

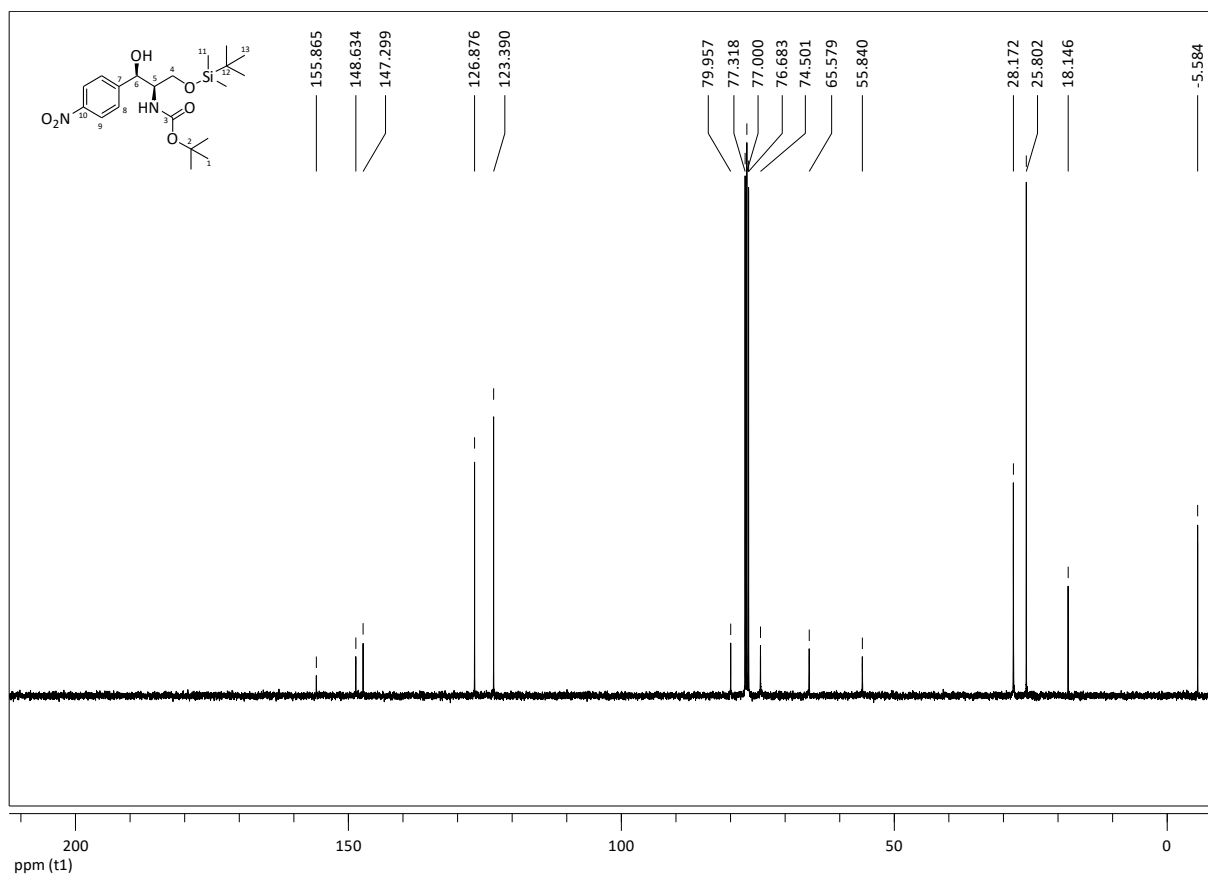
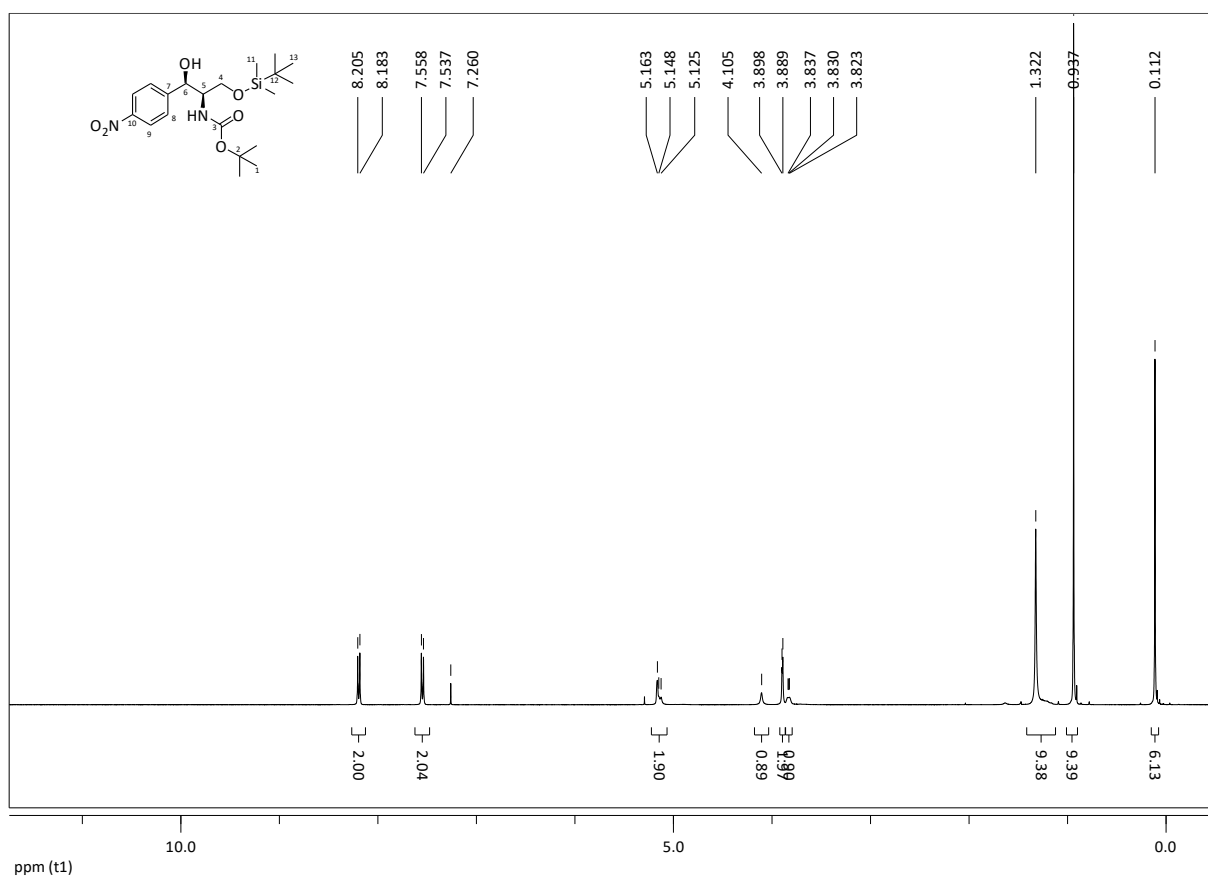
Supporting Information

Synthesis of modified β -methoxyphenylalanines via diazonium chemistry and their incorporation in desoxycyclomarin analogues

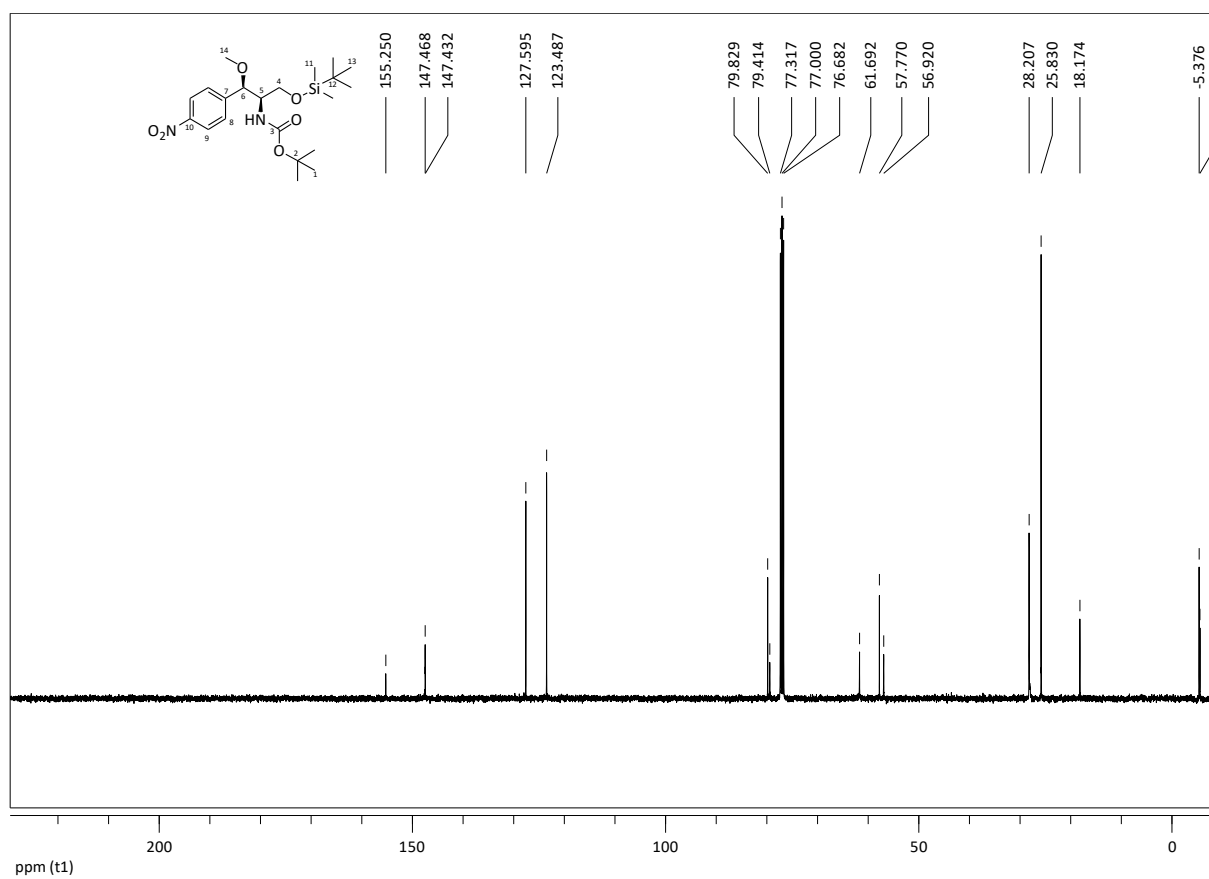
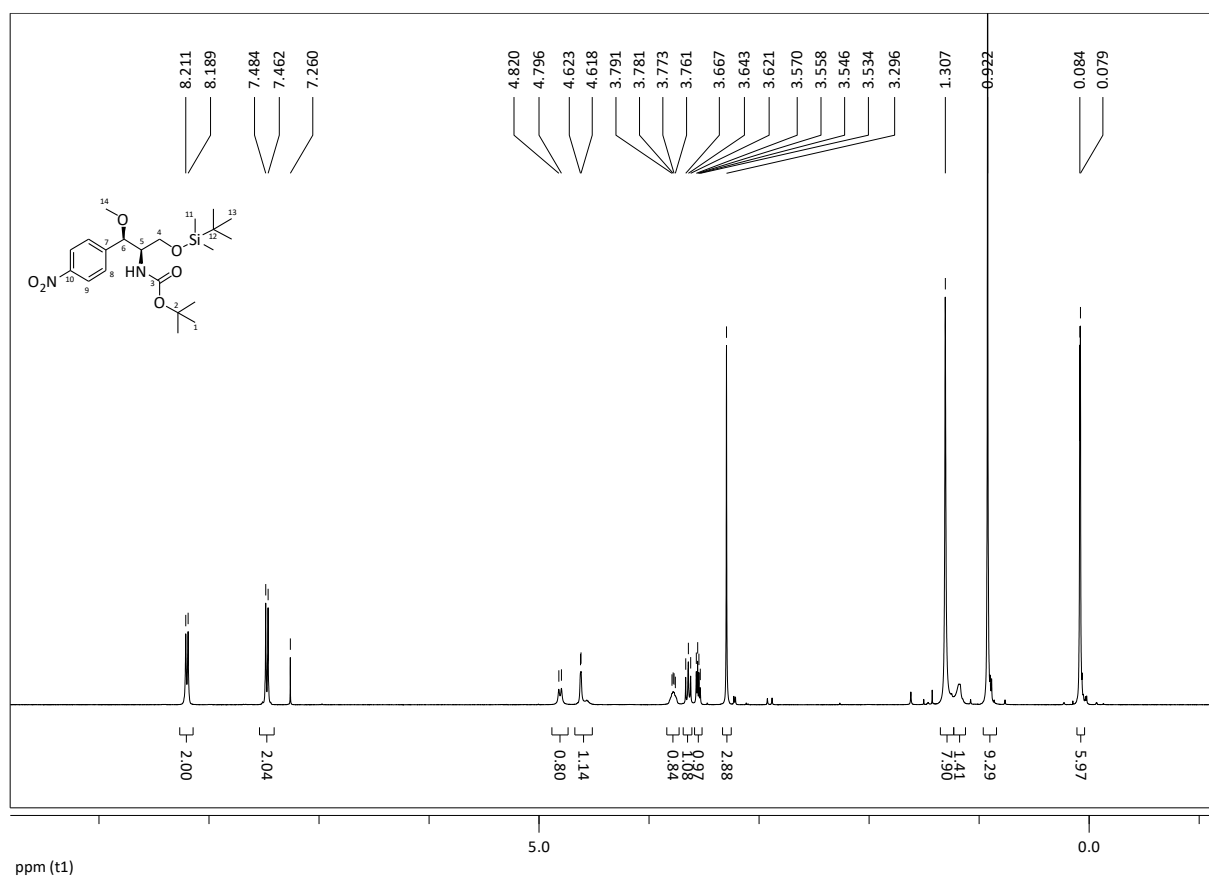
Alexander Kiefer, Uli Kazmaier*

Institute for Organic Chemistry, Saarland University, 66123 Saarbrücken

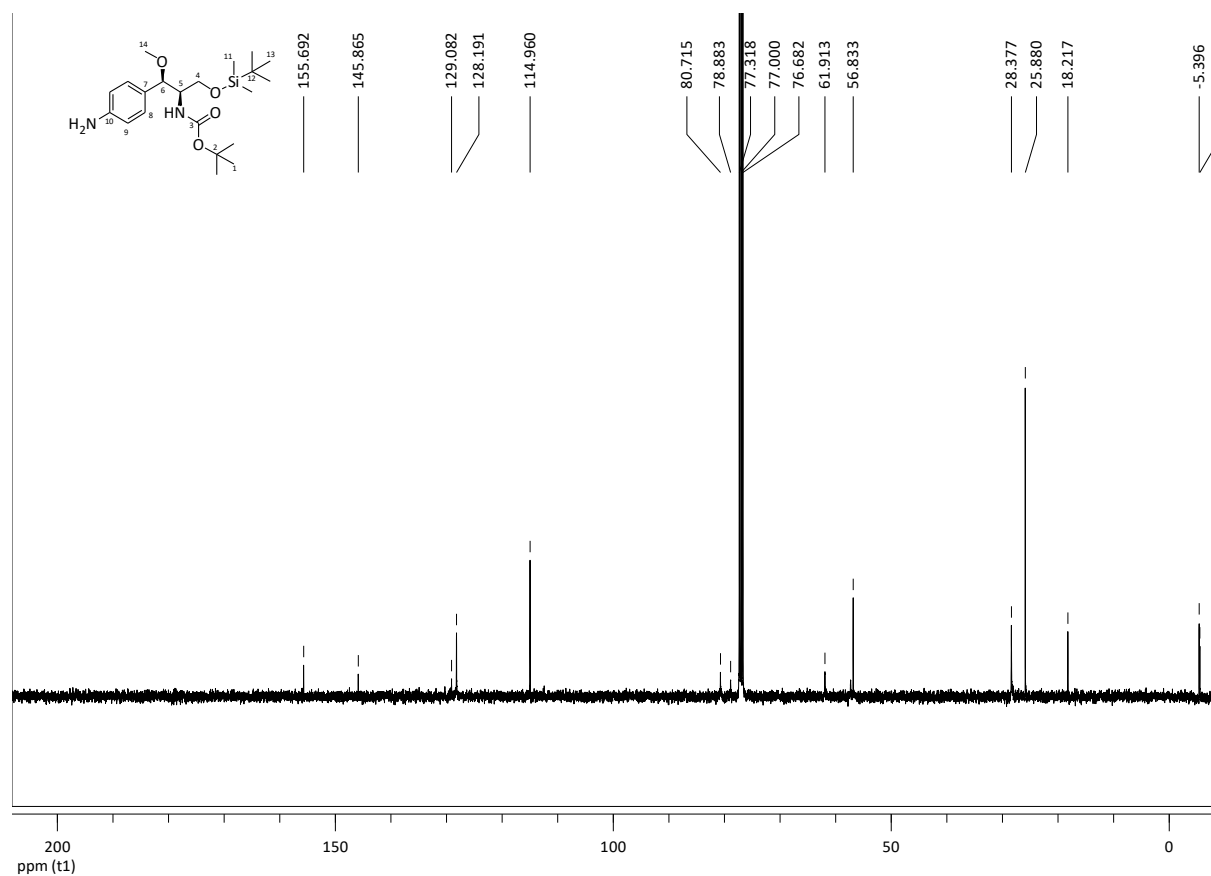
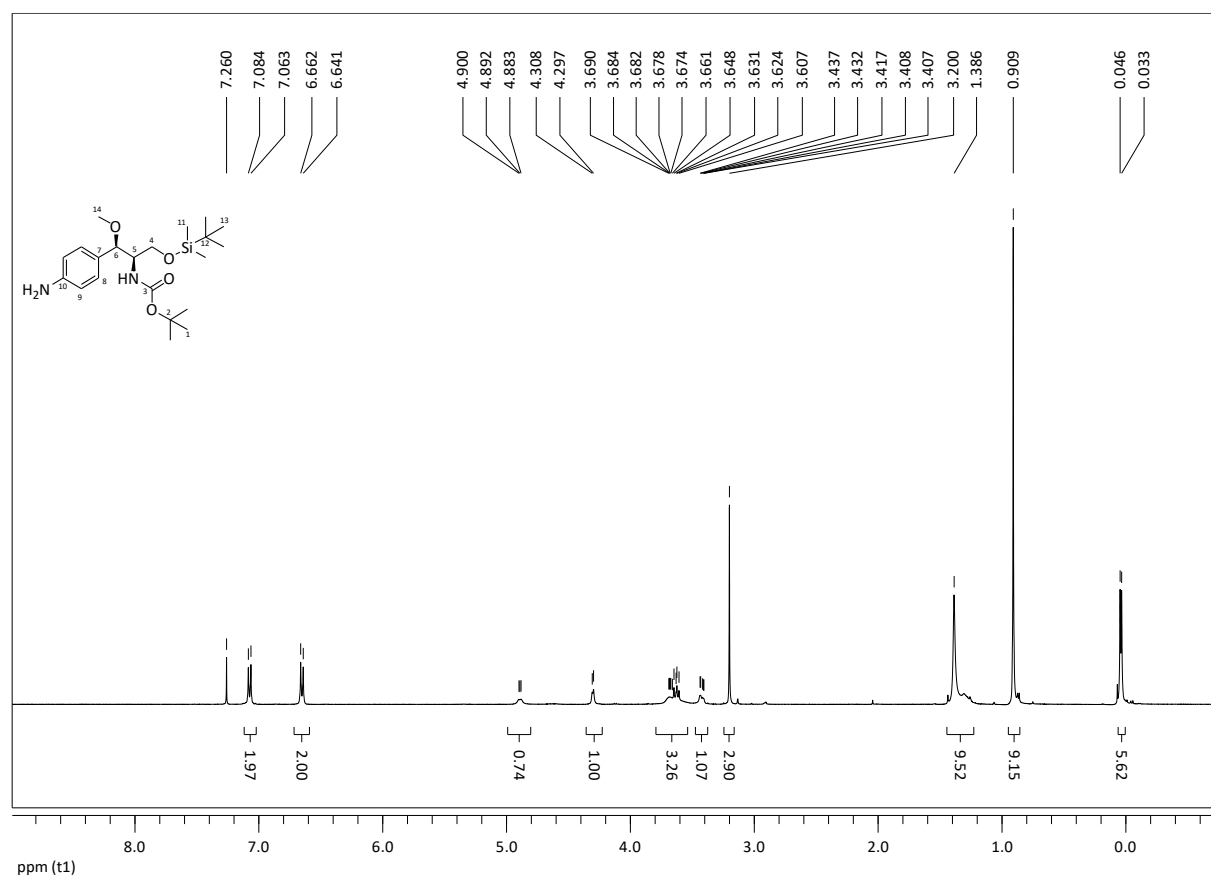
(2*R*,3*R*)-*N*-Boc-3-hydroxy-1-*O*-(*tert*-butyldimethylsilyl)-*para*-nitrophenylalaninol (**2**)



