Supporting Information

for

Parallel Synthesis of an Imidazole-4,5-dicarboxamide Library Bearing Amino Acid Esters and Alkanamines

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Table S1. Amino Acid Ester—Alkanamine Disubstituted I45DCs, **5**{*1-28*}.

compound	formula	MW	C log*P*	form	R_f	R_t (min)
5{*1*}	$C_{12}H_{18}N_4O_4$	282.30	-0.88	glass film	0.16	1.50
5{*2*}	$C_{21}H_{35}N_5O_6$	453.53	1.09	glass film	0.22	3.70
5{*3*}	$C_{18}H_{22}N_4O_4$	358.39	1.42	solid	0.27	3.45
5{*4*}	$C_{19}H_{24}N_4O_4$	372.42	1.39	glass film	0.26	4.10
5{*5*}	$C_{19}H_{24}N_4O_4$	372.42	1.39	glass film	0.26	4.10
5{*6*}	$C_{21}H_{33}N_5O_6$	451.52	1.00	solid	0.15	3.95
5{*7*}	$C_{24}H_{33}N_5O_6$	487.55	2.13	glass film	0.25	4.30
5{*8*}	$C_{24}H_{26}N_4O_4$	434.49	2.77	glass film	0.33	5.52
5{*9*}	$C_{19}H_{24}N_4O_4$	372.42	2.05	solid	0.19	2.40
5{*10*}	$C_{15}H_{24}N_4O_4$	324.38	0.92	glass film	0.26	1.65
5{*11*}	$C_{20}H_{31}N_5O_6$	437.49	2.00	solid	0.14	3.18
5{*12*}	$C_{20}H_{24}N_4O_4$	384.43	2.34	glass film	0.23	2.50
5{*13*}	$C_{17}H_{26}N_4O_4$	350.41	1.58	solid	0.18	2.05
5{*14*}	$C_{21}H_{27}N_5O_4$	413.47	1.20	solid	0.17	2.32
5{*15*}	$C_{15}H_{16}N_4O_4$	316.31	-0.07	solid	0.20	1.60
5{*16*}	$C_{24}H_{33}N_5O_6$	487.55	1.90	glass film	0.22	2.15
5{*17*}	$C_{21}H_{20}N_4O_4$	392.41	1.56	solid	0.46	3.80
5{*18*}	$C_{22}H_{22}N_4O_4$	406.43	1.87	glass film	0.20	4.85
5{*19*}	$C_{22}H_{22}N_4O_4$	406.43	1.87	glass film	0.20	4.85
5{*20*}	$C_{24}H_{31}N_5O_6$	485.53	1.13	glass film	0.31	4.25
5{*21*}	$C_{27}H_{31}N_5O_6$	521.56	2.26	solid	0.24	4.47
5{*22*}	$C_{27}H_{24}N_4O_4$	468.50	2.91	glass film	0.59	5.85
5{*23*}	$C_{22}H_{22}N_4O_4$	406.43	2.53	glass film	0.32	2.58
5{*24*}	$C_{19}H_{22}N_4O_4$	358.39	1.40	glass film	0.32	1.75
5{*25*}	$C_{23}H_{29}N_5O_6$	471.51	2.48	solid	0.20	2.35
5{*26*}	$C_{23}H_{22}N_4O_4$	418.45	2.81	solid	0.23	2.85
5{*27*}	$C_{20}H_{24}N_4O_4$	384.43	2.05	glass film	0.24	3.30
5{*28*}	$C_{24}H_{25}N_5O_4$	447.49	1.68	solid	0.22	3.95

Table S2. Amino Acid Ester—Alkanamine Disubstituted I45DCs, **5**{*29-56*}.

compound	formula	MW	C log*P*	form	R_f	R_t (min)
5{*29*}	$C_{13}H_{20}N_4O_4$	296.32	-0.58	glass film	0.14	1.70
5{*30*}	$C_{22}H_{37}N_5O_6$	467.56	1.40	glass film	0.14	4.40
5{*31*}	$C_{19}H_{24}N_4O_4$	372.42	1.73	glass film	0.22	4.30
5{*32*}	$C_{20}H_{26}N_4O_4$	386.44	2.04	glass film	0.30	4.90
5{*33*}	$C_{20}H_{26}N_4O_4$	386.44	2.04	glass film	0.30	4.90
5{*34*}	$C_{22}H_{35}N_5O_6$	465.54	1.31	glass film	0.13	4.72
5{*35*}	$C_{25}H_{35}N_5O_6$	501.58	2.44	glass film	0.19	4.87
5{*36*}	$C_{25}H_{28}N_4O_4$	448.51	3.08	glass film	0.32	6.10
5{*37*}	$C_{20}H_{26}N_4O_4$	386.44	2.36	glass film	0.15	3.10
5{*38*}	$C_{16}H_{26}N_4O_4$	338.40	1.23	glass film	0.24	1.95
5{*39*}	$C_{21}H_{33}N_5O_6$	451.52	2.31	glass film	0.10	2.75
5{*40*}	$C_{21}H_{26}N_4O_4$	398.46	2.65	glass film	0.15	3.50
5{*41*}	$C_{18}H_{28}N_4O_4$	364.44	1.89	solid	0.12	2.60
5{*42*}	$C_{22}H_{29}N_5O_4$	427.50	1.51	glass film	0.09	3.32
5{*43*}	$C_{16}H_{18}N_4O_4$	330.34	0.24	solid	0.11	1.80
5{*44*}	$C_{25}H_{35}N_5O_6$	501.58	1.87	glass film	0.14	4.60
5{*45*}	$C_{22}H_{22}N_4O_4$	406.43	1.87	glass film	0.26	4.42
5{*46*}	$C_{23}H_{24}N_4O_4$	420.46	2.18	glass film	0.25	4.95
5{*47*}	$C_{23}H_{24}N_4O_4$	420.46	2.18	glass film	0.25	4.95
5{*48*}	$C_{25}H_{33}N_5O_6$	499.56	1.44	glass film	0.14	4.82
5{*49*}	$C_{28}H_{33}N_5O_6$	535.59	2.57	glass film	0.14	4.97
5{*50*}	$C_{28}H_{26}N_4O_4$	482.53	3.21	glass film	0.30	6.05
5{*51*}	$C_{23}H_{24}N_4O_4$	420.46	2.84	glass film	0.14	3.57
5{*52*}	$C_{19}H_{24}N_4O_4$	372.42	1.71	solid	0.18	2.12
5{*53*}	$C_{24}H_{31}N_5O_6$	485.53	2.79	solid	0.11	4.18
5{*54*}	$C_{24}H_{24}N_4O_4$	432.47	3.12	glass film	0.18	3.92
5{*55*}	$C_{21}H_{26}N_4O_4$	398.46	2.36	solid	0.12	2.95
5{*56*}	$C_{25}H_{27}N_5O_4$	461.51	1.99	glass film	0.09	3.62

Table S3. Amino Acid Ester—Alkanamine Disubstituted I45DCs, **5**{*57-84*}.

compound	formula	MW	C log*P*	form	R_f	R_t (min)
5{*57*}	$C_{16}H_{26}N_4O_4$	338.40	0.88	glass film	0.26	3.75
5{*58*}	$C_{25}H_{43}N_5O_6$	509.64	2.85	glass film	0.23	6.22
5{*59*}	$C_{22}H_{30}N_4O_4$	414.50	3.19	glass film	0.41	6.23
5{*60*}	$C_{23}H_{32}N_4O_4$	428.52	3.50	glass film	0.42	6.73
5{*61*}	$C_{23}H_{32}N_4O_4$	428.52	3.50	glass film	0.42	6.73
5{*62*}	$C_{25}H_{41}N_5O_6$	507.62	2.77	glass film	0.29	6.55
5{*63*}	$C_{28}H_{41}N_5O_6$	543.66	3.89	glass film	0.26	6.52
5{*64*}	$C_{28}H_{34}N_4O_4$	490.59	4.54	glass film	0.52	7.67
5{*65*}	$C_{23}H_{32}N_4O_4$	428.52	3.82	solid	0.24	5.55
5{*66*}	$C_{19}H_{32}N_4O_4$	380.48	2.69	solid	0.33	4.45
5{*67*}	$C_{24}H_{39}N_5O_6$	493.60	3.77	solid	0.21	5.27
5{*68*}	$C_{24}H_{32}N_4O_4$	440.53	4.10	solid	0.28	5.73
5{*69*}	$C_{21}H_{34}N_4O_4$	406.52	3.34	solid	0.25	5.20
5{*70*}	$C_{25}H_{35}N_5O_4$	469.58	2.97	solid	0.19	5.60
5{*71*}	$C_{19}H_{24}N_4O_4$	372.42	1.70	glass film	0.16	4.80
5{*72*}	$C_{28}H_{41}N_5O_6$	543.66	3.33	glass film	0.16	6.20
5{*73*}	$C_{25}H_{28}N_4O_4$	448.51	3.32	glass film	0.30	6.90
5{*74*}	$C_{26}H_{30}N_4O_4$	462.54	3.63	glass film	0.47	6.75
5{*75*}	$C_{26}H_{30}N_4O_4$	462.54	3.63	glass film	0.47	6.75
5{*76*}	$C_{28}H_{39}N_5O_6$	541.64	2.90	glass film	0.27	6.47
5{*77*}	$C_{31}H_{39}N_5O_6$	577.67	4.02	solid	0.24	6.40
5{*78*}	$C_{31}H_{32}N_4O_4$	524.61	4.67	glass film	0.52	7.45
5{*79*}	$C_{26}H_{30}N_4O_4$	462.54	4.29	glass film	0.22	5.75
5{*80*}	$C_{22}H_{30}N_4O_4$	414.50	3.16	glass film	0.29	4.85
5{*81*}	$C_{27}H_{37}N_5O_6$	527.61	4.24	solid	0.13	5.45
5{*82*}	$C_{27}H_{30}N_4O_4$	474.55	4.58	glass film	0.23	5.85
5{*83*}	$C_{24}H_{32}N_4O_4$	440.54	3.82	solid	0.15	5.45
5{*84*}	$C_{28}H_{33}N_5O_4$	503.59	3.44	glass film	0.12	5.75

Table S4. Amino Acid Ester—Alkanamine Disubstituted I45DCs, **5**{*85-112*}.

compound	formula	MW	C log*P*	form	R_f	R_t (min)
5{*85*}	$C_{19}H_{24}N_4O_4$	372.42	1.18	glass film	0.26	3.80
5{*86*}	$C_{28}H_{41}N_5O_6$	543.66	3.15	glass film	0.29	6.10
5{*87*}	$C_{25}H_{28}N_4O_4$	448.51	2.81	glass film	0.41	6.08
5{*88*}	$C_{26}H_{30}N_4O_4$	462.54	3.12	glass film	0.36	6.65
5{*89*}	$C_{26}H_{30}N_4O_4$	462.54	3.12	glass film	0.36	6.65
5{*90*}	$C_{28}H_{39}N_5O_6$	541.64	2.39	glass film	0.26	6.40
5{*91*}	$C_{31}H_{39}N_5O_6$	577.67	3.51	glass film	0.31	6.45
5{*92*}	$C_{31}H_{32}N_4O_4$	524.61	4.16	glass film	0.48	7.50
5{*93*}	$C_{26}H_{30}N_4O_4$	462.54	3.78	glass film	0.31	5.35
5{*94*}	$C_{22}H_{30}N_4O_4$	414.50	2.65	glass film	0.36	4.30
5{*95*}	$C_{27}H_{37}N_5O_6$	527.61	3.73	solid	0.21	5.12
5{*96*}	$C_{27}H_{30}N_4O_4$	474.55	4.06	glass film	0.26	5.80
5{*97*}	$C_{24}H_{30}N_4O_4$	462.54	3.12	glass film	0.36	5.09
5{*98*}	$C_{28}H_{32}N_5O_4$	440.54	3.30	glass film	0.24	5.45
5{*99*}	$C_{22}H_{22}N_4O_4$	406.43	1.66	solid	0.16	4.05
5{*100*}	$C_{31}H_{39}N_5O_6$	577.67	3.63	glass film	0.19	6.12
5{*101*}	$C_{28}H_{26}N_4O_4$	482.53	3.28	glass film	0.29	6.25
5{*102*}	$C_{29}H_{28}N_4O_4$	496.56	3.59	glass film	0.29	6.75
5{*103*}	$C_{29}H_{28}N_4O_4$	496.56	3.59	glass film	0.29	6.75
5{*104*}	$C_{31}H_{37}N_5O_6$	575.66	2.86	glass film	0.18	6.35
5{*105*}	$C_{34}H_{37}N_5O_6$	611.69	3.99	glass film	0.22	6.28
5{*106*}	$C_{34}H_{30}N_4O_4$	558.63	4.63	glass film	0.35	7.25
5{*107*}	$C_{29}H_{28}N_4O_4$	496.56	4.25	glass film	0.19	5.60
5{*108*}	$C_{25}H_{28}N_4O_4$	448.51	3.12	glass film	0.19	5.30
5{*109*}	$C_{30}H_{35}N_5O_6$	561.63	4.20	glass film	0.09	5.30
5{*110*}	$C_{30}H_{28}N_4O_4$	508.57	4.54	glass film	0.22	5.73
5{*111*}	$C_{27}H_{30}N_4O_4$	474.55	3.78	glass film	0.15	5.42
5{*112*}	$C_{31}H_{31}N_5O_4$	537.61	3.40	glass film	0.12	5.75

Table S5. Amino Acid Ester—Alkanamine Disubstituted I45DCs, **5**{*113-126*}.

compound	formula	MW	C log*P*	form	R_f	R_t (min)
5{*113*}	$C_{21}H_{35}N_5O_6$	453.53	0.87	glass film	0.16	3.25
5{*114*}	$C_{30}H_{52}N_6O_8$	624.77	2.83	glass film	0.19	5.70
5{*115*}	$C_{27}H_{39}N_5O_6$	529.63	3.18	glass film	0.28	5.65
5{*116*}	$C_{28}H_{41}N_5O_6$	543.66	3.14	glass film	0.28	6.05
5{*117*}	$C_{28}H_{41}N_5O_6$	543.66	3.14	glass film	0.28	6.05
5{*118*}	$C_{30}H_{50}N_6O_8$	622.75	2.75	glass film	0.19	5.90
5{*119*}	$C_{33}H_{50}N_6O_8$	658.79	3.88	glass film	0.12	5.90
5{*120*}	$C_{33}H_{43}N_5O_6$	605.72	4.52	glass film	0.34	6.95
5{*121*}	$C_{28}H_{41}N_5O_6$	543.66	3.80	glass film	0.12	5.10
5{*122*}	$C_{24}H_{41}N_5O_6$	495.61	2.67	glass film	0.20	4.15
5{*123*}	$C_{29}H_{48}N_6O_8$	608.73	3.75	glass film	0.15	4.97
5{*124*}	$C_{29}H_{41}N_5O_6$	555.67	4.09	glass film	0.20	5.30
5{*125*}	$C_{26}H_{43}N_5O_6$	521.65	3.33	glass film	0.15	4.85
5{*126*}	$C_{30}H_{44}N_6O_6$	584.71	2.96	glass film	0.12	5.25

Note on Morphology of Samples. The purified products were transferred as CH_2Cl_2 solutions into vials for storage and allowed to evaporate at room temperature. It is noteworthy that a majority of the samples yield a transparent glass film (78%) from this process, with a smaller percentage of samples yielding largely amorphous white solids (22%). Primary amines yielded 8 solids from 72 samples (11%), while secondary amines yielded 20 solids from 54 samples (37%). This difference is likely due to a specific intramolecular hydrogen bonded conformation that forms in library members substituted with a secondary alkanamine as compared with the equilibrium of two intramolecular hydrogen bonded conformations for library members substituted with primary alkanamines. The library members are all readily soluble in CH_2Cl_2 and this volatile solvent is a good choice for the transfer of samples; however, we also know from our past research with I45DCs that this is a poor crystallization solvent and better results are obtained from either 2-propanone or methanol (Baures PW, Rush JR, Wiznycia AV, Desper J, Helfrich BA, Beatty AM: Intramolecular hydrogen bonding and intermolecular dimerization in the crystal structures of imidazole-4,5-dicarboxylic acid derivatives. *Cryst. Growth Des.* 2002, **2**:653-664). Thus, the observed percentages of solids versus transparent glass films, as well as percentages of amorphous solids versus crystalline solids, could very well change with a complete investigation of solvent choices.

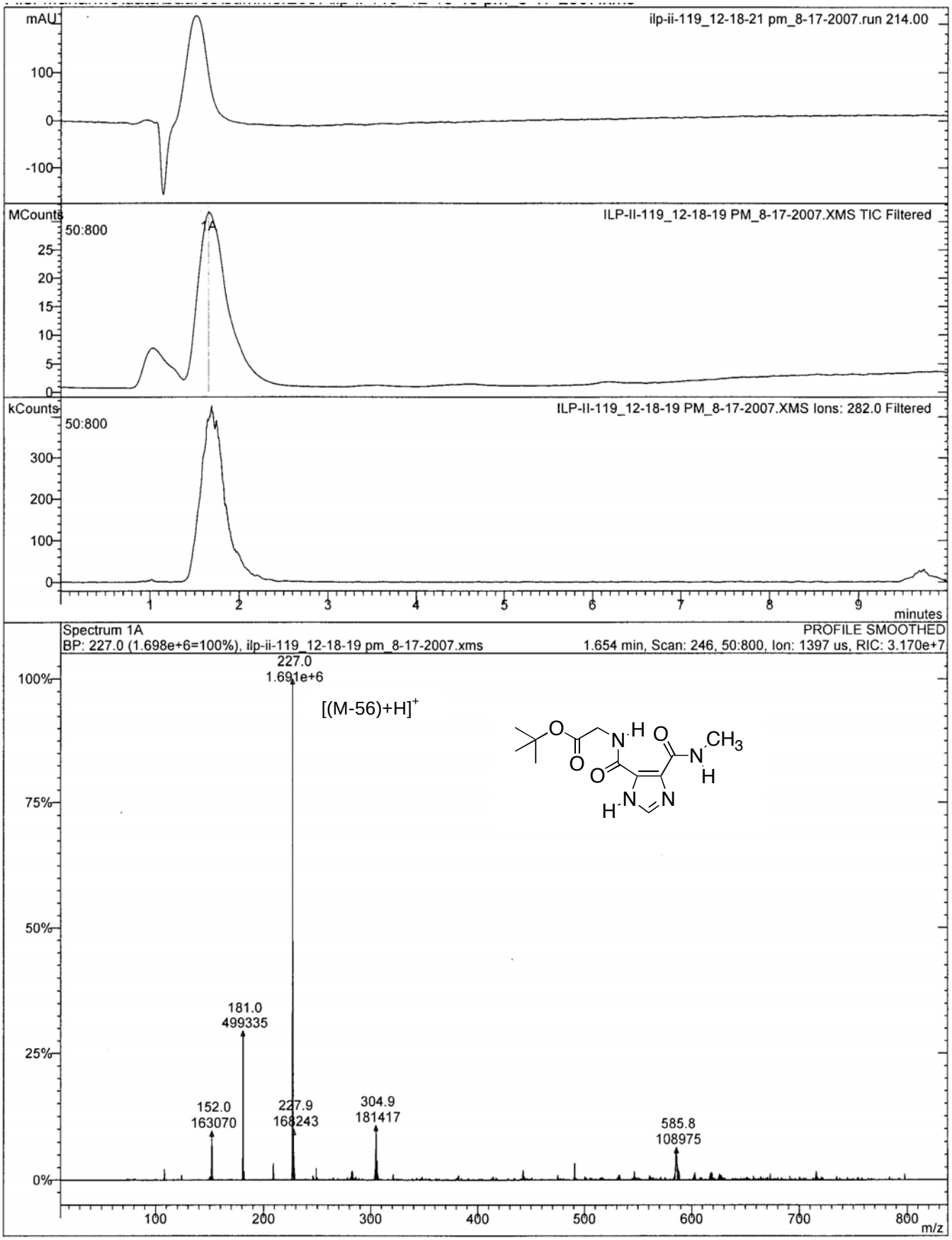

Figure S1. LC/MS data for **5{**1}.

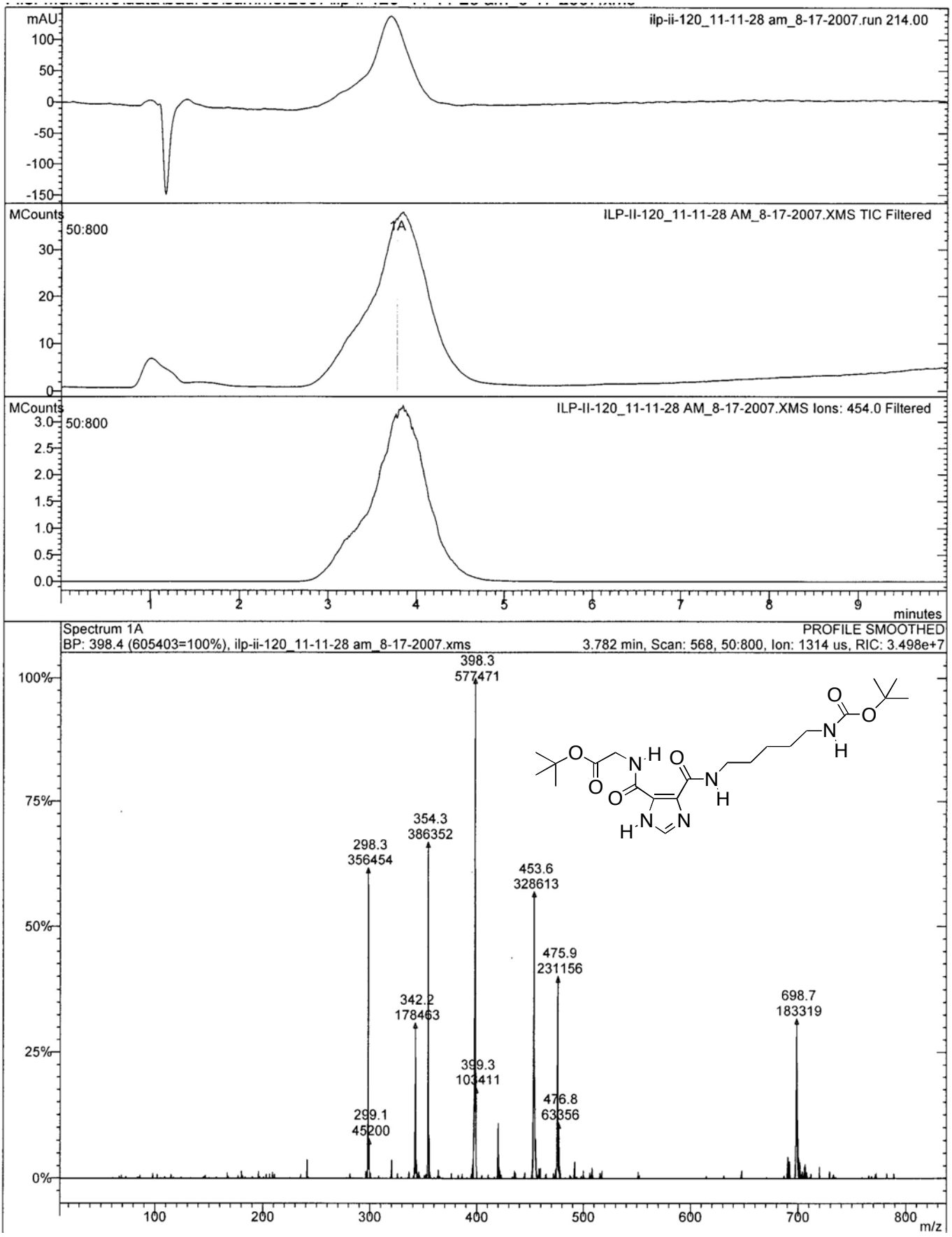

Figure S2. LC/MS data for **5{**2}.

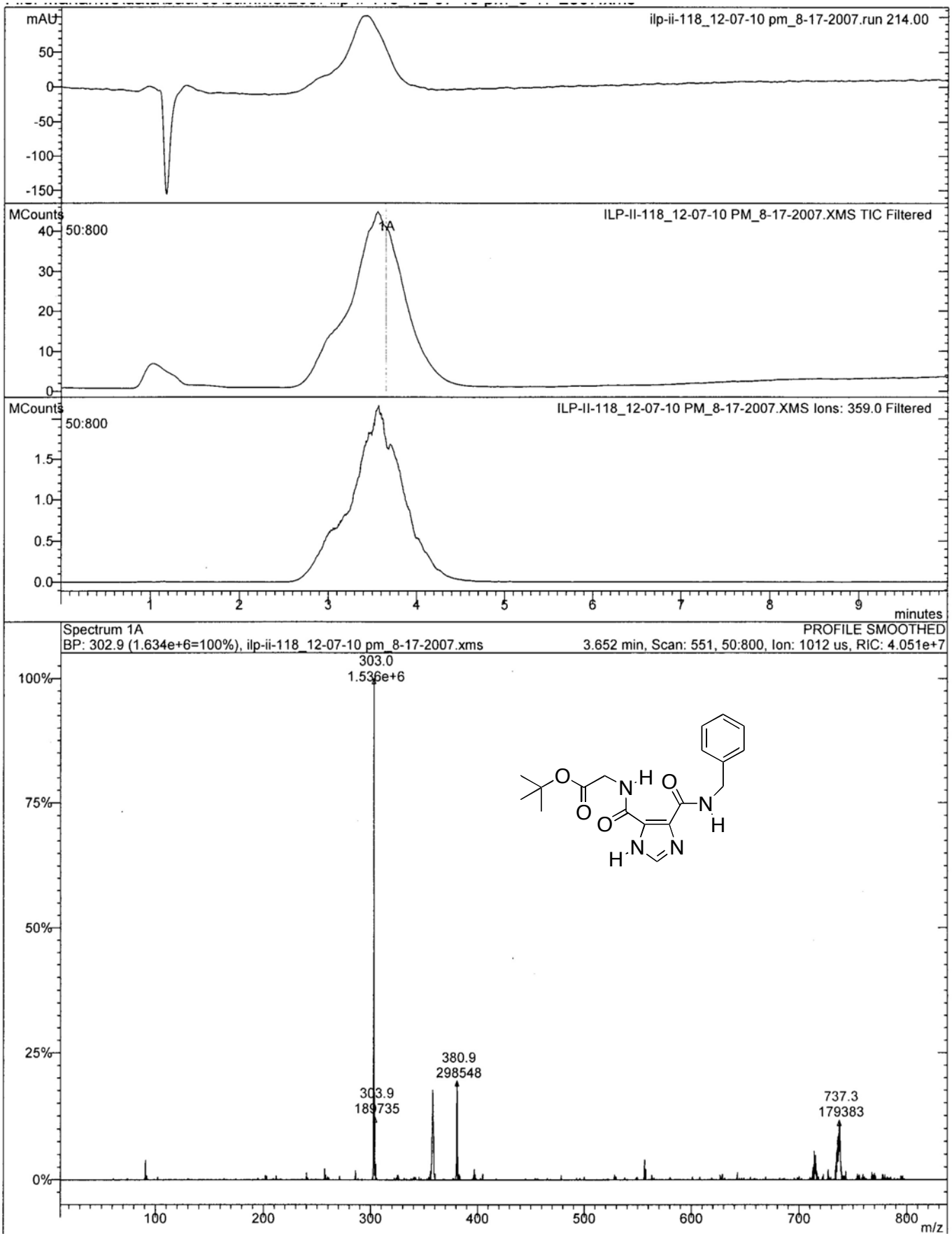

Figure S3. LC/MS data for **5{**3}.

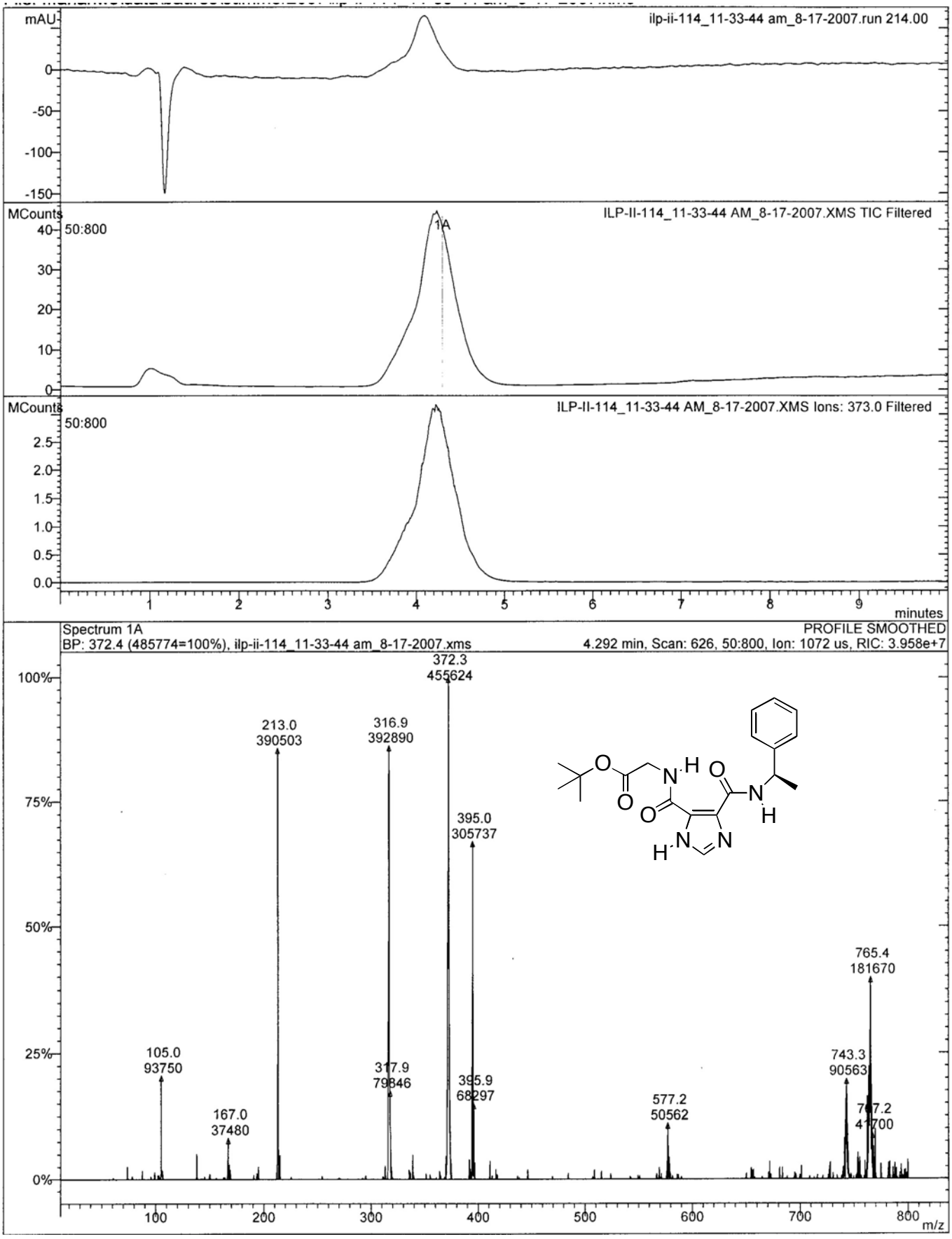

Figure S4. LC/MS data for **5{**4}.

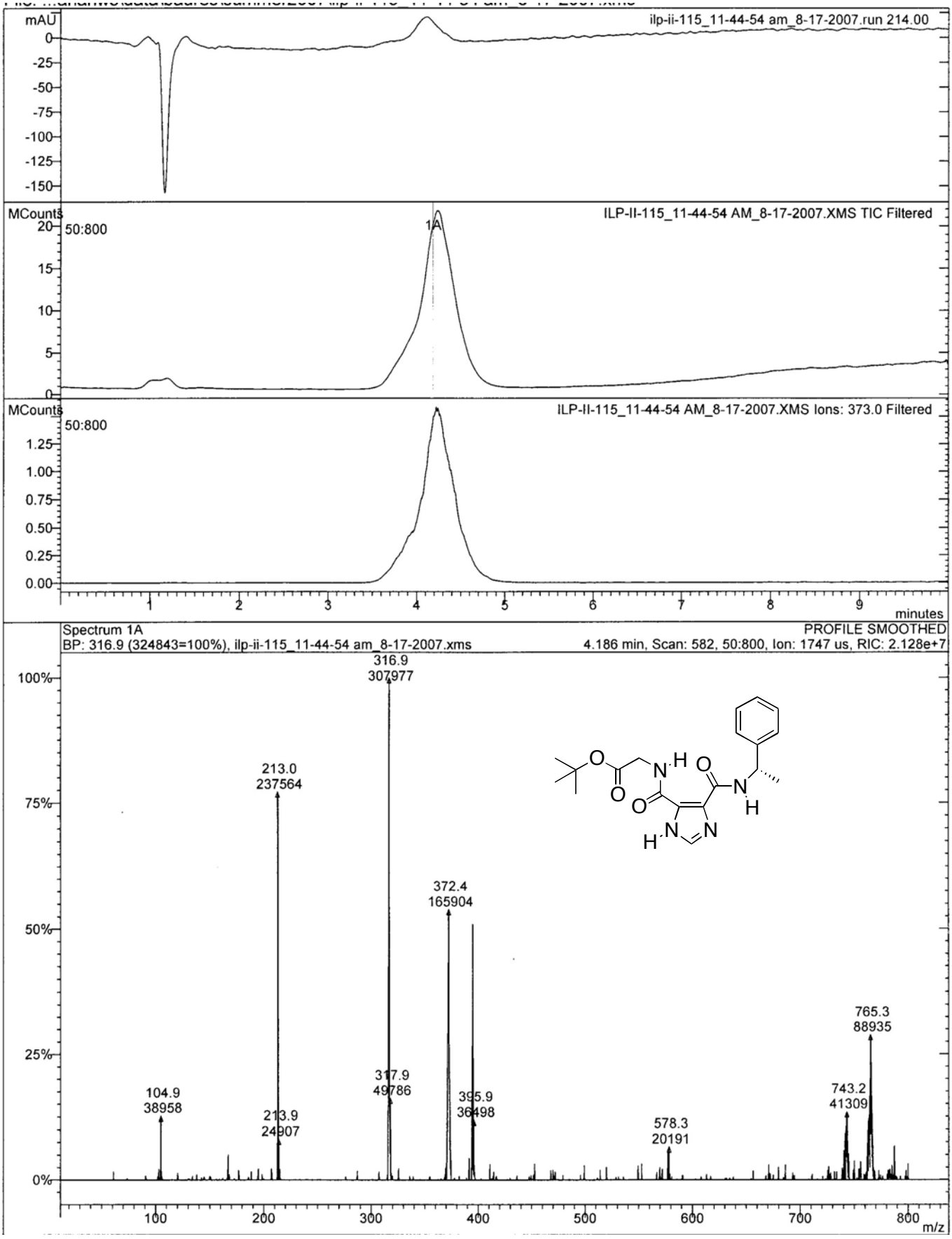

Figure S5. LC/MS data for **5{**5}.

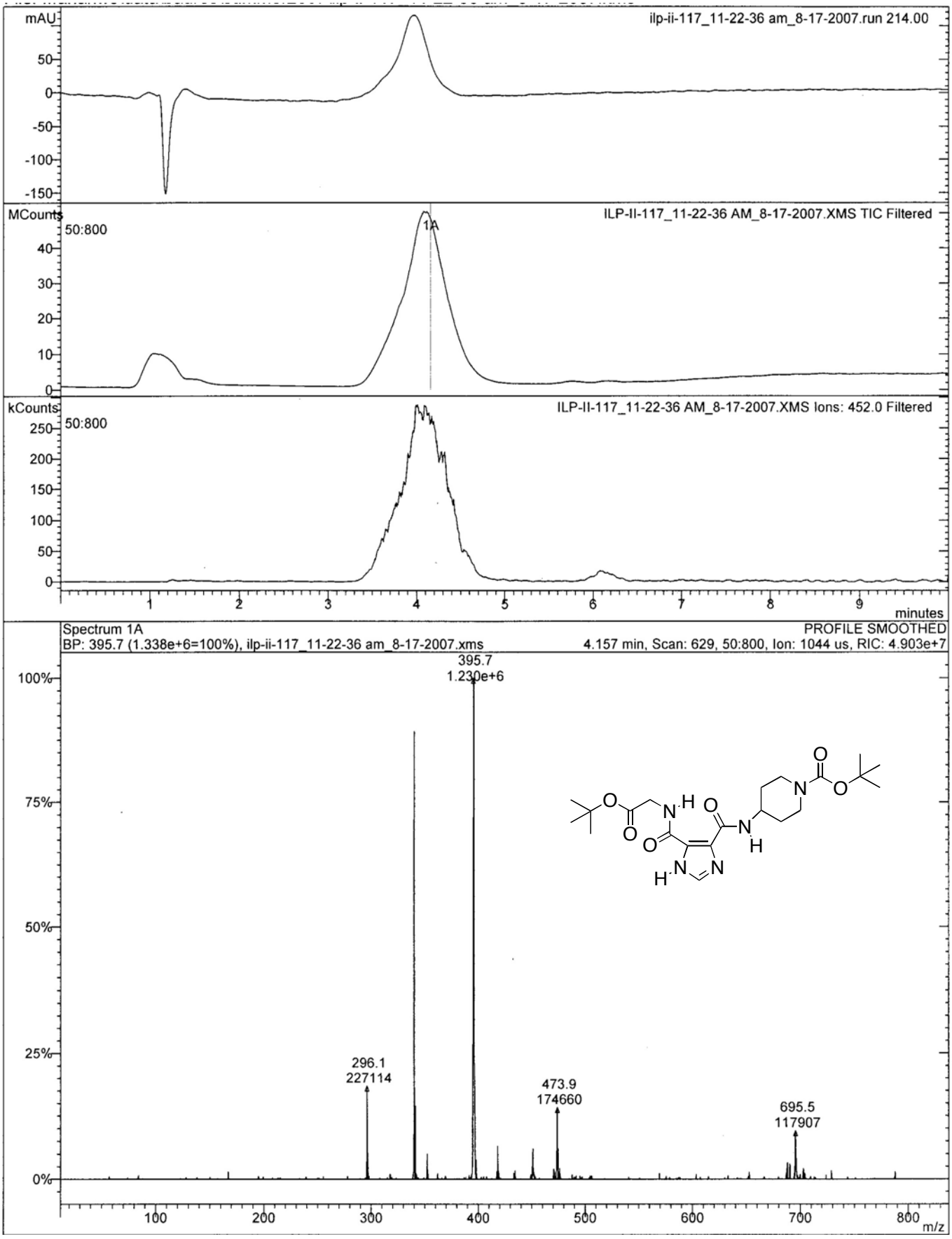

Figure S6. LC/MS data for **5{**6}.

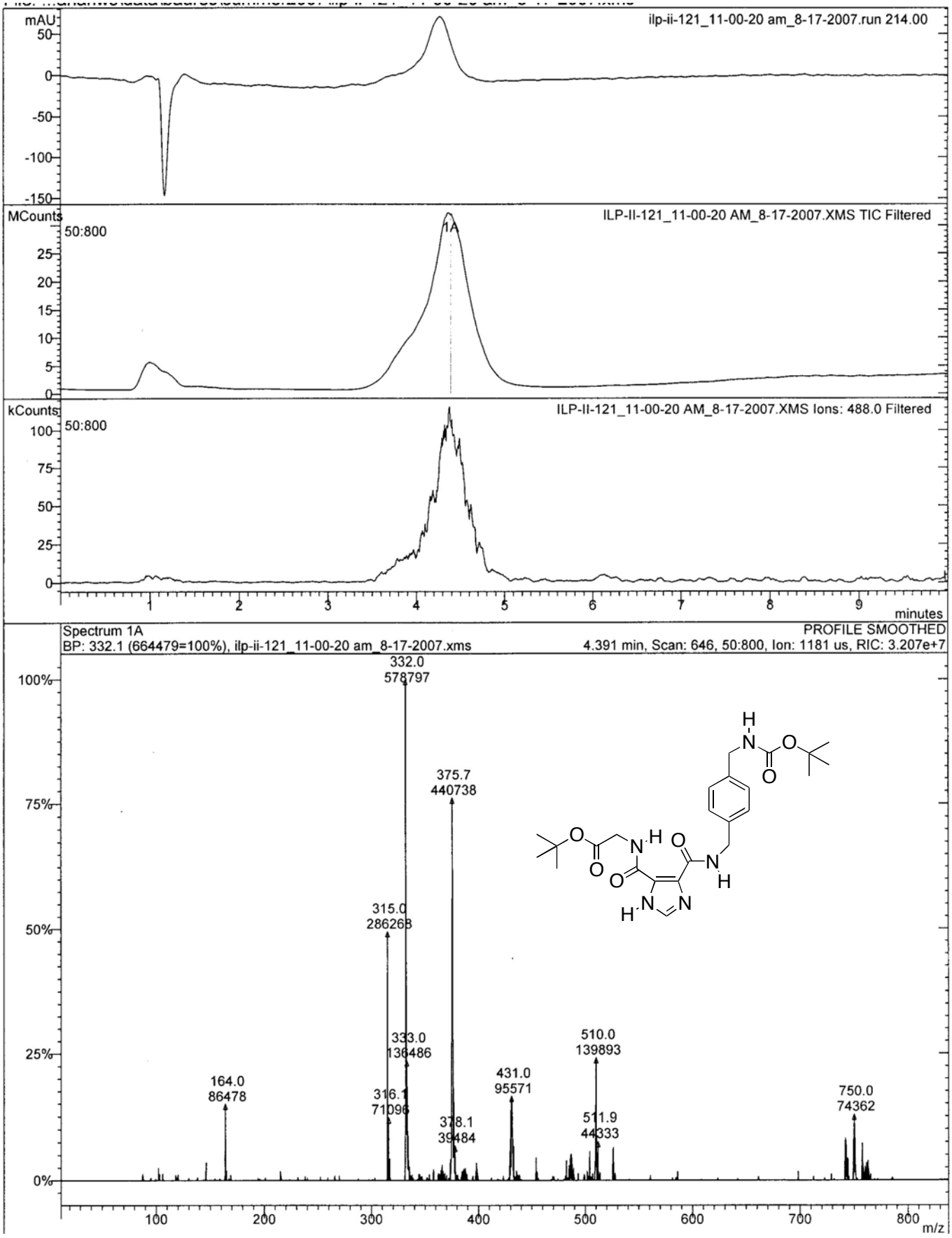

Figure S7. LC/MS data for **5{**7}.

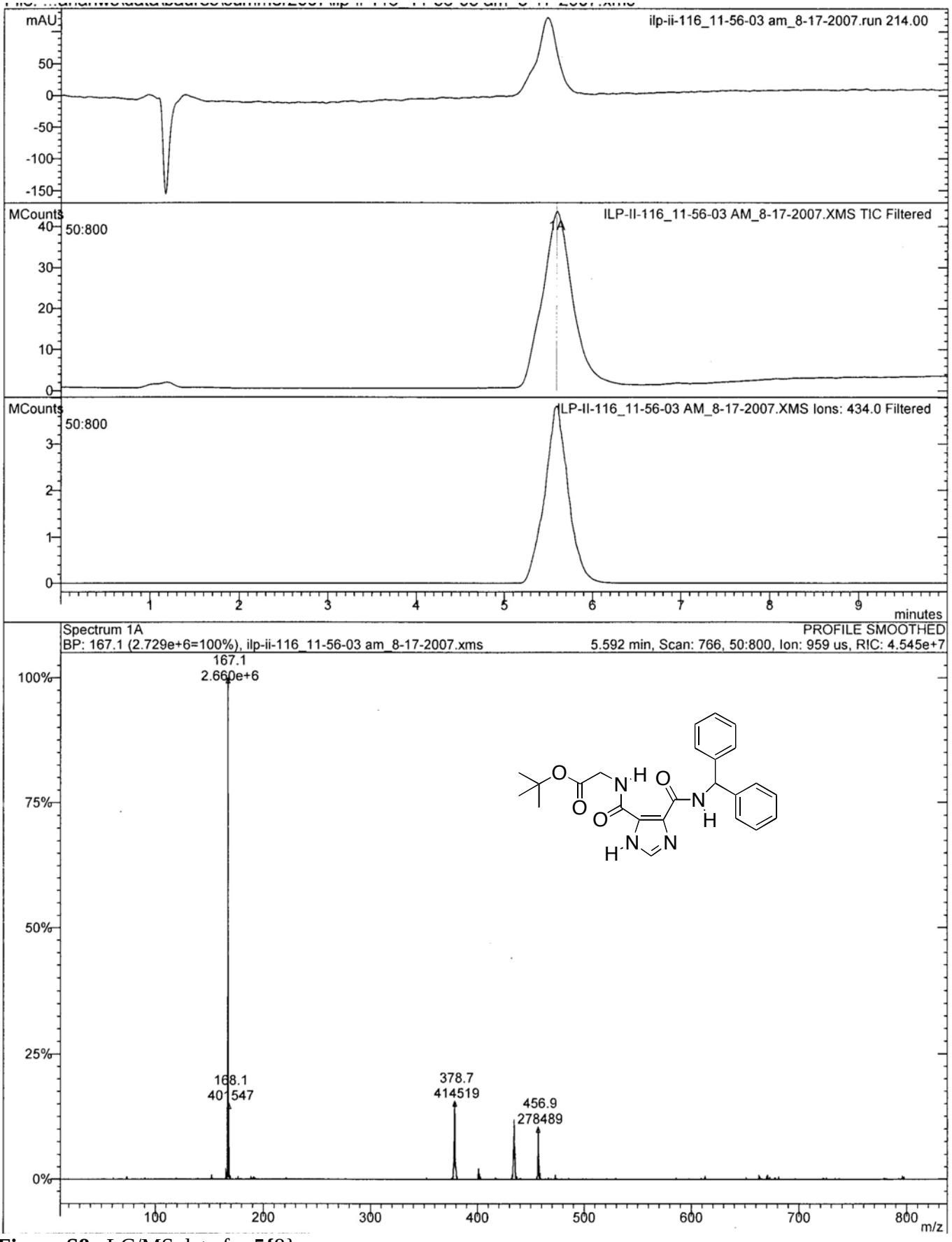

Figure S8. LC/MS data for **5{**8}.

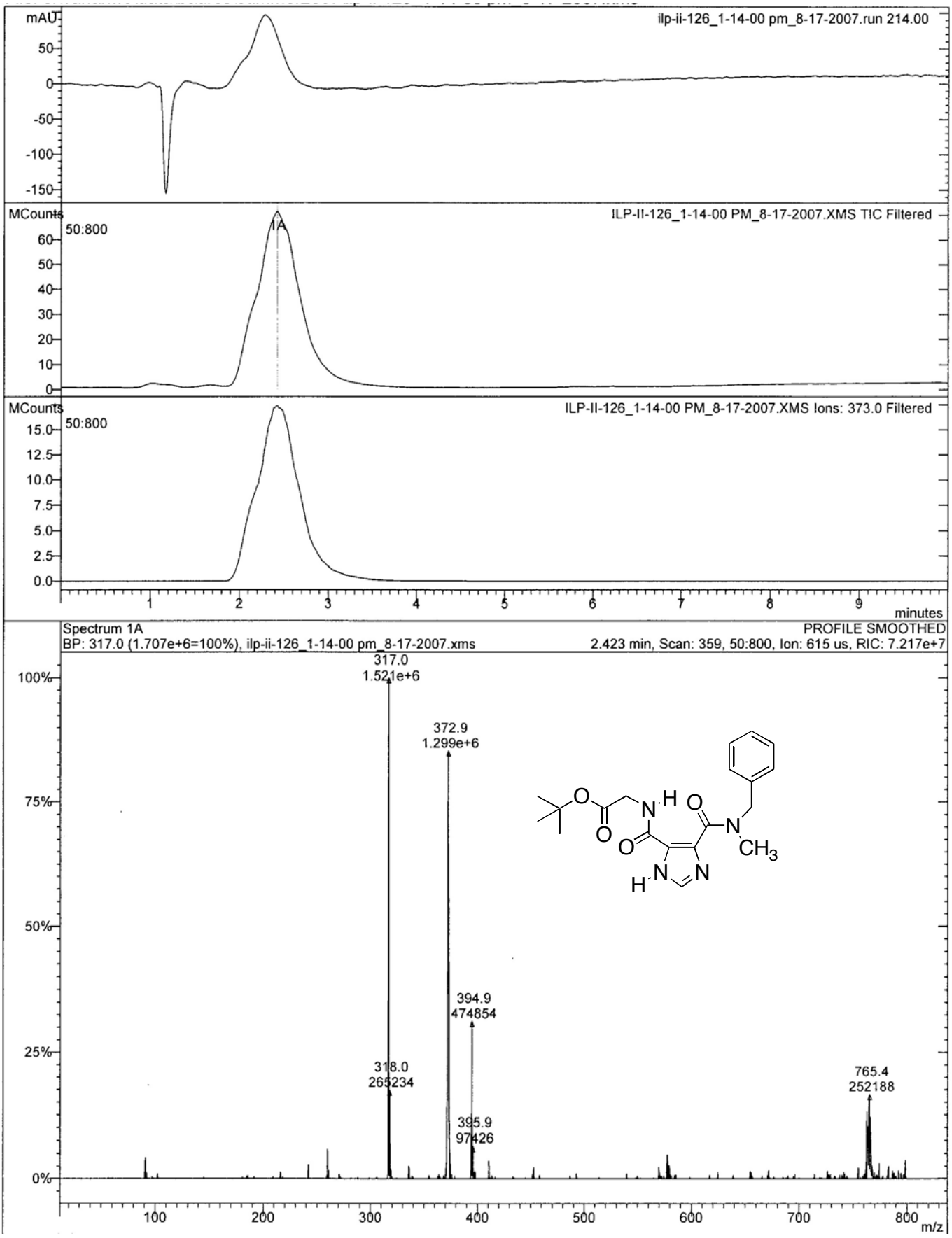

Figure S9. LC/MS data for **5{**9}.

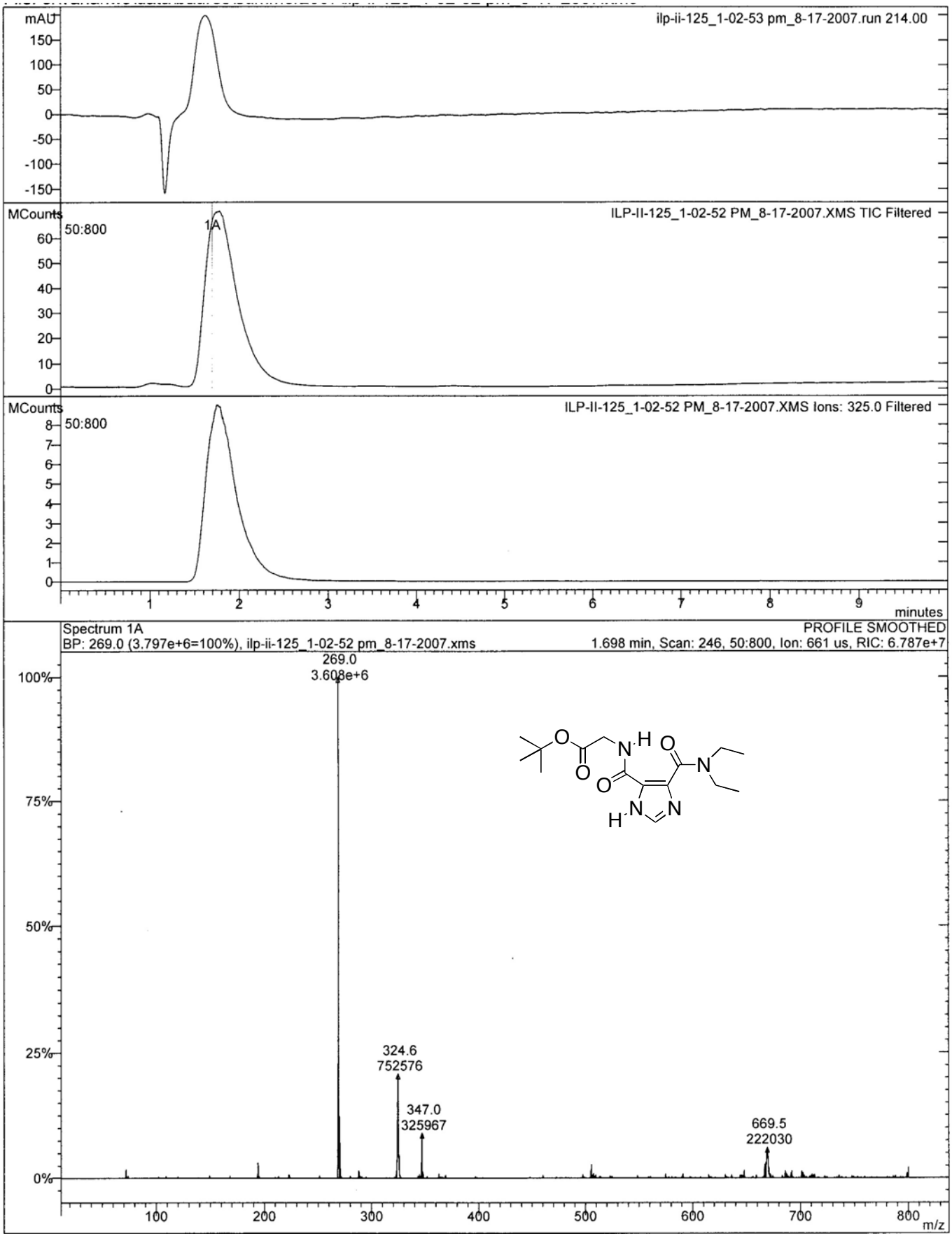

Figure S10. LC/MS data for **5{**10}.

