Electronic Supplementary Material (ESI) for Green Chemistry.

A Multigram-Scale Lower E-Factor Procedure for MIBA-Catalyzed Direct Amidation and Its Application to the Coupling of alpha and beta Aminoacids

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SUPPORTING INFORMATION

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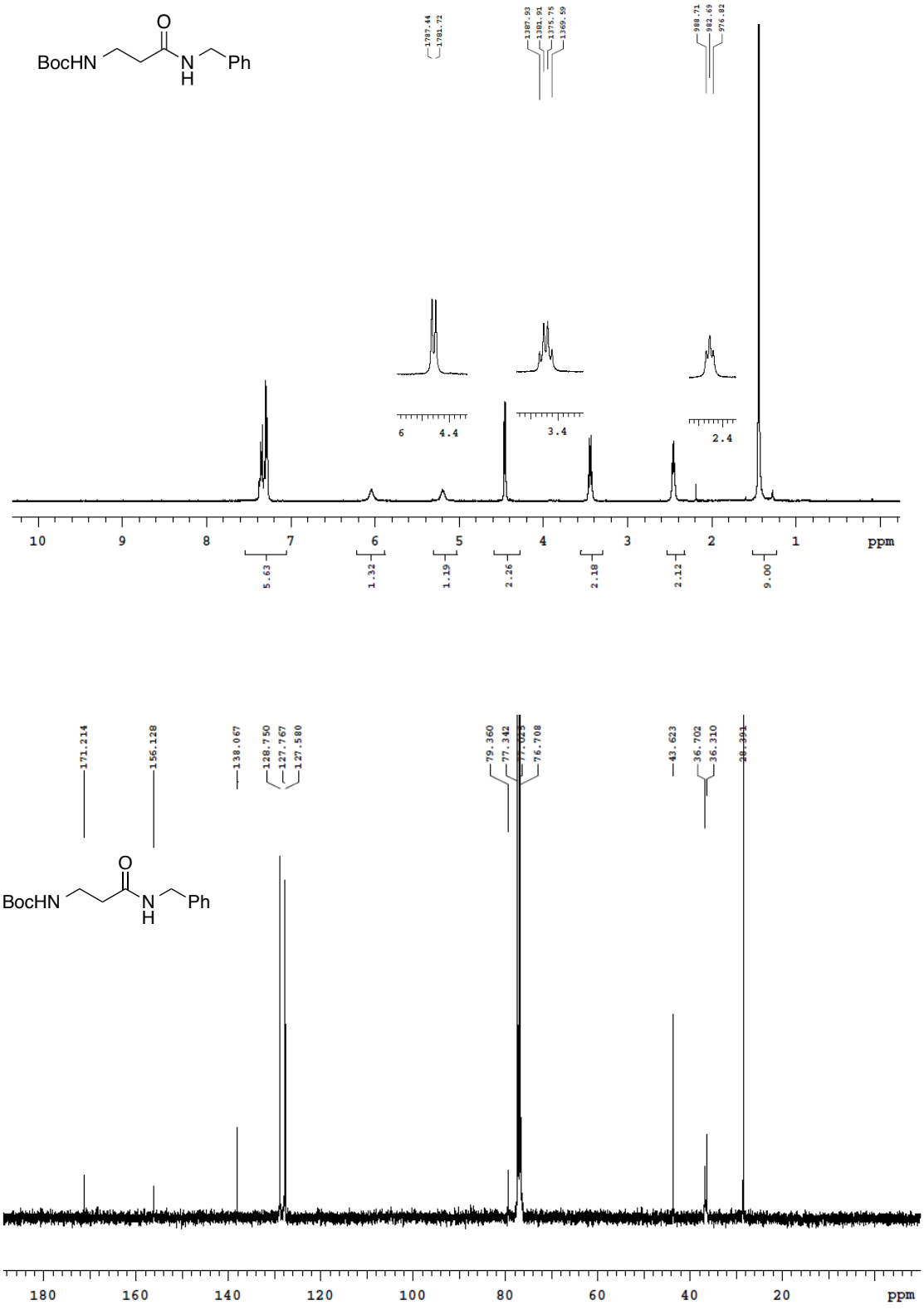
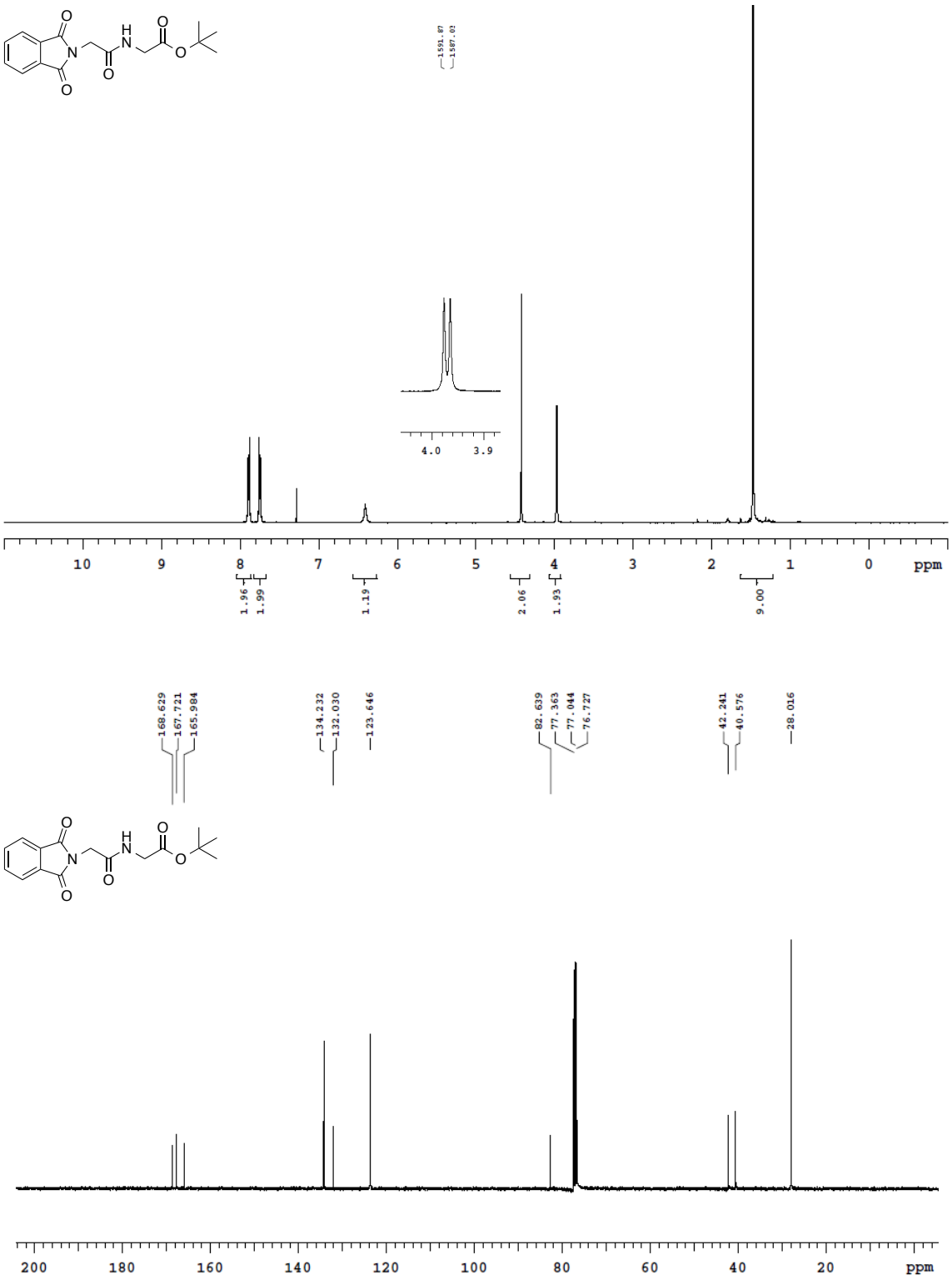
^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 25 in $CDCl_3$ at 27 °C



^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 32 in $CDCl_3$ at 27 °C



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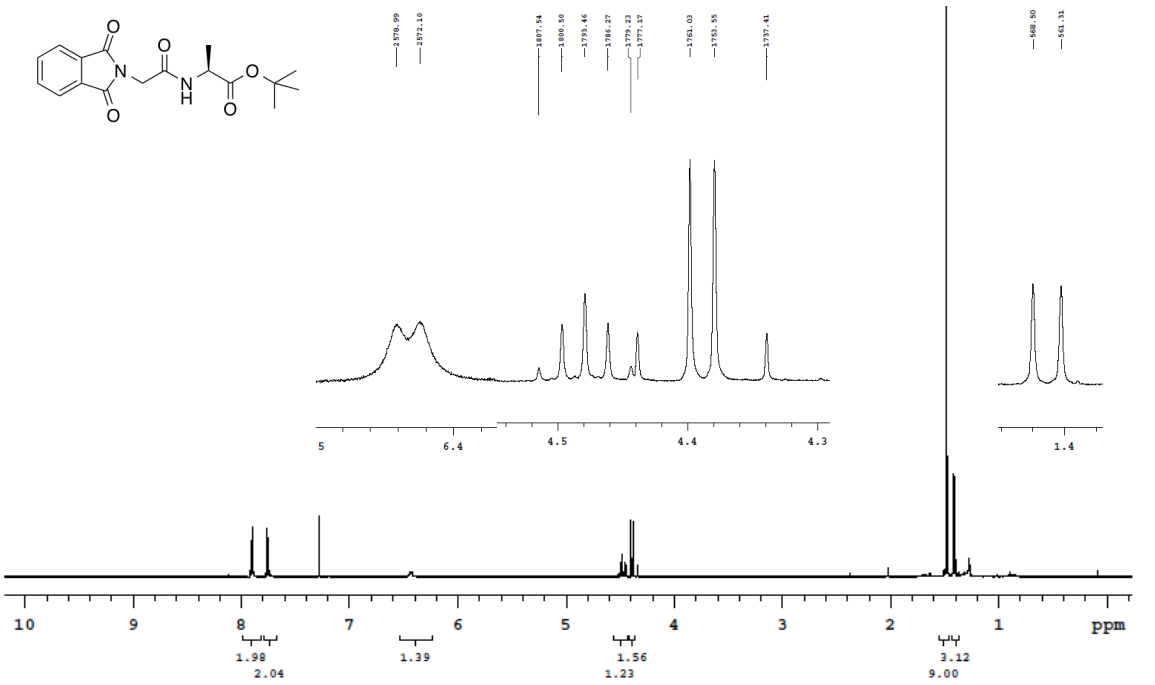