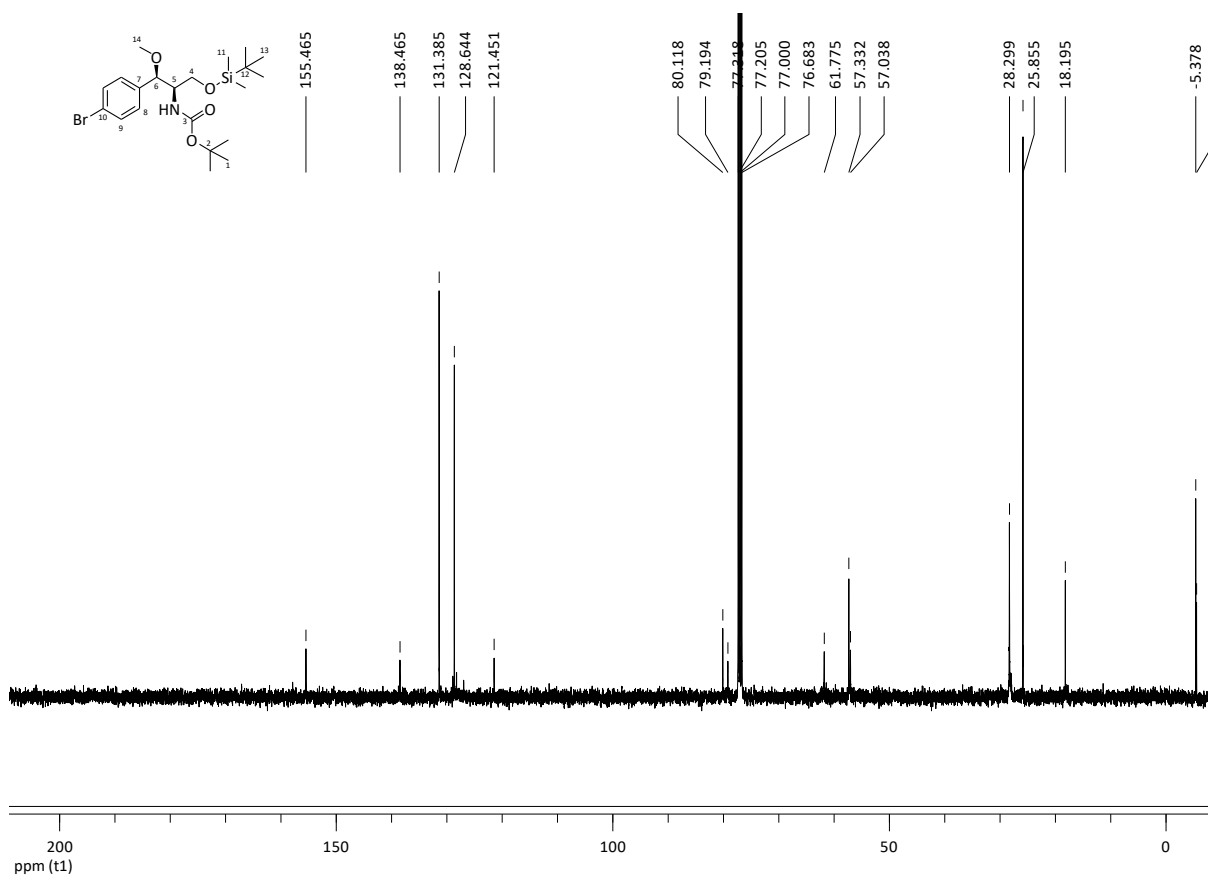
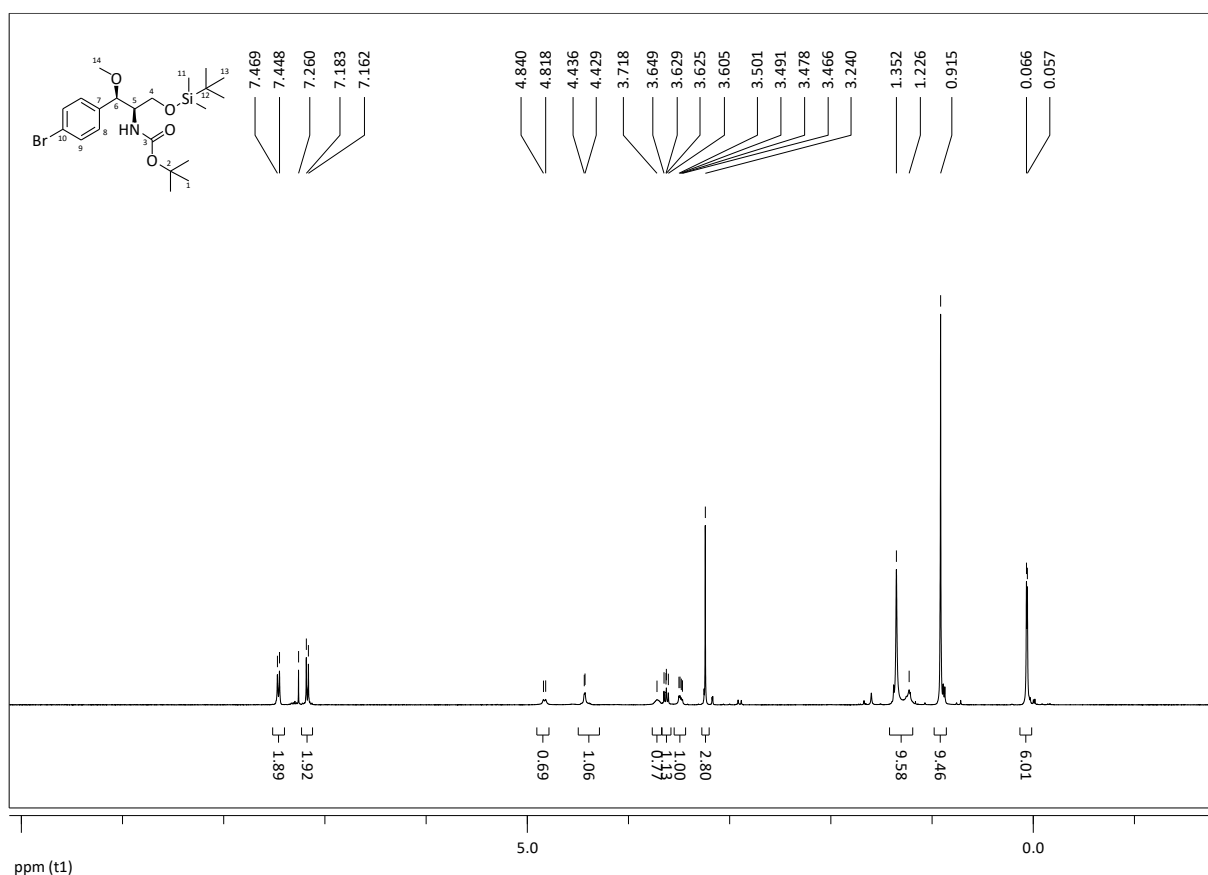
(2*R*,3*R*)-*N*-Boc-3-methoxy-1-*O*-(tert-butyldimethylsilyl)-*para*-nitrophenylalaninol (**3a**)



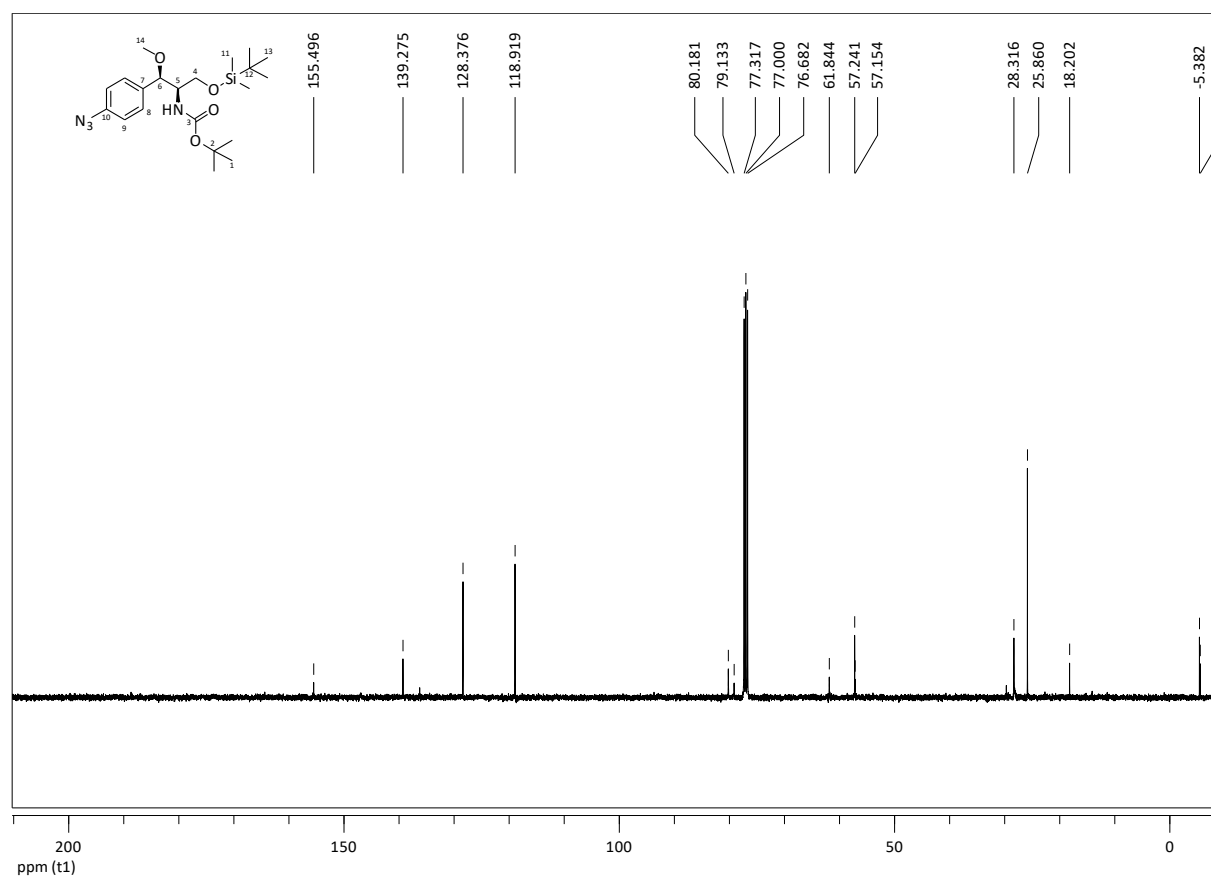
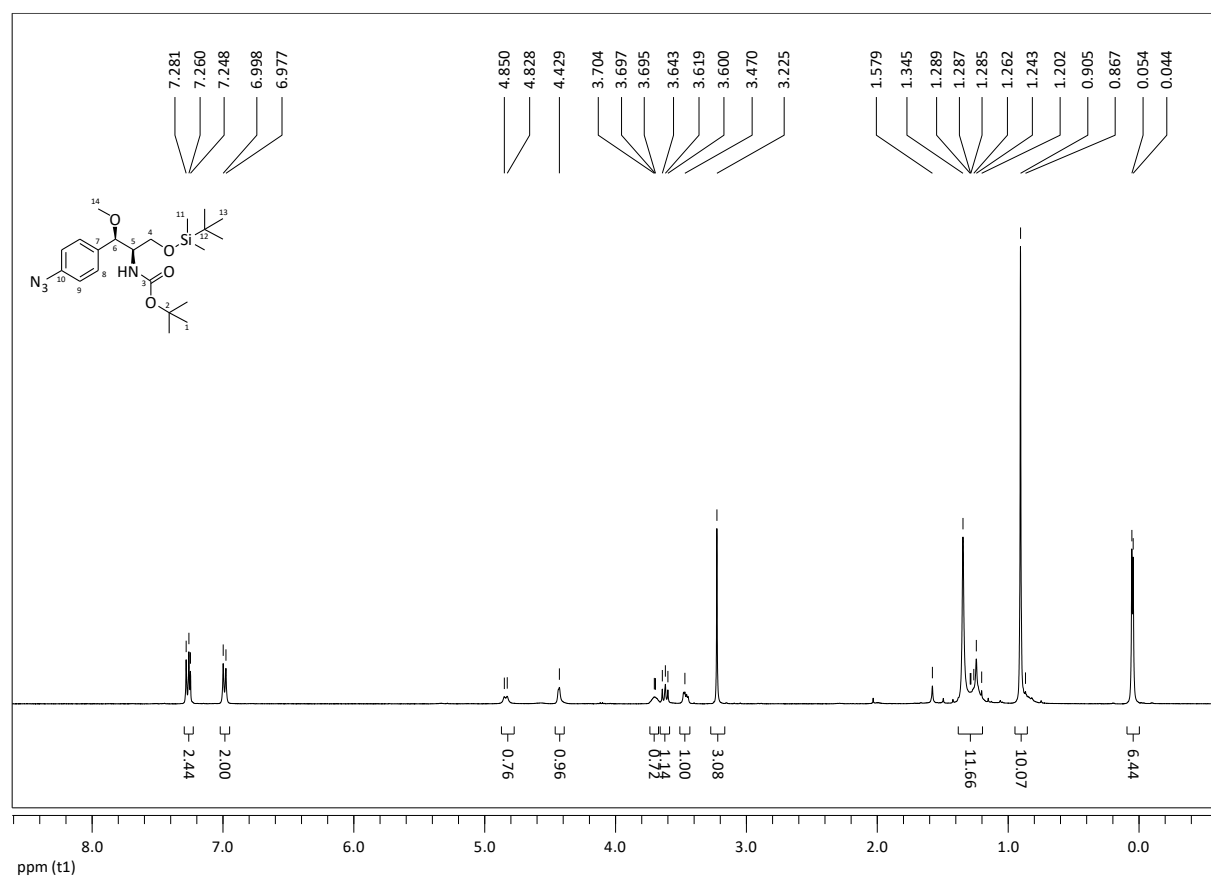
(2*R*,3*R*)-*N*-Boc-3-methoxy-1-*O*-(tert-butyldimethylsilyl)-*para*-aminophenylalaninol (**3b**)



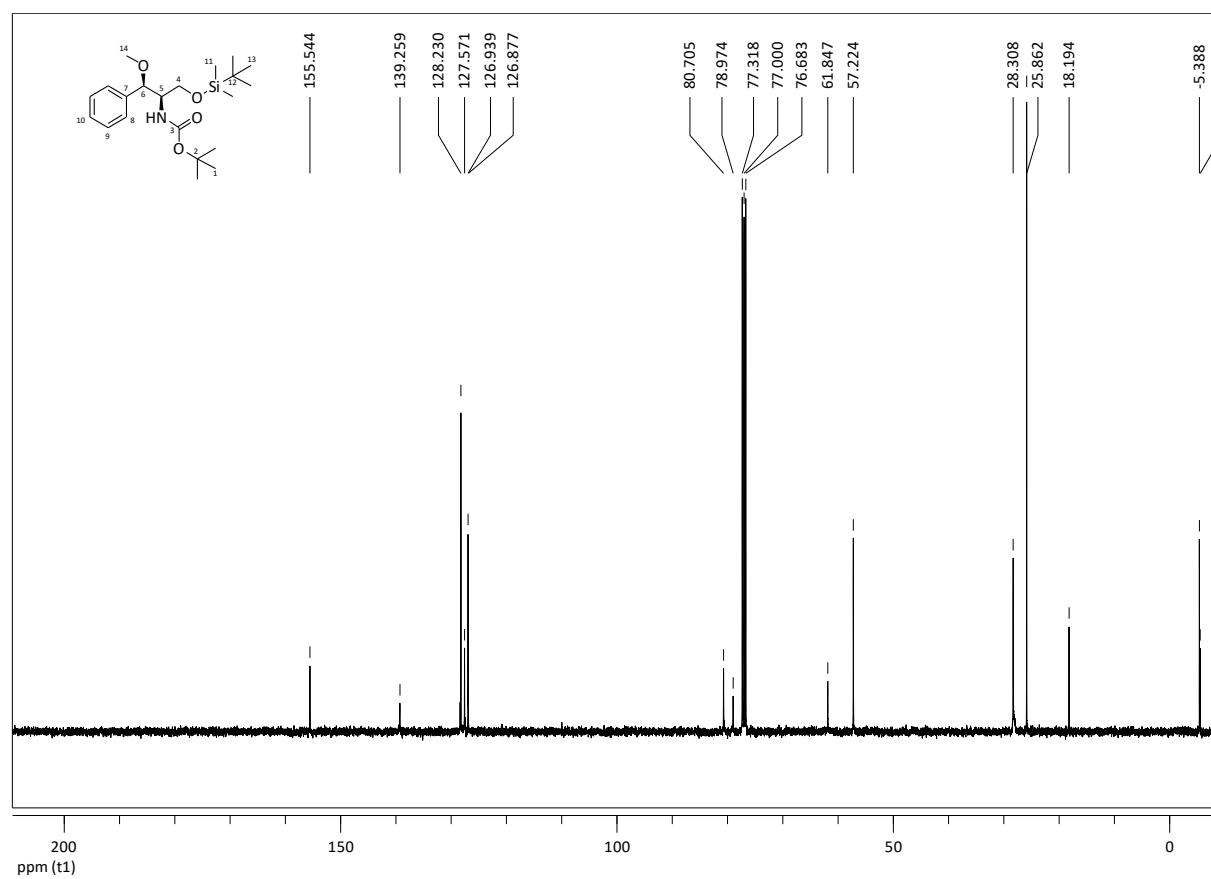
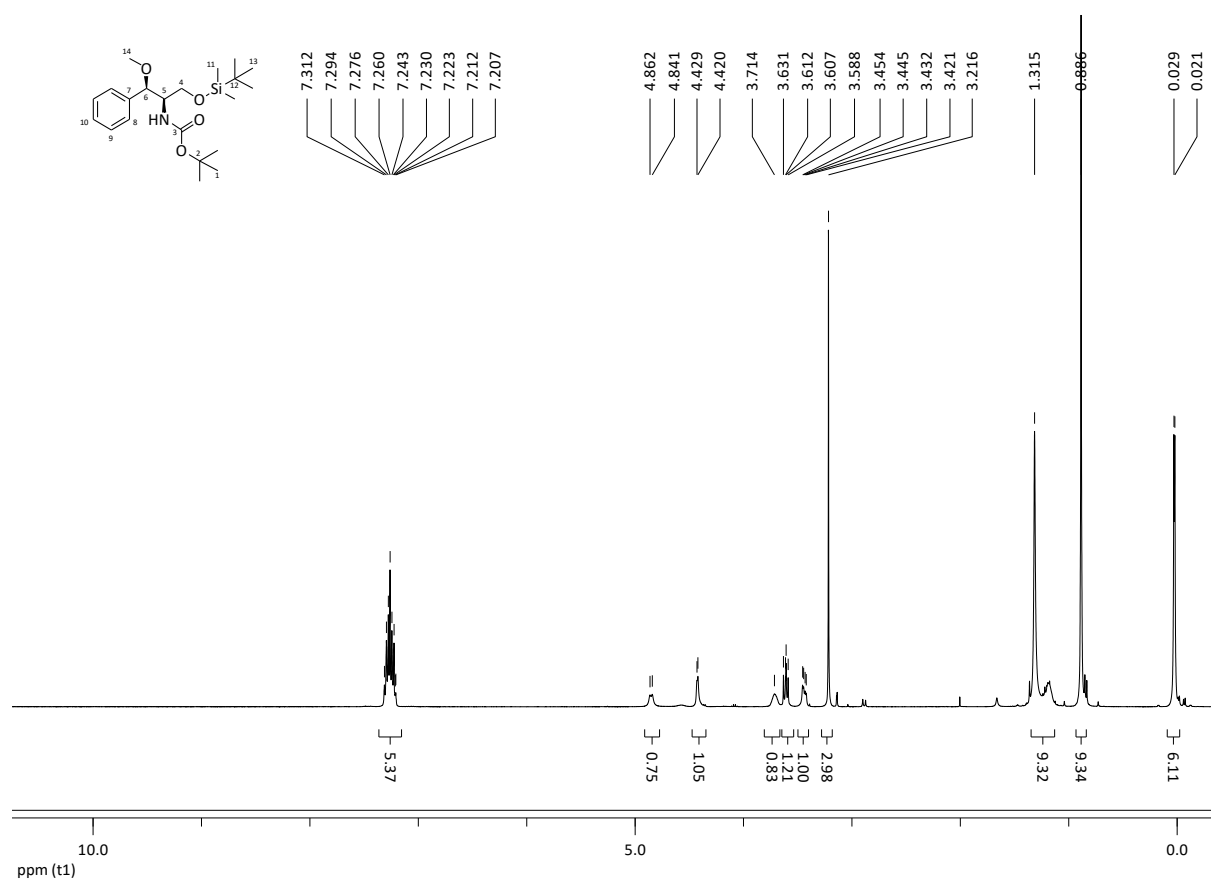
(2*R*,3*R*)-*N*-Boc-3-methoxy-1-*O*-(*tert*-butyldimethylsilyl)-*para*-bromophenylalaninol (**3c**)



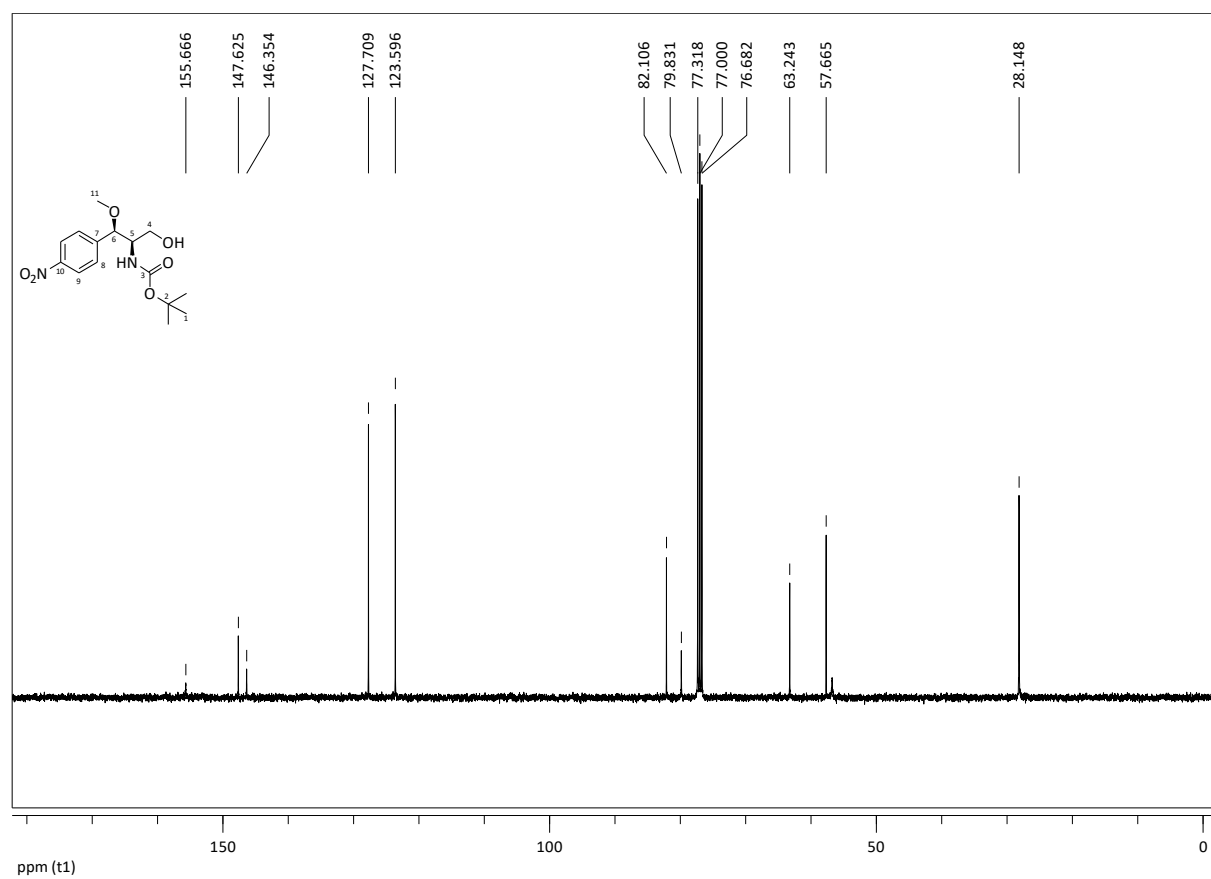
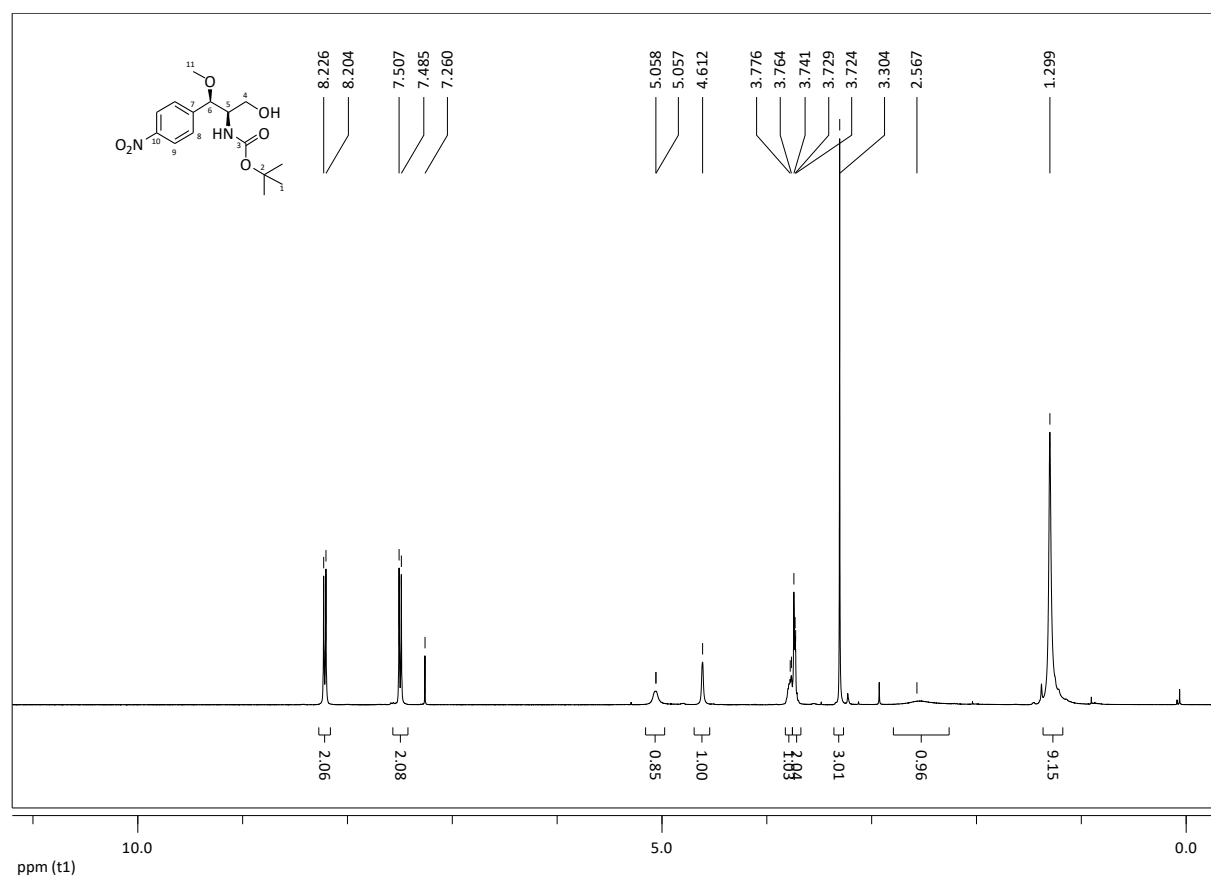
(2*R*,3*R*)-*N*-Boc-3-methoxy-1-*O*-(tert-butyldimethylsilyl)-*para*-azidophenylalaninol (**3d**)



