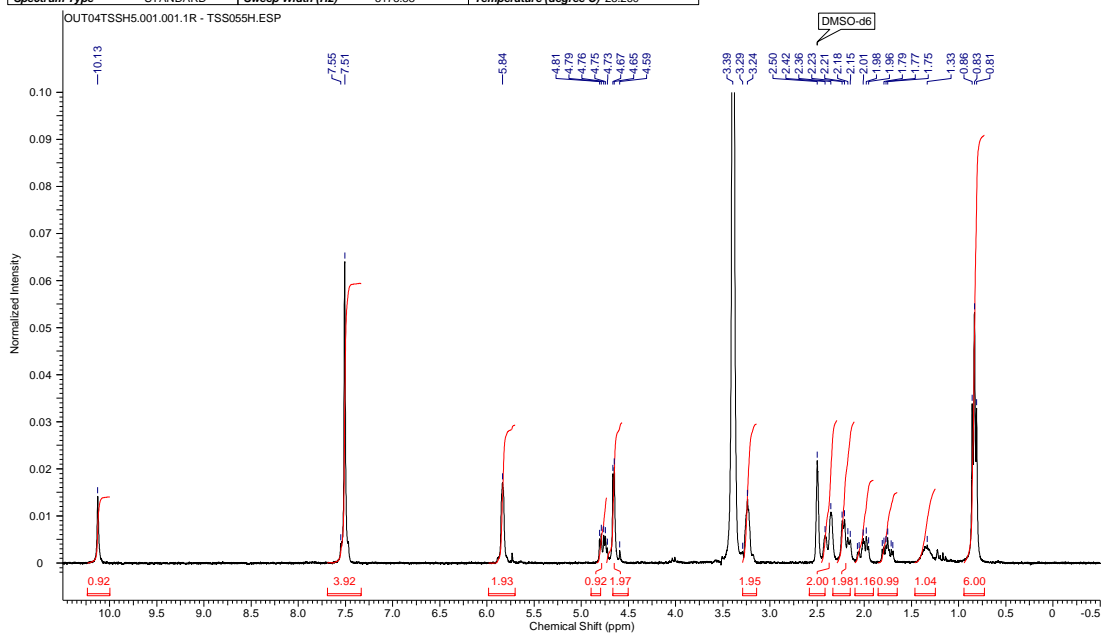
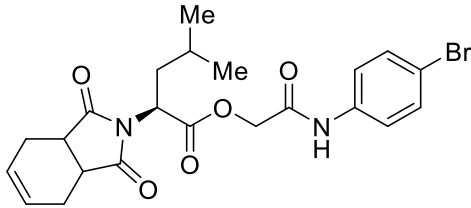


Figure S16 ^1H NMR spectrum of compound **3f** (250 MHz, DMSO).



Acquisition Time (sec)	0.5439	Comment	Thiago_250MHz_DMSO-d6_TSS-055_out04tss13C	Date	05 Oct 2012 07:31:28
Date Stamp	05 Oct 2012 07:31:28	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS\TSS\250 - 2012\OUT04TSSC5\2\PDATA\111R	Origin	spect
Frequency (MHz)	62.90	Nucleus	13C	Number of Transients	10380
Original Points Count	8192	Owner	root	Points Count	32768
Receiver Gain	287.40	SW(cyclical) (Hz)	15060.24	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	15059.78	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	6265.4478

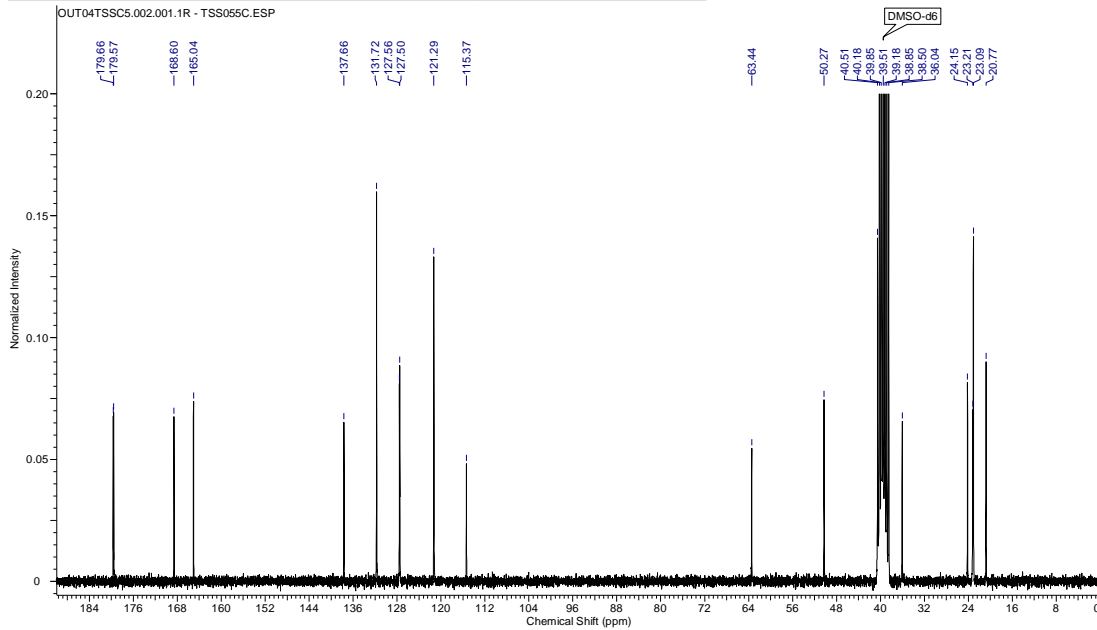
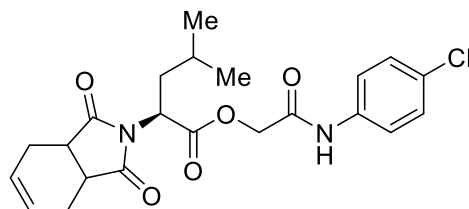


Figure S17 ¹³C NMR spectrum of compound 3f (62.5 MHz, DMSO).



Acquisition Time (sec)	1.5903	Comment	Thiago "tss-056"	dmsd/Av500	out03tssH1	Date	03 Oct 2012 14:23:12
Date Stamp	03 Oct 2012 14:23:12	File Name	C:\USERS\RAFAEL\DESKTOP\SPECTROS TSS500 - 2012\OUT03TSSH1\1\PDATA\111R				
Frequency (MHz)	499.87	Nucleus	1H	Number of Transients	16	Origin	spect
Original Points Count	16384	Owner	nmrsu	Points Count	65536	Pulse Sequence	zg30
Receiver Gain	40.30	SW(cyclical) (Hz)	10302.20	Solvent	DMSO-d6	Spectrum Offset (Hz)	3077.8215
Spectrum Type	STANDARD	Sweep Width (Hz)	10302.04	Temperature (degree C)	25.160		

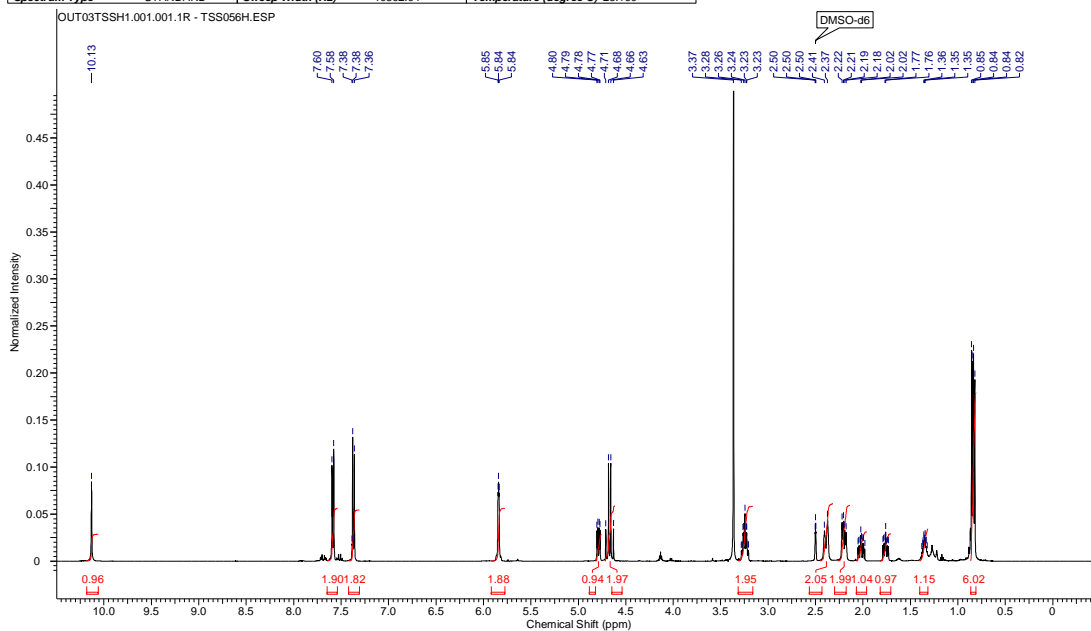
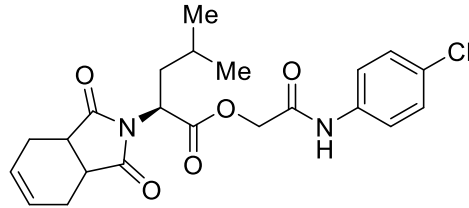


Figure S18 ^1H NMR spectrum of compound **3g** (500 MHz, DMSO).



Acquisition Time (sec)	0.4981	Comment	Thiago "tss-056" dmsq/Av500 out03tssC1	Date	03 Oct 2012 14:31:44
Date Stamp	03 Oct 2012 14:31:44	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS500 - 2012\OUT03TSSH1\2\PDATA\1\1R		
Frequency (MHz)	125.69	Nucleus	¹³ C	Number of Transients	512
Original Points Count	16384	Owner	nrmrsu	Points Count	32768
Receiver Gain	2050.00	SW(cyclical) (Hz)	32894.74	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	32893.73	Temperature (degree C)	25.152
				Spectrum Offset (Hz)	13767.5176

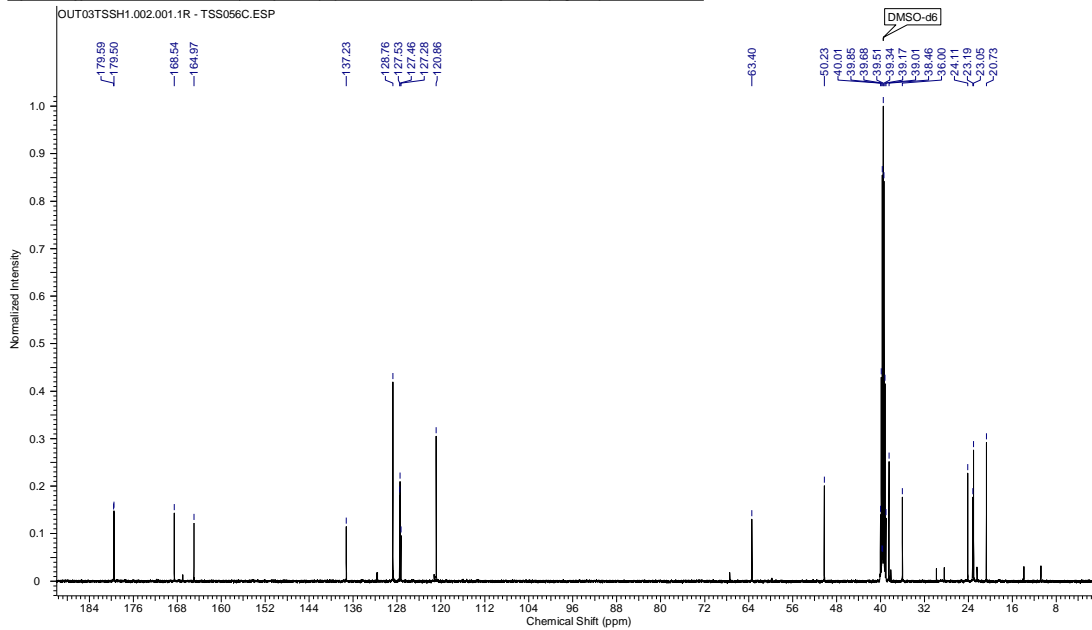
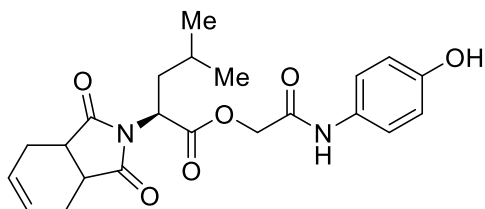


Figure S19 ¹³C NMR spectrum of compound **3g** (125 MHz, DMSO).



Acquisition Time (sec)	3.1654	Comment	Thiago TSS-076 DMSO-d6 250 MHz dez06tssH2	Date	06 Dec 2012 18:16:00		
Date Stamp	06 Dec 2012 18:16:00						
File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS\250 - 2012\DEZ06TSSH2 - TSS076\1\PDATA\1\1R				Frequency (MHz)	250.13	
Nucleus	1H	Number of Transients	32	Origin	spect	Original Points Count	16384
Owner	root	Points Count	32768	Pulse Sequence	zg30	Receiver Gain	645.10
SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6	Spectrum Offset (Hz)	1755.2810	Spectrum Type	STANDARD
Sweep Width (Hz)	5175.83	Temperature (degree C)	25.160				

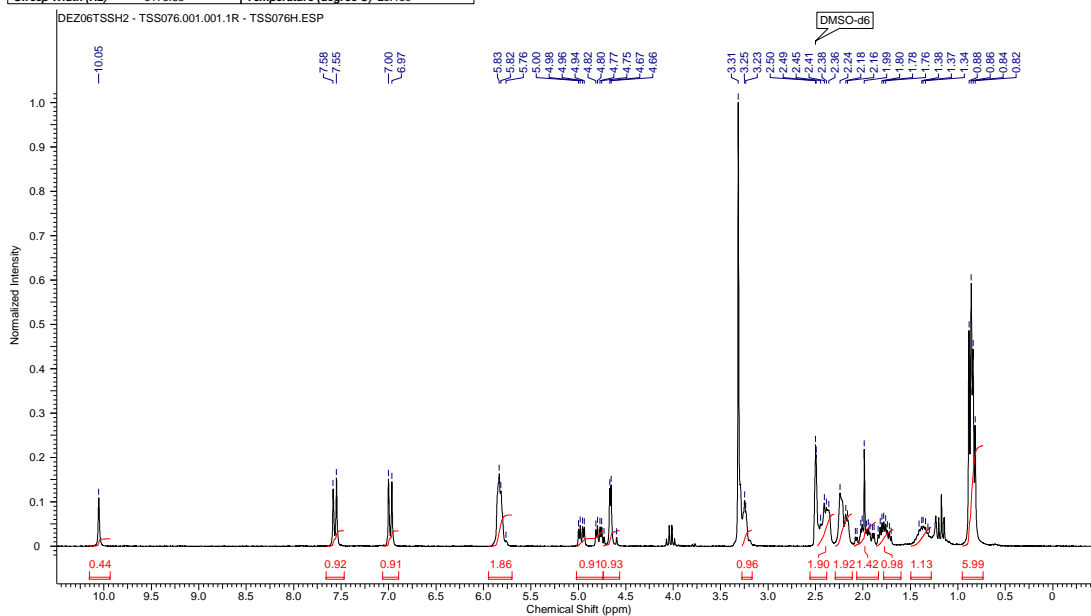
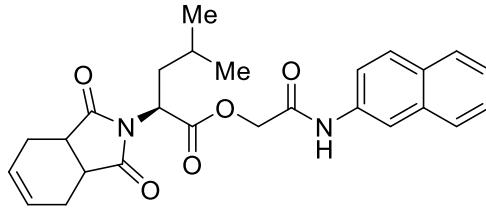


Figure S20 ^1H NMR spectrum of compound **3h** (250 MHz, DMSO).



Acquisition Time (sec)	3.1654	Comment	Thiaqo_TSS-095_CDCI3_250MHz_abr18tssH1	Date	18 Apr 2013 18:02:56
Date Stamp	18 Apr 2013 18:02:56	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS\250 - 2013\ABR18TSSH1\1\PDATA\111R		
Frequency (MHz)	250.13	Nucleus	1H	Number of Transients	16
Original Points Count	16384	Owner	root	Points Count	32768
Receiver Gain	912.30	SW(cyclical) (Hz)	5175.98	Solvent	CHLOROFORM-d
Spectrum Offset (Hz)	1752.9714	Spectrum Type	STANDARD	Sweep Width (Hz)	5175.83
				Temperature (degree C)	25.160

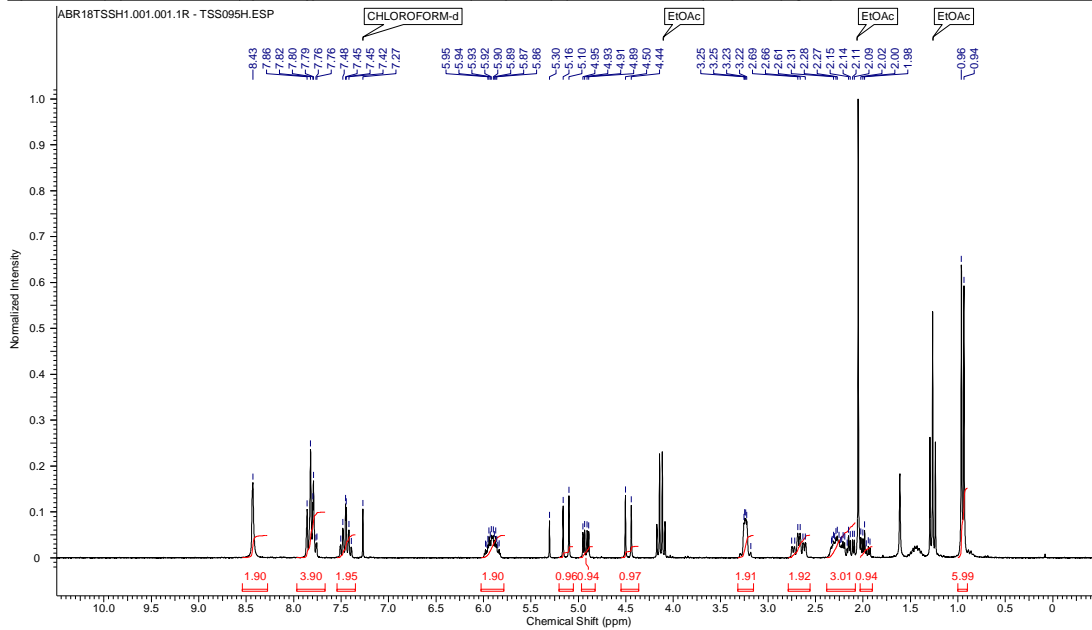
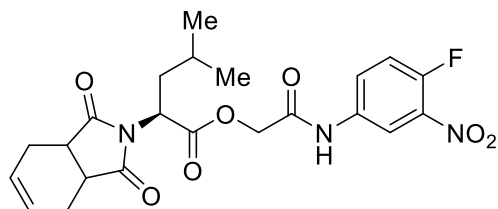


Figure S21 ¹H NMR spectrum of compound **3i** (250 MHz, DMSO).



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Number of Transients	16	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	8012.82	Temperature (degree C)	25.160
				Pulse Sequence	zg30

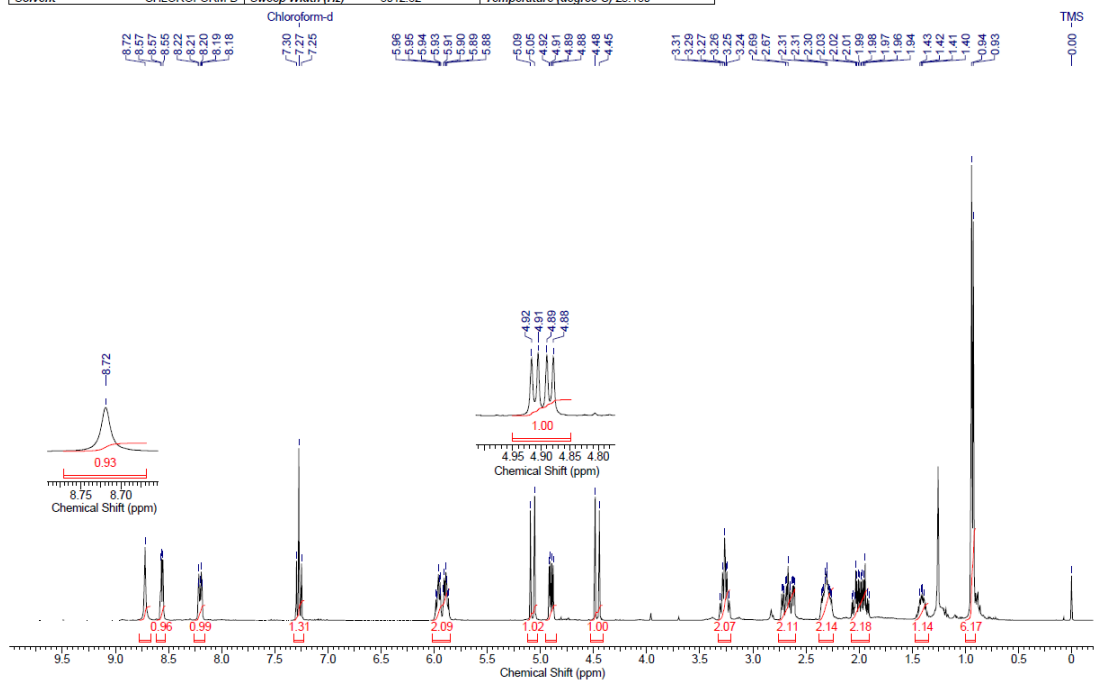
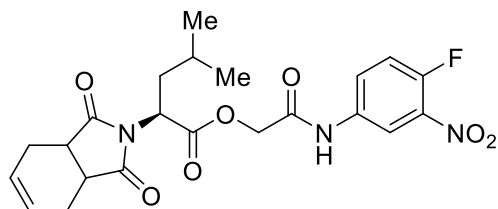


Figure S22 ¹H NMR spectrum of compound **3j** (400 MHz, CDCl₃).