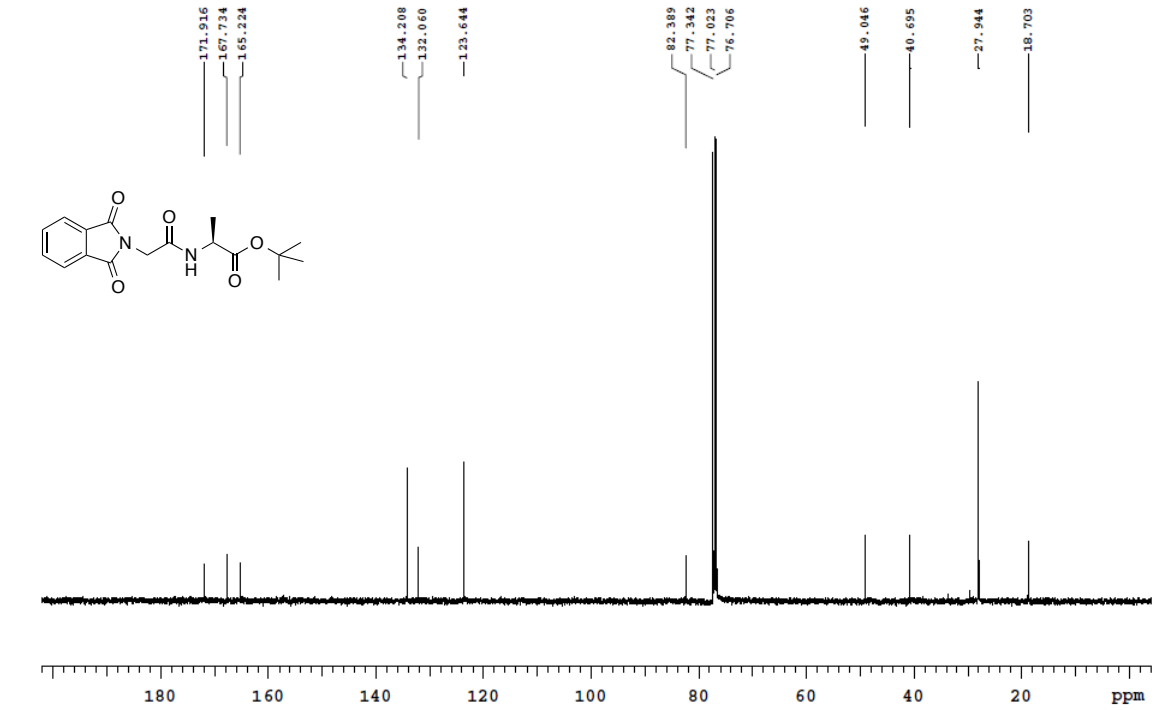

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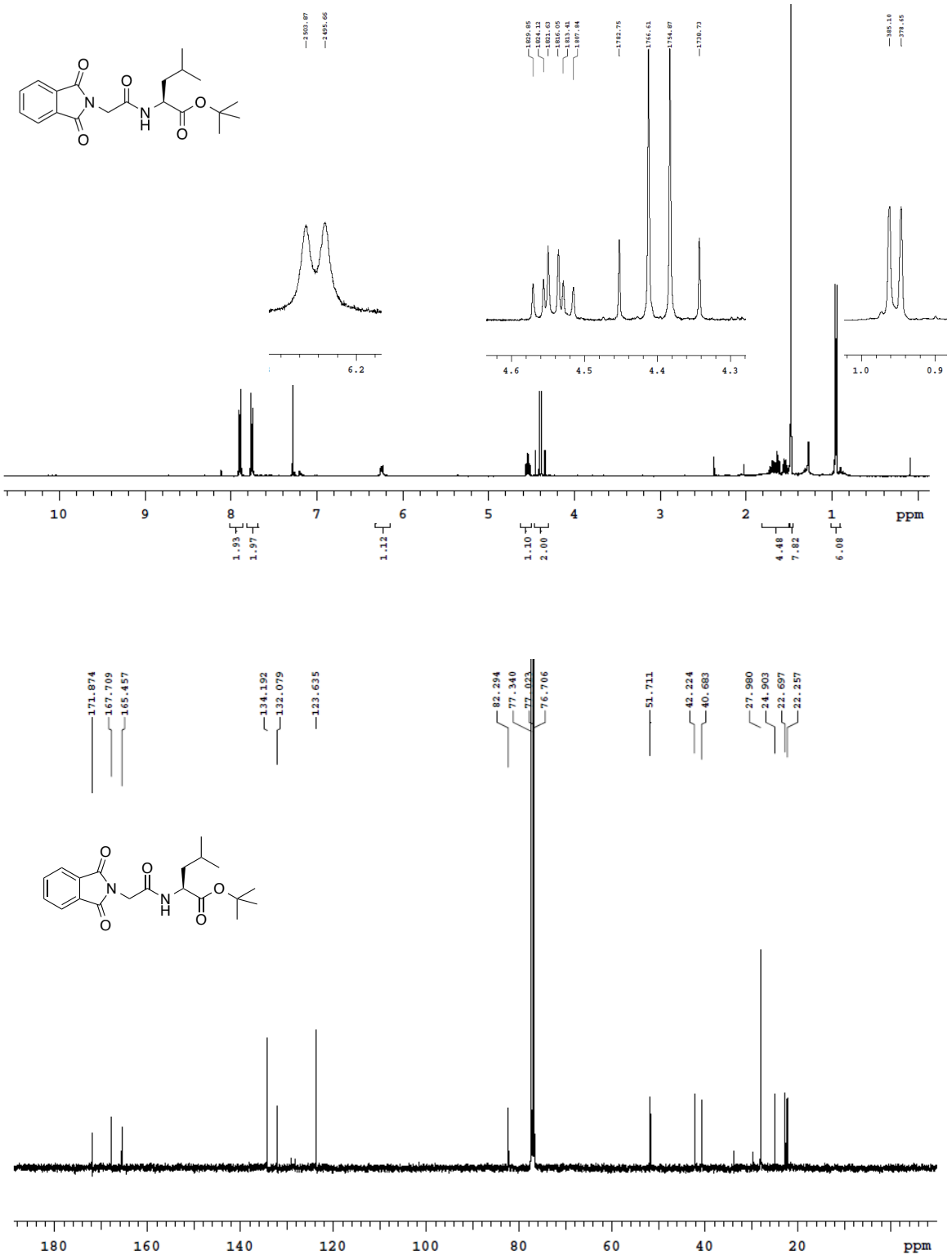