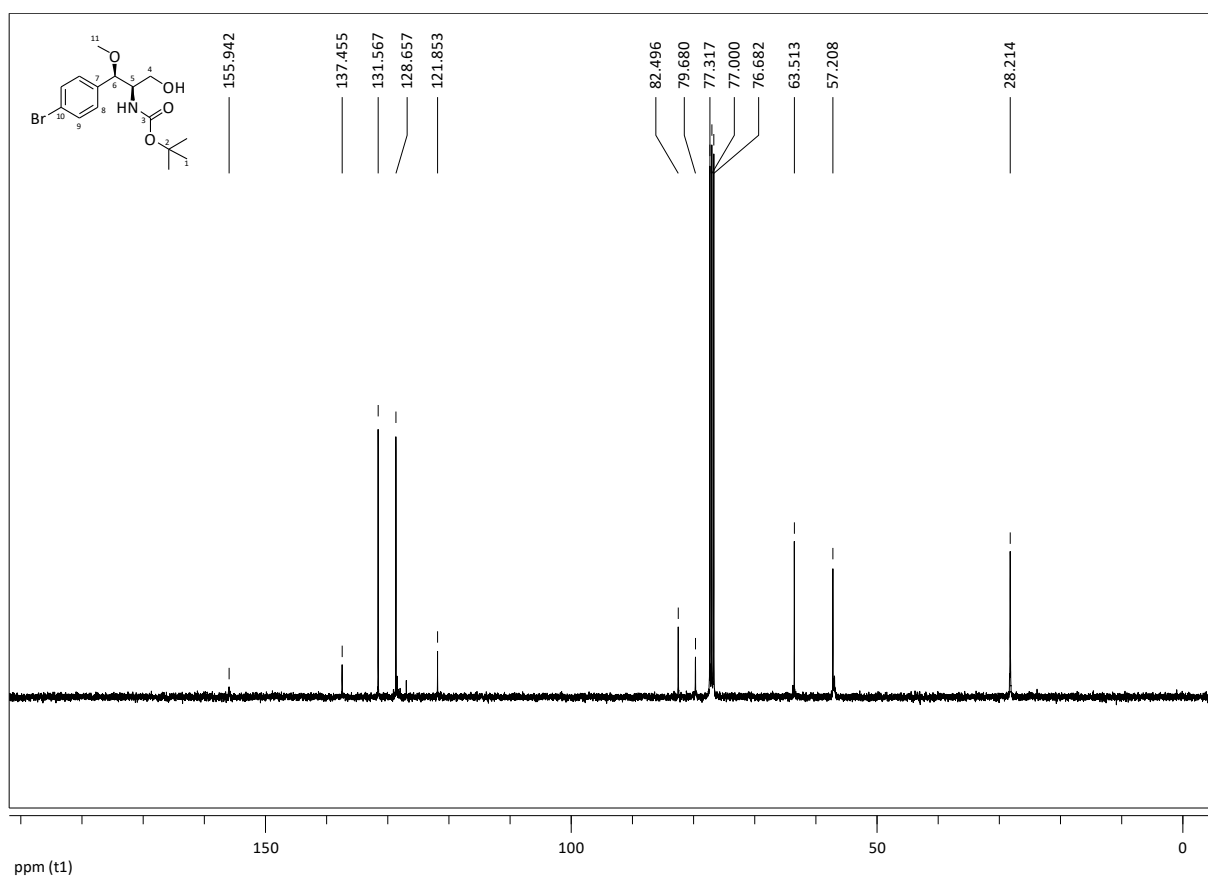
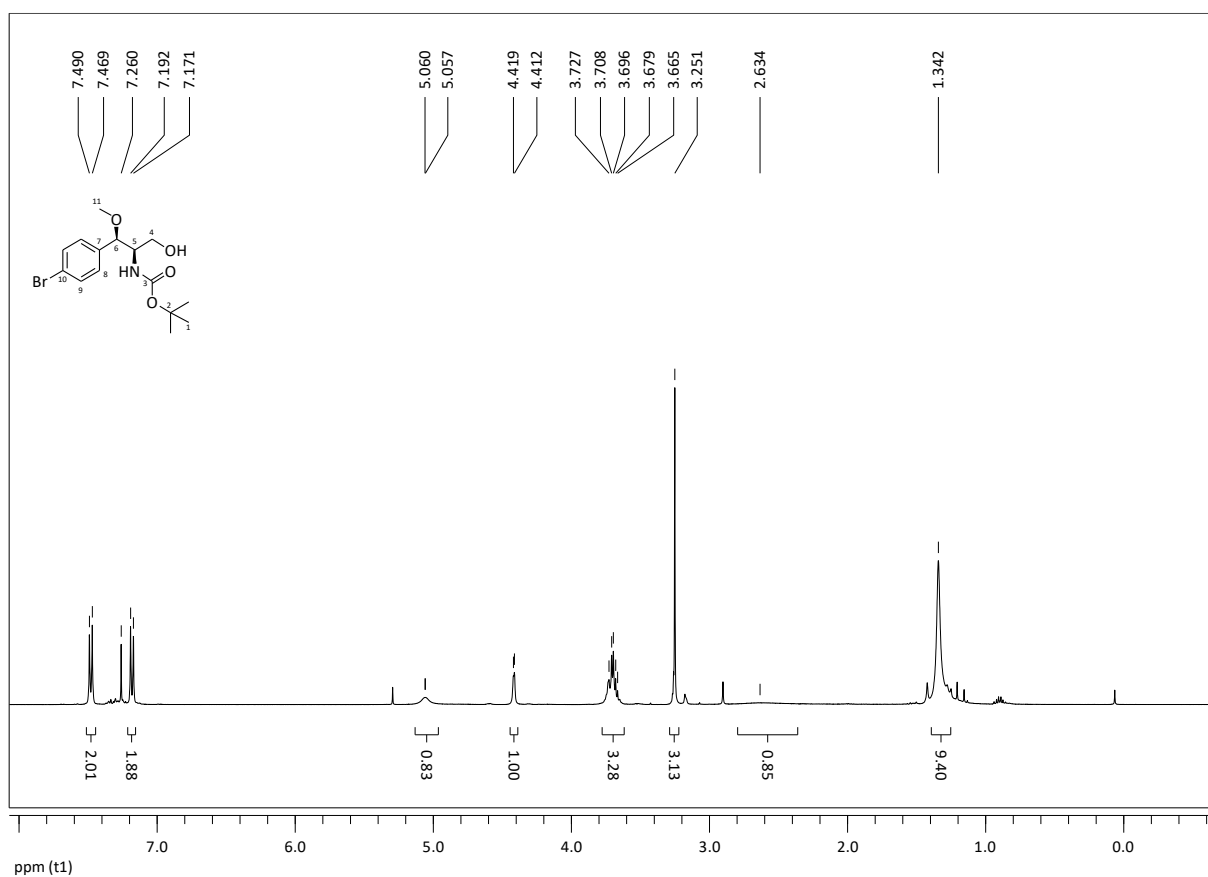
(2*R*,3*R*)-*N*-Boc-3-methoxy-1-*O*-(*tert*-butyldimethylsilyl)-phenylalaninol (**3e**)



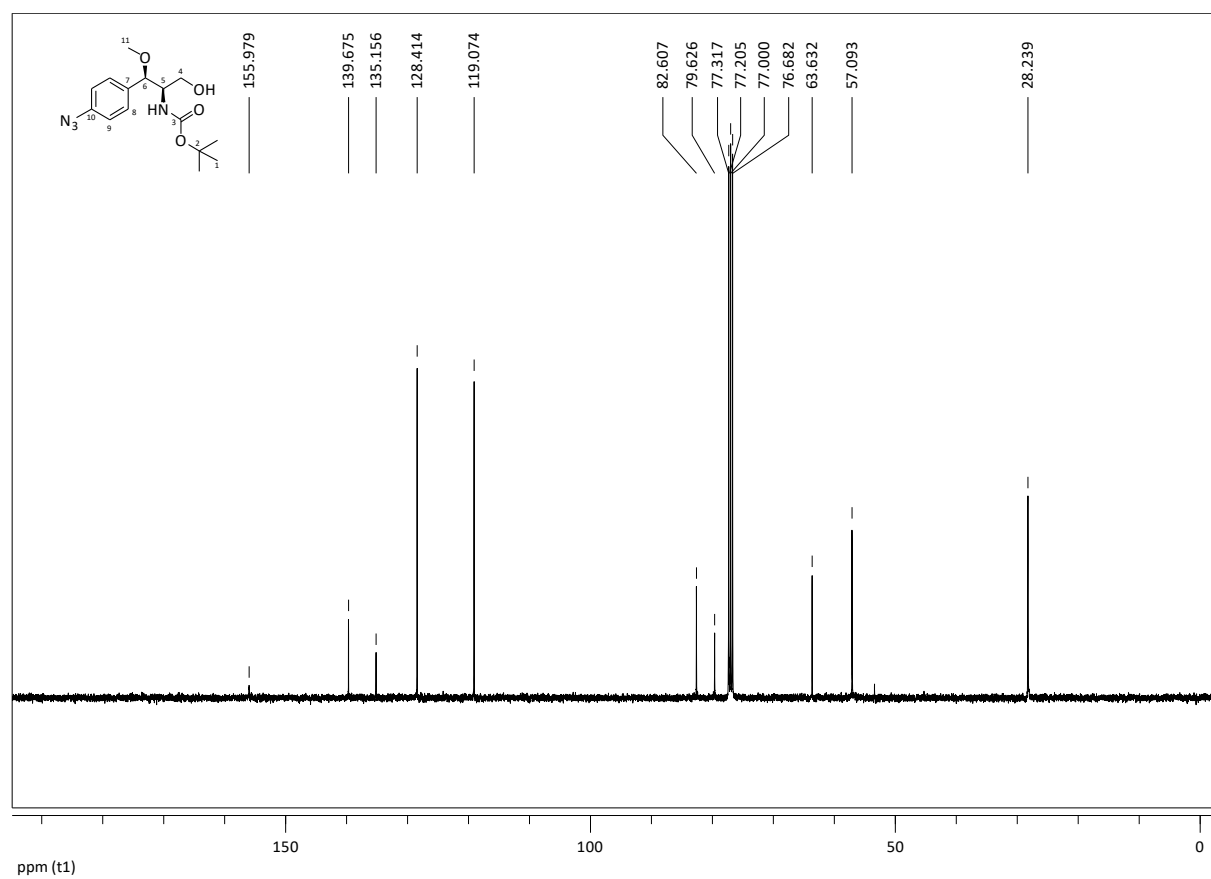
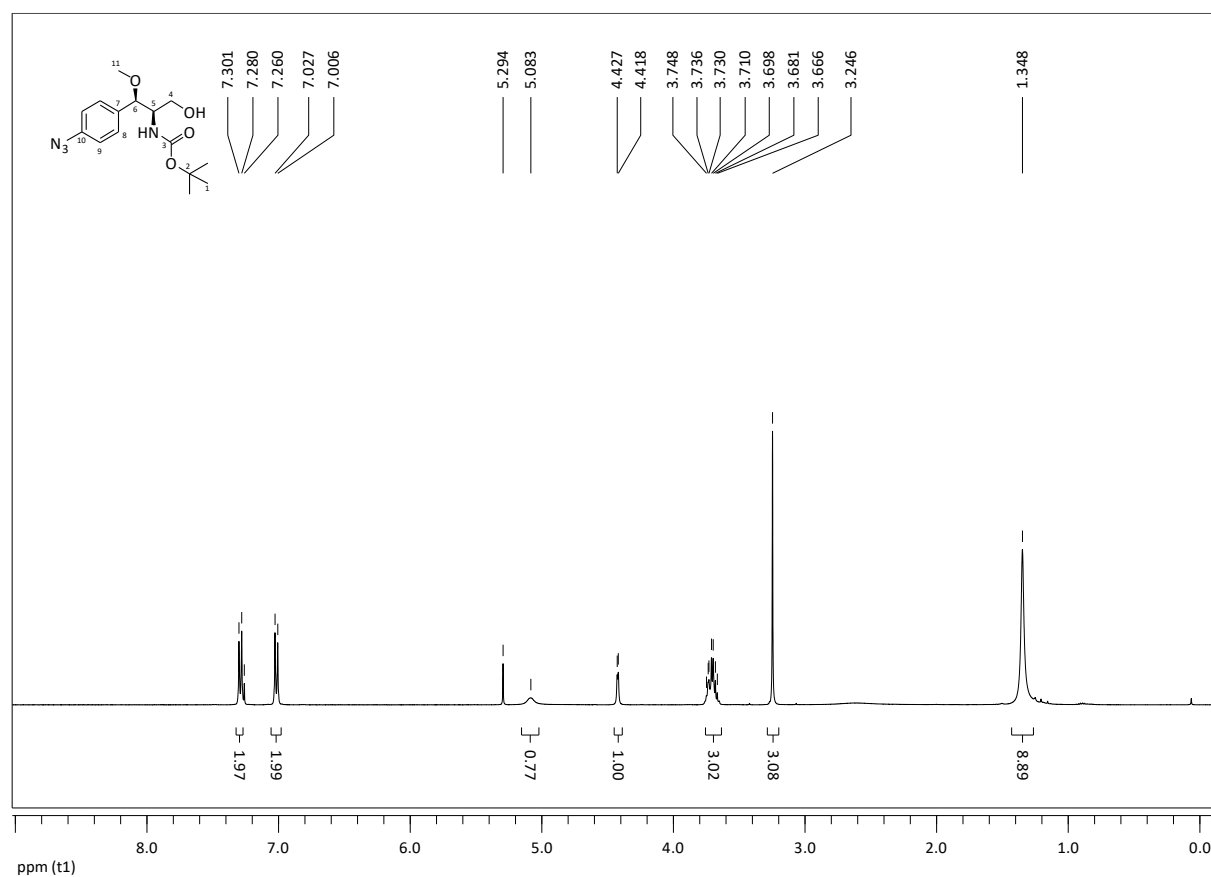
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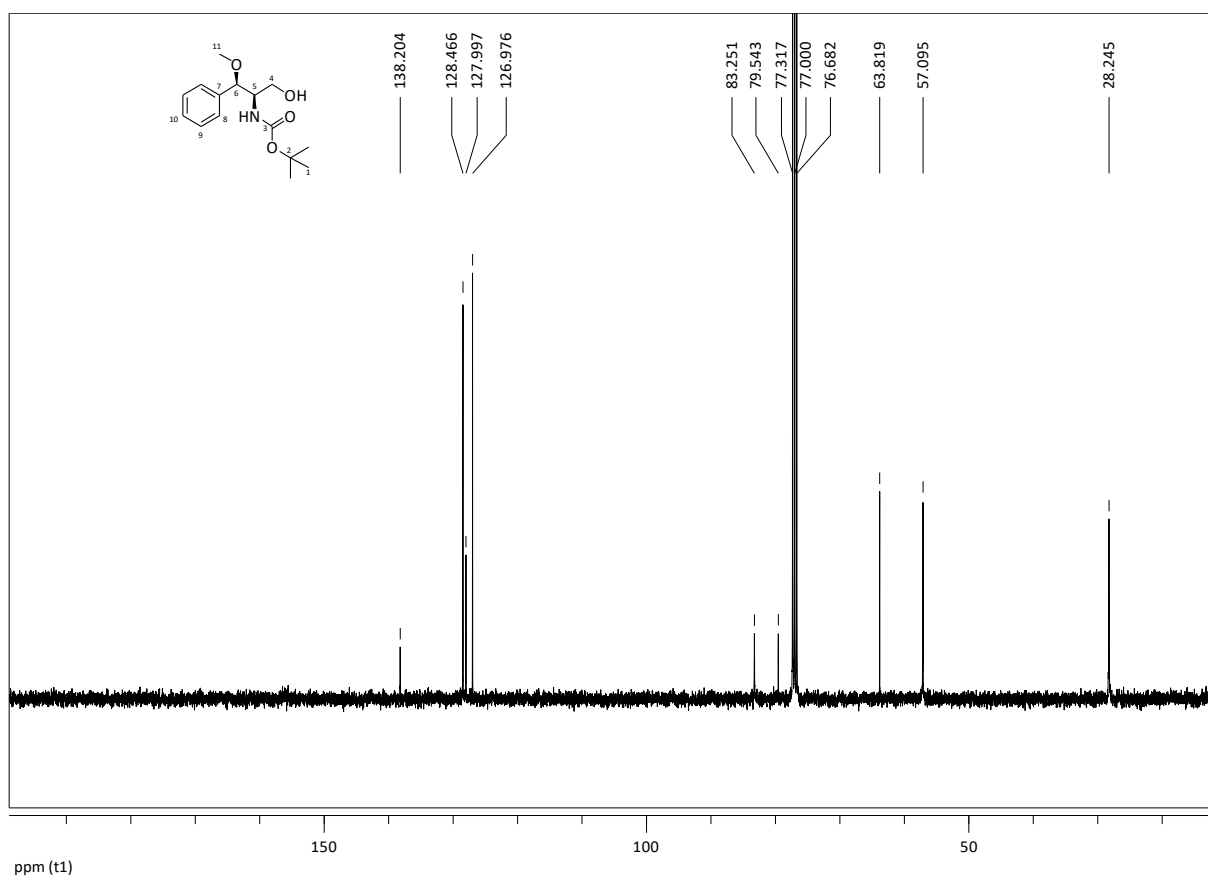
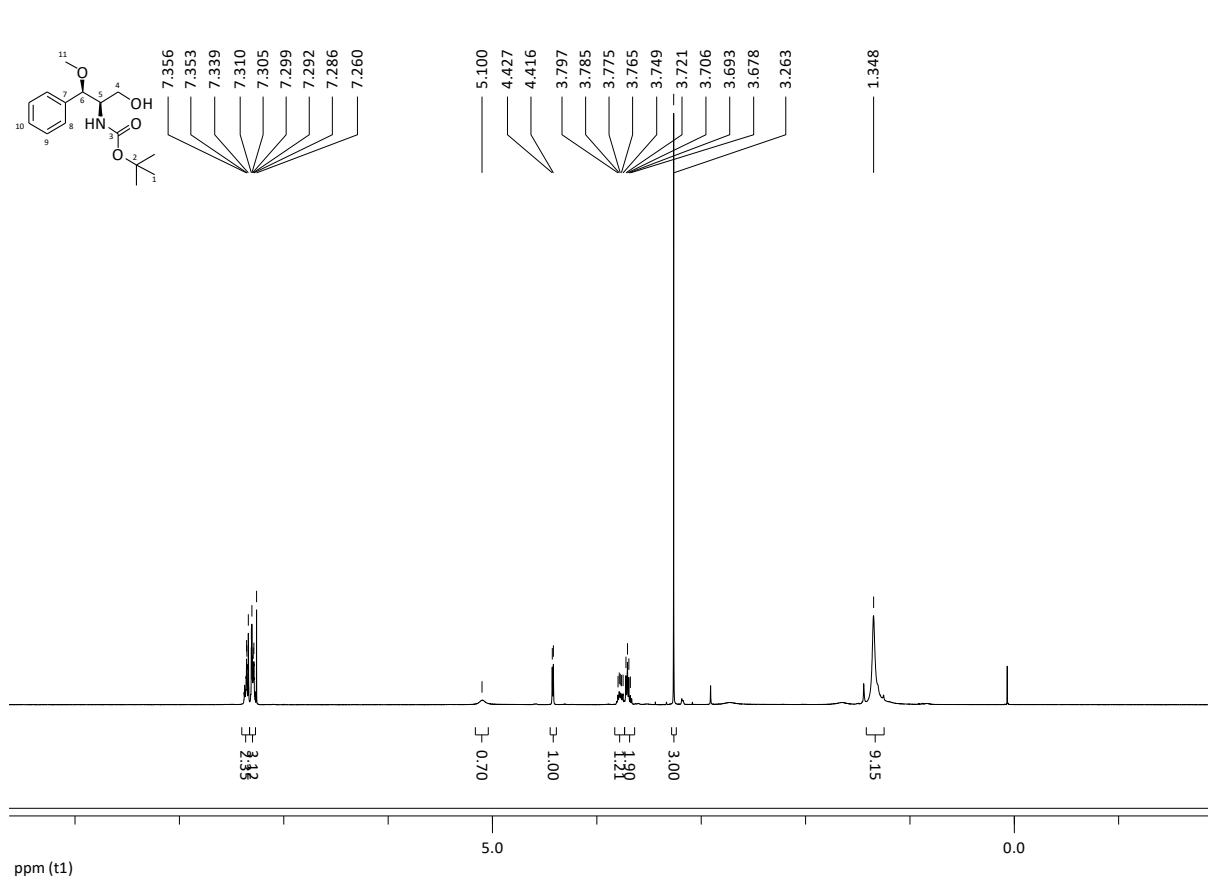
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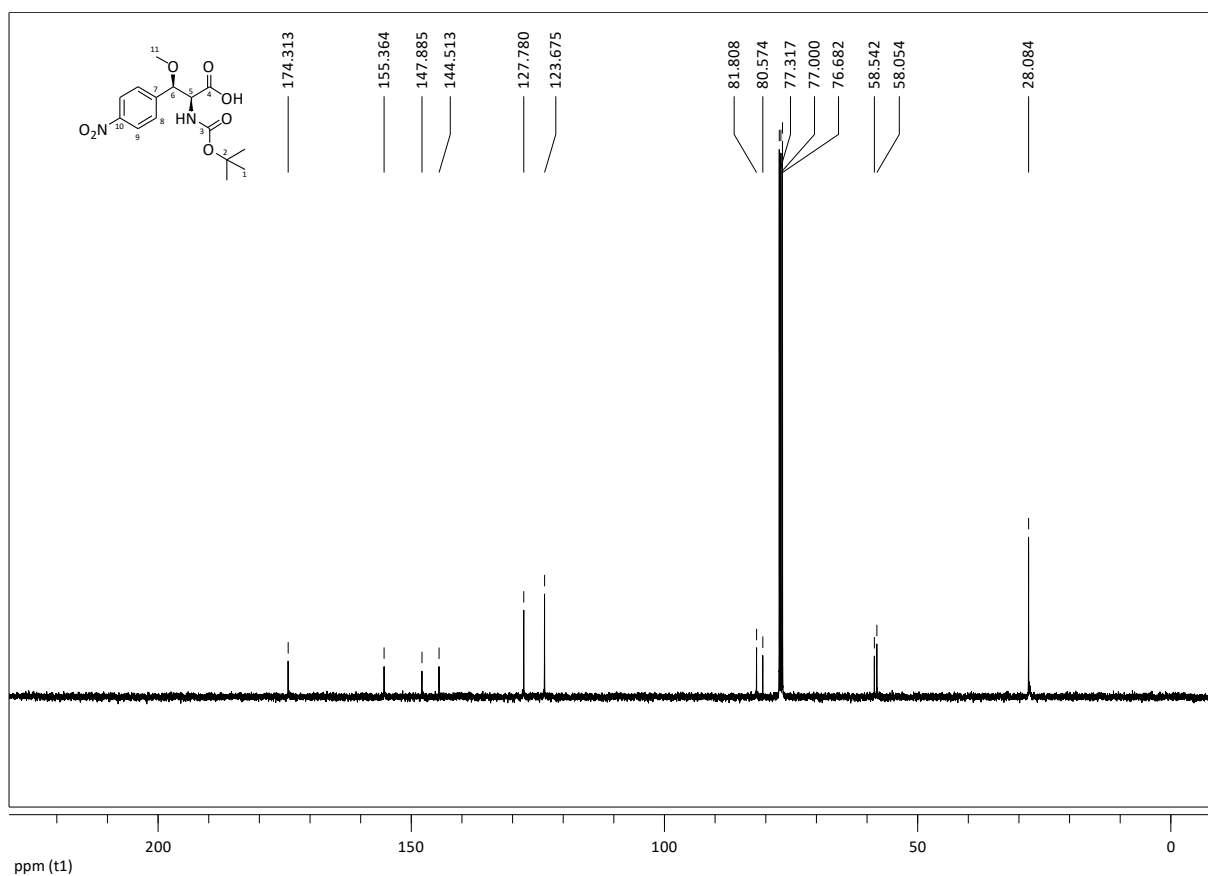
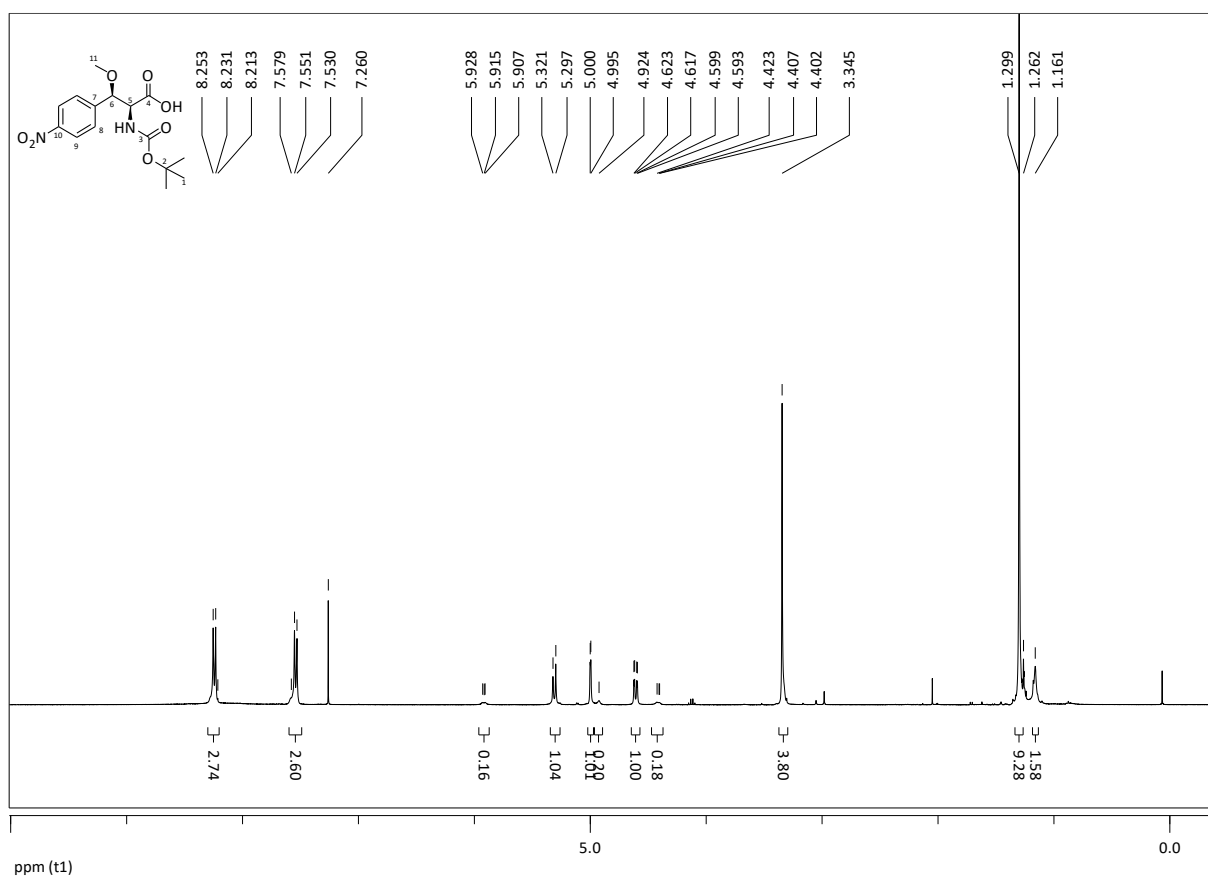
(2R,3R)-N-Boc-3-methoxy-*para*-azidophenylalaninol (**4d**)