Acquisition Time (sec)	0.6816	Comment	Rafael "RAF-45" cdcl3/ Av400MHz fev03raffH1 - 13C	Date	04 Feb 2015 06:11:48
File Name	C:\UNICAMP\Mestrado\RMN400 MHz\Fev 15\fev03raffH1_002001r	Original Points Count	16384	Frequency (MHz)	100.63
Number of Transients	7168	Points Count	65536	Nucleus	13C
Solvent	CHLOROFORM-D	Sweep Width (Hz)	24038.46	Pulse Sequence	zpgq30
		Temperature (degree C)	25.160		

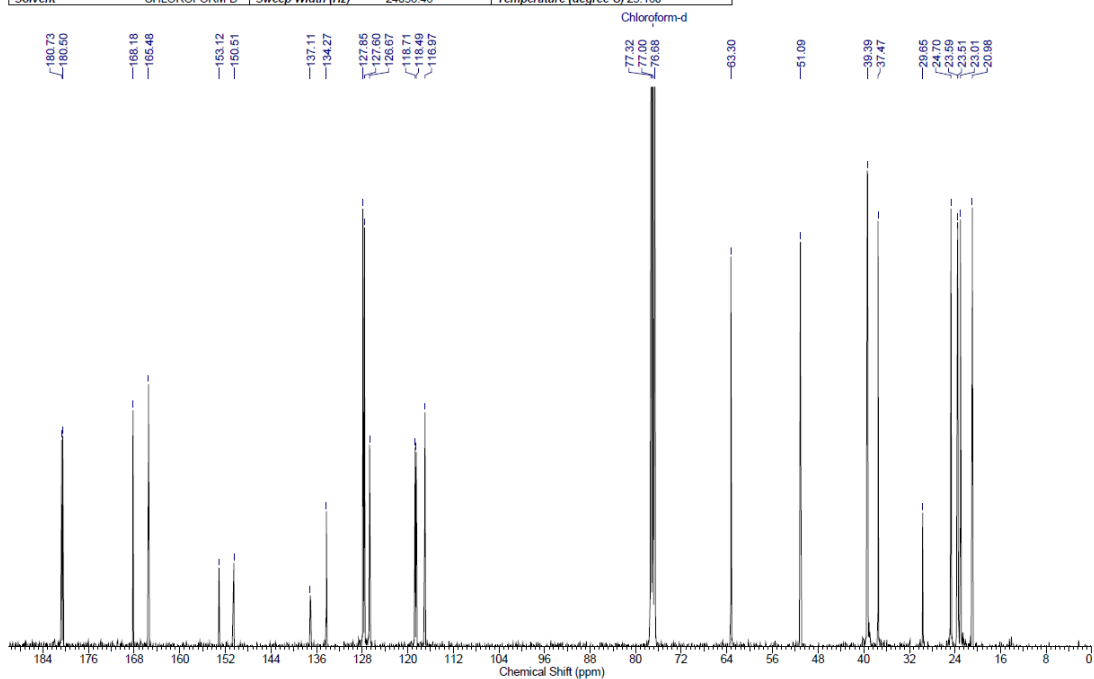
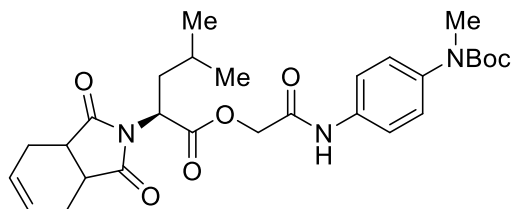


Figure S23 ¹³C NMR spectrum of compound **3j** (100 MHz, CDCl₃).



Acquisition Time (sec)	1.6384	Comment	Rafael - RAF-25 - CDCl3 - Avance 500 MHz - dez12rafH1	Date	12 Dec 2014 14:34:40
File Name	C:\UNICAMP\Mestrado\Rafael Rel 1\RMN500 MHz\2014\Dez\dez12rafH1\001000fid			Frequency (MHz)	499.87
Nucleus	1H	Number of Transients	16	Original Points Count	16384
Pulse Sequence	zg30	Solvent	CHLOROFORM-D	Sweep Width (Hz)	10000.00
				Points Count	16384
				Temperature (degree C)	25.147

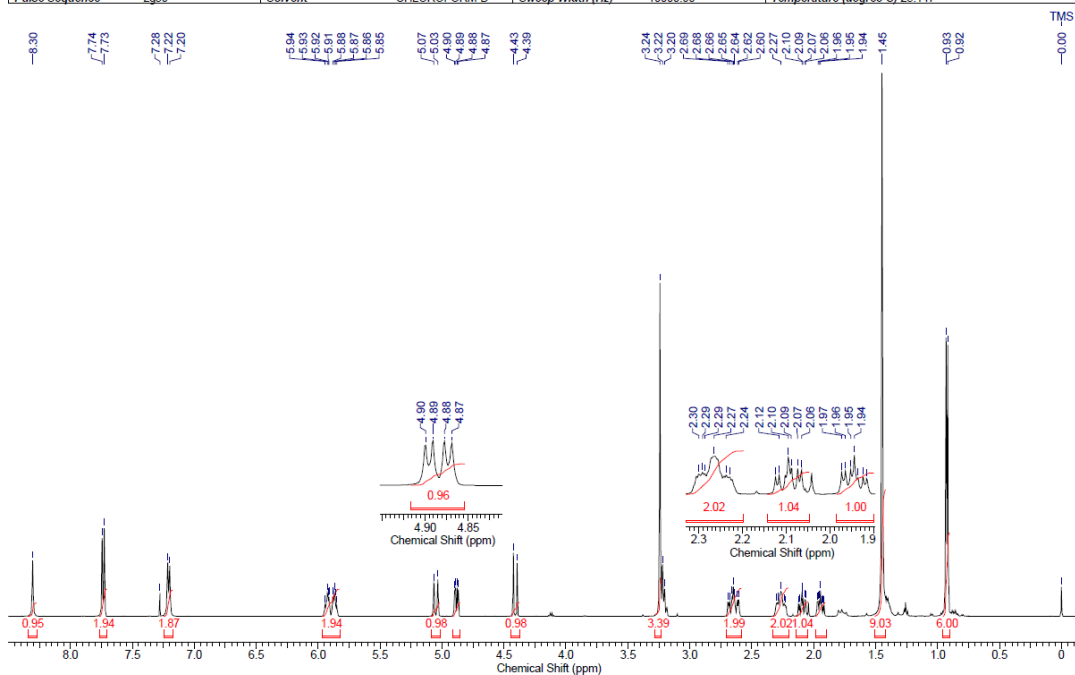
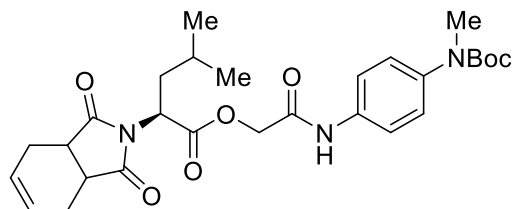


Figure S24 ¹H NMR spectrum of compound **3k** (500 MHz, CDCl₃).



Acquisition Time (sec)	0.5505	Comment	Rafael - RAF-25 - CDCl3 - Avance 500 MHz - dez12rafH1	Date	12 Dec 2014 14:58:08
File Name	C:\UNICAMP\Mestrado\Rafael Rel 1\RMN500 MHz\2014\Dez\dez12rafH1\dez12rafH1_002000fid			Frequency (MHz)	125.70
Nucleus	13C	Number of Transients	512	Original Points Count	16384
Pulse Sequence	zgpg30	Solvent	CHLOROFORM-D	Sweep Width (Hz)	29761.90
				Points Count	16384
				Temperature (degree C)	25.150

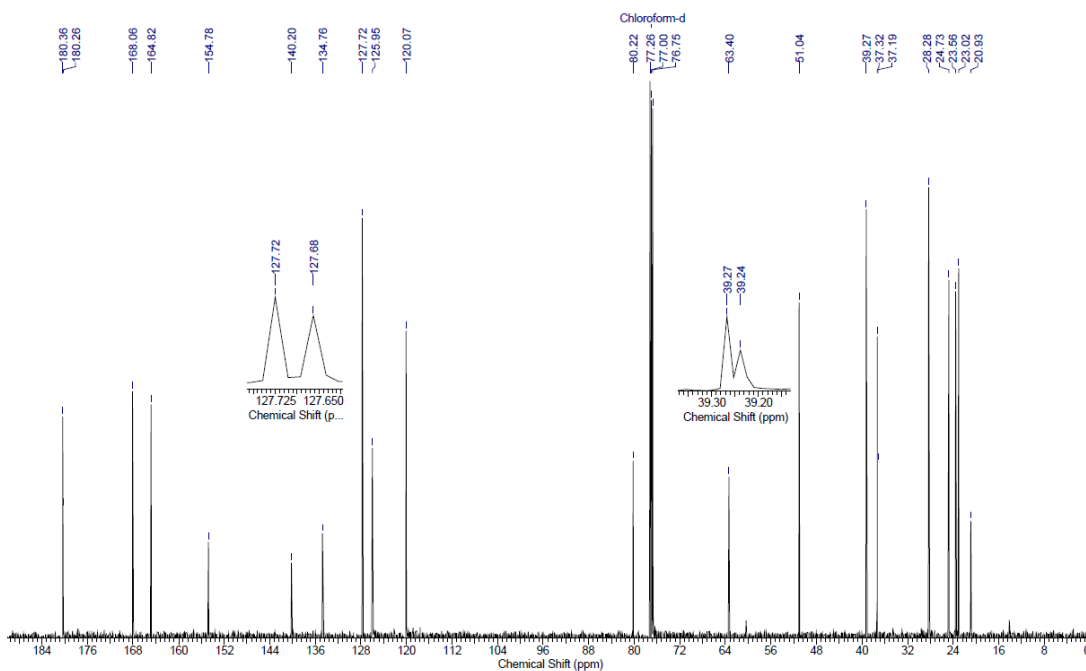
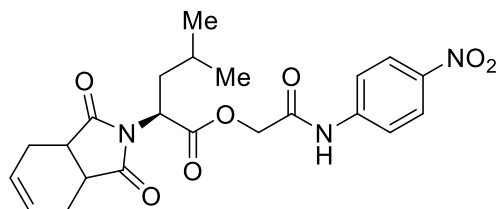


Figure S25 ^{13}C NMR spectrum of compound **3k** (125 MHz, CDCl_3).



Acquisition Time (sec)	2.6564	Date	15 Jan 2015 07:43:40	Frequency (MHz)	600.17
File Name	C:\UNICAMP\Mestrado\RMN600 MHz\Jan 15\jan15rafH2_001001r			Points Count	65536
Nucleus	1H	Number of Transients	16	Original Points Count	32768
Pulse Sequence	zg30	Solvent	CHLOROFORM-D	Sweep Width (Hz)	12335.53
Temperature (degree C)	25.151				

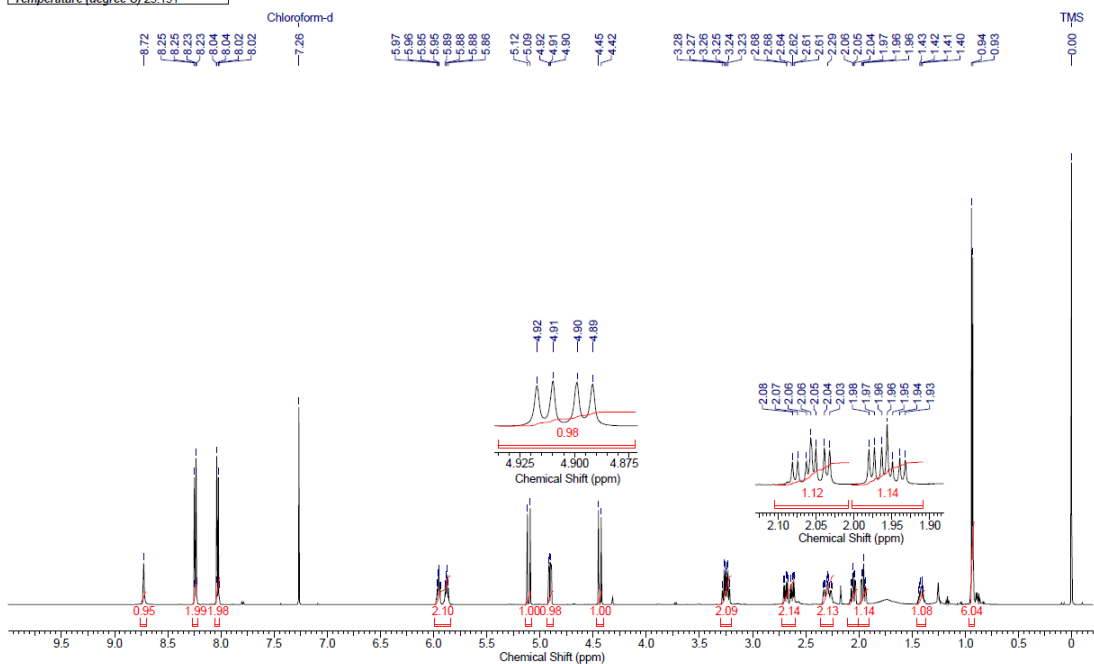
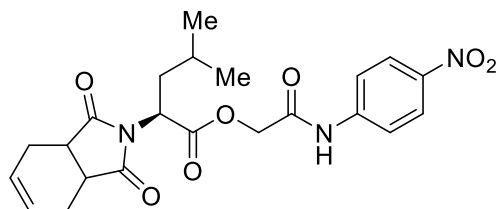


Figure S26 ^1H NMR spectrum of compound 31 (500 MHz, CDCl_3).



Acquisition Time (sec)	0.4544	Date	15 Jan 2015 08:10:50	Frequency (MHz)	150.91
File Name	C:\UNICAMP\Mestrado\RMN600 MHz\Jan 15\jan15rafH2_002001r			Points Count	32768
Nucleus	13C	Number of Transients	620	Original Points Count	16384
Pulse Sequence	zgpg30	Solvent	CHLOROFORM-D	Sweep Width (Hz)	36057.69
Temperature (degree C)	25.147				

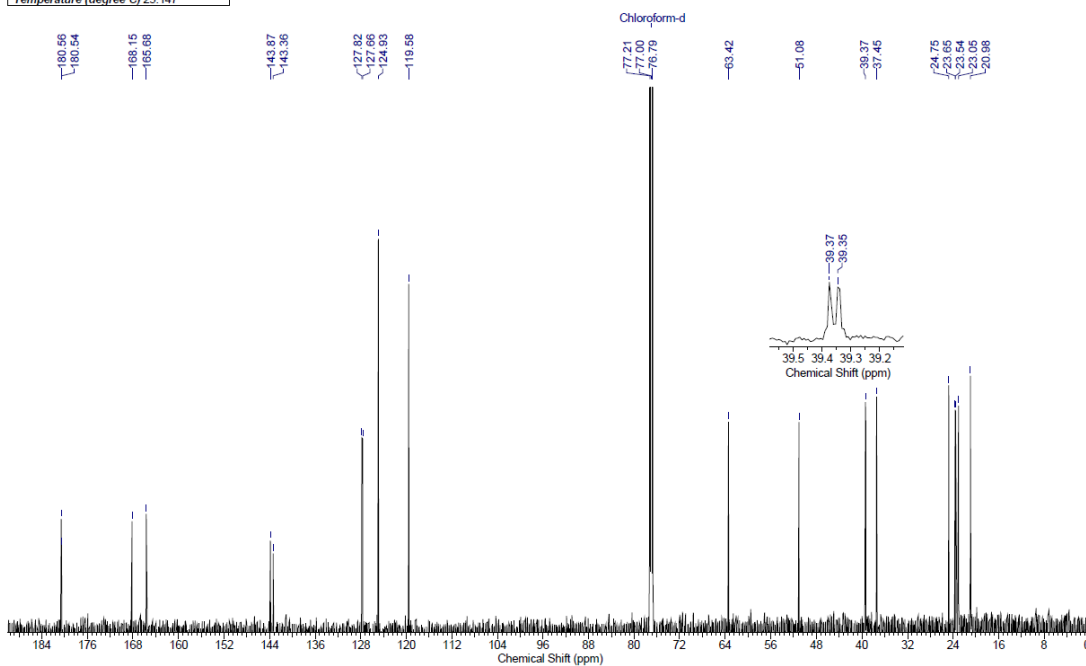
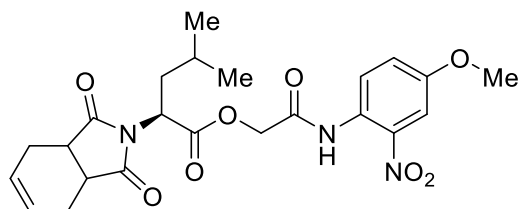


Figure S27 ¹³C NMR spectrum of compound **3I** (125 MHz, CDCl₃).



Acquisition Time (sec)	1.6384	Comment	Rafael - RAF-52 - CDCl3 - Avance 500 MHz - fev20rafH1 - 1H	Date	20 Feb 2015 12:09:14
File Name	C:\UNICAMP\Mestrado\RMN500 MHz\2015\fev20rafH1_001001	Frequency (MHz)	499.87	Nucleus	1H
Number of Transients	1	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	10000.00	Temperature (degree C)	25.133
				Pulse Sequence	zg30

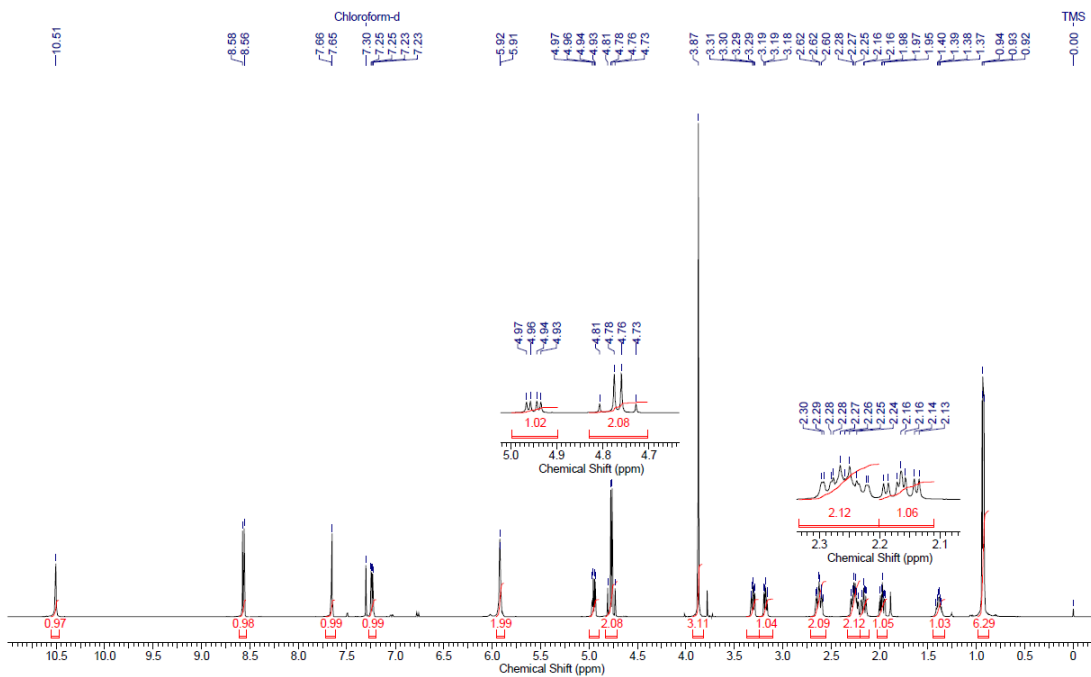
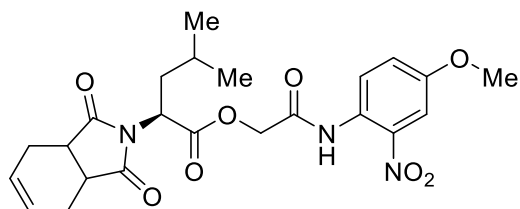


Figure S28 ¹H NMR spectrum of compound 3m (500 MHz, CDCl₃).