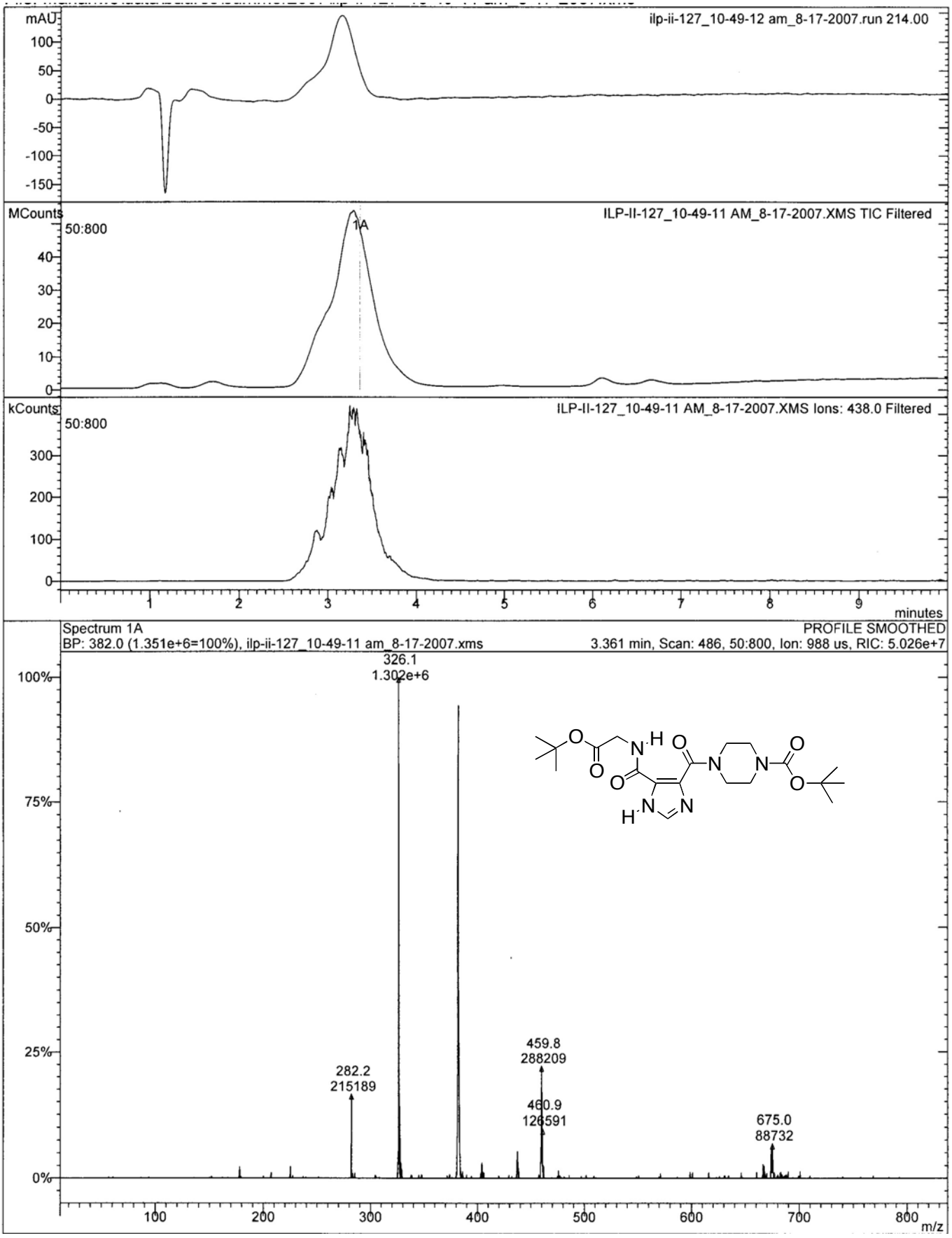

Figure S11. LC/MS data for **5{**11}.

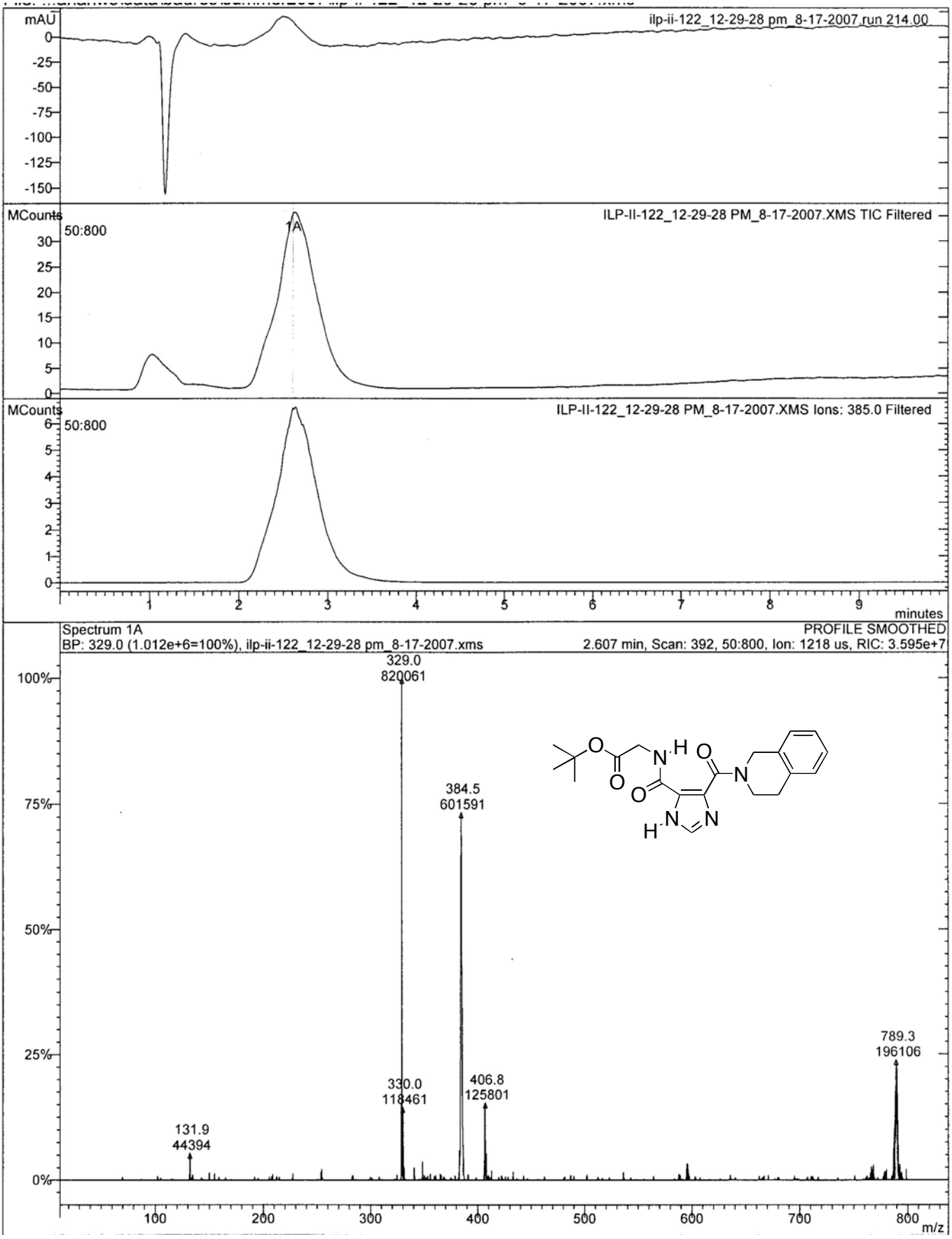

Figure S12. LC/MS data for **5{**12}.

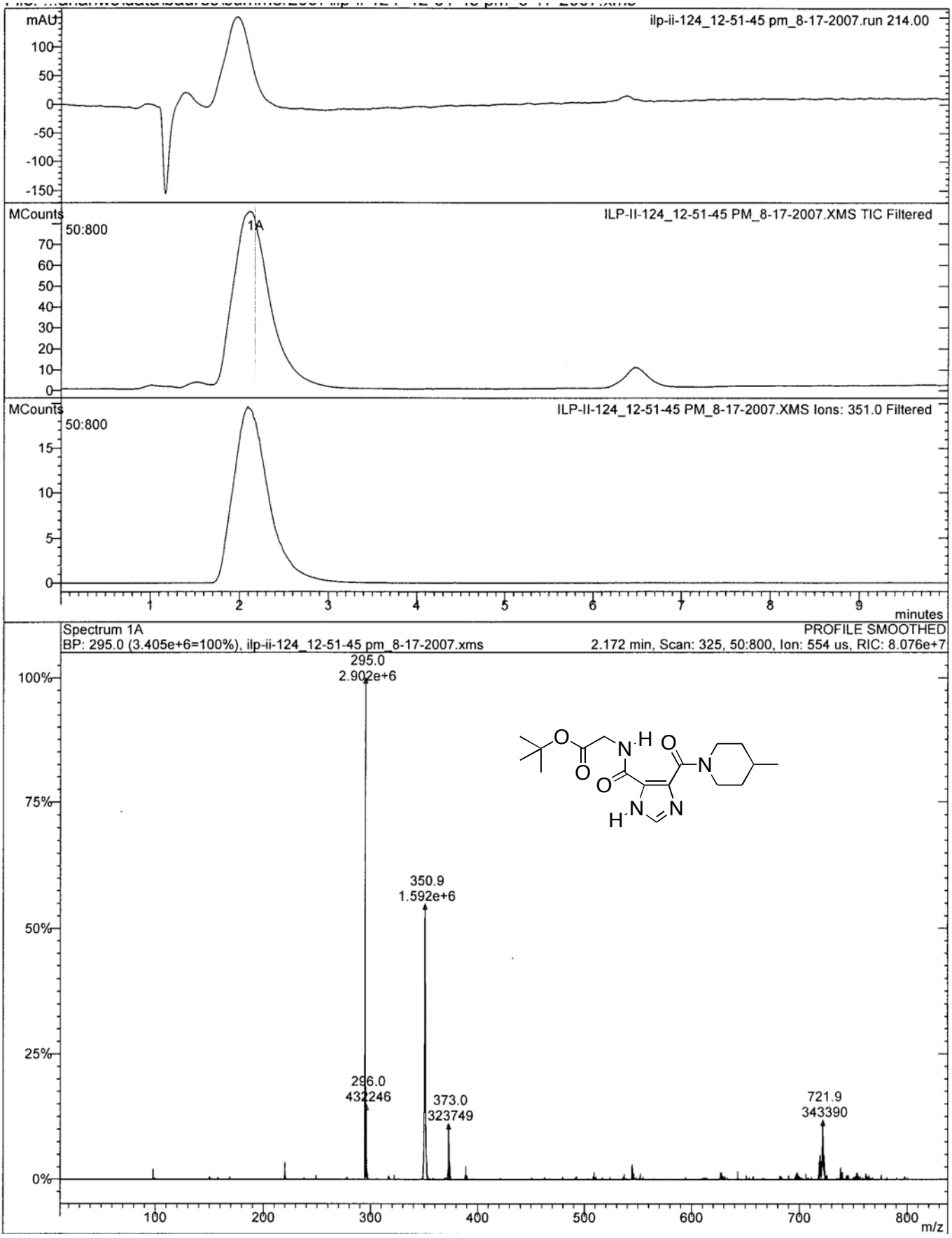

Figure S13. LC/MS data for **5{**13}.

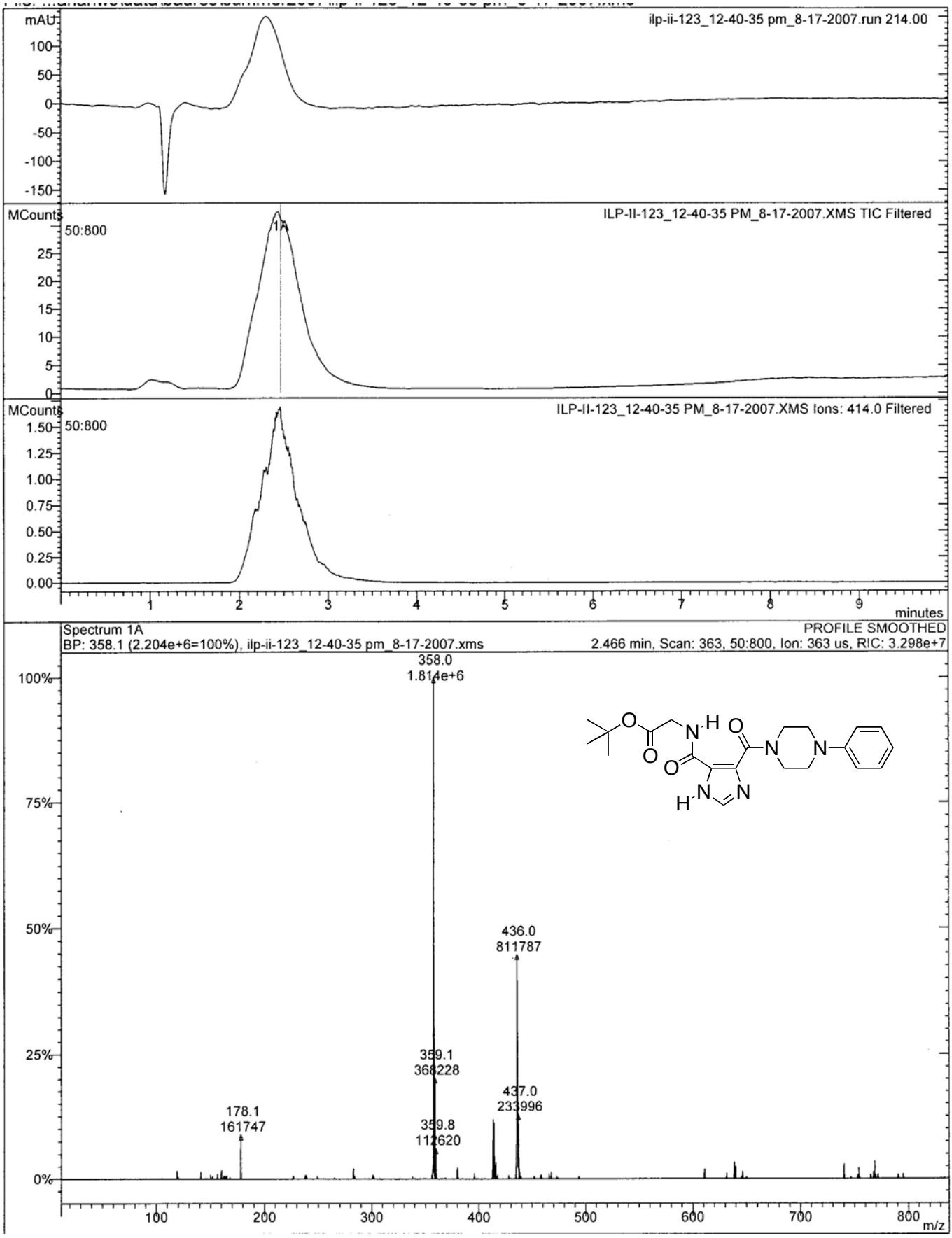

Figure S14. LC/MS data for **5{**14}.

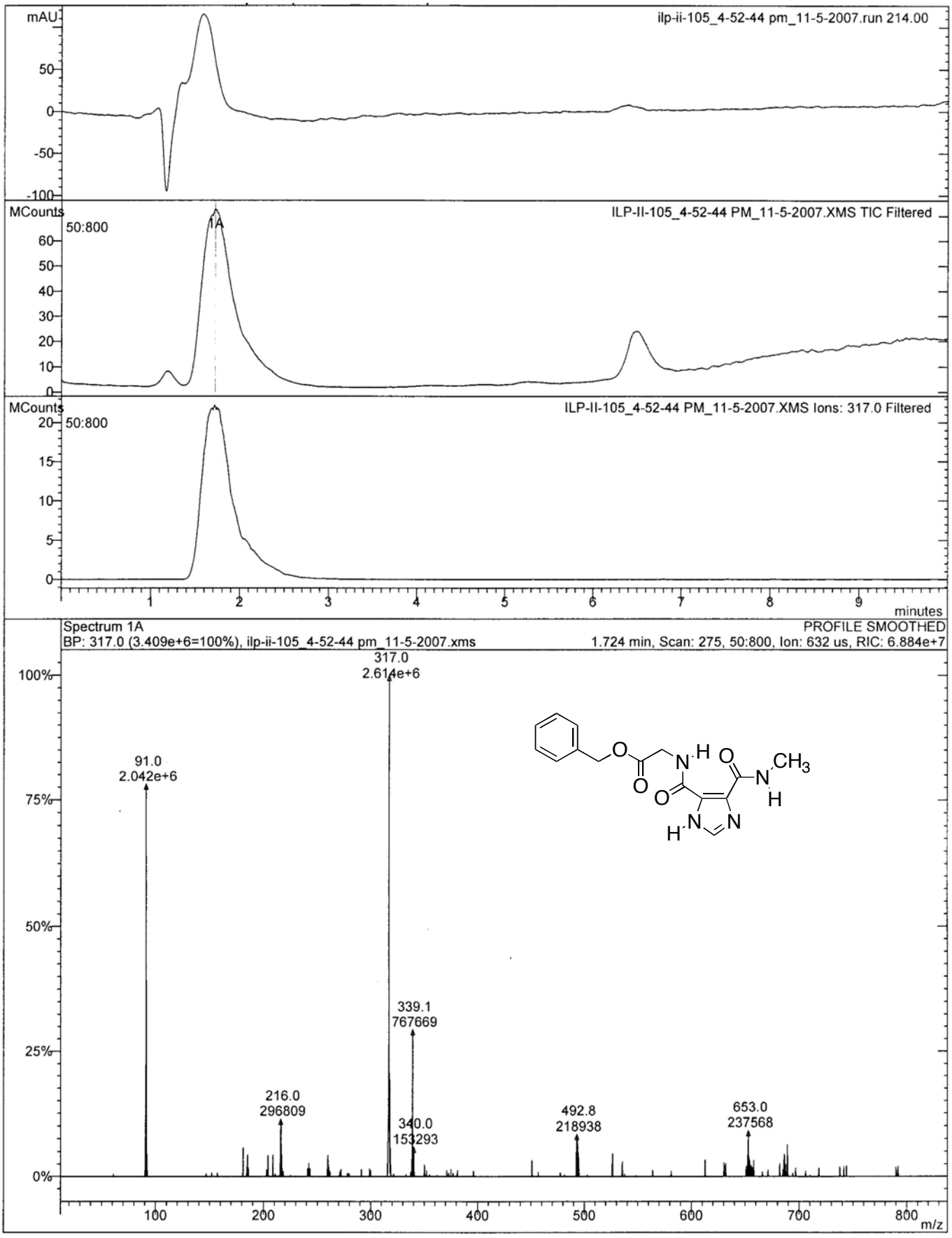

Figure S15. LC/MS data for **5{**15}.

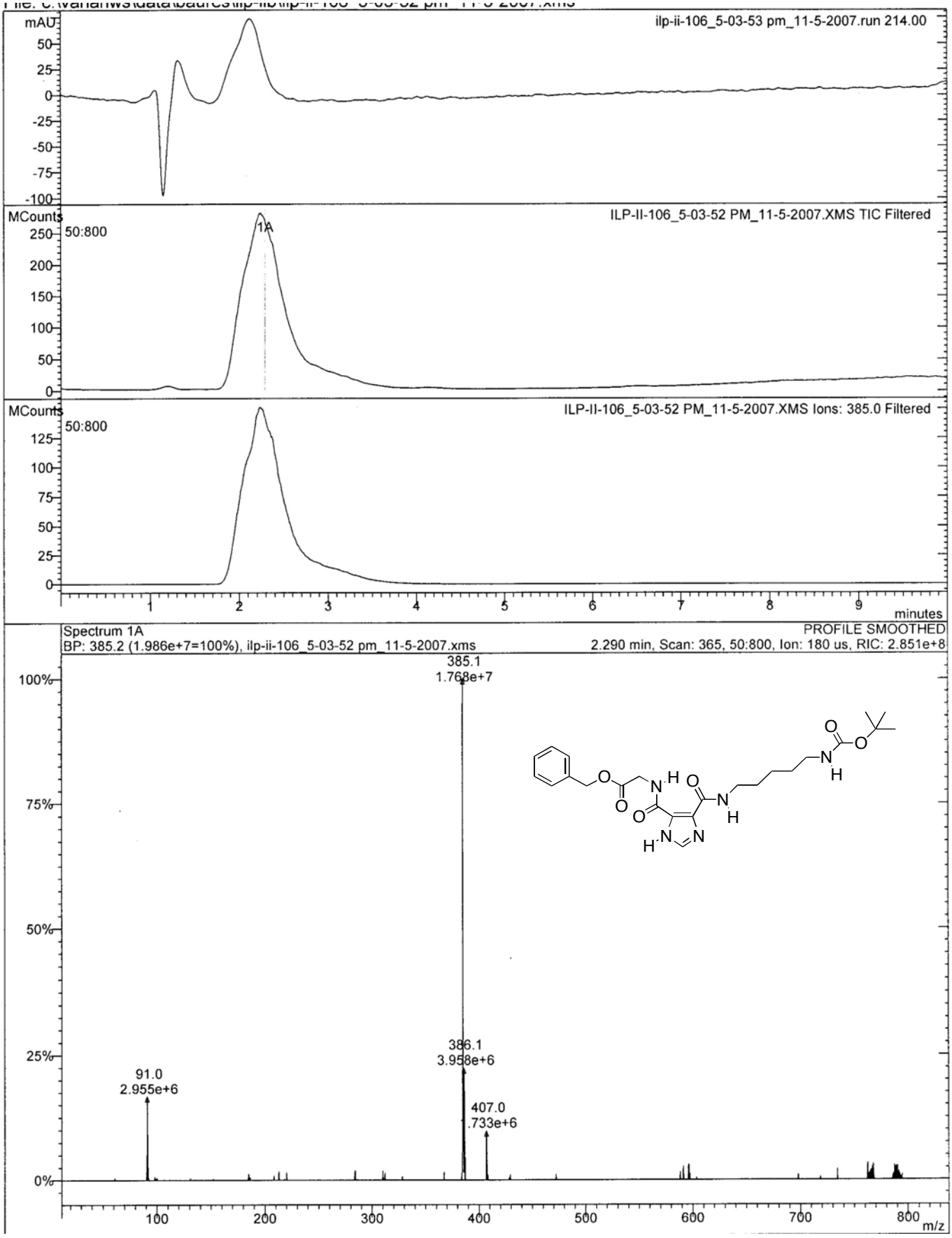

Figure S16. LC/MS data for **5{**16}.

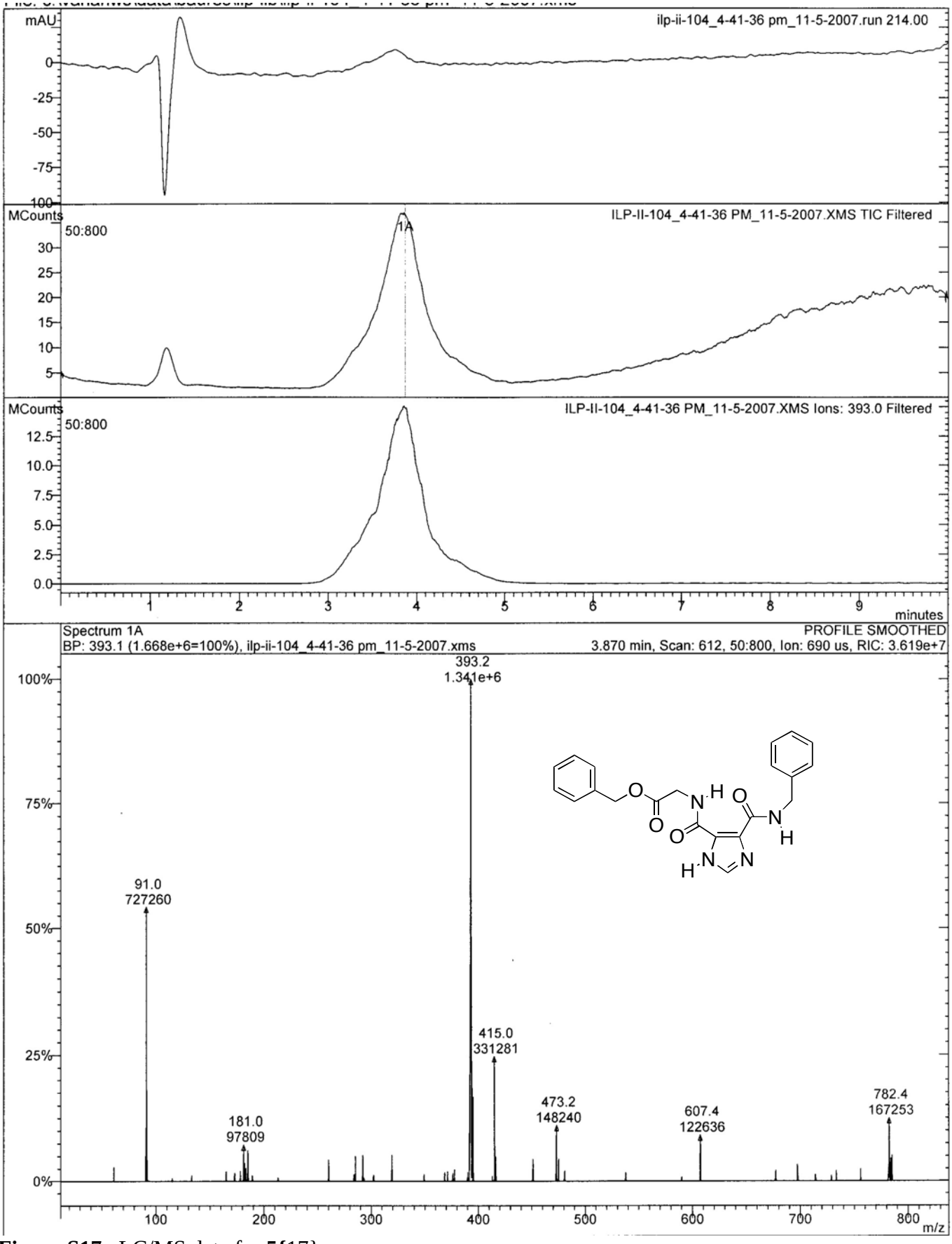

Figure S17. LC/MS data for **5{**17}.

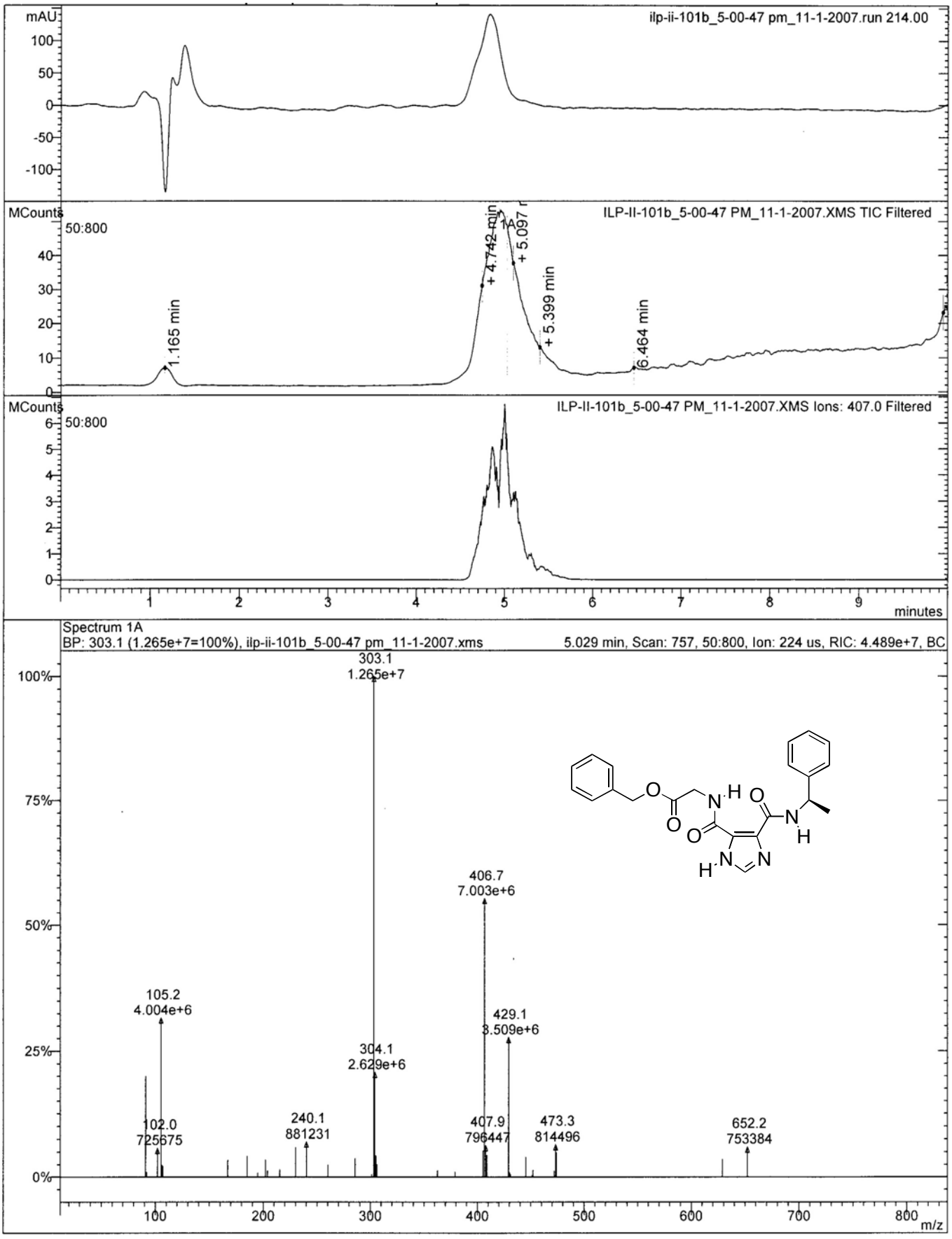

Figure S18. LC/MS data for **5{**18}.

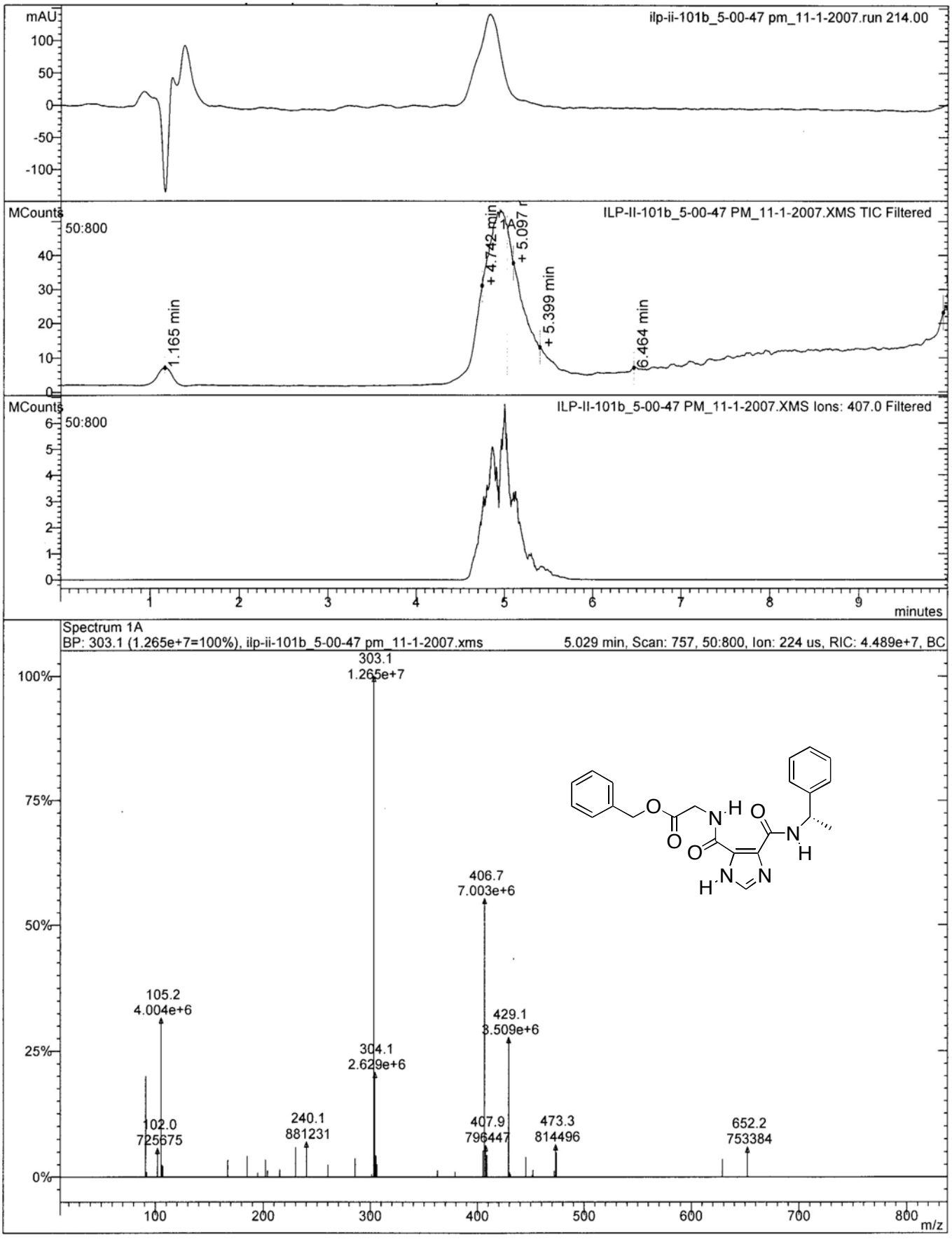

Figure S19. LC/MS data for **5{**19}.

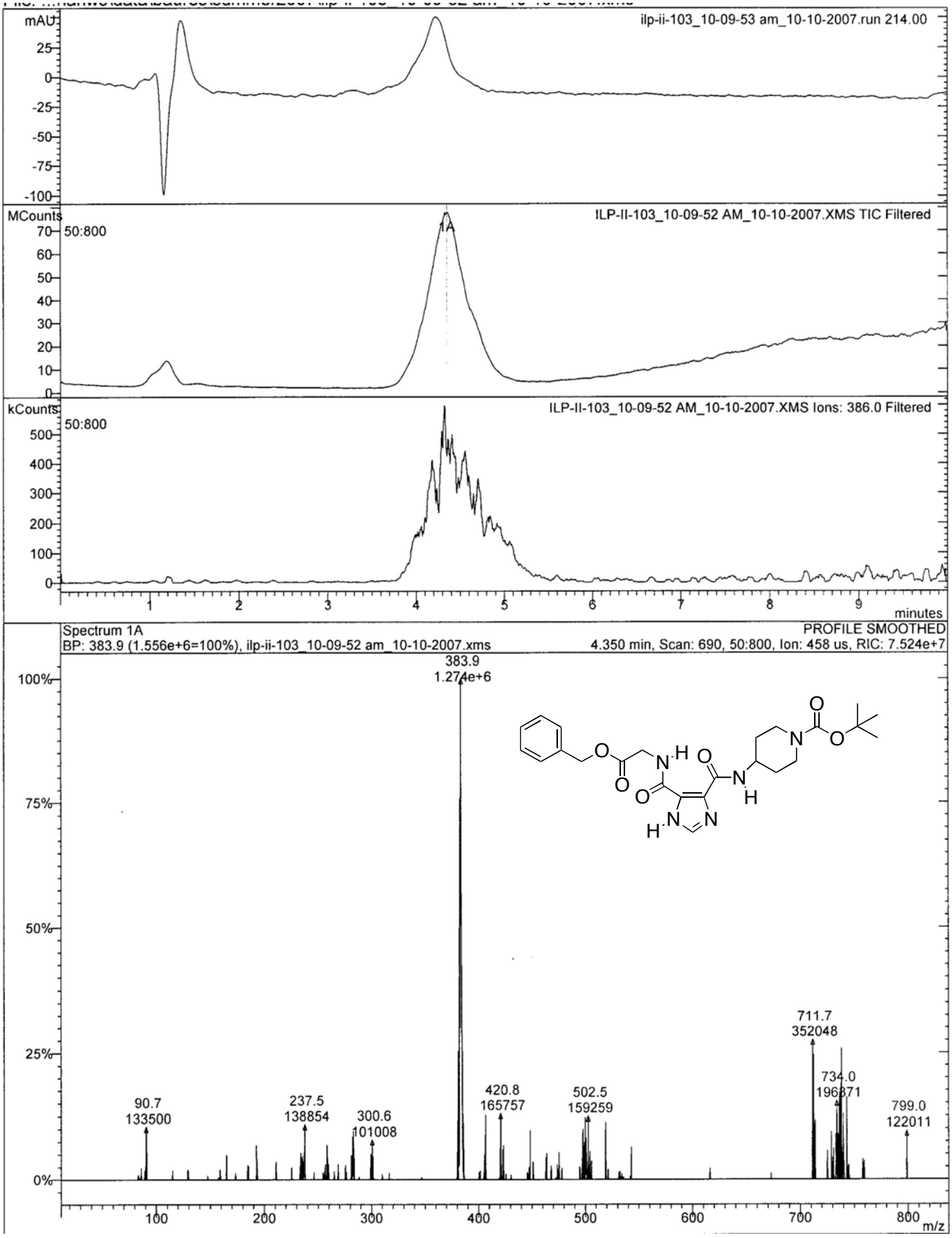

Figure S20. LC/MS data for **5{**20}.

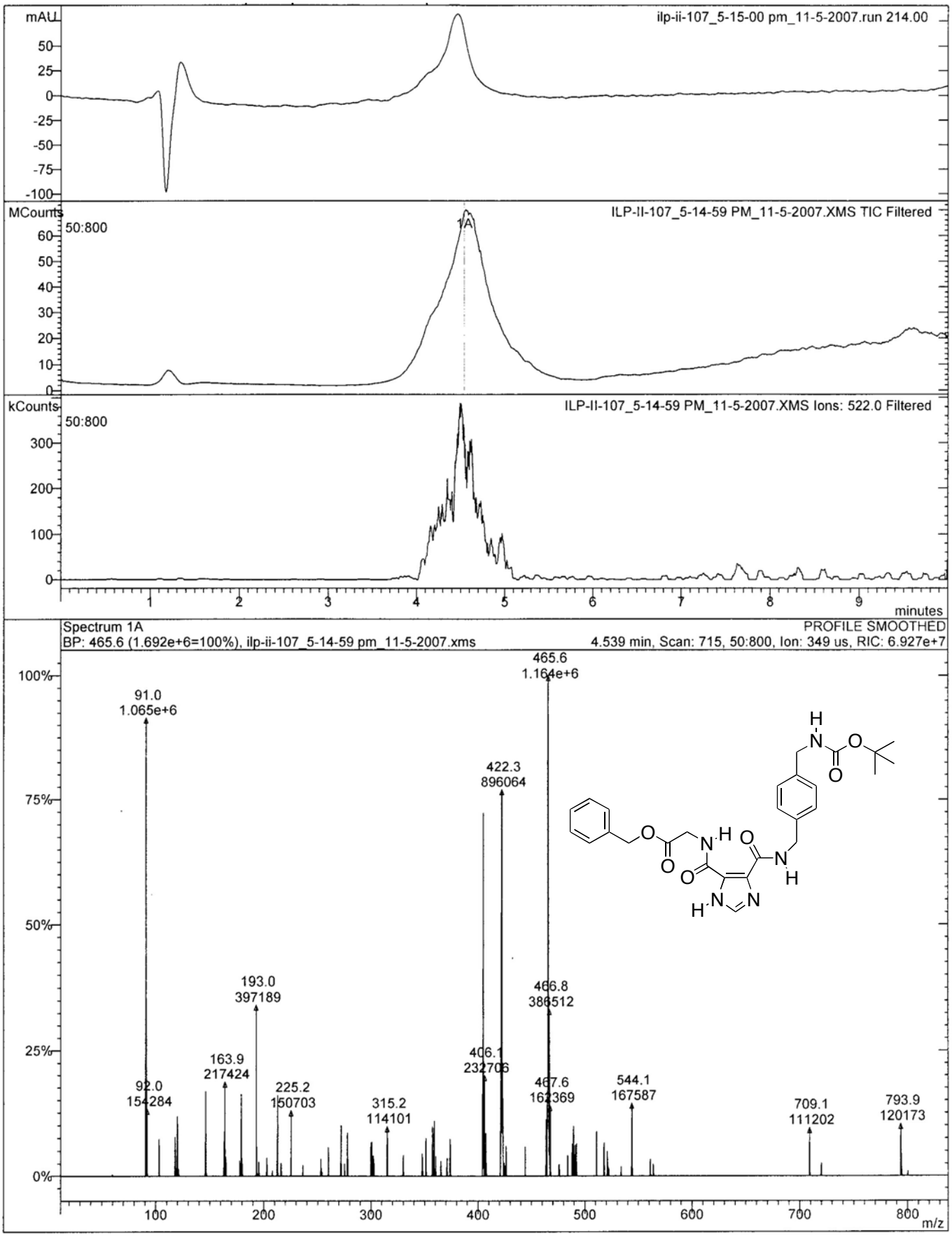

Figure S21. LC/MS data for **5{**21}.

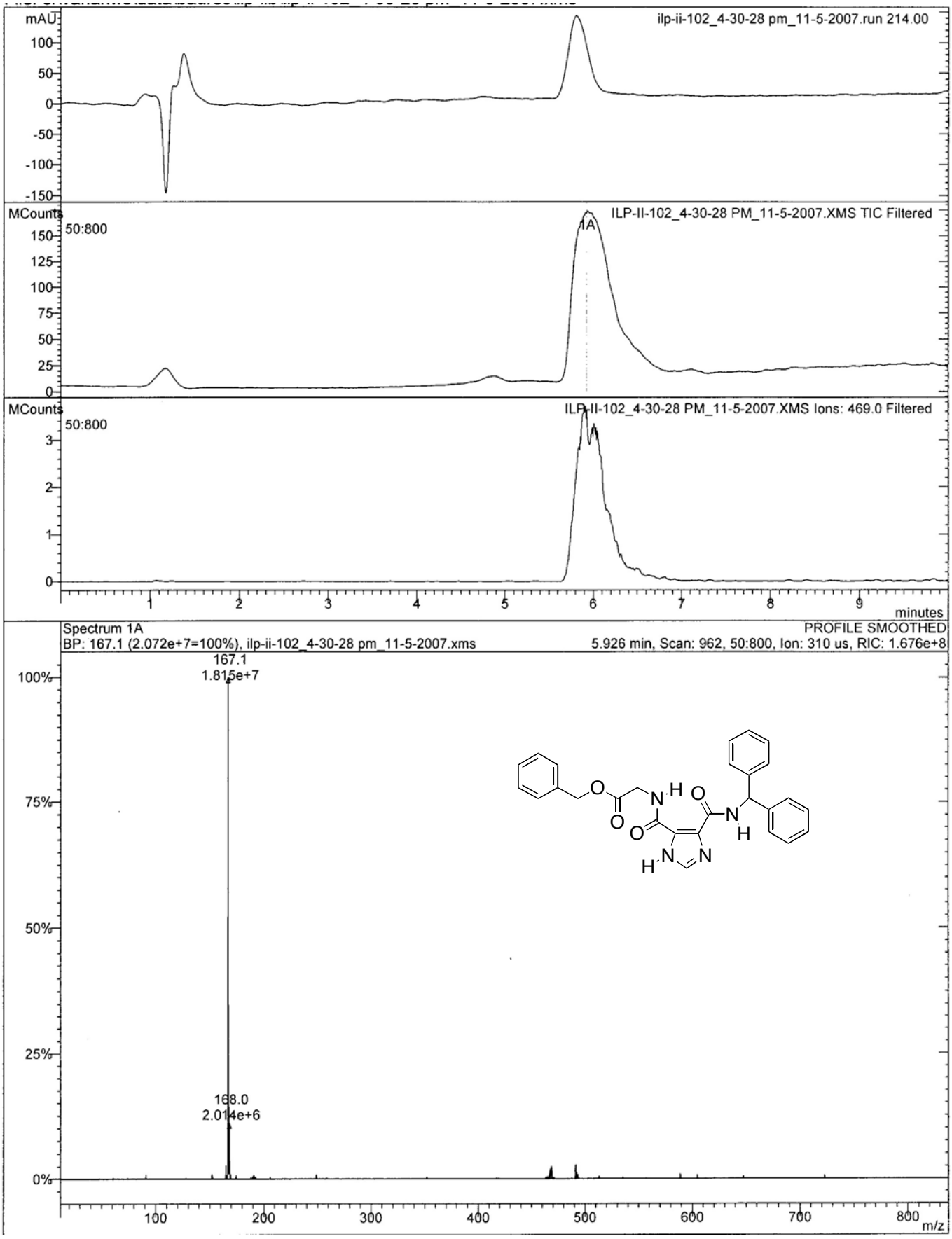

Figure S22. LC/MS data for **5{**22}.

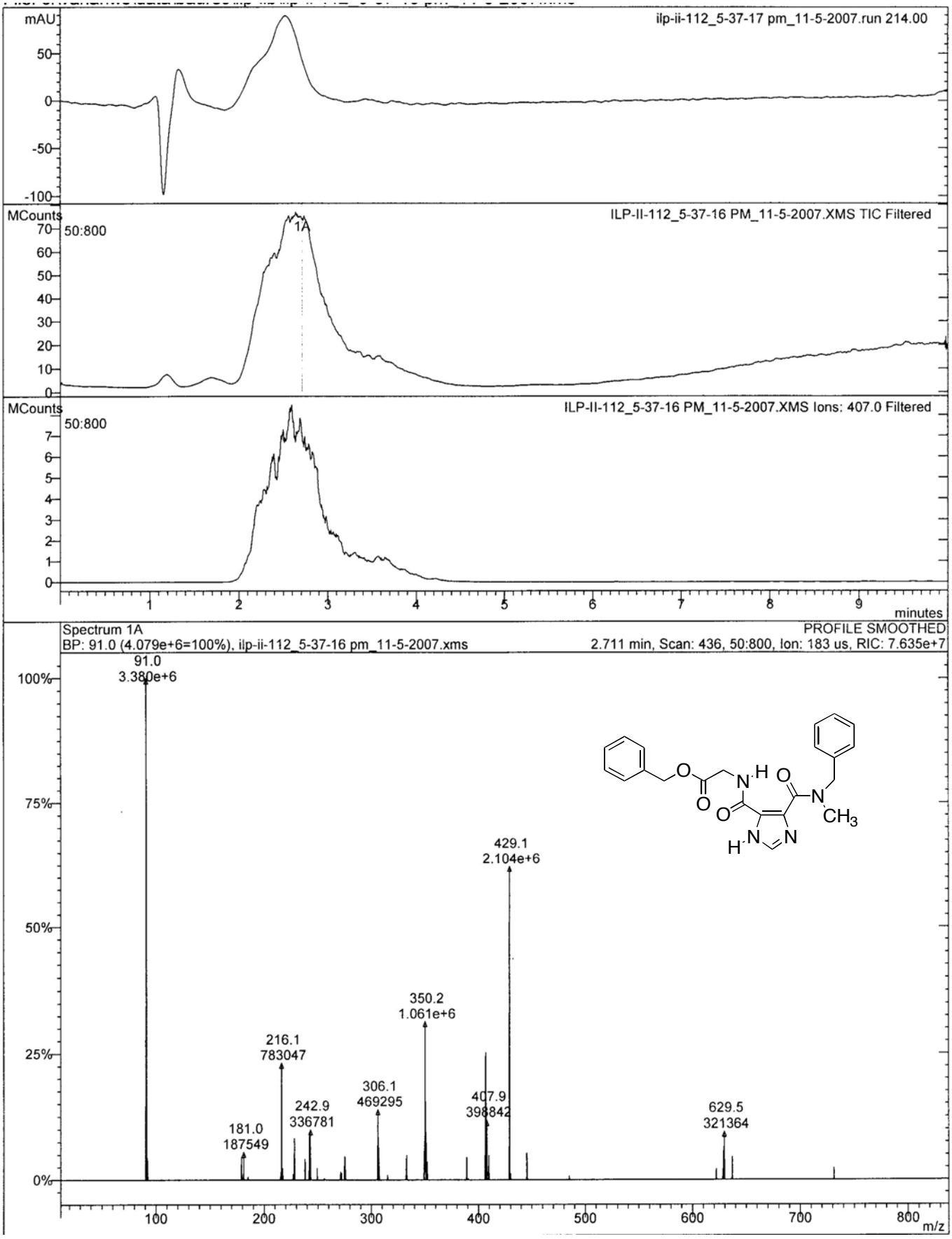

Figure S23. LC/MS data for **5{**23}.

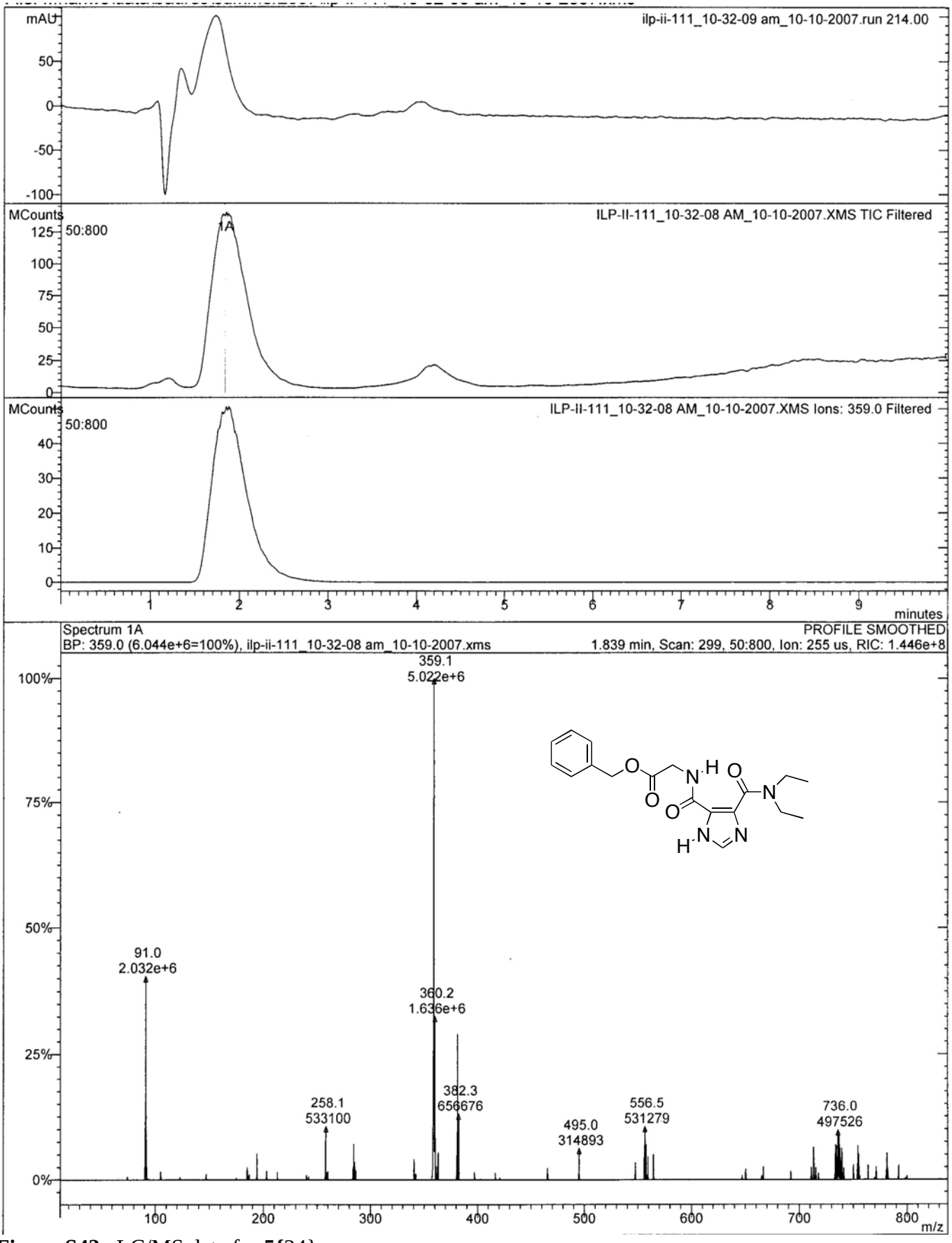

Figure S42. LC/MS data for **5{**24}.

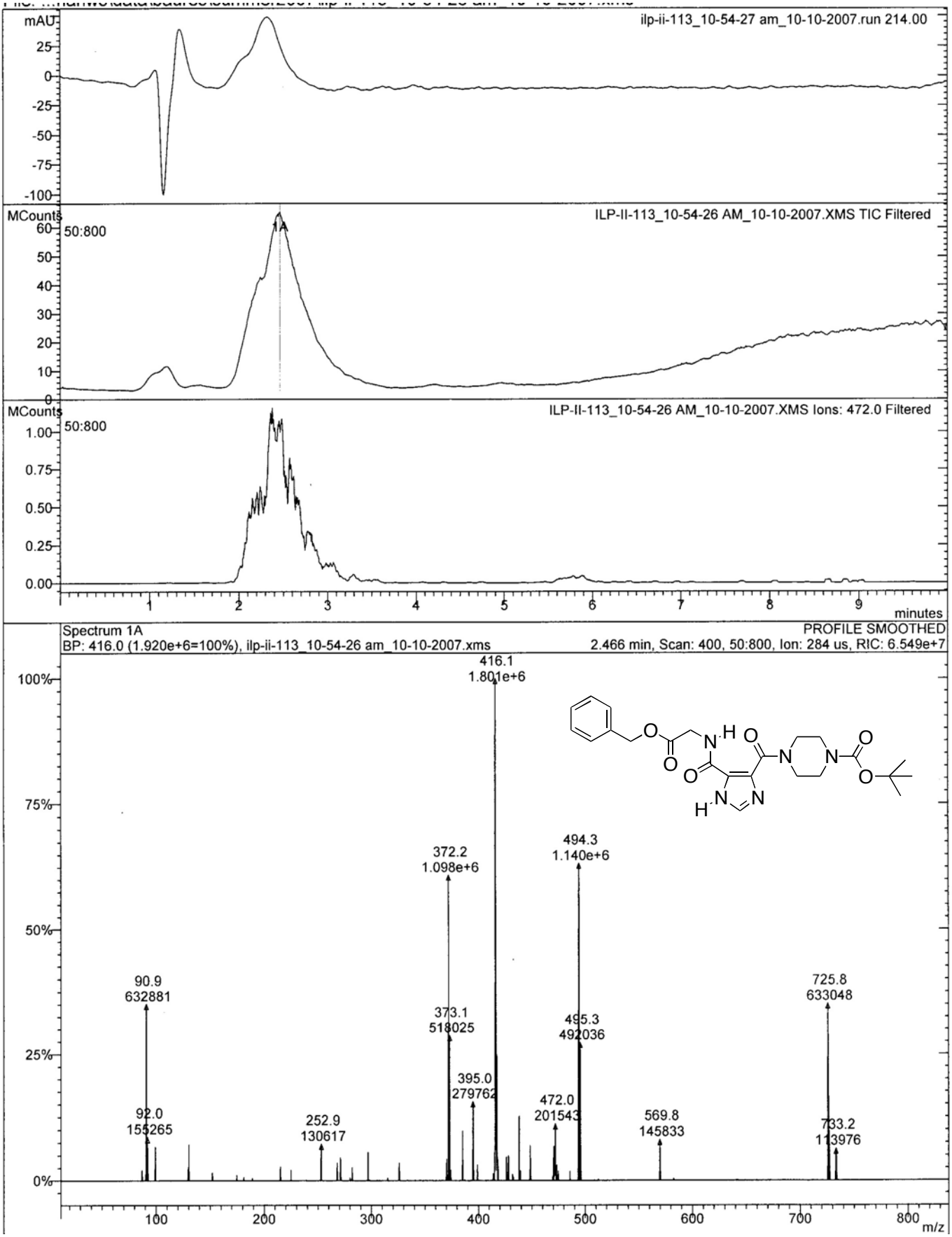

Figure S25. LC/MS data for **5{**25}.