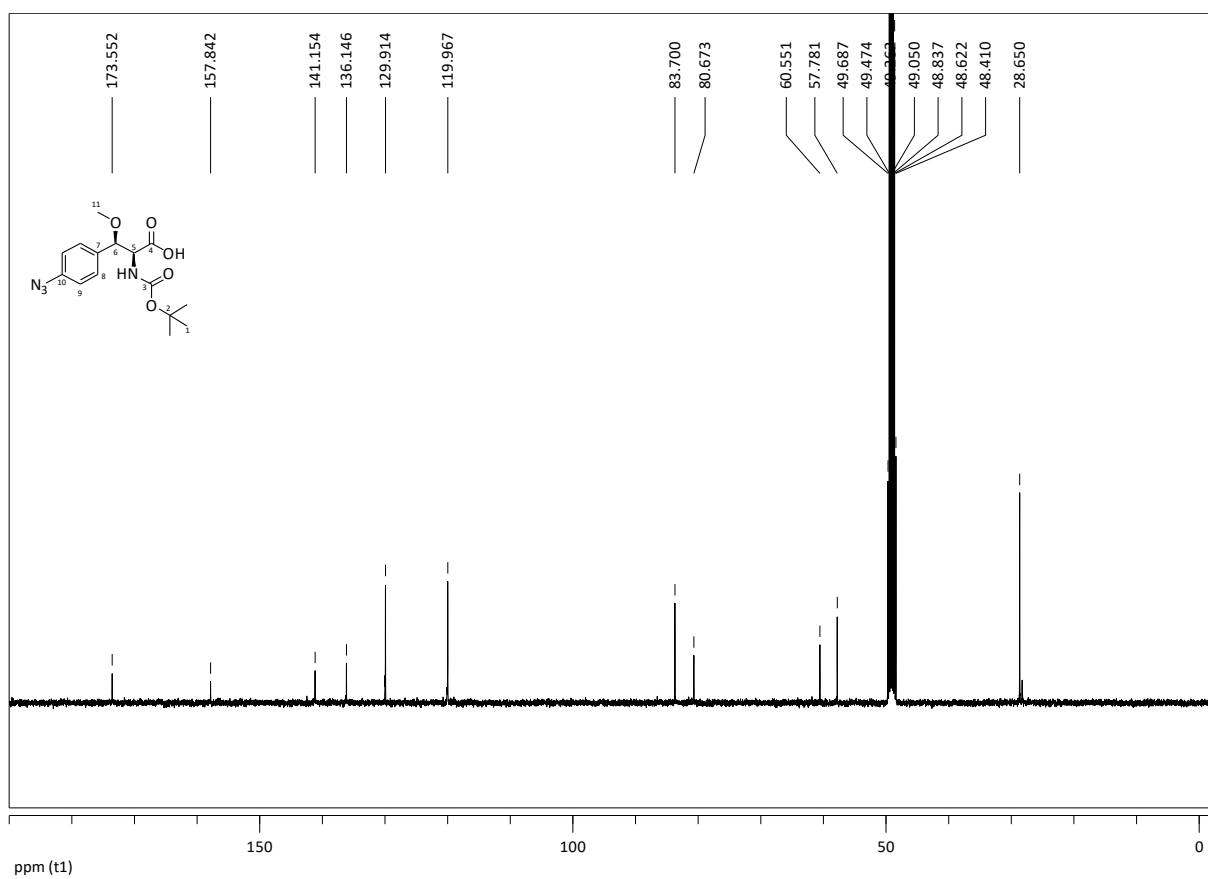
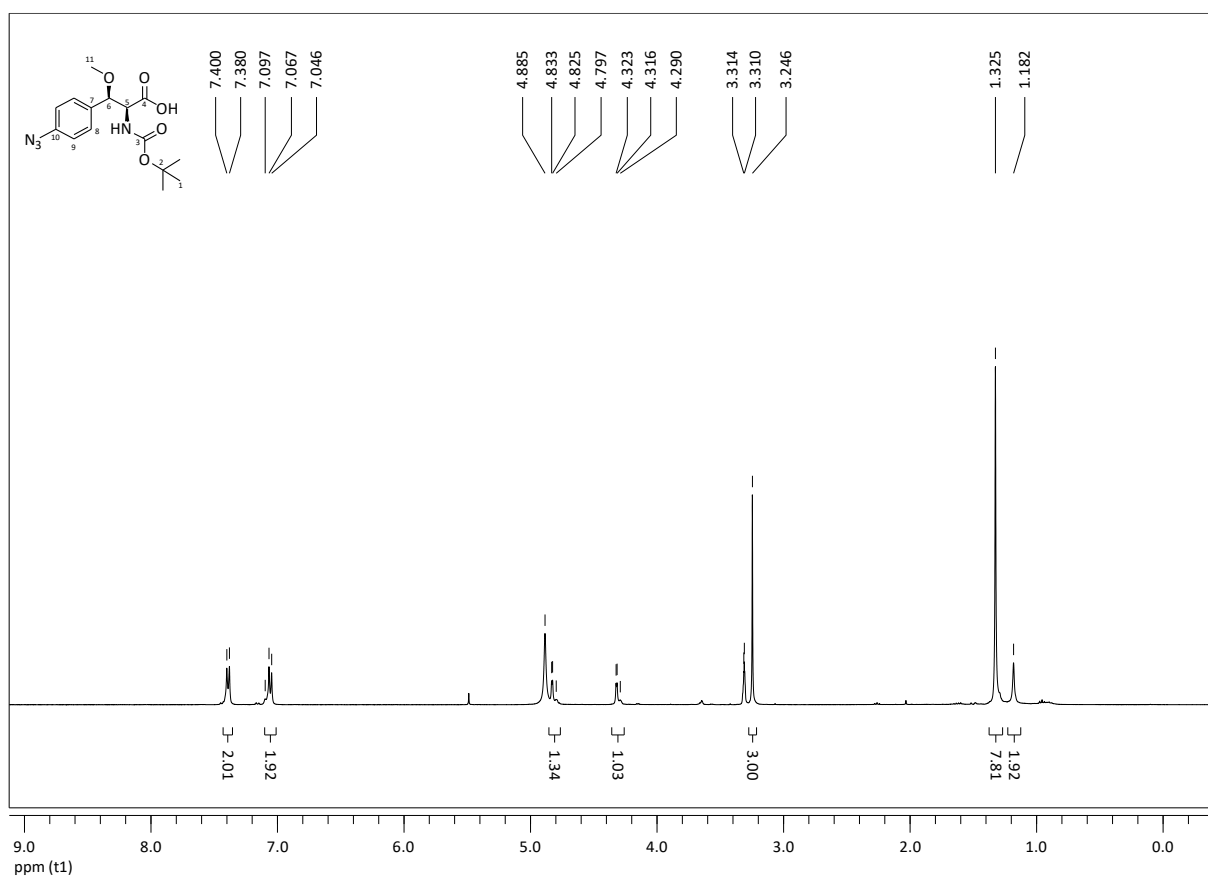
(2*R*,3*R*)-*N*-Boc-3-methoxy-phenylalaninol (**4e**)



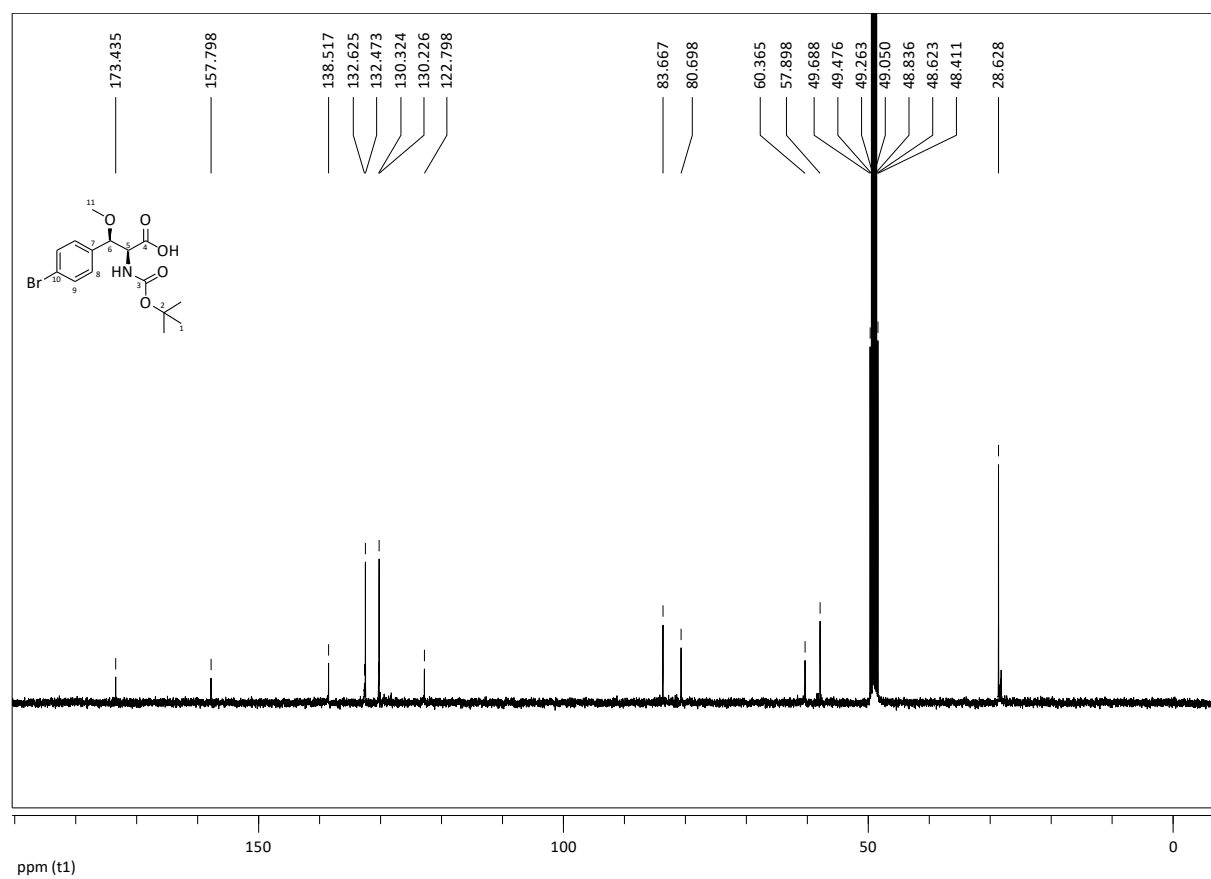
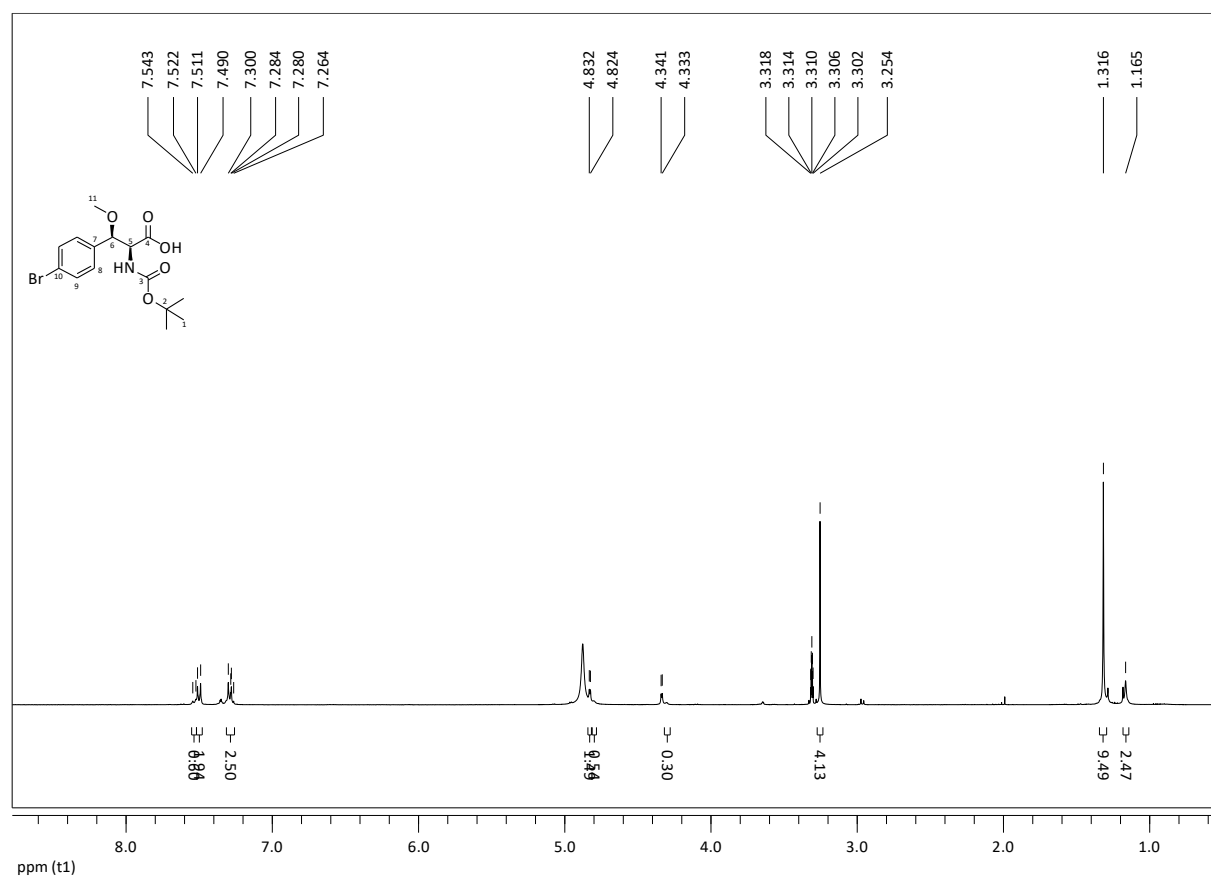
(2*S*,3*R*)-*N*-Boc-3-methoxy-*para*-nitrophenylalanine (**5a**)



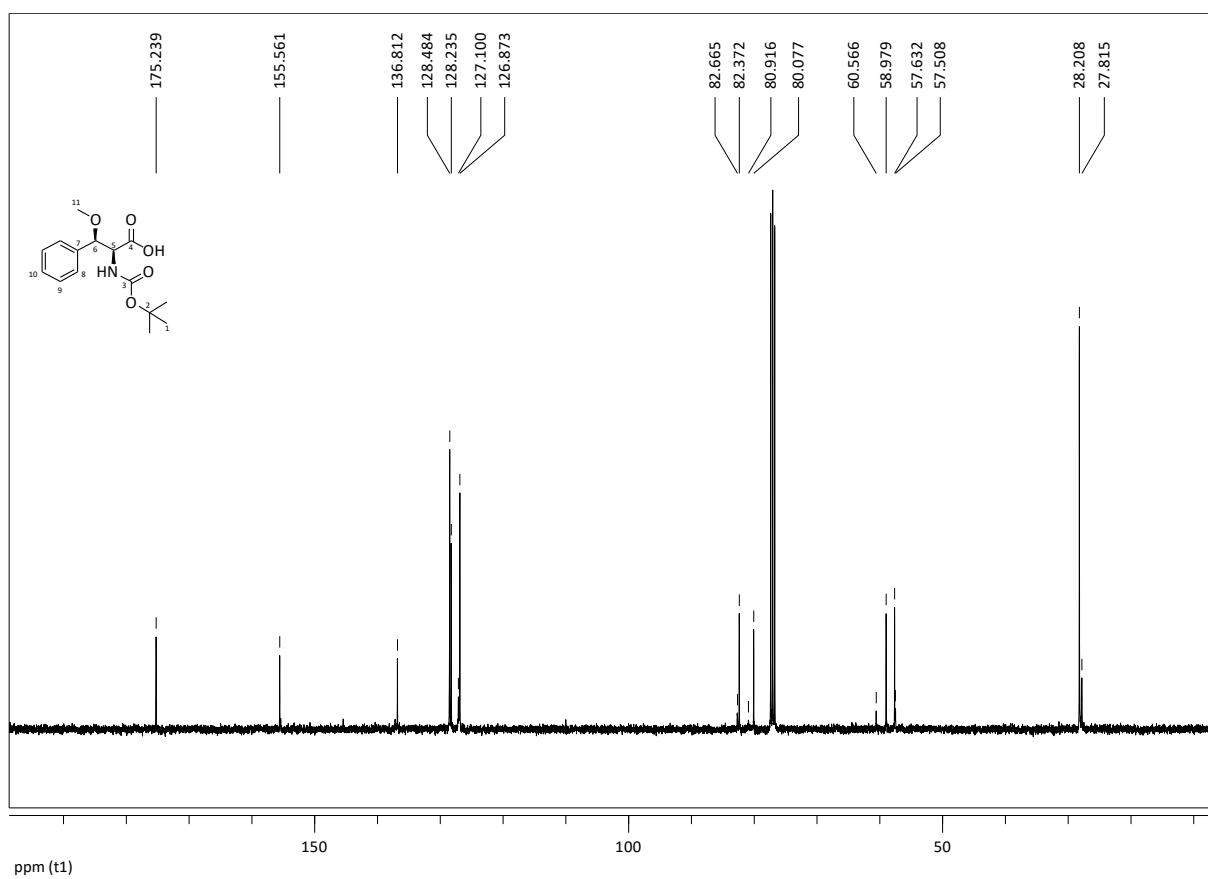
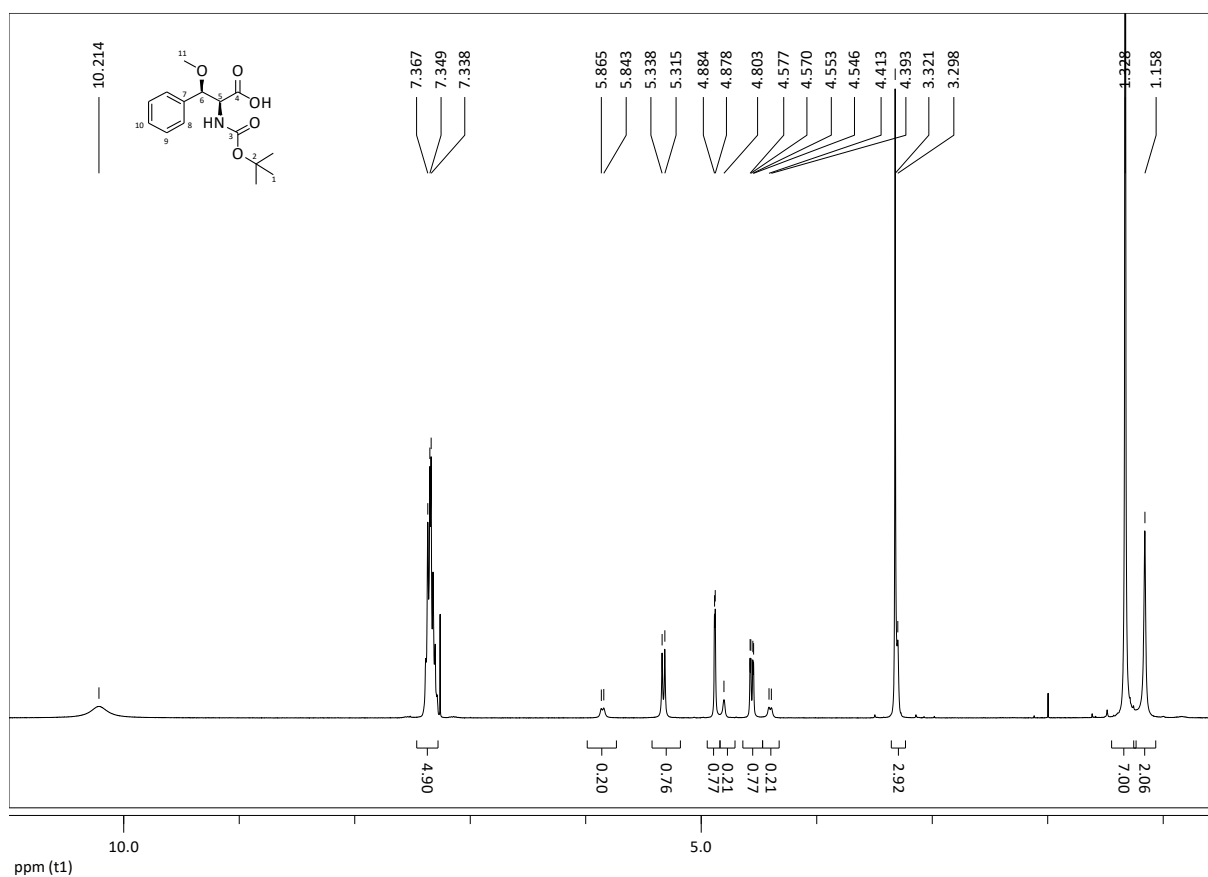
(2*S*,3*R*)-*N*-Boc-3-methoxy-*para*-azidophenylalanine (**5d**)