Acquisition Time (sec)	0.5505	Comment	Rafael - RAF-52 - CDCl3 - Avance 500 MHz - fev20rafH1 - 13C	Date	20 Feb 2015 12:10:04
File Name	C:\UNICAMP\Mestrado\RMN500 MHz\2015\Fev\fev20rafH1_002001r	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	300	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	29761.90	Temperature (degree C)	25.150
				Pulse Sequence	zpgq30

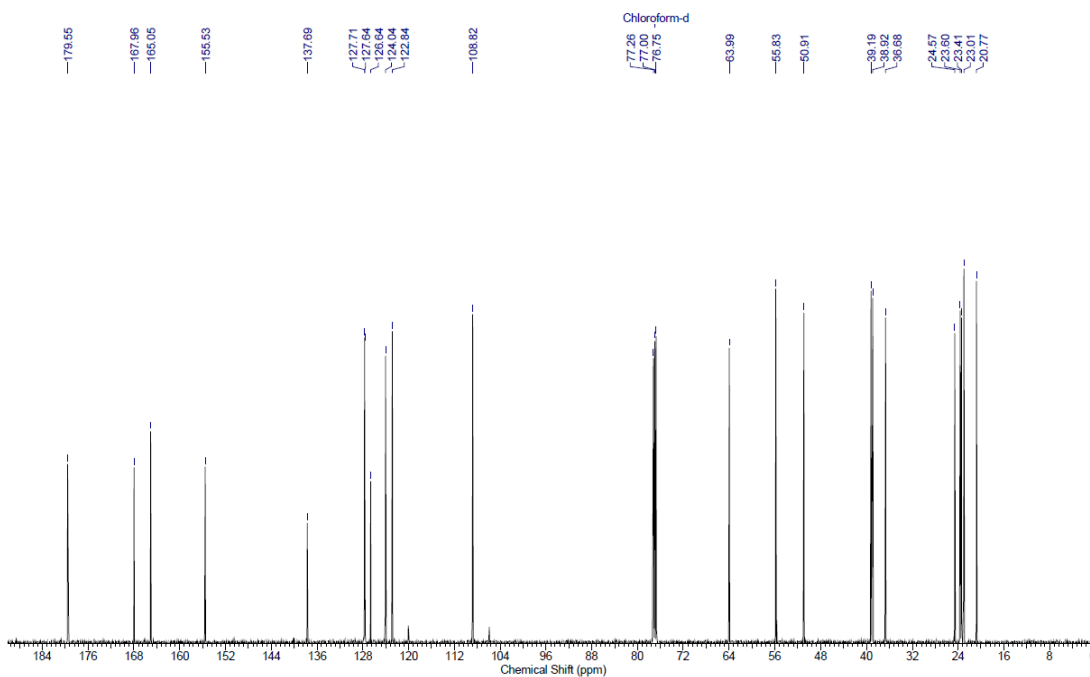
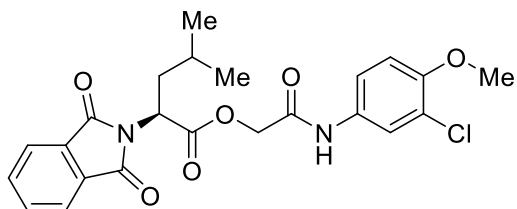


Figure S29 ^{13}C NMR spectrum of compound **3m** (125 MHz, CDCl_3).



Acquisition Time (sec)	3.1654	Comment	Thiago- TSS 023 - DMSO - Bruker 250 MHz - set25tssH2	Date	25 Sep 2012 14:38:08
Date Stamp	25 Sep 2012 14:38:08	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS\250 - 2012\SET25TSSH2\1\PDATA\111R		
Frequency (MHz)	250.13	Nucleus	¹ H	Number of Transients	16
Original Points Count	16384	Owner	root	Points Count	32768
Receiver Gain	456.10	SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	5175.83	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	1756.3867

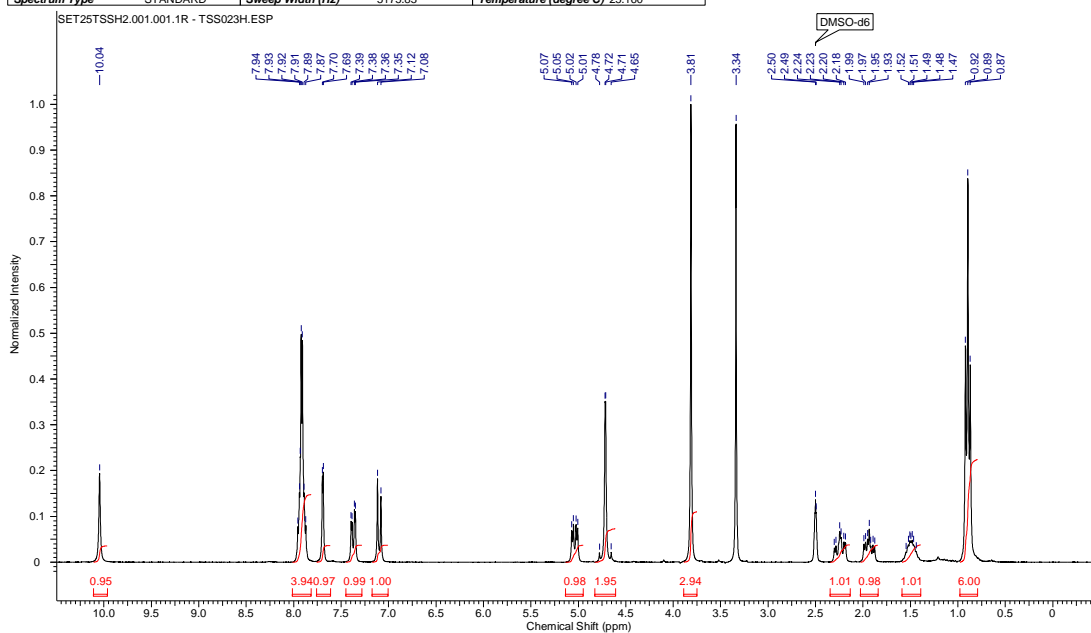
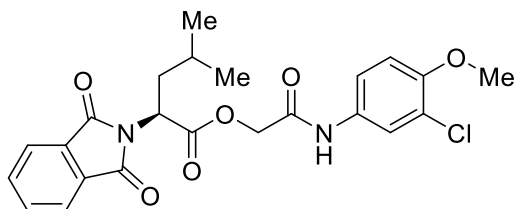


Figure S30 ¹H NMR spectrum of compound 10a (250 MHz, DMSO).



Acquisition Time (sec)	0.5439	Comment	Thiago - TSS 023 - DMSO - Bruker 250 MHz - set25tssC2	Date	25 Sep 2012 15:29:20
Date Stamp	25 Sep 2012 15:29:20	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS\TSS\250 - 2012\SET25TSSC2\1\PDATA\111R		
Frequency (MHz)	62.90	Nucleus	13C	Number of Transients	1126
Original Points Count	8192	Owner	root	Points Count	32768
Receiver Gain	512.00	SW(cyclical) (Hz)	15060.24	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	15059.78	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	6260.8516

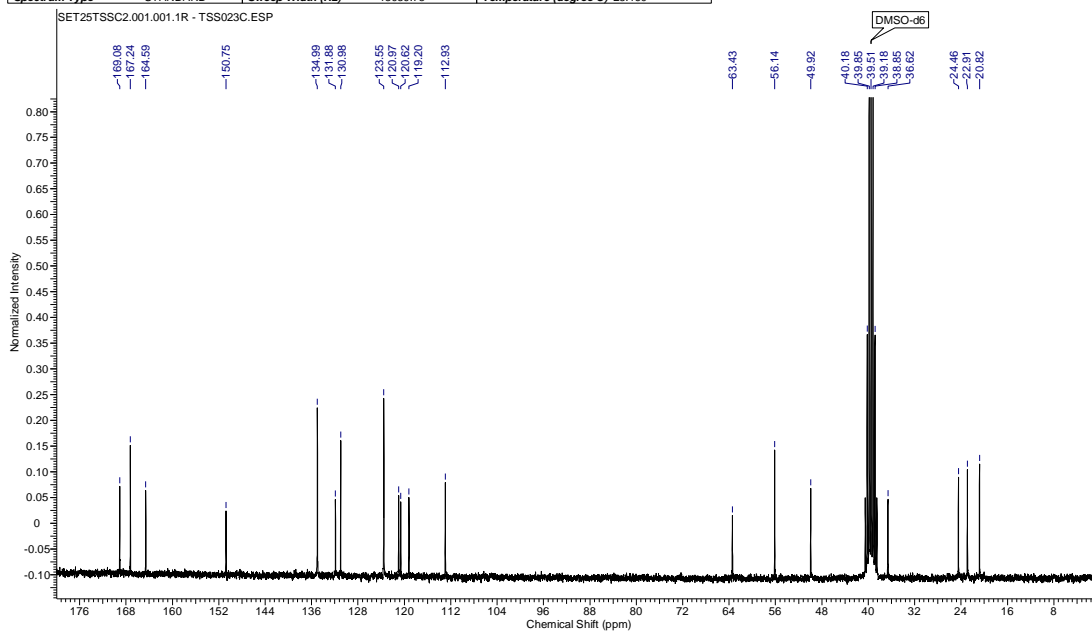


Figure S31 ^{13}C NMR spectrum of compound **10a** (62.5 MHz, DMSO).

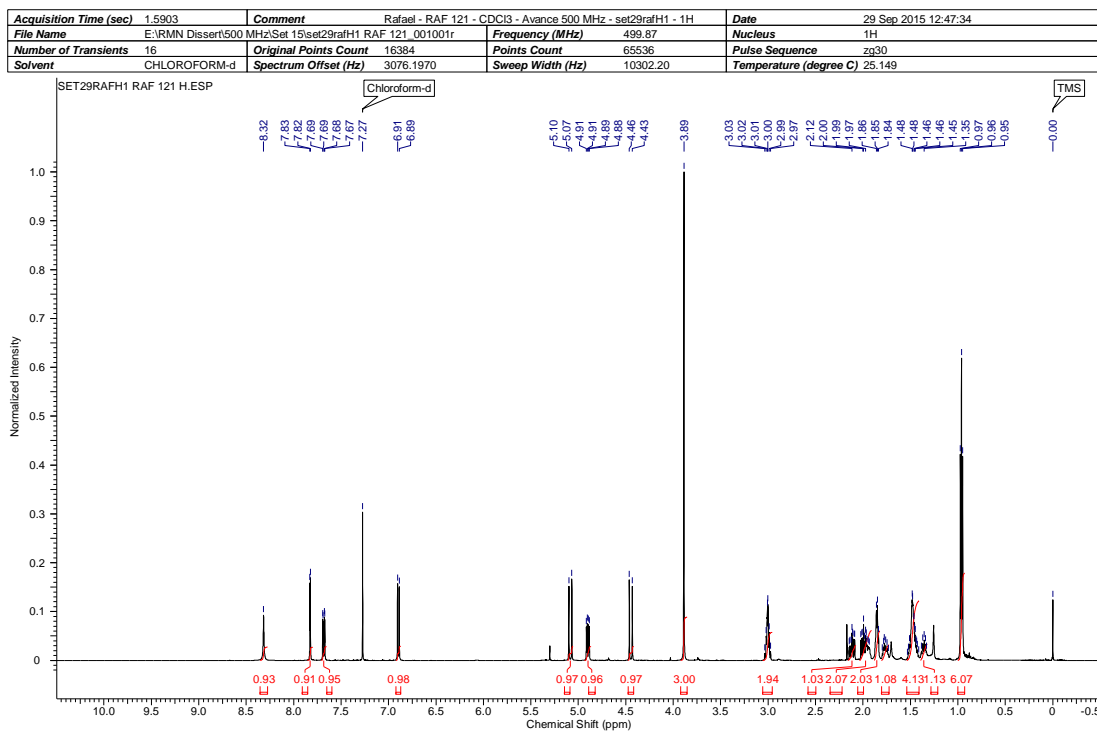
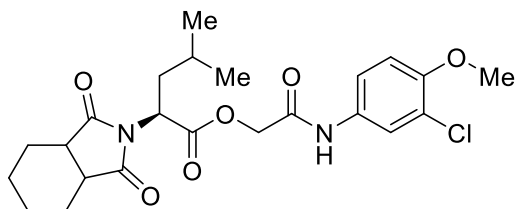
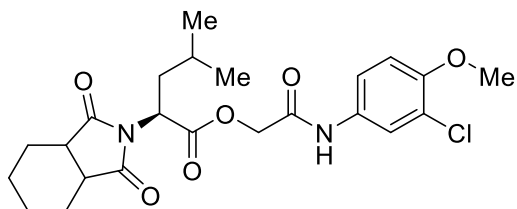


Figure S32 ^1H NMR spectrum of compound **10b** (500 MHz, CDCl_3).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF 121 - CDCl ₃ - Avance 500 MHz - set29rafh1 - 13C	Date	29 Sep 2015 12:49:54
File Name	E:\RMN Dissert\500 MHz\Set 15\set29rafh1 RAF 121_002001r	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	171	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-d	Spectrum Offset (Hz)	13817.8916	Sweep Width (Hz)	32894.74
				Pulse Sequence	zgpg30
				Temperature (degree C)	25.148

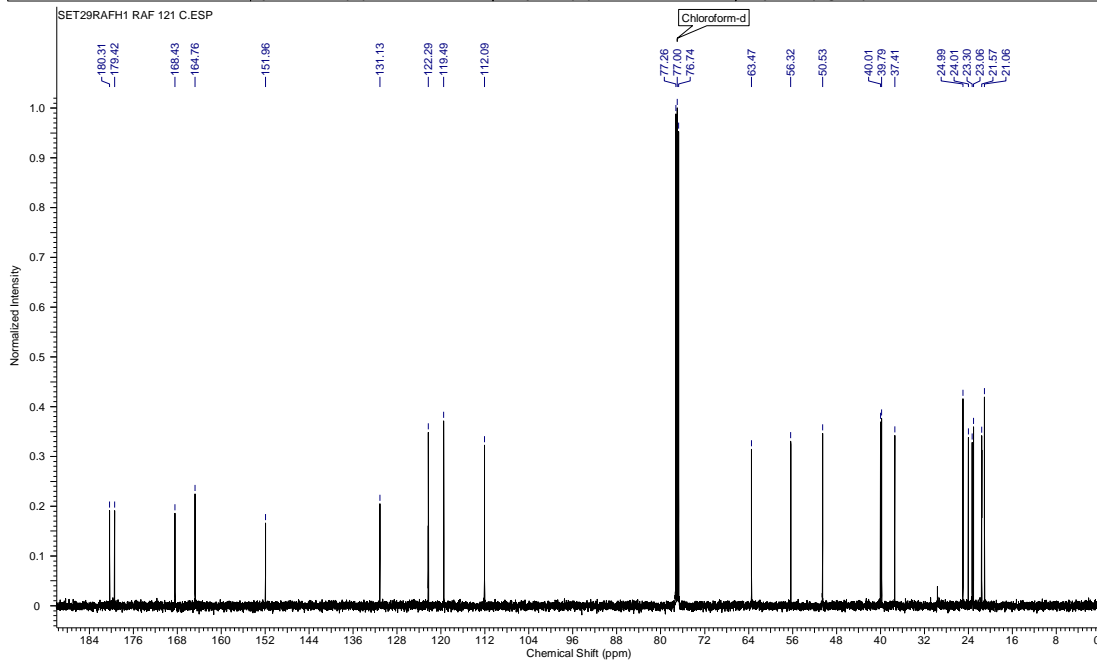
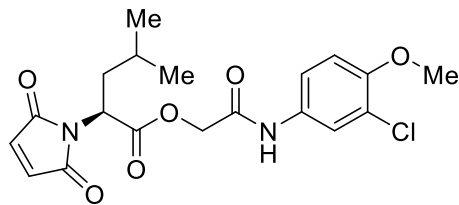


Figure S33 ¹³C NMR spectrum of compound 10b (125 MHz, CDCl₃).



Acquisition Time (sec)	2.0447	Comment	Rafael "RAF-114" cdc131 Av400MHz nov09rafH1	Date	09 Nov 2015 14:09:52
File Name	E:\RMN Dissert\400 MHz\Nov 15\nov09rafH1 RAF 114 RAF 142_0010011			Frequency (MHz)	400.18
Nucleus	¹ H	Number of Transients	16	Original Points Count	16384
Pulse Sequence	zg30	Solvent	CHLOROFORM-d	Spectrum Offset (Hz)	2464.1240
Temperature (degree C)	25.160			Points Count	65536
				Sweep Width (Hz)	8012.82

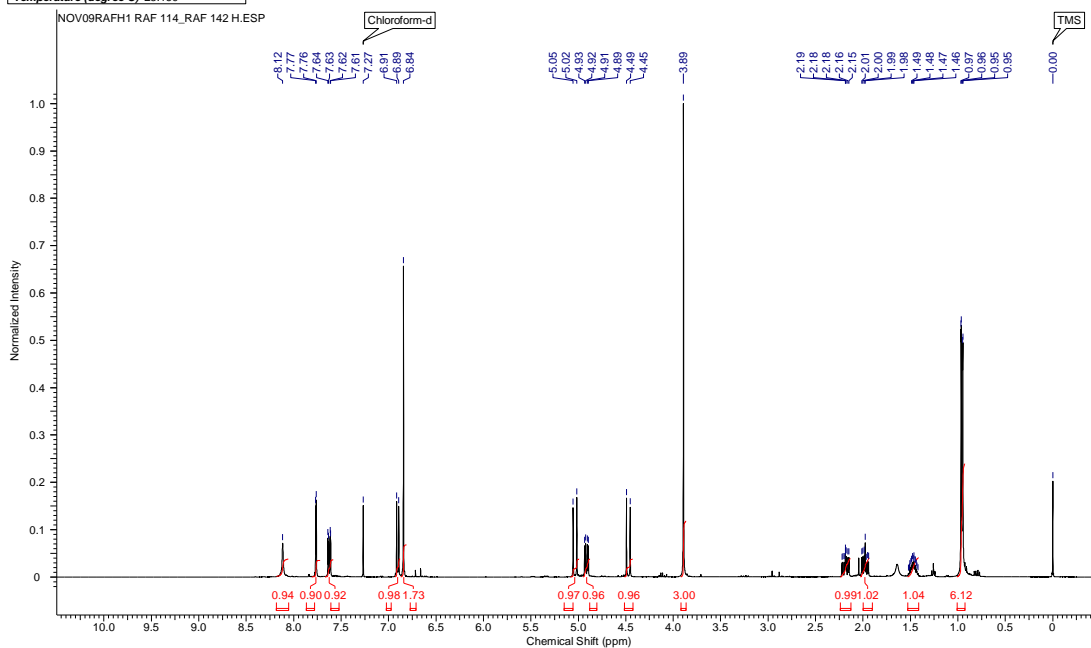
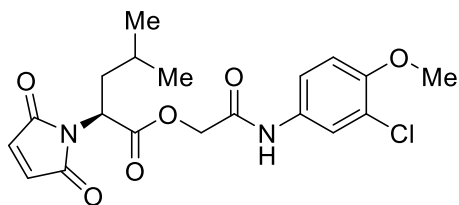


Figure S34 ¹H NMR spectrum of compound 10c (400 MHz, CDCl₃).



Acquisition Time (sec)	0.6816	Comment	Rafael "RAF-114" cdcl3/ Av400MHz nov09rafH1 - 13C	Date	09 Nov 2015 15:14:16
File Name	E:\RMN Dissert\400 MHz\Nov 15\nov09rafH1 RAF 114 RAF 142_002001r			Frequency (MHz)	100.63
Nucleus	13C	Number of Transients	1600	Original Points Count	16384
Pulse Sequence	zgpg30	Solvent	CHLOROFORM-d	Spectrum Offset (Hz)	10058.0957
Temperature (degree C)	25.160			Sweep Width (Hz)	24038.46

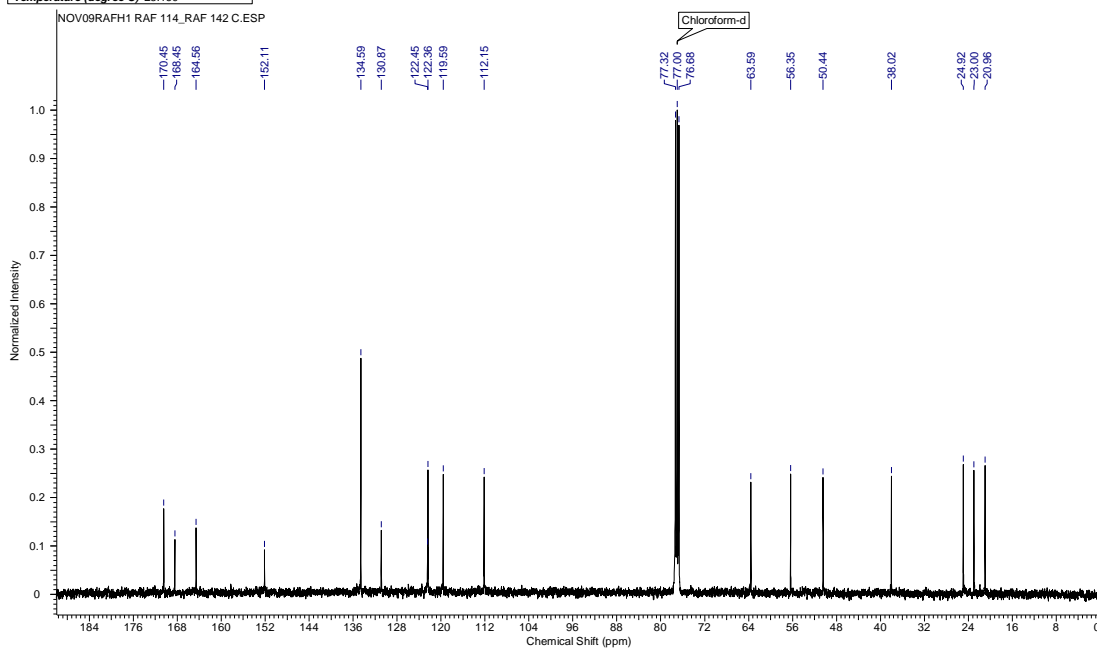
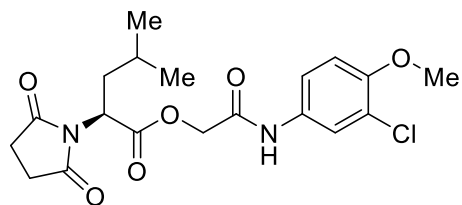


Figure S35 ^{13}C NMR spectrum of compound **10c** (100 MHz, CDCl_3).