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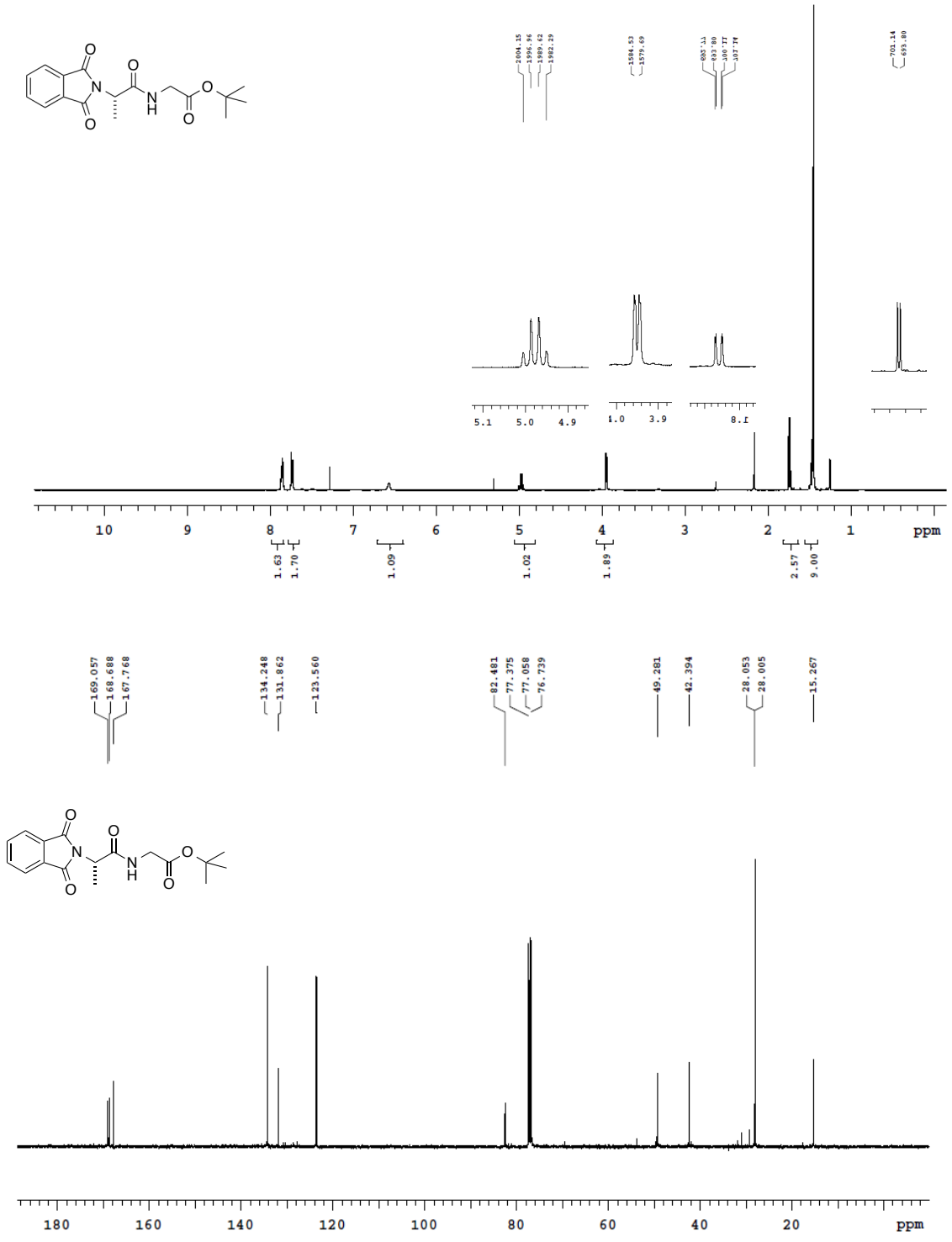
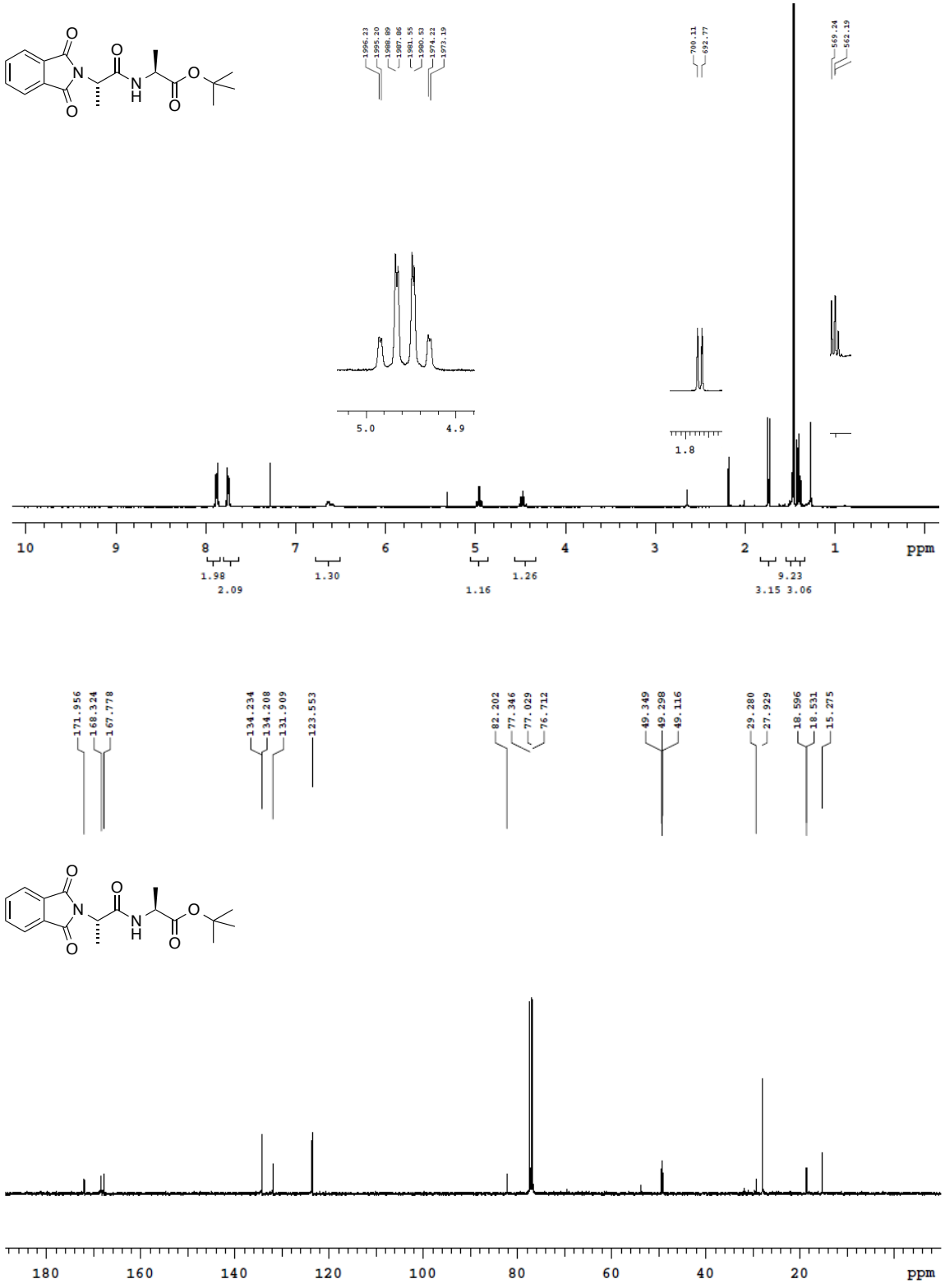
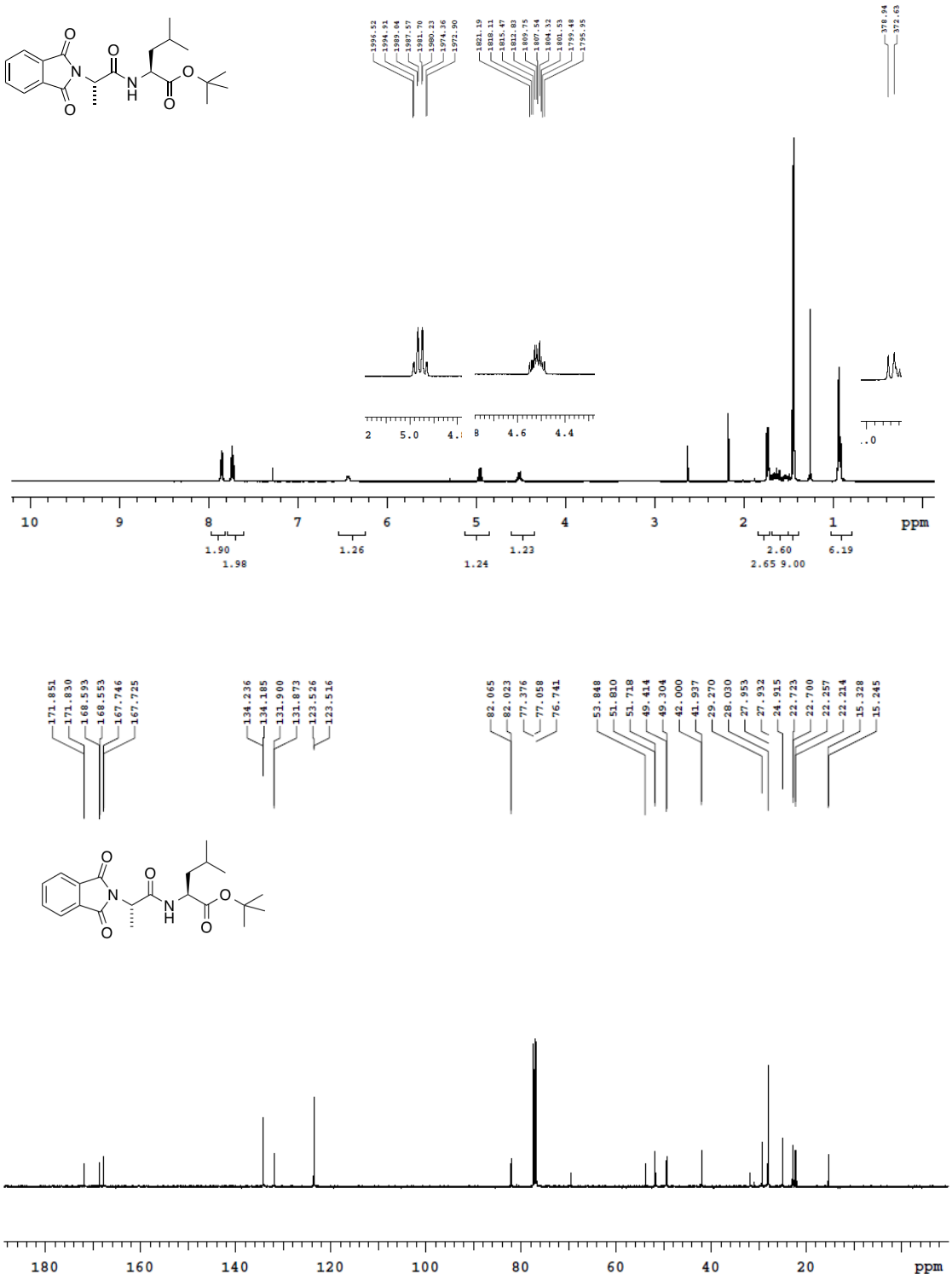


^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 36 in $CDCl_3$ at 27 ^{o}C



^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 37 in $CDCl_3$ at 27 ^{o}C



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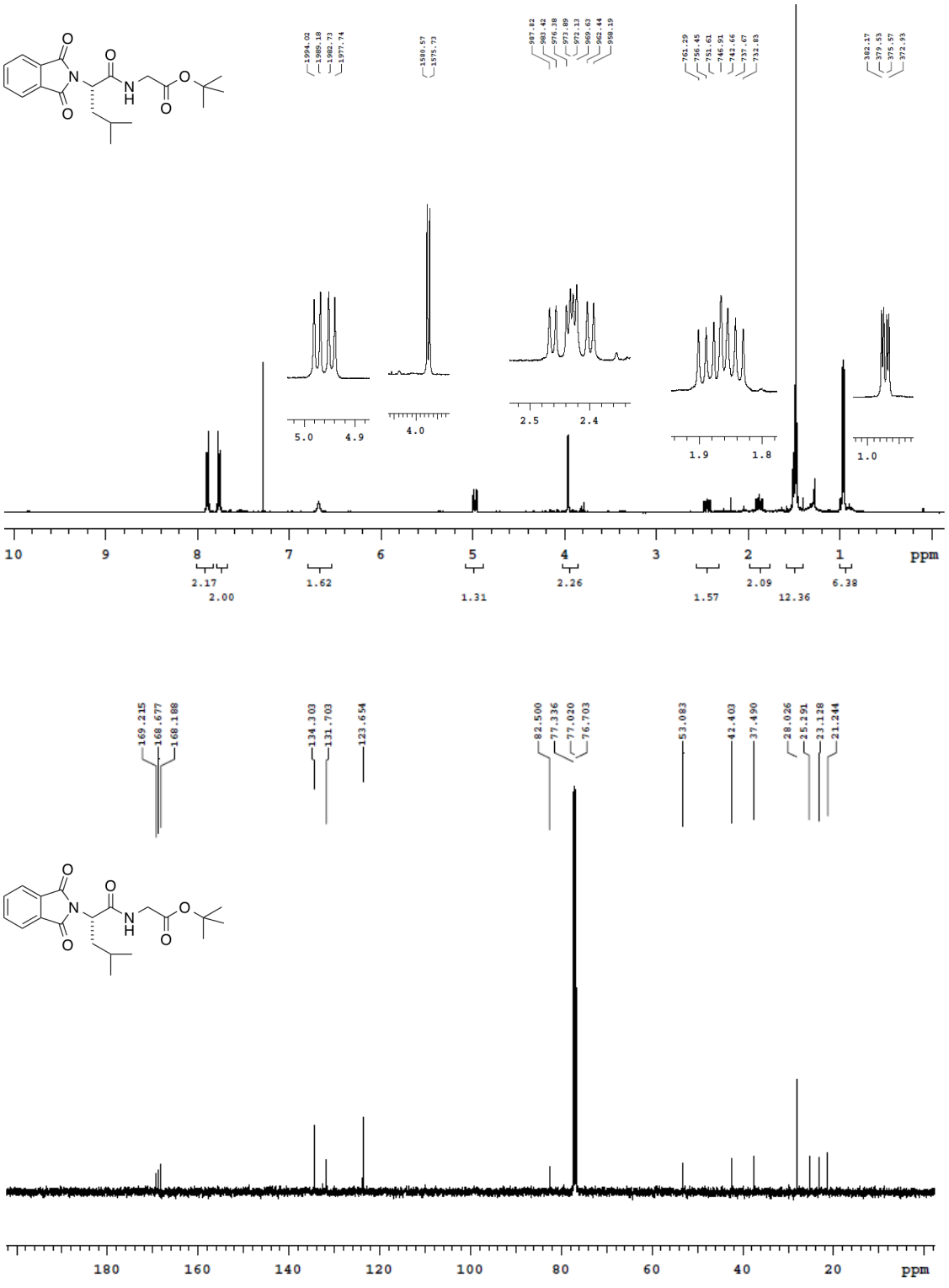