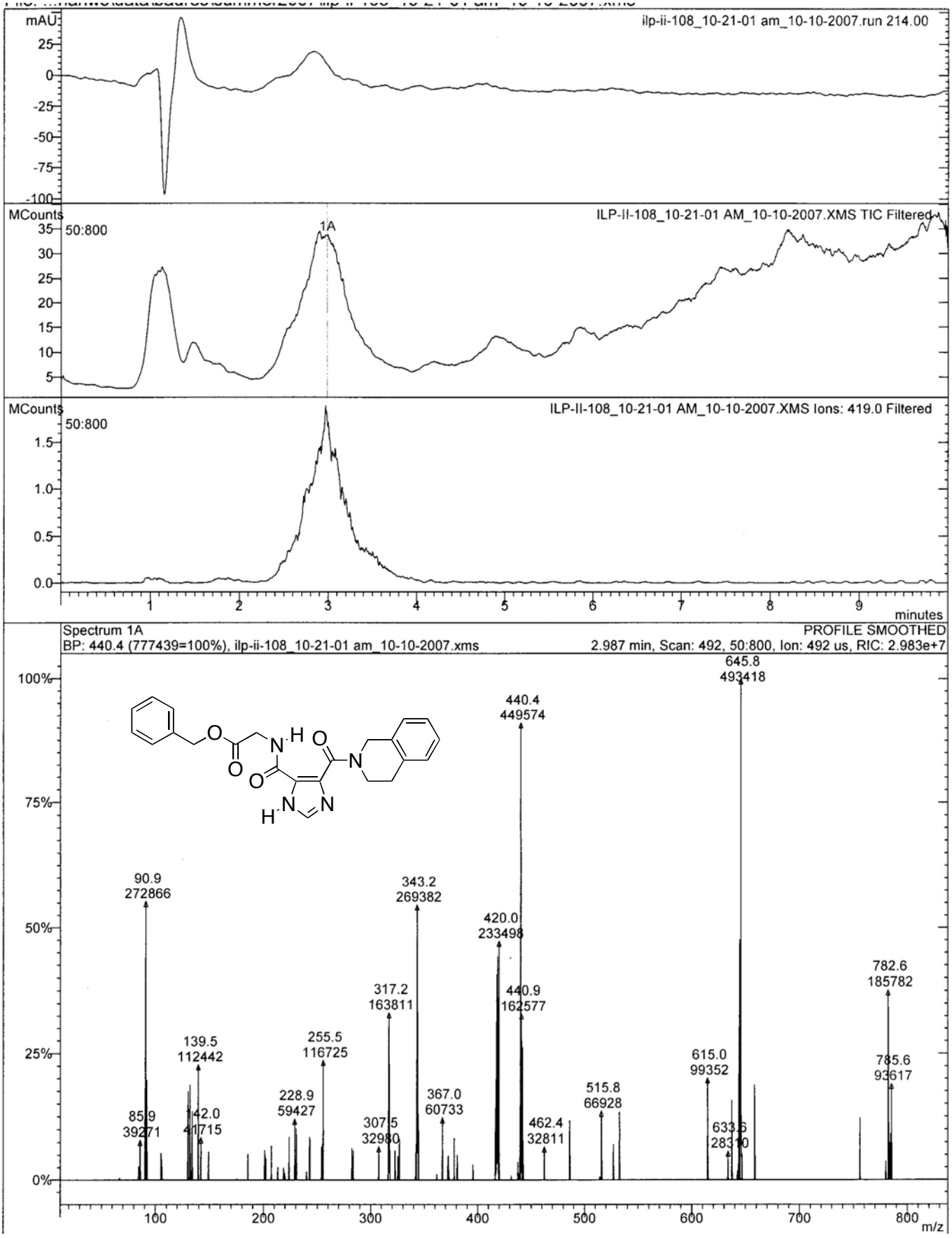

Figure S26. LC/MS data for **5{**26}.

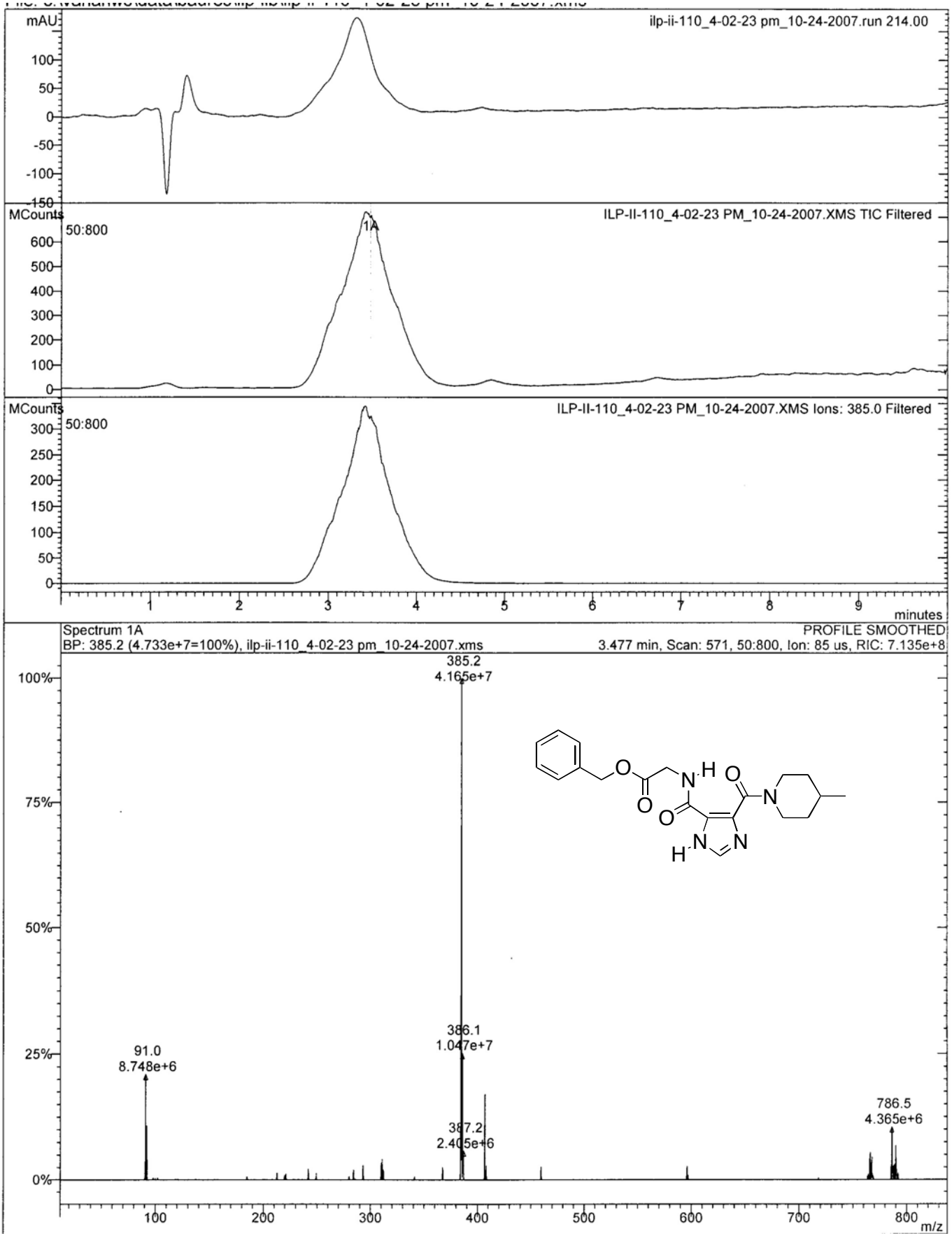

Figure S27. LC/MS data for **5{**27}.

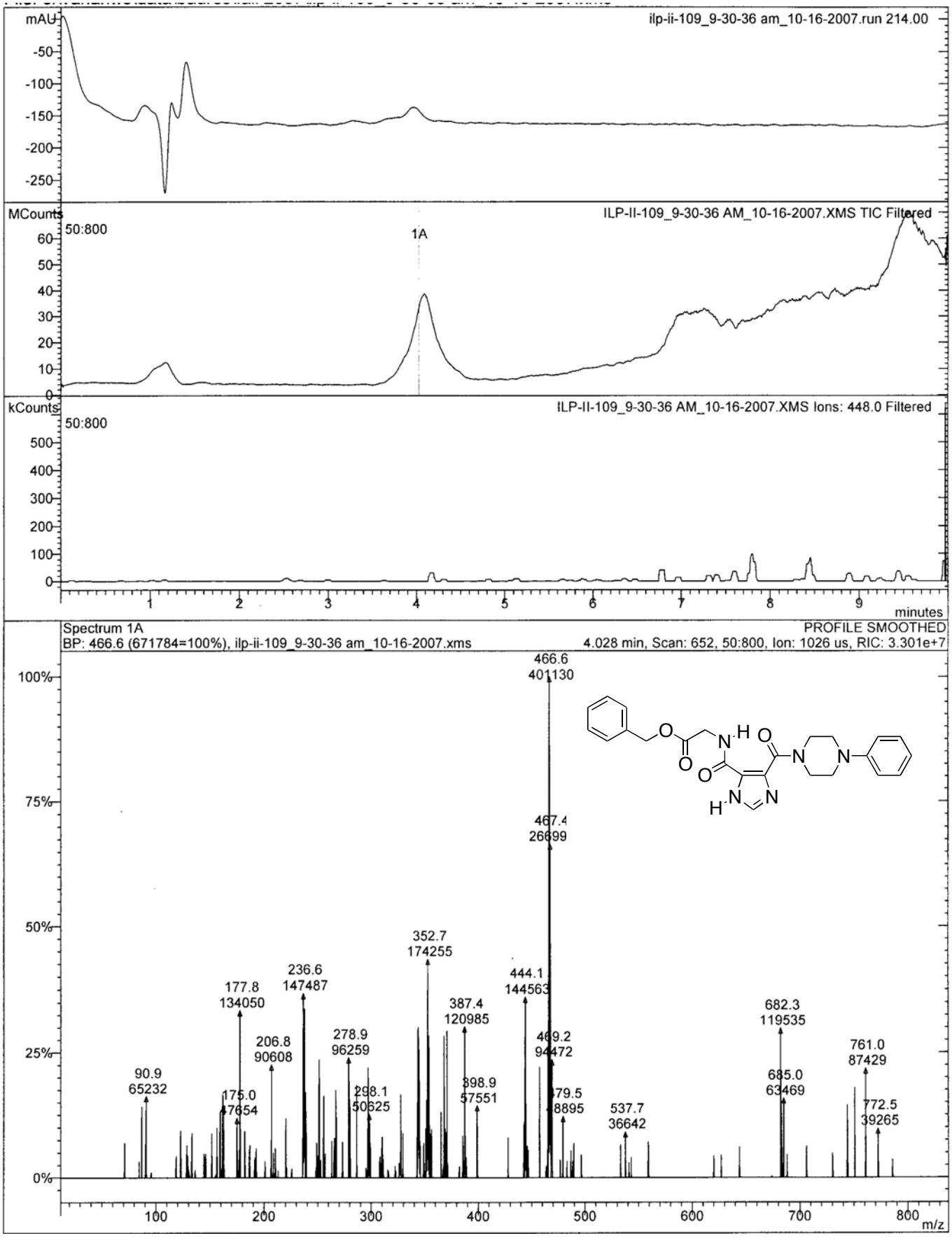

Figure S28. LC/MS data for **5{**28}.

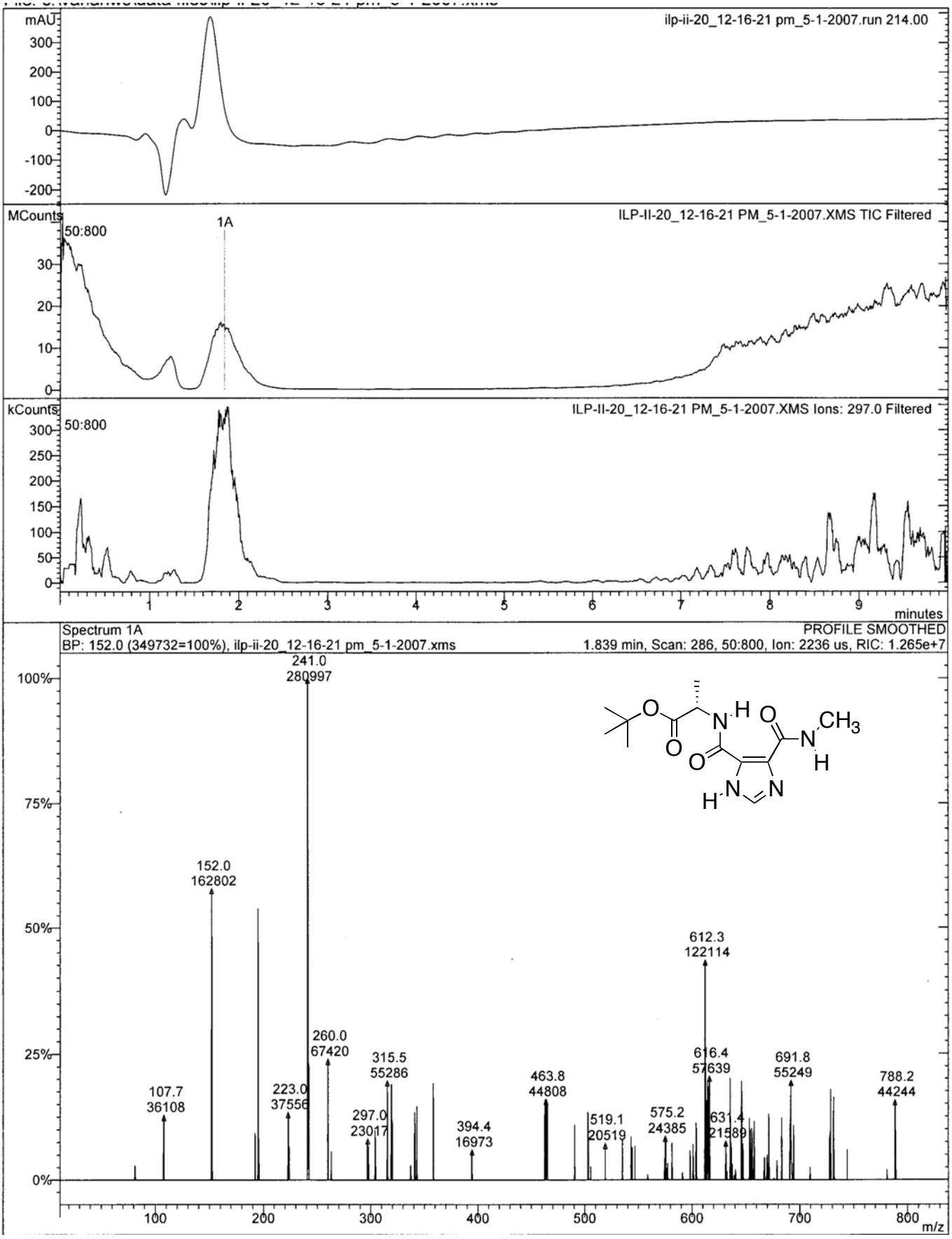

Figure S29. LC/MS data for **5{**29}.

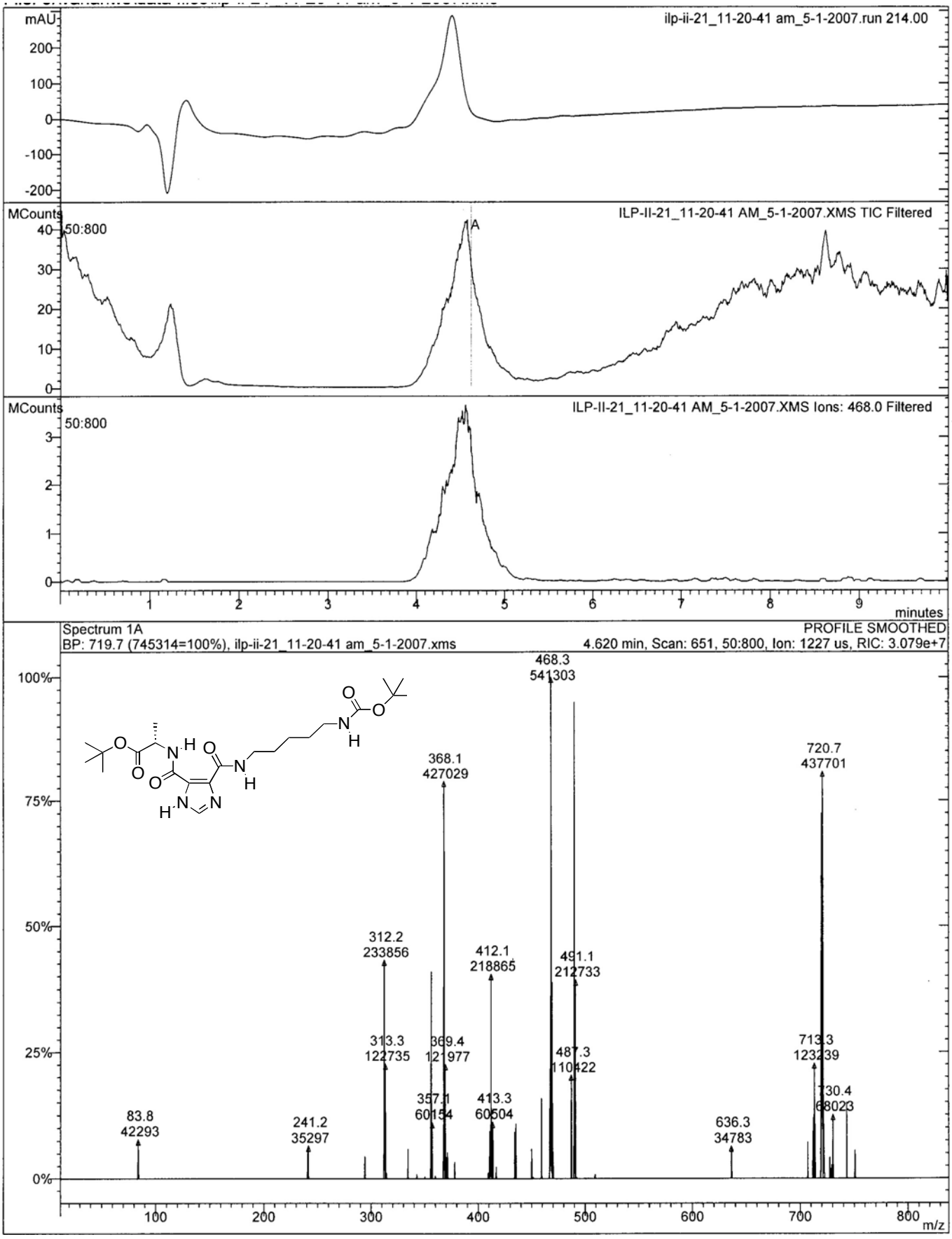

Figure S30. LC/MS data for **5{**30}.

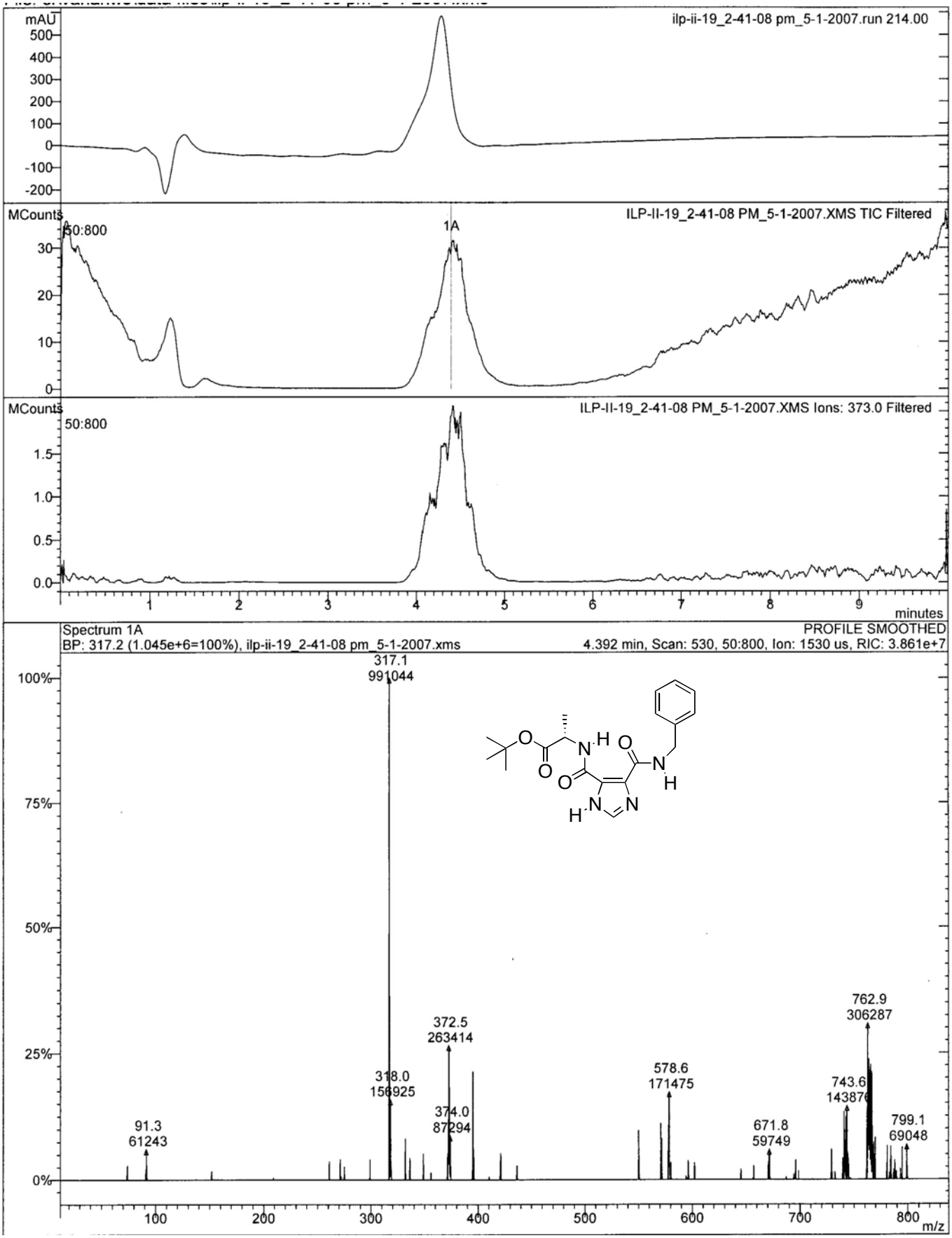

Figure S31. LC/MS data for **5{**31}.

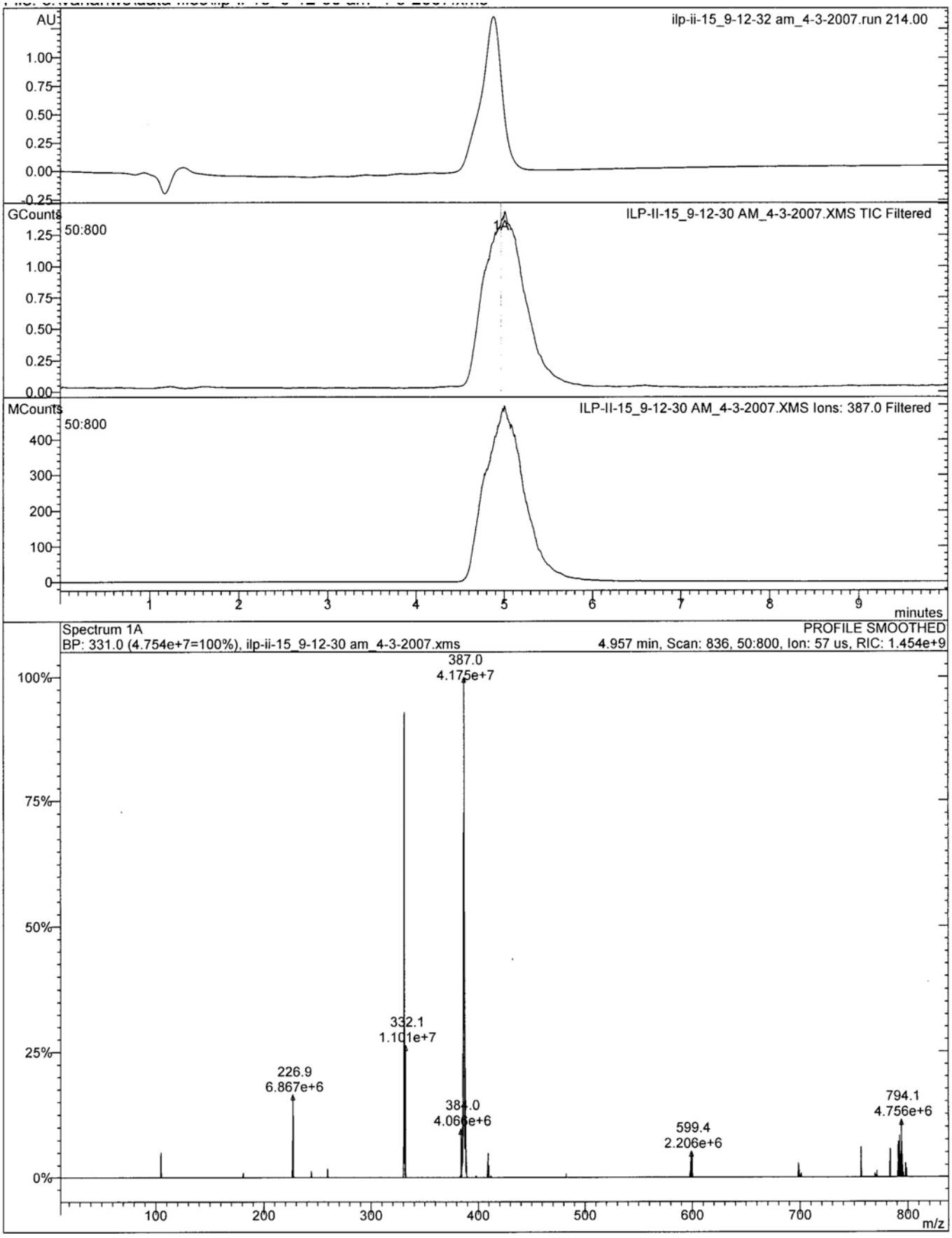

Figure S32. LC/MS data for **5{**32}.

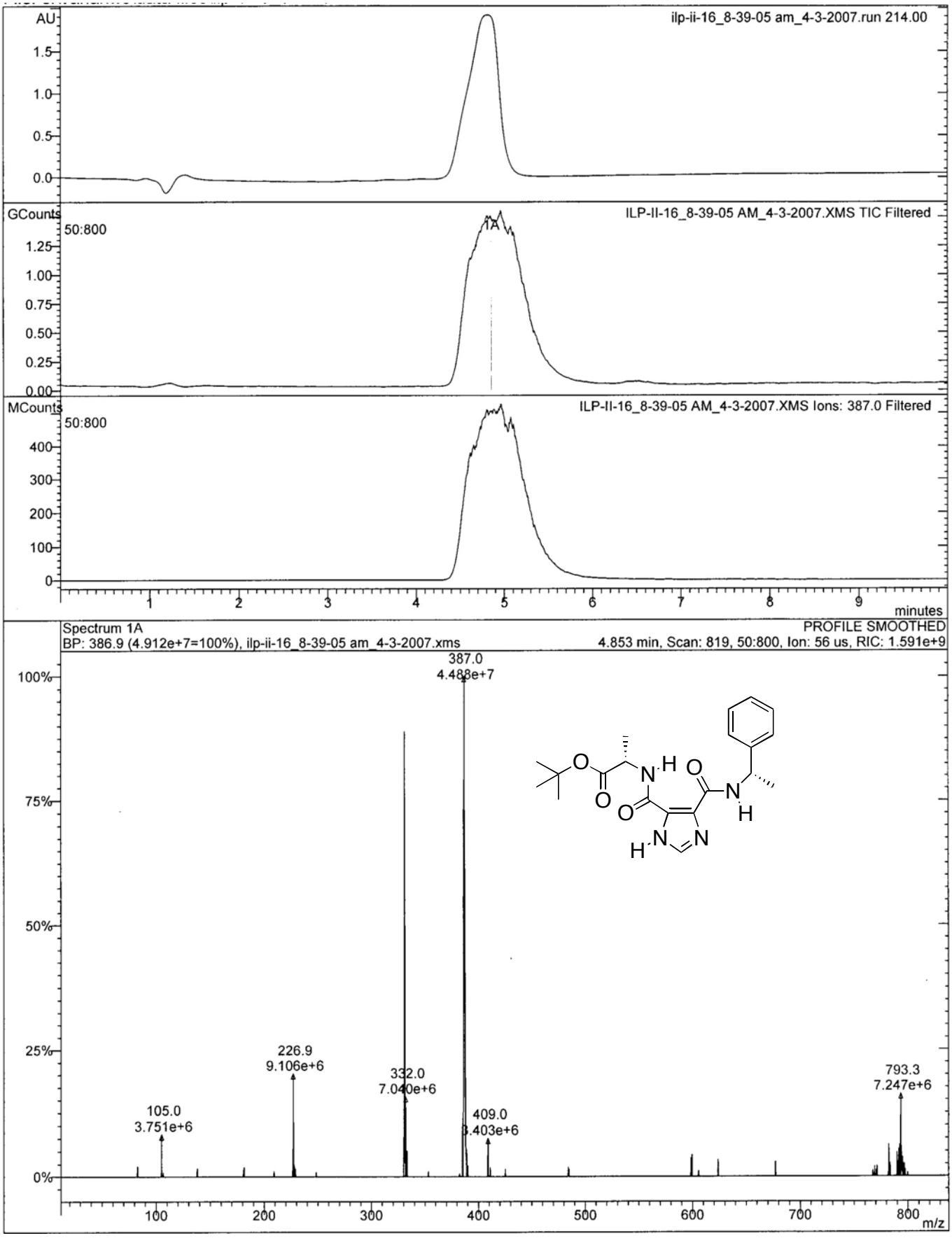

Figure S33. LC/MS data for **5{**33}.

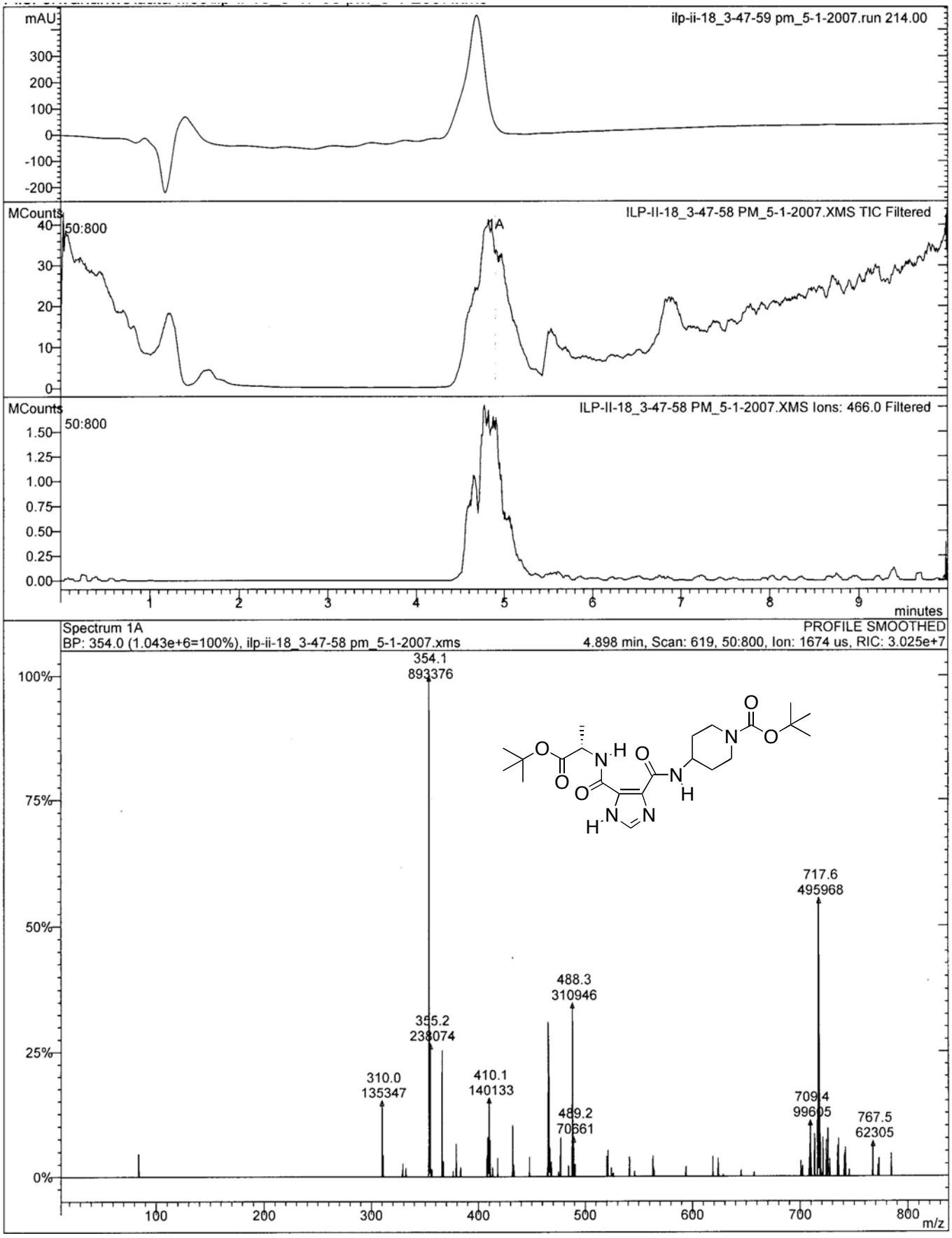

Figure S34. LC/MS data for **5{**34}.

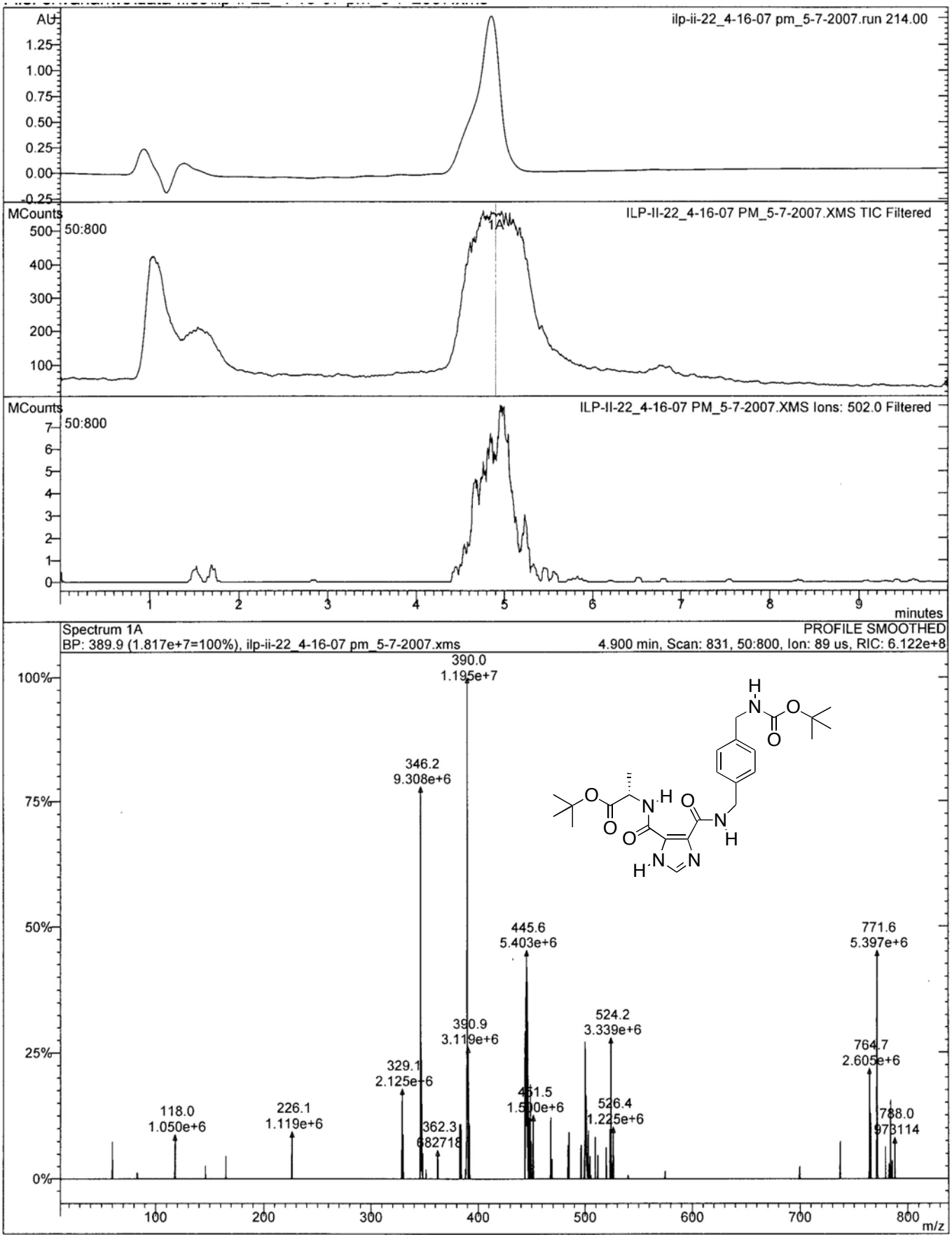

Figure S35. LC/MS data for **5{**35}.

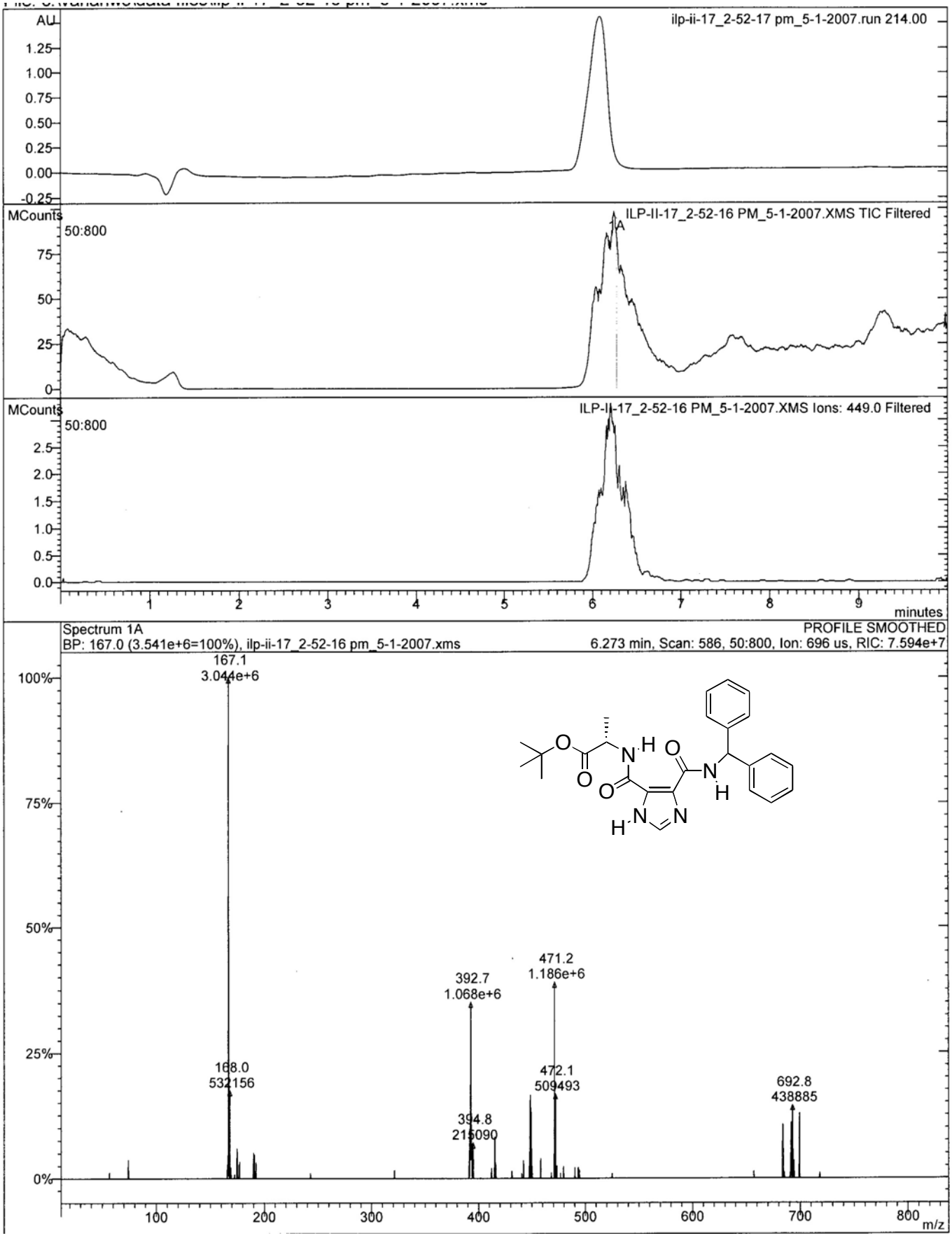

Figure S36. LC/MS data for **5{**36}.

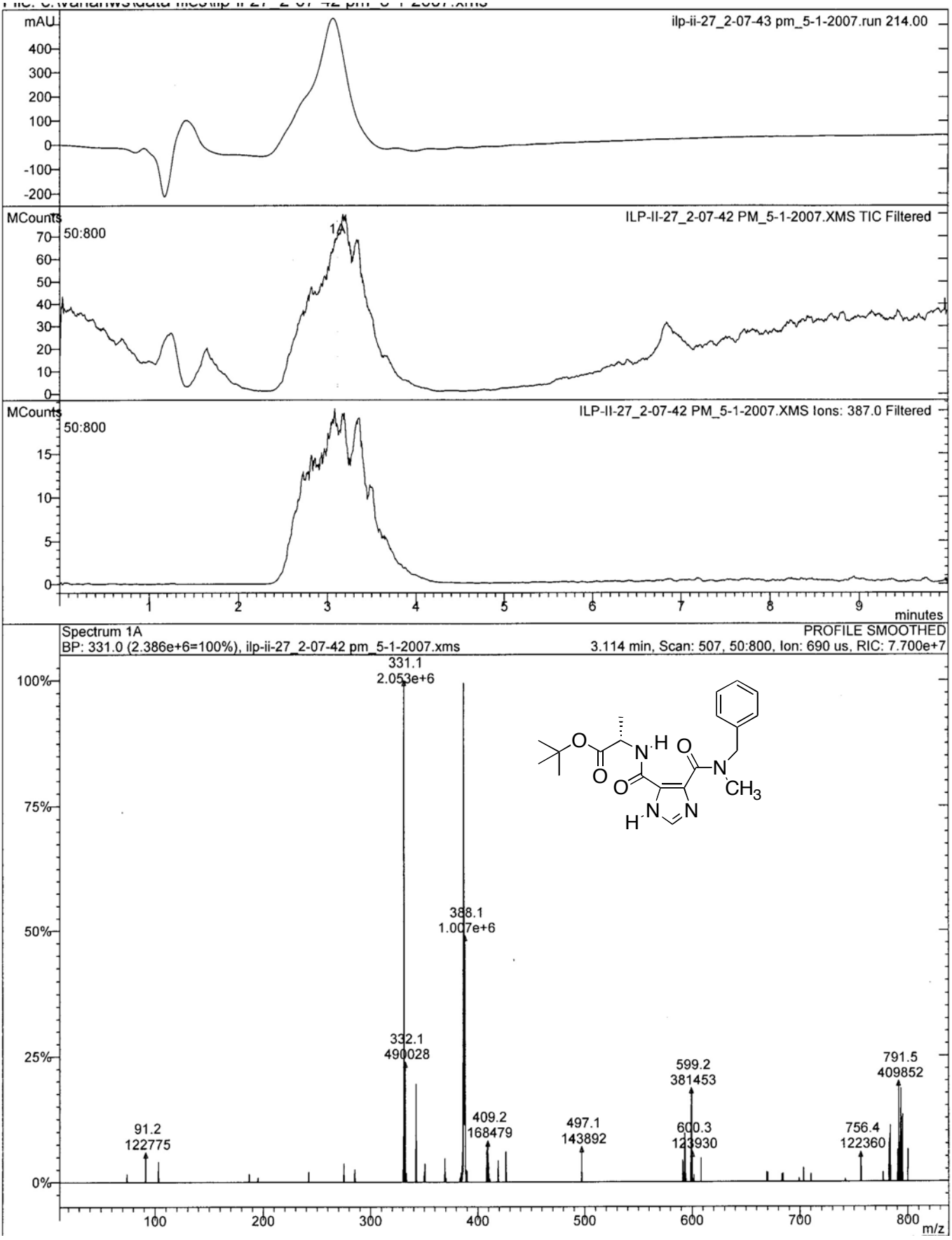

Figure S37. LC/MS data for **5{**37}.

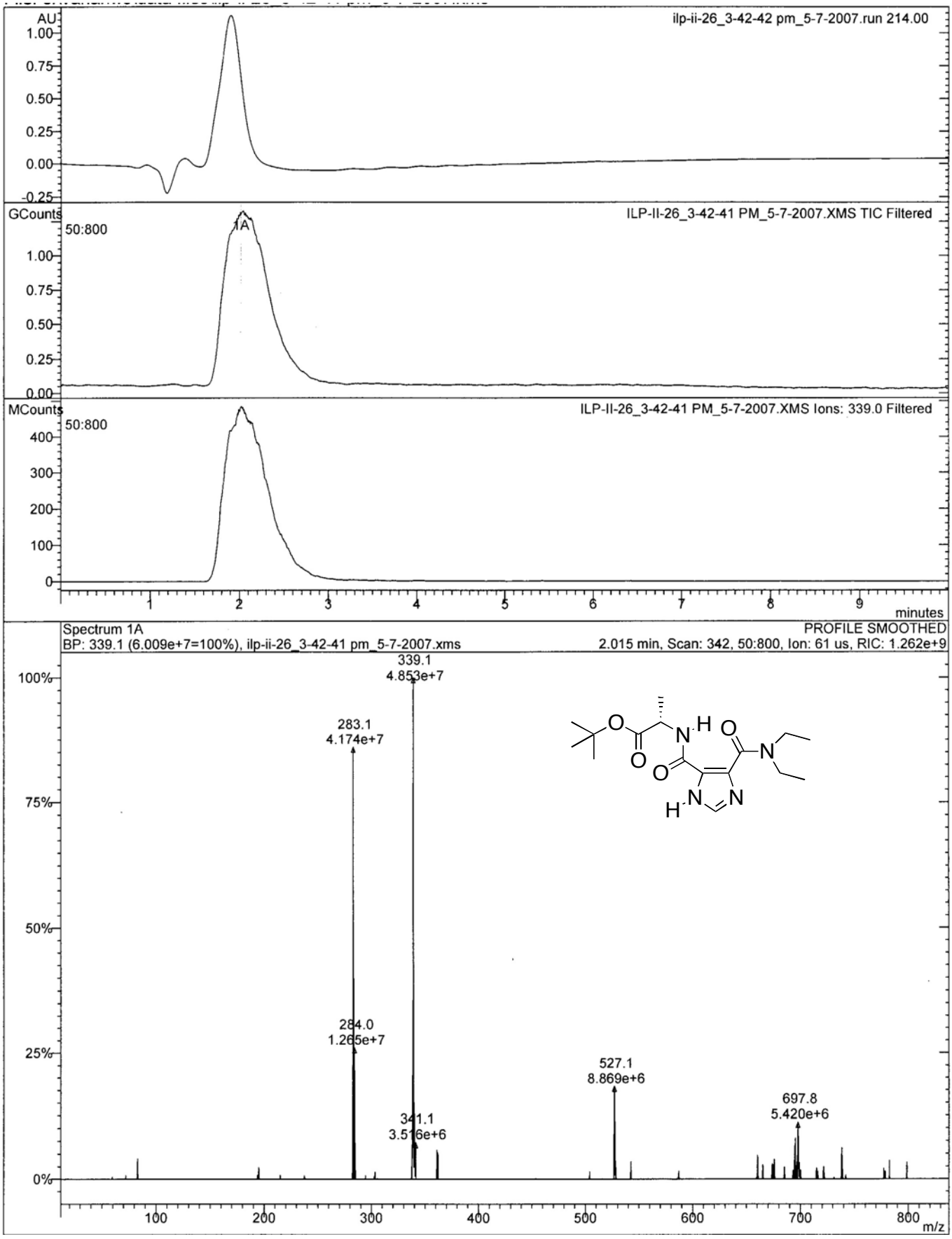

Figure S38. LC/MS data for **5{**38}.

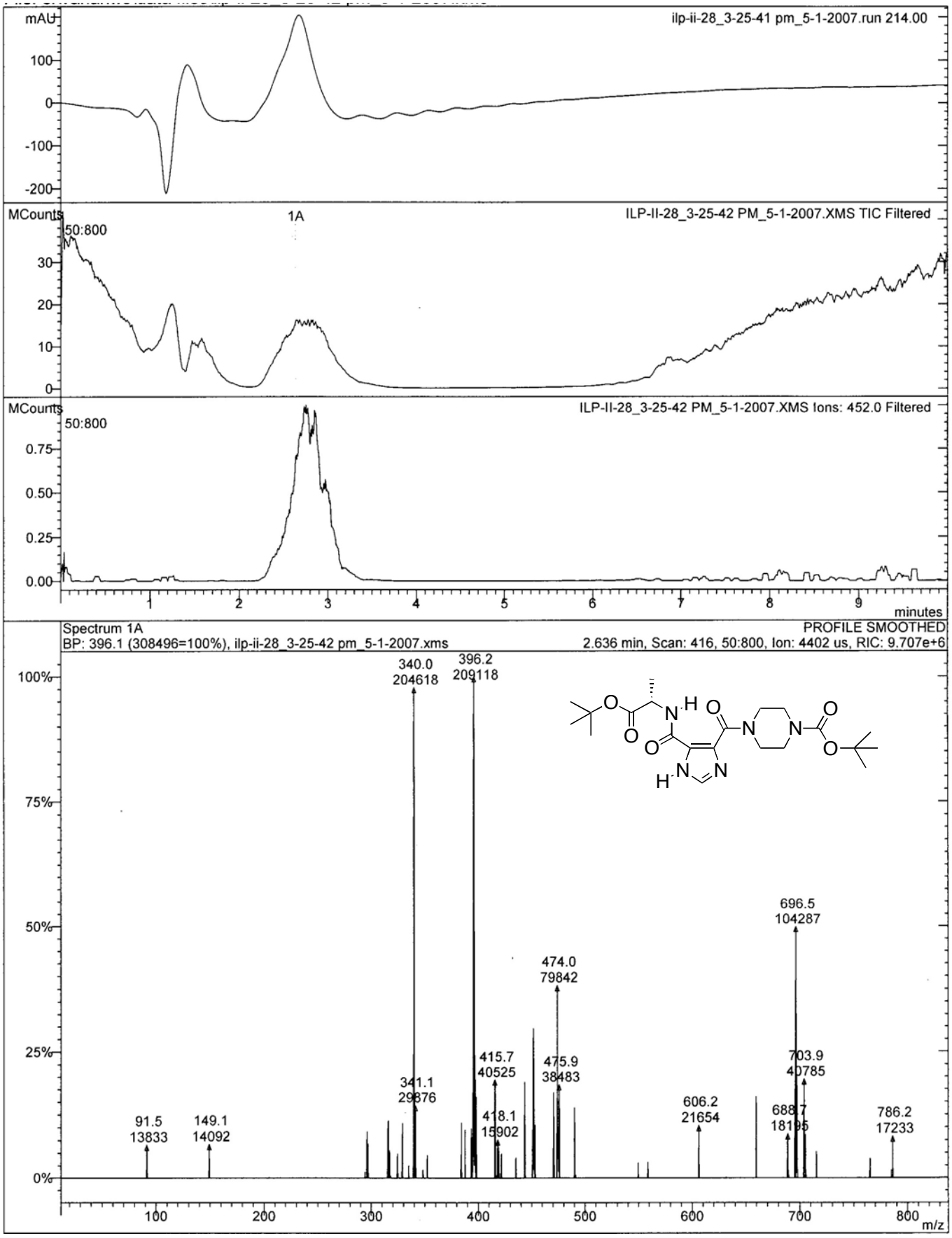

Figure S39. LC/MS data for **5{**39}.