Acquisition Time (sec)	2.0447	Comment	Rafael - RAF 125 - CDCl3 - Avance 400 MHz - out08rafH1 - 1H	Date	08 Oct 2015 08:34:20
File Name	E:\RMN Dissert\400 MHz\Out 15\out08rafH1 RAF 125_001001r	Original Points Count	16384	Frequency (MHz)	400.18
Number of Transients	16	Points Count	65536	Pulse Sequence	zg30
Solvent	CHLOROFORM-D	Sweep Width (Hz)	8012.82	Temperature (degree C)	25.260

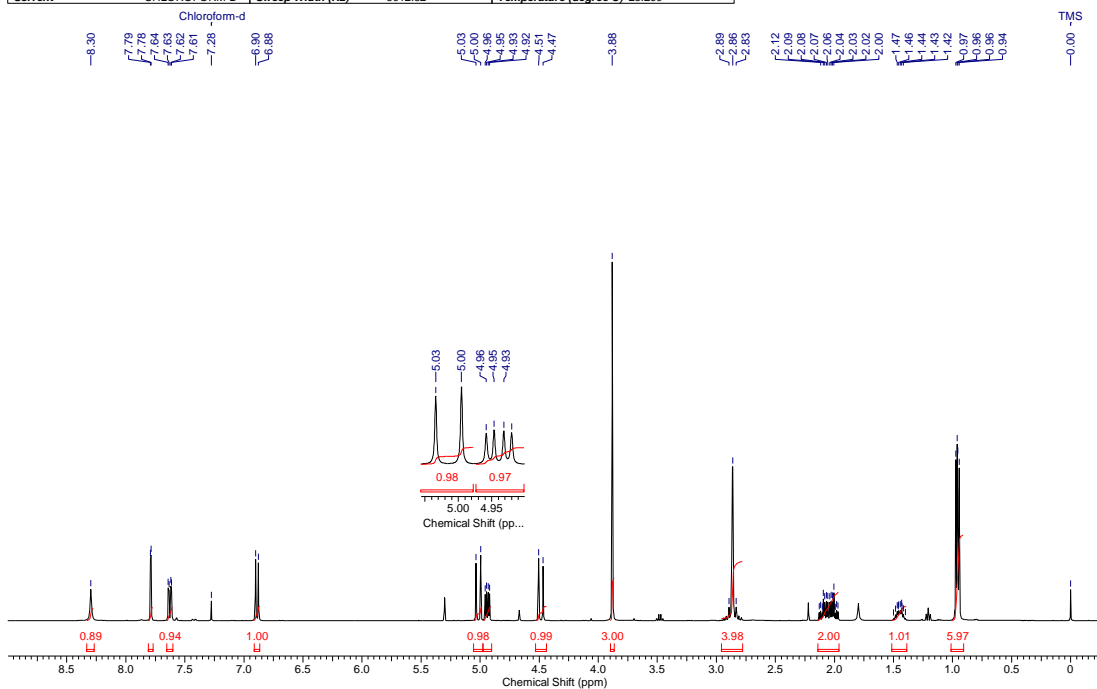
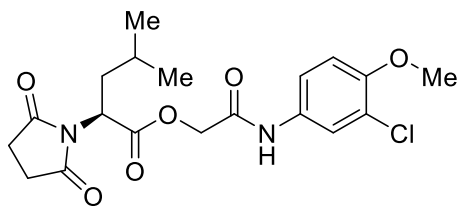


Figure S36 ^1H NMR spectrum of compound 10d (400 MHz, CDCl_3).



Acquisition Time (sec)	0.6816	Comment	Rafael - RAF 125 - CDCl3 - Avance 400 MHz - out08rafH1 - 13C	Date	08 Oct 2015 08:35:16
File Name	E:\RMN Dissert\400 MHz\Out 15\out08rafH1 RAF 125_002001r	Frequency (MHz)	100.63	Nucleus	13C
Number of Transients	647	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	24038.46	Temperature (degree C)	25.160

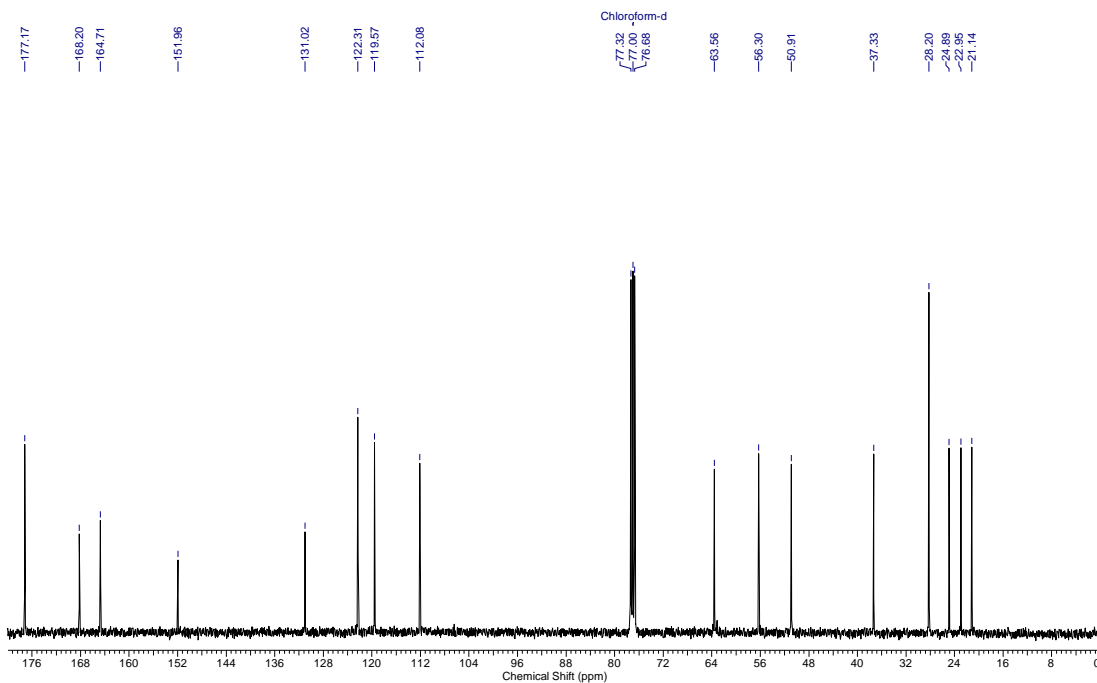
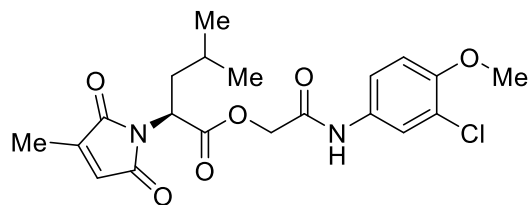


Figure S37 ^{13}C NMR spectrum of compound **10d** (100 MHz, CDCl_3).



Acquisition Time (sec)	1.5903	Comment	Rafael - RAF175 - CDCl3 - Avance 500 MHz - mar24rafH1 - ¹ H	Date	24 Mar 2016 14:31:32
File Name	E:\RMN Dissert\500 MHz\Mar 16\mar24rafH1 RAF 175_001001r	Original Points Count	16384	Frequency (MHz)	499.87
Number of Transients	16	Sweep Width (Hz)	10302.20	Points Count	65536
Solvent	CHLOROFORM-D	Temperature (degree C)	23.263	Pulse Sequence	zg30

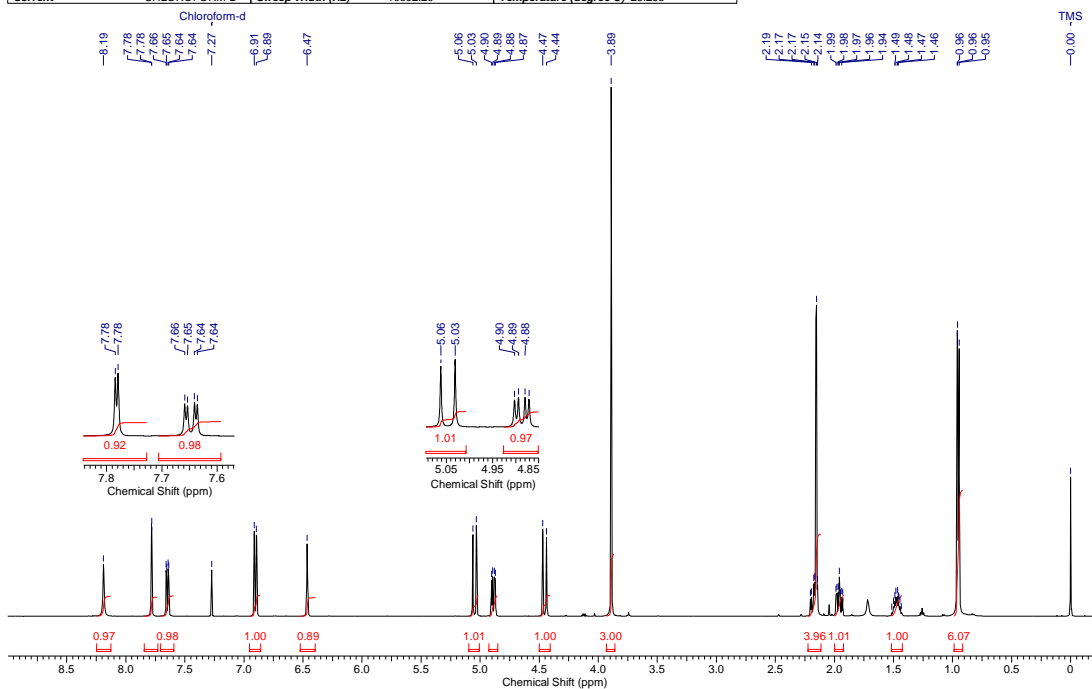
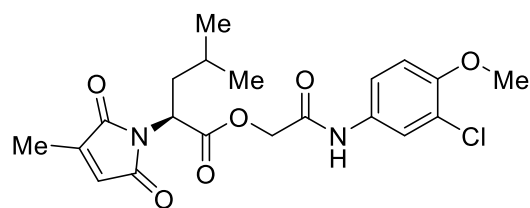


Figure S38 ¹H NMR spectrum of compound 10e (500 MHz, CDCl₃).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF175 - CDCl3 - Avance 500 MHz - mar24rafH1 - ¹³ C	Date	24 Mar 2016 14:43:10
File Name	E:\RMN Dissert\500 MHz\Mar 16\mar24rafH1 RAF 175_002001r	Frequency (MHz)	125.69	Nucleus	¹³ C
Number of Transients	255	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	32894.74	Temperature (degree C)	24.045

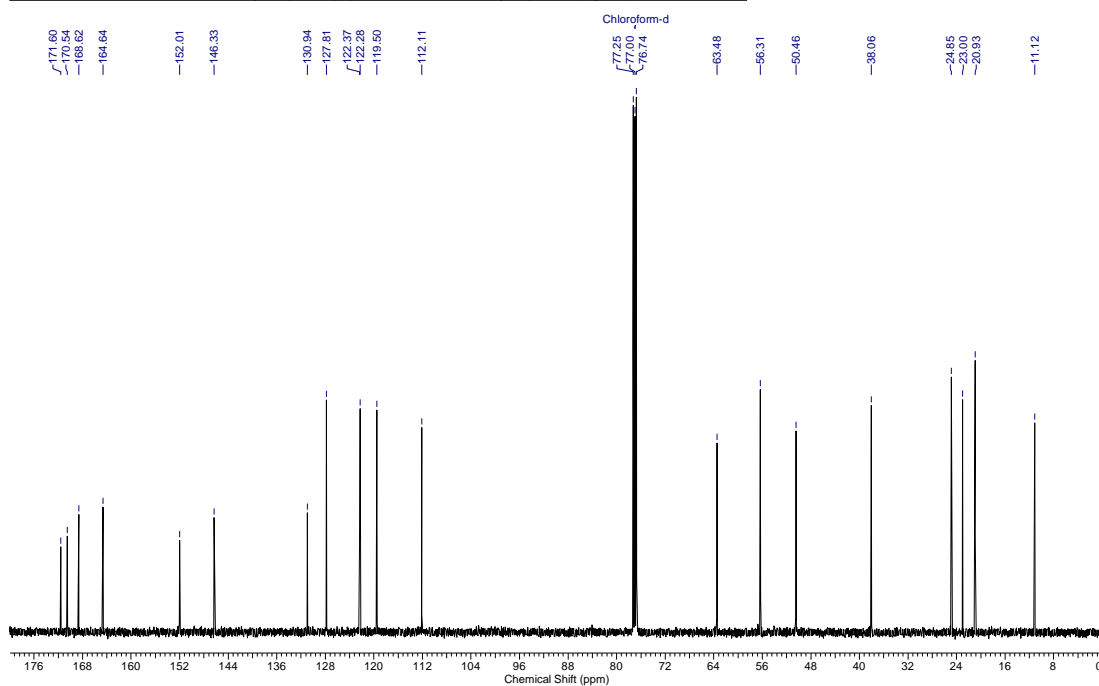
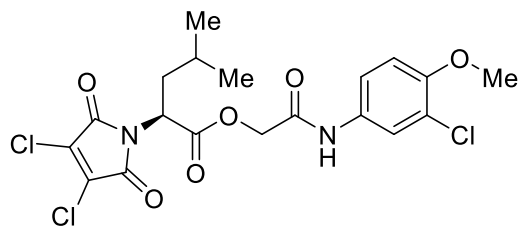


Figure S39 ¹³C NMR spectrum of compound 10e (125 MHz, CDCl₃).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF 187 - CDCl3 - Avance 500 MHz - abr18rafH2 - 13C	Date	18 Apr 2016 14:18:14
File Name	E:\RMN Dissert\500 MHz\Abr 16\abr18rafH2 RAF 187_001001r	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	1024	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	32894.74	Temperature (degree C)	27.151

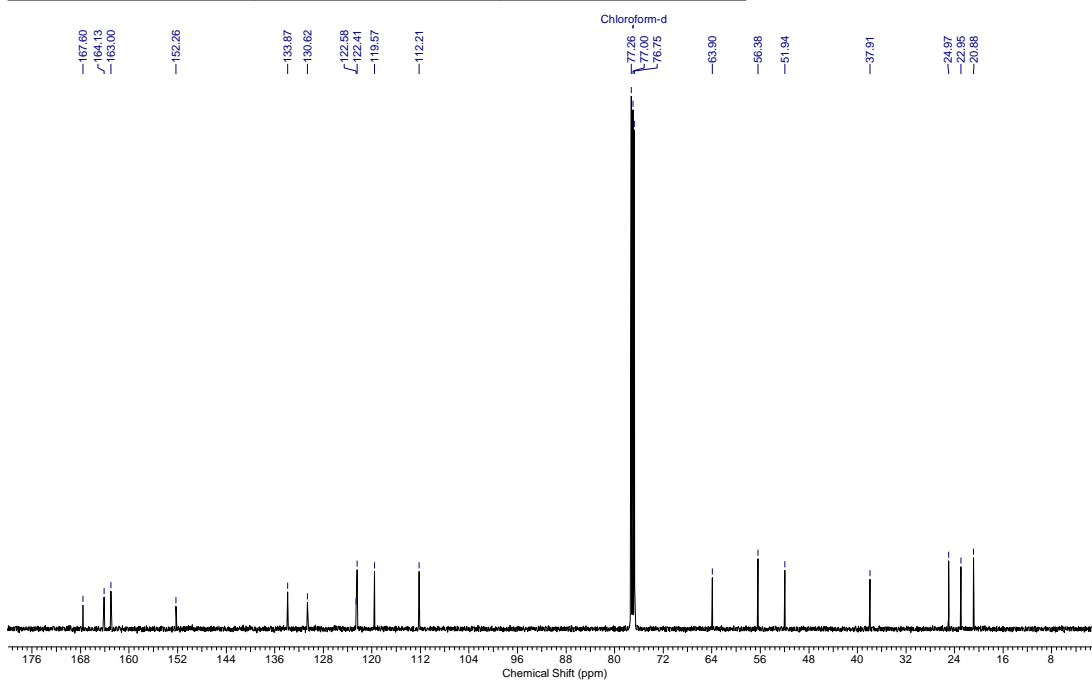
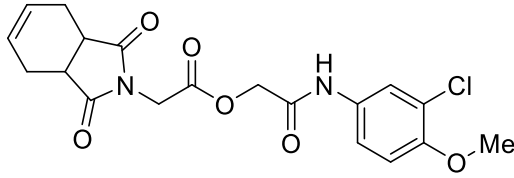


Figure S41 ^{13}C NMR spectrum of compound **10f** (125 MHz, CDCl_3).



Acquisition Time (sec)	3.1654	Comment	Thiago TSS-075 DMSO-d6 250 MHz dez06tssH1	Date	06 Dec 2012 18:11:44		
Date Stamp	06 Dec 2012 18:11:44						
File Name	C:\USERS\RAFAEL\DESKTOP\SPECTROS TSS\250 - 2012\DEZ06TSSH1 - TSS075\1\PDAT\1\1R				Frequency (MHz)	250.13	
Nucleus	1H	Number of Transients	32	Origin	spect	Original Points Count	16384
Owner	root	Points Count	32768	Pulse Sequence	zg30	Receiver Gain	724.10
SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6	Spectrum Offset (Hz)	1755.7549	Spectrum Type	STANDARD
Sweep Width (Hz)	5175.83	Temperature (degree C)	25.160				

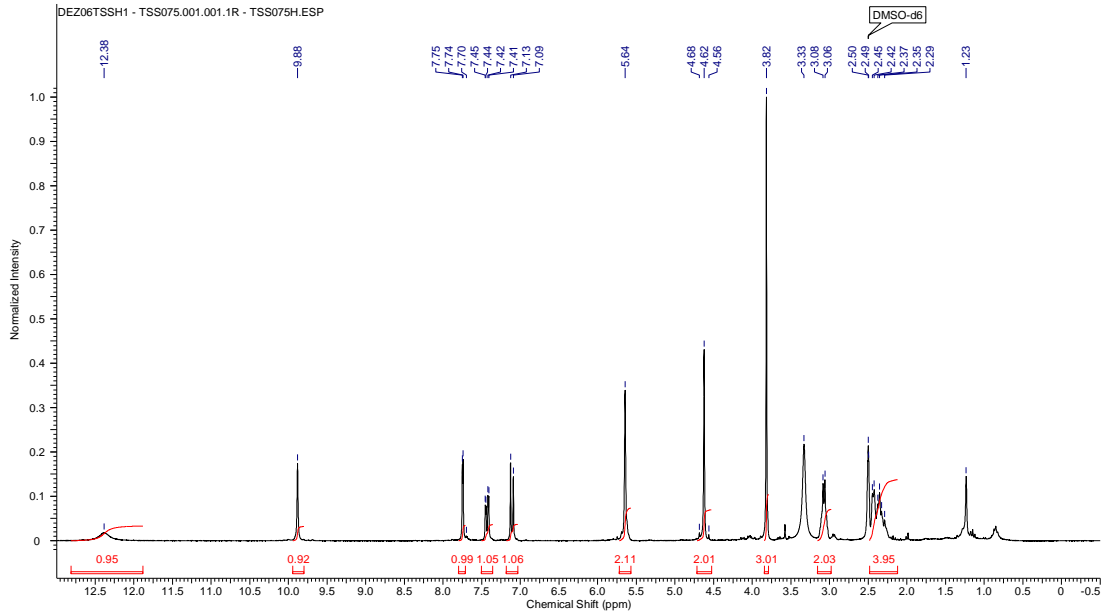
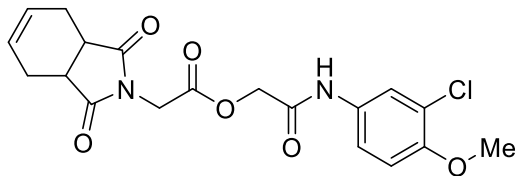


Figure S42 ¹H NMR spectrum of compound **10g** (250 MHz, DMSO).



Acquisition Time (sec)	0.5505	Comment	Thiago - tss075 - DMSO - Av 500MHz - dez10tssC1	Date	11 Dec 2012 10:28:48
Date Stamp	11 Dec 2012 10:28:48	File Name	C:\USERS\RAFAEL\DESKTOP\ESPECTROS TSS\500 - 2012\DEZ10TSSC1\1\PDATA\111R		
Frequency (MHz)	125.69	Nucleus	13C	Number of Transients	1600
Original Points Count	16384	Owner	nmr/su	Points Count	32768
Receiver Gain	2050.00	SW(cyclical) (Hz)	29761.90	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	29761.00	Temperature (degree C)	25.143
				Spectrum Offset (Hz)	12508.7627

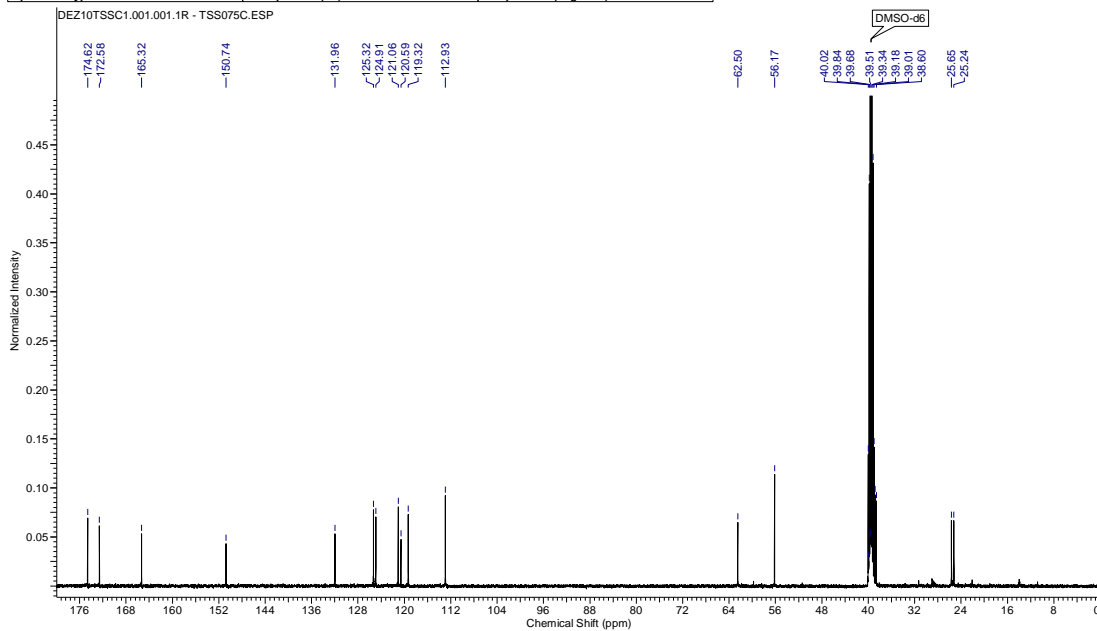
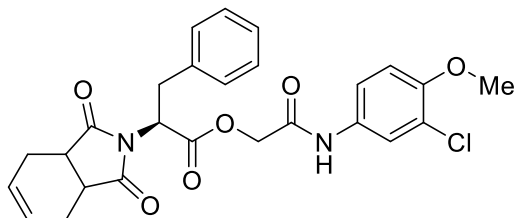


Figure S43 ^{13}C NMR spectrum of compound **10g** (62.5 MHz, DMSO).