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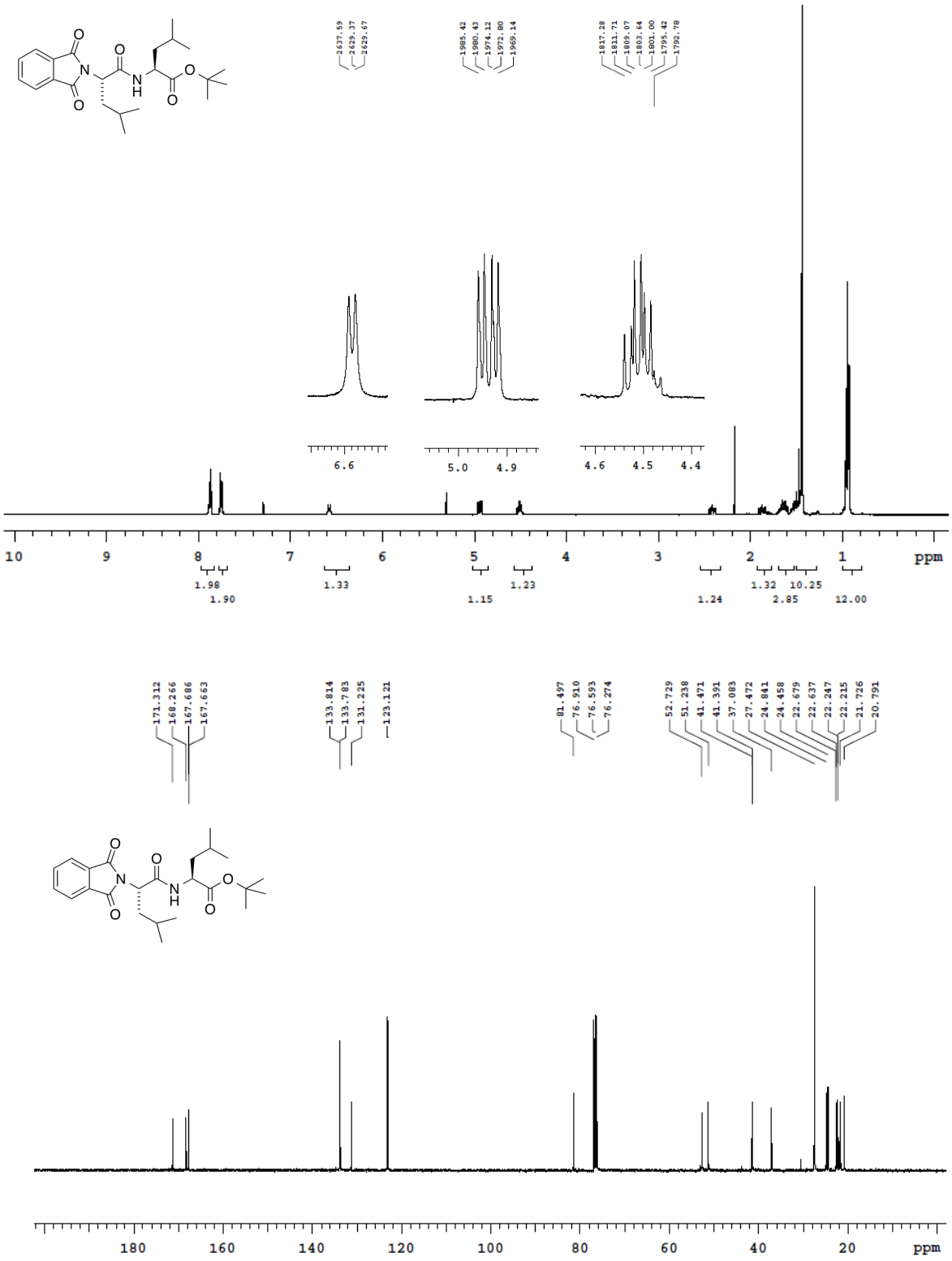

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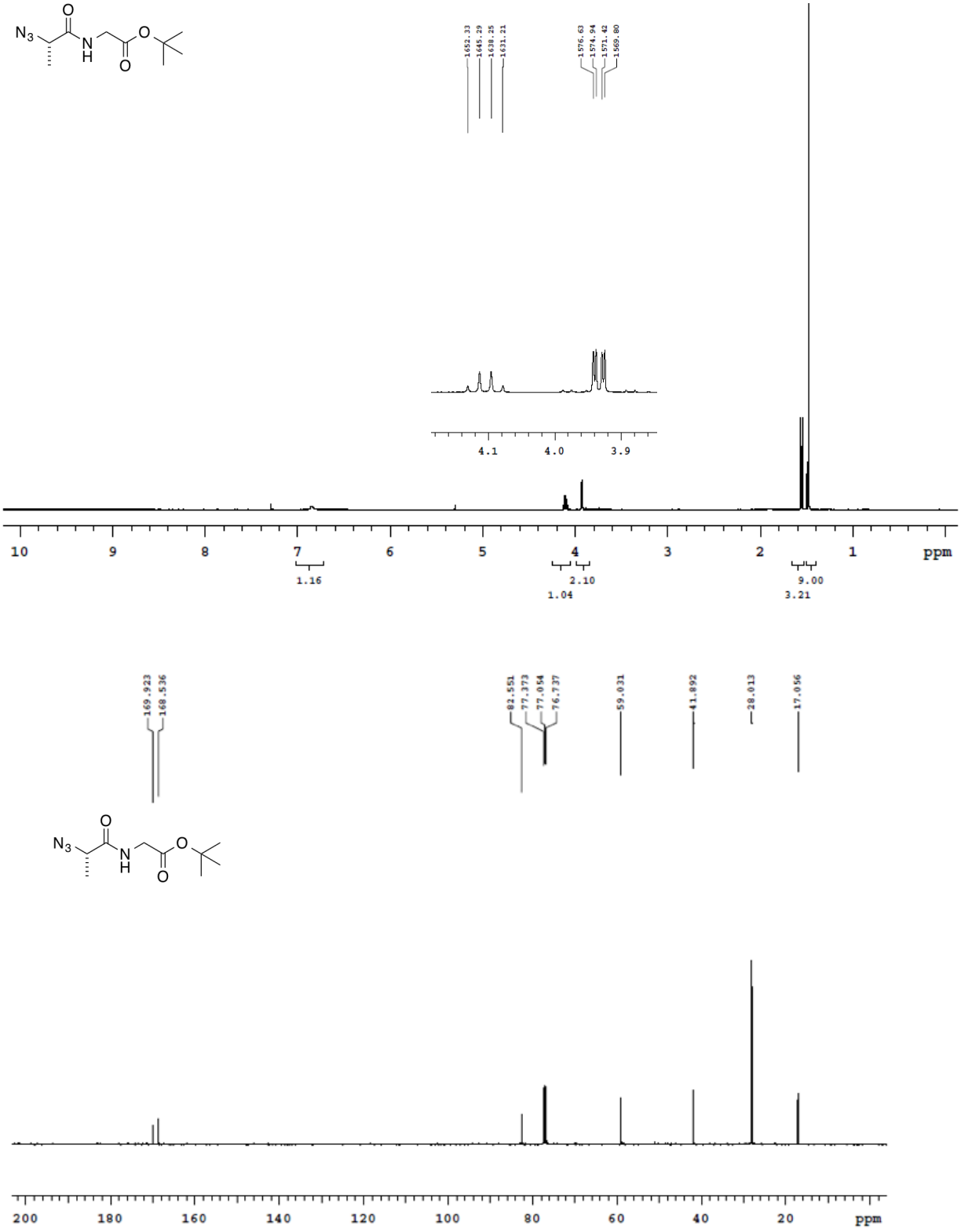
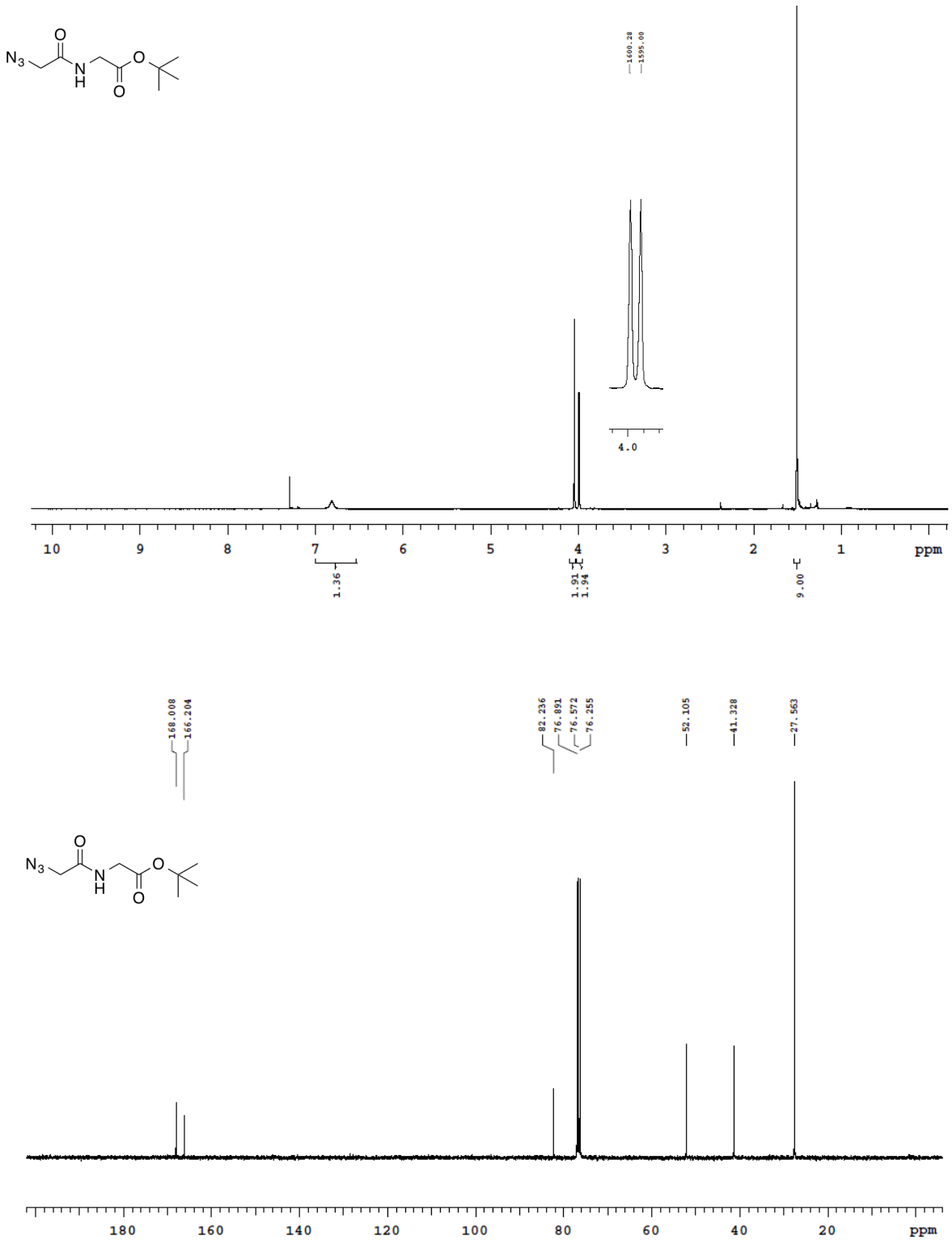


^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 43 in $CDCl_3$ at 27 ^{o}C