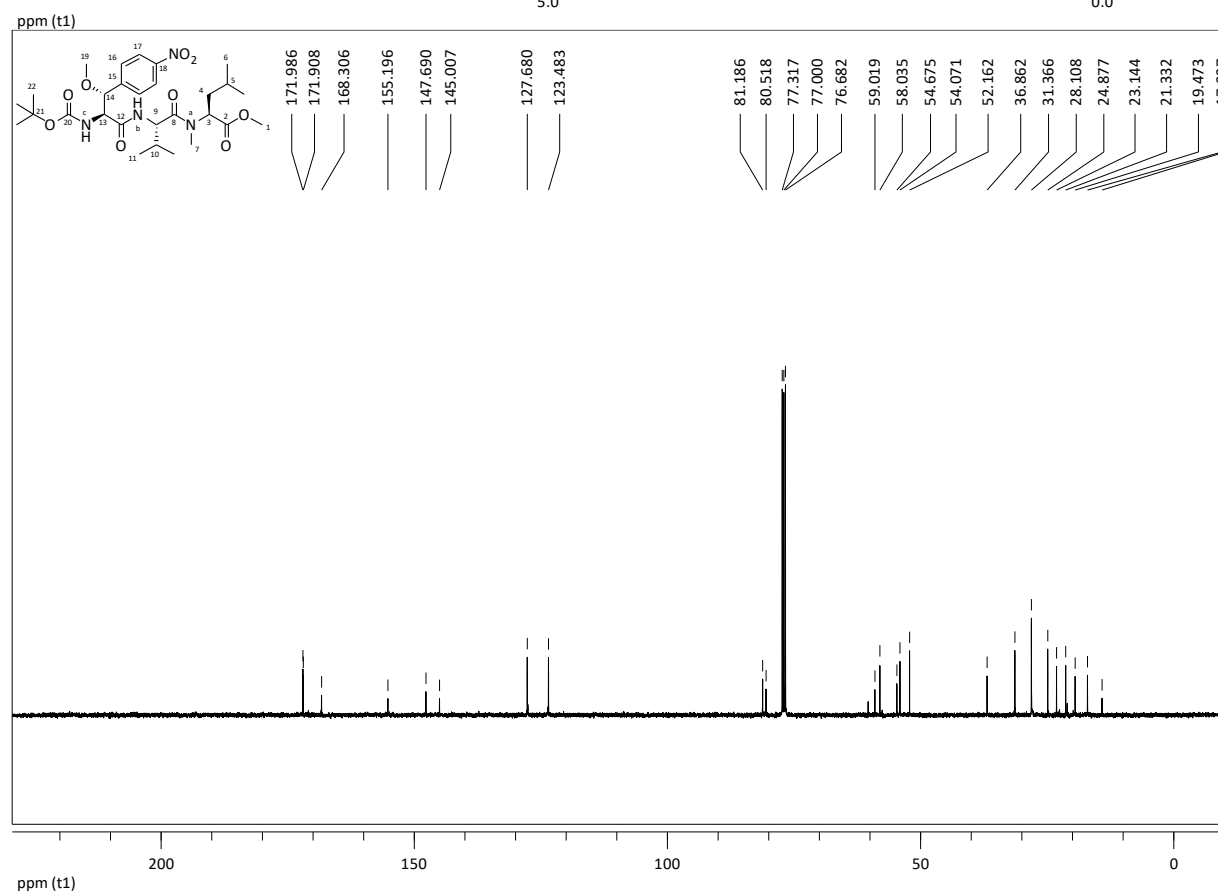
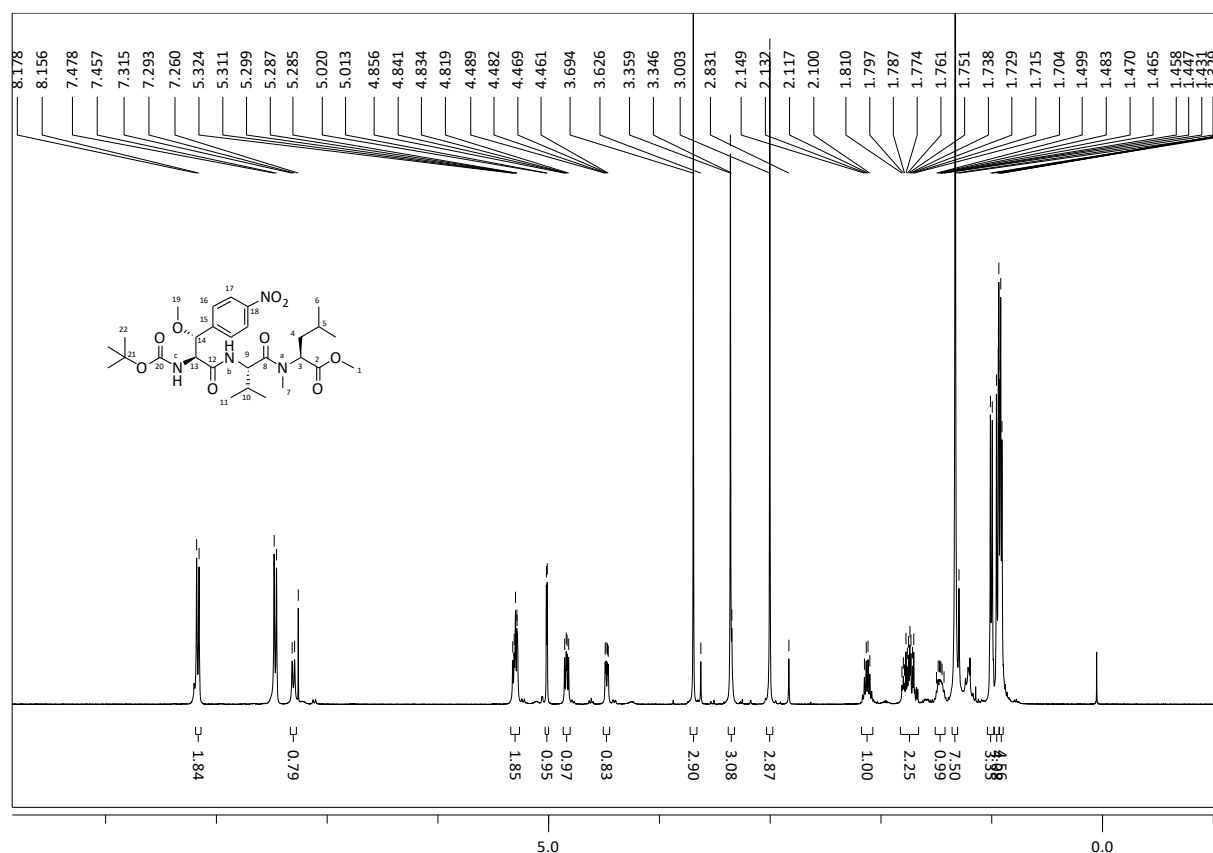
(2*S*,3*R*)-*N*-Boc-3-methoxy-*para*-azidophenylalanine (**5d**)



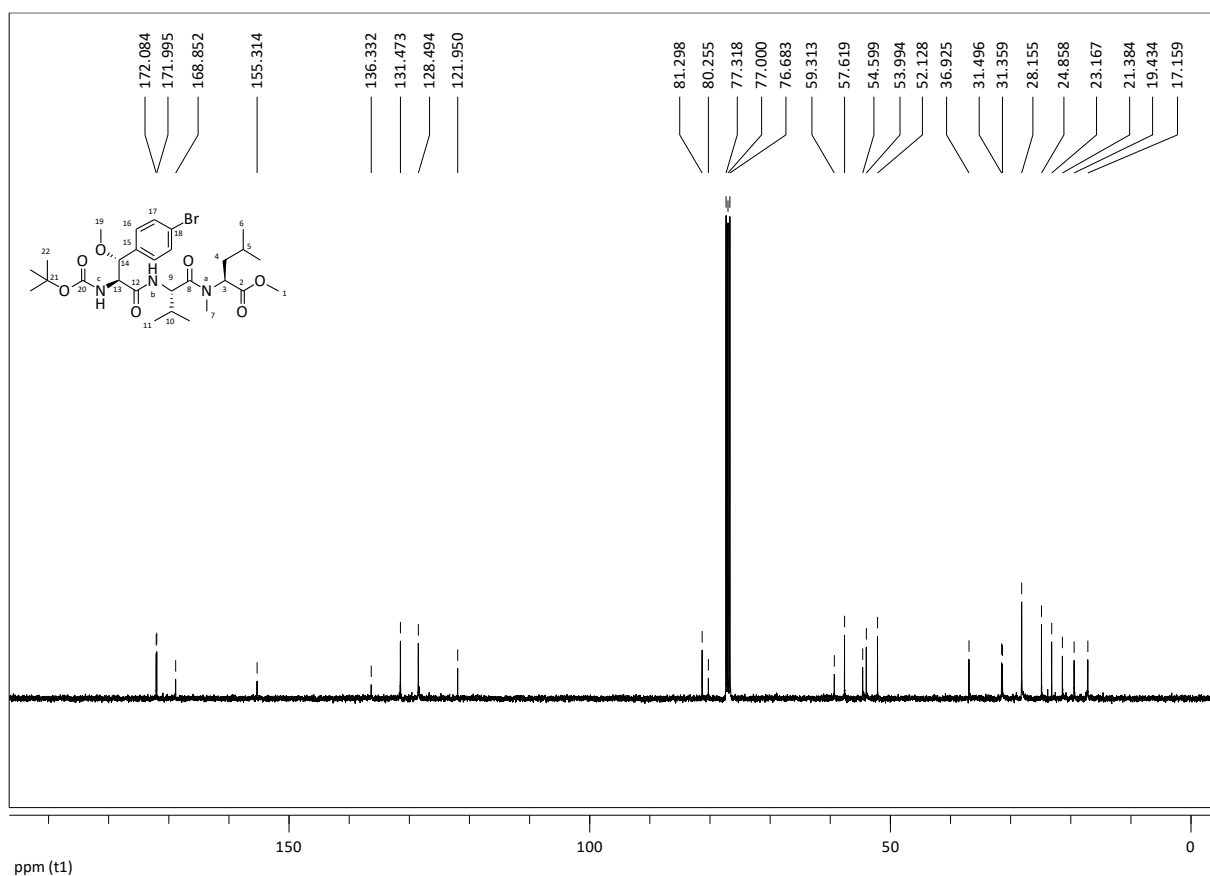
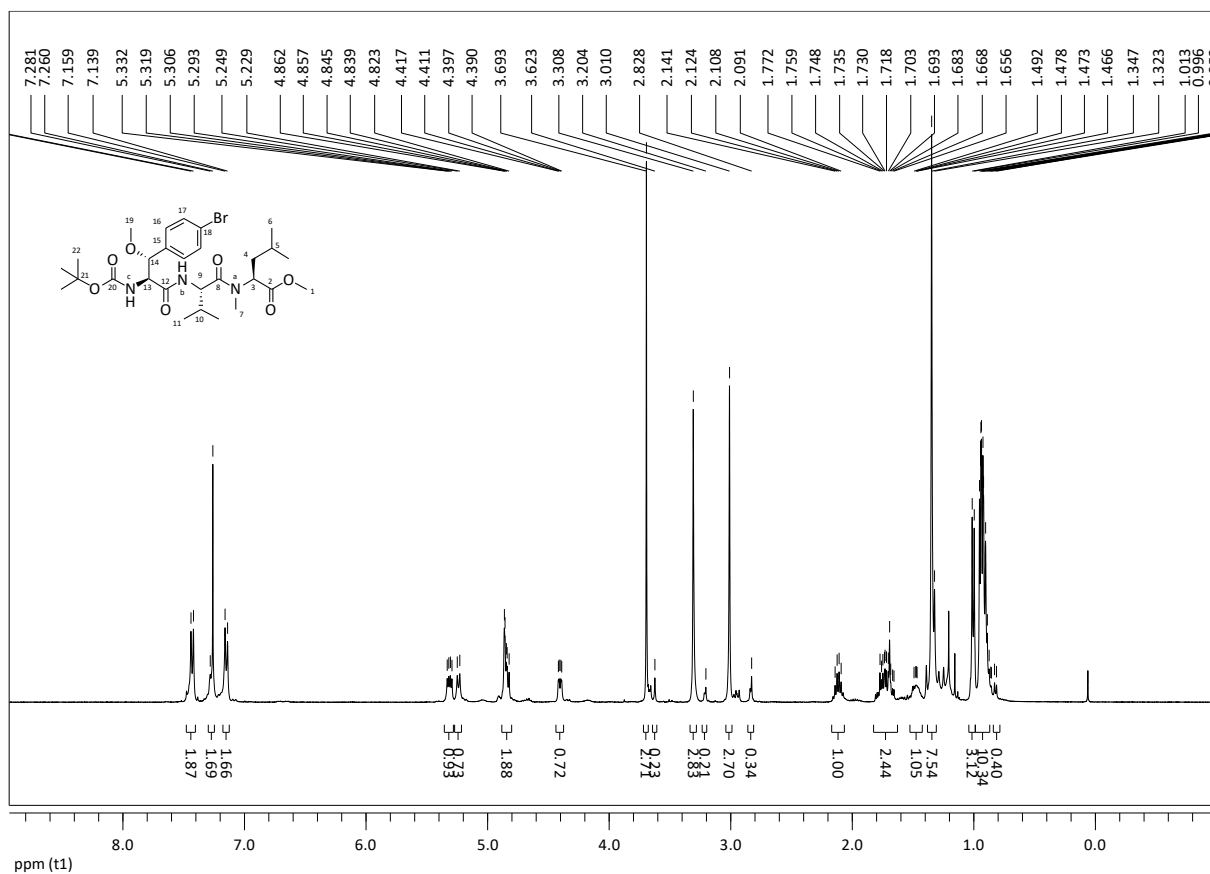
(2*S*,3*R*)-*N*-Boc-3-methoxyphenylalanine (**5e**)



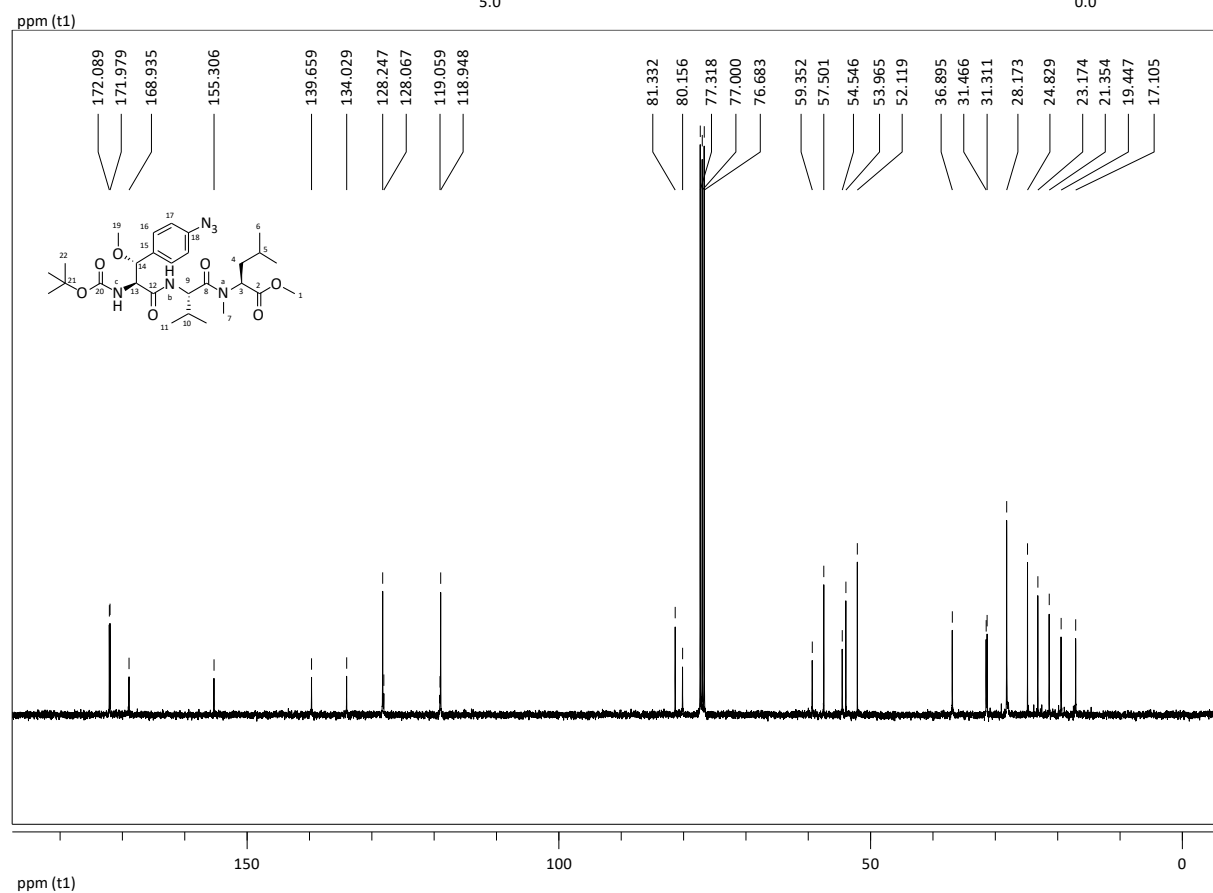
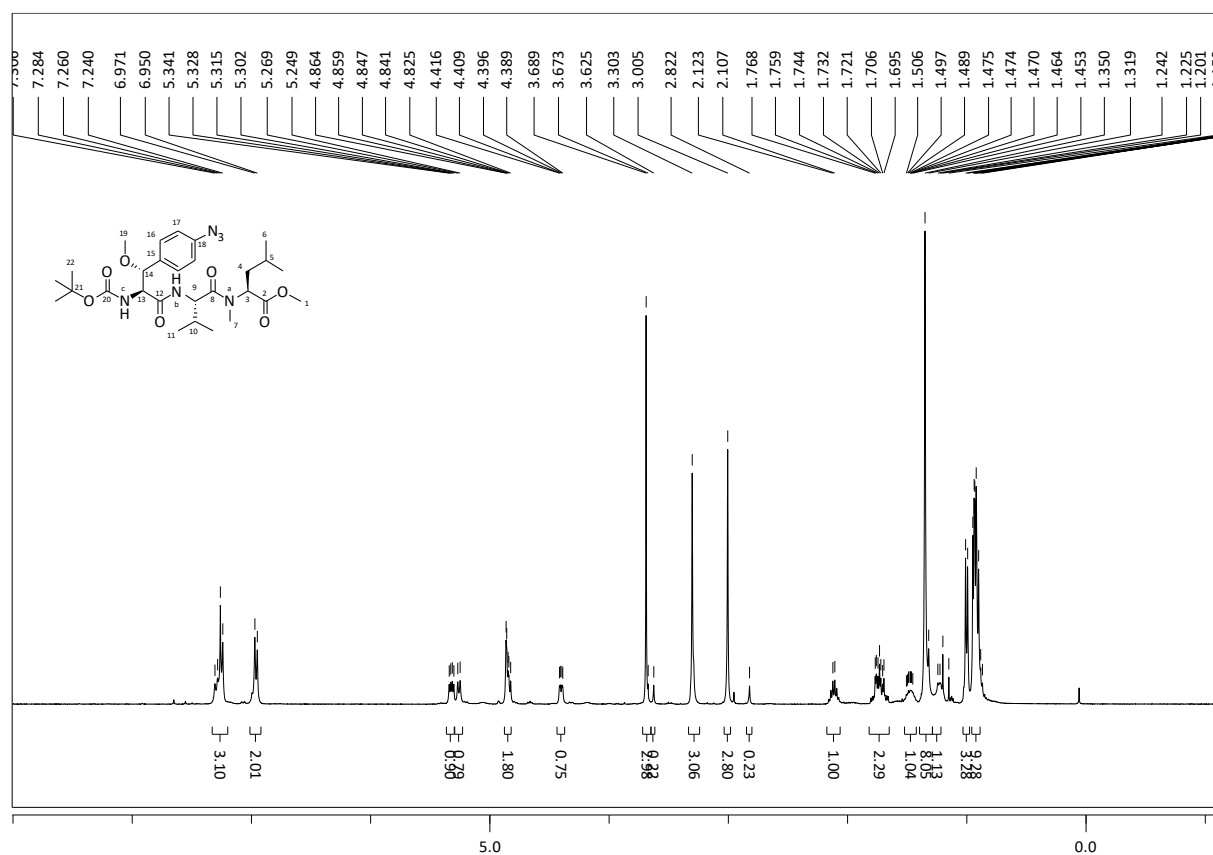
N-Boc-(2*S*,3*R*)-(3-methoxy-*para*-nitrophenylalanyl)-(S)-valyl-(S)-*N*-methyl-leucine methyl ester (**7a**)