Acquisition Time (sec)	3.1654	Comment	ju08rafH1 - RAF 99 CDCl3 250 MHz	Date	08 Jul 2016 15:55:24
File Name	C:\Users\Rafaell\Dropbox\Mestrado\Dissertação\RMN Dissert\ju08rafH1_001001r			Frequency (MHz)	250.13
Nucleus	¹ H	Number of Transients	16	Original Points Count	16384
Pulse Sequence	zg30	Solvent	CHLOROFORM-D	Sweep Width (Hz)	5175.98
				Points Count	32768
				Temperature (degree C)	25.160

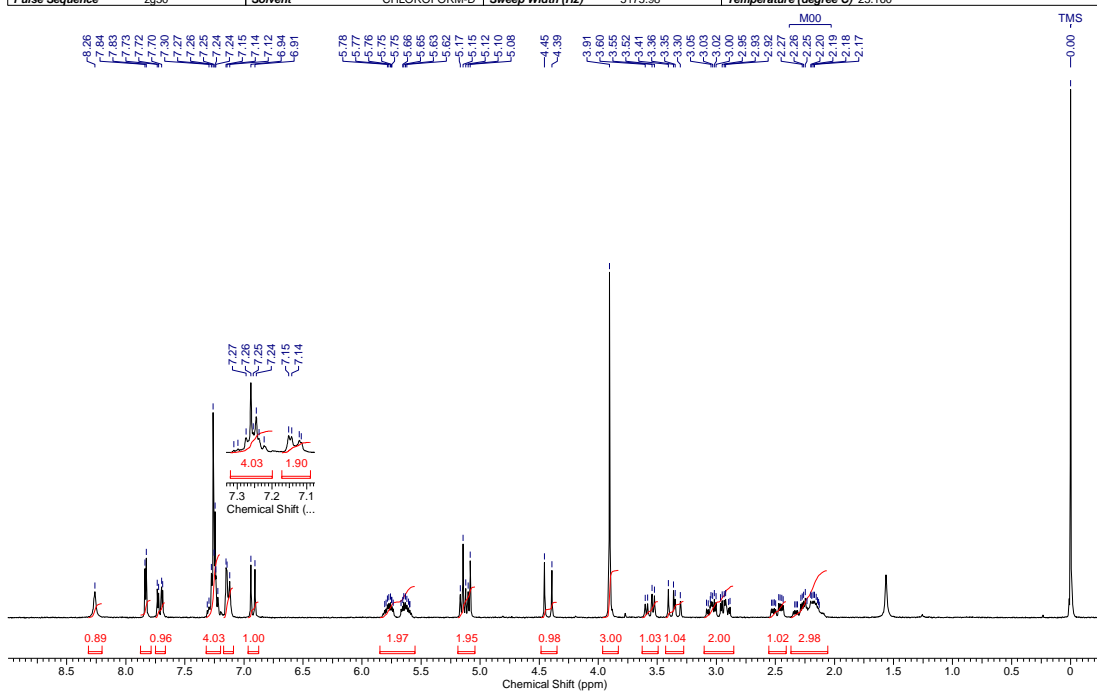
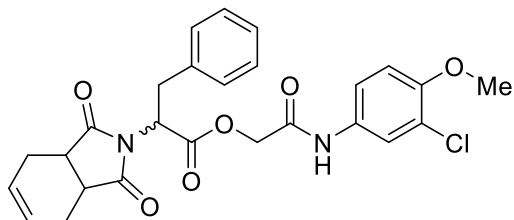


Figure S44 ¹H NMR spectrum of compound 10h (250 MHz, CDCl₃).



Acquisition Time (sec)	1.5903	Comment	Rafael - RAF-111 - CDCl3 - Avance 500 MHz - set18rafH3 - 1H	Date	18 Sep 2015 15:41:22
File Name	E:\NMRN Dissert\500 MHz\Set 15\set18rafH3 RAF 111_001001r	Original Points Count	16384	Frequency (MHz)	499.87
Number of Transients	8	Points Count	65536	Nucleus	1H
Solvent	CHLOROFORM-D	Sweep Width (Hz)	10302.20	Pulse Sequence	zg30
		Temperature (degree C)	25.163		

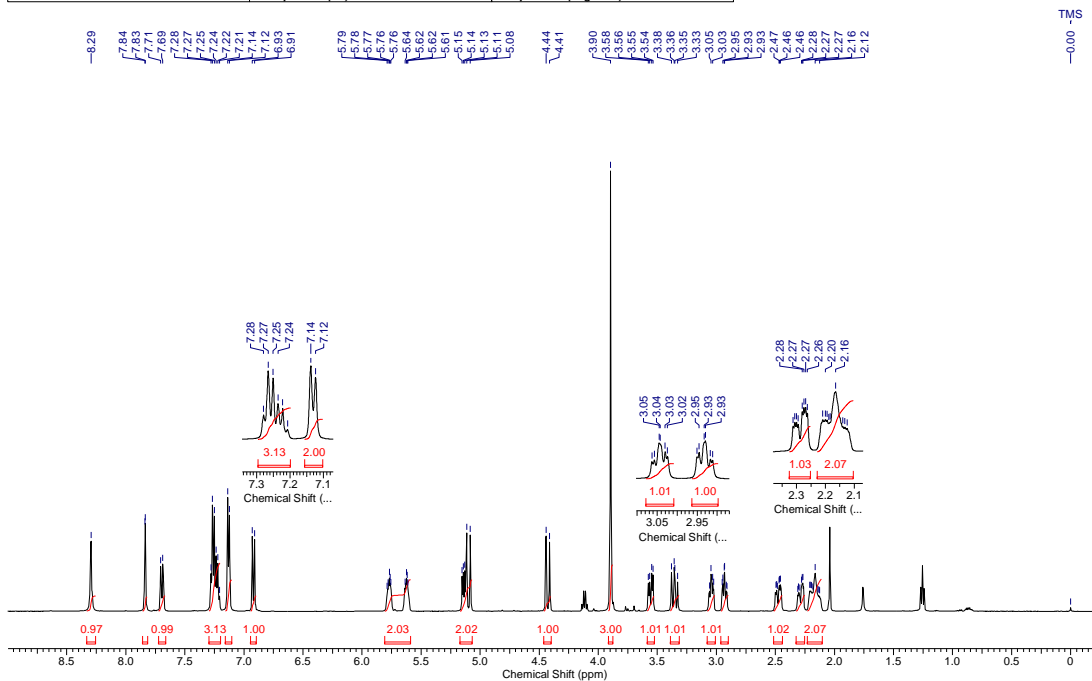
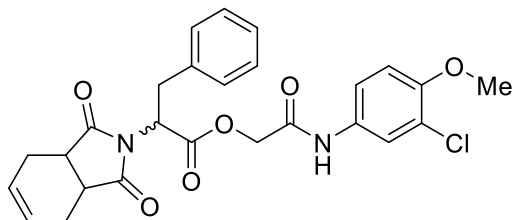


Figure S45 ¹H NMR spectrum of compound **10h_{rac}** (500 MHz, CDCl₃).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF-111 - CDCl3 - Avance 500 MHz - set18rafH3 - ¹³ C	Date	18 Sep 2015 16:13:02
File Name	E:\RMN Dissert\500 MHz\Set 15\set18rafH3 RAF 111_002001r	Frequency (MHz)	125.69	Nucleus	¹³ C
Number of Transients	256	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	32894.74	Temperature (degree C)	25.140

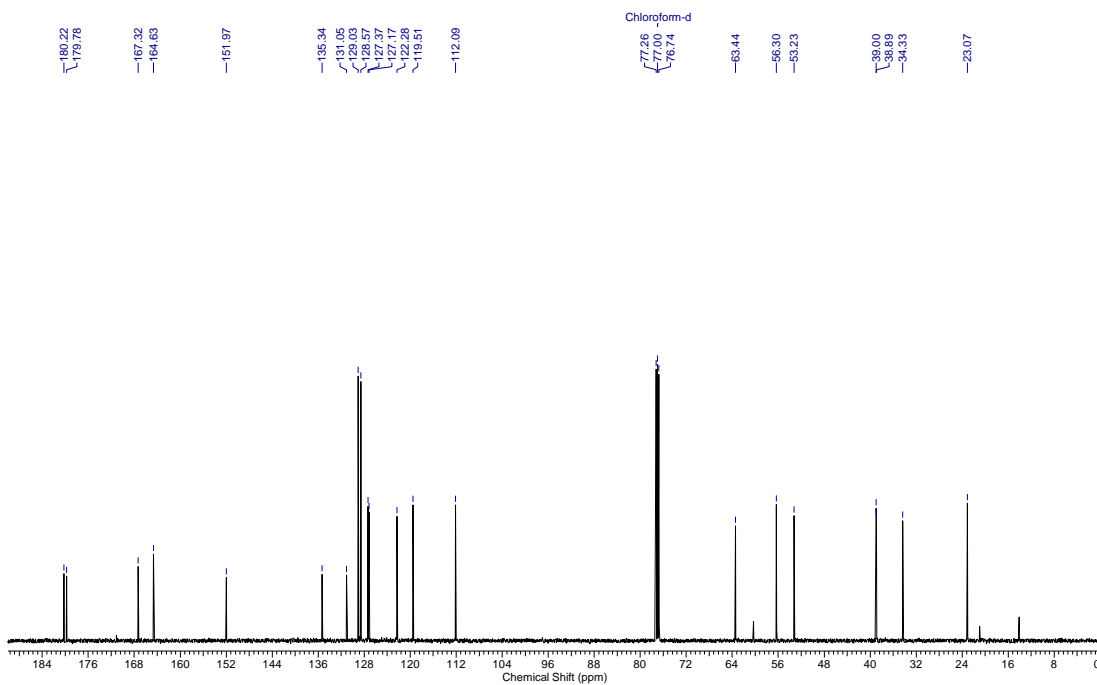
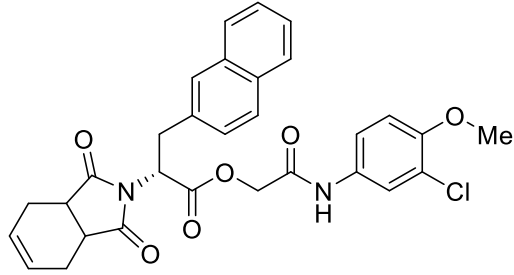


Figure S46 ¹³C NMR spectrum of compound **10h_{rac}** (125 MHz, CDCl₃).



Acquisition Time (sec)	0.6816	Comment	Rafael - RAF - 110 - CDCl3 - Av 500MHz - set16rafH1 13C	Date	16 Sep 2015 13:23:58
File Name	E:\RMN Dissert\400 MHz\Set 15\set16rafH1 RAF 110_002001r	Frequency (MHz)	100.63	Nucleus	13C
Number of Transients	5120	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	24038.46	Temperature (degree C)	25.160

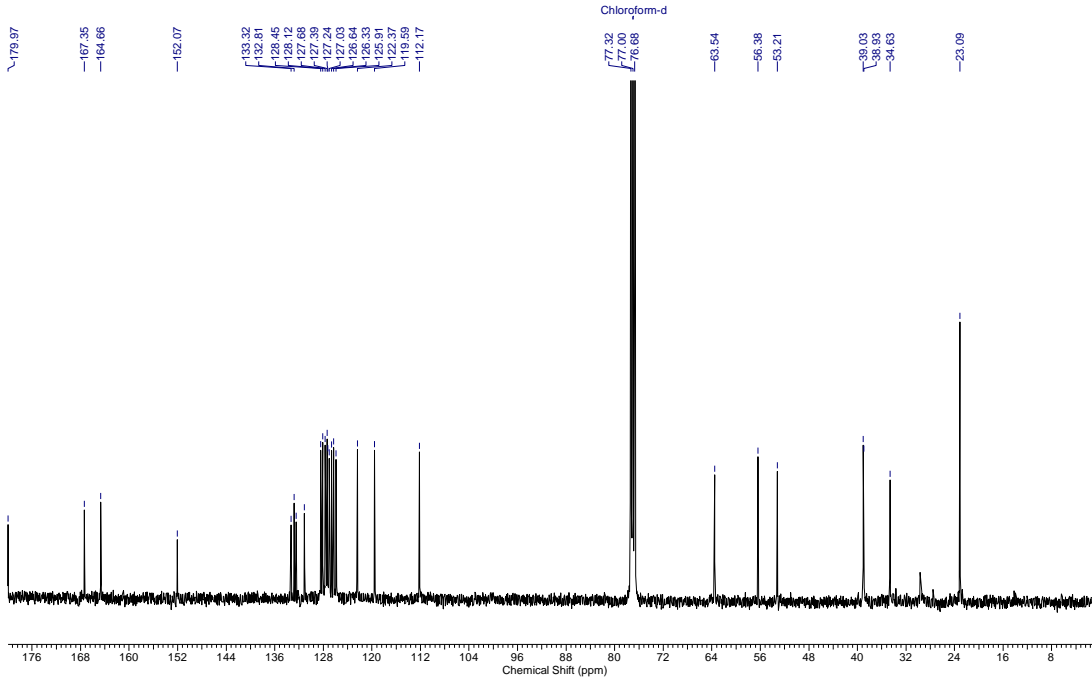
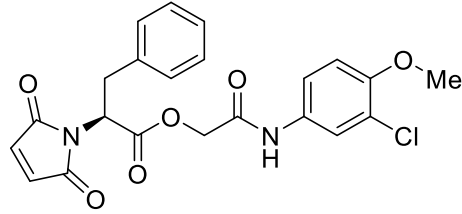


Figure S48 ^{13}C NMR spectrum of compound 10i (100 MHz, CDCl_3).



Acquisition Time (sec)	1.3282	Comment	Rafael "RAF-184" cdcl3/ AV600MHz_ abr12rafH2	Date	13 Apr 2016 07:34:08
File Name	E:\RMN Dissert\600 MHz\Abr 16\abr12rafH2 RAF 184_001001r	Original Points Count	16384	Frequency (MHz)	600.17
Number of Transients	16	Sweep Width (Hz)	12335.53	Points Count	65536
Solvent	CHLOROFORM-D	Temperature (degree C)	24.477	Pulse Sequence	zg30

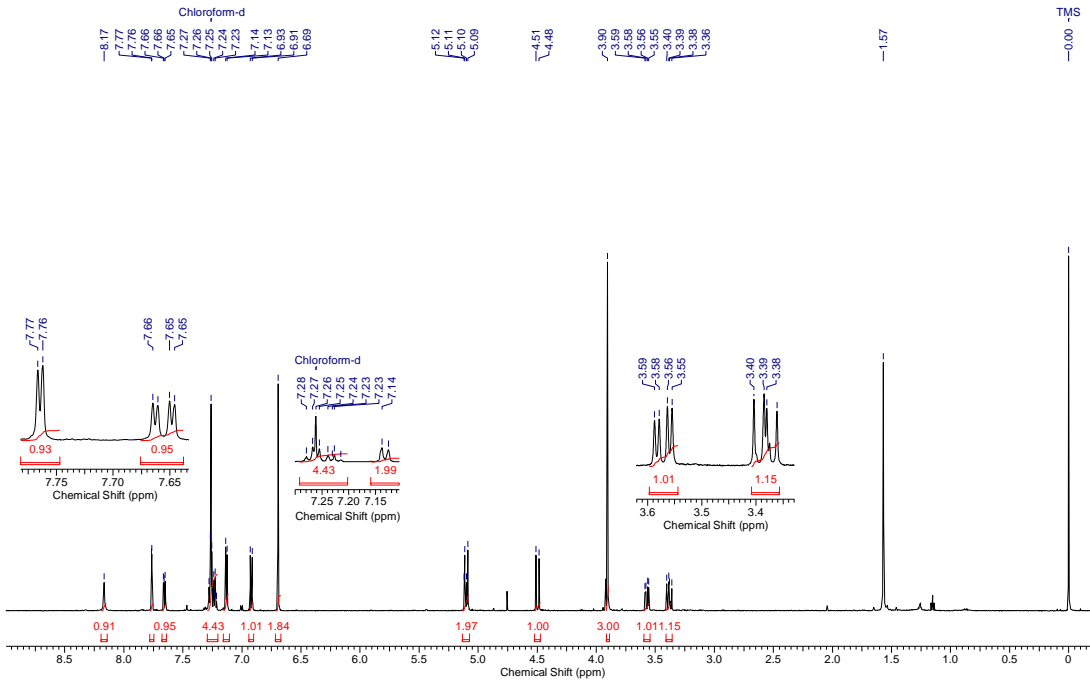
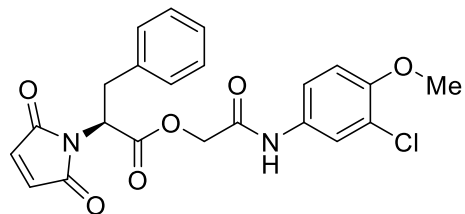


Figure S49 ¹H NMR spectrum of compound 10j (600 MHz, CDCl₃).



Acquisition Time (sec)	0.4020	Comment	Rafael "RAF-184" cdcl3/ AV600MHz_ abr12rafH2 - 13C	Date	13 Apr 2016 07:34:40
File Name	E:\RMN Dissert\600 MHz\Abr 16\abr12rafH2 RAF 184_002001r	Frequency (MHz)	150.91	Nucleus	13C
Number of Transients	5120	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	40760.87	Temperature (degree C)	24.476
				Pulse Sequence	zgpg30

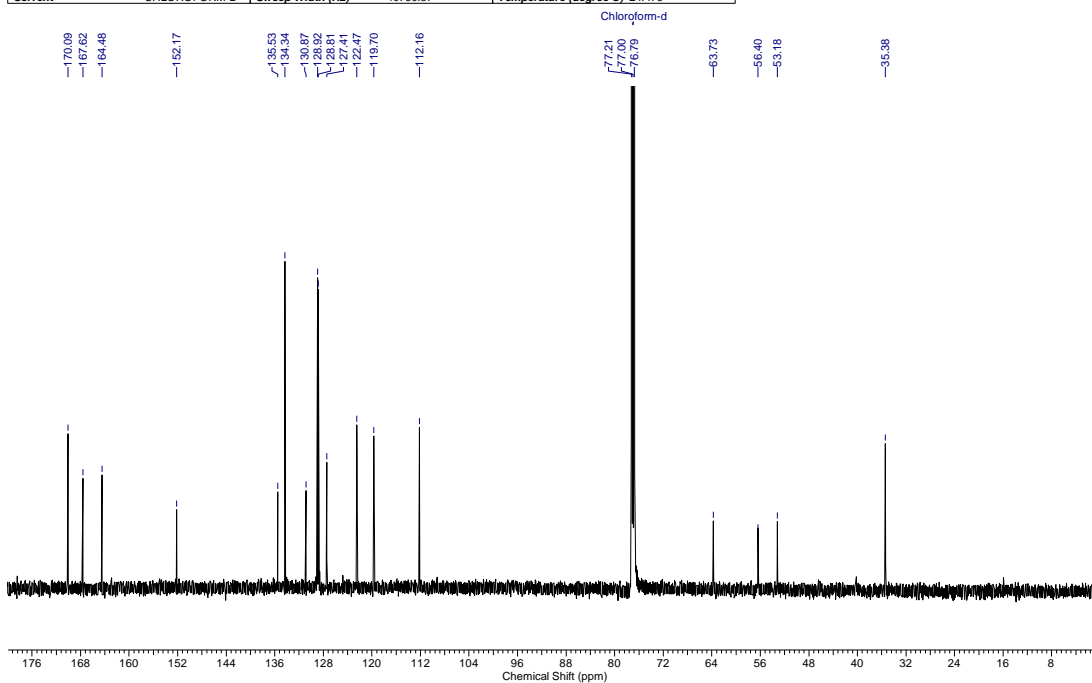
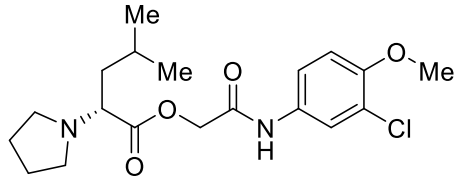


Figure S50 ^{13}C NMR spectrum of compound 10j (150 MHz, CDCl_3).