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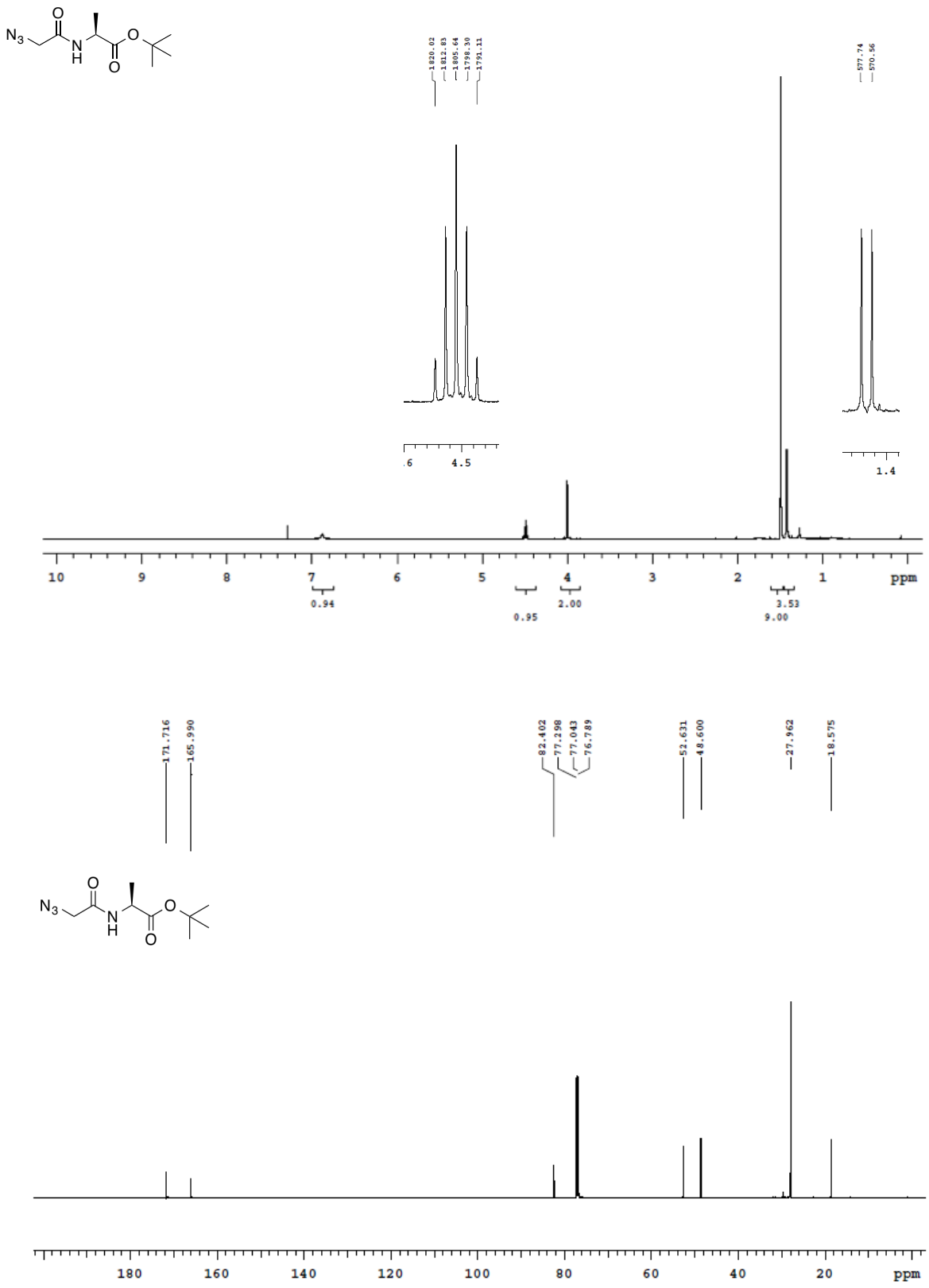

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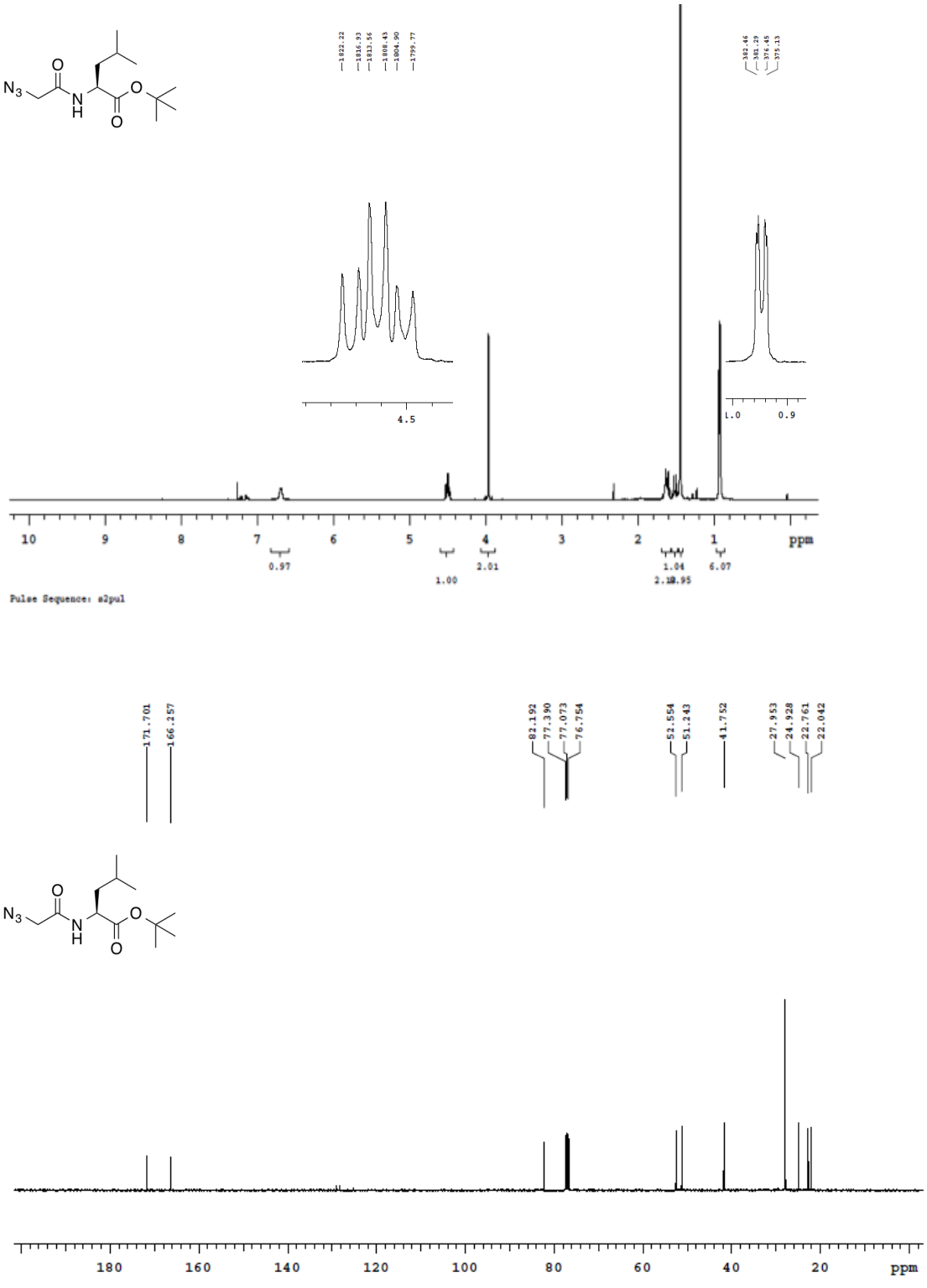
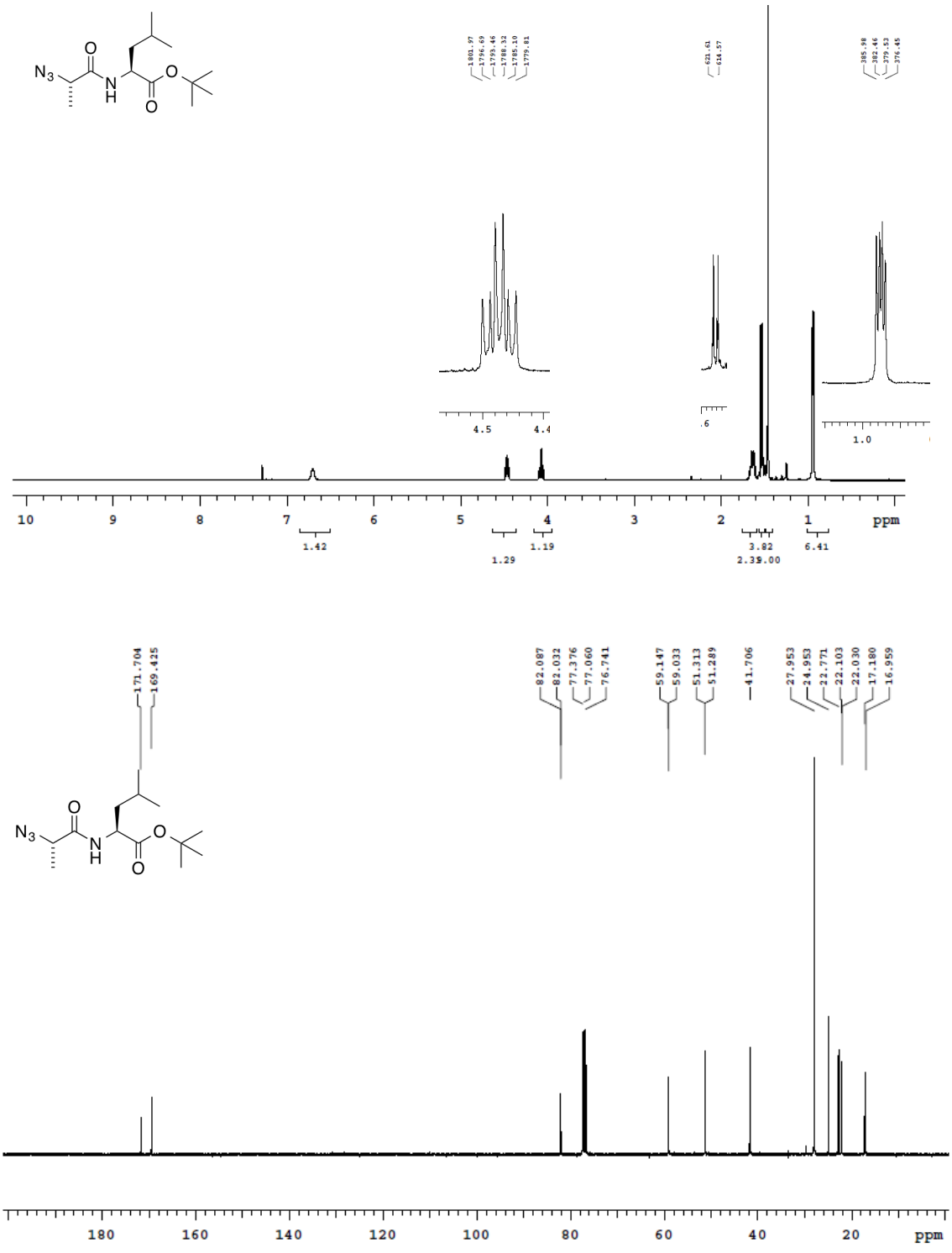


^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 46 in $CDCl_3$ at 27 ^{o}C