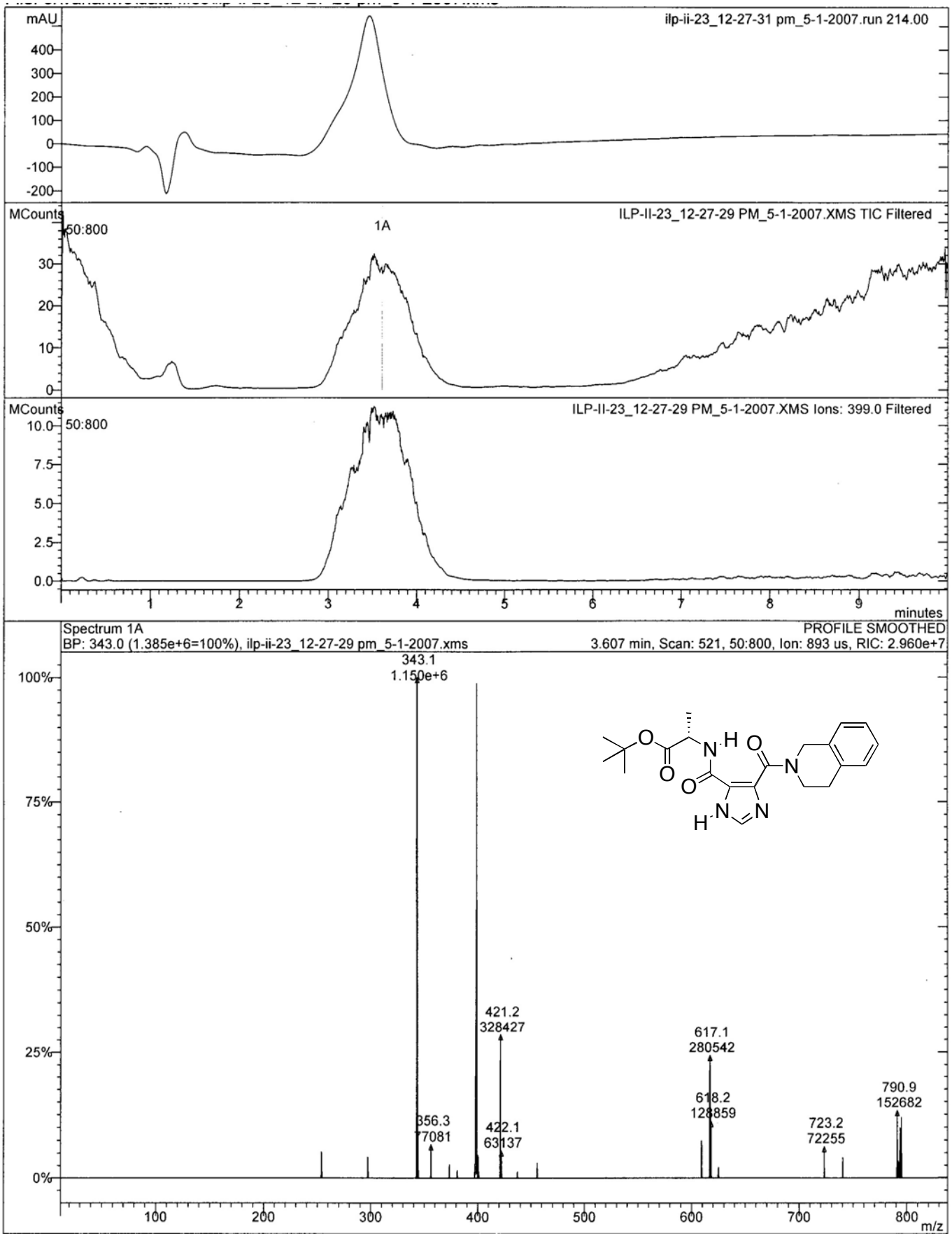

Figure S40. LC/MS data for **5{**40}.

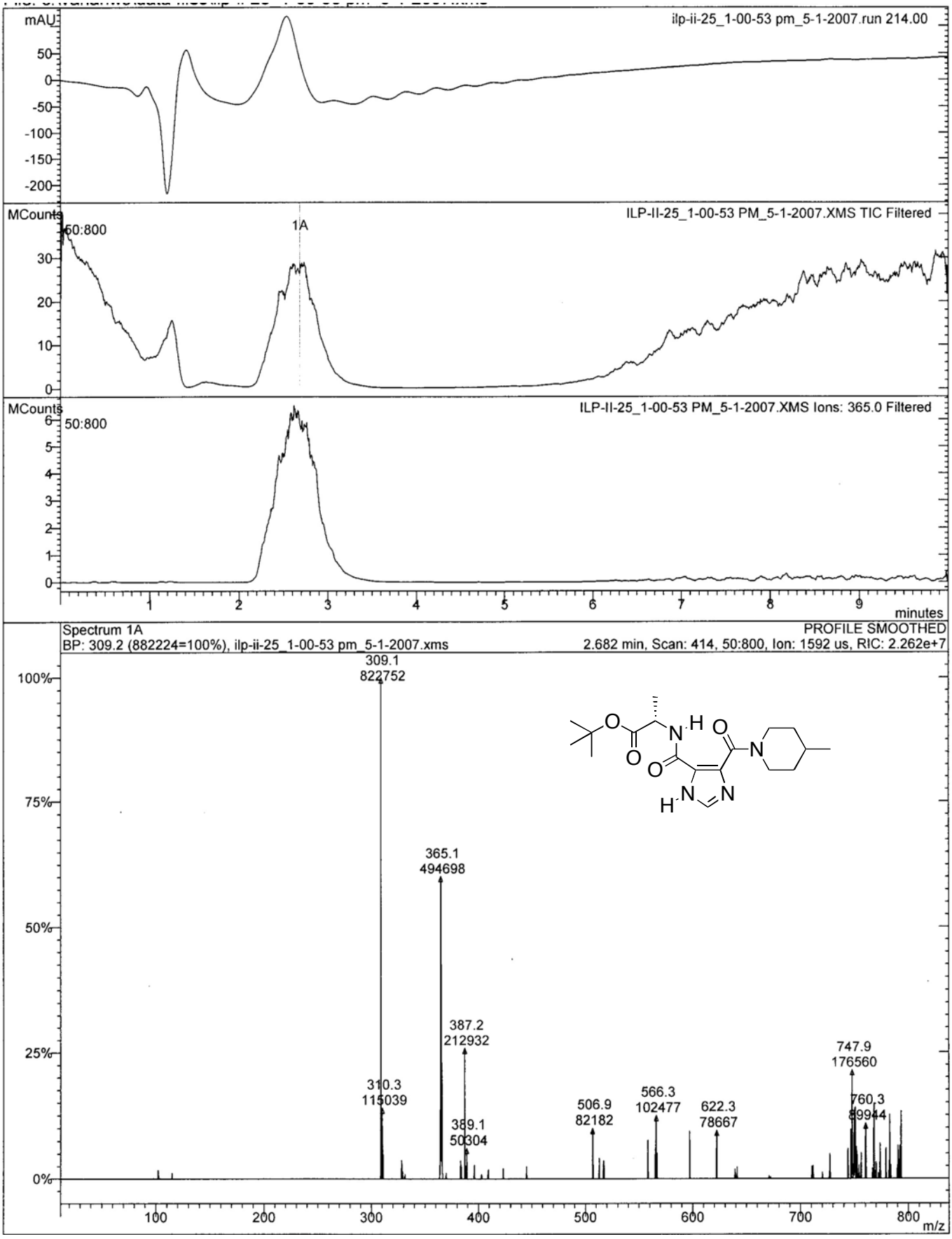

Figure S41. LC/MS data for **5{**41}.

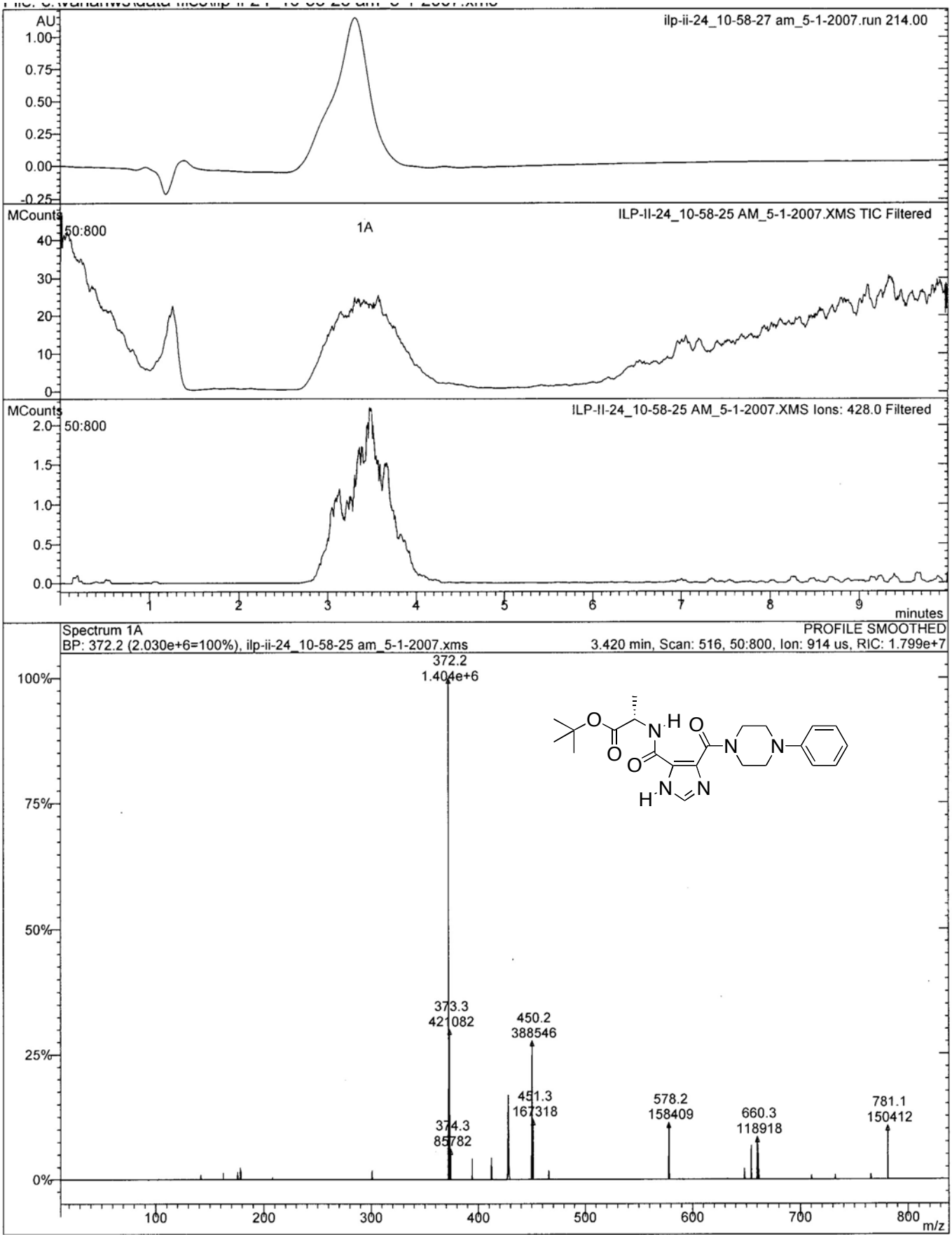

Figure S42. LC/MS data for **5{**42}.

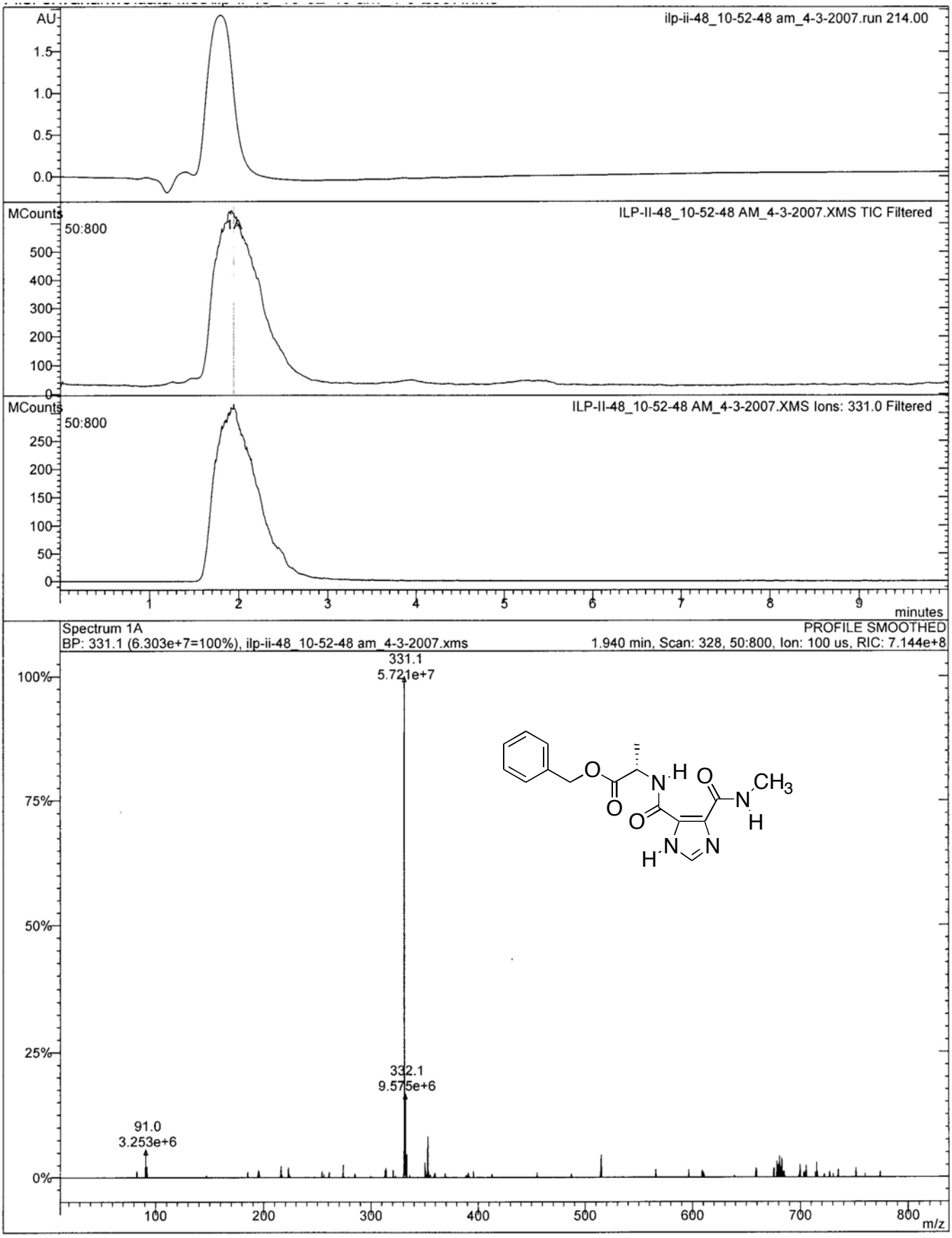

Figure S43. LC/MS data for **5{**43}.

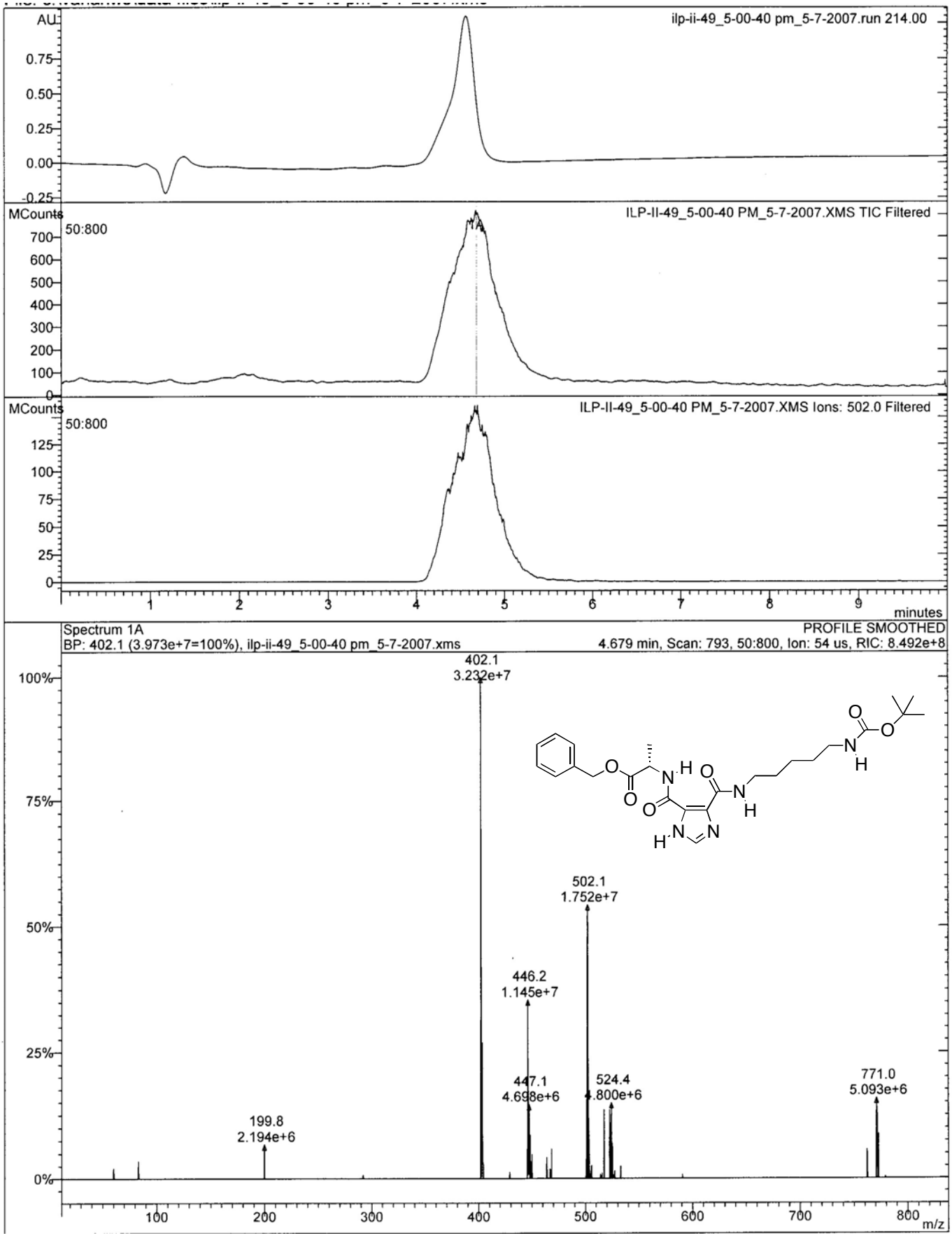

Figure S44. LC/MS data for **5{**44}.

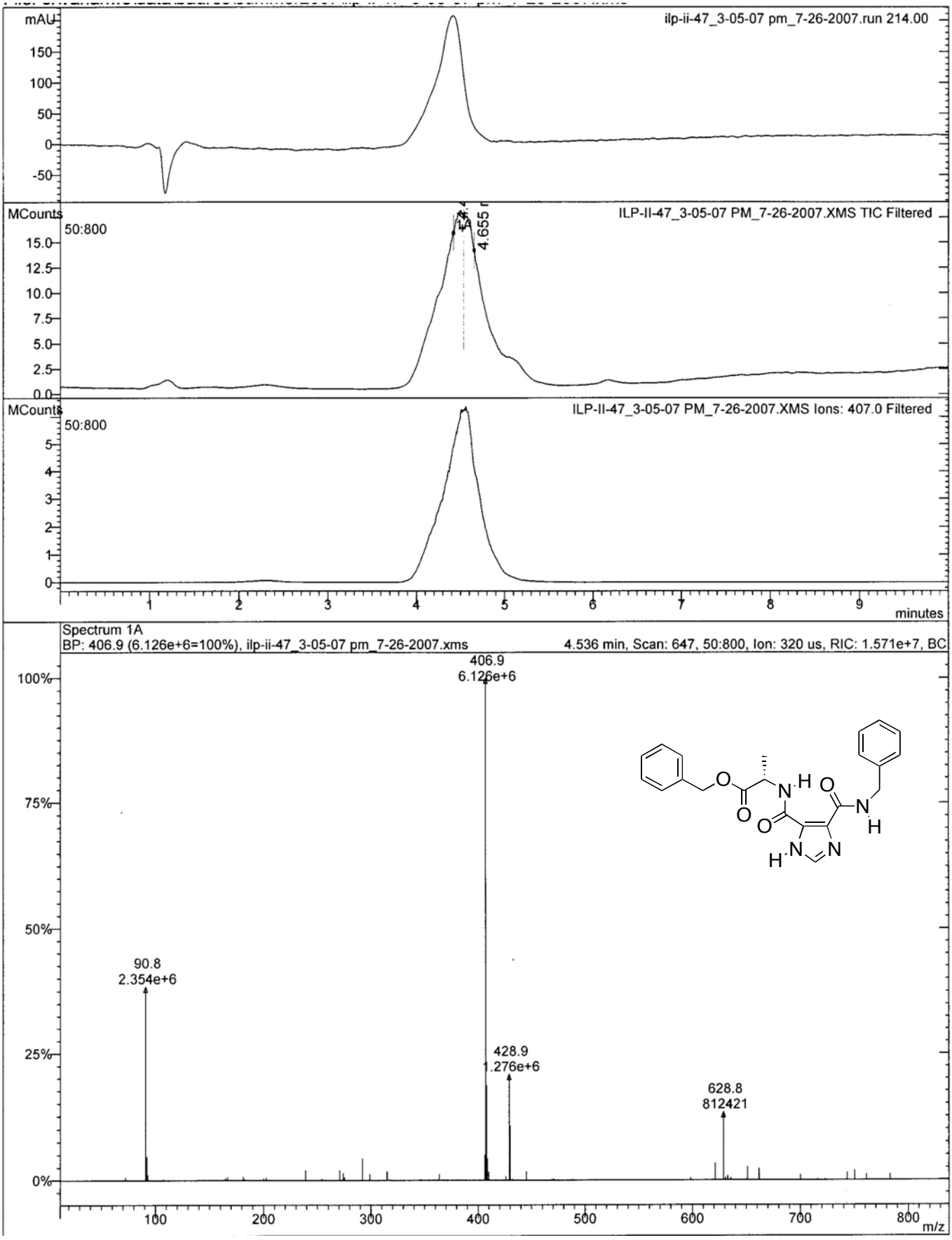

Figure S45. LC/MS data for **5{**45}.

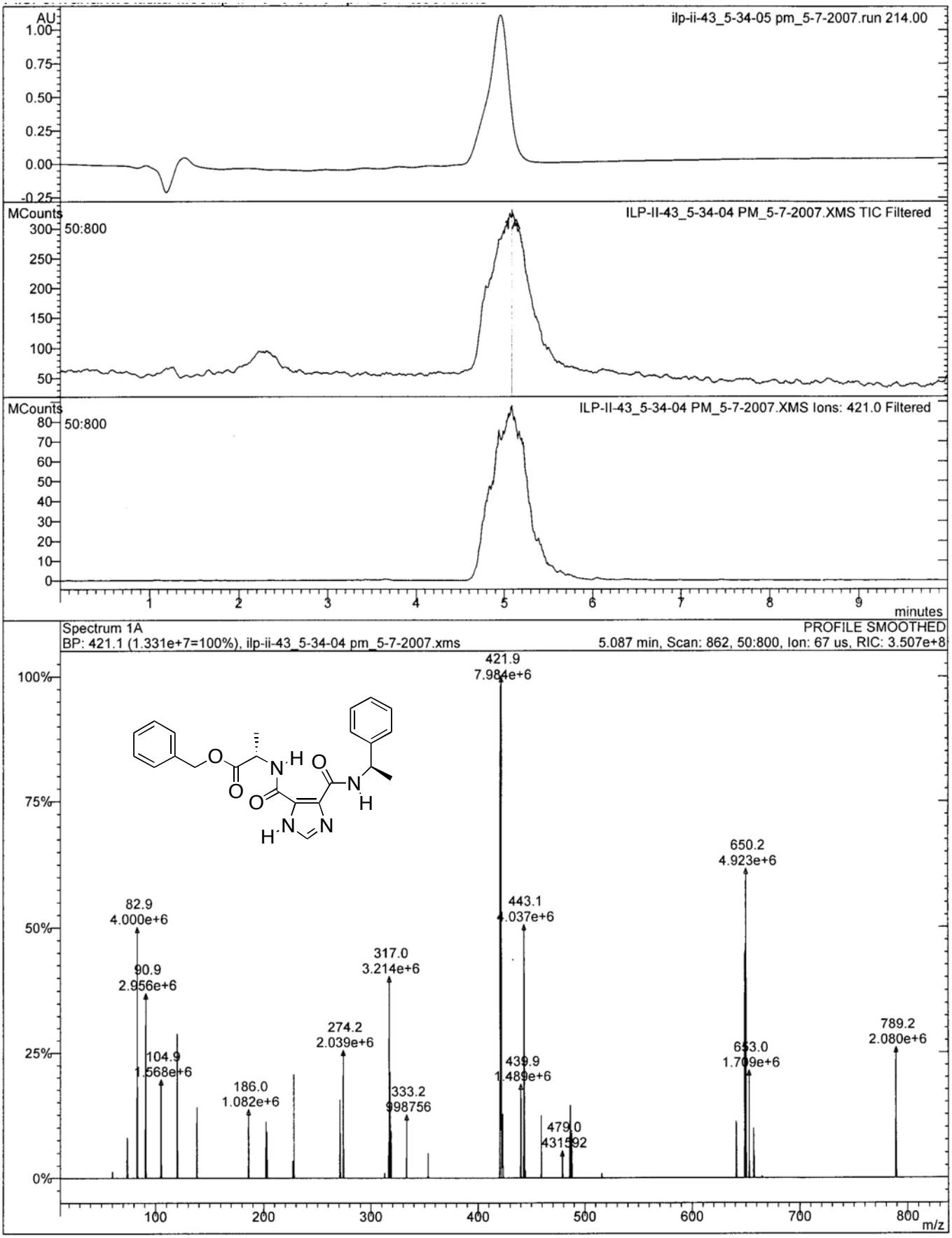

Figure S46. LC/MS data for **5{**46}.

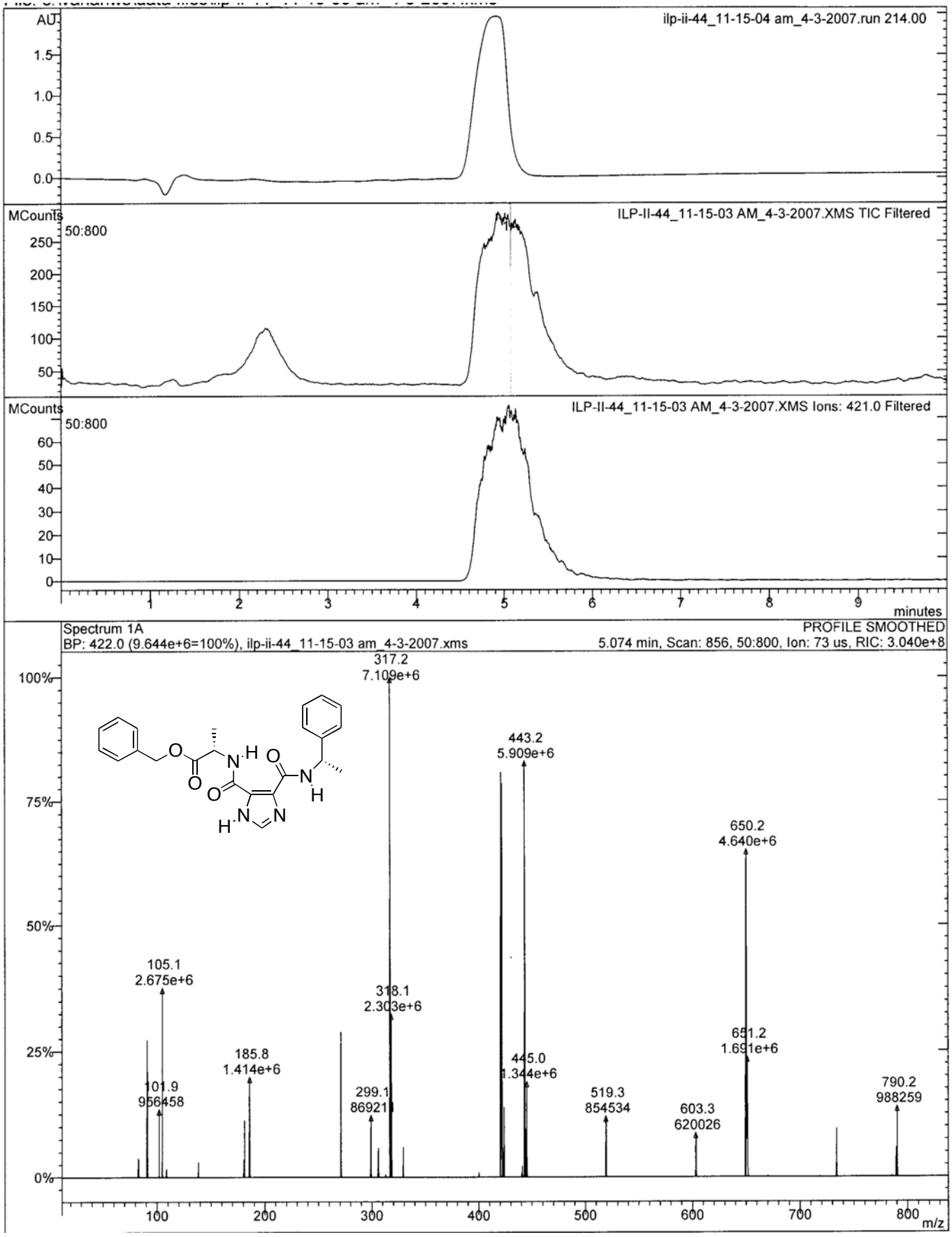

Figure S47. LC/MS data for **5{**47}.

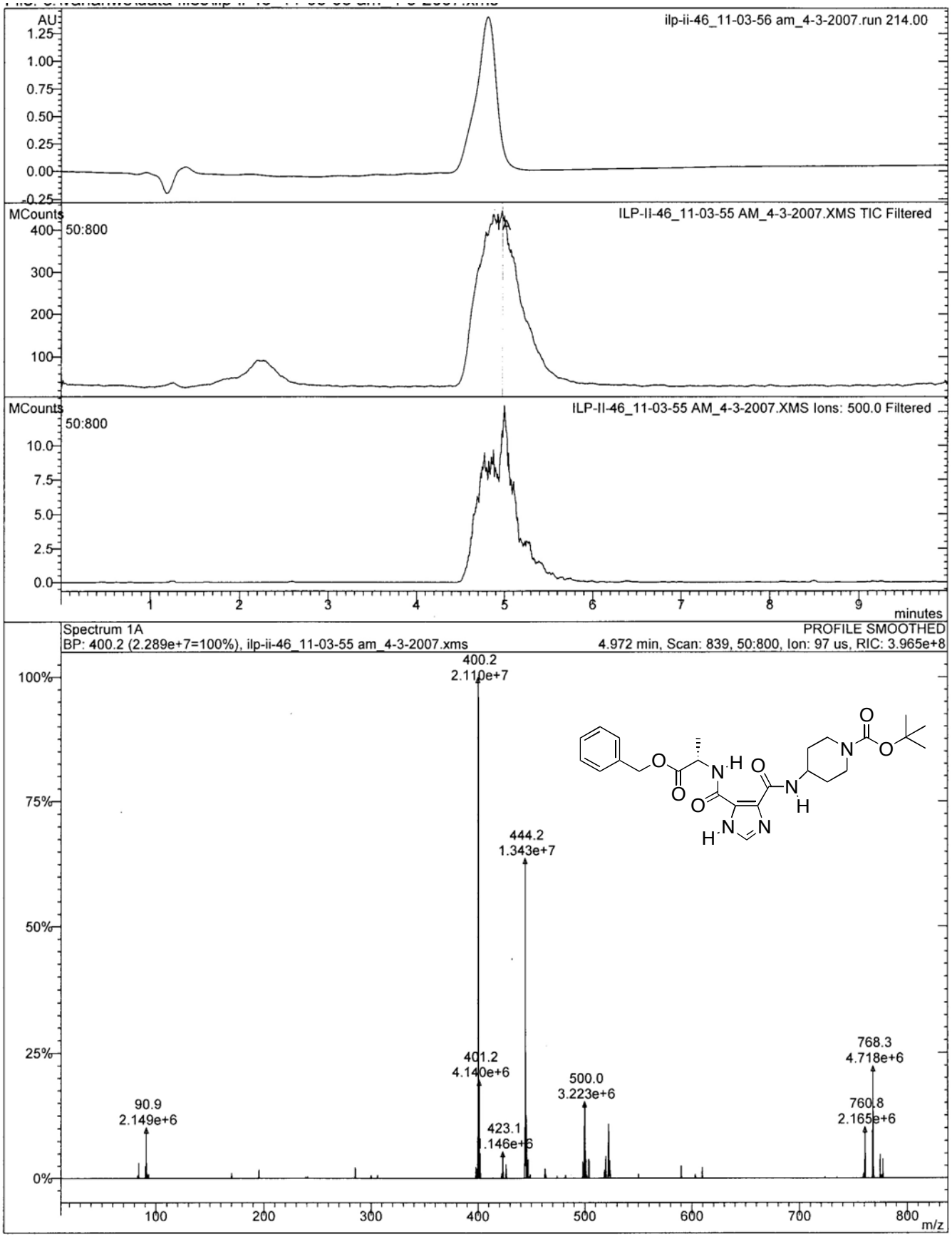

Figure S48. LC/MS data for **5{**48}.

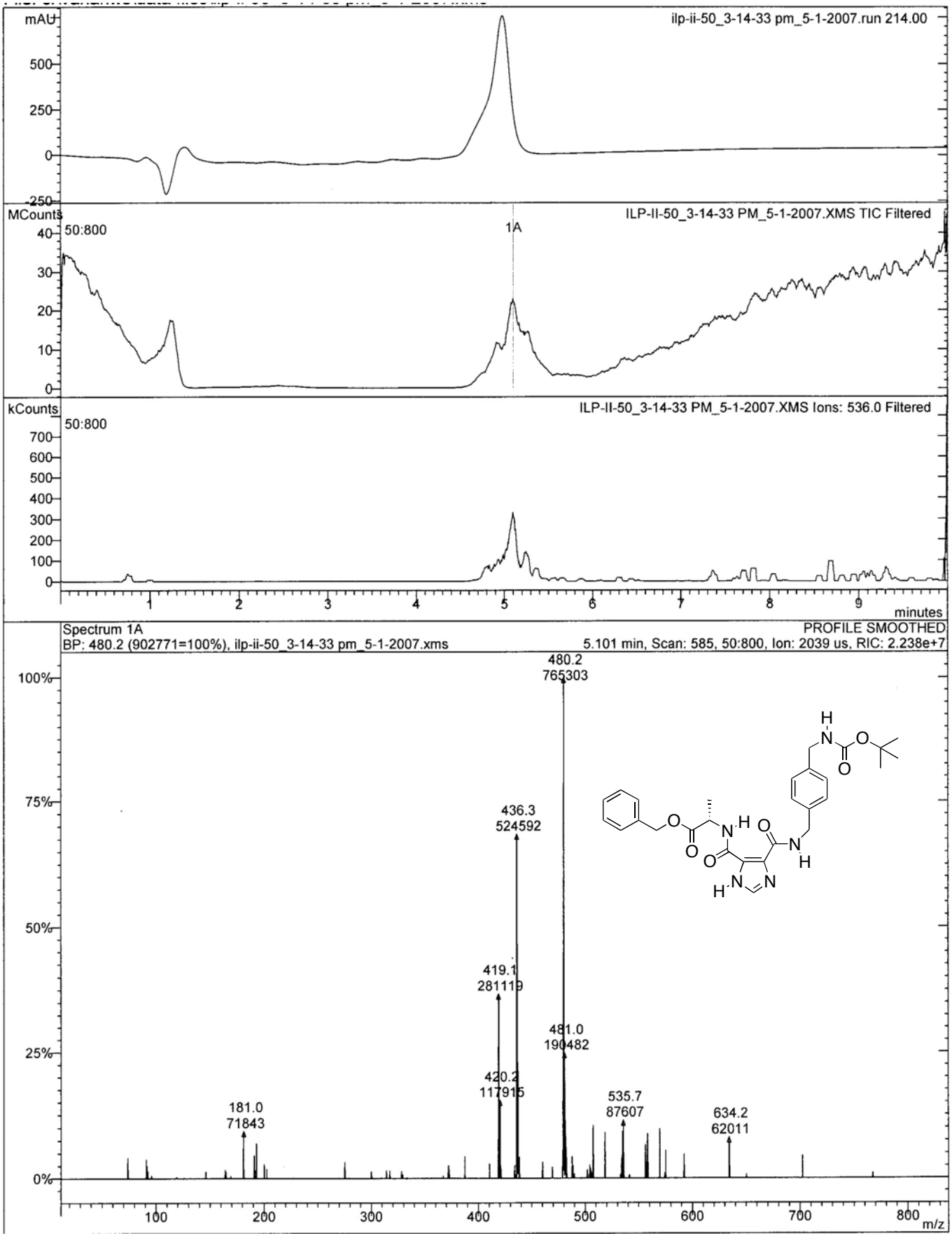

Figure S49. LC/MS data for **5{**49}.

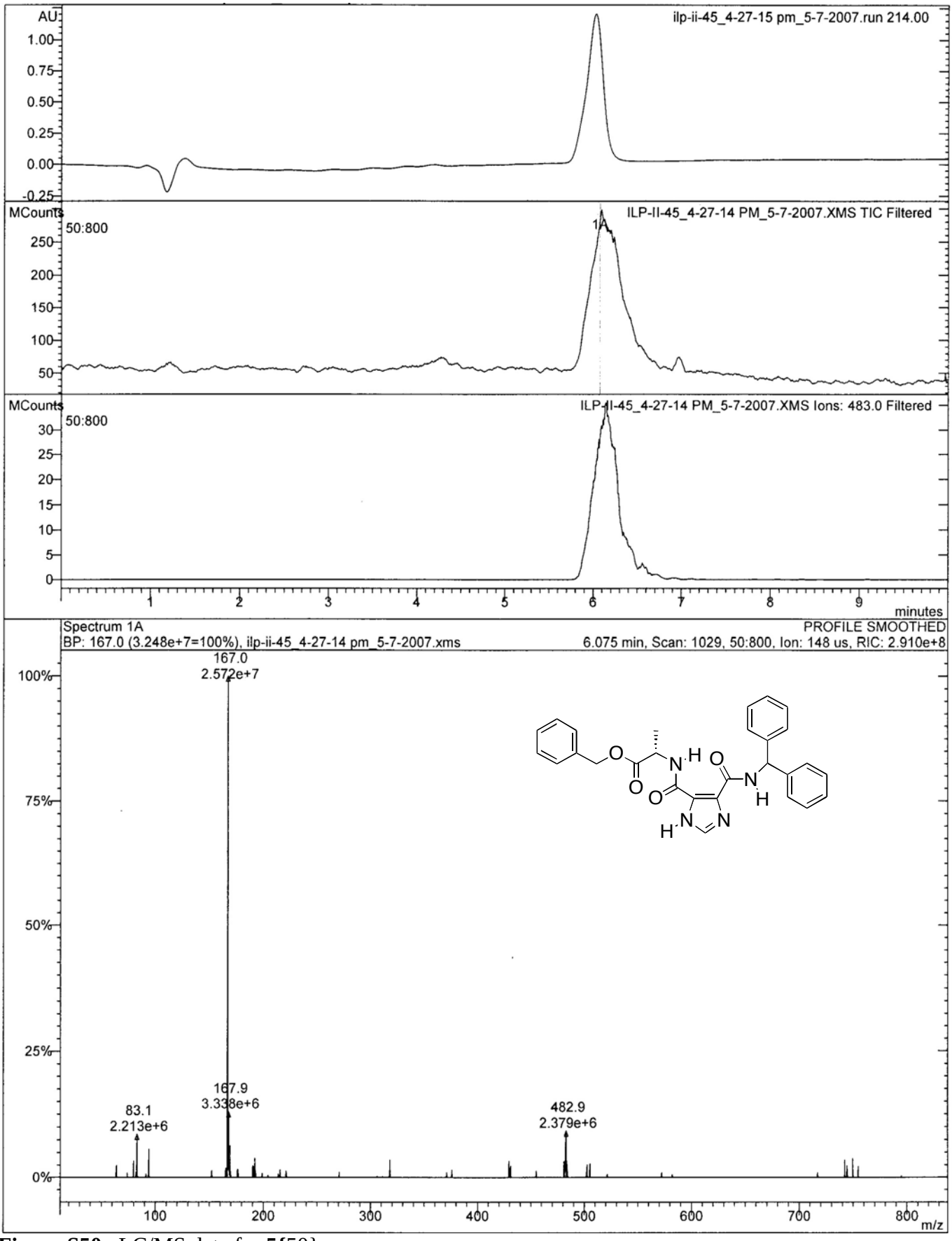

Figure S50. LC/MS data for **5{**50}.

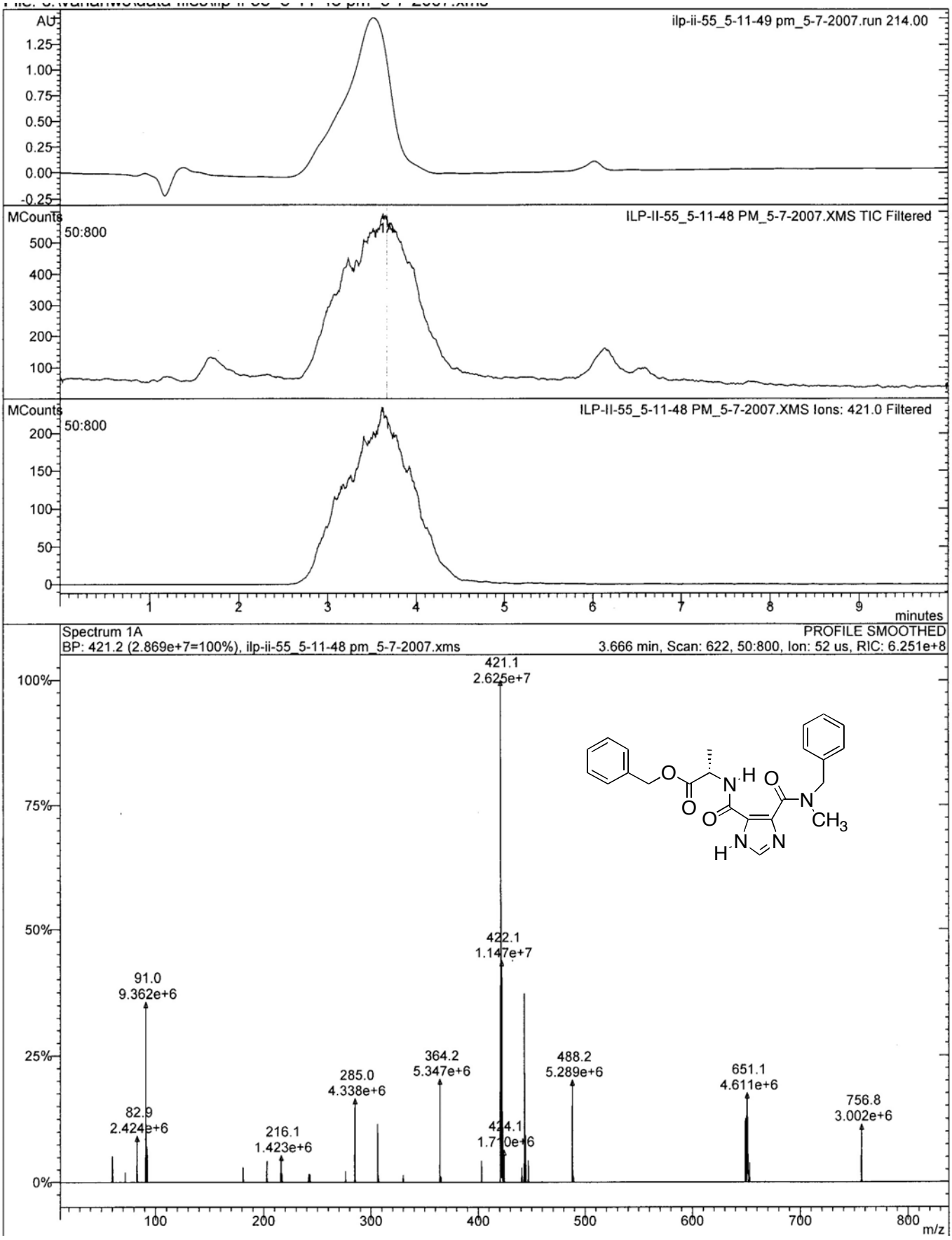

Figure S51. LC/MS data for **5{**51}.

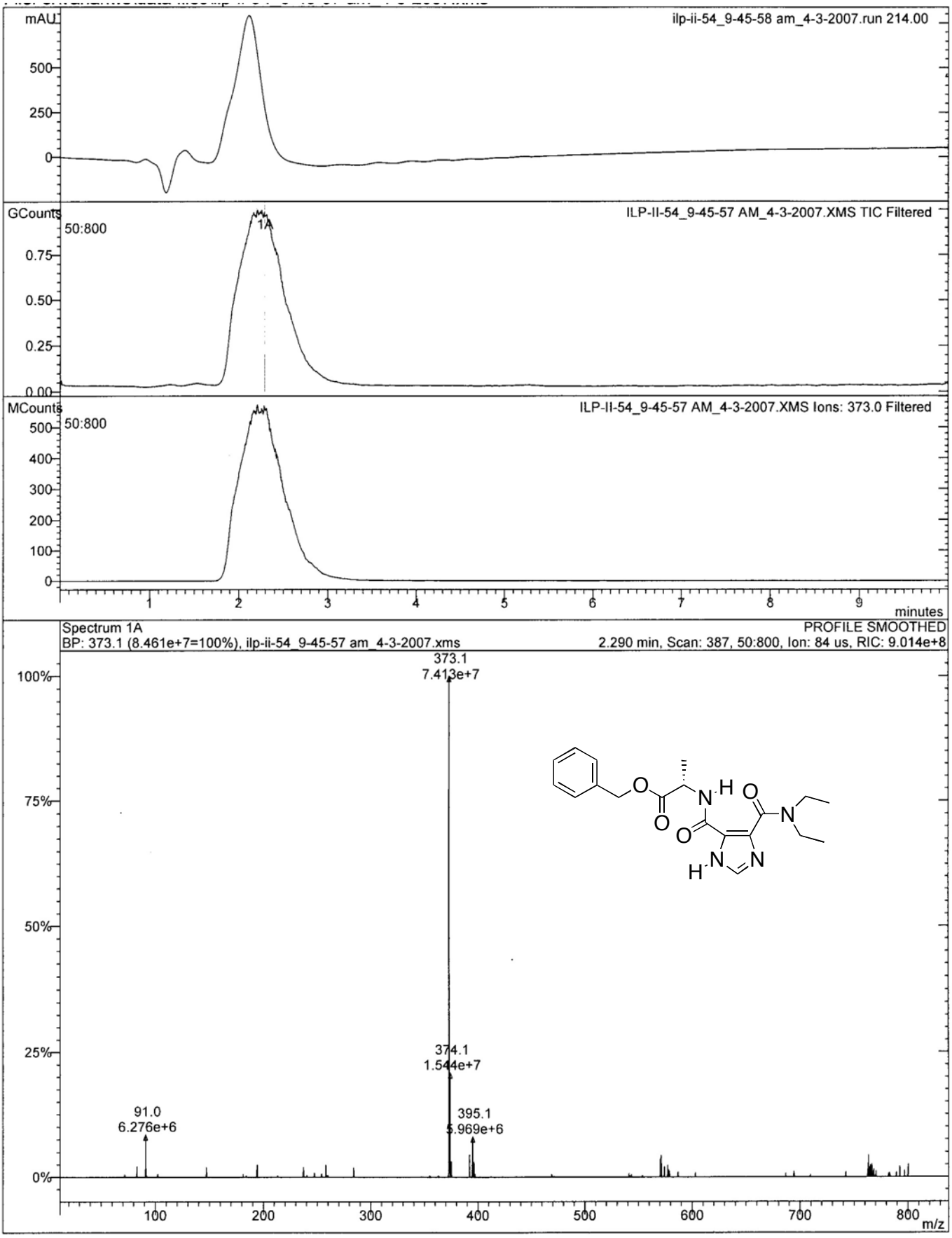

Figure S52. LC/MS data for **5{**52}.

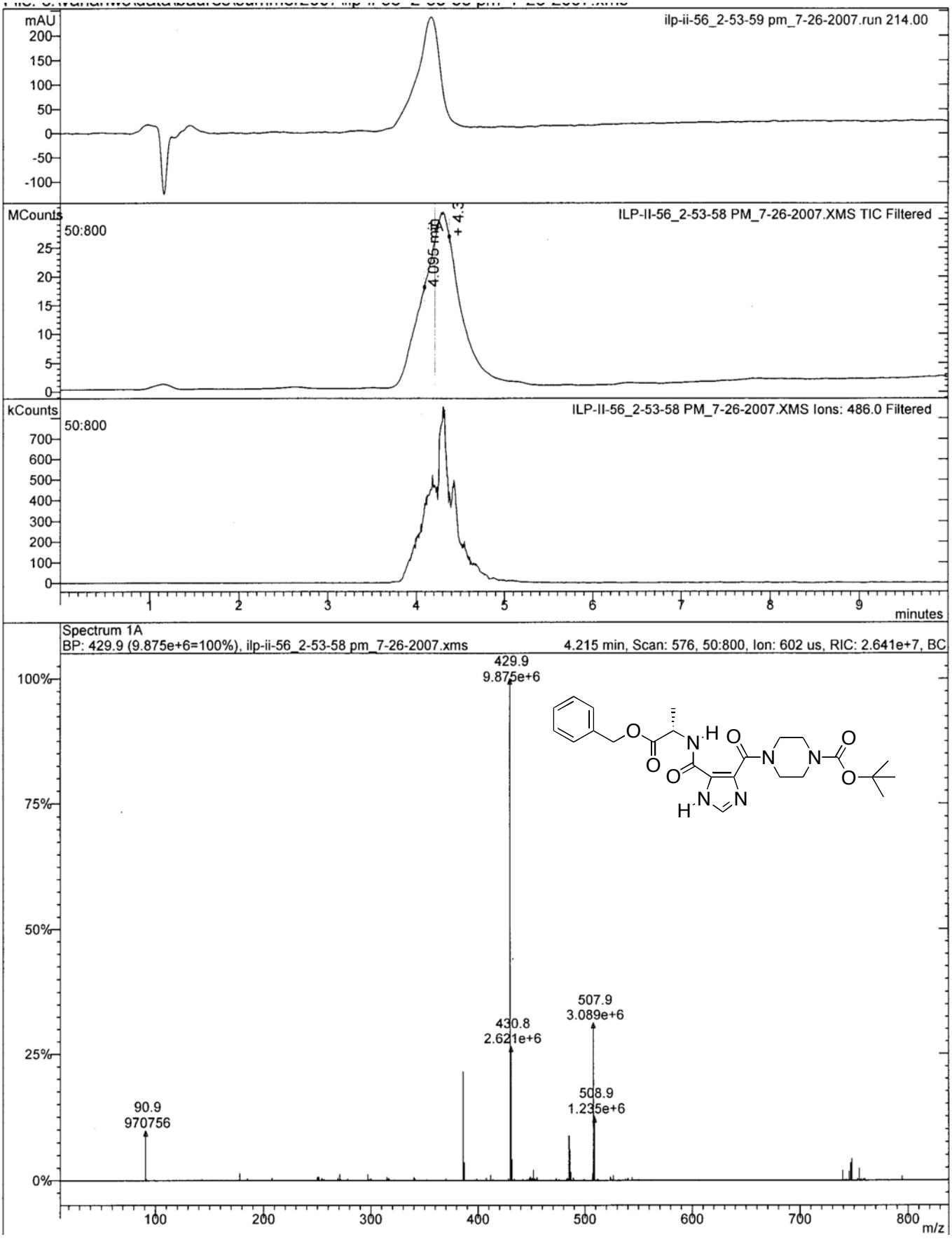

Figure S53. LC/MS data for **5{**53}.