Acquisition Time (sec)	1.5903	Comment	Rafael - RAF-101 - CDCl3 - Avance 500 MHz - ago18rafH1 - 1H	Date	28 Aug 2015 12:56:44
File Name	E:\RMN Dissert\500 MHz\Ago 15\ago28rafH1 RAF 101_001001r	Original Points Count	16384	Frequency (MHz)	499.87
Number of Transients	4	Points Count	65536	Nucleus	1H
Solvent	CHLOROFORM-D	Sweep Width (Hz)	10302.20	Pulse Sequence	zg30
		Temperature (degree C)	25.149		

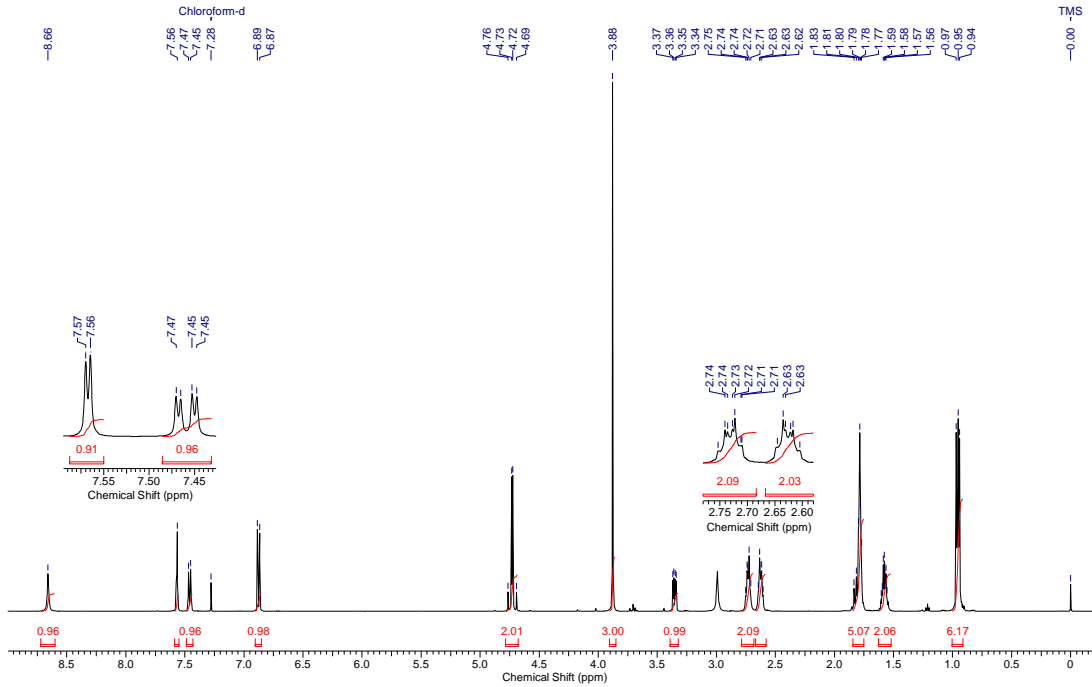
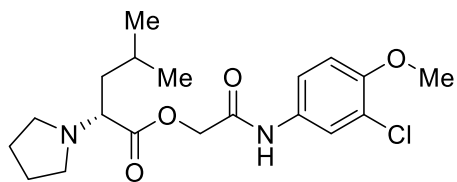


Figure S51 ¹H NMR spectrum of compound 10k (500 MHz, CDCl₃).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF-101 - CDCl3 - Avance 500 MHz - ago18rafH1 - ¹³ C	Date	28 Aug 2015 12:56:54
File Name	E:\RMN Dissert\500 MHz\Ago 15\ago28rafH1 RAF 101_002001r	Frequency (MHz)	125.69	Nucleus	¹³ C
Number of Transients	36	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	32894.74	Temperature (degree C)	25.215

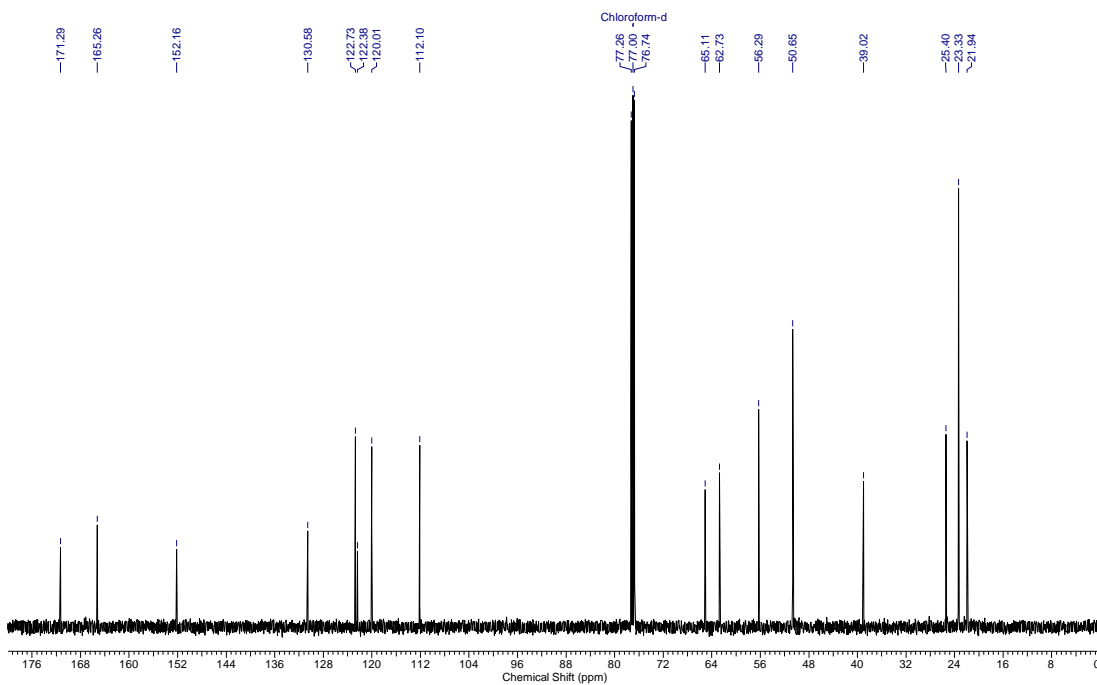
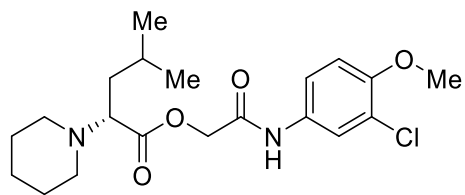


Figure S52 ¹³C NMR spectrum of compound 10k (125 MHz, CDCl₃).



Acquisition Time (sec)	1.5903	Comment	Rafael "RAF-115" cdcl3/ Av500MHz set22rafH1	Date	23 Sep 2015 07:46:54
File Name	E:\RMN Dissert\500 MHz\Set 15\set22rafH1 RAF 115_001001r	Frequency (MHz)	499.87	Nucleus	1H
Number of Transients	16	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	10302.20	Temperature (degree C)	25.147

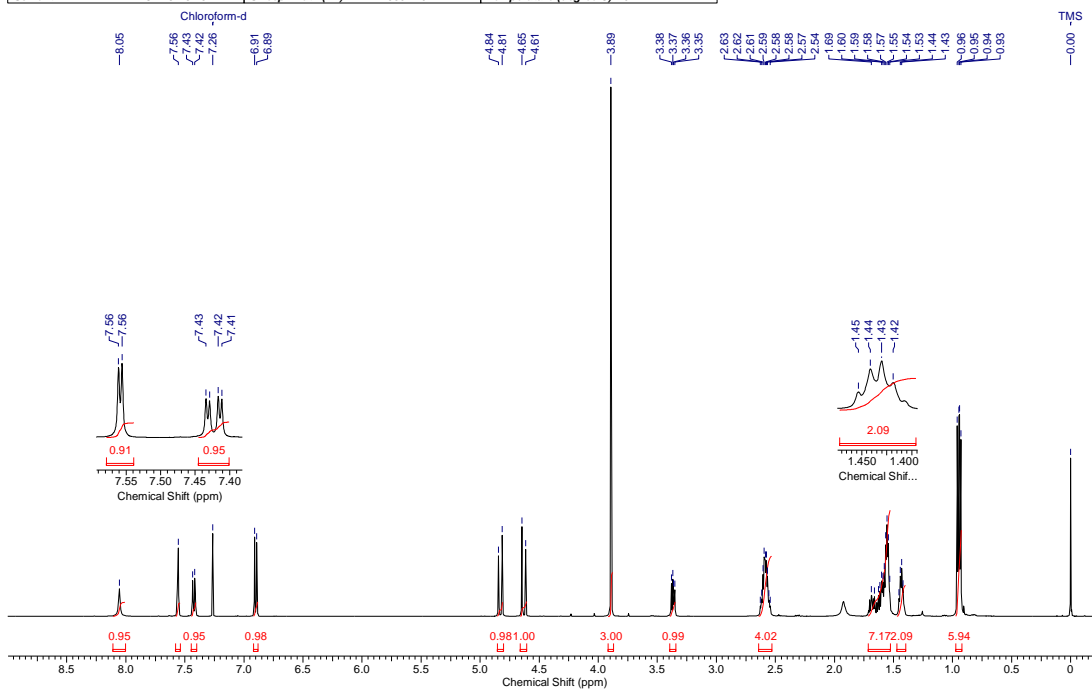
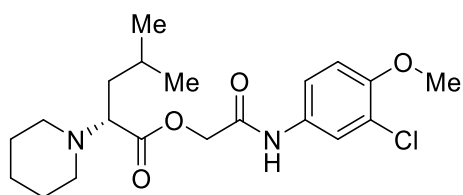


Figure S53 ¹H NMR spectrum of compound 10I (500 MHz, CDCl₃).



Acquisition Time (sec)	0.4981	Comment	Rafael "RAF-115" cdcl3/ Av500MHz set22rafH1 - 13C	Date	23 Sep 2015 07:46:40
File Name	E:\RMN Dissert\500 MHz\Set 15\set22rafH1 RAF 115_002001r	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	1024	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	32894.74	Temperature (degree C)	25.152

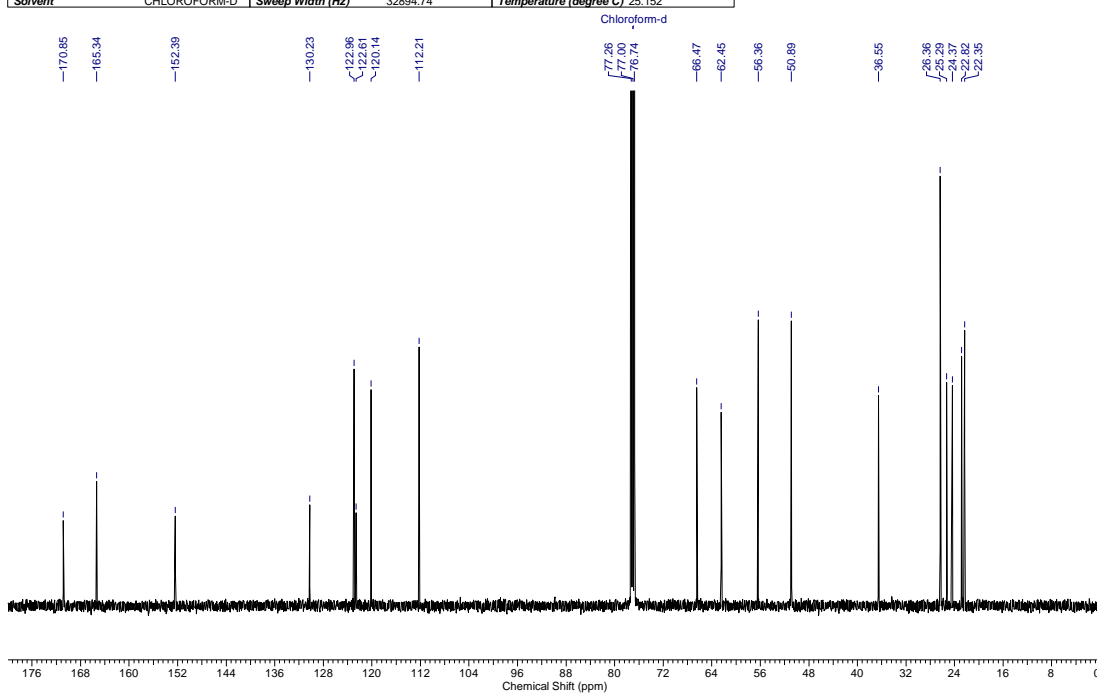
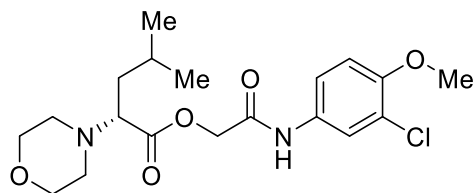


Figure S54 ^{13}C NMR spectrum of compound **10I** (125 MHz, CDCl_3).



Acquisition Time (sec)	2.0447	Comment	Rafael "RAF-128" cdcl3/ Av400MHz out19rafH1	Date	20 Oct 2015 06:38:32
File Name	E:\RMN Dissert\400 MHz\Out 15\out19rafH1 RAF 128_001001r	Frequency (MHz)	400.18	Nucleus	1H
Number of Transients	16	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	8012.82	Pulse Sequence	zg30
				Temperature (degree C)	25.260

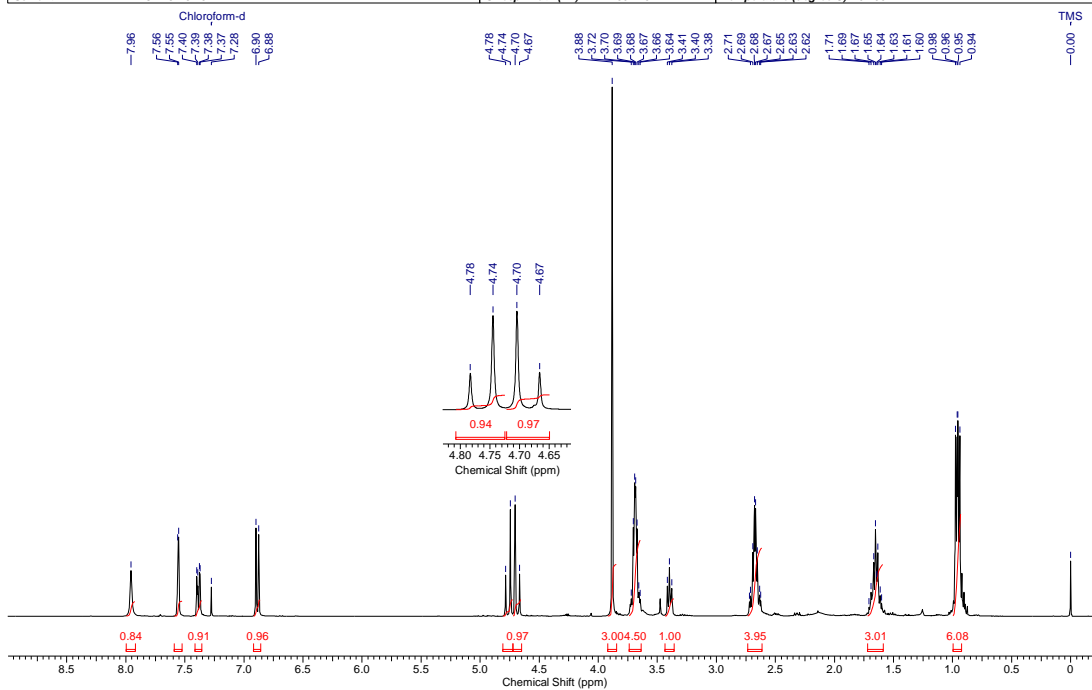
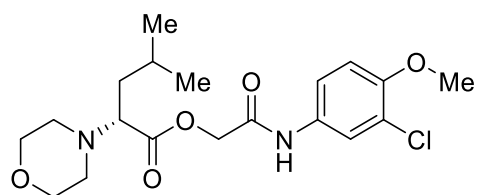


Figure S55 ^1H NMR spectrum of compound **10m** (400 MHz, CDCl_3).



Acquisition Time (sec)	0.6816	Comment	Rafael "RAF-128" cdcl3/ Av400MHz out19rafH1 - 13C	Date	20 Oct 2015 06:38:26
File Name	E:\RMN Dissert\400 MHz\Out 15\out19rafH1 RAF 128_002001r	Frequency (MHz)	100.63	Nucleus	13C
Number of Transients	1024	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	24038.46	Temperature (degree C)	25.160

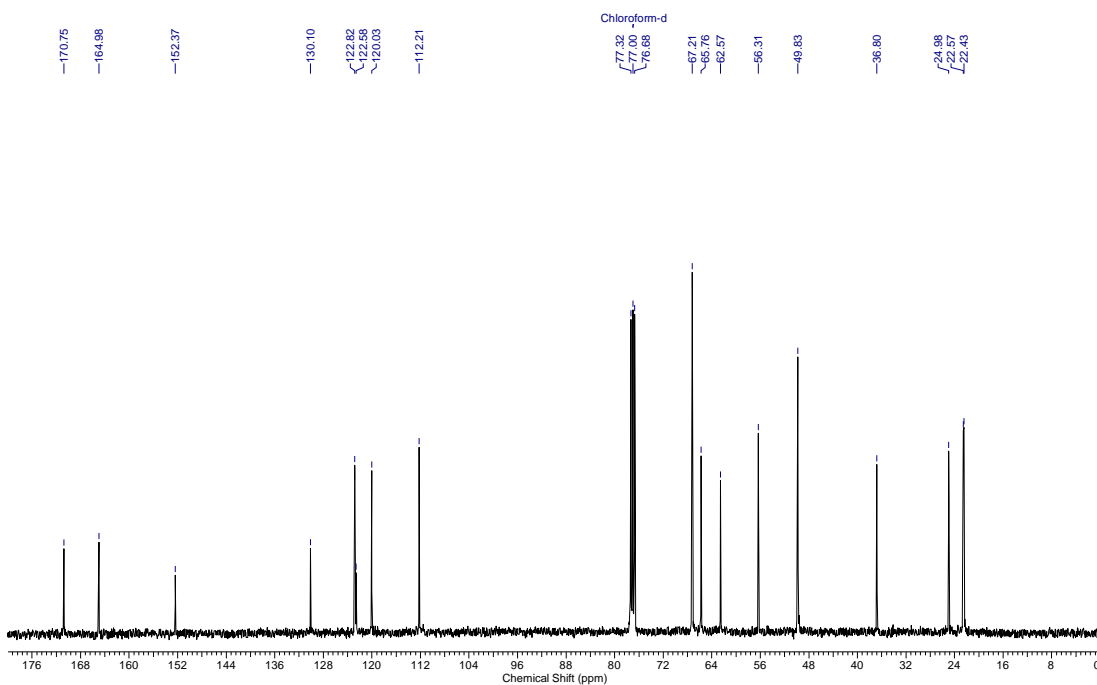
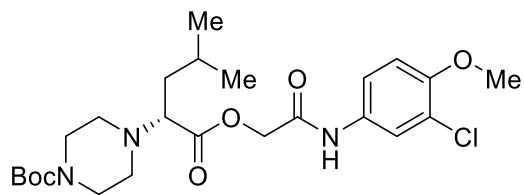


Figure S56 ^{13}C NMR spectrum of compound **10m** (100 MHz, CDCl_3).