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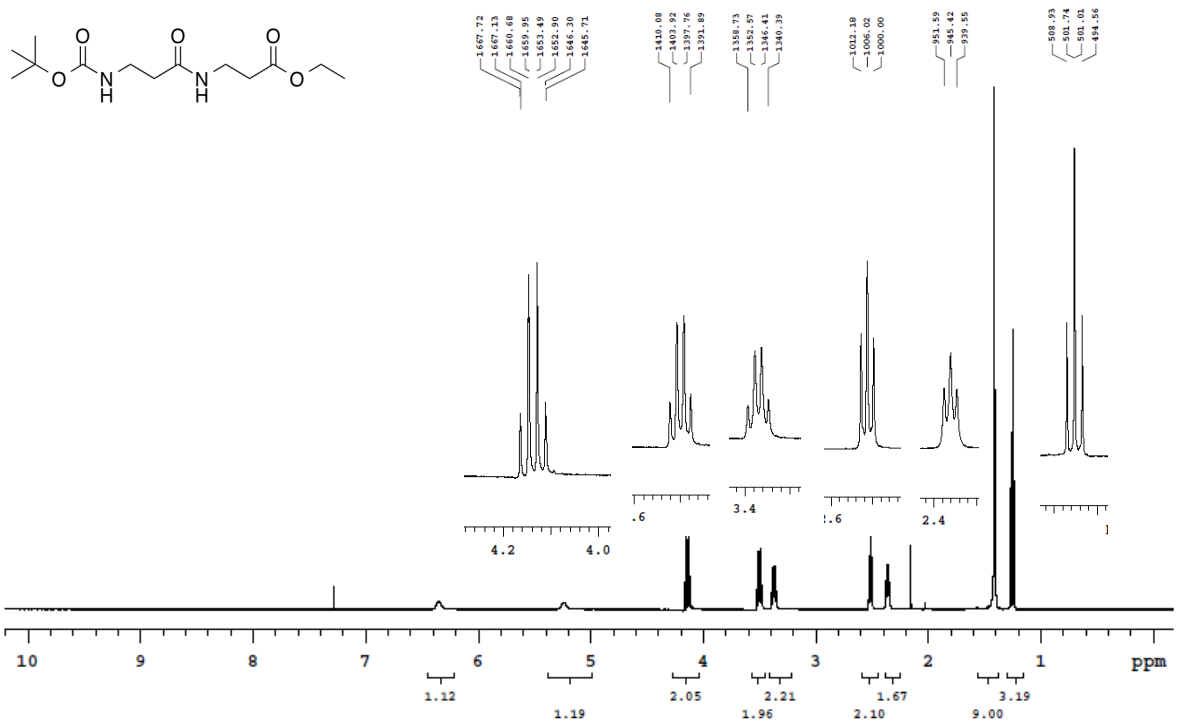

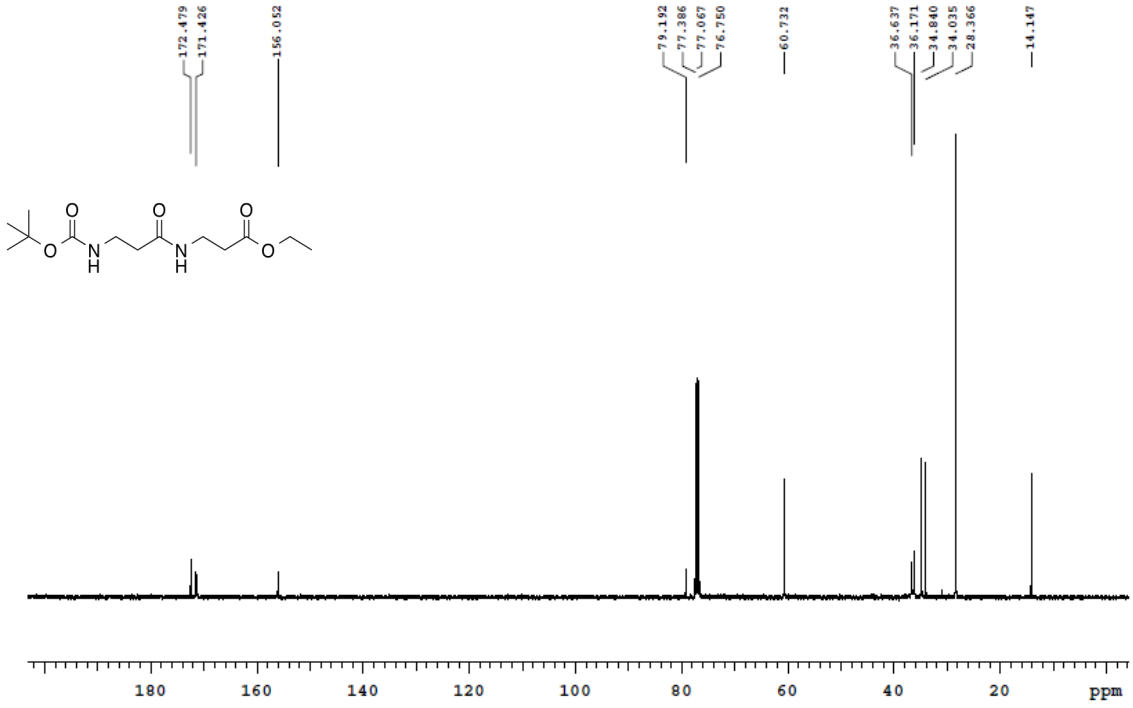

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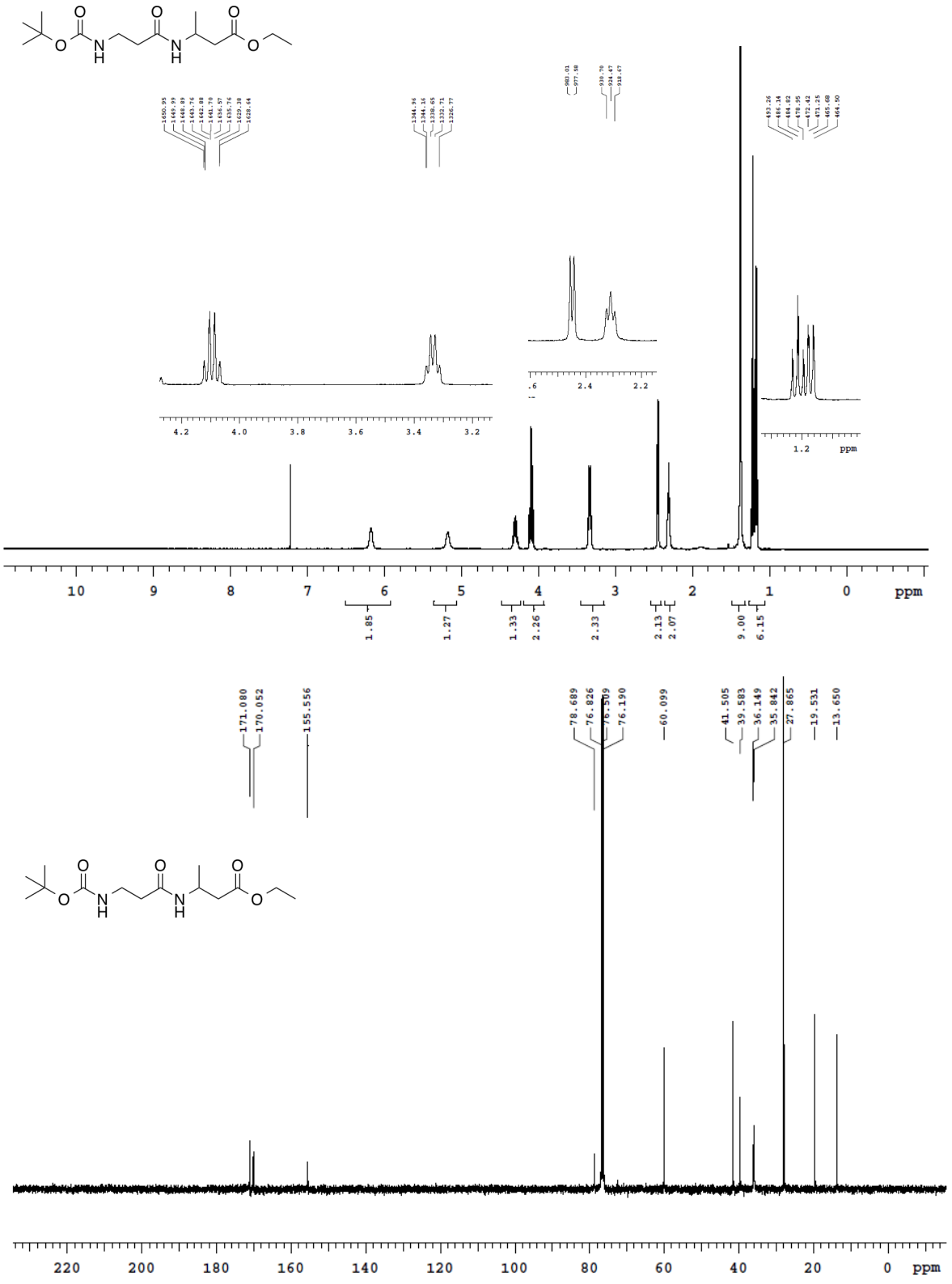
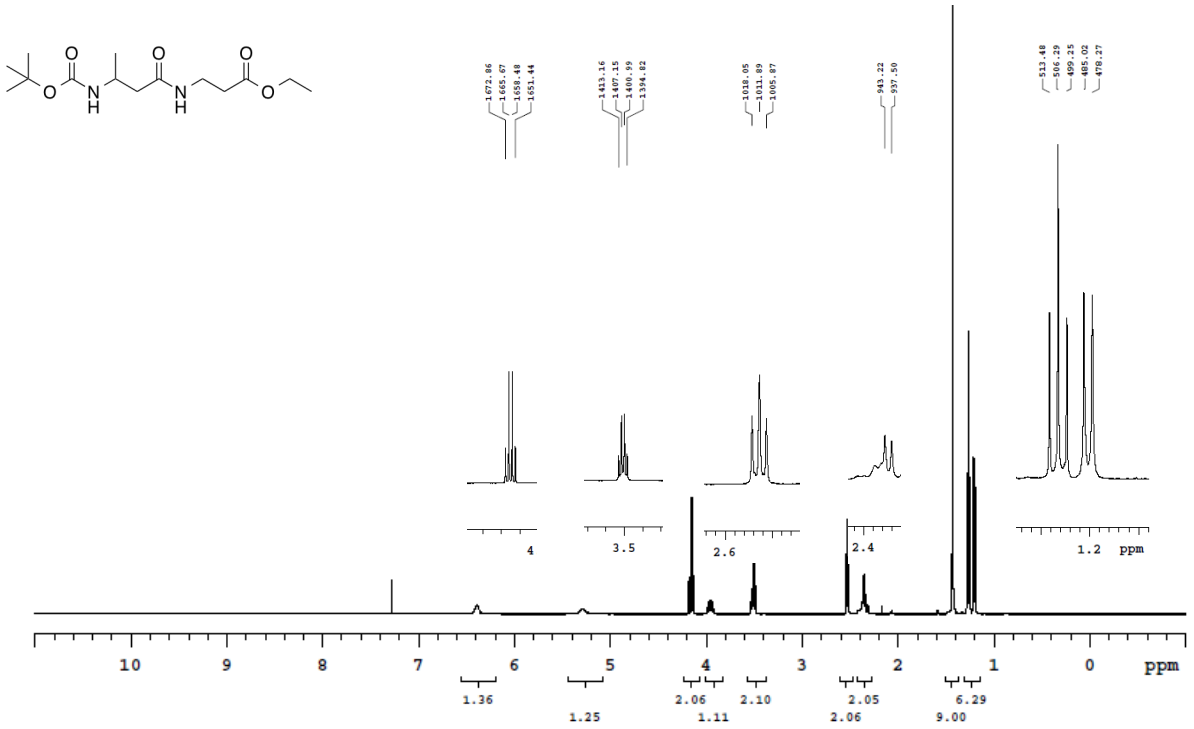
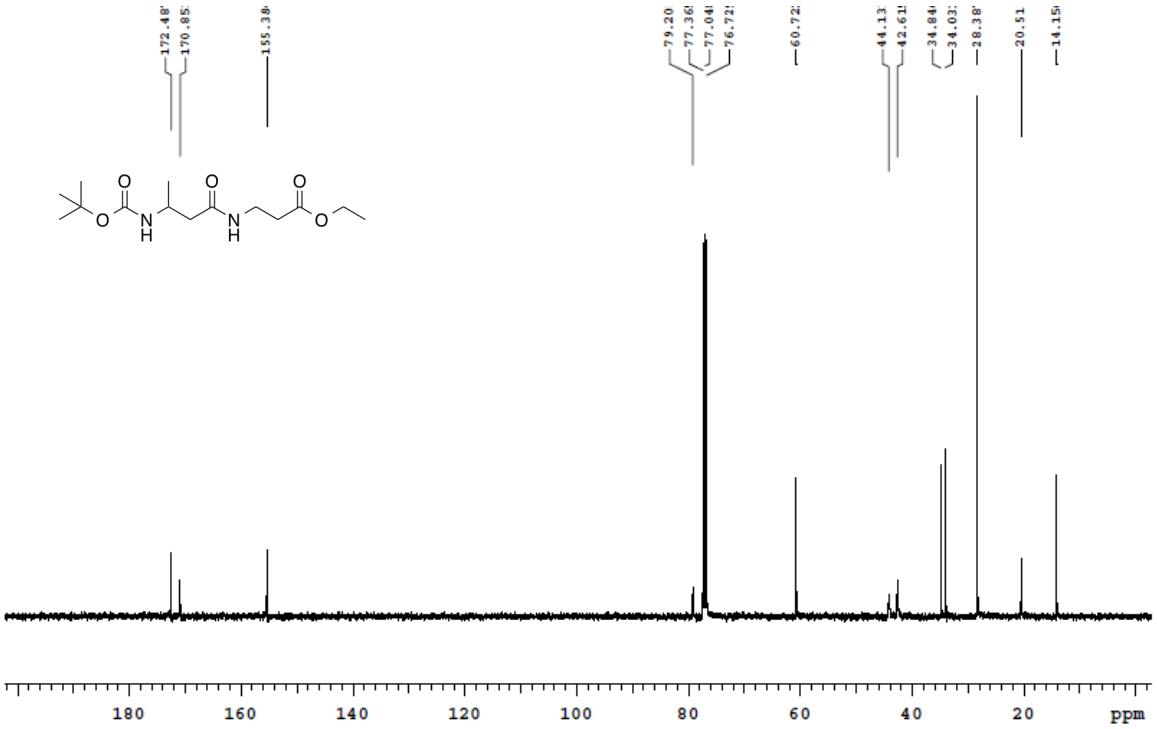
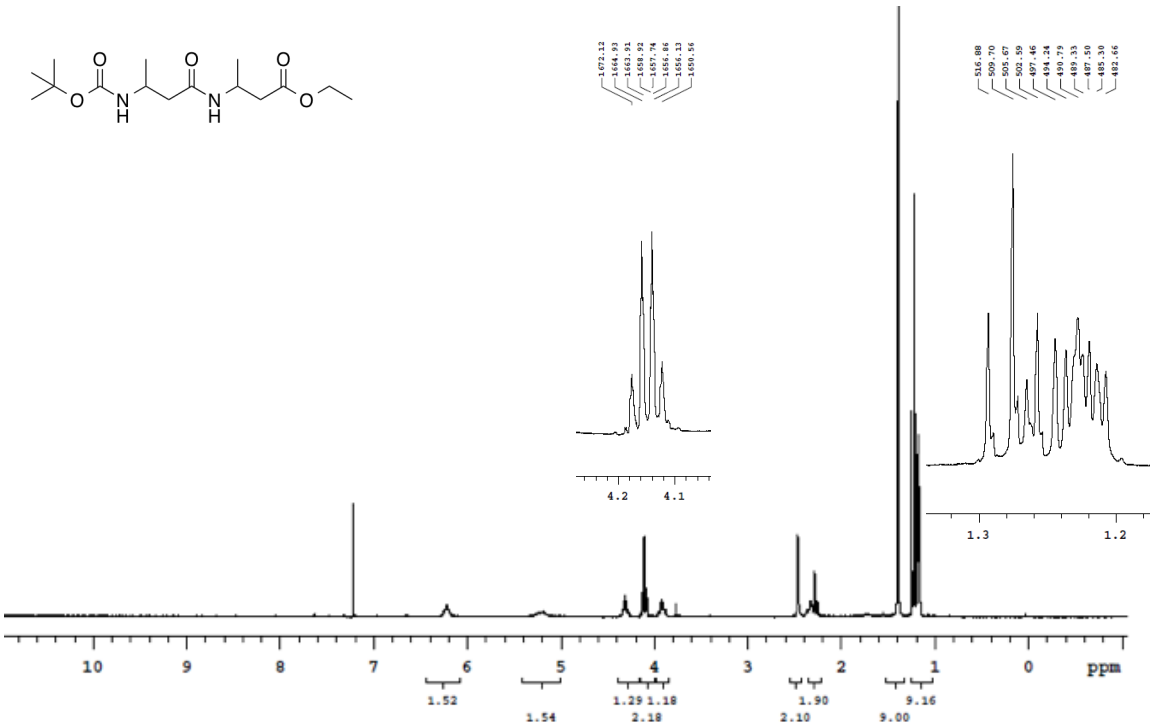