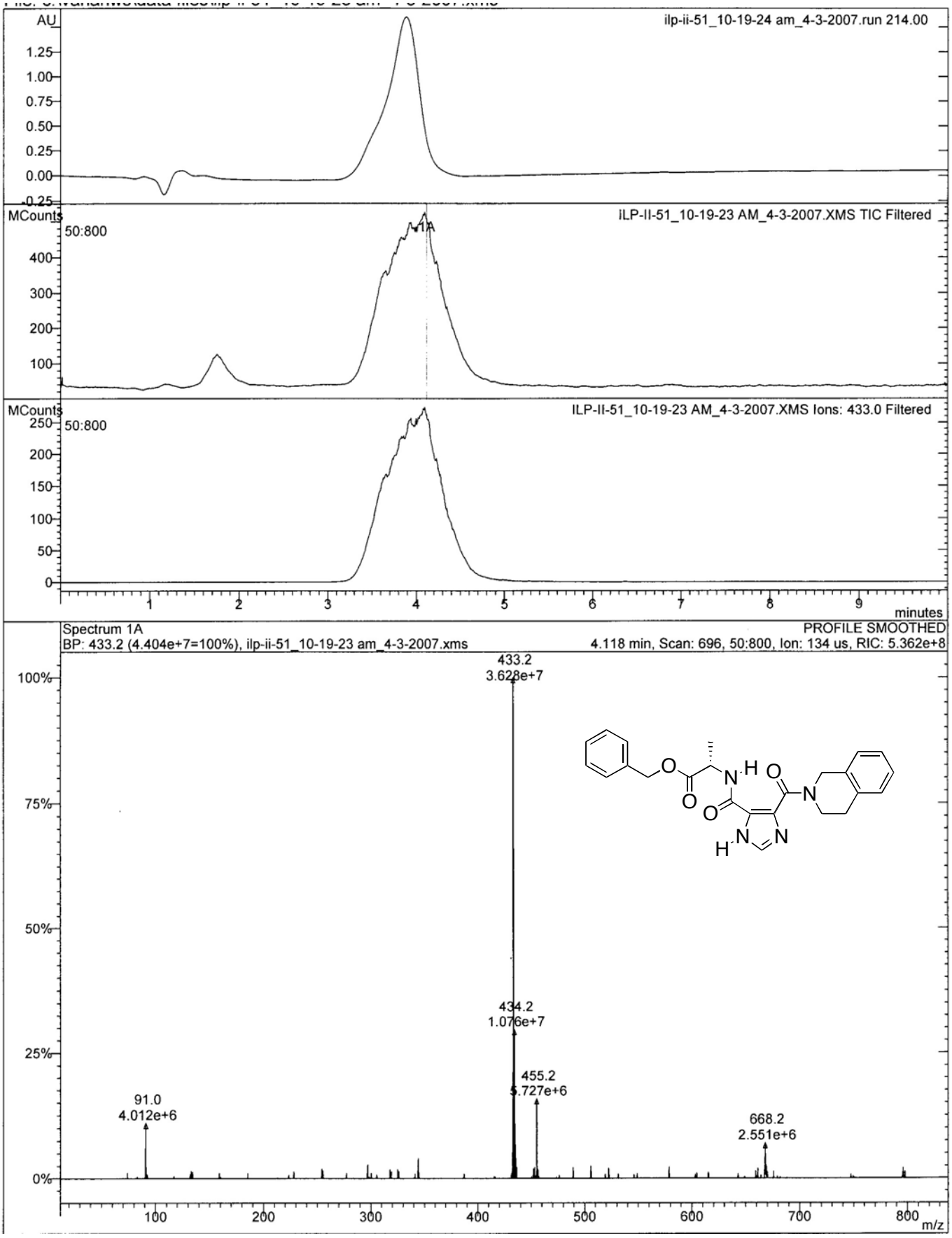

Figure S54. LC/MS data for **5{**54}.

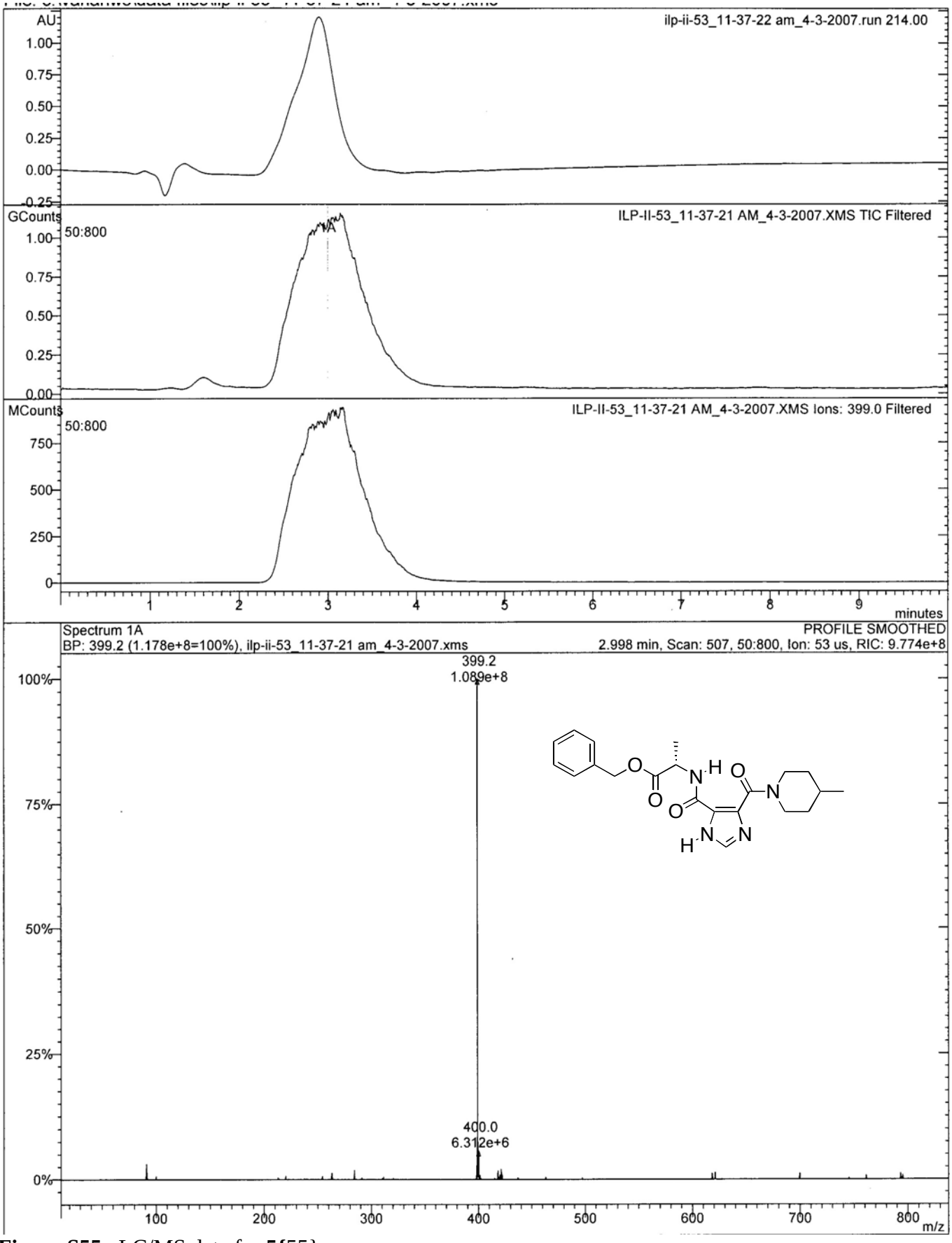

Figure S55. LC/MS data for **5{**55}.

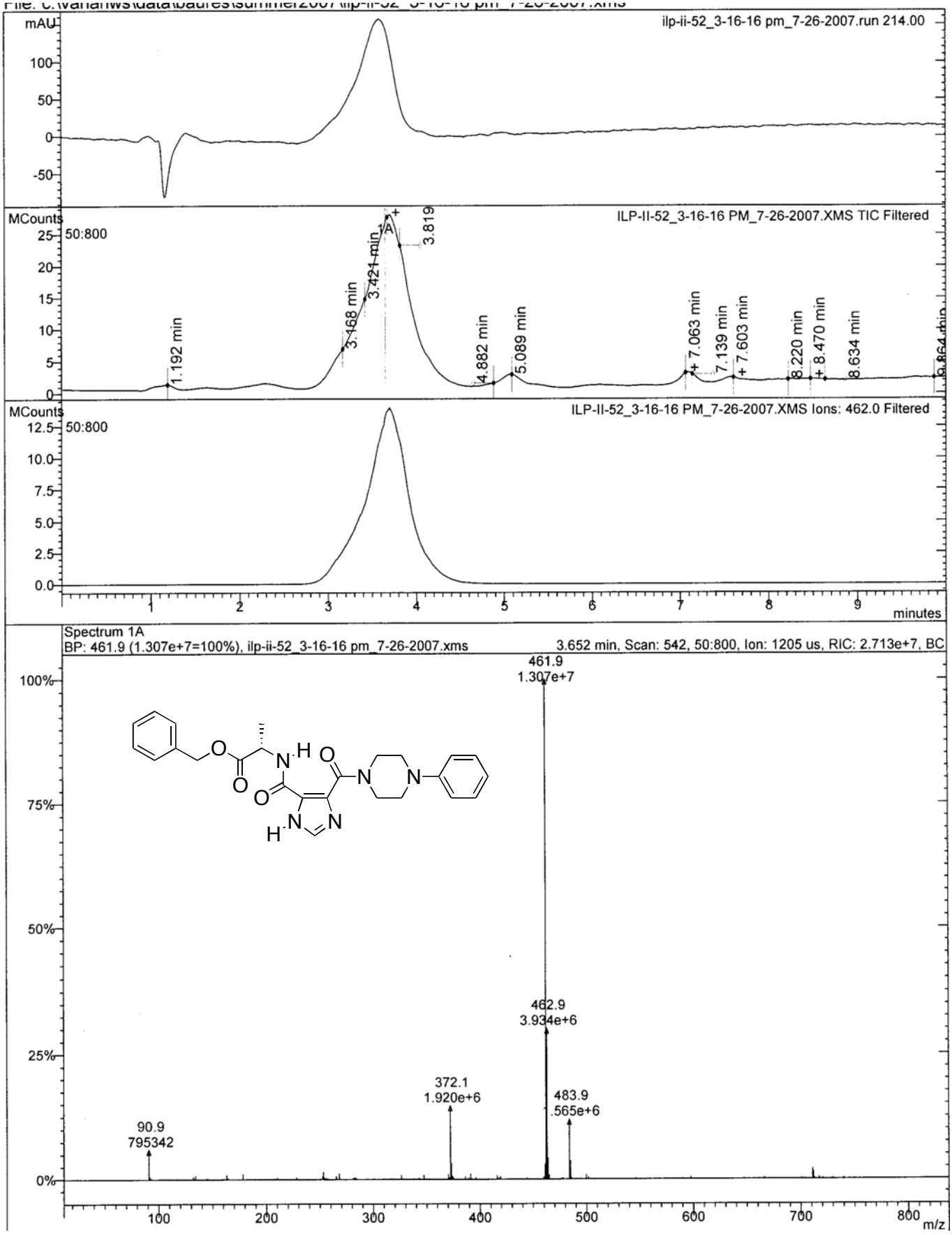

Figure S56. LC/MS data for **5{**56}.

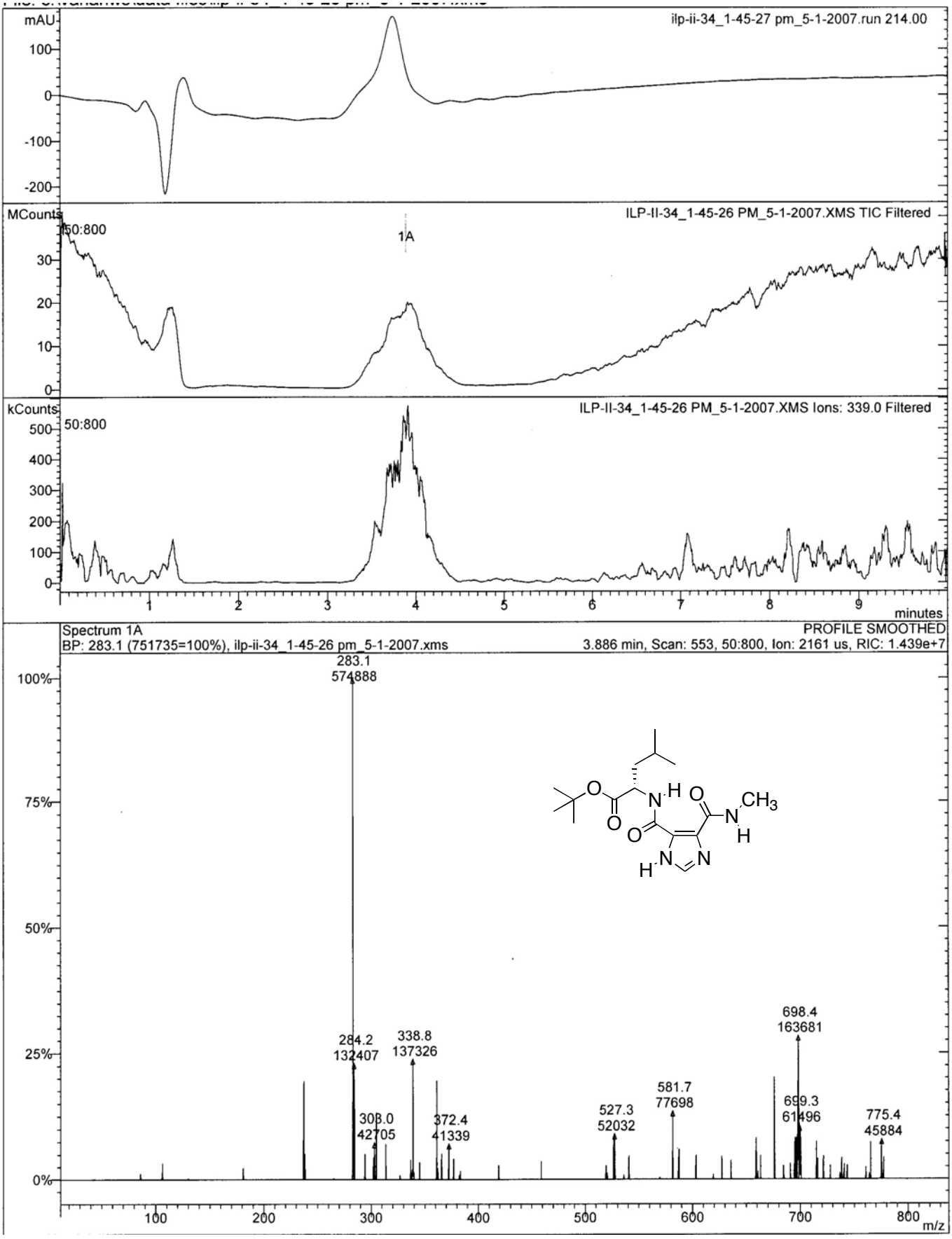

Figure S57. LC/MS data for **5{**57}.

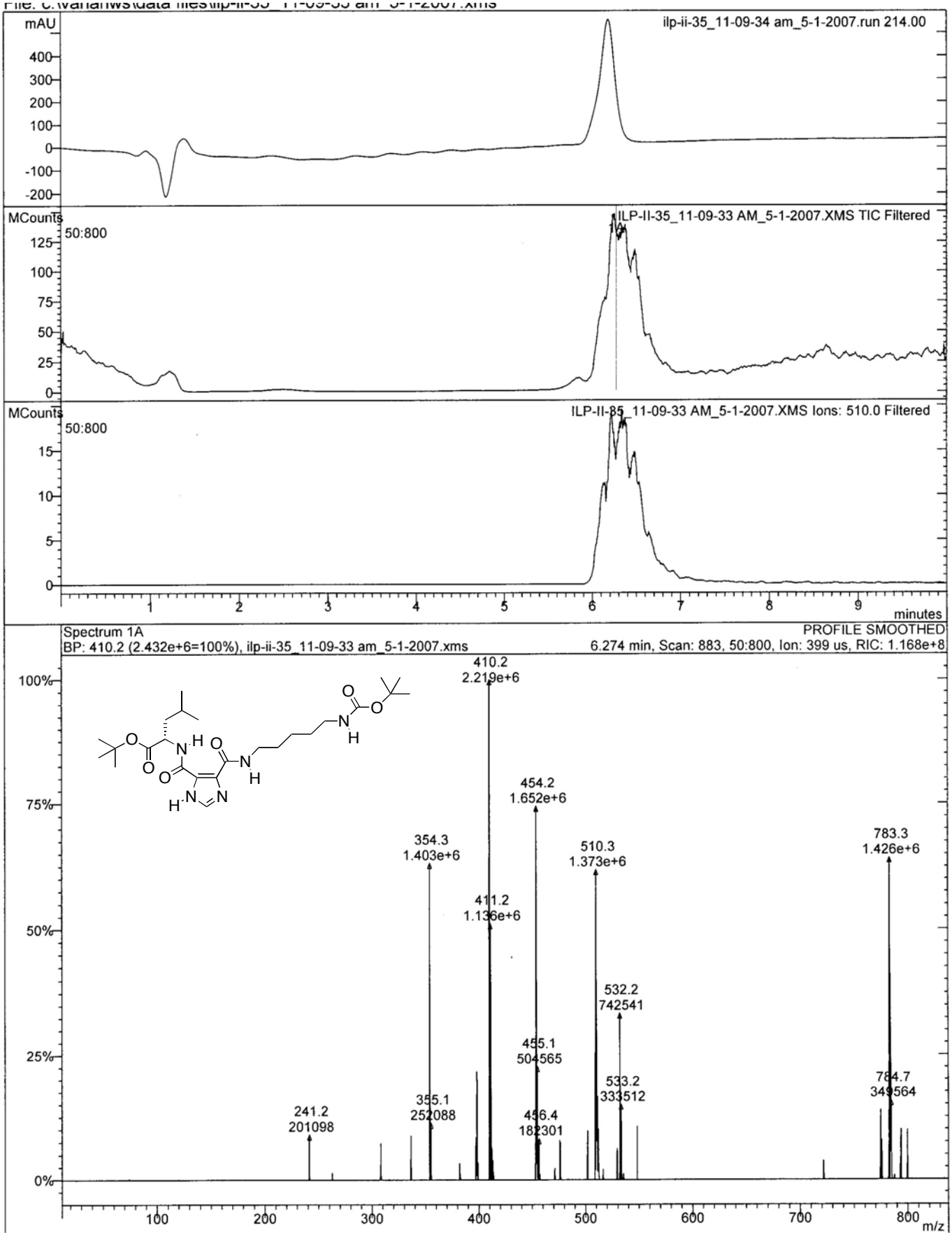

Figure S58. LC/MS data for **5{**58}.

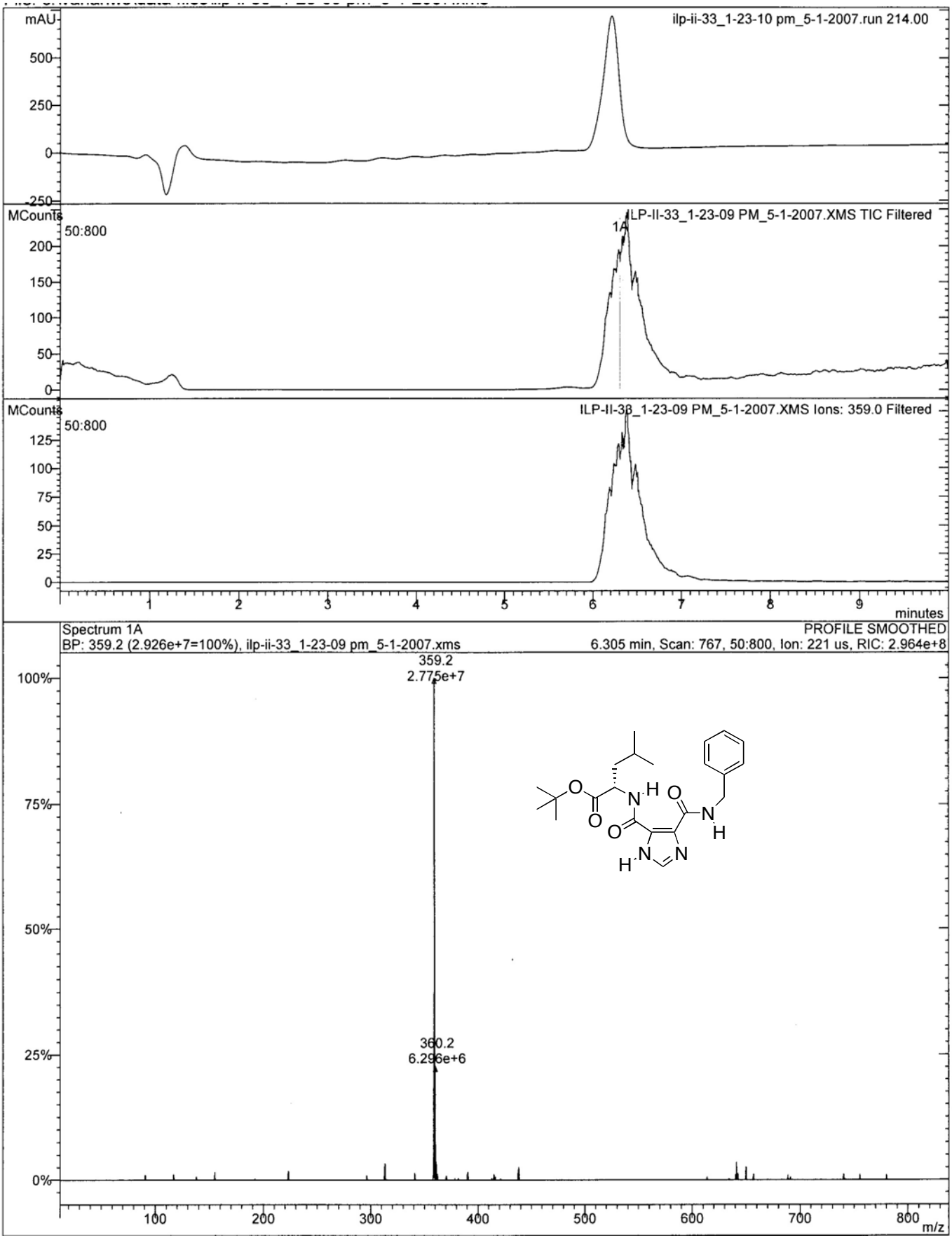

Figure S59. LC/MS data for **5{**59}.

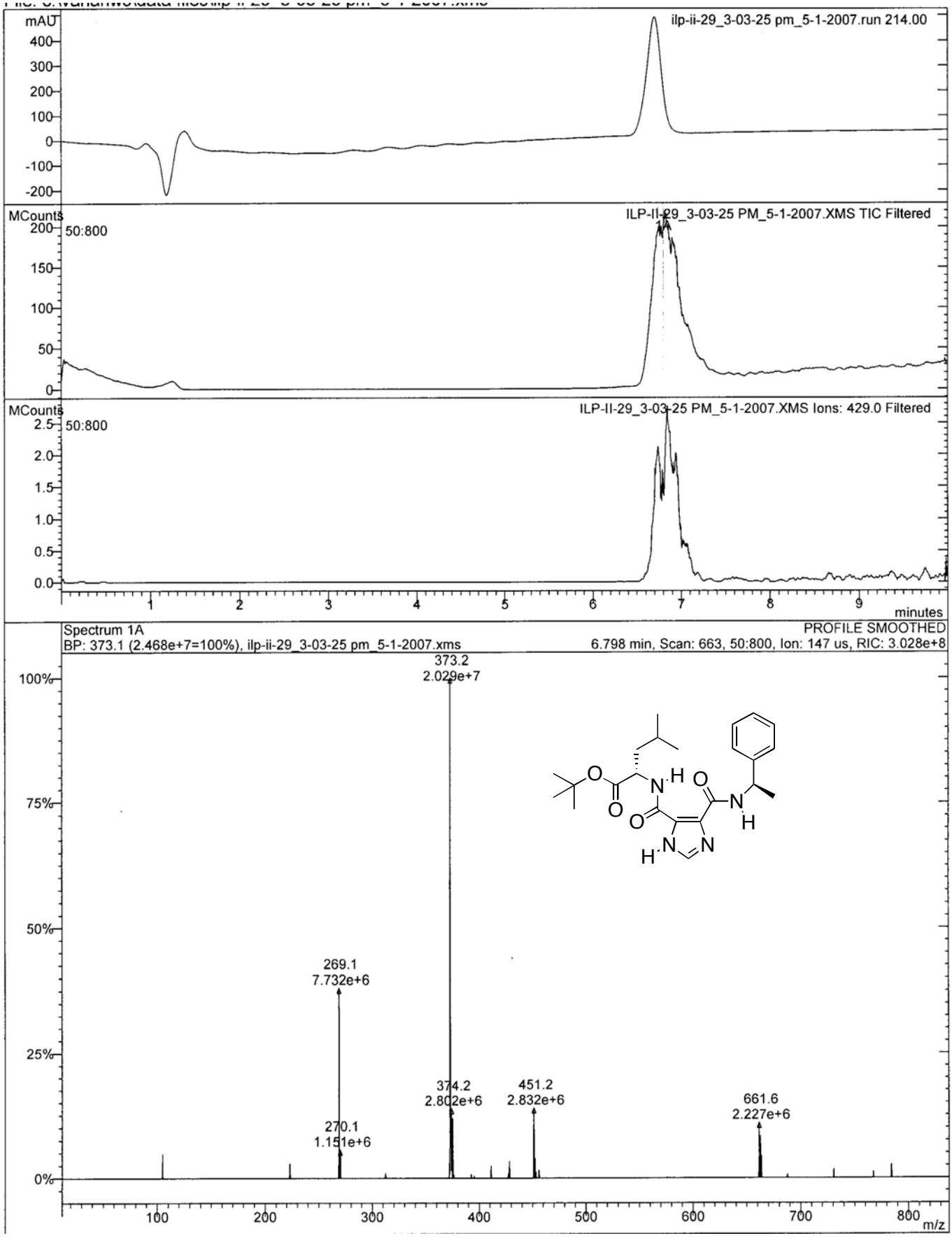

Figure S60. LC/MS data for **5{**60}.

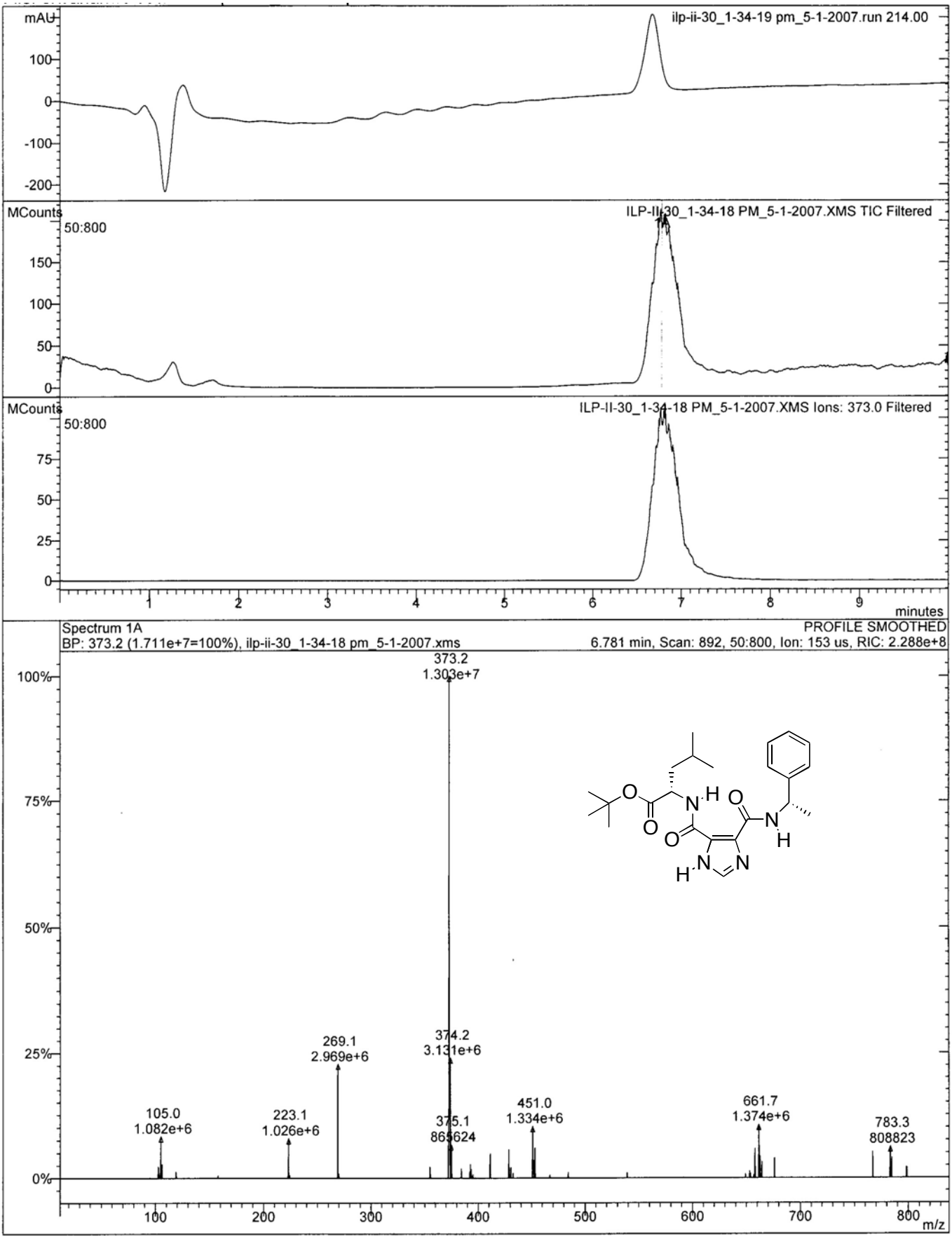

Figure S61. LC/MS data for **5{**61}.

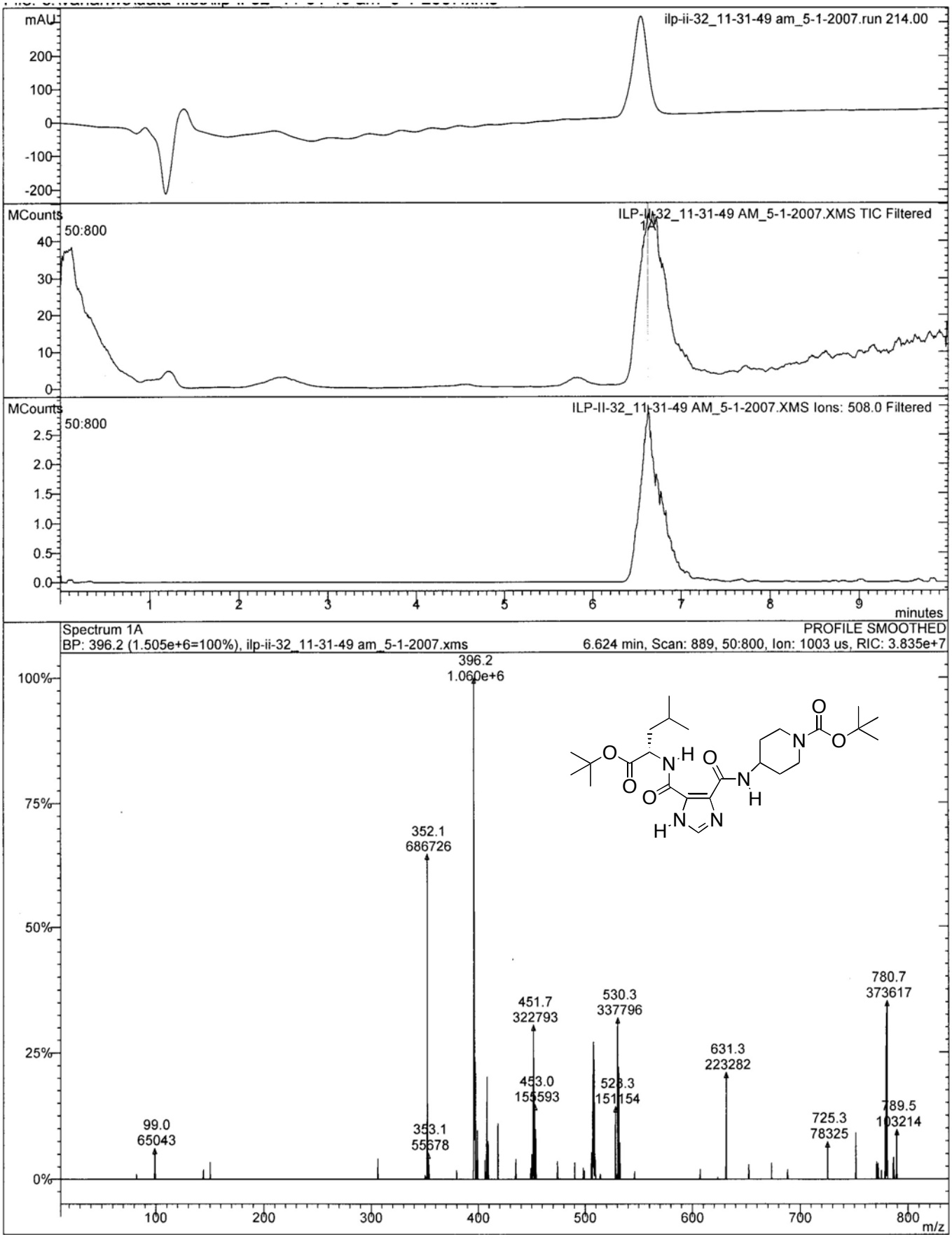

Figure S62. LC/MS data for **5{**62}.

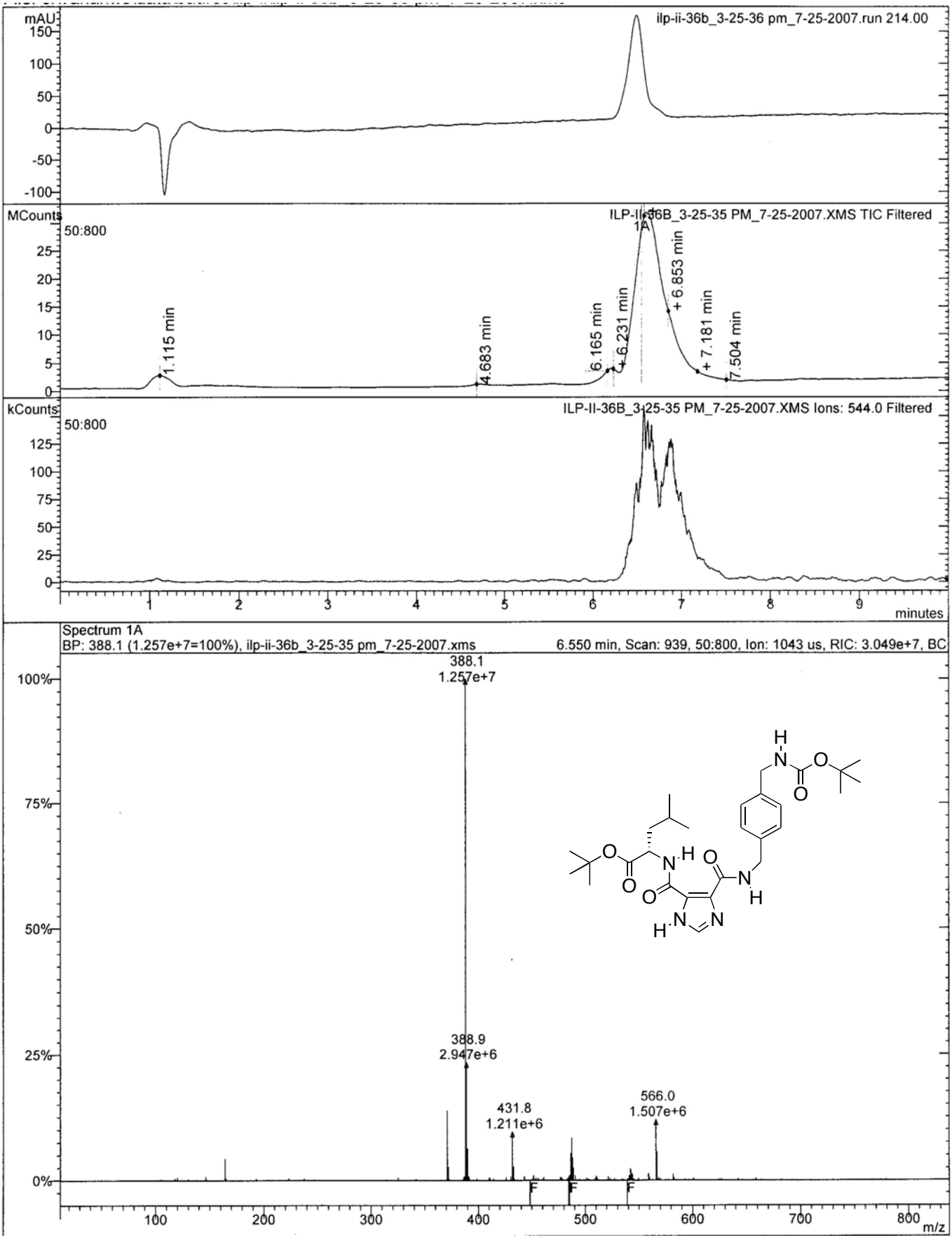

Figure S63. LC/MS data for **5{**63}.

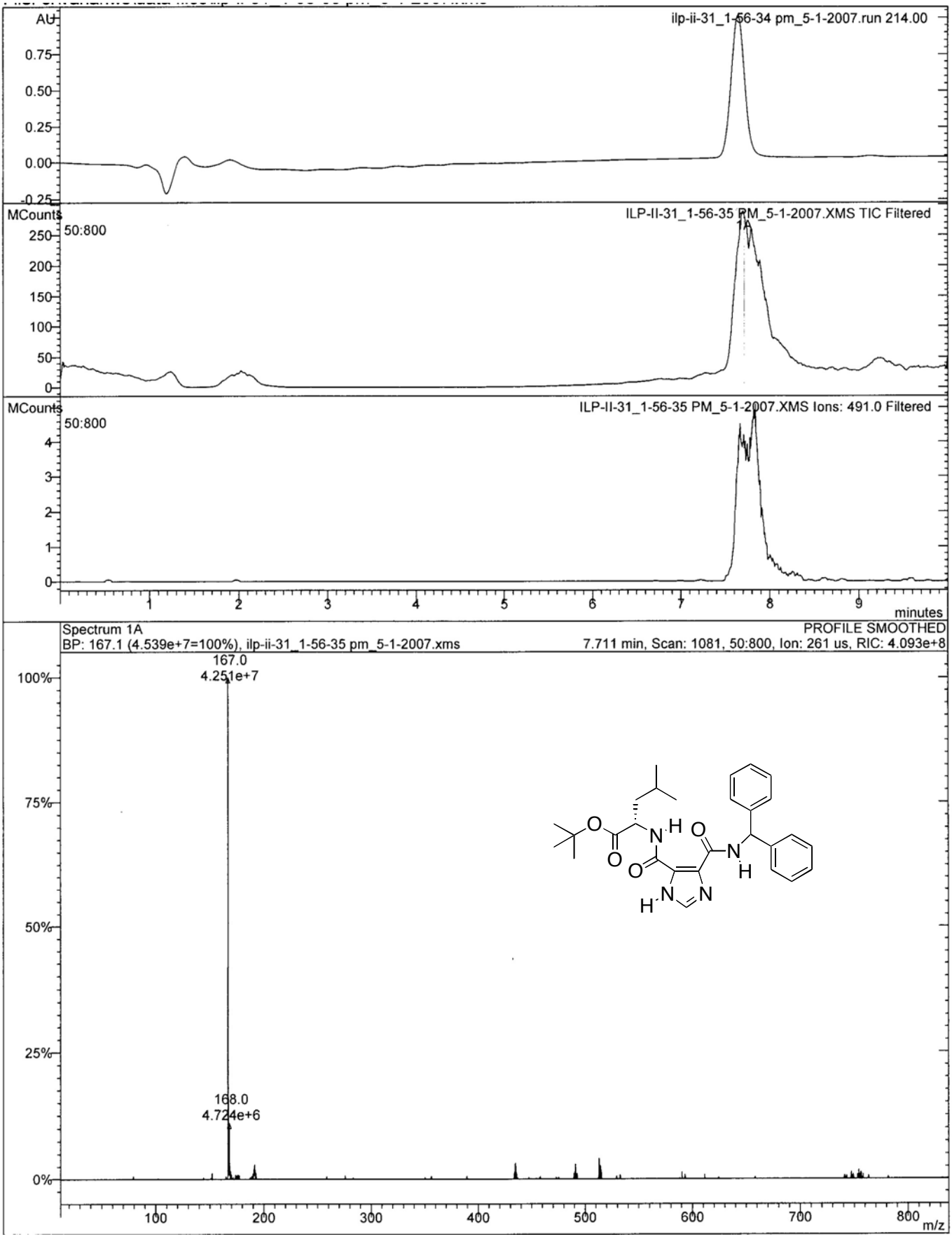

Figure S64. LC/MS data for **5{**64}.

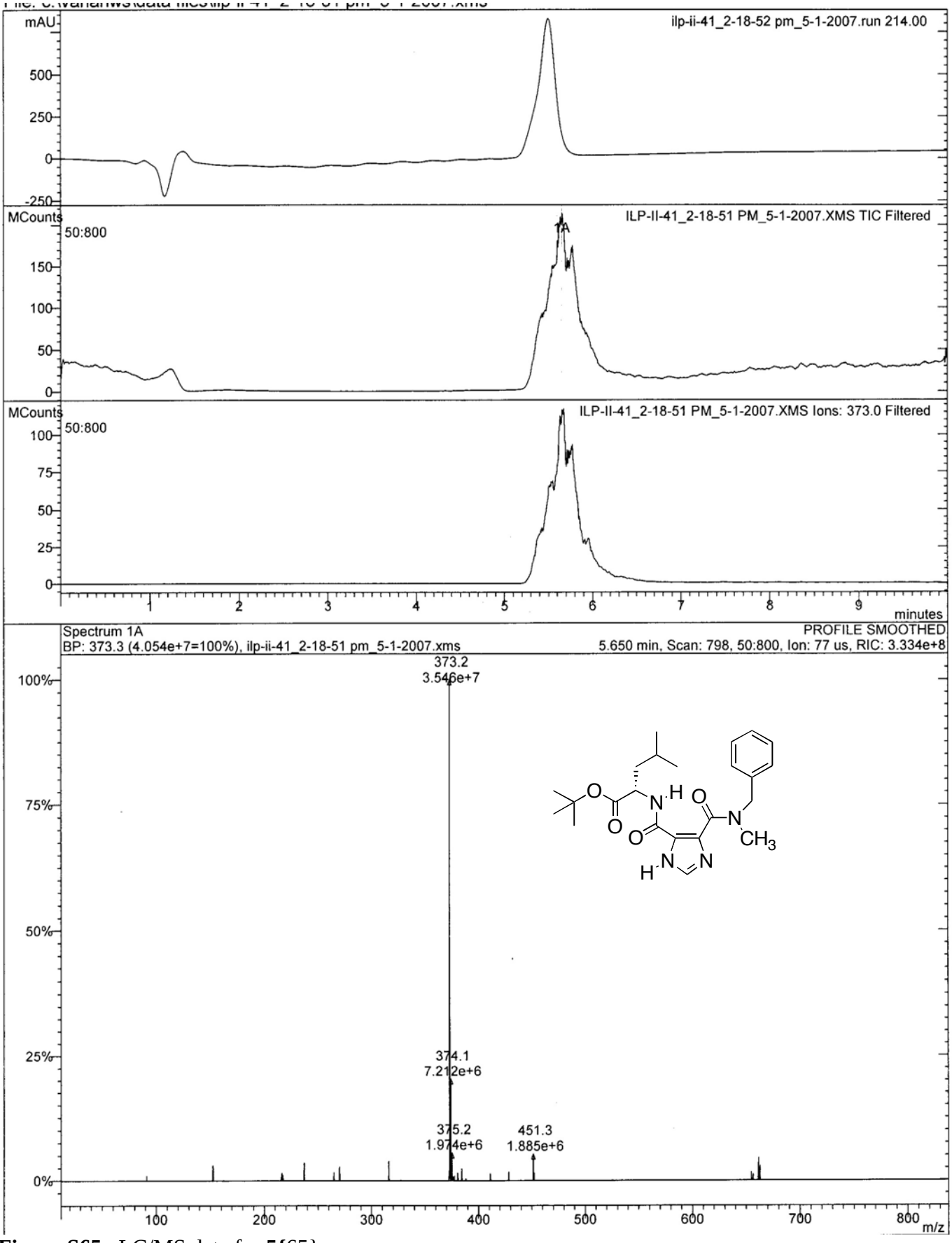

Figure S65. LC/MS data for **5{**65}.

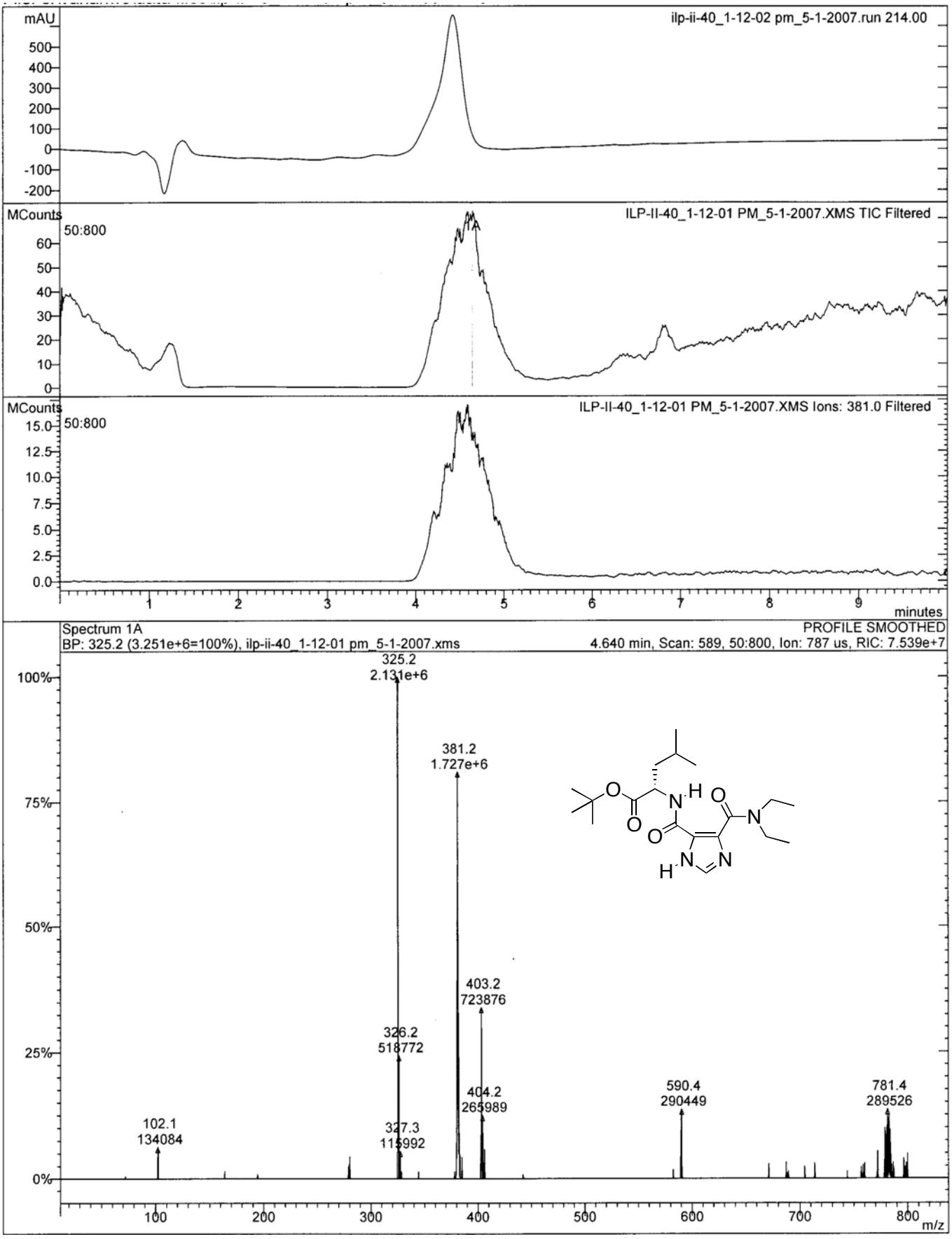

Figure S66. LC/MS data for **5{**66}.

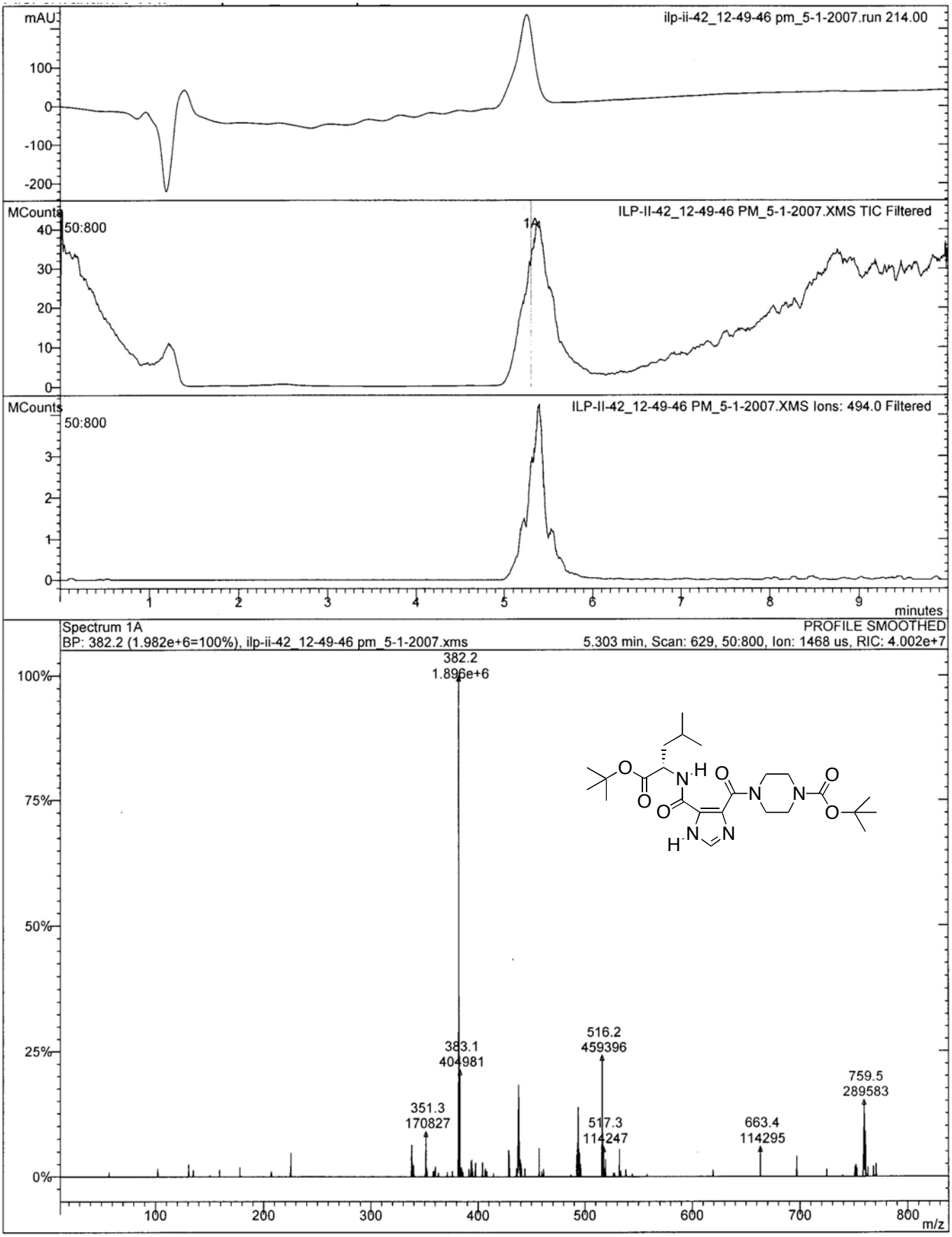

Figure S67. LC/MS data for **5{**67}.

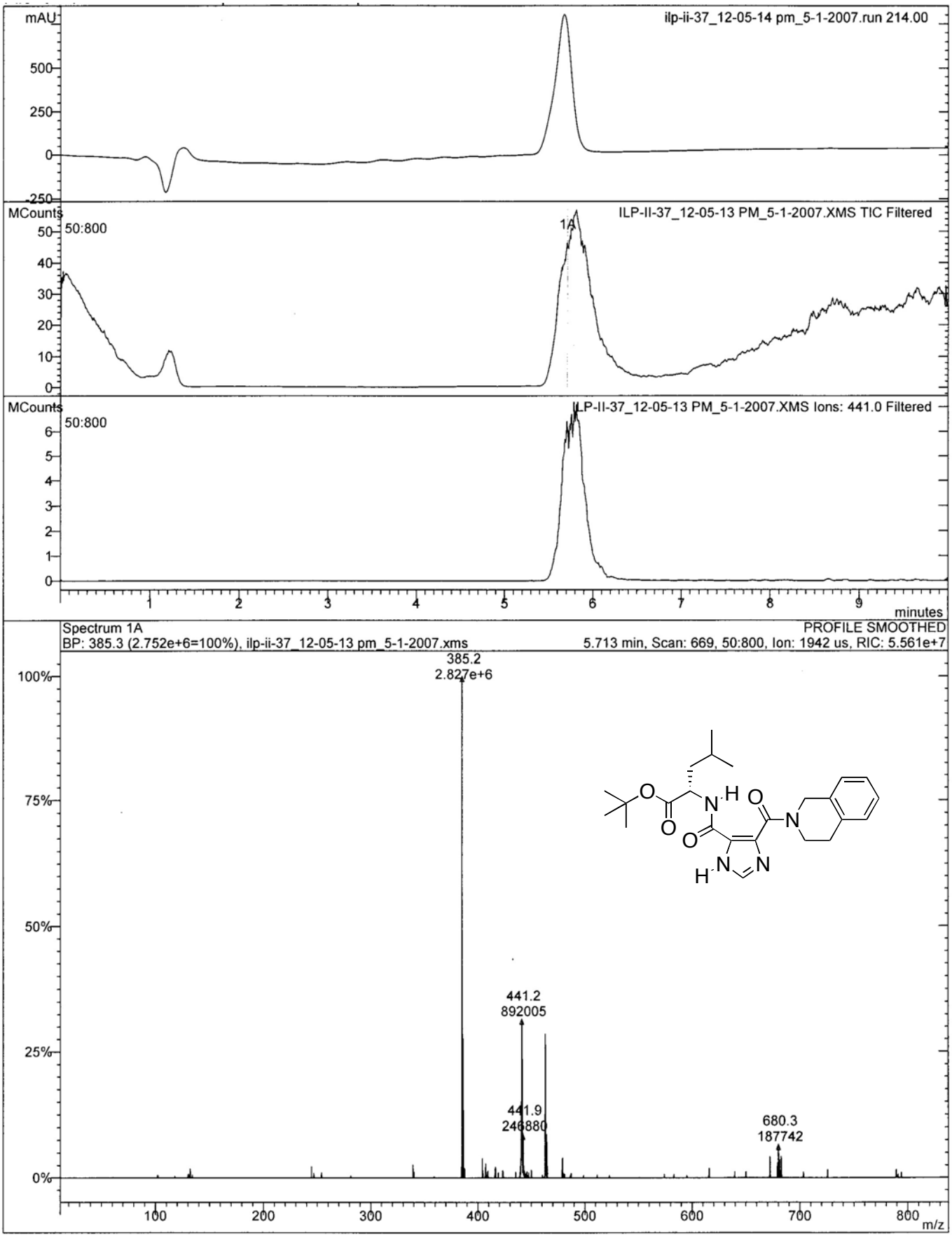

Figure S68. LC/MS data for **5{**68}.