Acquisition Time (sec)	1.5903	Comment	Rafael - RAF-132 - CDCl3 - Av.500MHz - out23rafH1	Date	15 Jul 2015 09:33:14
File Name	E:\RMN Dissert\500 MHz\Out 15\out23rafH1 RAF 132_001001r	Frequency (MHz)	499.87	Nucleus	1H
Number of Transients	16	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	10302.20	Temperature (degree C)	25.145

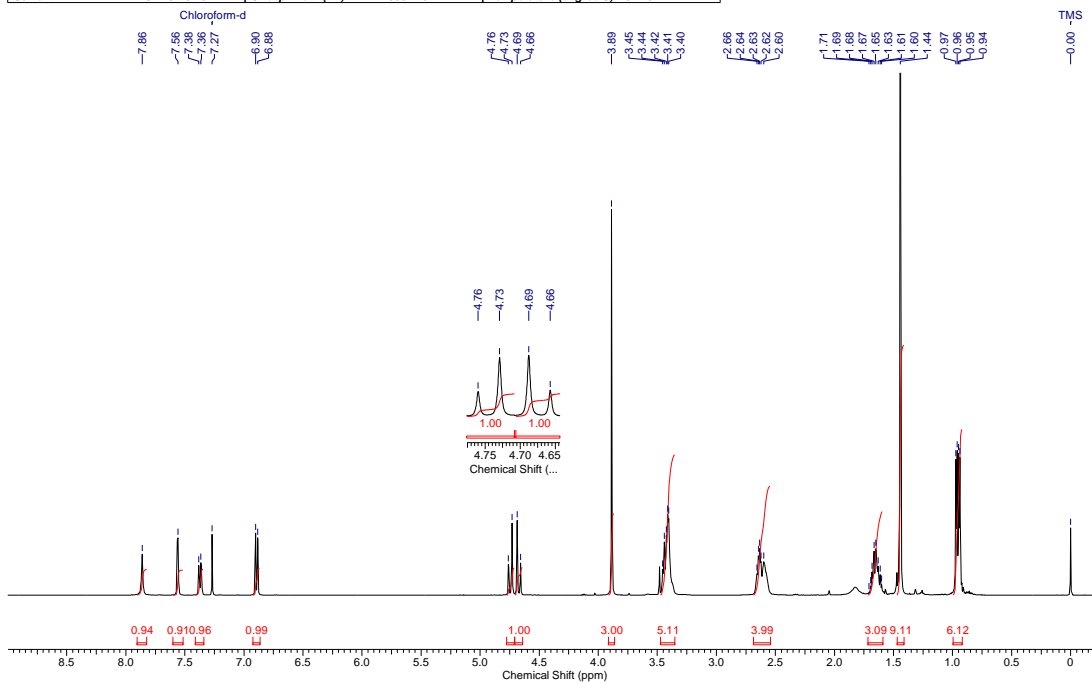
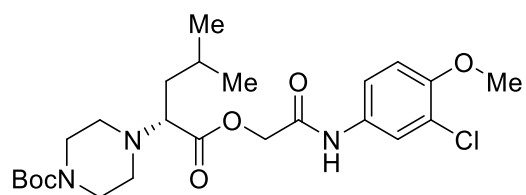


Figure S57 ¹H NMR spectrum of compound 10n (500 MHz, CDCl₃).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF-132-CDCl3 - Av.500MHz - out23rafC1 - 13C	Date	15 Jul 2015 16:03:30
File Name	E:\RMN Dissert\500 MHz\Out 15\out23rafH1 RAF 132_002001r	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	512	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	32894.74	Temperature (degree C)	25.150

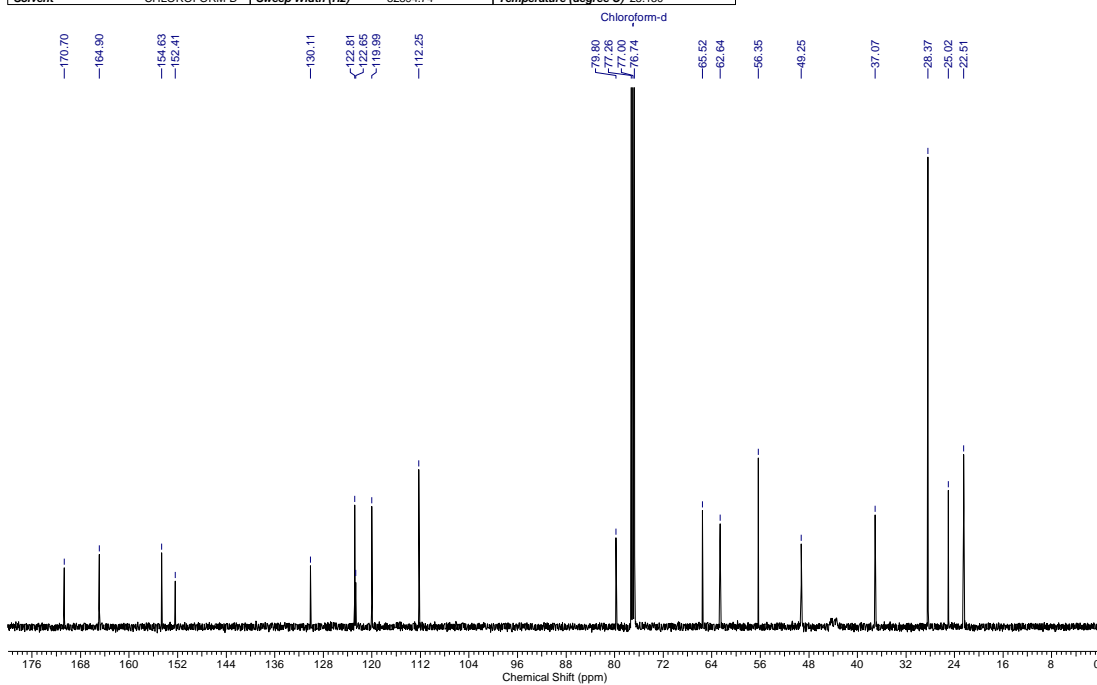
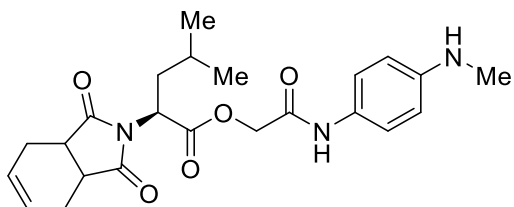


Figure S58 ^{13}C NMR spectrum of compound **10n** (125 MHz, CDCl_3).



Acquisition Time (sec)	1.6384	Comment	Rafael - RAF-26 - CDCl3 - Av 500MHz - dez18rafH1	Date	19 Dec 2014 06:05:06
File Name	C:\UNICAMP\Mestrado\RMN500 MHz\2014\Dez\dez18rafH1_001001r			Frequency (MHz)	499.87
Nucleus	¹ H	Number of Transients	16	Original Points Count	16384
Pulse Sequence	zg30	Solvent	CHLOROFORM-D	Sweep Width (Hz)	10000.00
				Points Count	65536
				Temperature (degree C)	25.146

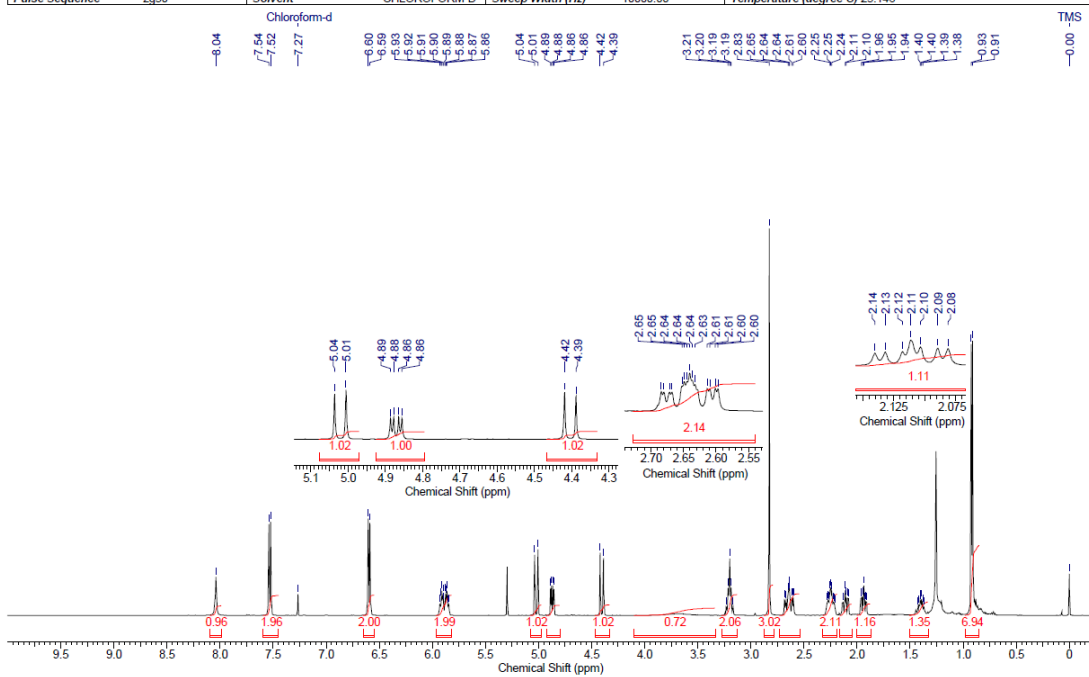
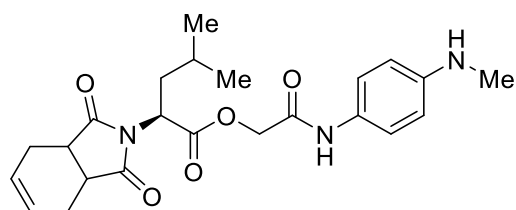


Figure S59 ¹H NMR spectrum of compound 3k' (500 MHz, CDCl₃).



Acquisition Time (sec)	0.5505	Comment	Rafael - RAF-26 - CDCl3 - Av 500MHz - dez18rafH1 13C	Date	19 Dec 2014 06:05:20
File Name	C:\UNICAMP\Mestrado\RMN500 MHz\2014\Dez\dez18rafH1_002001f	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	3072	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	29761.90	Temperature (degree C)	25.150

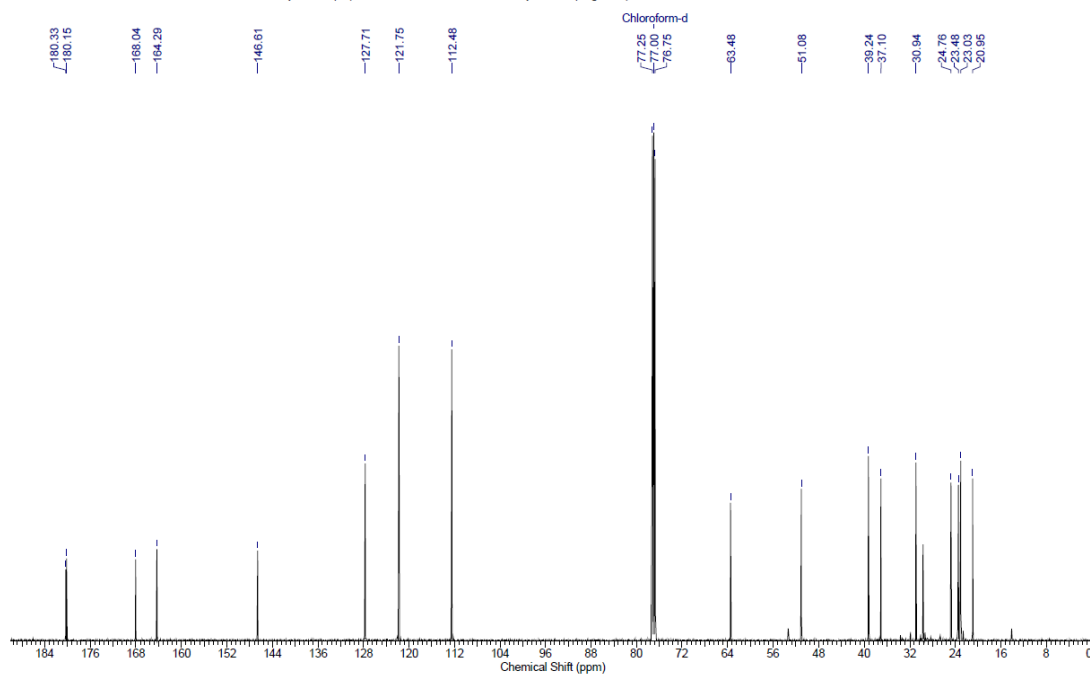
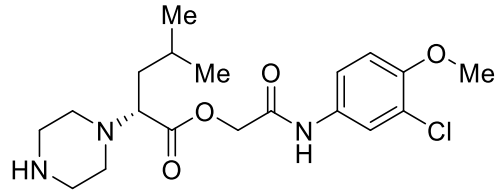


Figure S60 ¹³C NMR spectrum of compound 3k' (125 MHz, CDCl₃).



Acquisition Time (sec)	1.5903	Comment	Rafael - RAF 133 - MeOD - Avance 500 MHz - out26rafH2 - 1H	Date	22 Aug 2015 19:29:56
File Name	E:\RMN Dissert\500 MHz\Out 15\out26rafH2 RAF 133_001001r	Frequency (MHz)	499.87	Nucleus	1H
Number of Transients	16	Original Points Count	16384	Points Count	65536
Solvent	METHANOL-d4	Spectrum Offset (Hz)	3067.9211	Sweep Width (Hz)	10302.20
				Temperature (degree C)	50.712

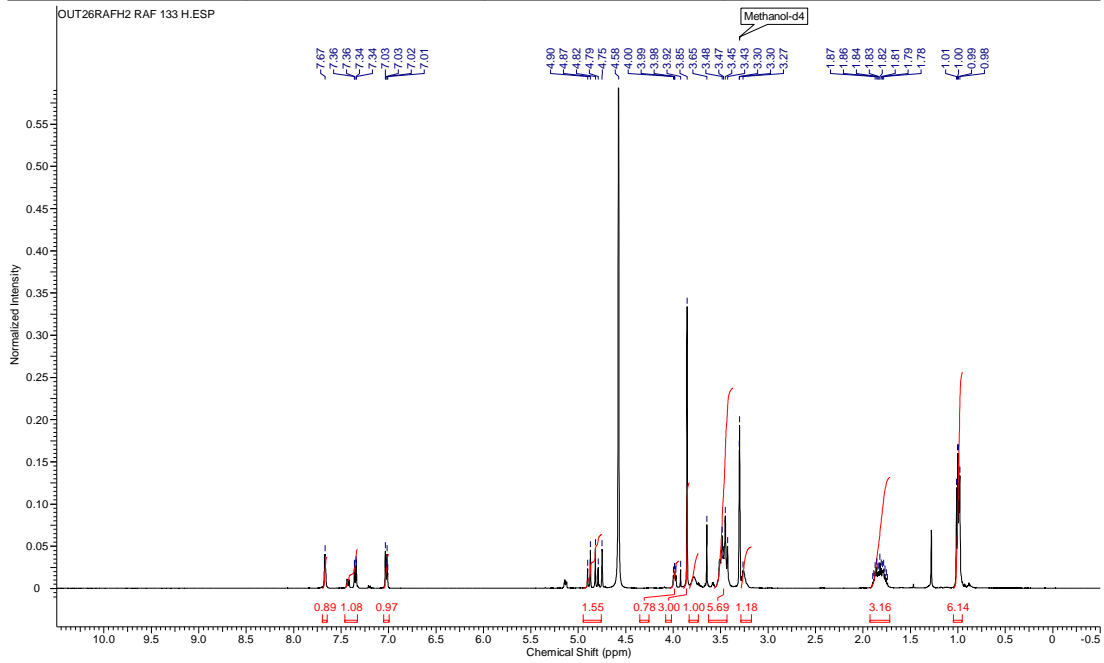
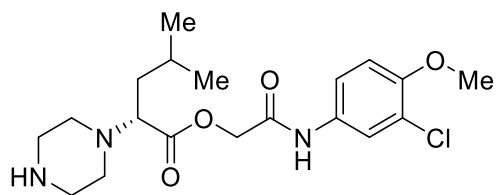


Figure S61 ¹H NMR spectrum of compound **10o** (500 MHz, MeOD).



Acquisition Time (sec)	0.4981	Comment	Rafael - RAF 133 - MeOD - Avance 500 MHz - out26rafH2 - 13C 50 °C	Date	26 Oct 2015 14:29:52		
Date Stamp	26 Oct 2015 14:29:52	File Name	C:\USERS\RAFAEL\DROPBOX\MESTRAD\DISSERTAÇÃO\IRMN DISSERT\500 MHz\OUT 15\OUT26RAF2 RAF 133\6\PDAT\111R				
Frequency (MHz)	125.69	Nucleus	13C	Number of Transients	3072		
Original Points Count	16384	Owner	nmsu	Points Count	32768		
Receiver Gain	2050.00	SW(cyclical) (Hz)	32894.74	Solvent	METHANOL-d4		
Spectrum Type	STANDARD	Sweep Width (Hz)	32893.73	Temperature (degree C)	50.152		
					Origin	spect	
						Pulse Sequence	zgpg30
						Spectrum Offset (Hz)	14019.4951

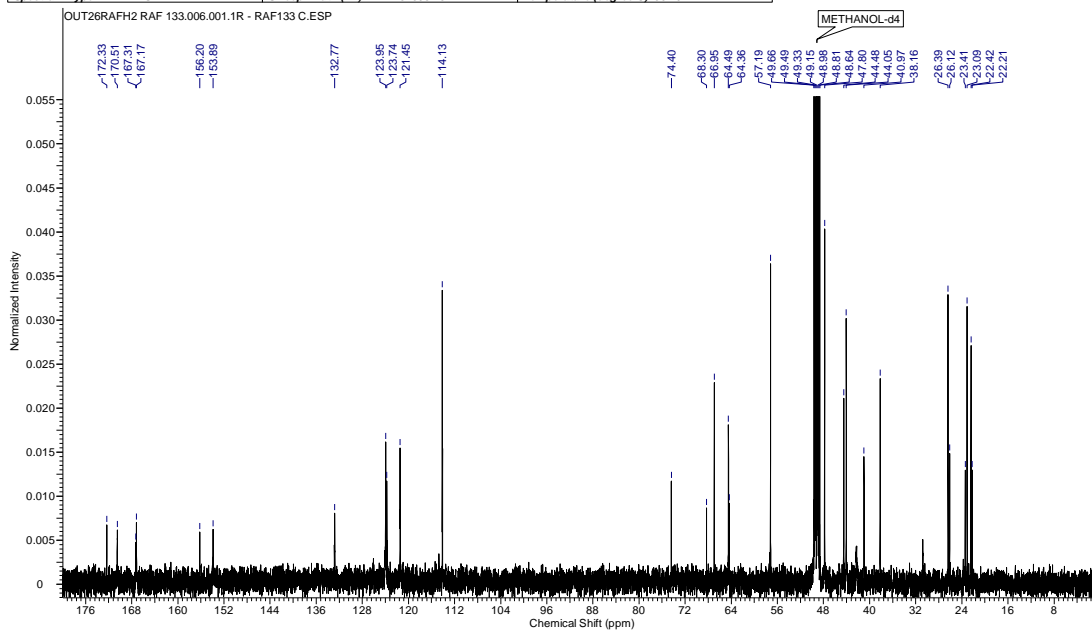
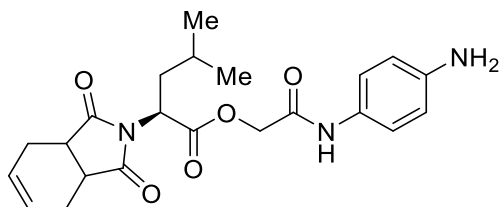


Figure S62 ^{13}C NMR spectrum of compound **10o** (125 MHz, MeOD).



Acquisition Time (sec)	1.6384	Comment	Rafael "RAF-39" cdc3/ Av500MHz jan20rafH1	Date	21 Jan 2015 06:05:32
File Name	C:\UNICAMP\Mestrado\RMN\500 MHz\2015\Jan\jan20rafH1_001001r			Frequency (MHz)	499.87
Nucleus	¹ H	Number of Transients	16	Original Points Count	16384
Pulse Sequence	zg30	Solvent	CHLOROFORM-D	Sweep Width (Hz)	10000.00
				Temperature (degree C)	25.146

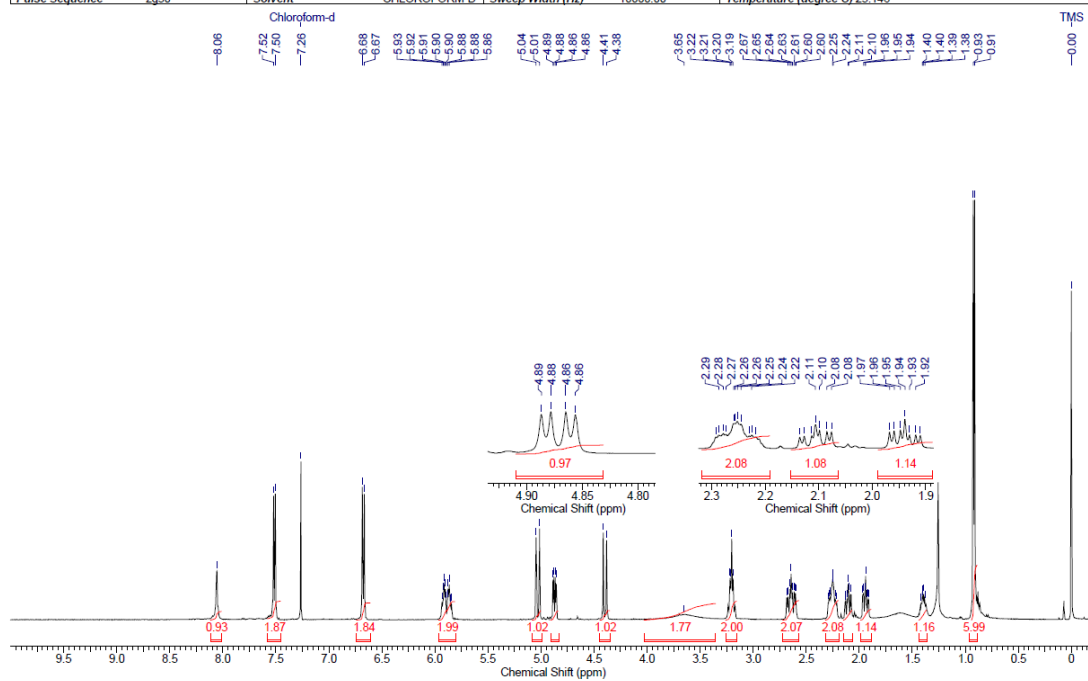
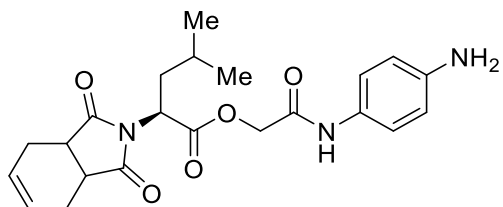


Figure S63 ¹H NMR spectrum of compound 3i' (500 MHz, CDCl₃).