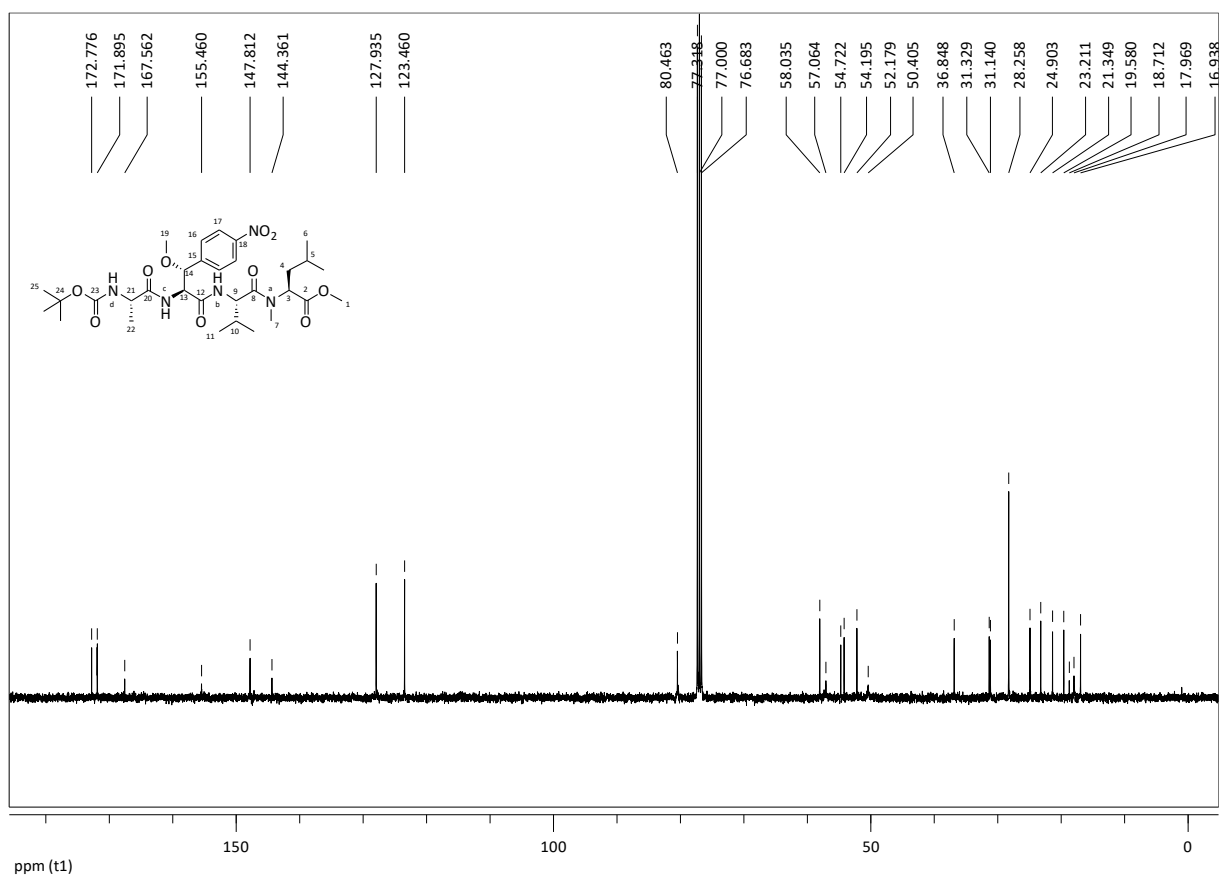
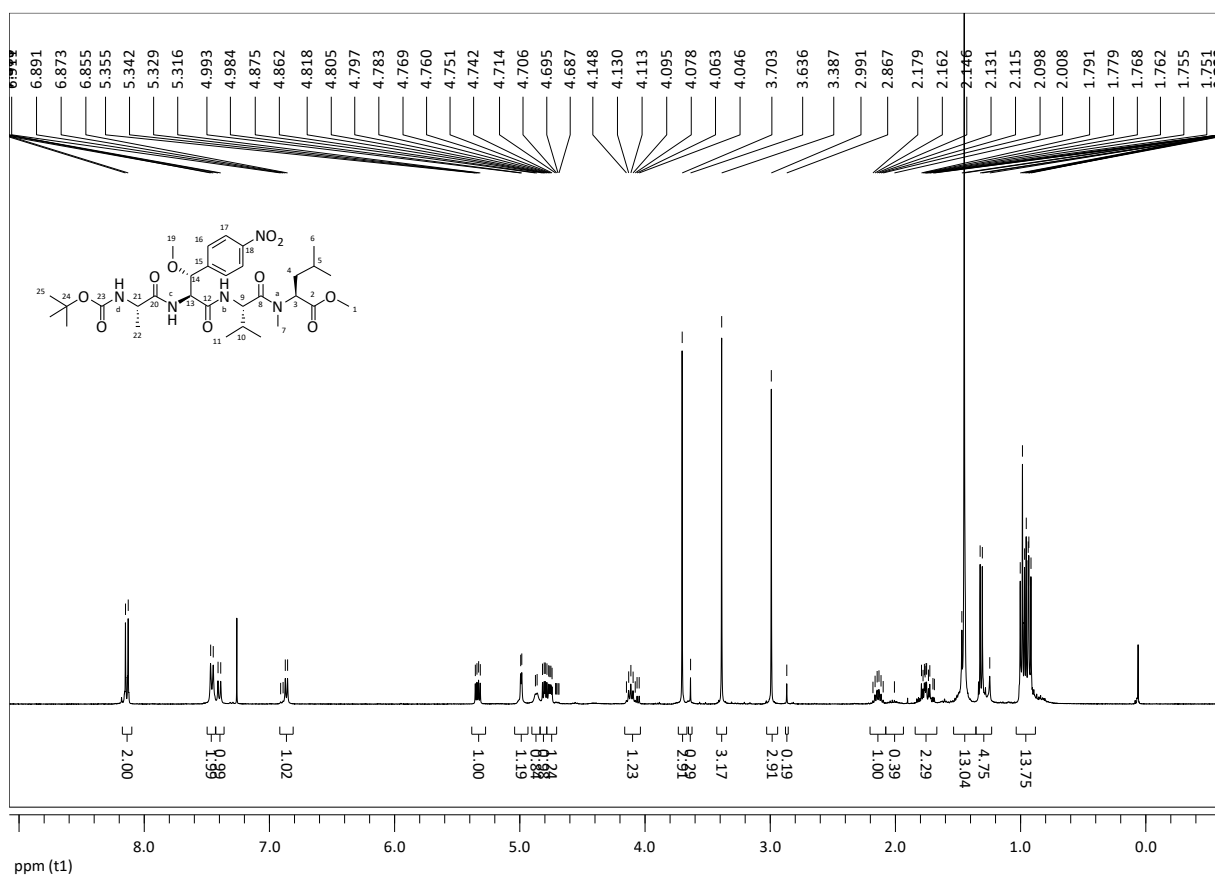
N-Boc-(2*S*,3*R*)-(3-methoxy-*para*-bromophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**7c**)



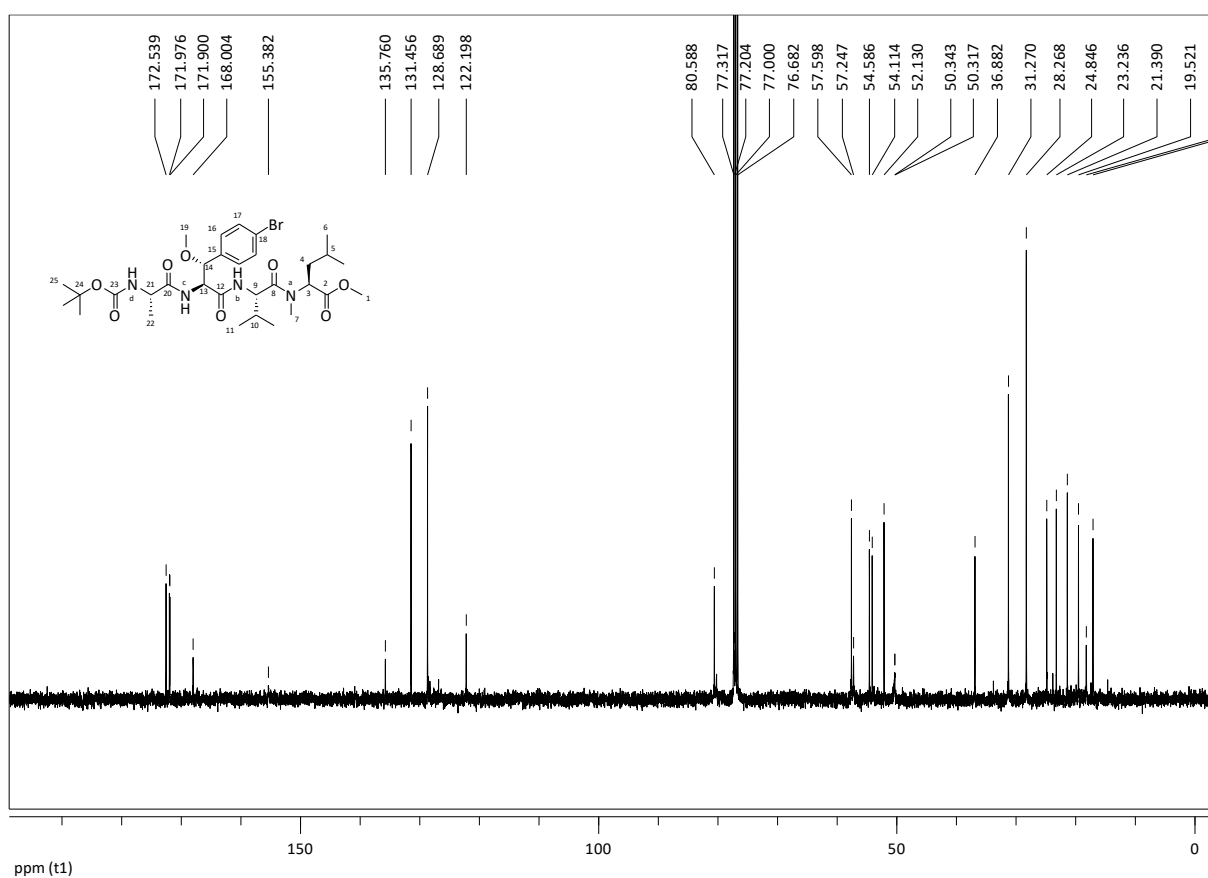
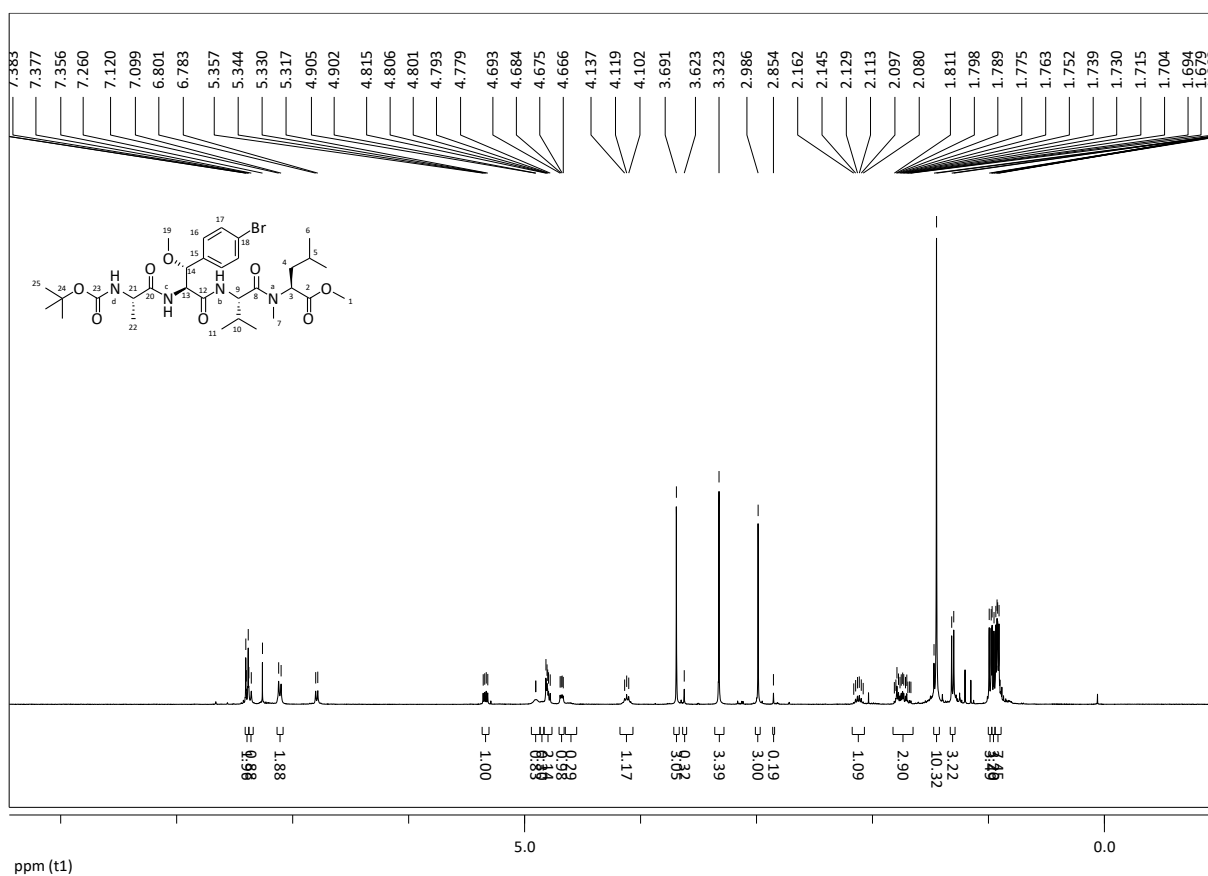
N-Boc-(2*S*,3*R*)-(3-methoxy-*para*-azidophenylalanyl)-(S)-valyl-(S)-*N*-methyl-leucine methyl ester (**7d**)



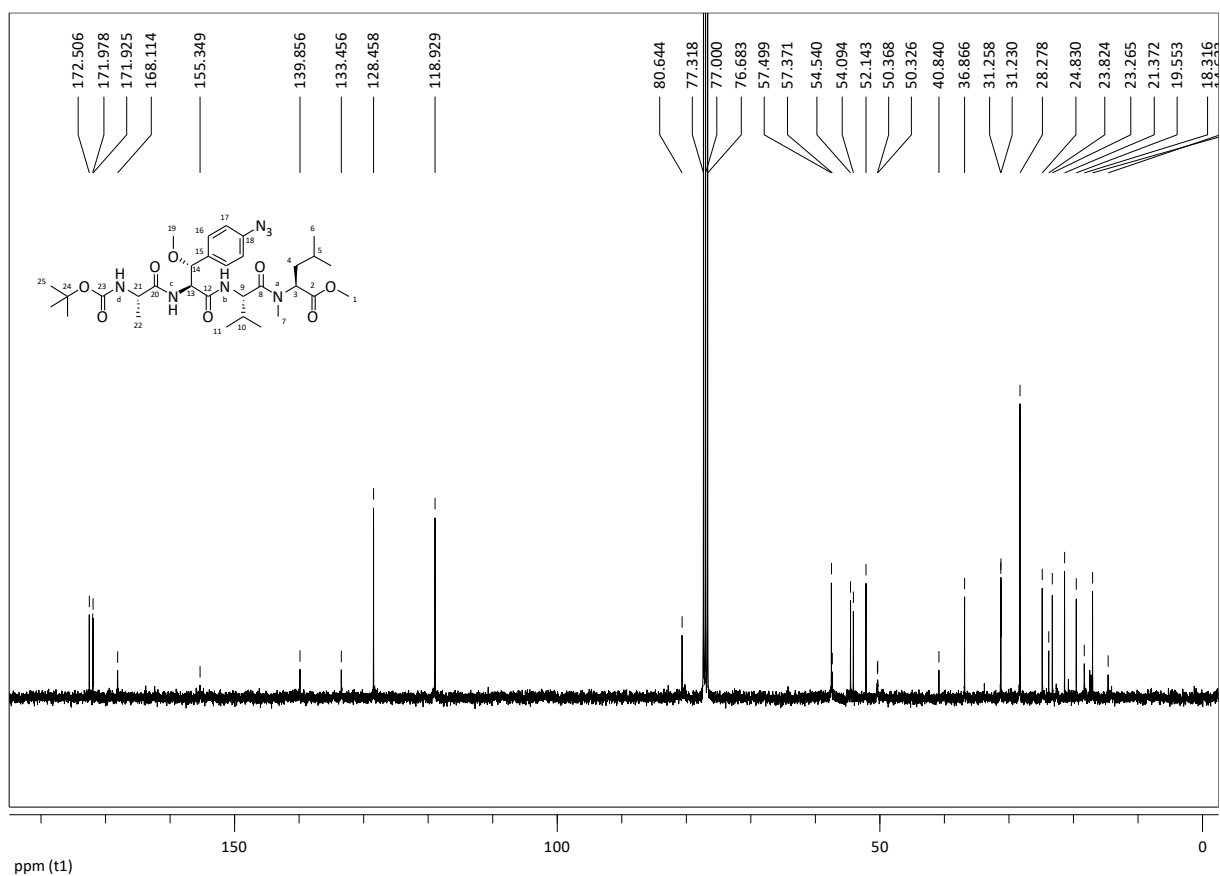
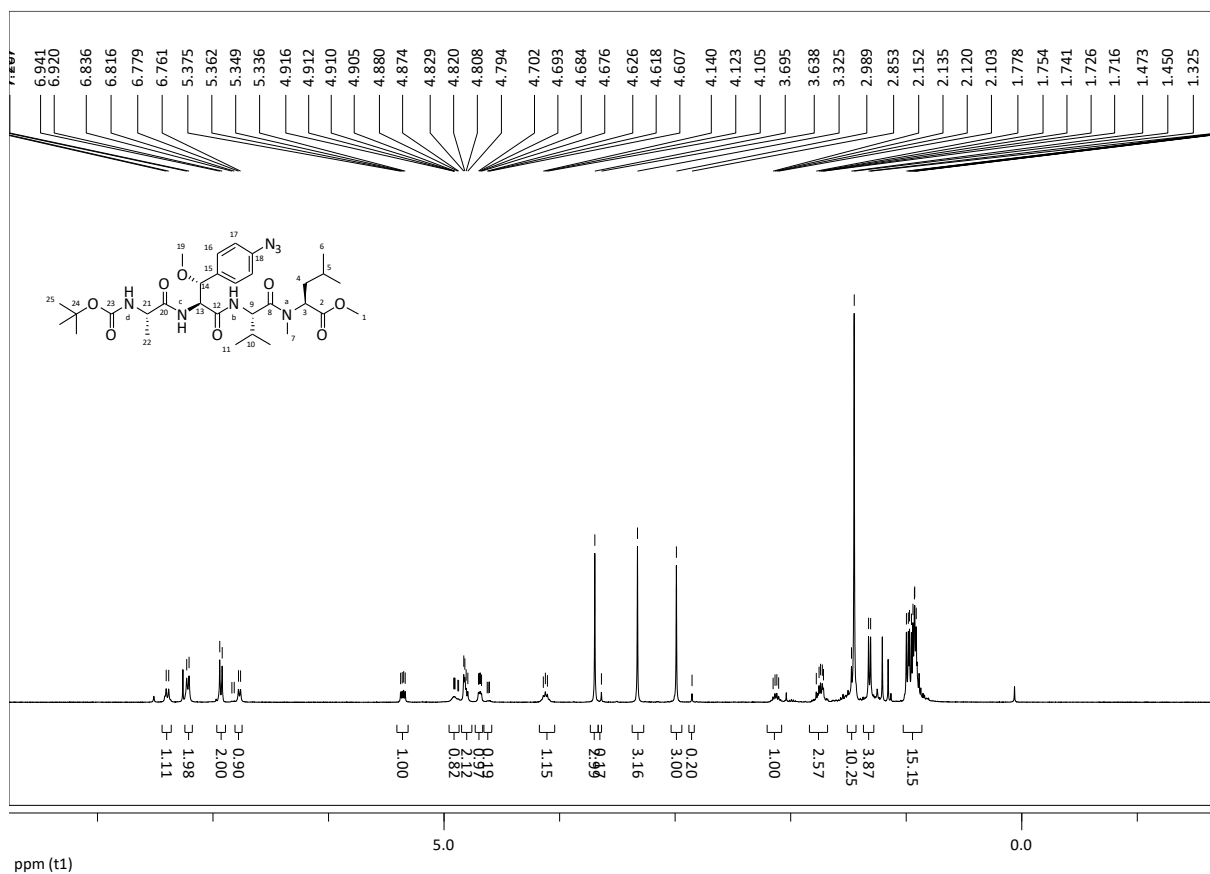
N-Boc-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-nitrophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**9a**)



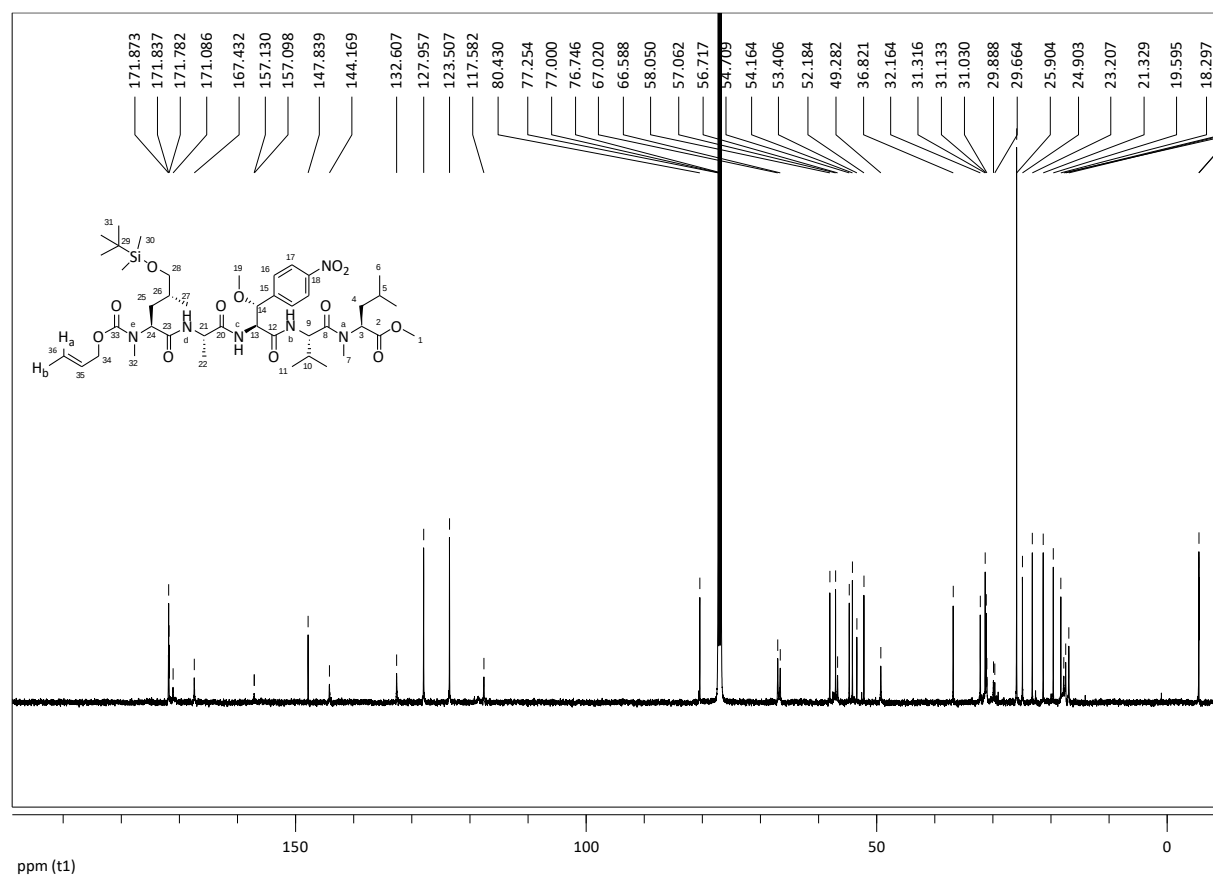
N-Boc-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-bromophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**9c**)