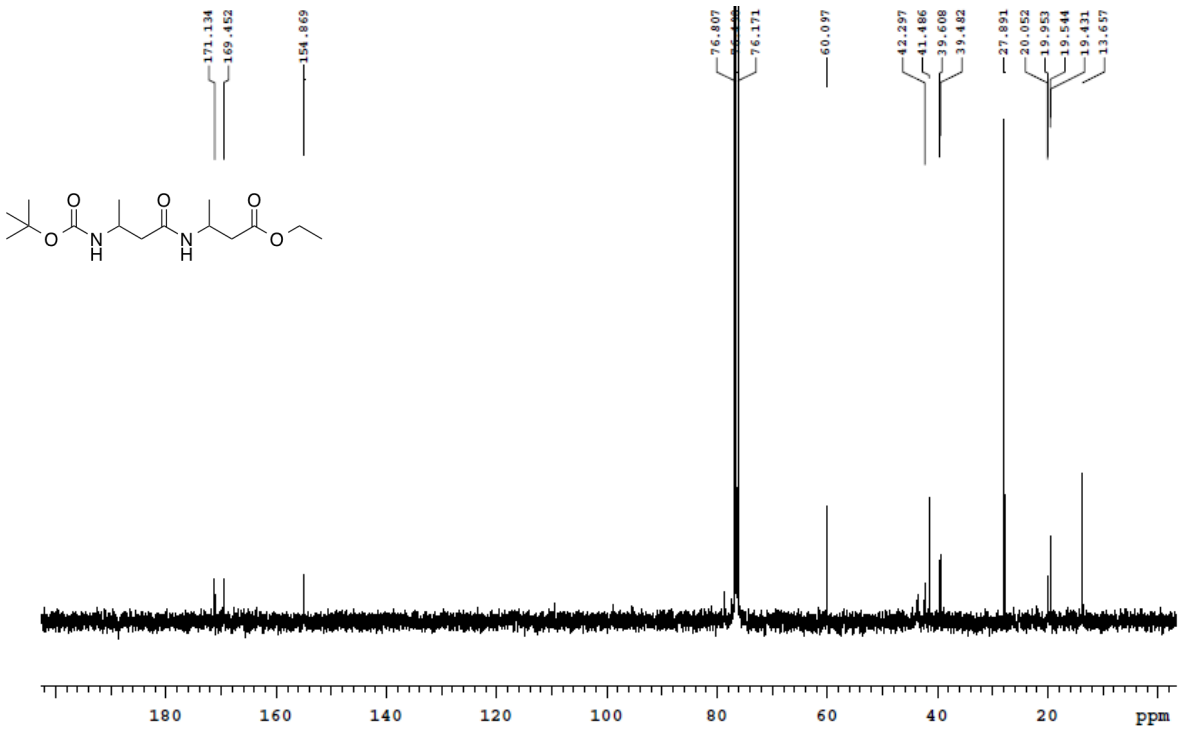
^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 52 in $CDCl_3$ at 27 ^{o}C