Acquisition Time (sec)	0.5505	Comment	Rafael "RAF-39" cdcl3/ Av:500MHz_jan20raffH1 - 13C	Date	21 Jan 2015 06:05:40
File Name	C:\UNICAMP\Mestrado\RMN500 MHz\2015\Jan\jan20raffH1_0020011	Frequency (MHz)	125.69	Nucleus	¹³ C
Number of Transients	3072	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	29761.90	Temperature (degree C)	25.148
				Pulse Sequence	zpgq30

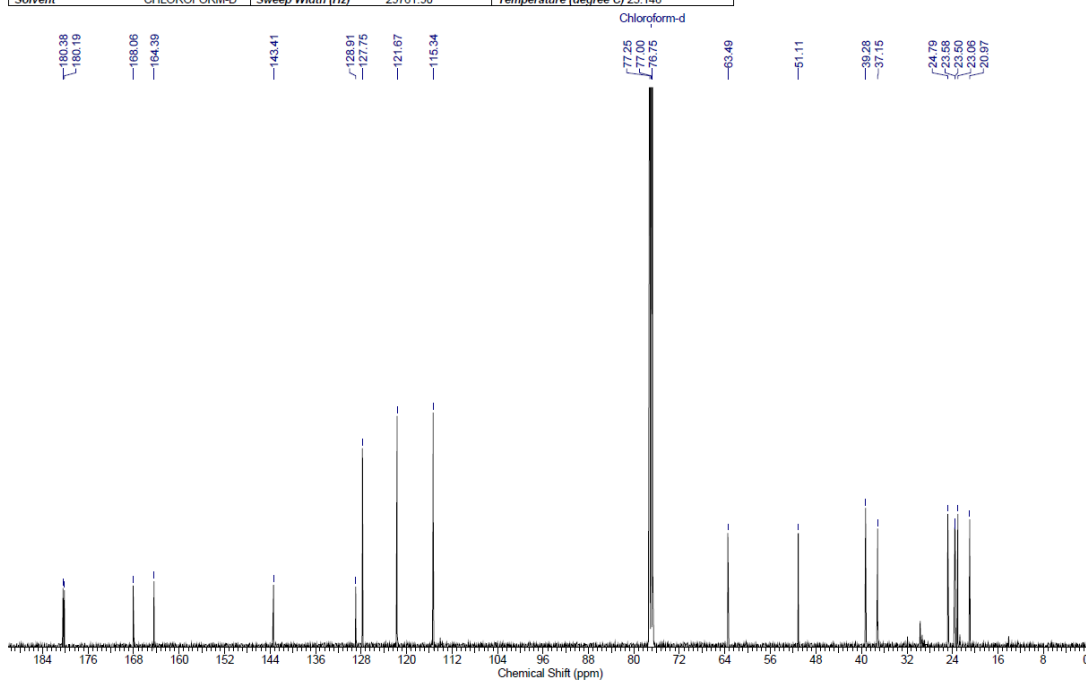
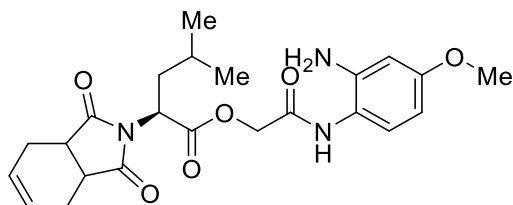


Figure S64 ¹³C NMR spectrum of compound 3' (125 MHz, CDCl₃).



Acquisition Time (sec)	1.6384	Comment	Rafael - RAF-53b - CDCl ₃ - Avance 500 MHz - fev27rafH3 - 1H	Date	27 Feb 2015 13:03:10
File Name	C:\UNICAMP\Mestrado\RMN\500 MHz\2015\Fev\fev27rafH3_001001.tr	Frequency (MHz)	499.87	Nucleus	¹ H
Number of Transients	16	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	10000.00	Temperature (degree C)	25.151

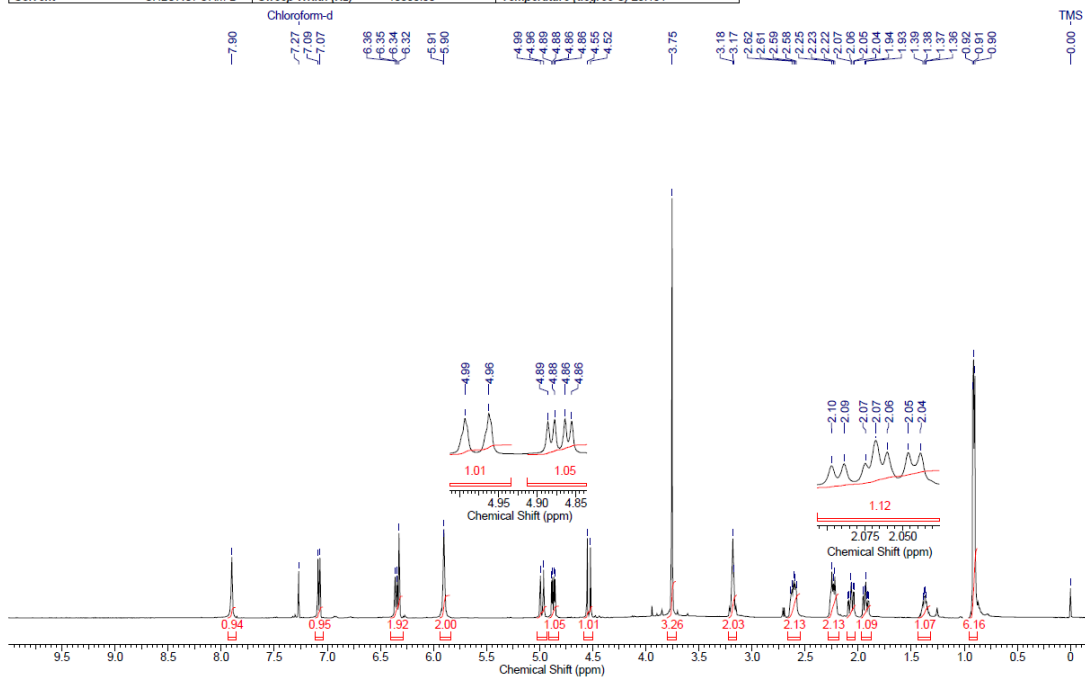
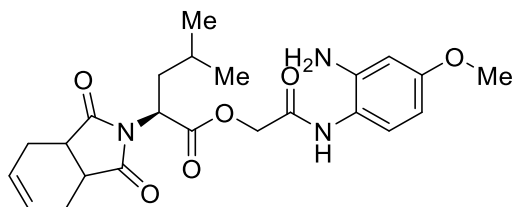


Figure S65 ¹H NMR spectrum of compound 3m' (500 MHz, CDCl₃).



Acquisition Time (sec)	0.5505	Comment	Rafael - RAF-53b - CDCl3 - Avance 500 MHz - fev27rafh3 - 1H	Date	27 Feb 2015 13:18:18
File Name	C:\UNICAMP\Mestrado\RMN500 MHz\2015\fev27rafh3_002001r	Frequency (MHz)	125.69	Nucleus	13C
Number of Transients	128	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	29761.90	Temperature (degree C)	25.167

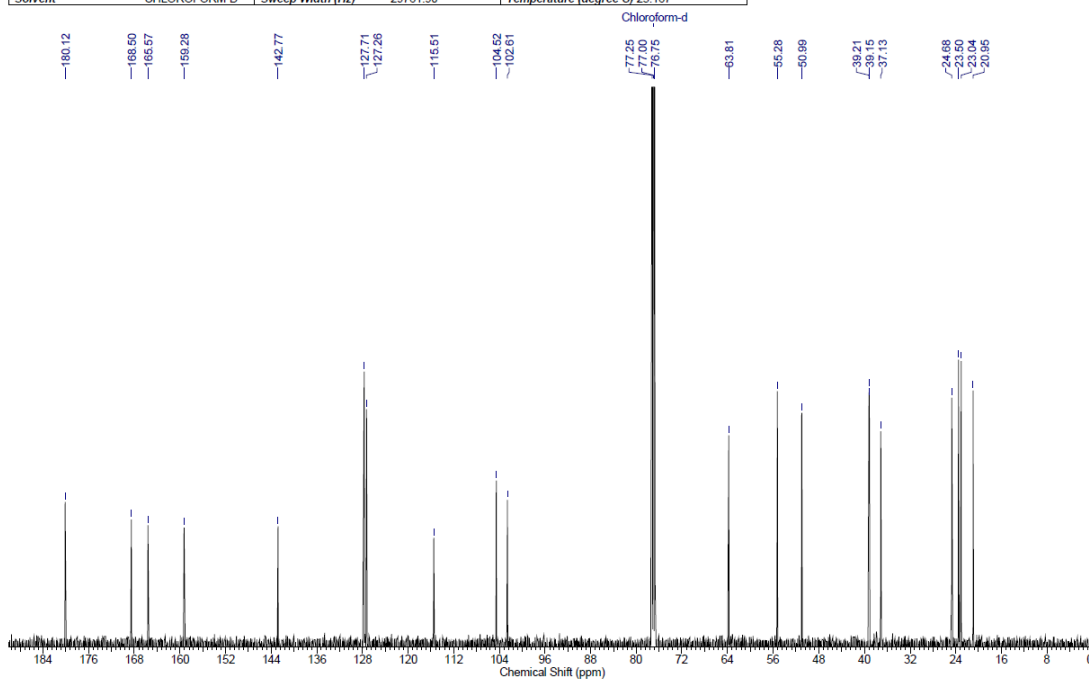
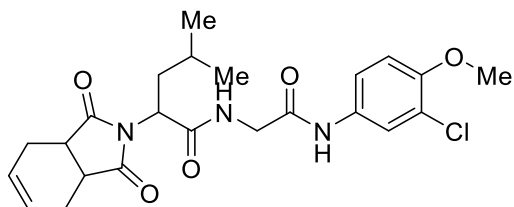


Figure S66 ¹³C NMR spectrum of compound 3m' (125 MHz, CDCl₃).



Acquisition Time (sec)	3.1654	Comment	Thiago DMSO_250MHz_TSS-037_set25ssH3	Date	25 Sep 2012 15:50:40
Date Stamp	25 Sep 2012 15:50:40	File Name	C:\USERS\IRAFEL\DESKTOP\SPECTROS TSS\250 - 2012\SET25TSSH3\1\PDAT\111R		
Frequency (MHz)	250.13	Nucleus	1H	Number of Transients	16
Original Points Count	16384	Owner	root	Points Count	32768
Receiver Gain	406.40	SW(cyclical) (Hz)	5175.98	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	5175.83	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	1755.9128

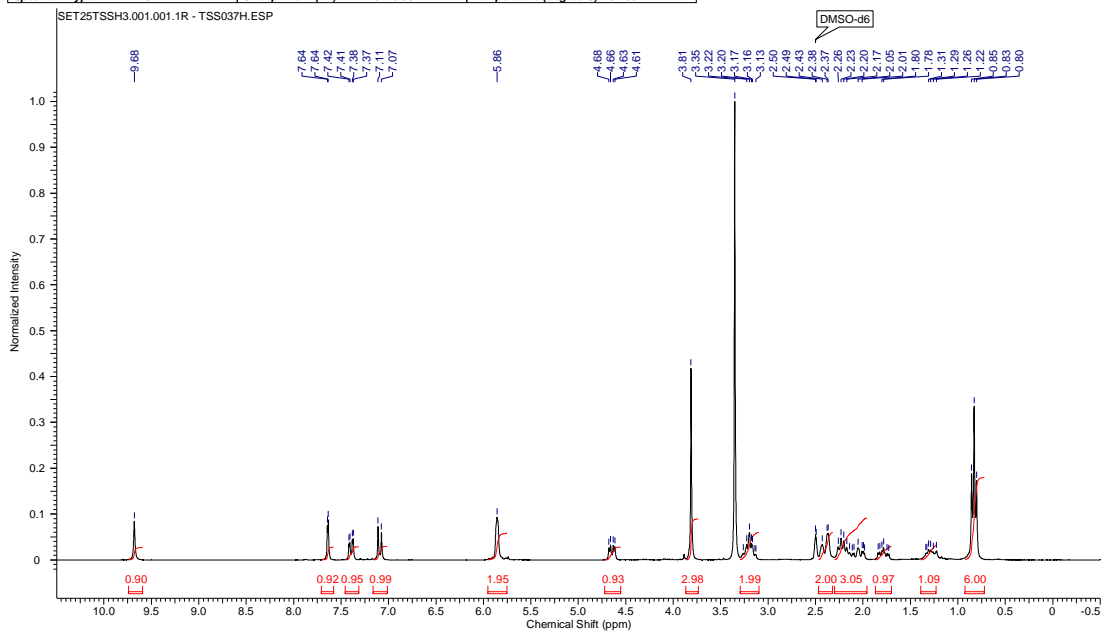
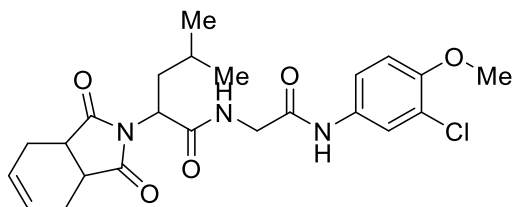


Figure S67 ^1H NMR spectrum of compound 5 (250 MHz, DMSO).



Acquisition Time (sec)	0.5439	Comment	Thiago, DMSO, 250MHz, TSS-037, set25tssC3	Date	25 Sep 2012 16:07:44
Date Stamp	25 Sep 2012 16:07:44	File Name	C:\USERS\IRAFEL\DESKTOP\ESPECTROS TSS\250 - 2012\SET25TSSC3\1\PDATA\111R		
Frequency (MHz)	62.90	Nucleus	¹³ C	Number of Transients	1024
Original Points Count	8192	Owner	root	Points Count	32768
Receiver Gain	724.10	SW (cyclical) (Hz)	15060.24	Solvent	DMSO-d6
Spectrum Type	STANDARD	Sweep Width (Hz)	15059.78	Temperature (degree C)	25.160
				Spectrum Offset (Hz)	6262.6899

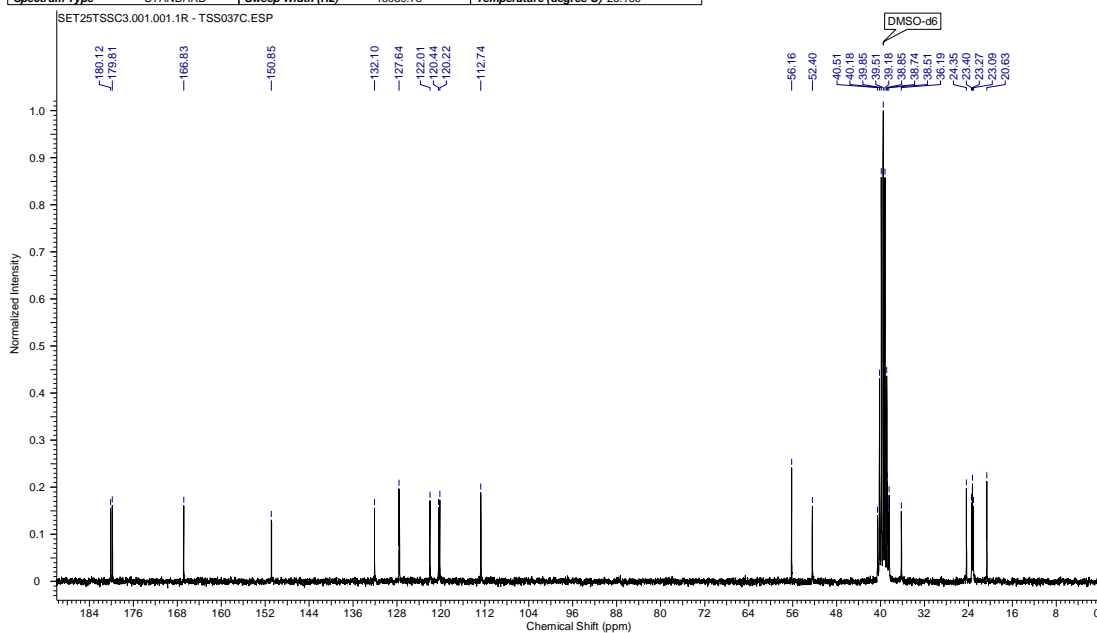
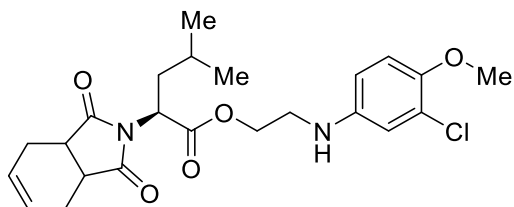


Figure S68 ¹³C NMR spectrum of compound 5 (62.5 MHz, DMSO).



Acquisition Time (sec)	1.3282	Comment	Rafael "RAF-151" cdc13/ Av600MHz dez03rafH1	Date	03 Dec 2015 16:33:46
File Name	E:\RMN Dissert\600 MHz\Dez 15\dez03rafH1 RAF 151_001001r	Frequency (MHz)	600.17	Nucleus	1H
Number of Transients	16	Original Points Count	16384	Points Count	65536
Solvent	CHLOROFORM-D	Sweep Width (Hz)	12335.53	Temperature (degree C)	25.155

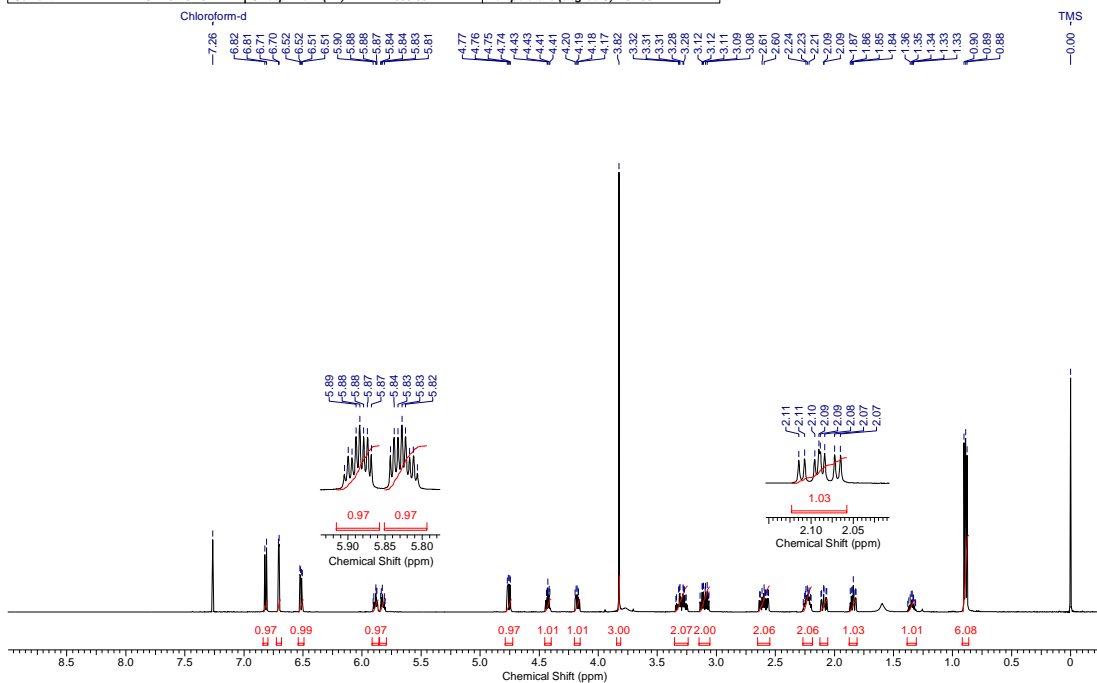
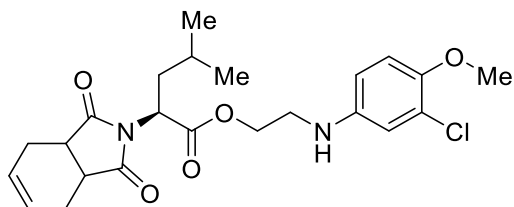


Figure S69 ¹H NMR spectrum of compound 7 (600 MHz, CDCl₃).



Acquisition Time (sec)	0.4544	Comment	Rafael "RAF-151" cdcl3/ Av600MHz dez03rafH1 - 13C	Date	03 Dec 2015 16:53:20
File Name	E:\RMN Dissert\600 MHz\Dez 15\dez03rafH1 RAF 151_002001r	Frequency (MHz)	150.91	Nucleus	13C
Number of Transients	320	Original Points Count	16384	Points Count	32768
Solvent	CHLOROFORM-D	Sweep Width (Hz)	36057.69	Temperature (degree C)	25.145
				Pulse Sequence	zgpg30

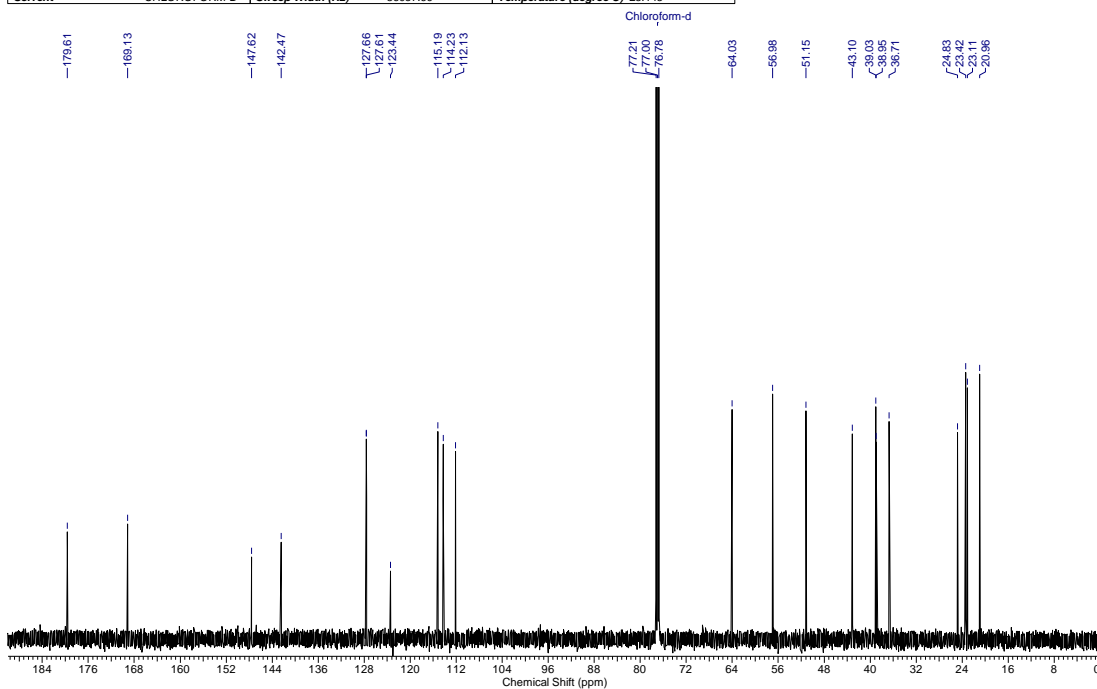


Figure S70 ^{13}C NMR spectrum of compound **7** (150 MHz, CDCl_3).