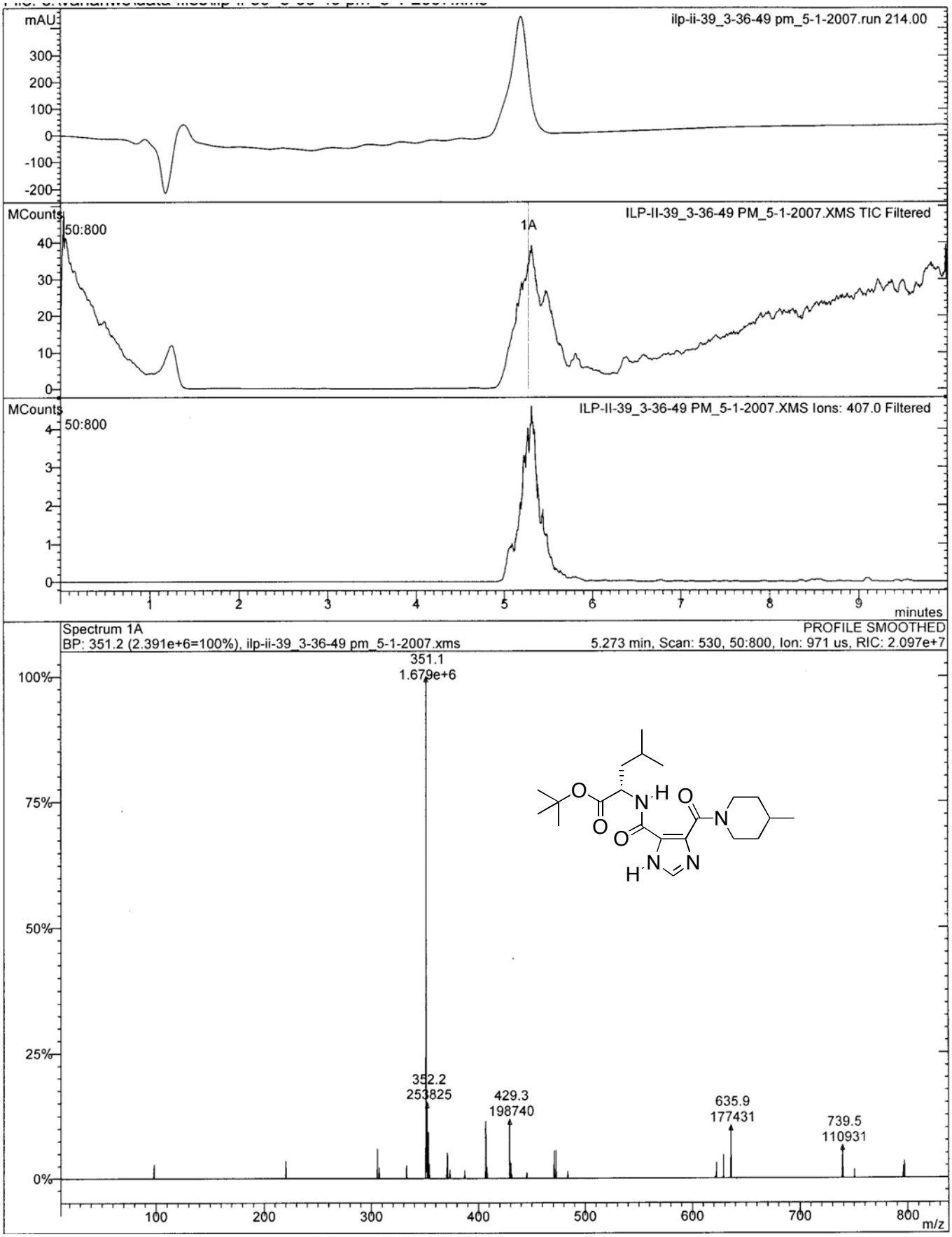

Figure S69. LC/MS data for **5{**69}.

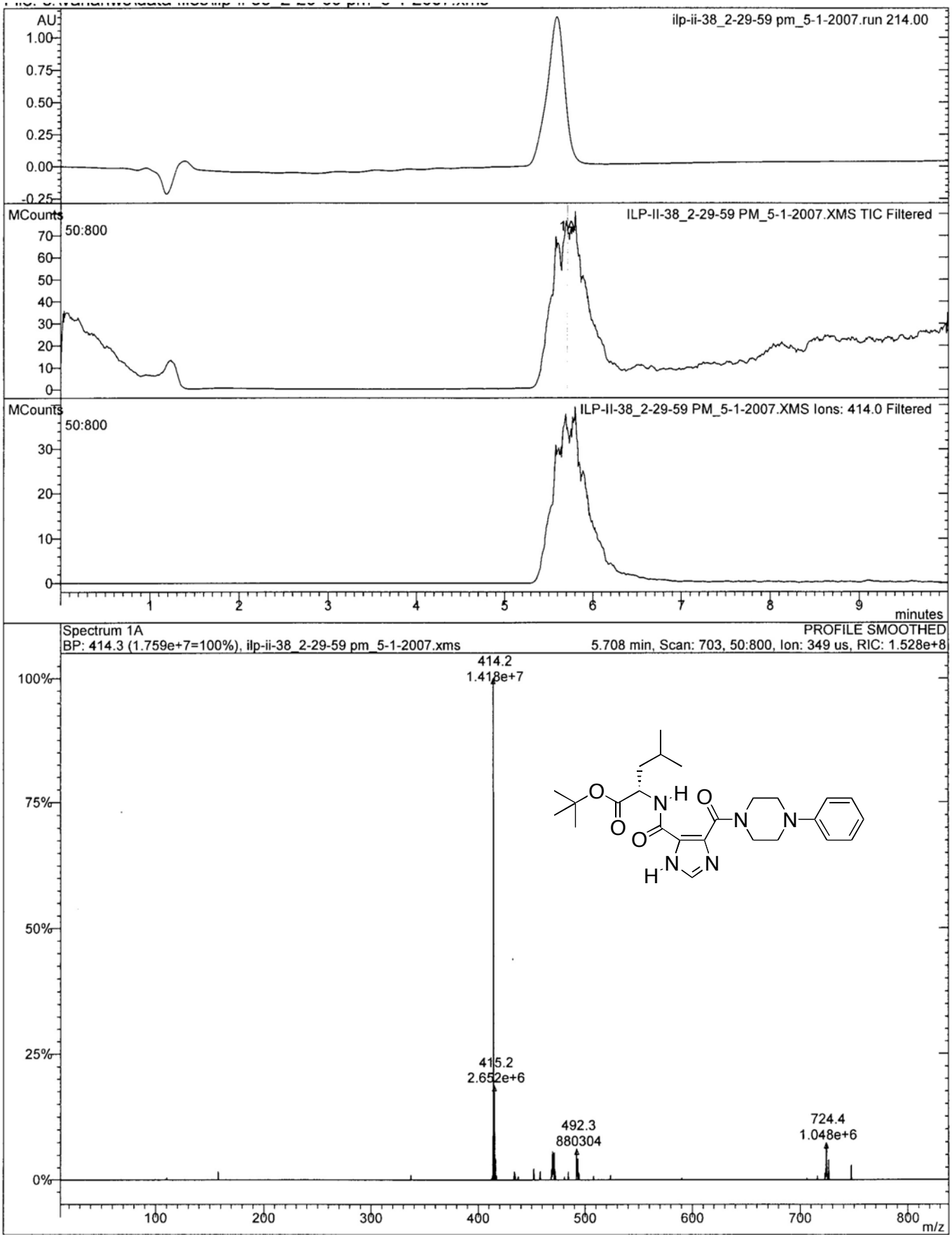

Figure S70. LC/MS data for **5{**70}.

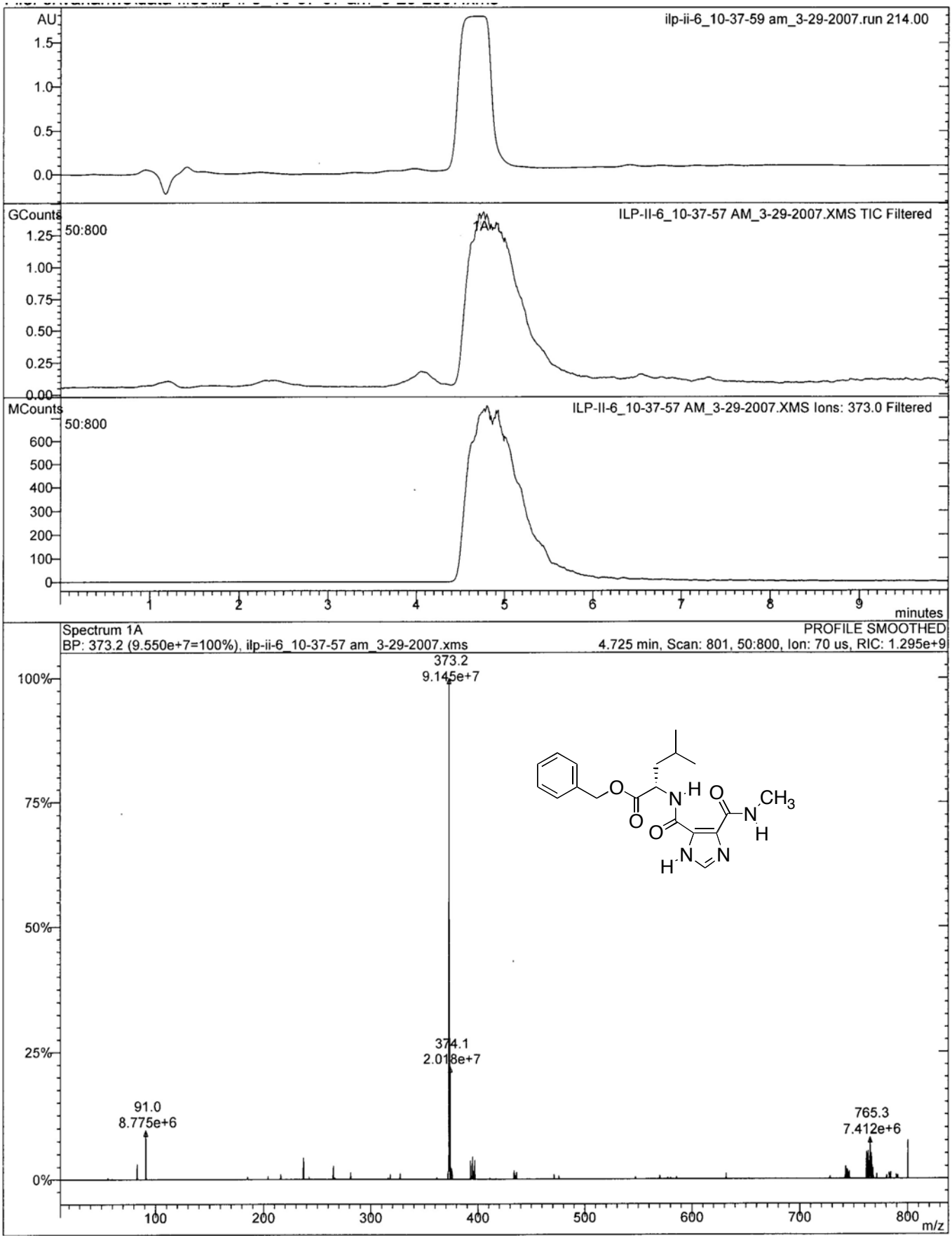

Figure S71. LC/MS data for **5{**71}.

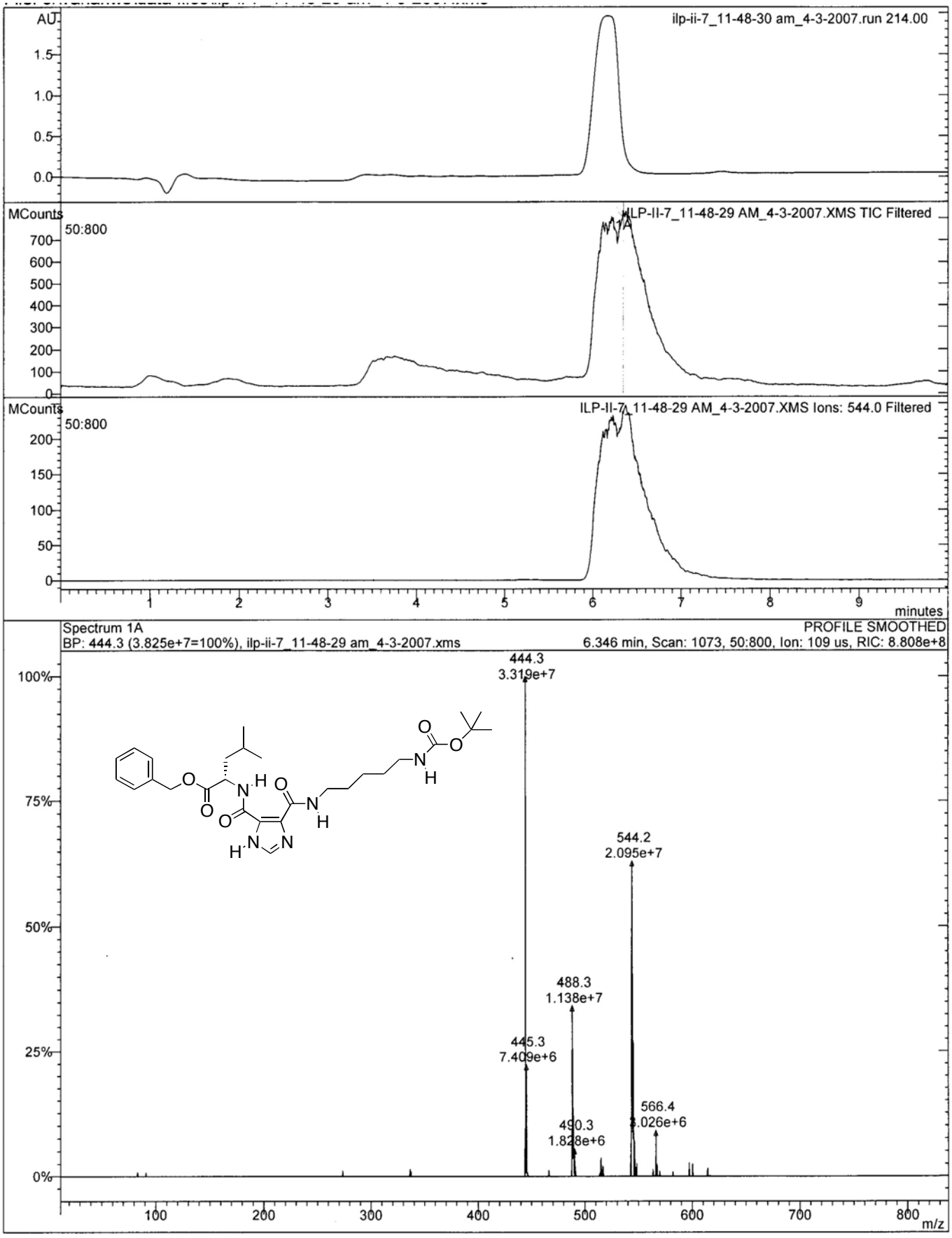

Figure S72. LC/MS data for **5{**72}.

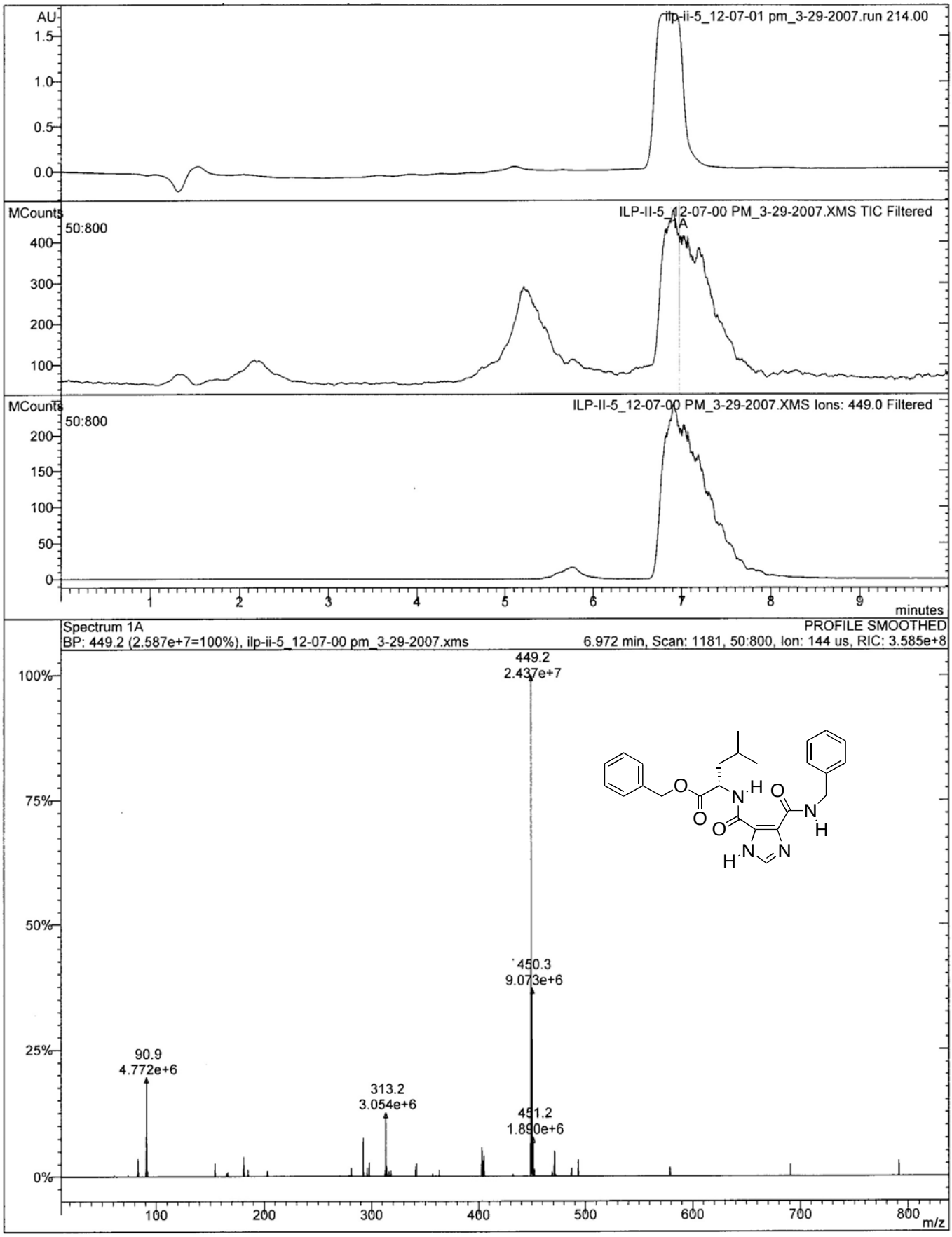

Figure S73. LC/MS data for **5{**73}.

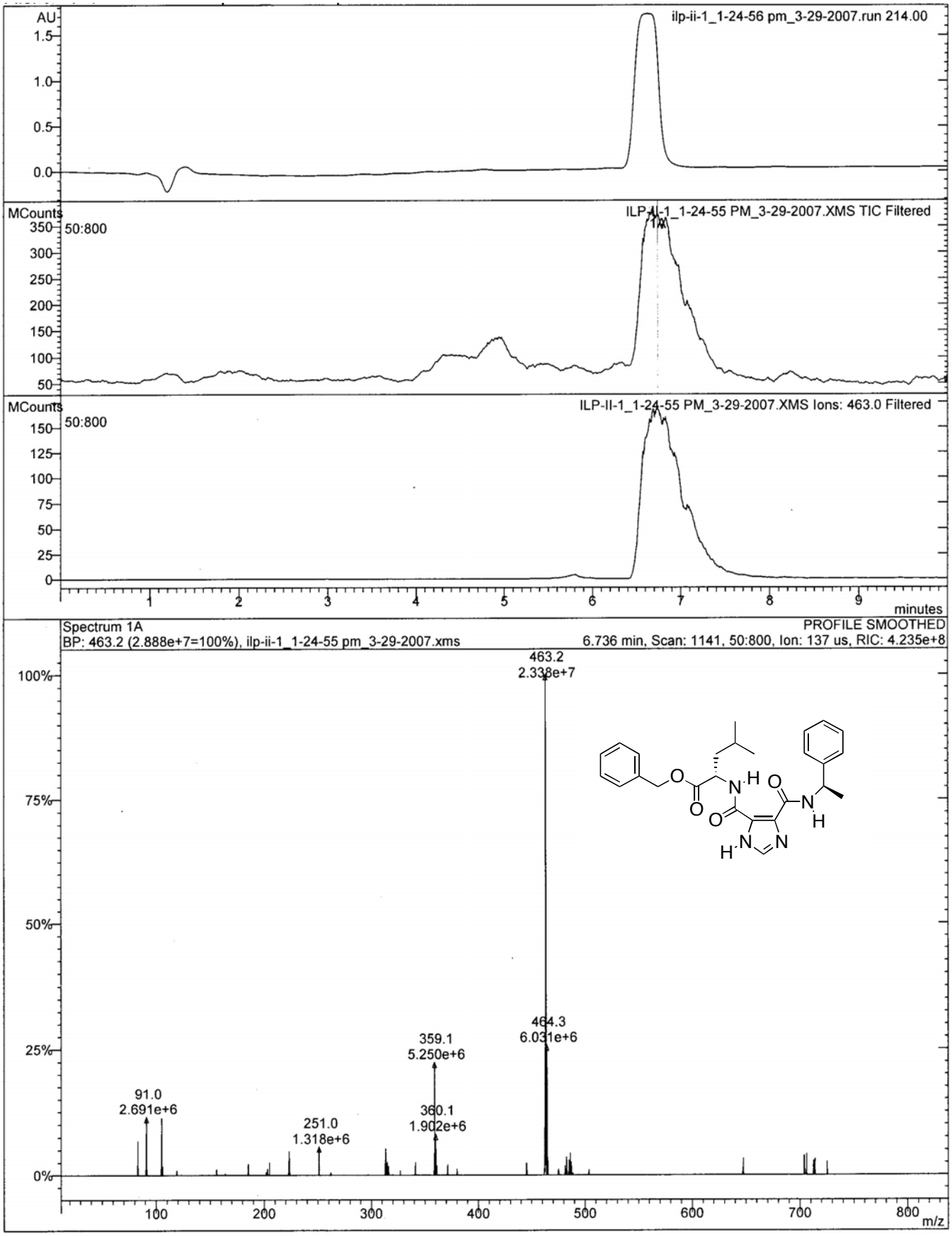

Figure S74. LC/MS data for **5{**74}.

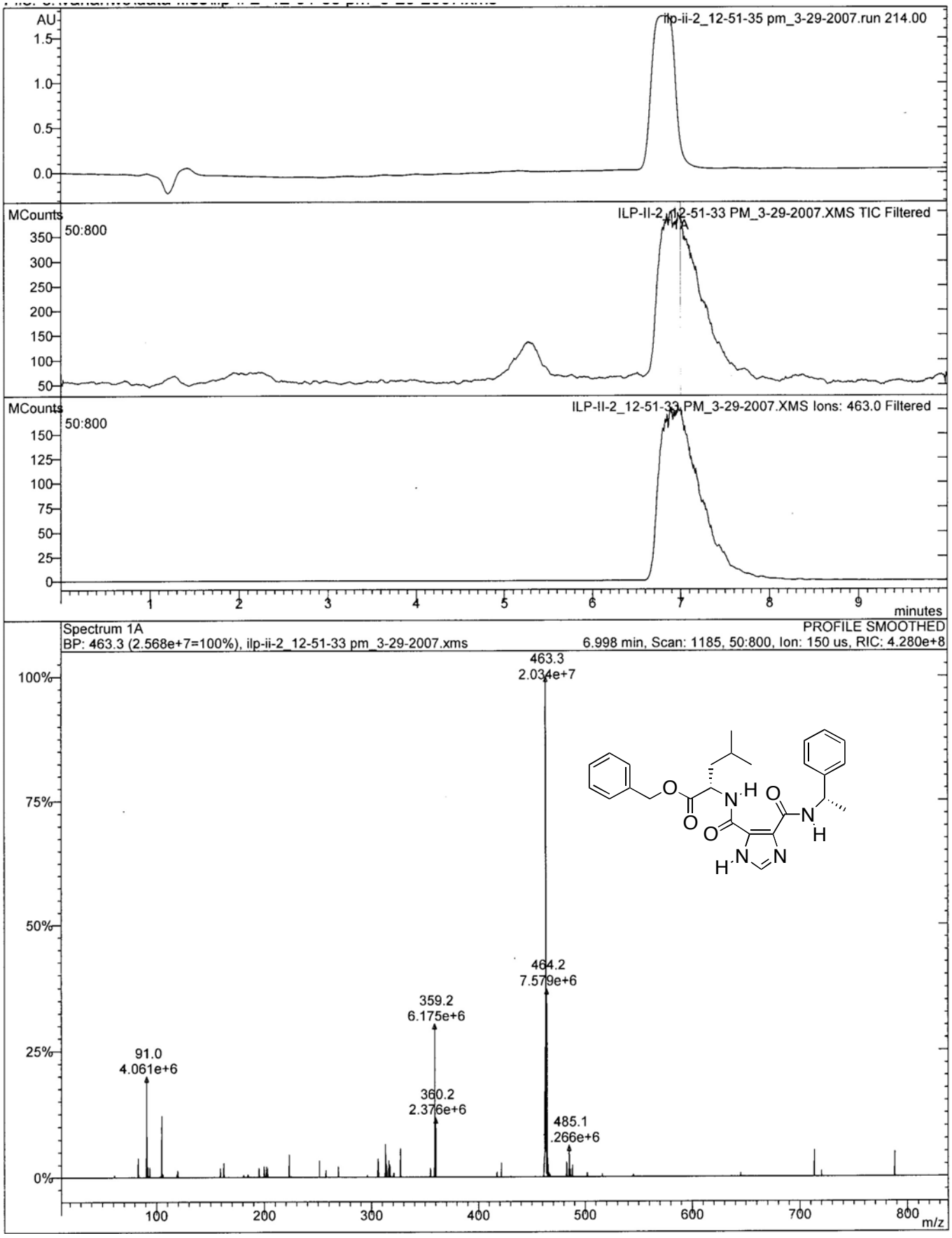

Figure S75. LC/MS data for **5{**75}.

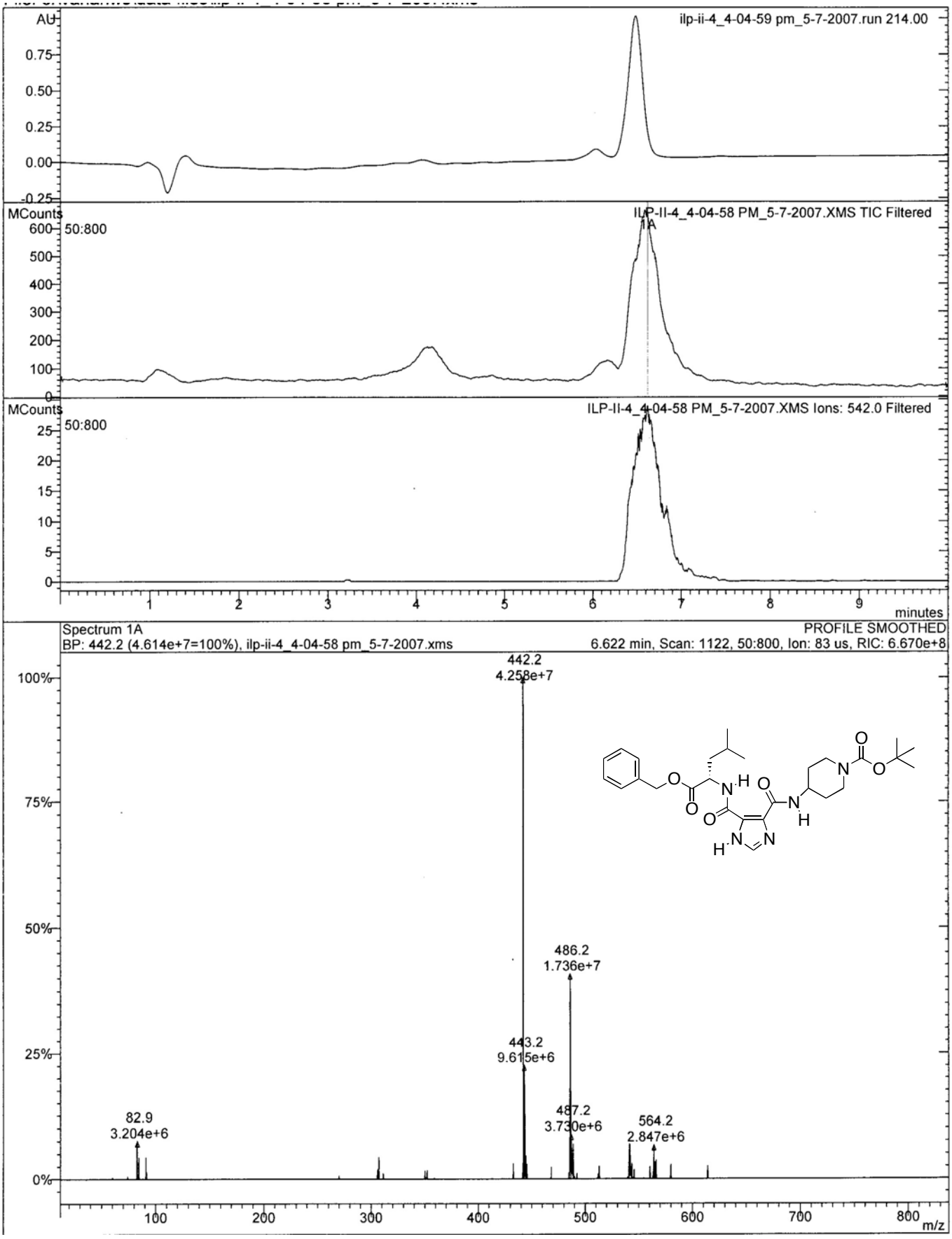

Figure S76. LC/MS data for **5{**76}.

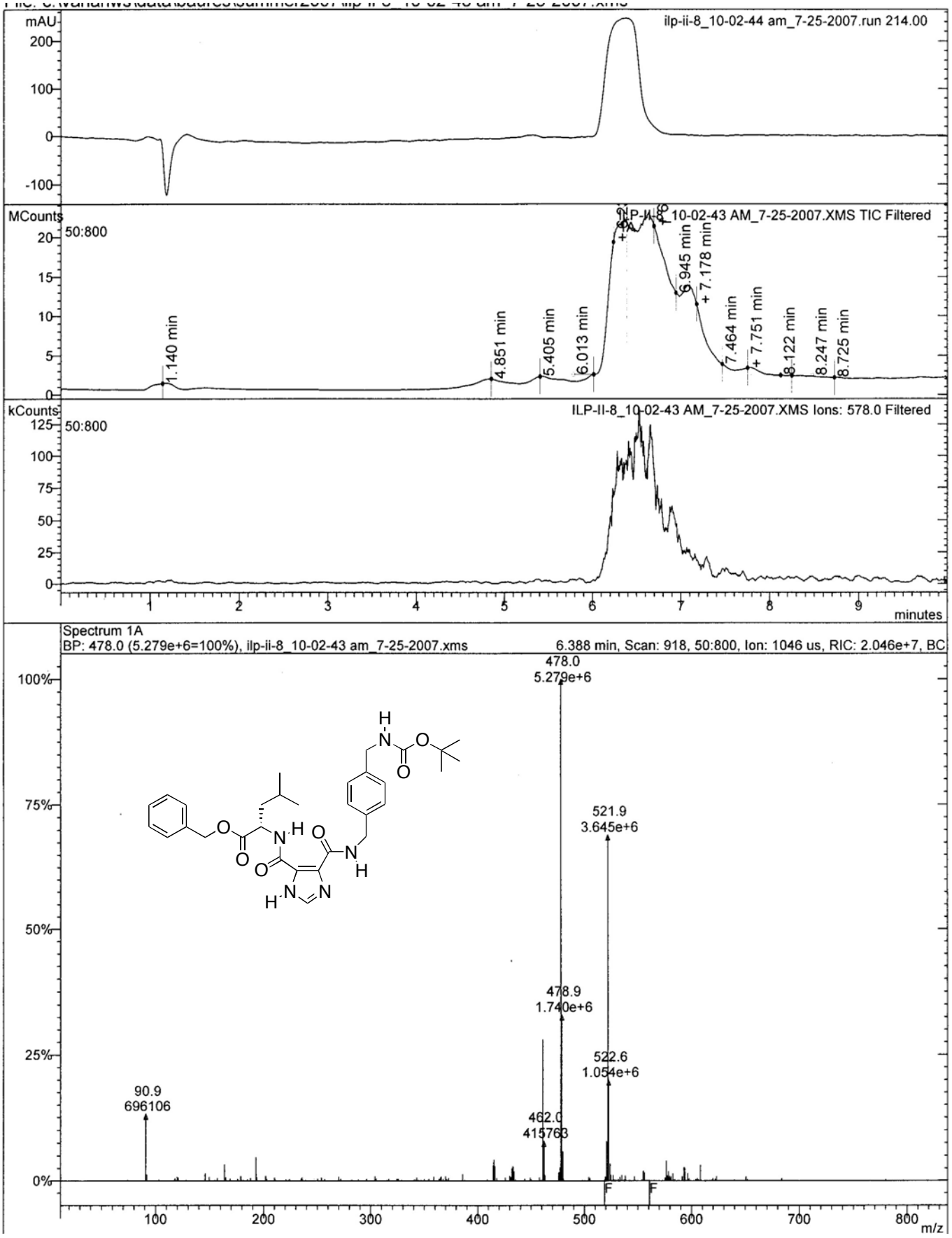

Figure S77. LC/MS data for **5{**77}.

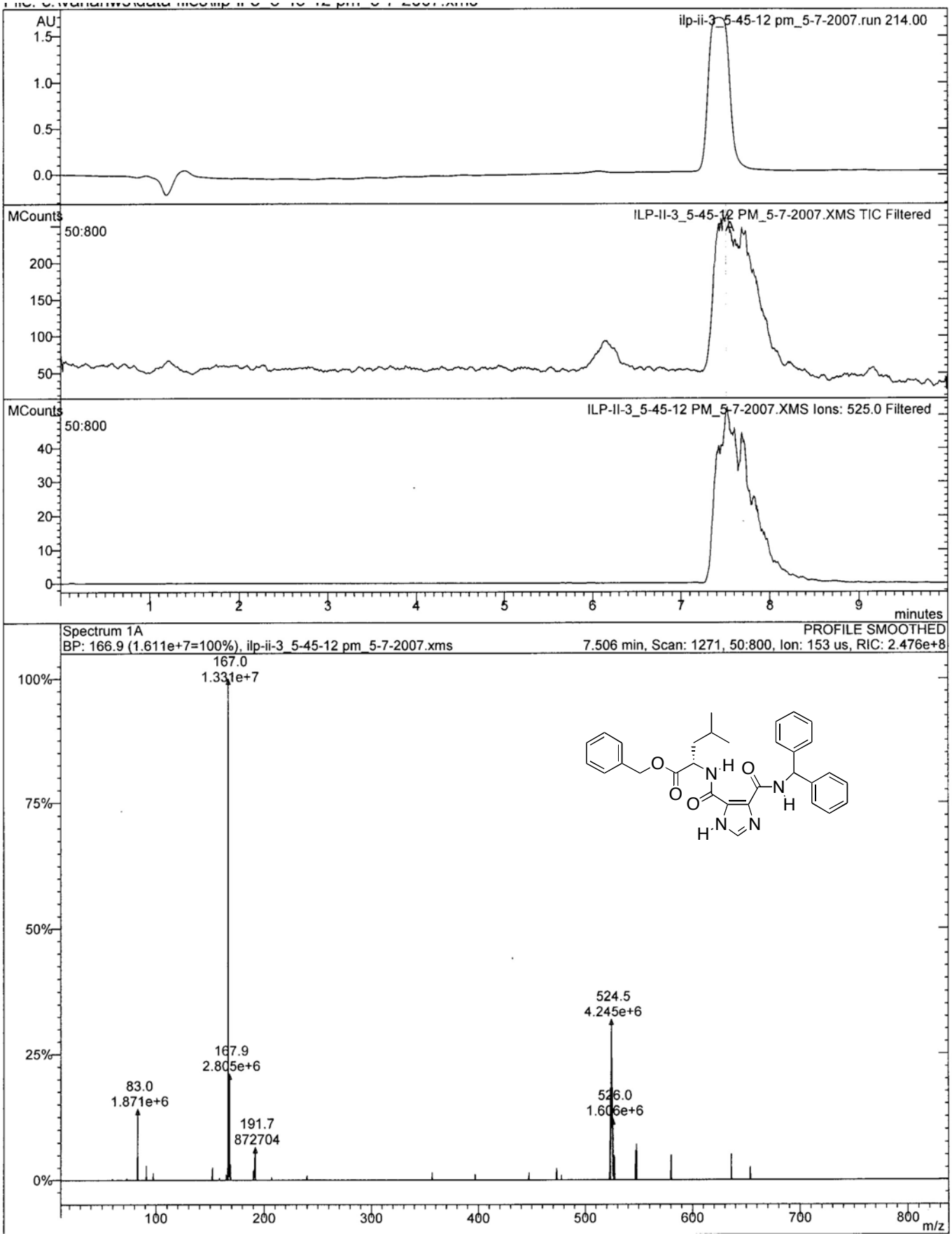

Figure S78. LC/MS data for **5{**78}.

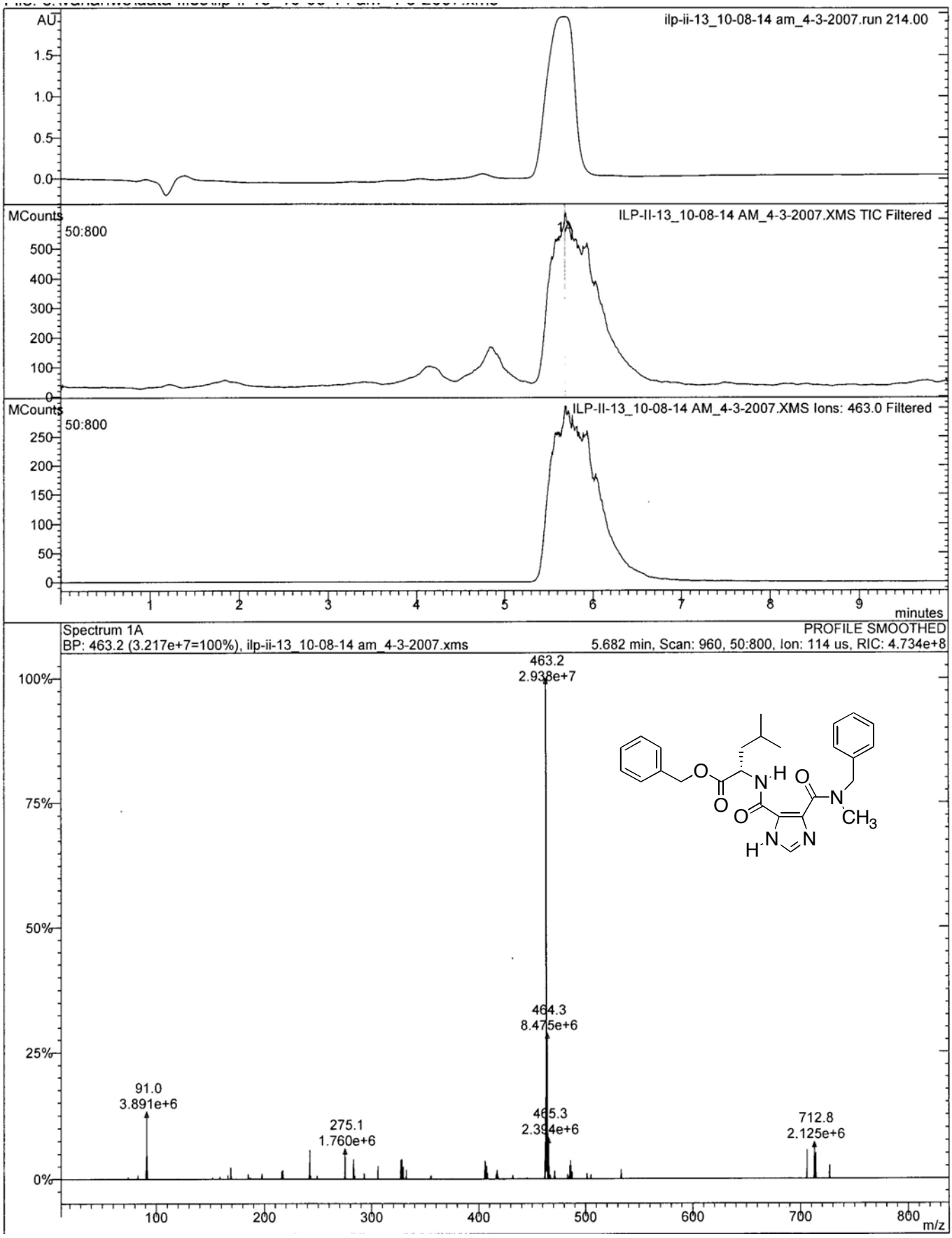

Figure S79. LC/MS data for **5{**79}.

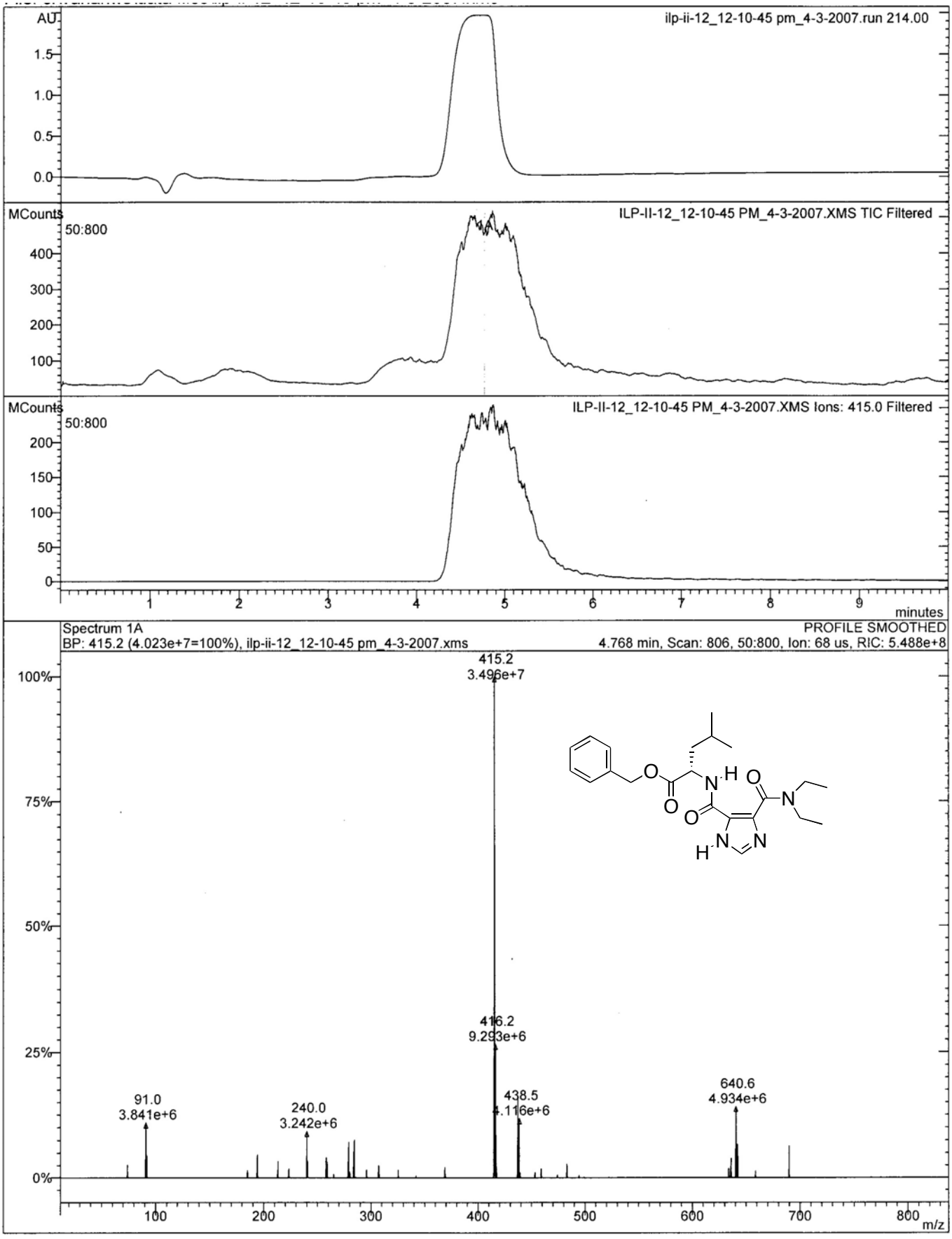

Figure S80. LC/MS data for **5{**80}.

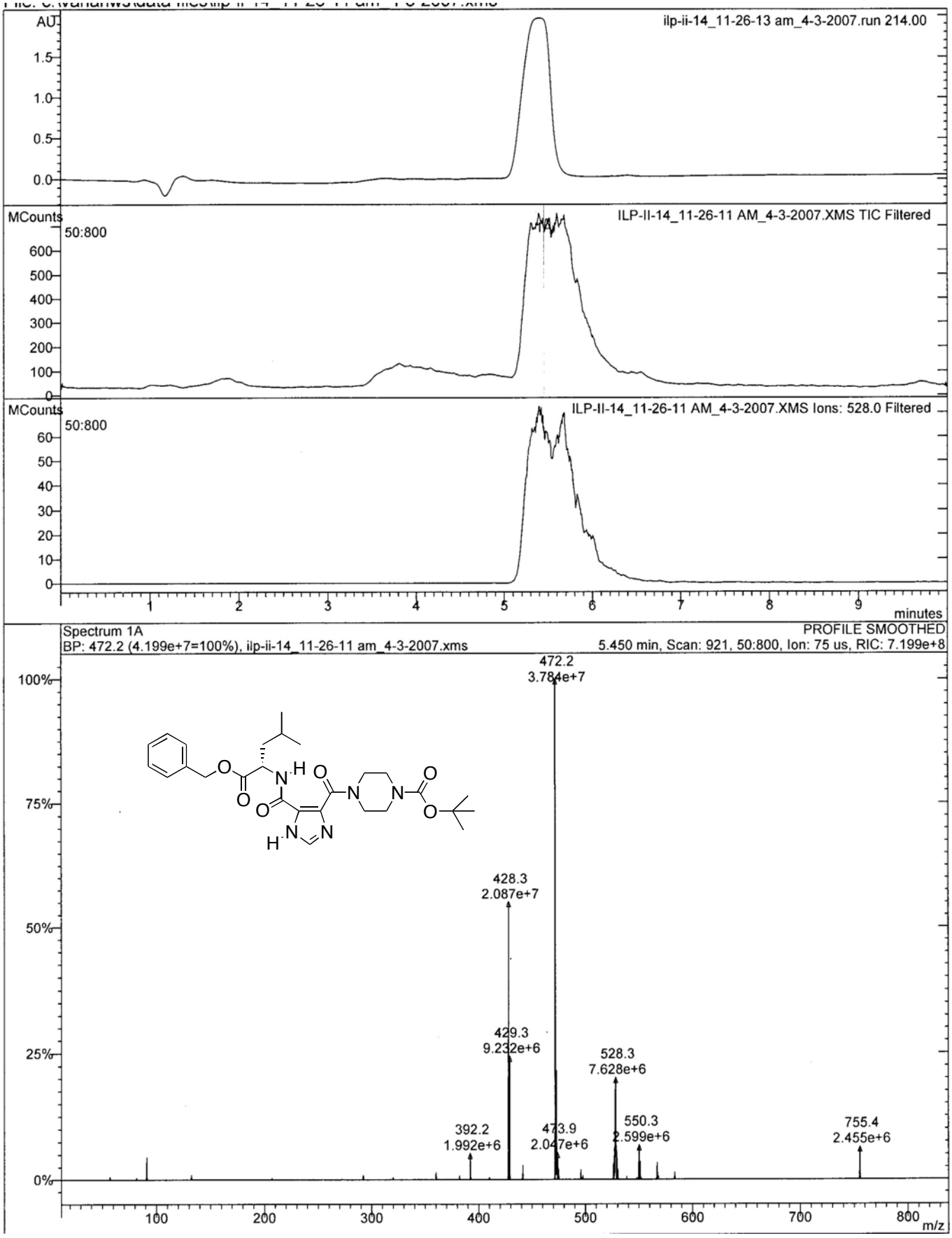

Figure S81. LC/MS data for **5{**81}.

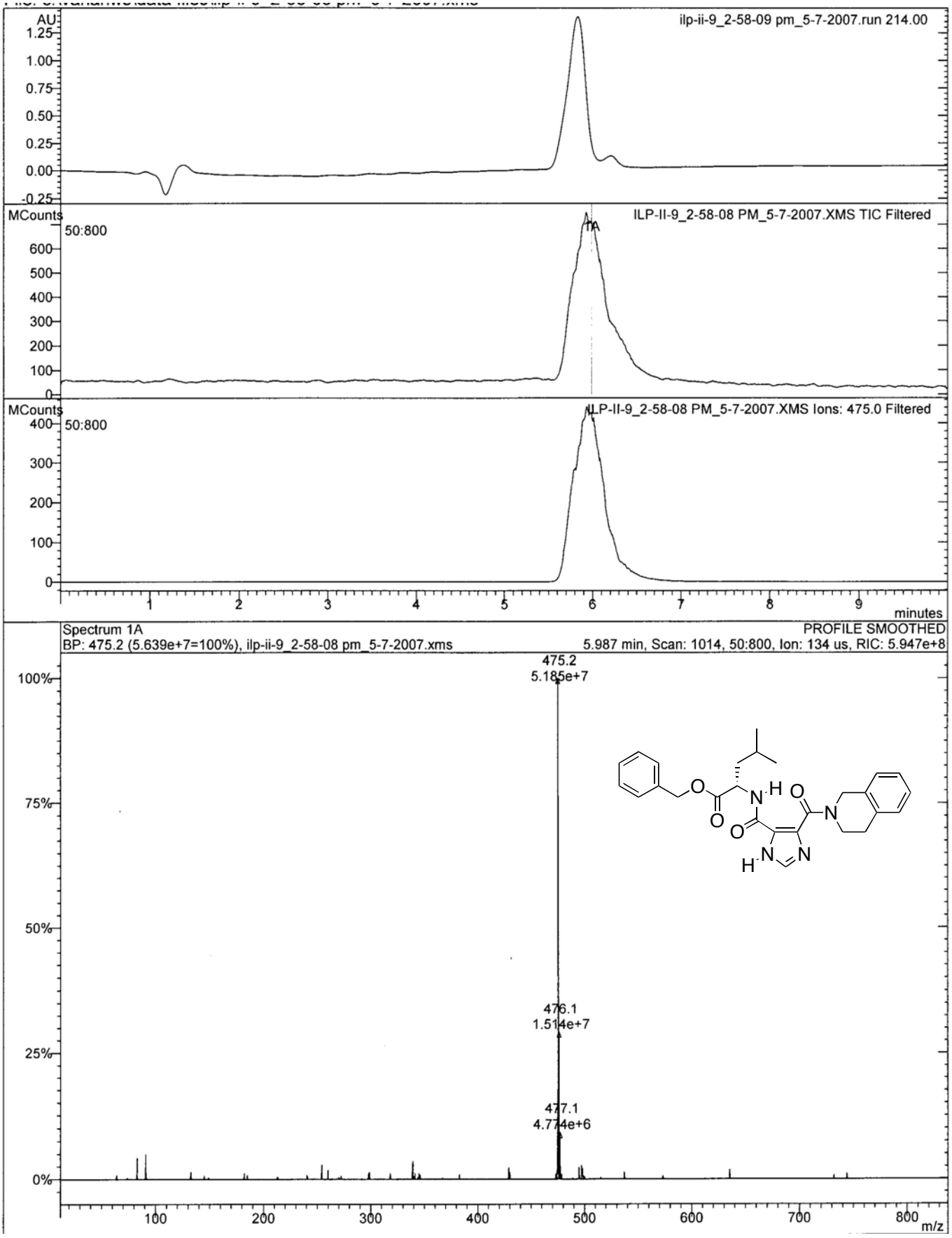

Figure S82. LC/MS data for **5{**82}.