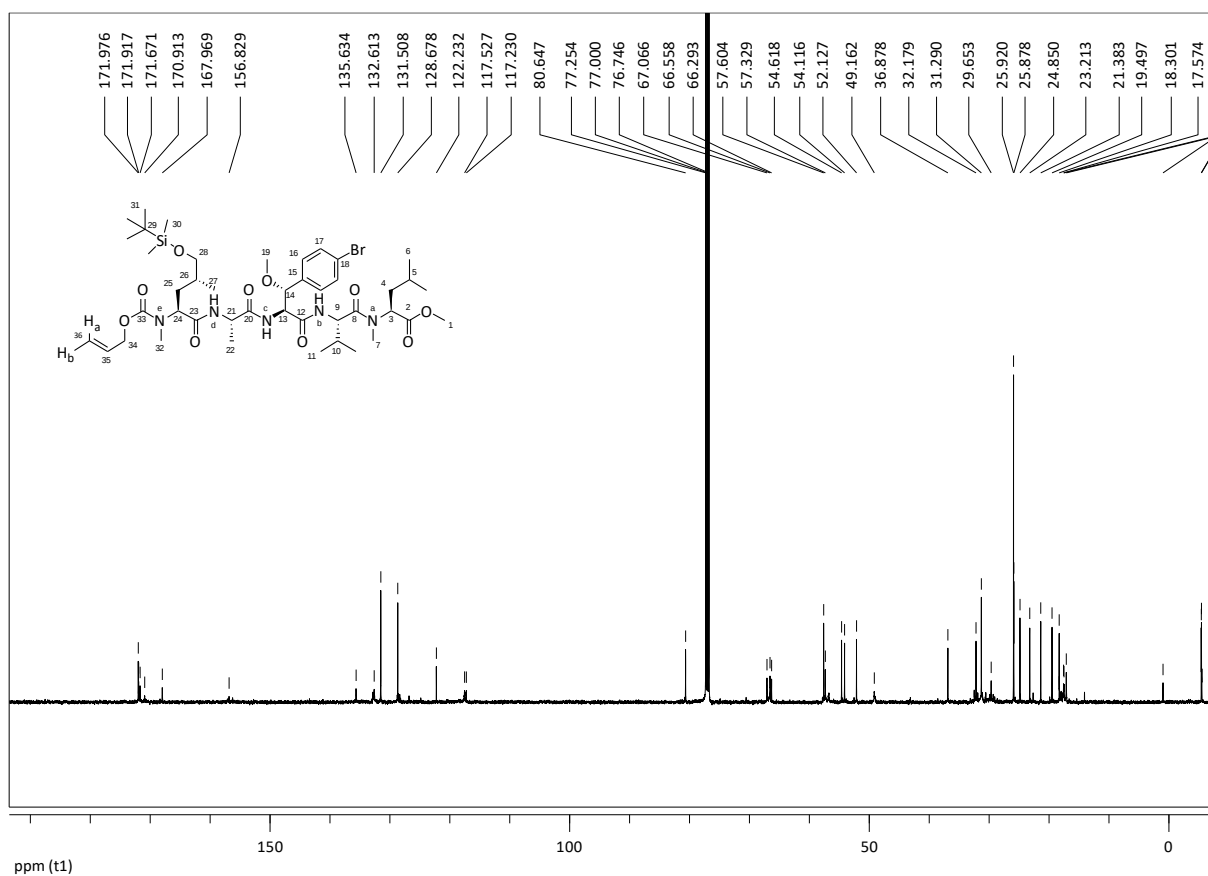
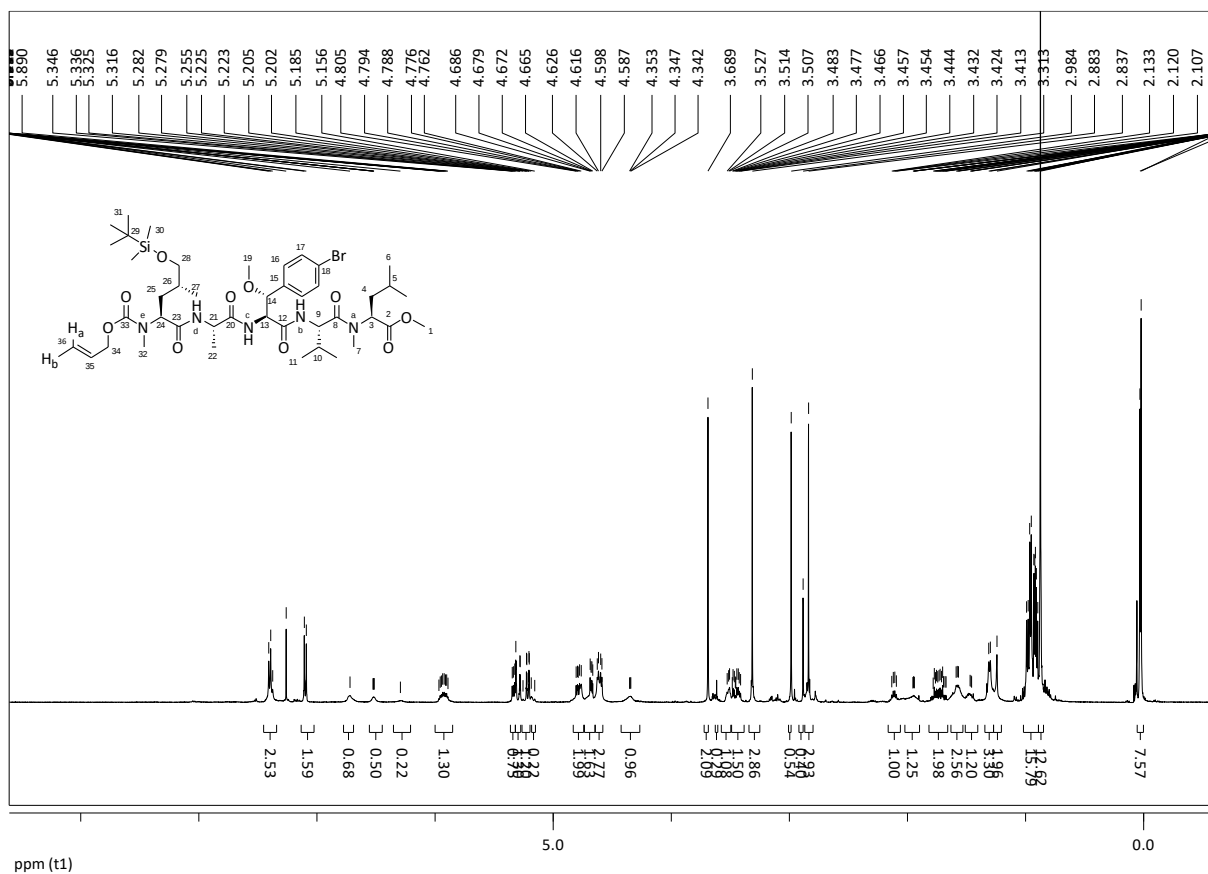
N-Boc-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-azidophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**9d**)



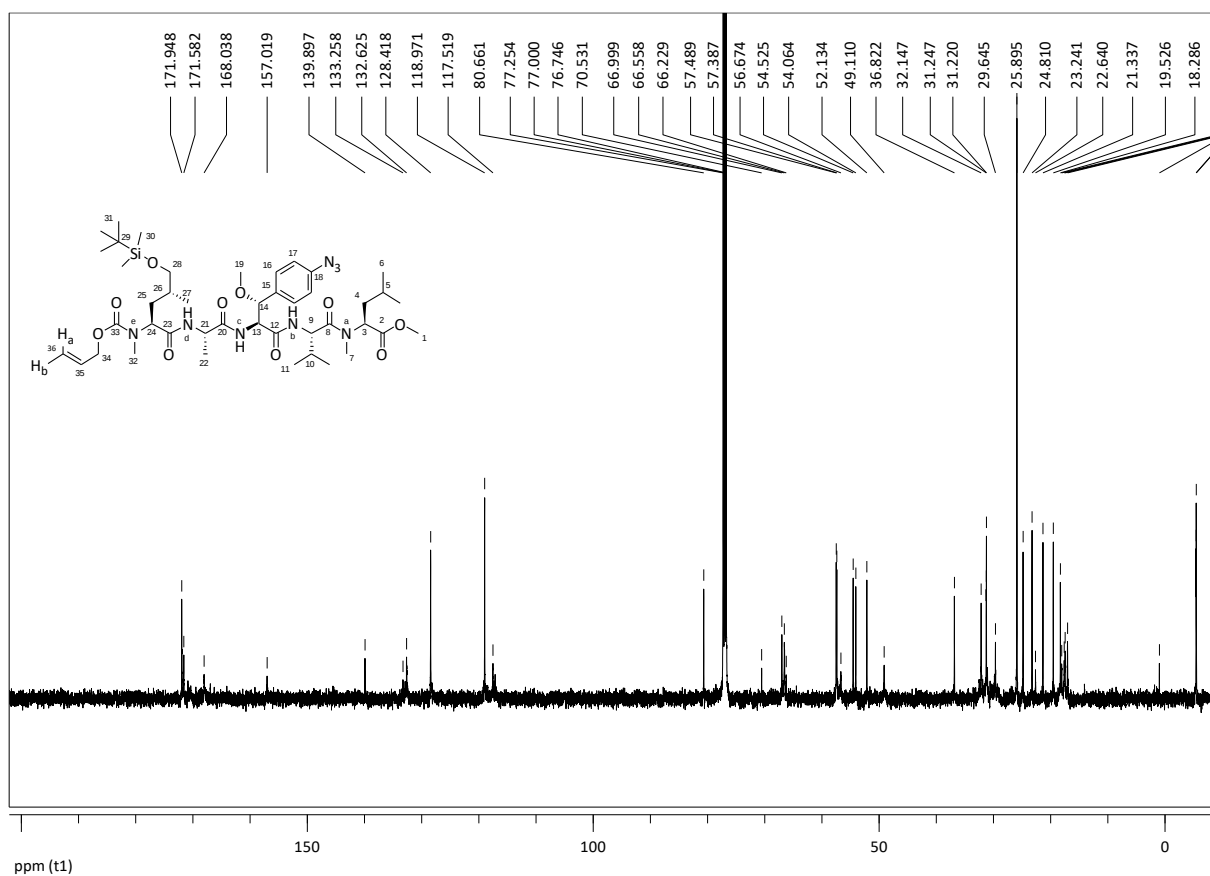
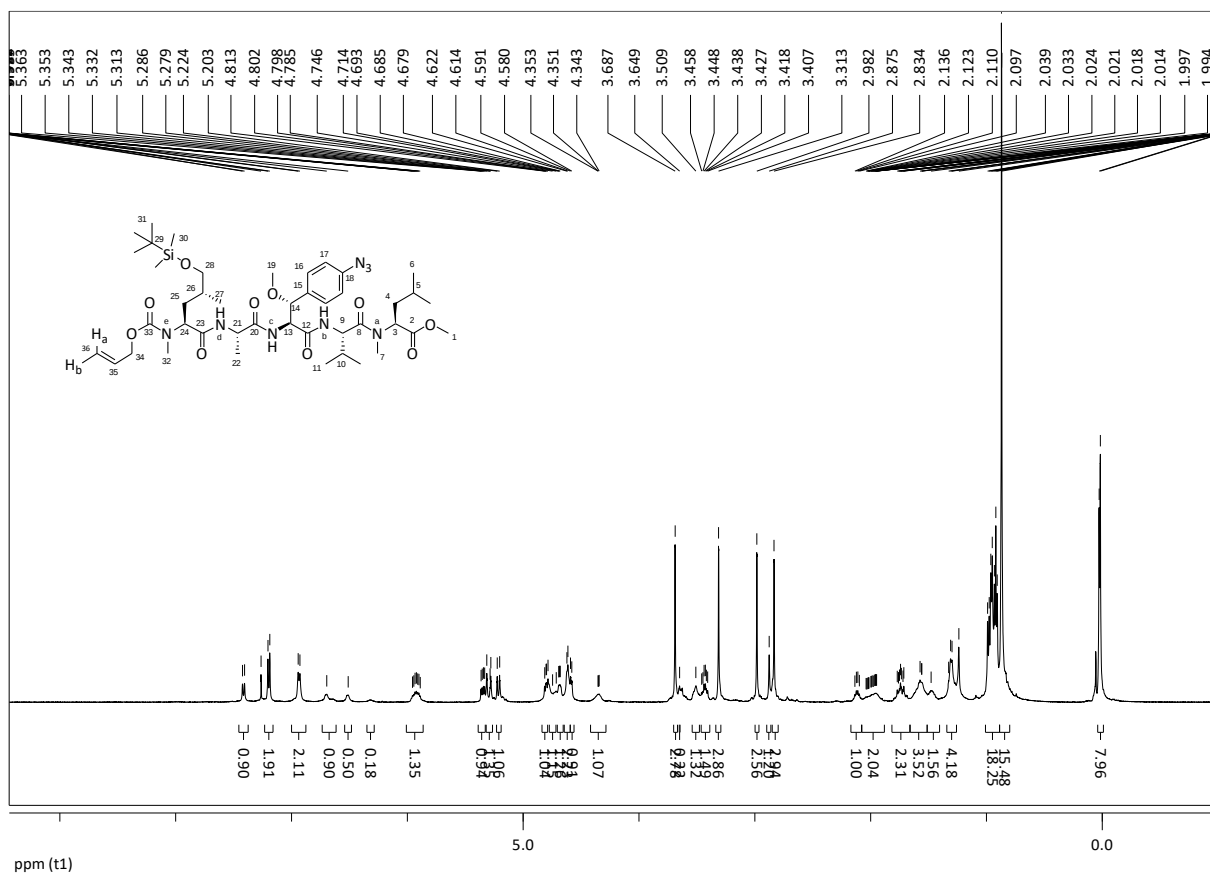
Chemical structure of compound 10 is shown above the spectrum. The structure includes a nitro-substituted benzene ring, a sulfonamide group, a sulfonate group, and a complex side chain with multiple chiral centers and functional groups. The NMR spectrum displays various signals corresponding to these groups: aromatic protons (6.2-7.4 ppm), nitro group (8.0 ppm), sulfonamide NH (7.2 ppm), sulfonate group (3.4-3.6 ppm), and various aliphatic protons (1.0-3.0 ppm). Integration values are provided below the baseline for several peak regions.



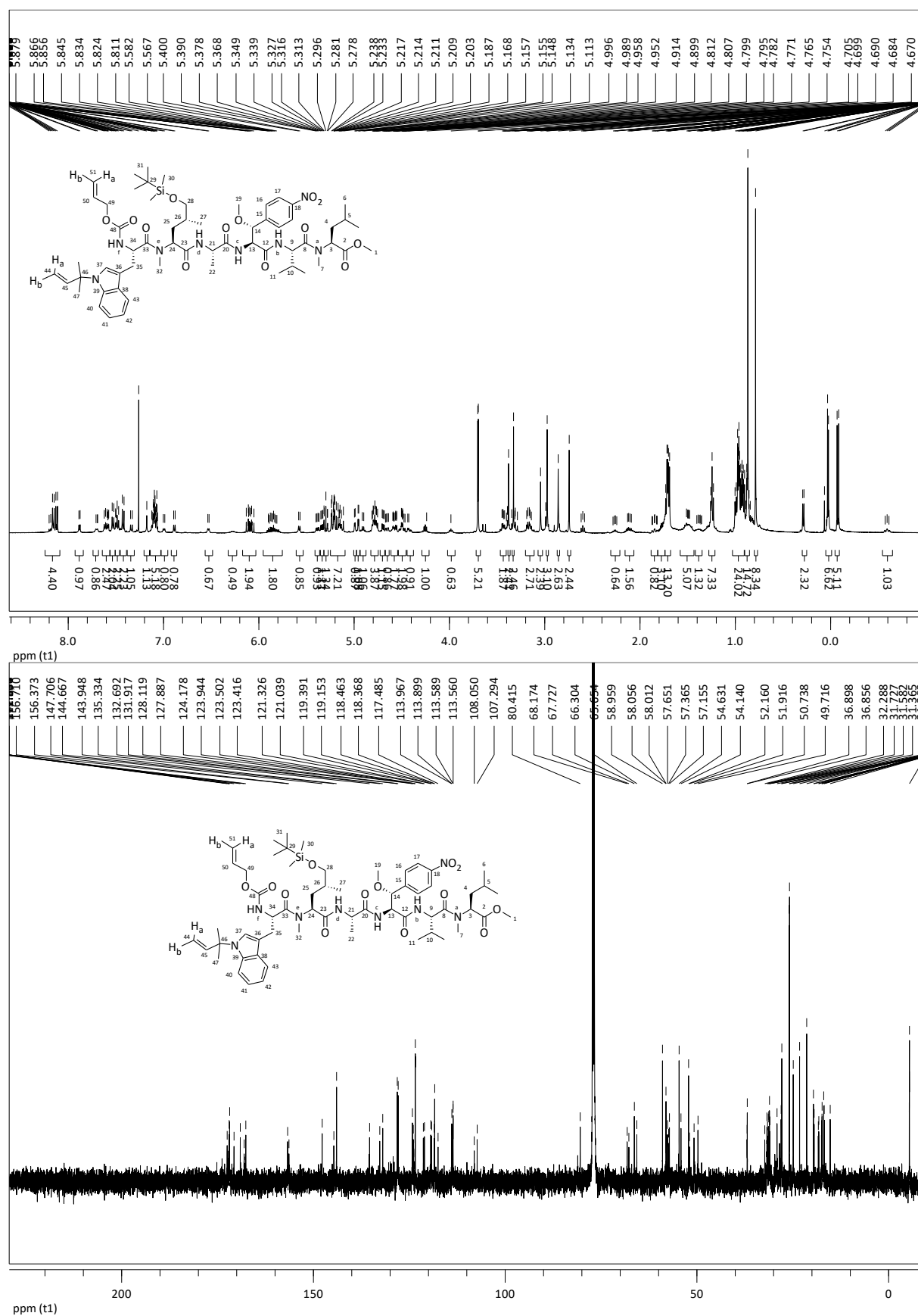
N-Alloc-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-bromophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**11c**)



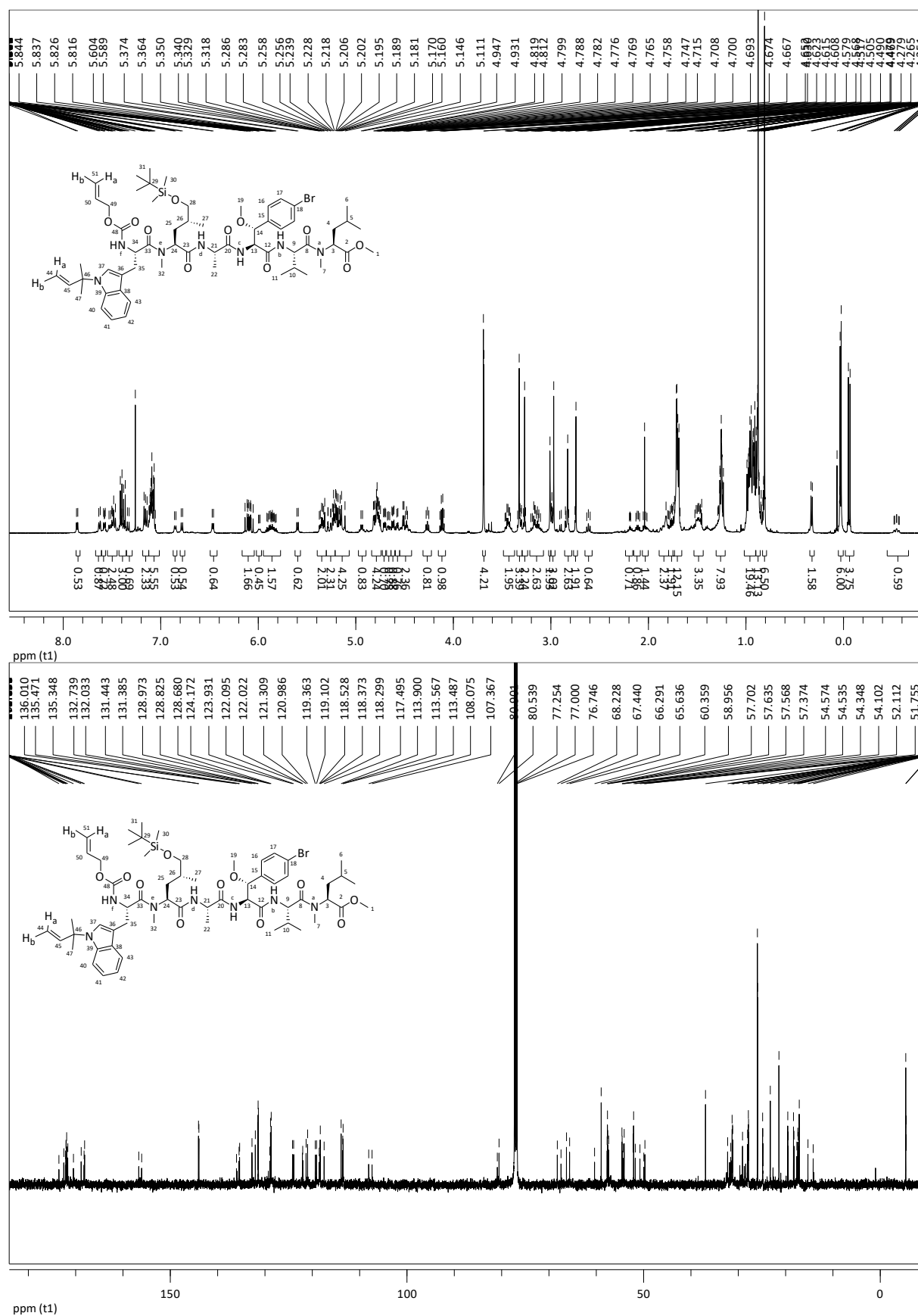
N-Alloc-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-azidophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**11d**)



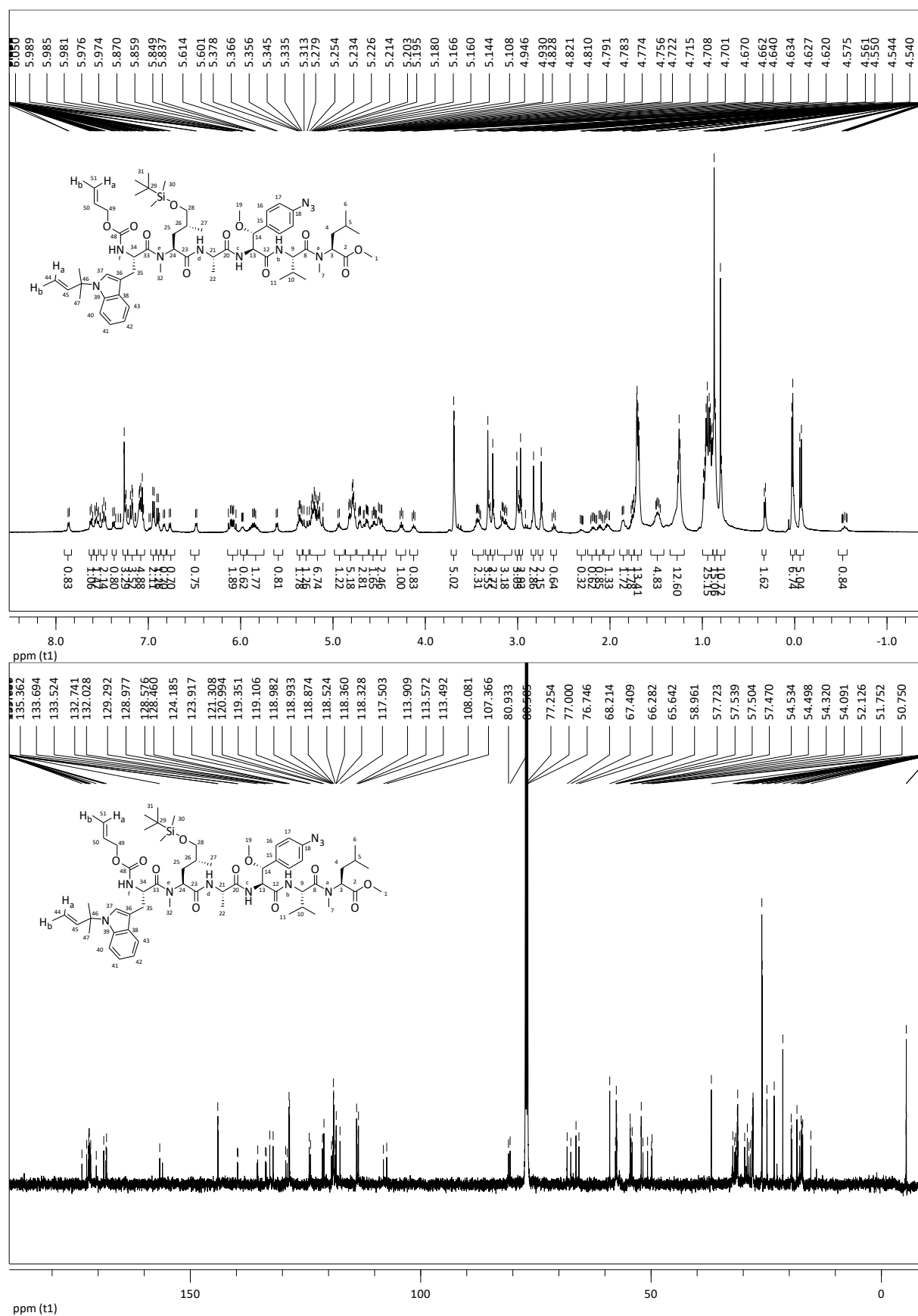
N-Alloc-(*S*)-[*N'*-*tert*-prenyl-tryptophanyl]-*N*-methyl-(2*S*,4*R*)-[5-(*tert*butyldimethylsilyl)-oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-nitrophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**13a**)