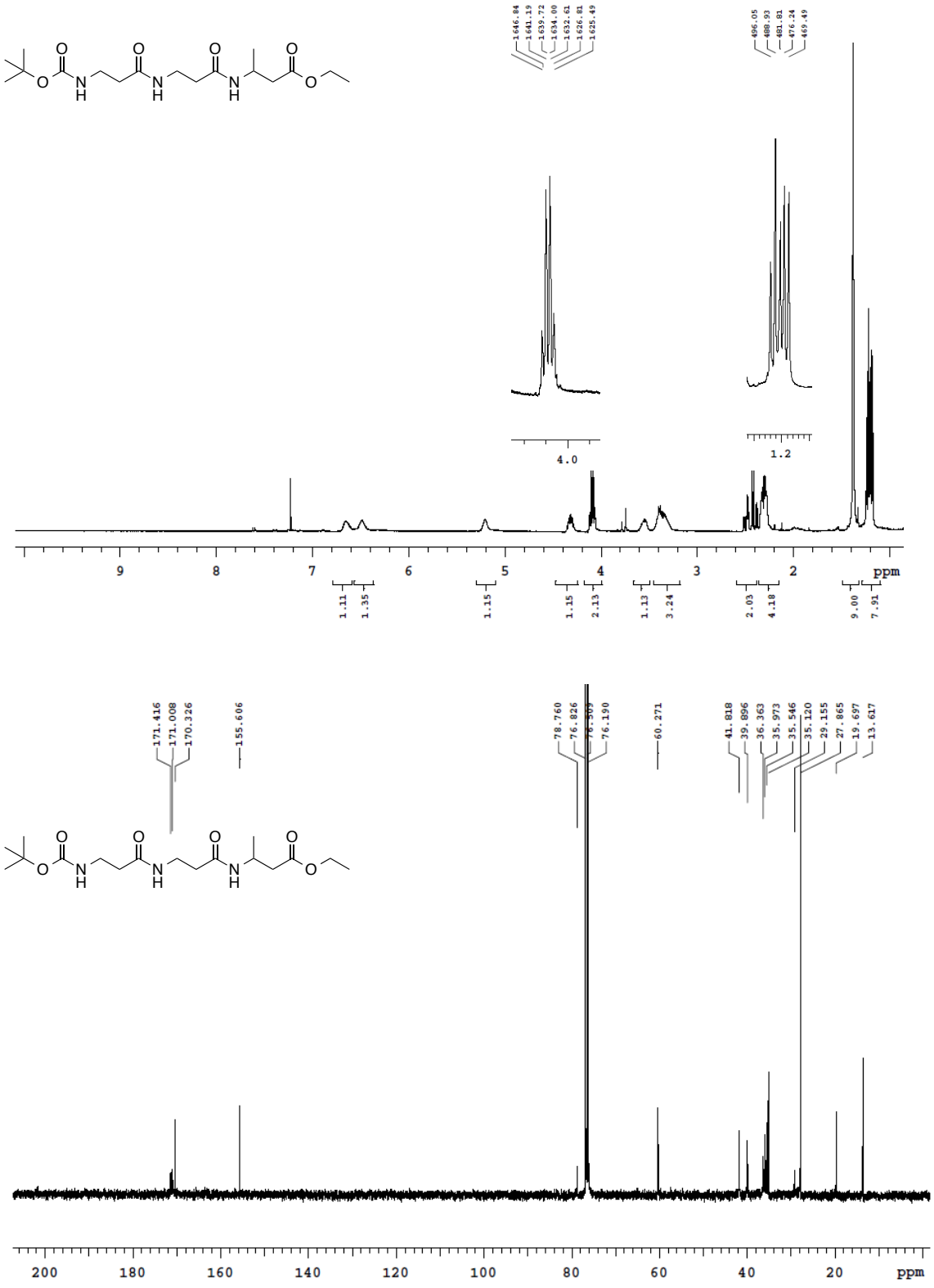


^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 53 in $CDCl_3$ at 27 ^{o}C

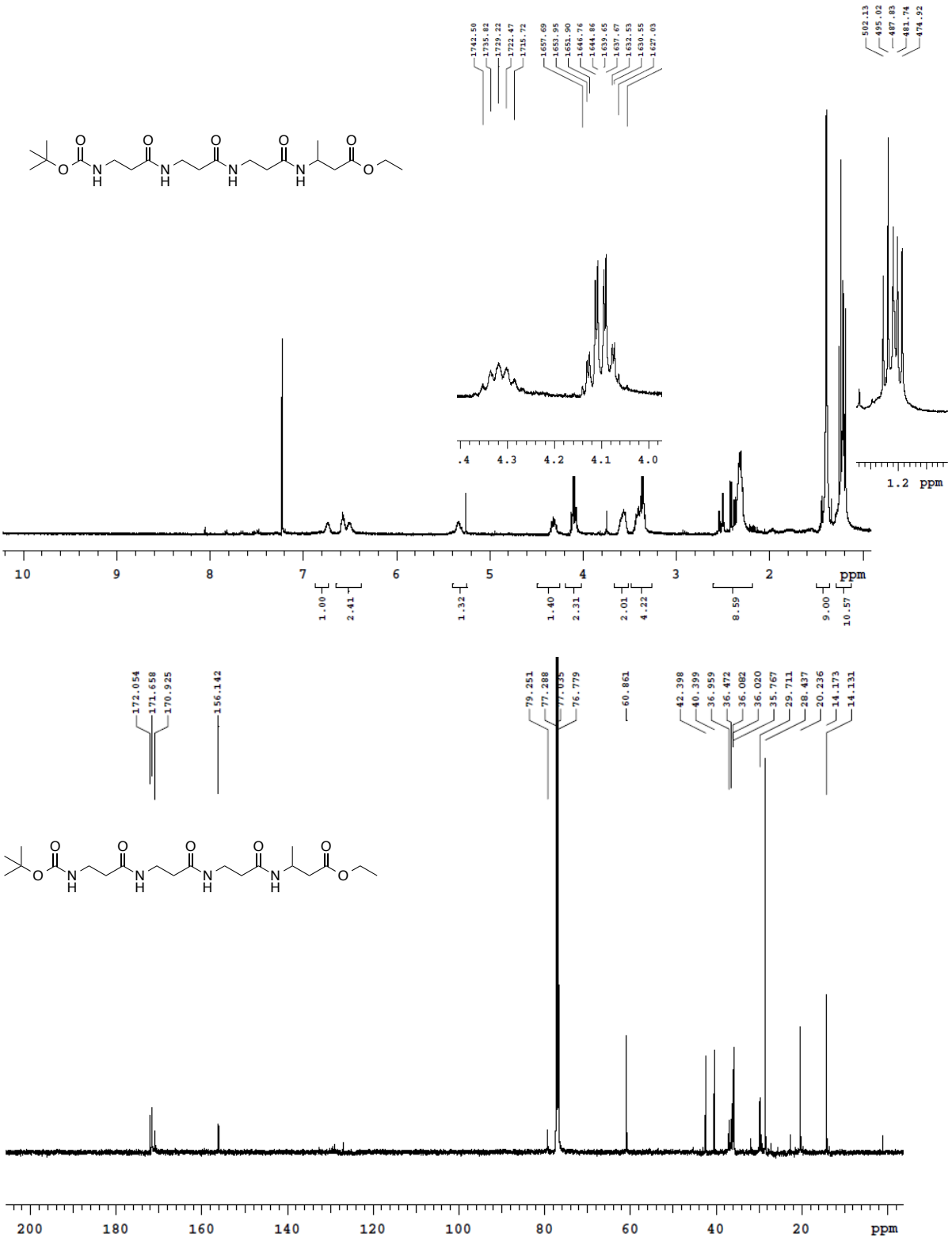




^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 54 in $CDCl_3$ at 27 ^{o}C

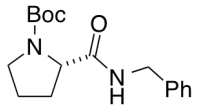


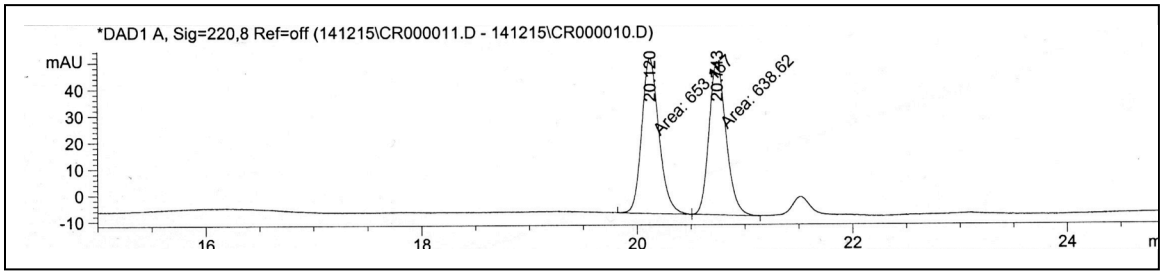
^{1}H-NMR (400 MHz), ^{13}C-NMR (100.6 MHz) of 55 in $CDCl_3$ at 27 ^{o}C



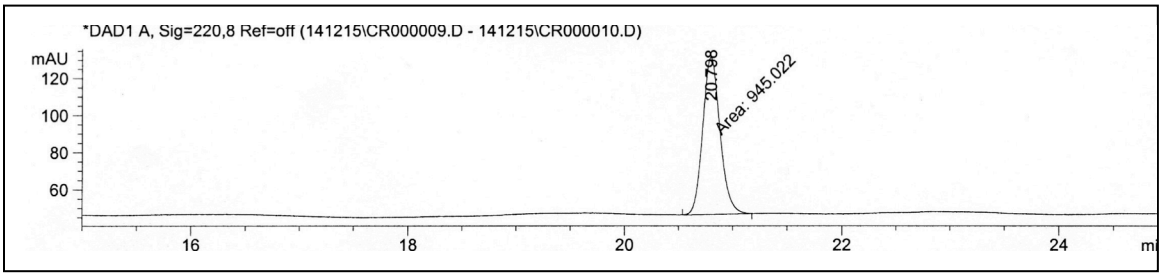
Appendix B: Chromatograms for enantiomeric excess measurements

Racemic (top) and optically enriched (bottom) 13



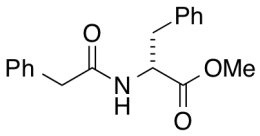


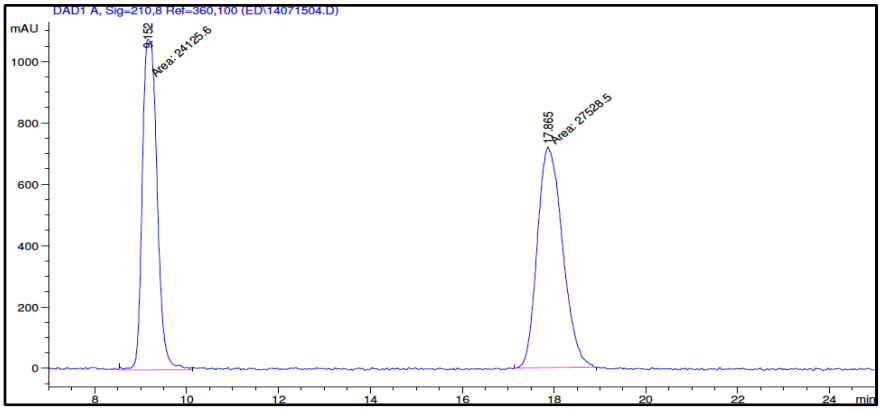
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	20.120	MF	0.1853	653.16650	58.76403	50.5630
2	20.743	FM	0.1832	638.61981	58.08435	49.4370
Totals :				1291.78632	116.84838	



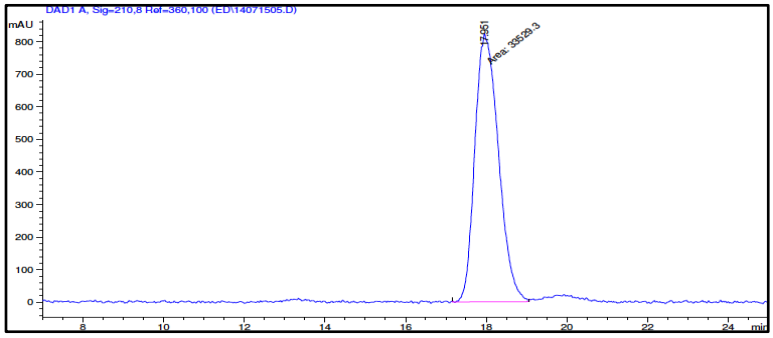
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	20.798	MM	0.1851	945.02228	85.07357	100.0000
Totals :				945.02228	85.07357	

Racemic (top) and optically enriched (bottom) 14





Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	3.859	VV	0.0757	119.50421	21.87491	0.2211
2	4.094	VV	0.1696	525.76245	38.92090	0.9726
3	4.224	VV	0.1160	324.19495	35.02998	0.5997
4	4.722	VV	0.1381	1095.04370	113.95348	2.0257
5	4.921	VV	0.1111	339.92239	41.72220	0.6288
6	9.152	MM	0.3727	2.41256e4	1078.86792	44.6287
7	17.865	MM	0.6366	2.75285e4	720.66309	50.9235
Totals :				5.40586e4	2051.03248	



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	17.951	MM	0.6778	3.35293e4	824.52075	100.0000
Totals :				3.35293e4	824.52075	