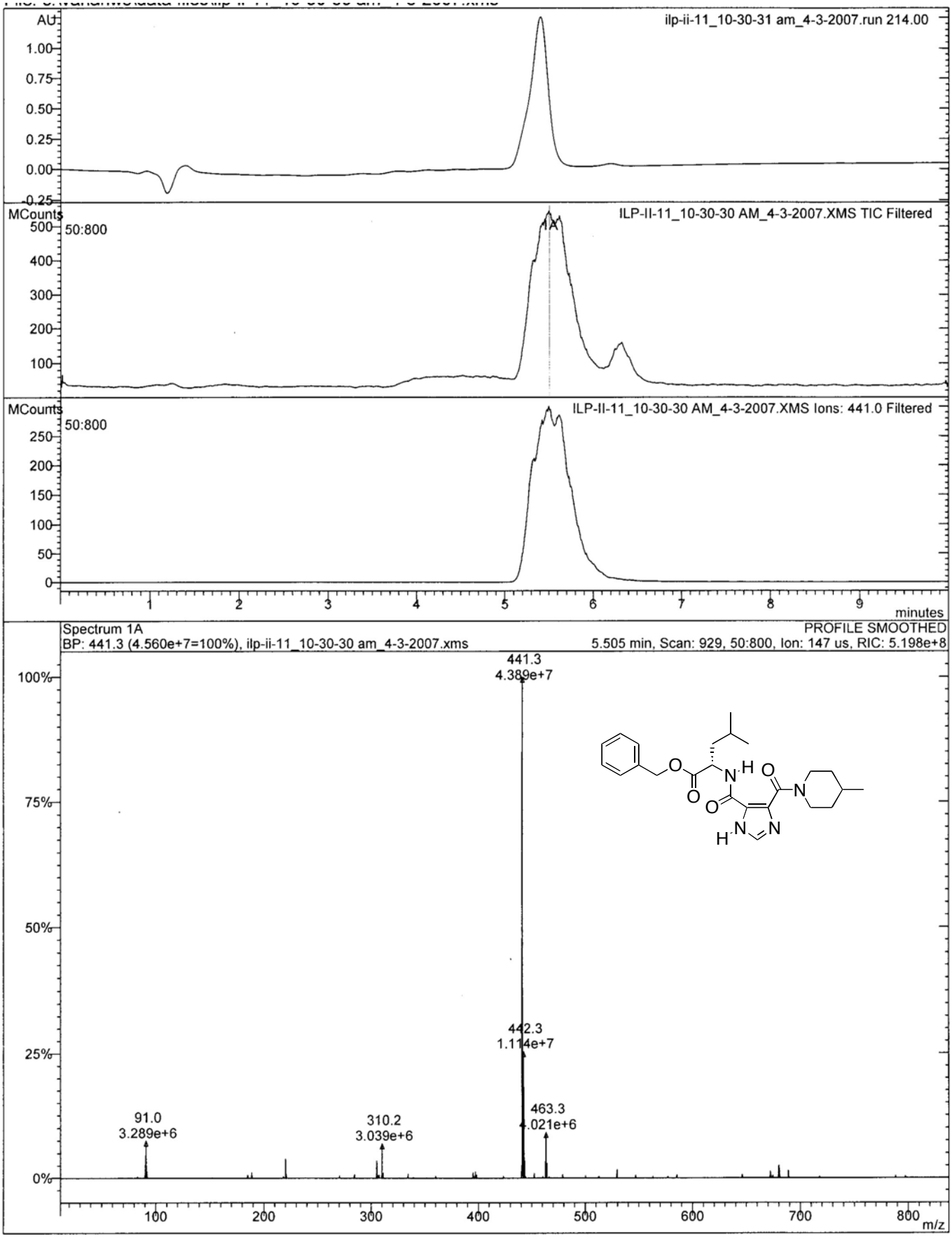

Figure S83. LC/MS data for **5{**83}.

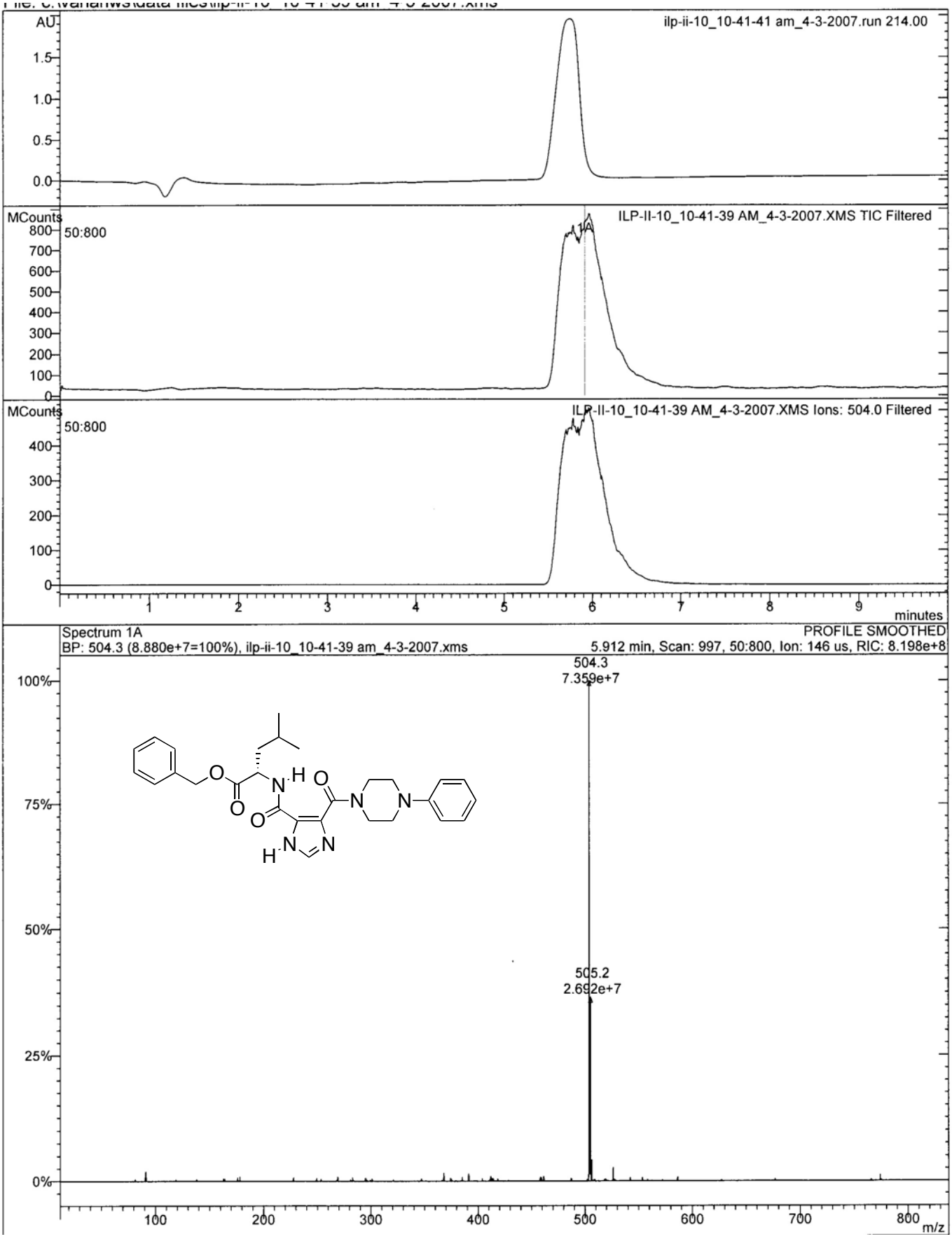

Figure S84. LC/MS data for **5{**84}.

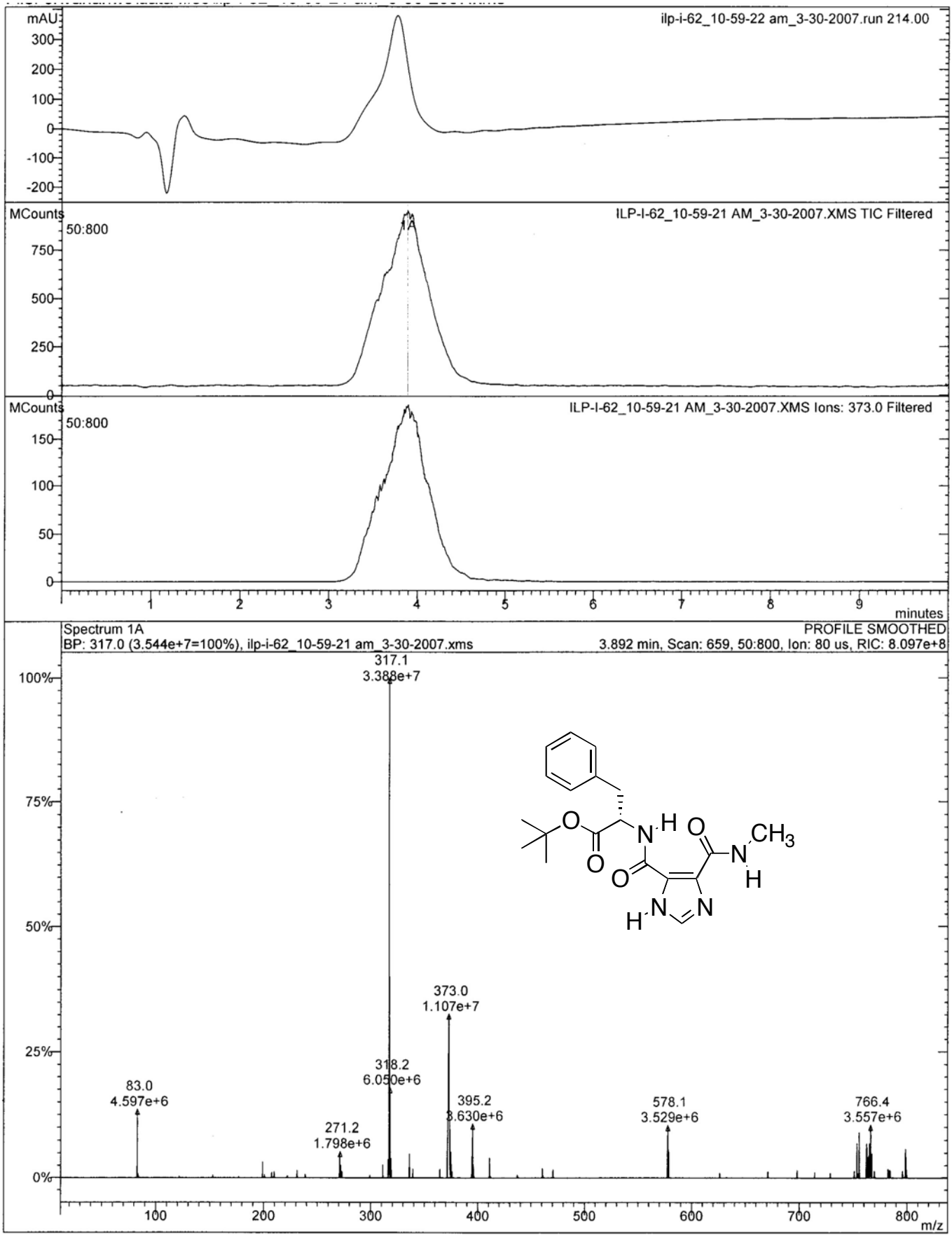

Figure S85. LC/MS data for **5{**85}.

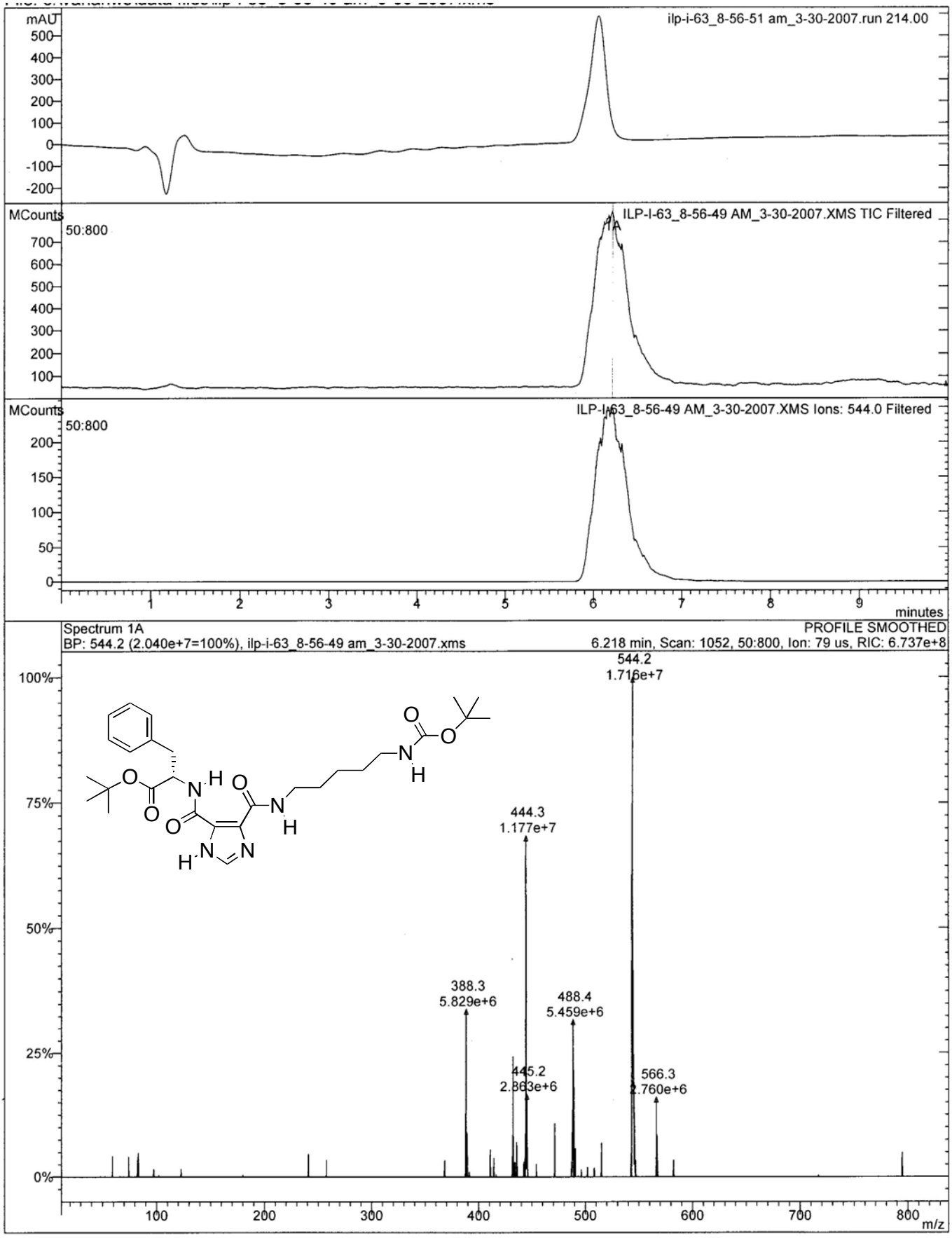

Figure S86. LC/MS data for **5{**86}.

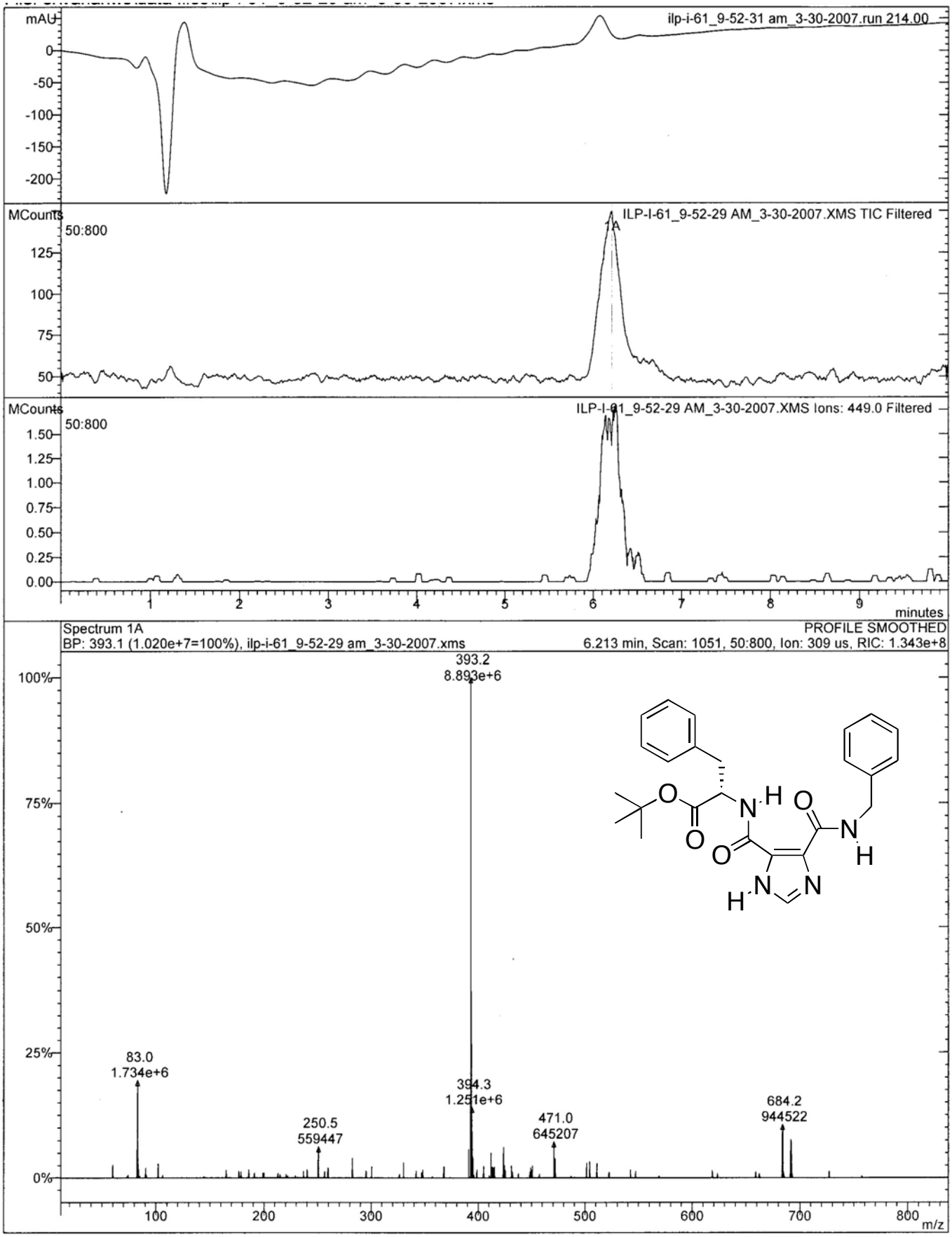

Figure S87. LC/MS data for **5{**87}.

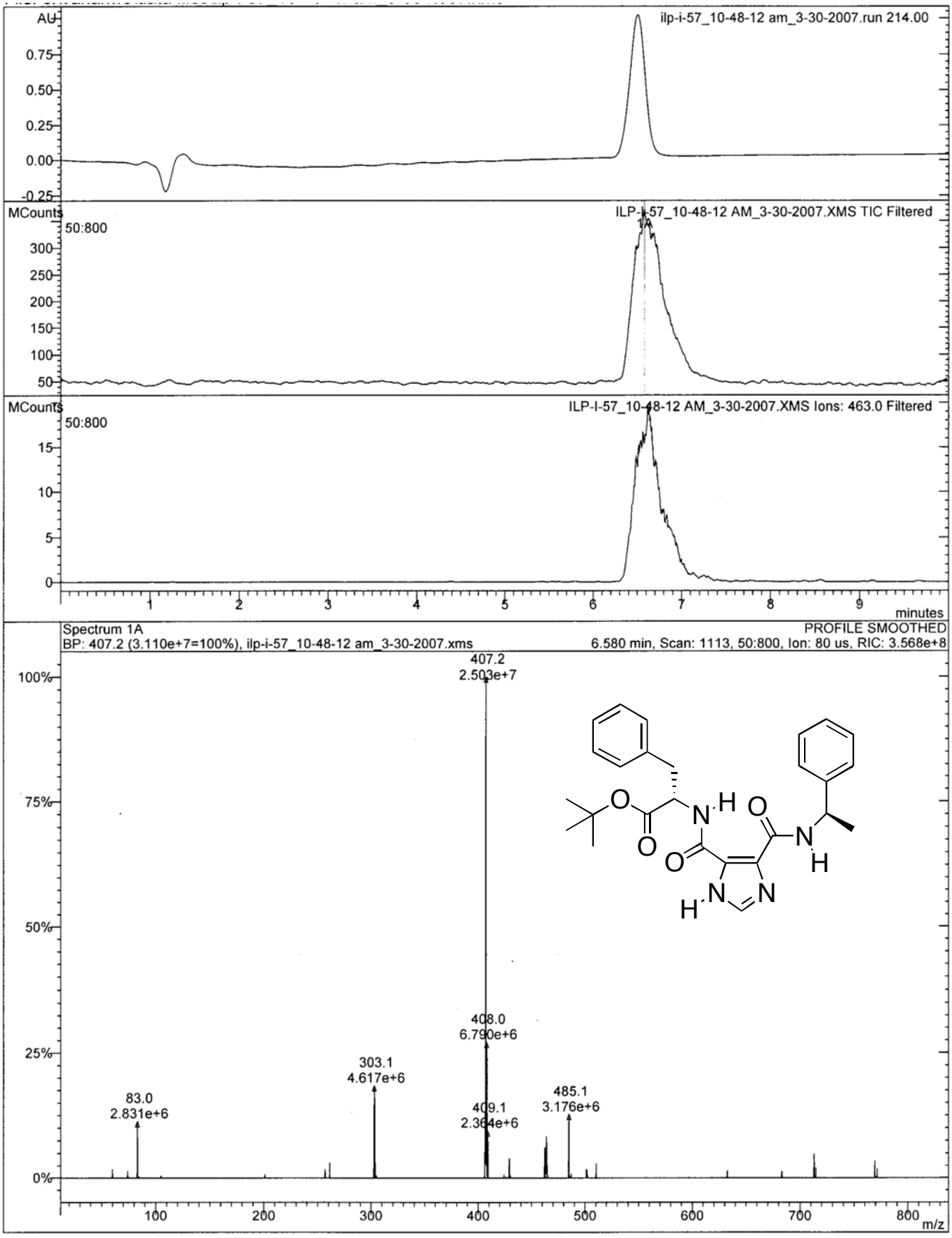

Figure S88. LC/MS data for **5{**88}.

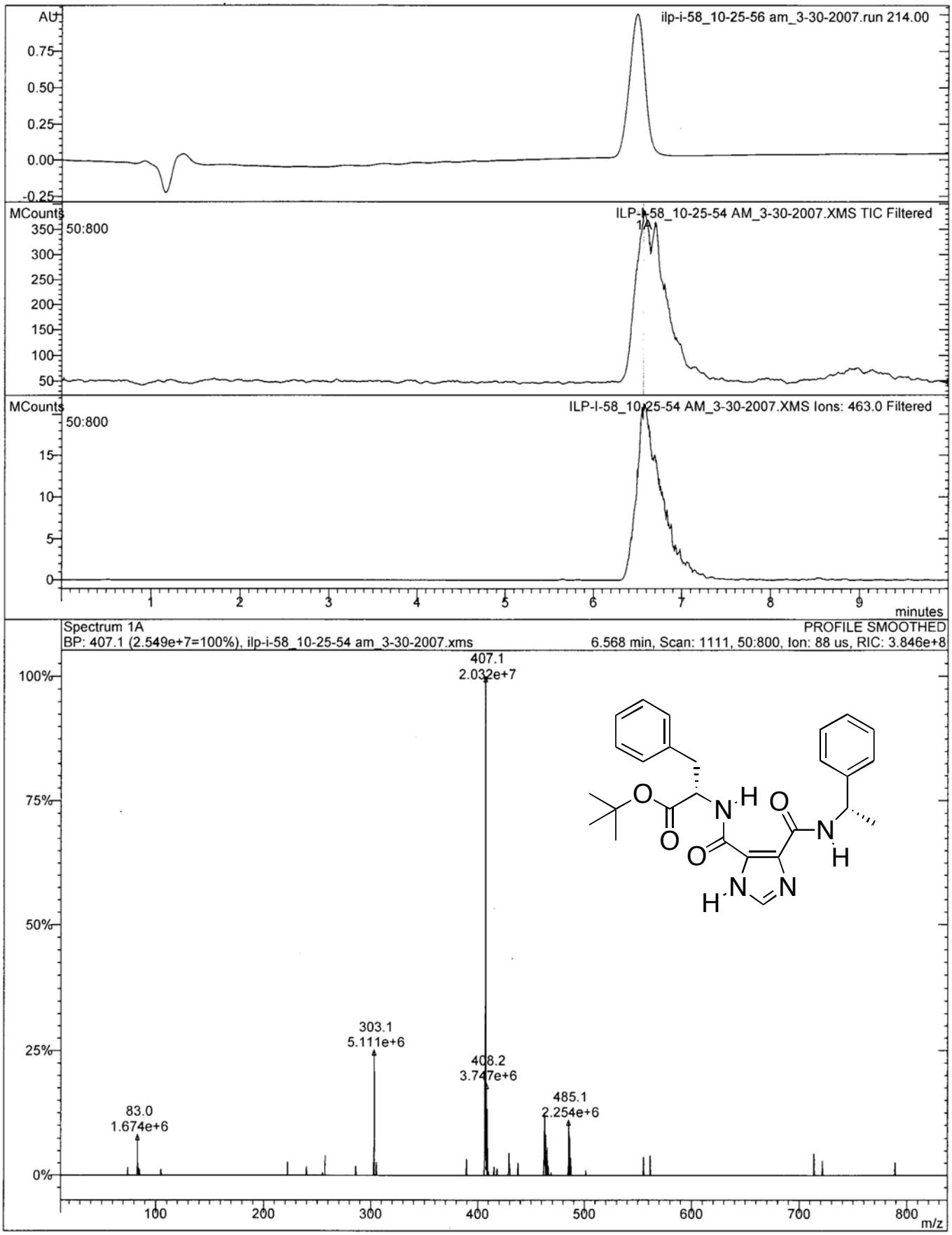

Figure S89. LC/MS data for **5{**89}.

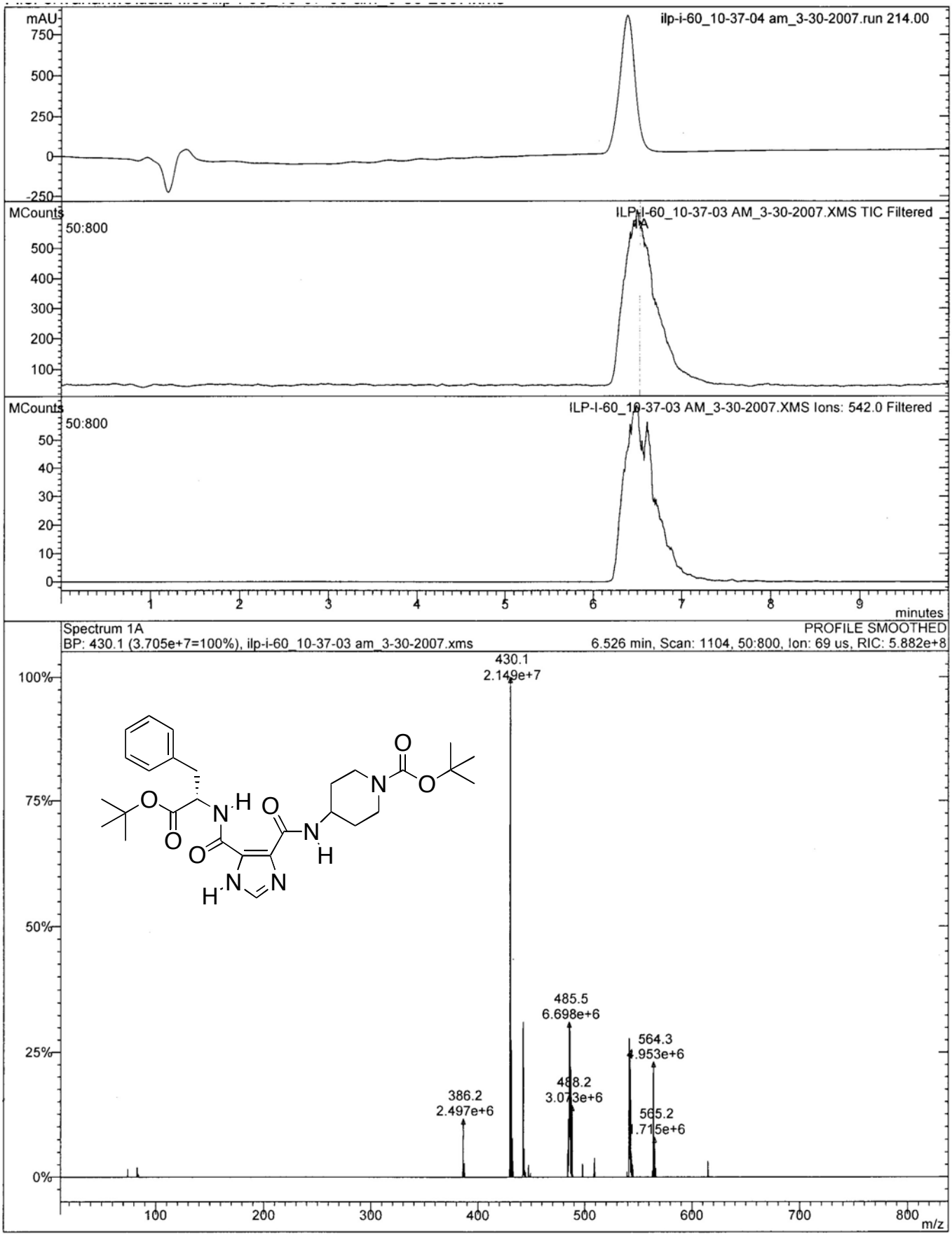

Figure S90. LC/MS data for **5{**90}.

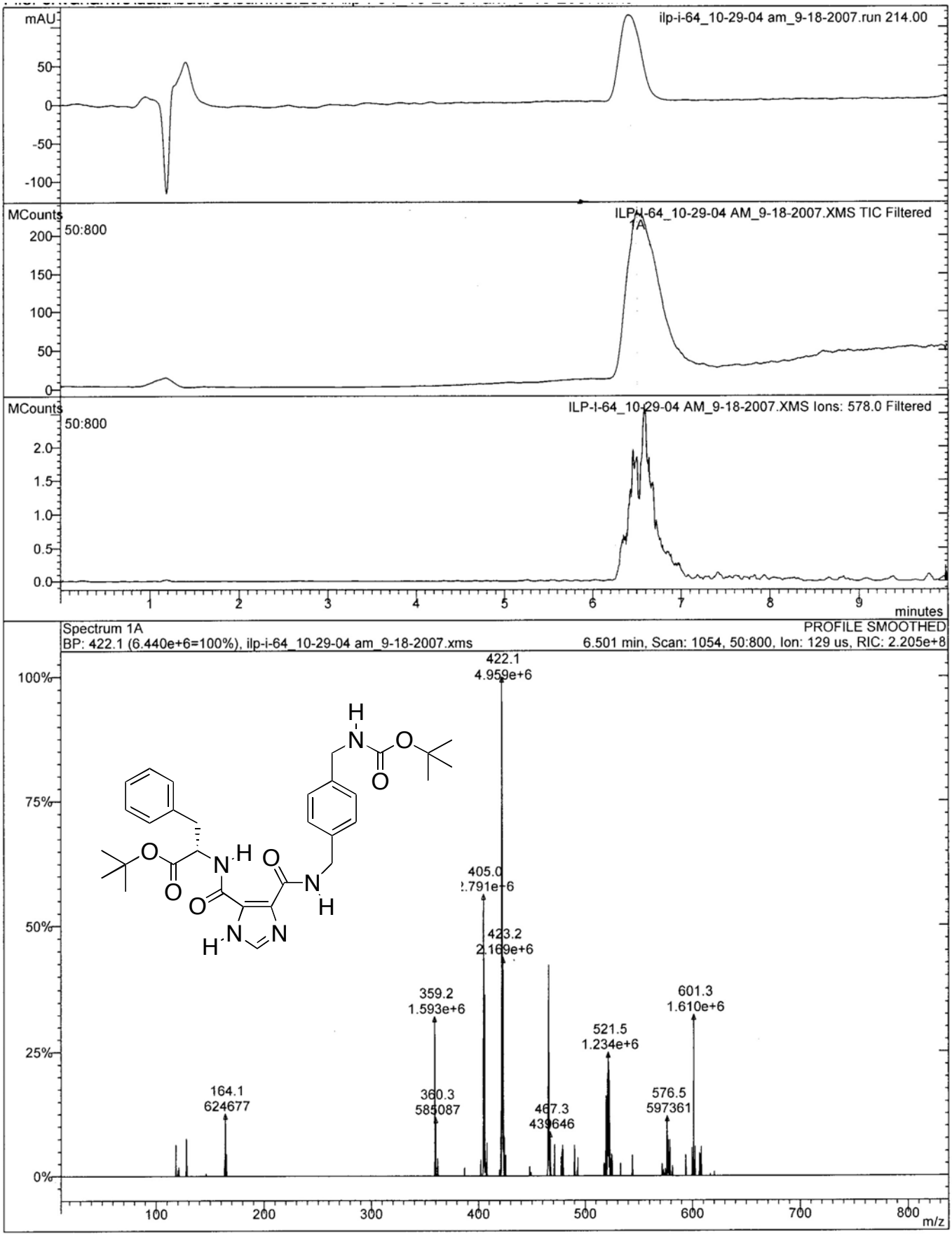

Figure S91. LC/MS data for **5{**91}.

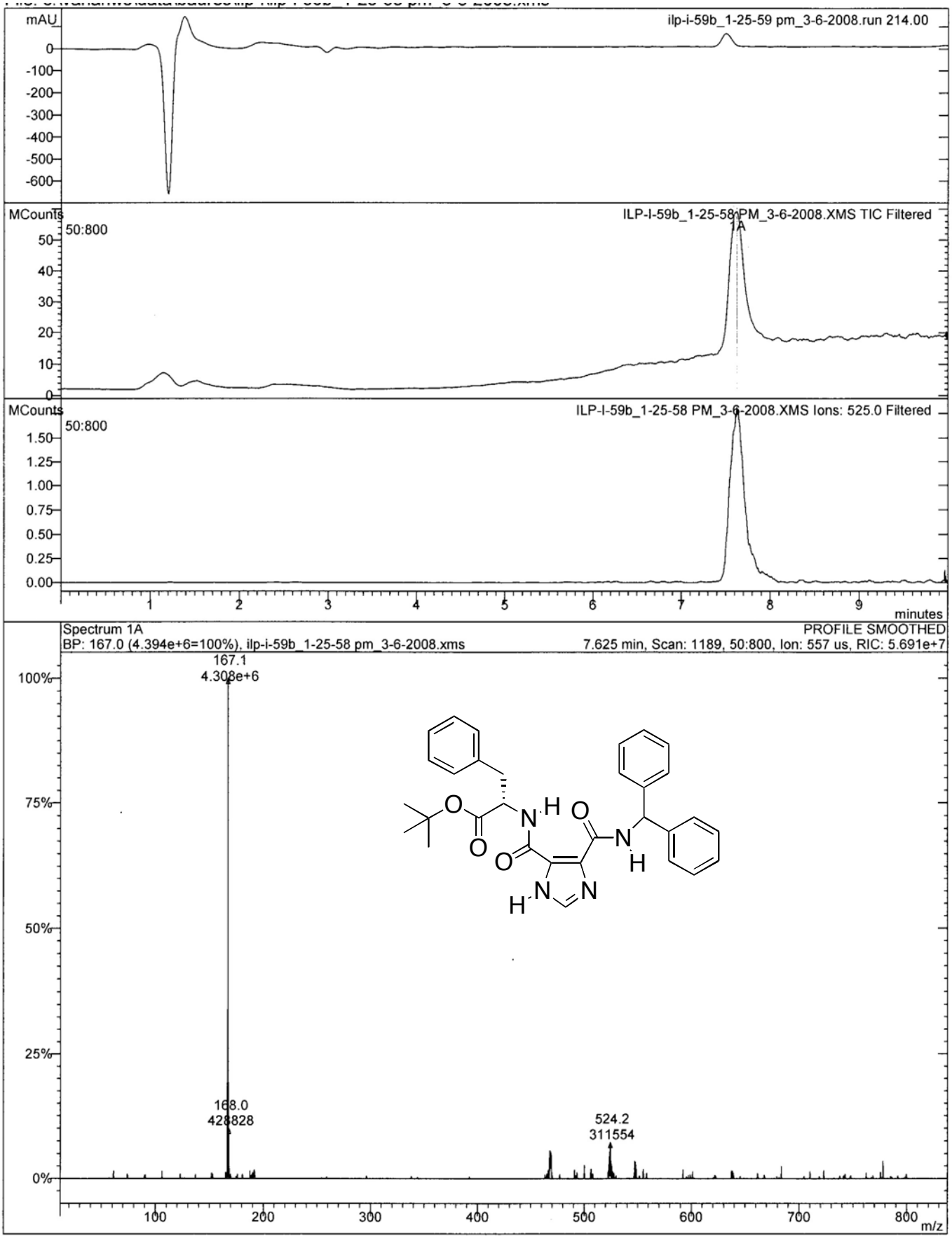

Figure S92. LC/MS data for **5{**92}.

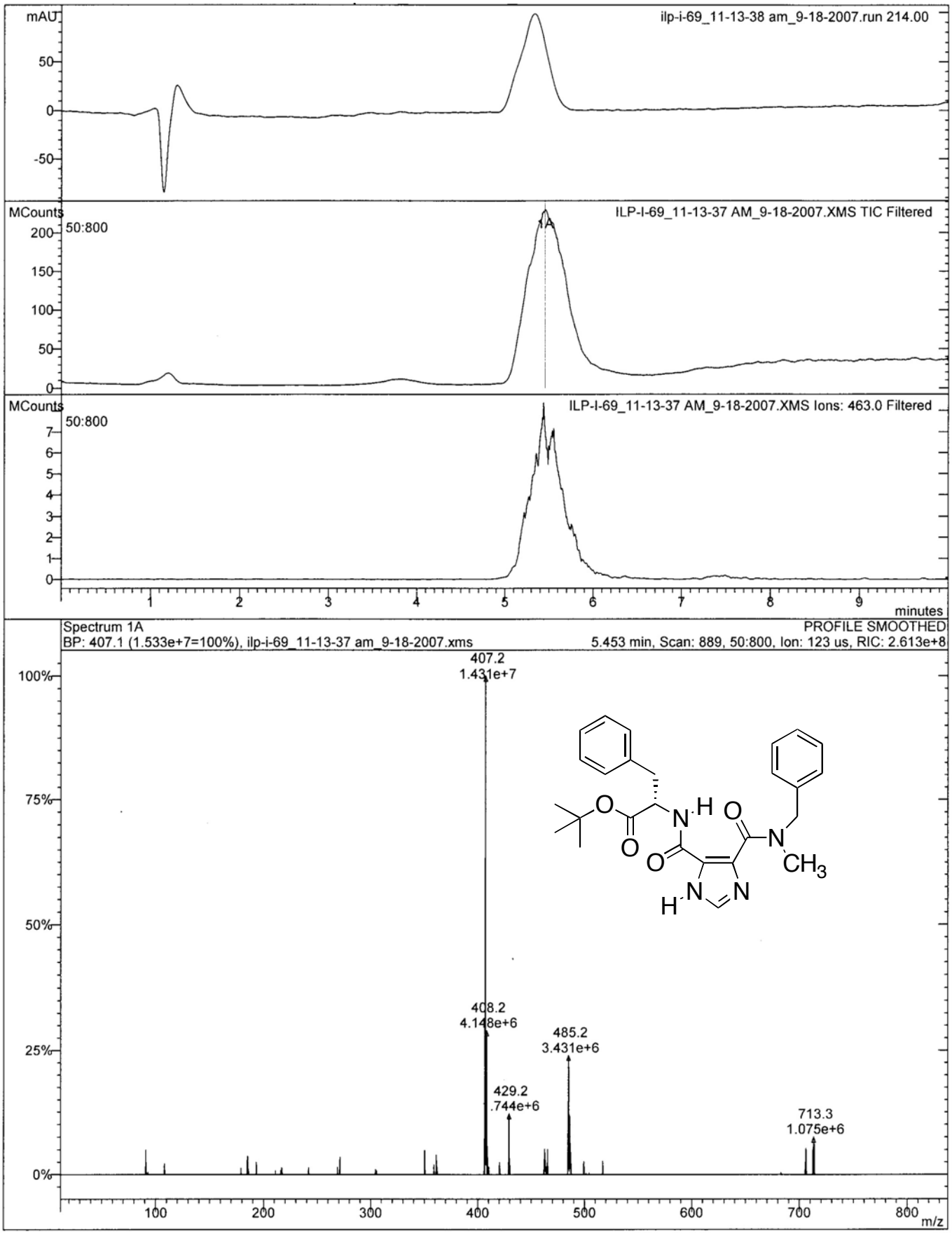

Figure S93. LC/MS data for **5{**93}.

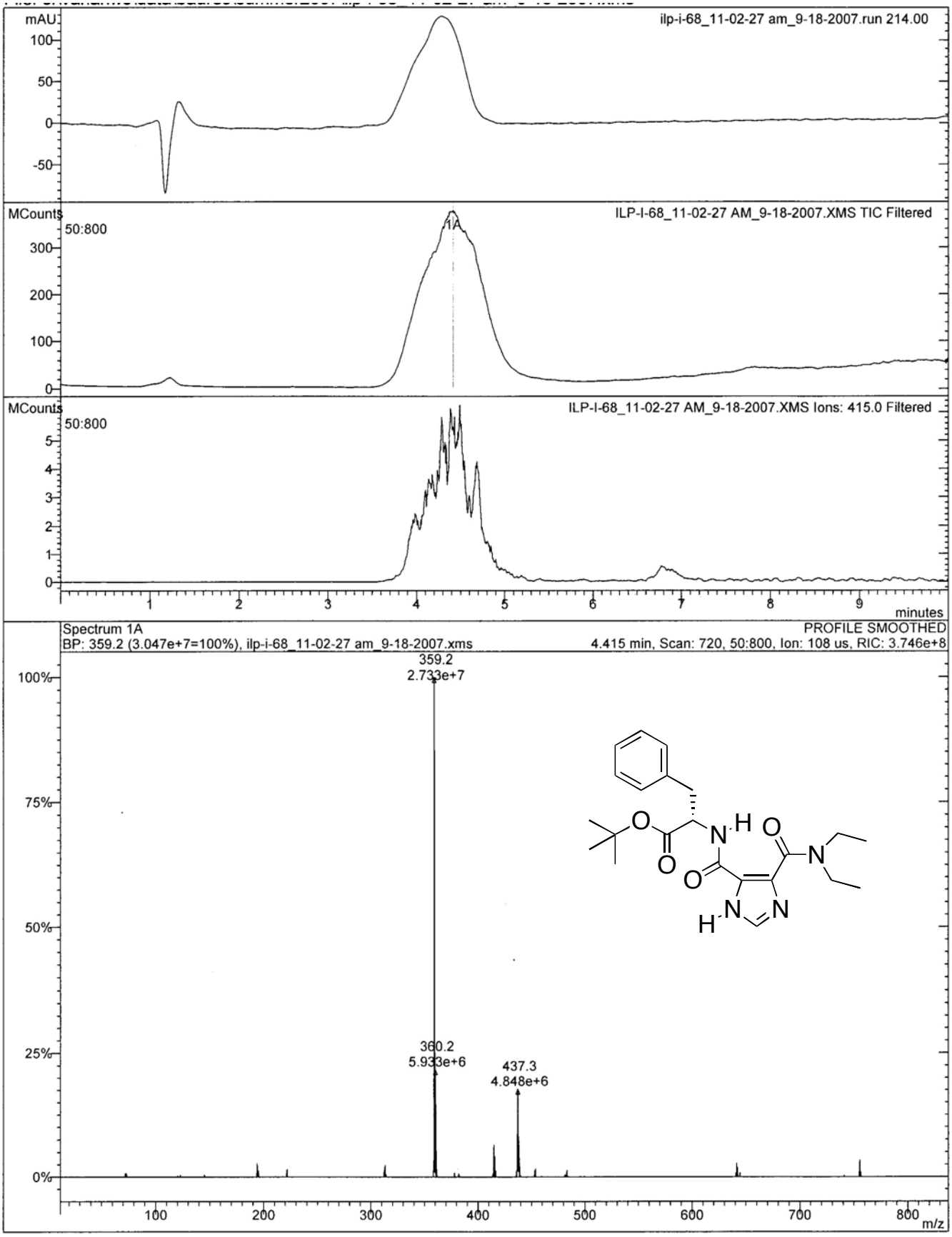

Figure S94. LC/MS data for **5{**94}.

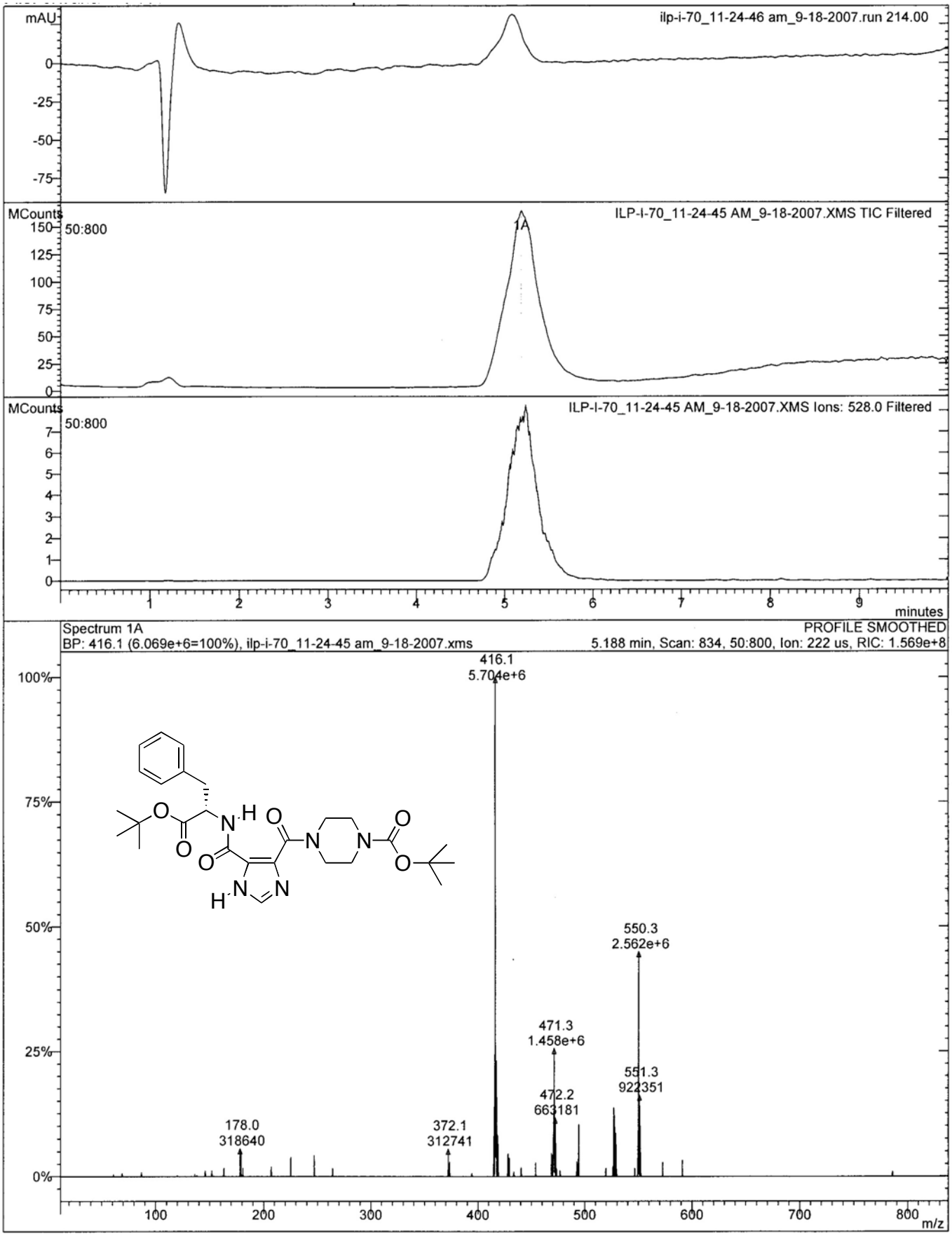

Figure S95. LC/MS data for **5{**95}.

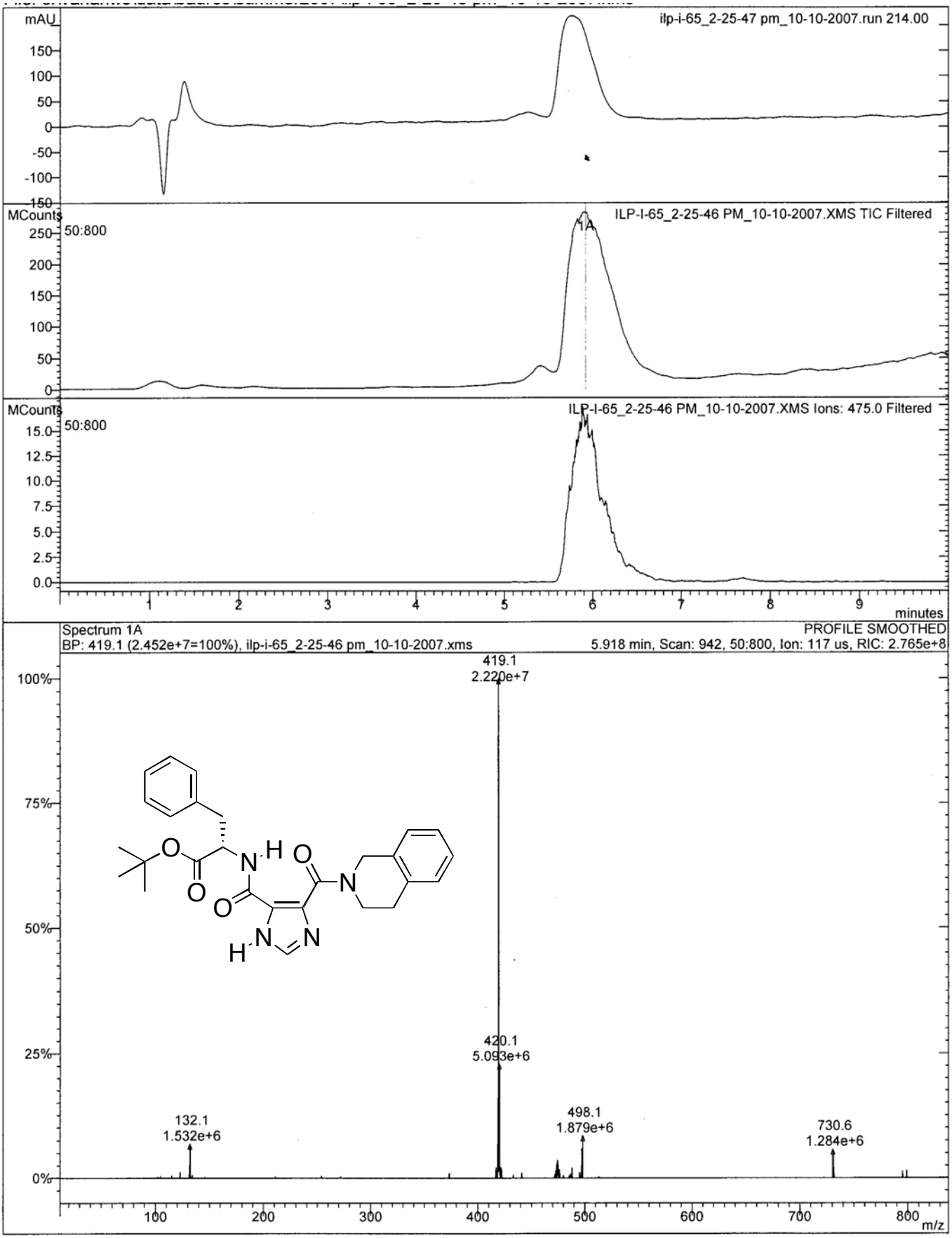

Figure S96. LC/MS data for **5{**96}.

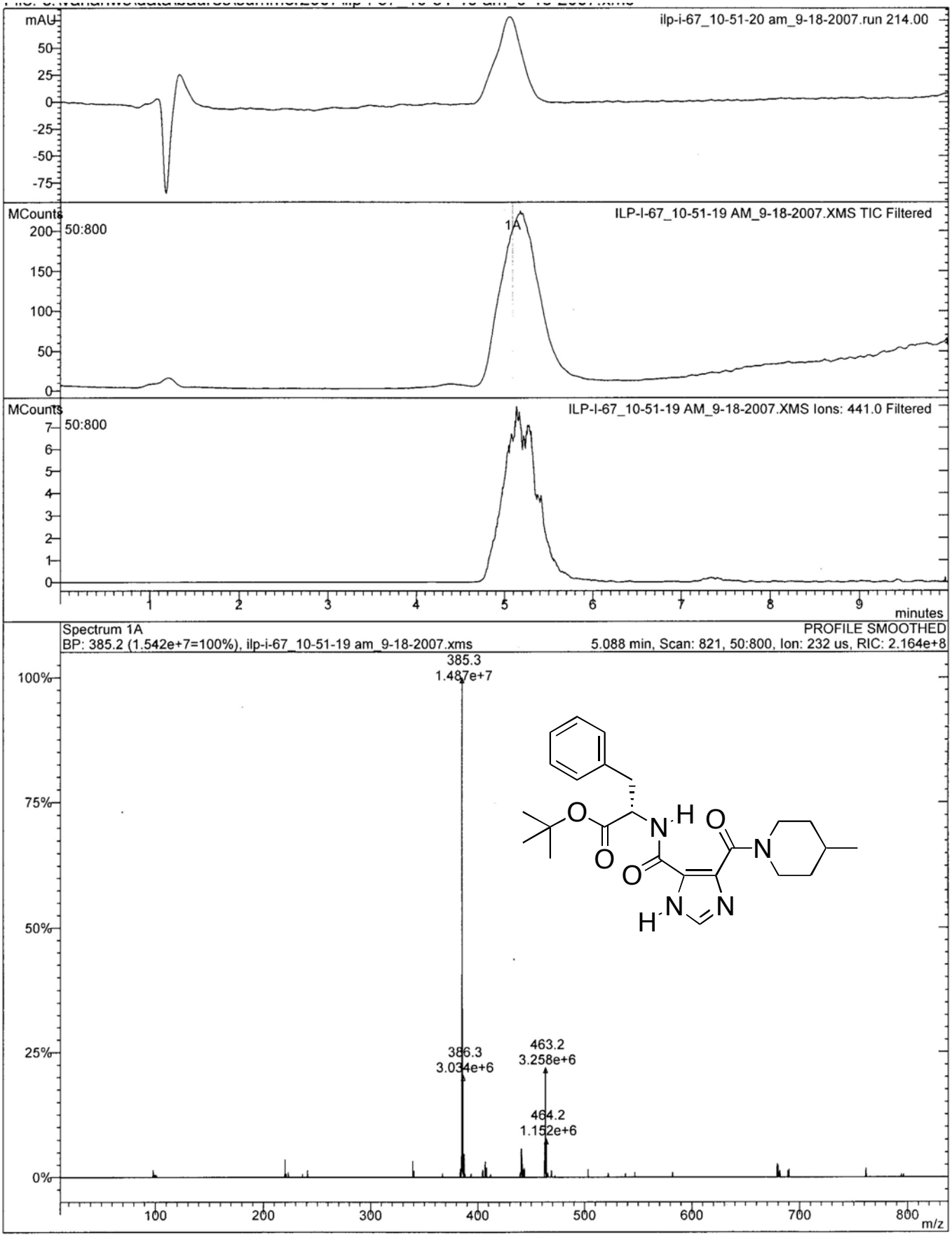

Figure S97. LC/MS data for **5{**97}.