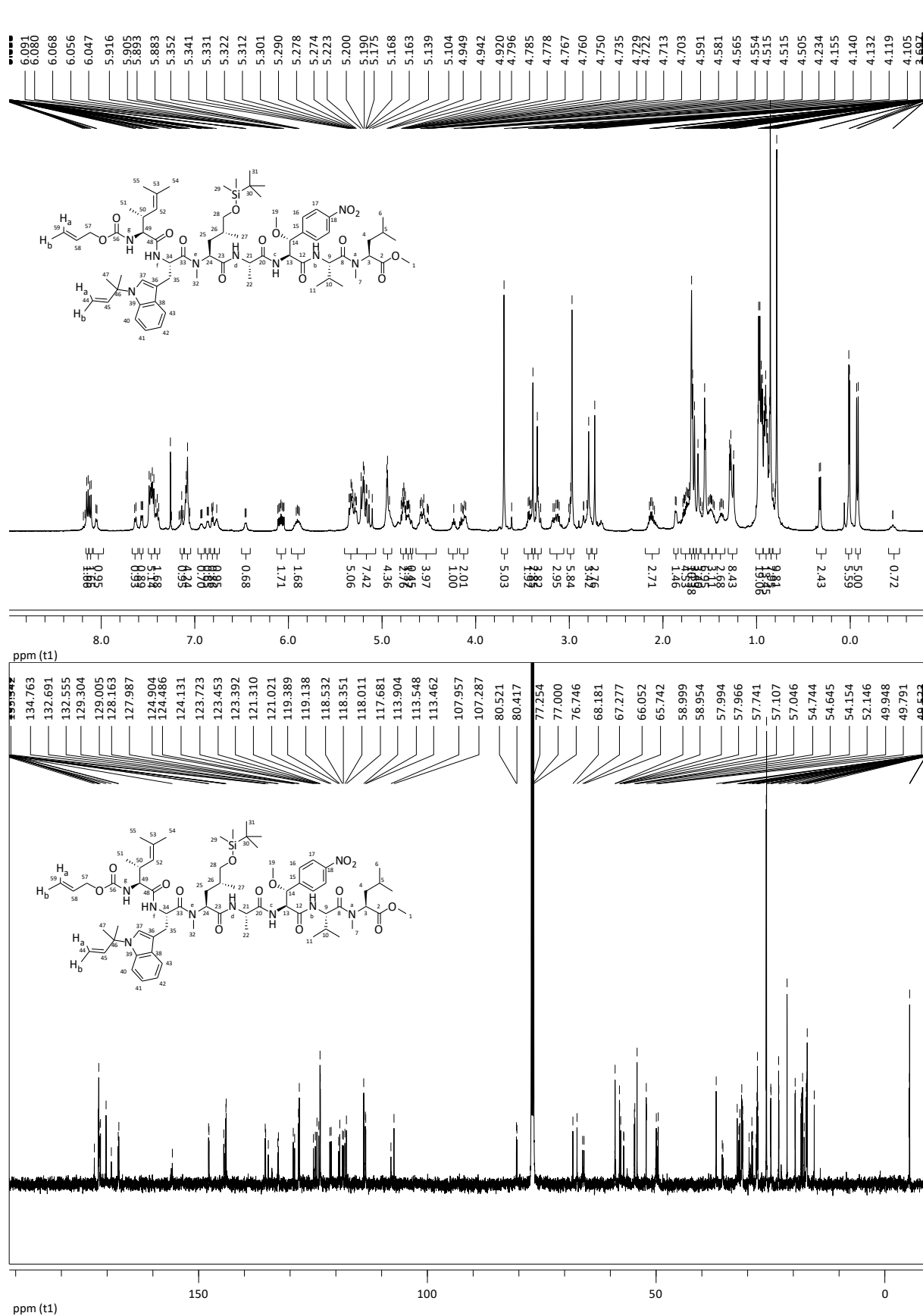
N-Alloc-*(S)*-[*N'*-*tert*-prenyl-tryptophanyl]-*N*-methyl-*(2S,4R)*-[5-(*tert*butyldimethylsilyl)-oxy-leucyl]-*(S)*-alanyl-*(2S,3R)*-(3-methoxy-*para*-bromophenylalanyl)-*(S)*-valyl-*(S)*-*N*-methyl-leucine methyl ester (**13c**)



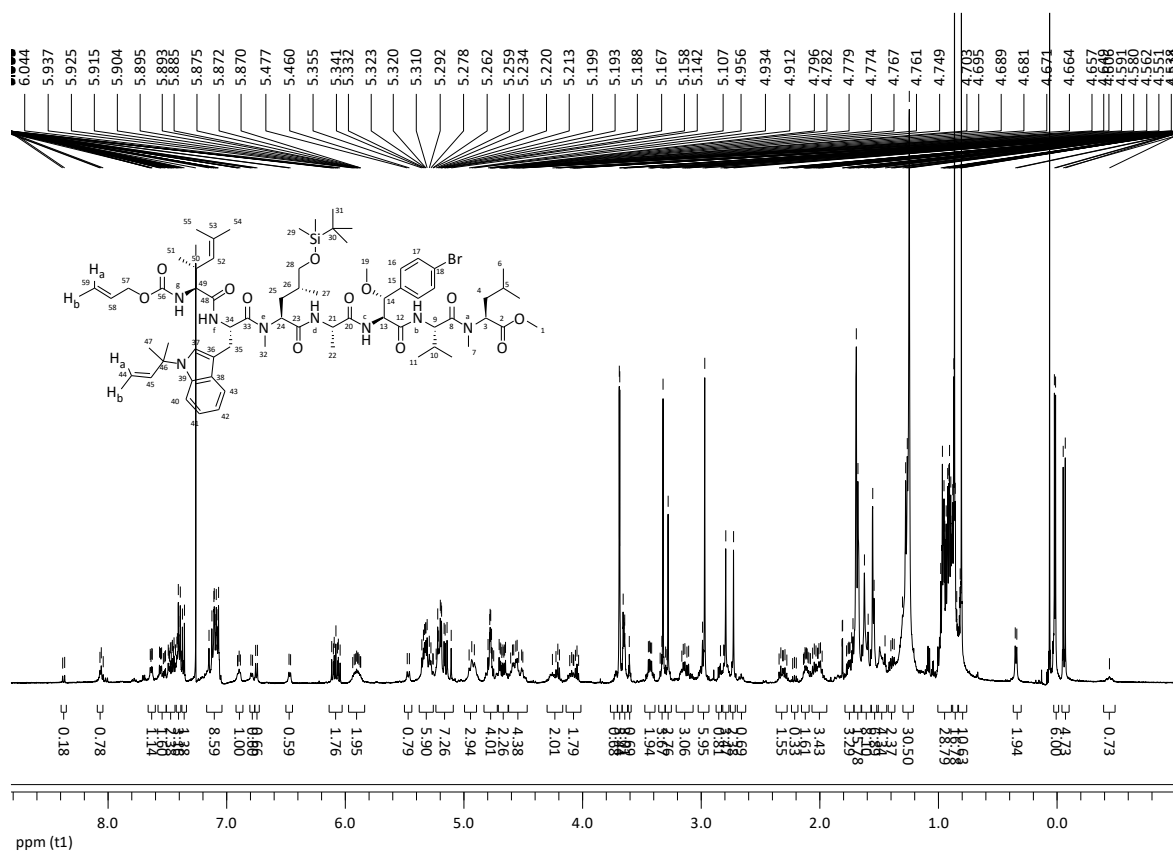
N-Alloc-*(S)*-[*N'*-*tert*-prenyl-tryptophanyl]-*N*-methyl-*(2S,4R)*-[5-(*tert*butyldimethylsilyl)-oxy-leucyl]-*(S)*-alanyl-*(2S,3R)*-(3-methoxy-*para*-azidophenylalanyl)-*(S)*-valyl-*(S)*-*N*-methyl-leucine methyl ester (**13d**)



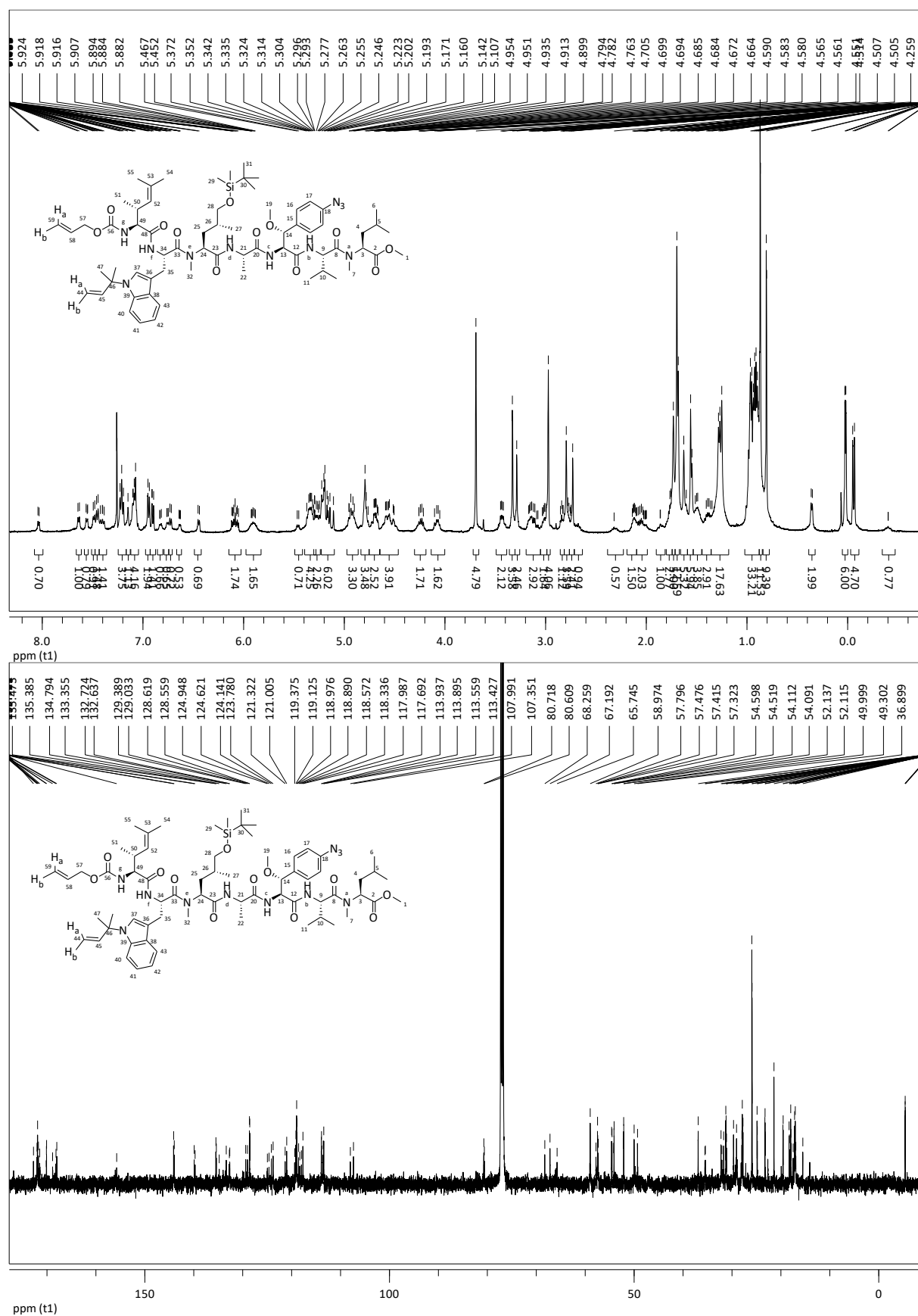
N-Alloc-(2*S*,3*R*)-(2-amino-3,5-dimethyl-hex-4-enoyl)-(S)-*N'*-*tert*-prenyl-tryptophanyl-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(S)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-nitrophenylalanyl)-(S)-valyl-(S)-*N*-methyl-leucine methyl ester (**15a**)



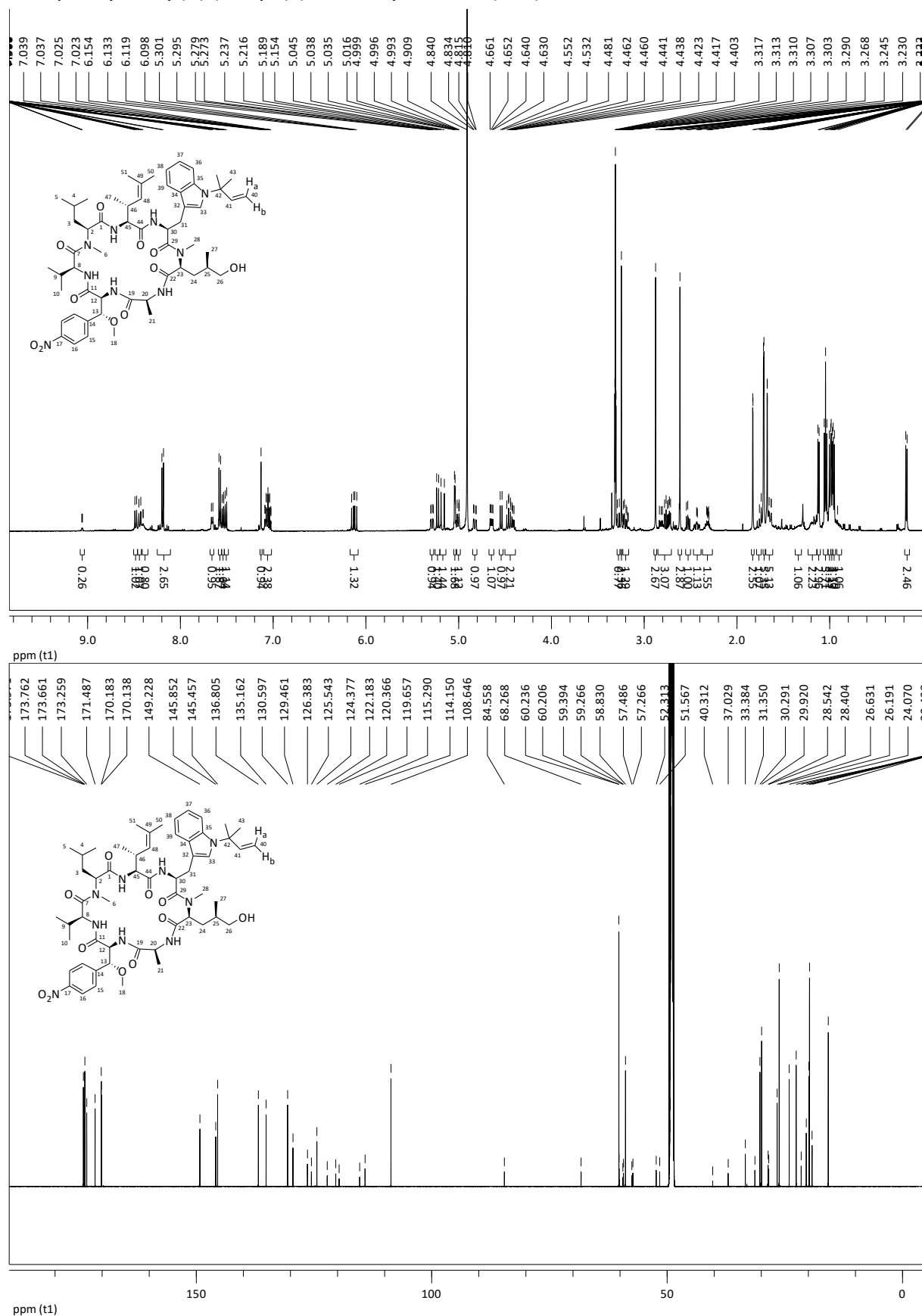
N-Alloc-(2*S*,3*R*)-(2-amino-3,5-dimethyl-hex-4-enoyl)-(*S*)-*N'*-*tert*-prenyl-tryptophanyl-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-bromophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**15c**)



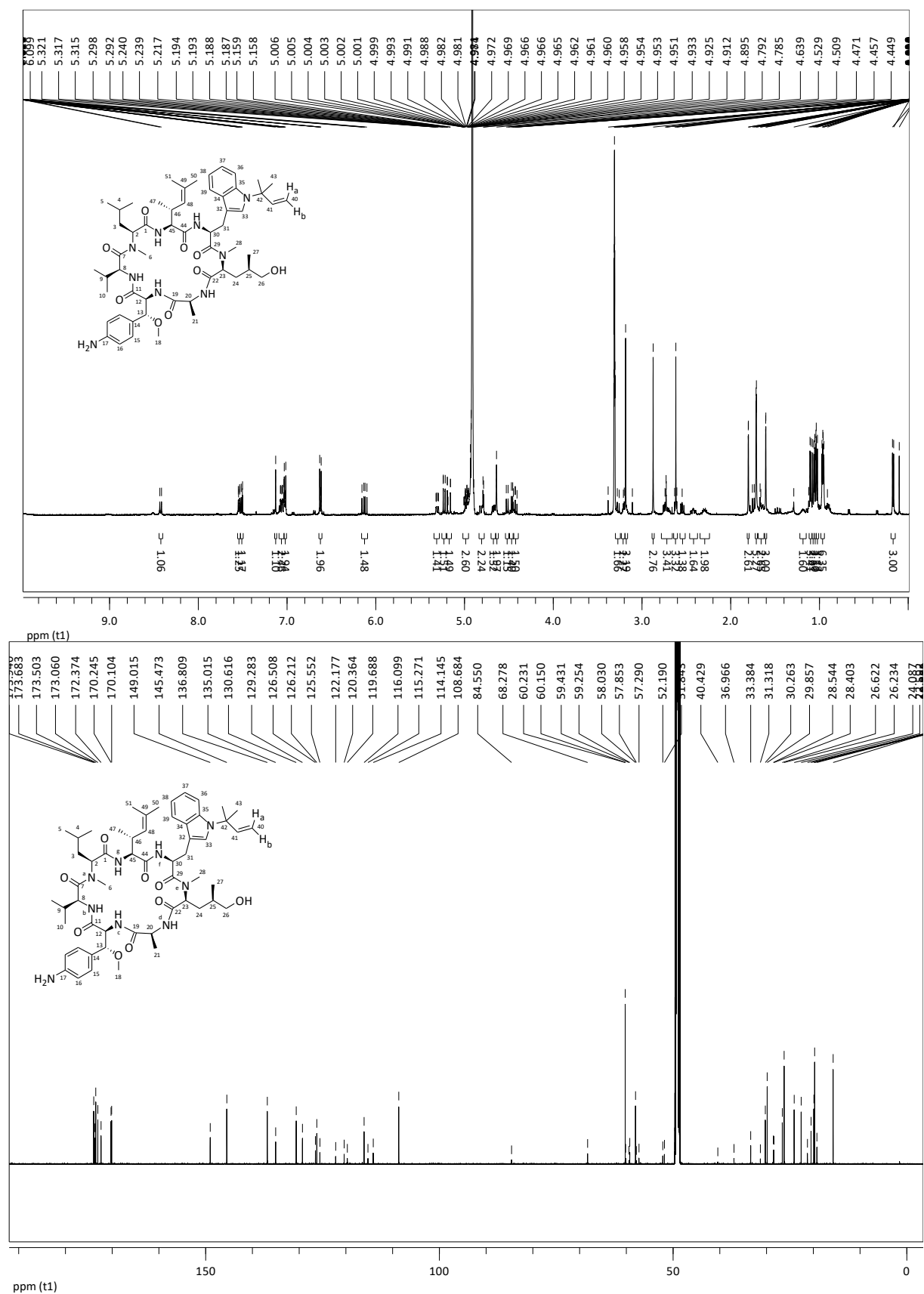
N-Alloc-(2*S*,3*R*)-(2-amino-3,5-dimethyl-hex-4-enoyl)-(*S*)-*N'*-*tert*-prenyl-tryptophanyl-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-azidophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine methyl ester (**15d**)



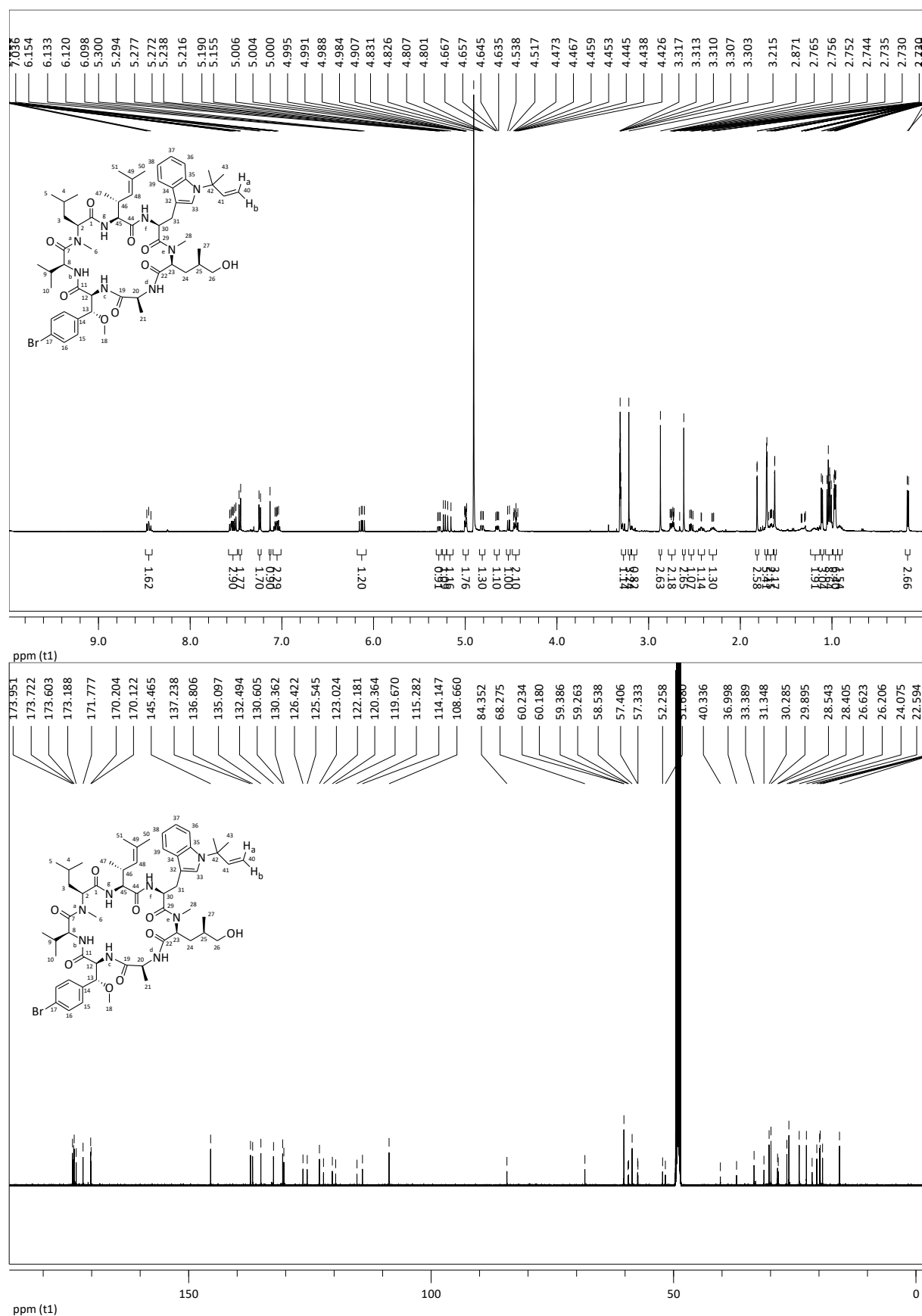
cyclo-(2*S*,3*R*)-(2-Amino-3,5-dimethyl-hex-4-enoyl)-(*S*)-*N'*-*tert*-prenyl-tryptophanyl-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-nitrophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine (**16a**)



cyclo-(2*S*,3*R*)-(2-Amino-3,5-dimethyl-hex-4-enoyl)-(S)-*N'*-*tert*-prenyl-tryptophanyl-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(S)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-aminophenylalanyl)-(S)-valyl-(S)-*N*-methyl-leucine (**16b**)



cyclo-(2*S*,3*R*)-(2-Amino-3,5-dimethyl-hex-4-enoyl)-(*S*)-*N'*-*tert*-prenyl-tryptophanyl-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-bromophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine (**16c**)



cyclo-(2*S*,3*R*)-(2-Amino-3,5-dimethyl-hex-4-enoyl)-(*S*)-*N'*-*tert*-prenyl-tryptophanyl-*N*-methyl-(2*S*,4*R*)-[5-(*tert*-butyldimethylsilyl)oxy-leucyl]-(*S*)-alanyl-(2*S*,3*R*)-(3-methoxy-*para*-azidophenylalanyl)-(*S*)-valyl-(*S*)-*N*-methyl-leucine (**16d**)