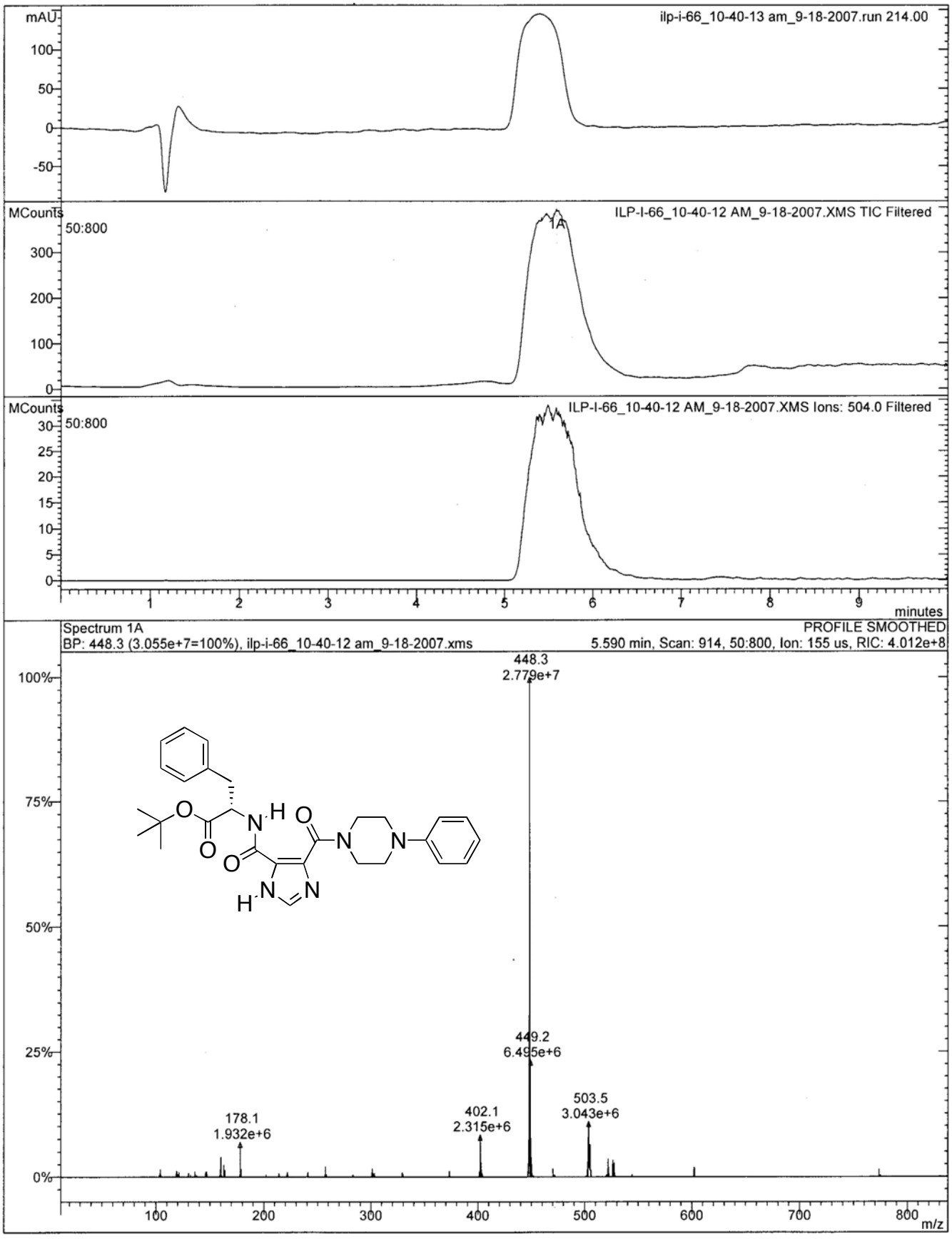

Figure S98. LC/MS data for **5{**98}.

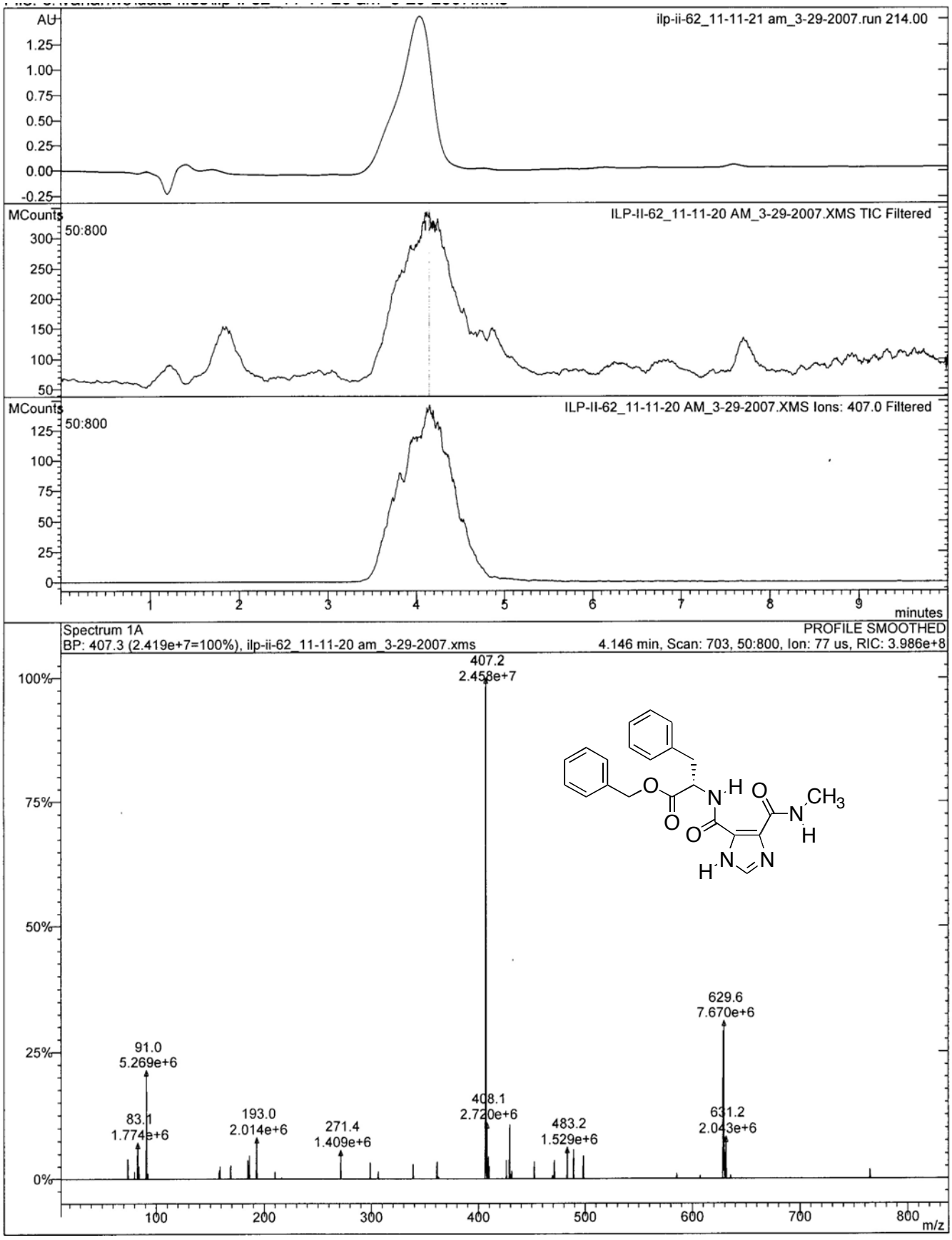

Figure S99. LC/MS data for **5{**99}.

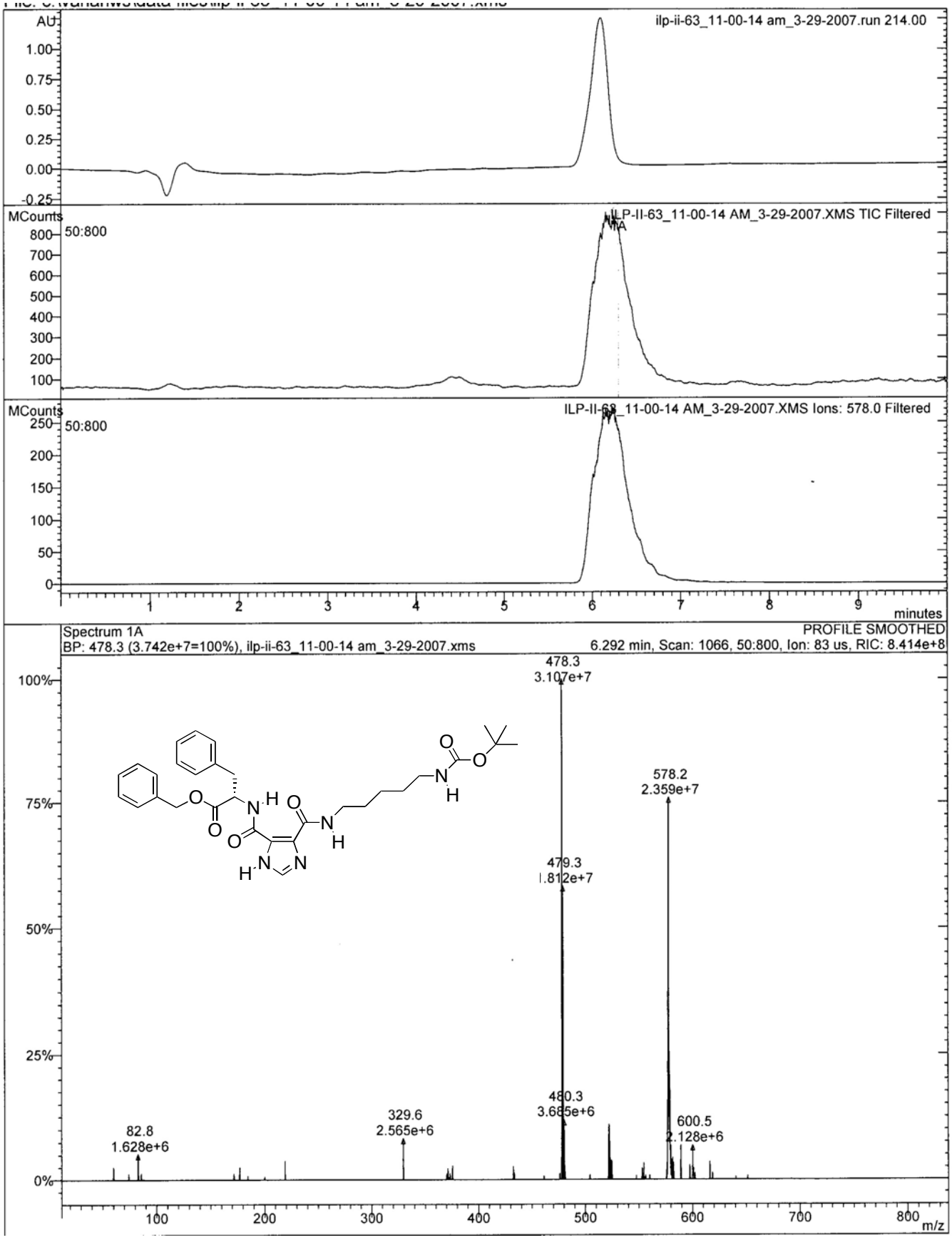

Figure S100. LC/MS data for **5{**100}.

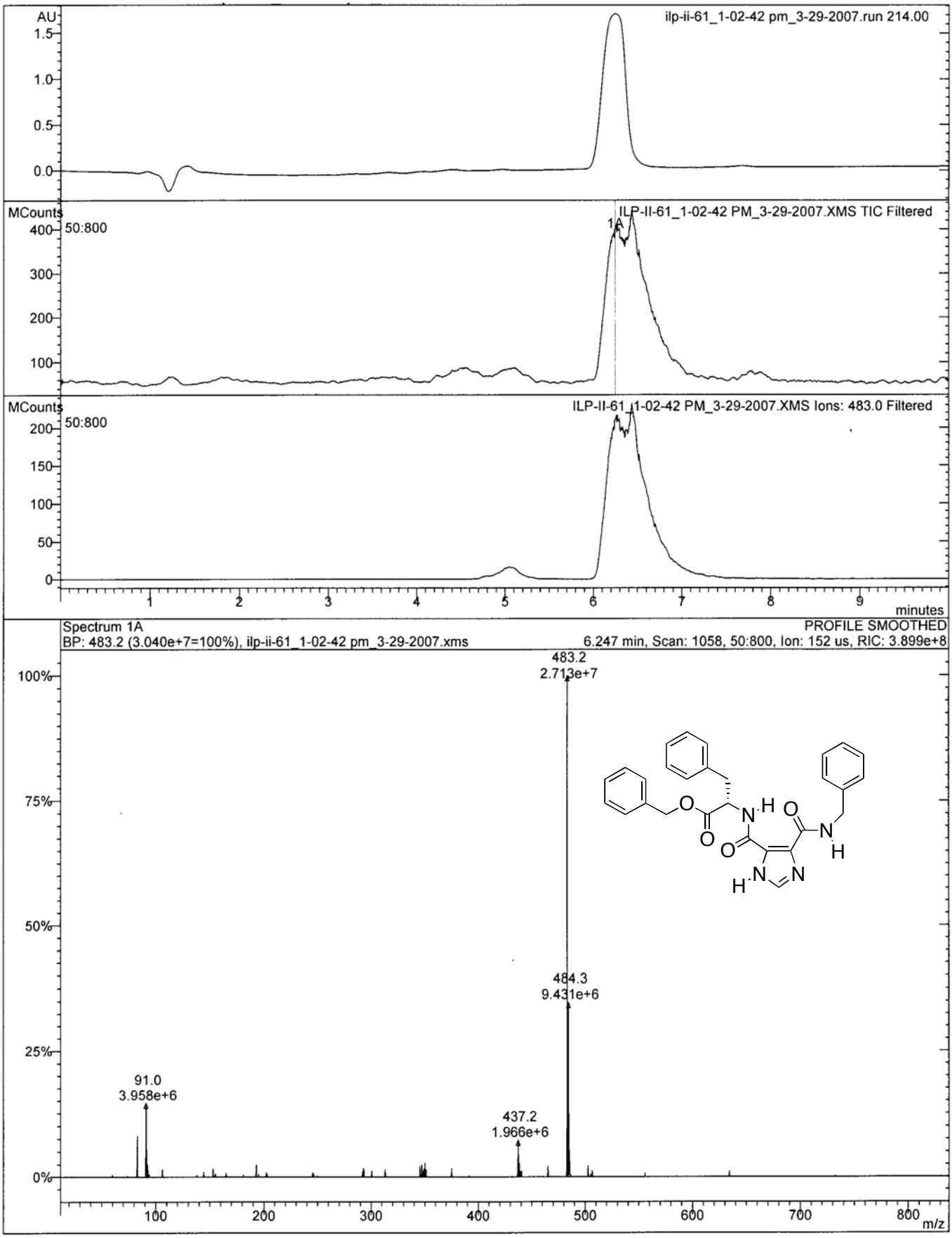

Figure S101. LC/MS data for **5{**101}.

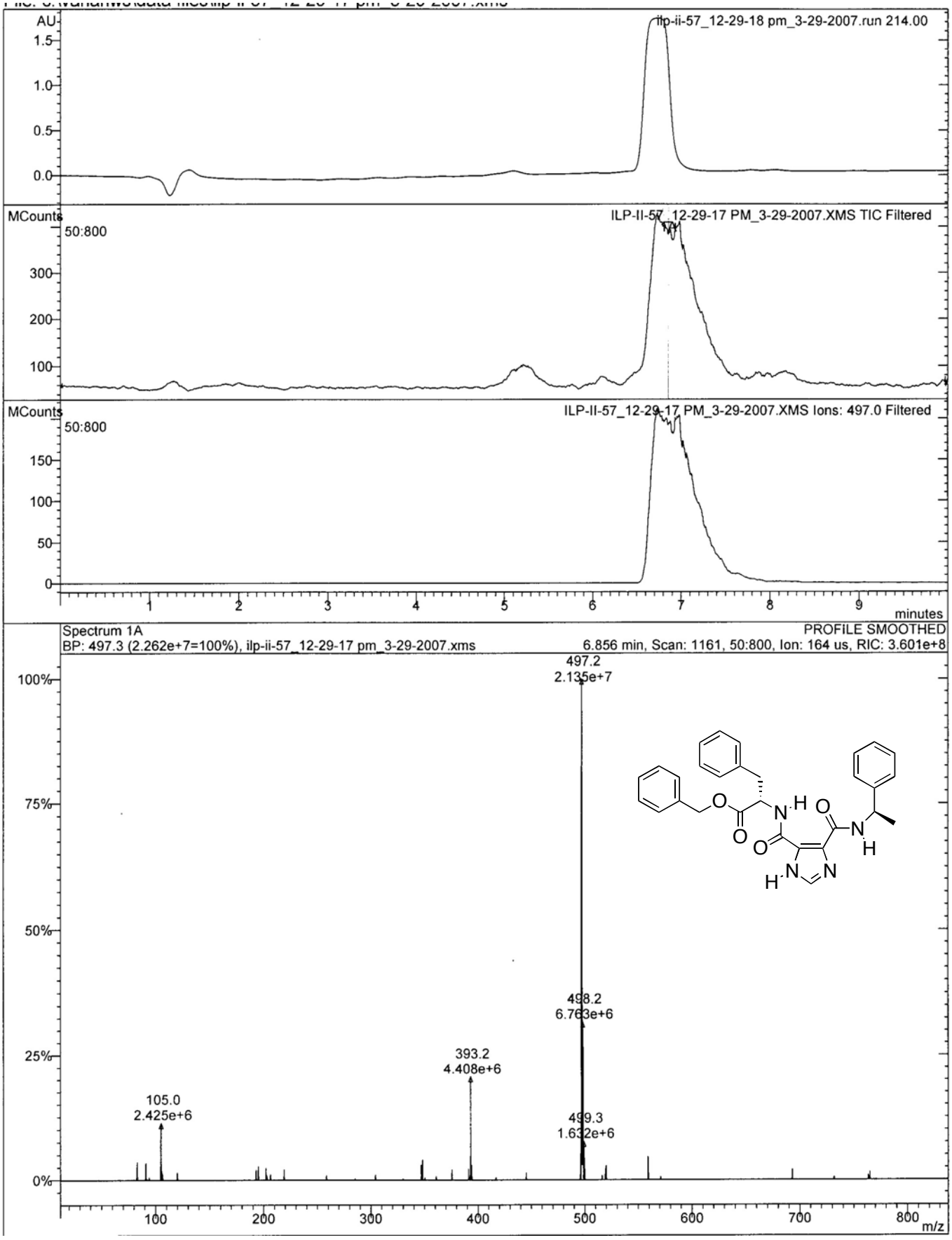

Figure S102. LC/MS data for **5{**102}.

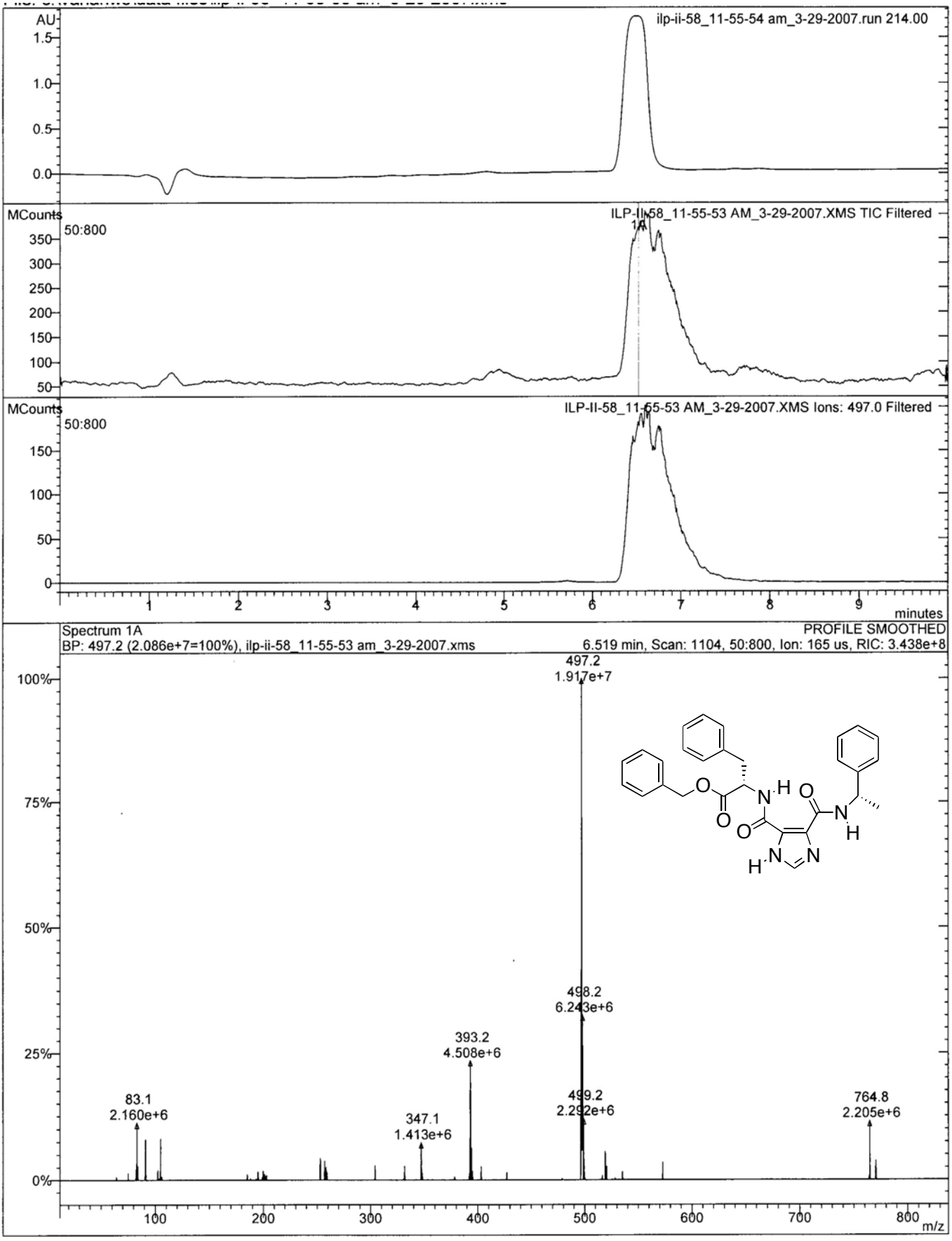

Figure S103. LC/MS data for **5{**103}.

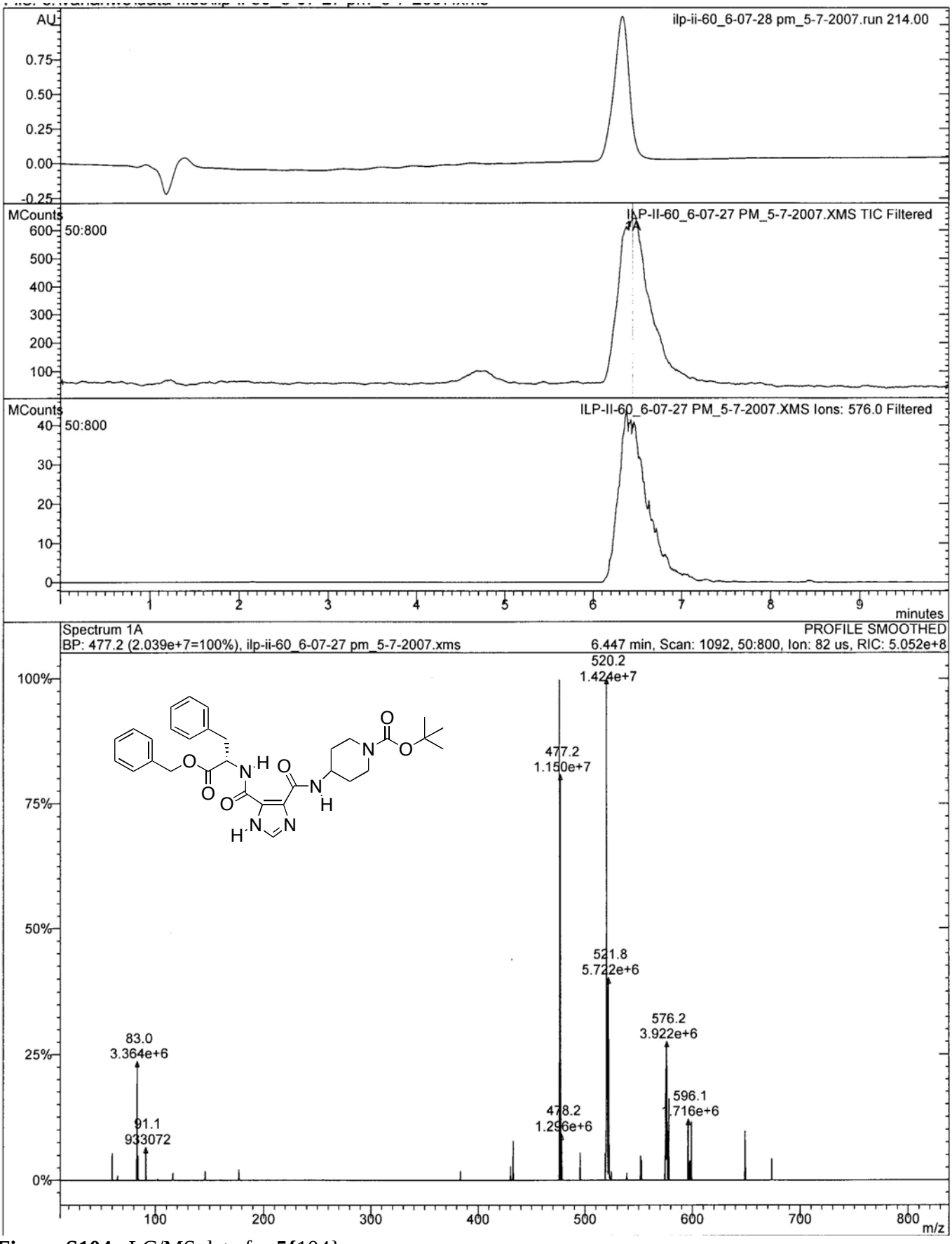

Figure S104. LC/MS data for **5{**104}.

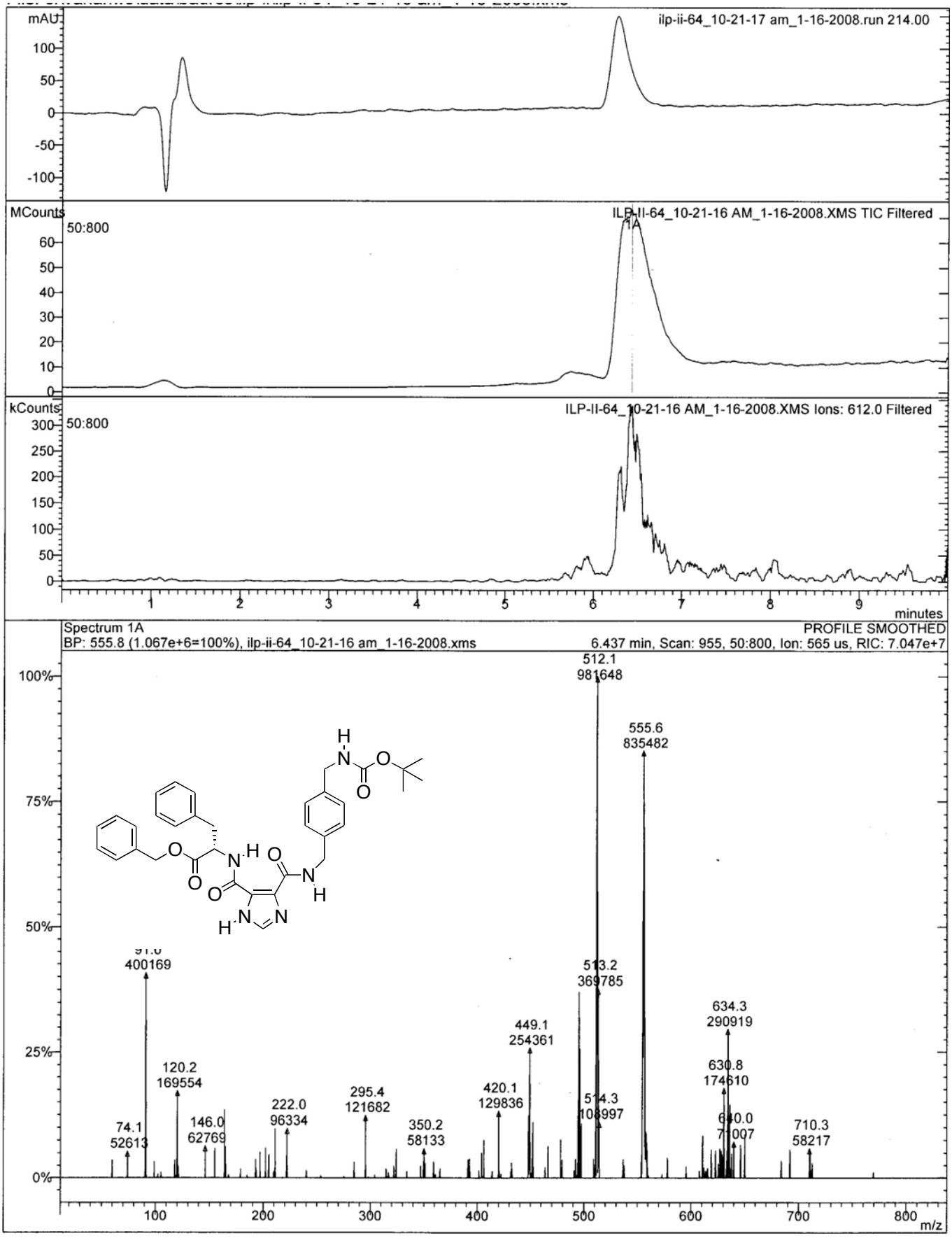

Figure S105. LC/MS data for **5{**105}.

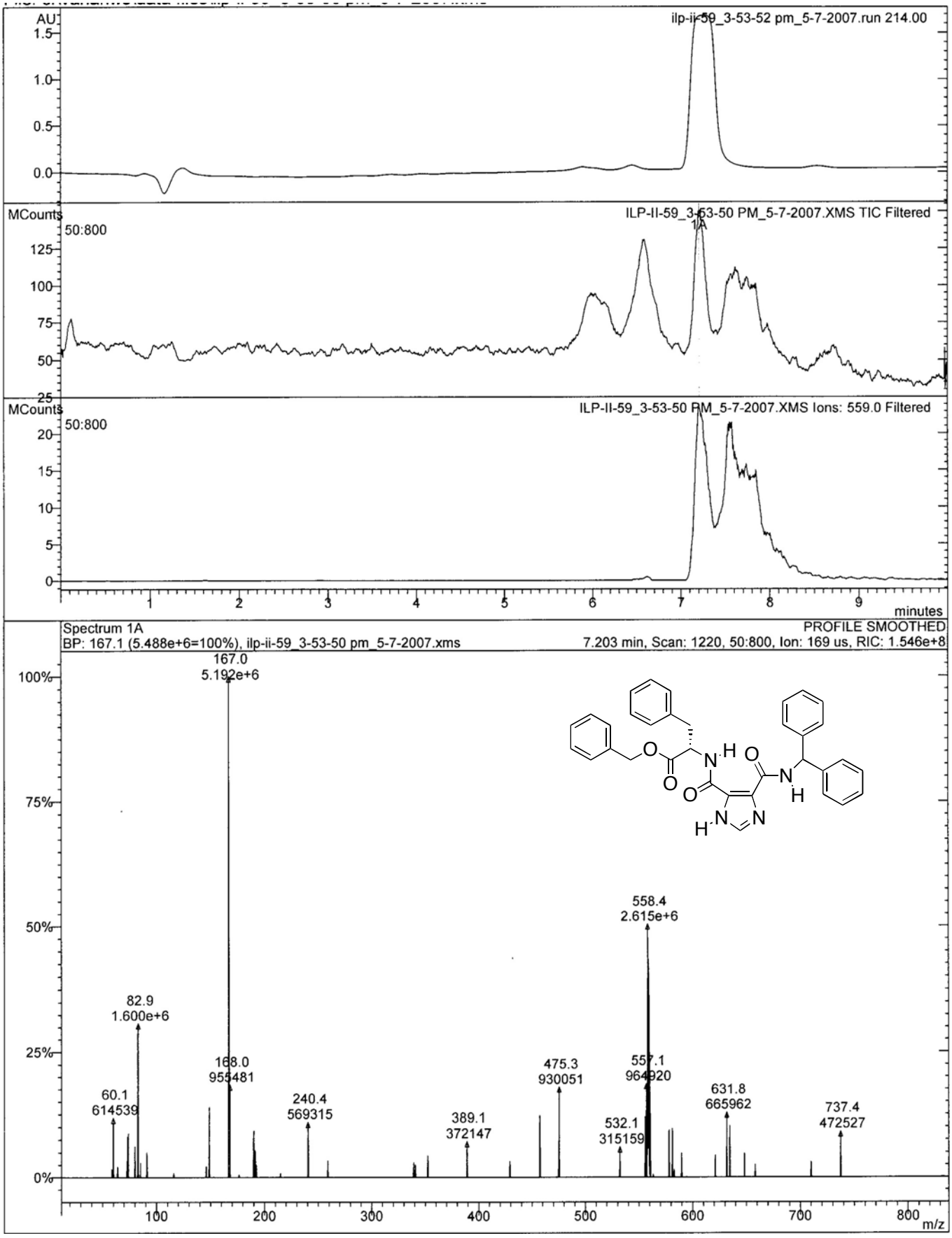

Figure S106. LC/MS data for **5{**106}.

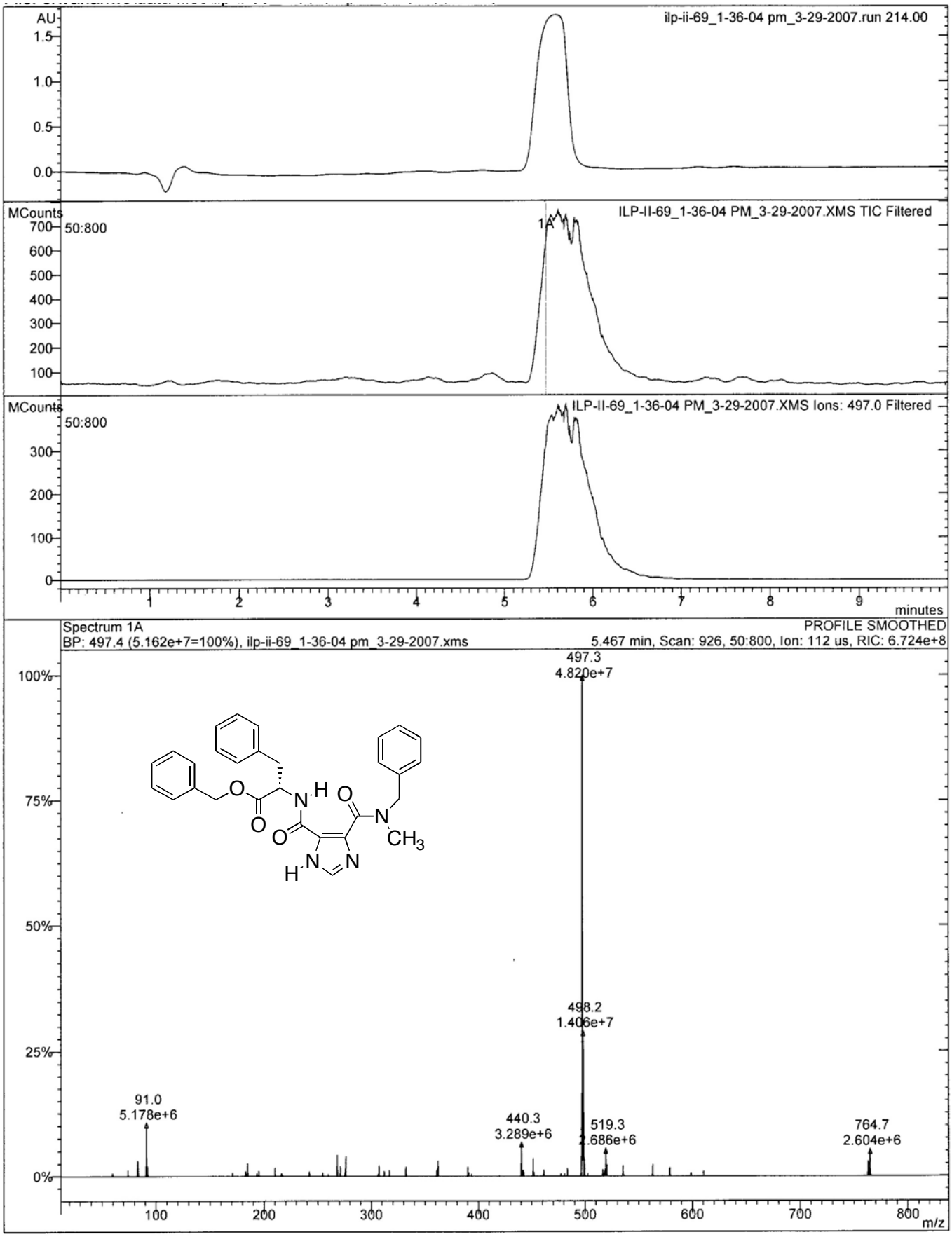

Figure S107. LC/MS data for **5{**107}.

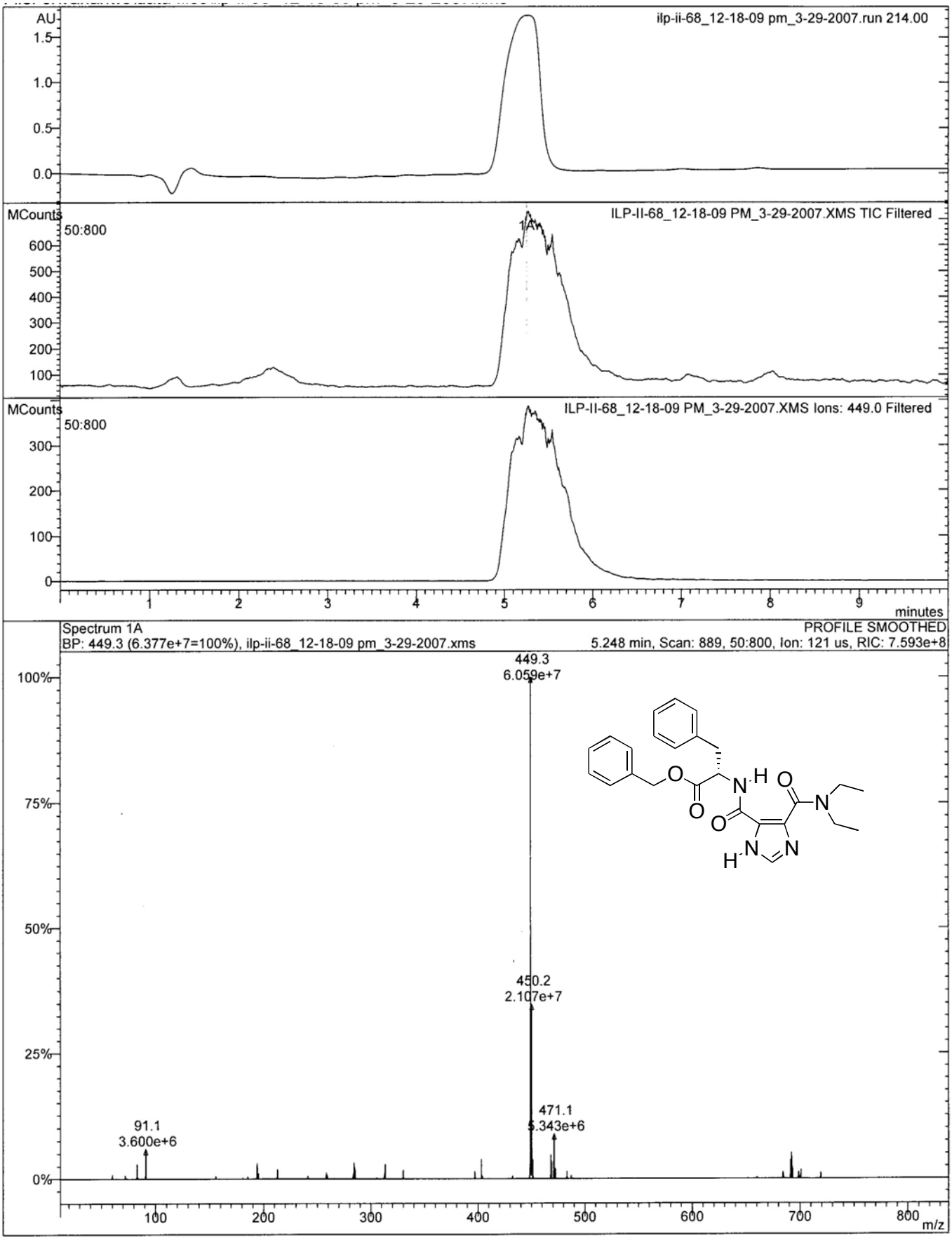

Figure S108. LC/MS data for **5{**108}.

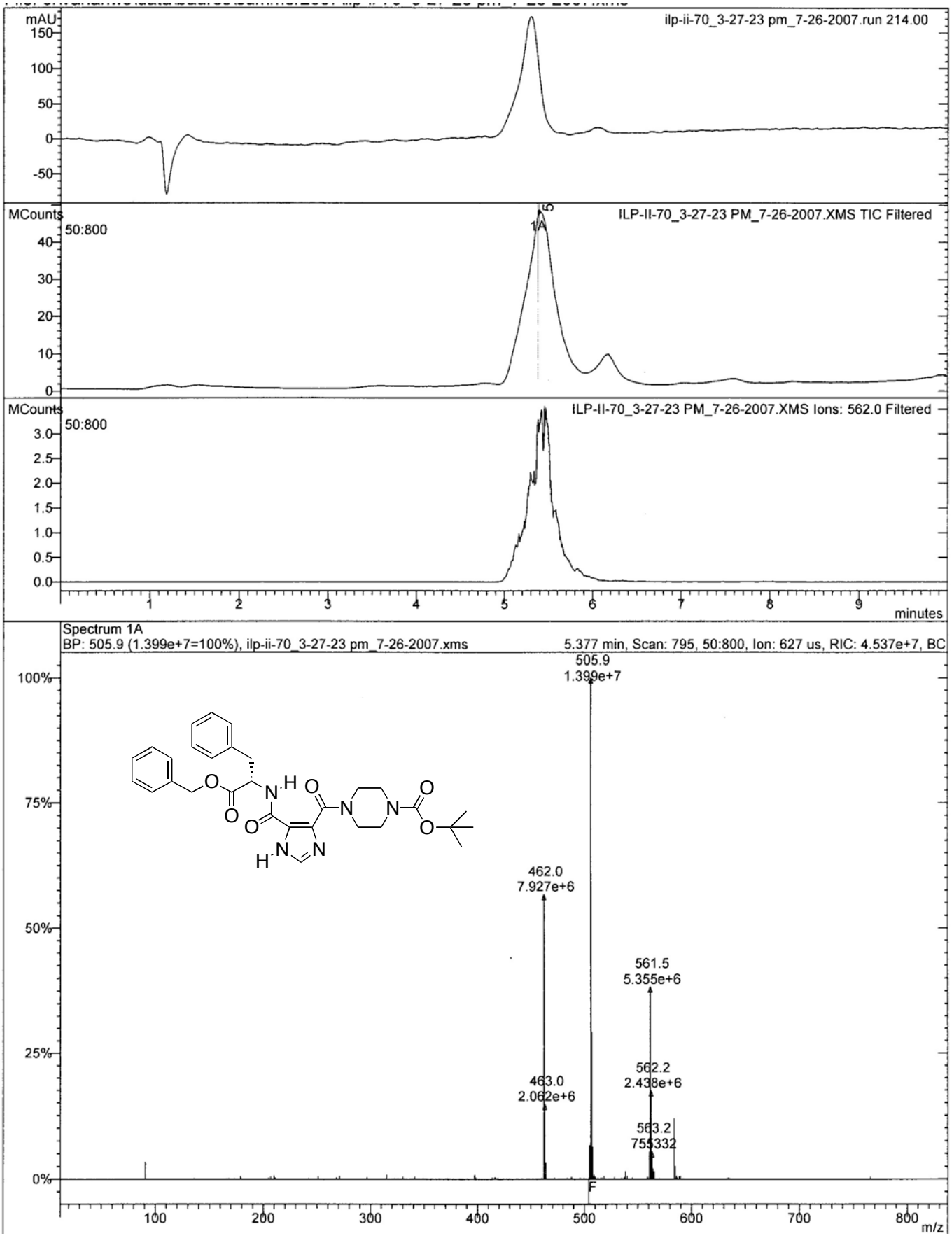

Figure S109. LC/MS data for **5{**109}.

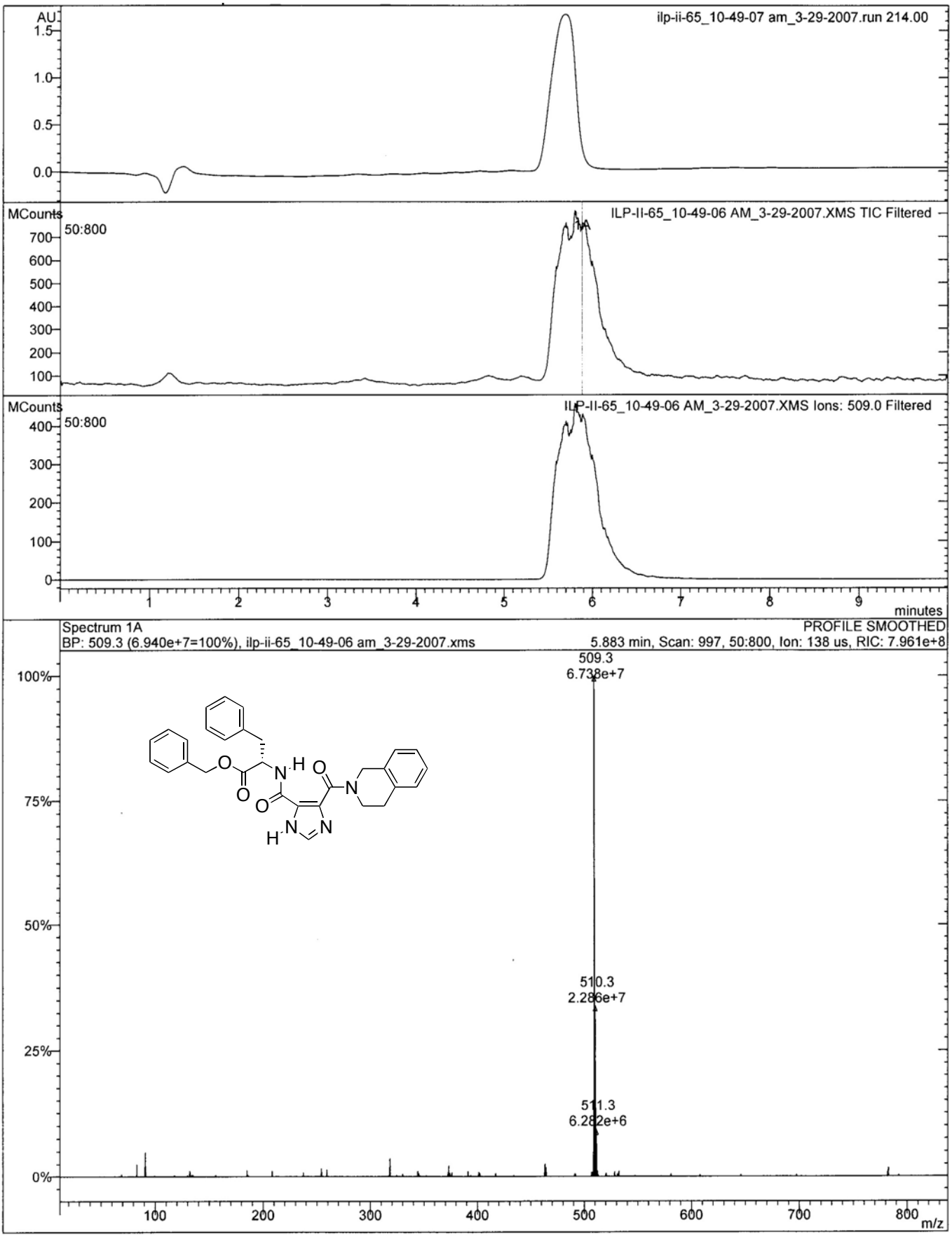

Figure S110. LC/MS data for **5{**110}.

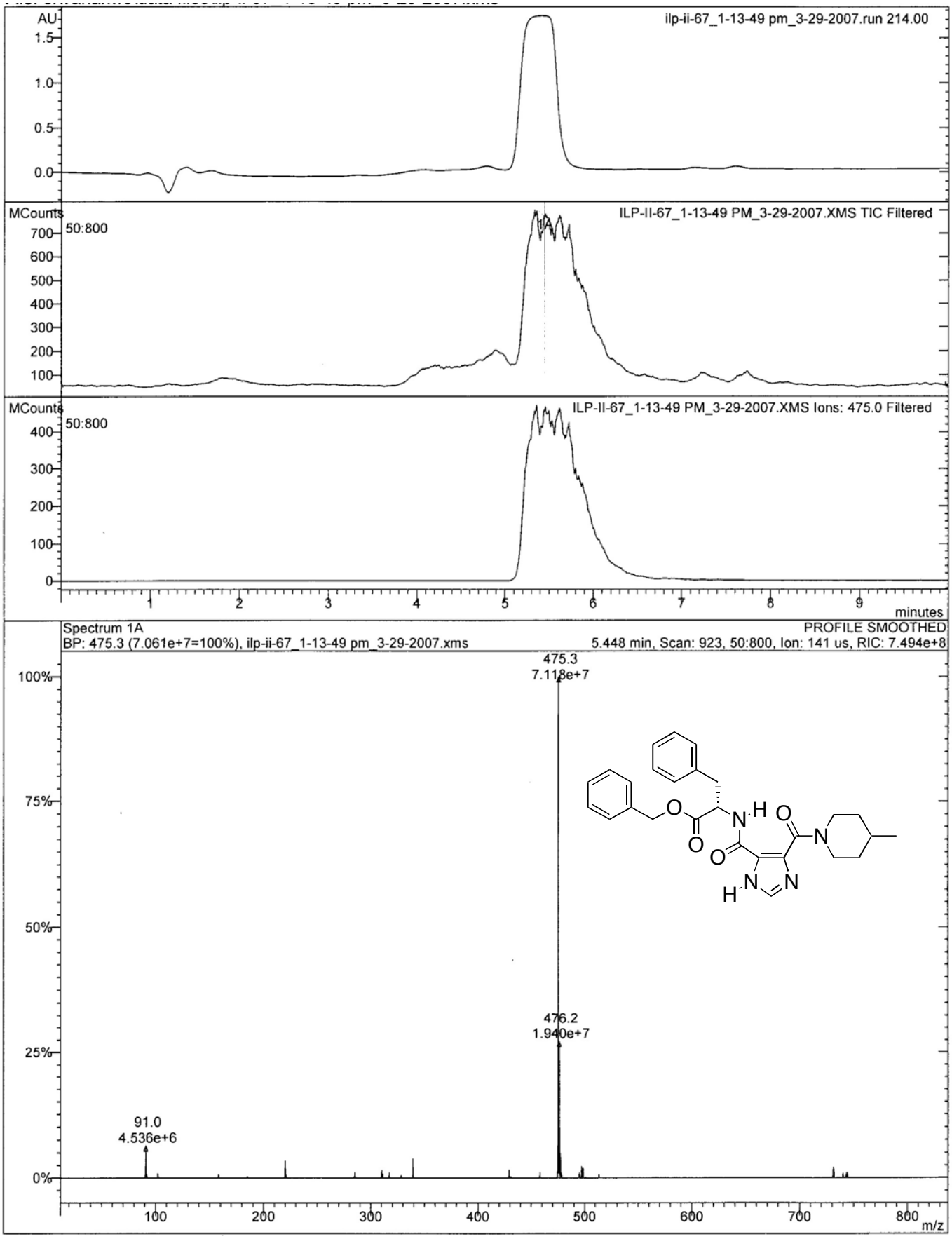

Figure S111. LC/MS data for **5{**111}.

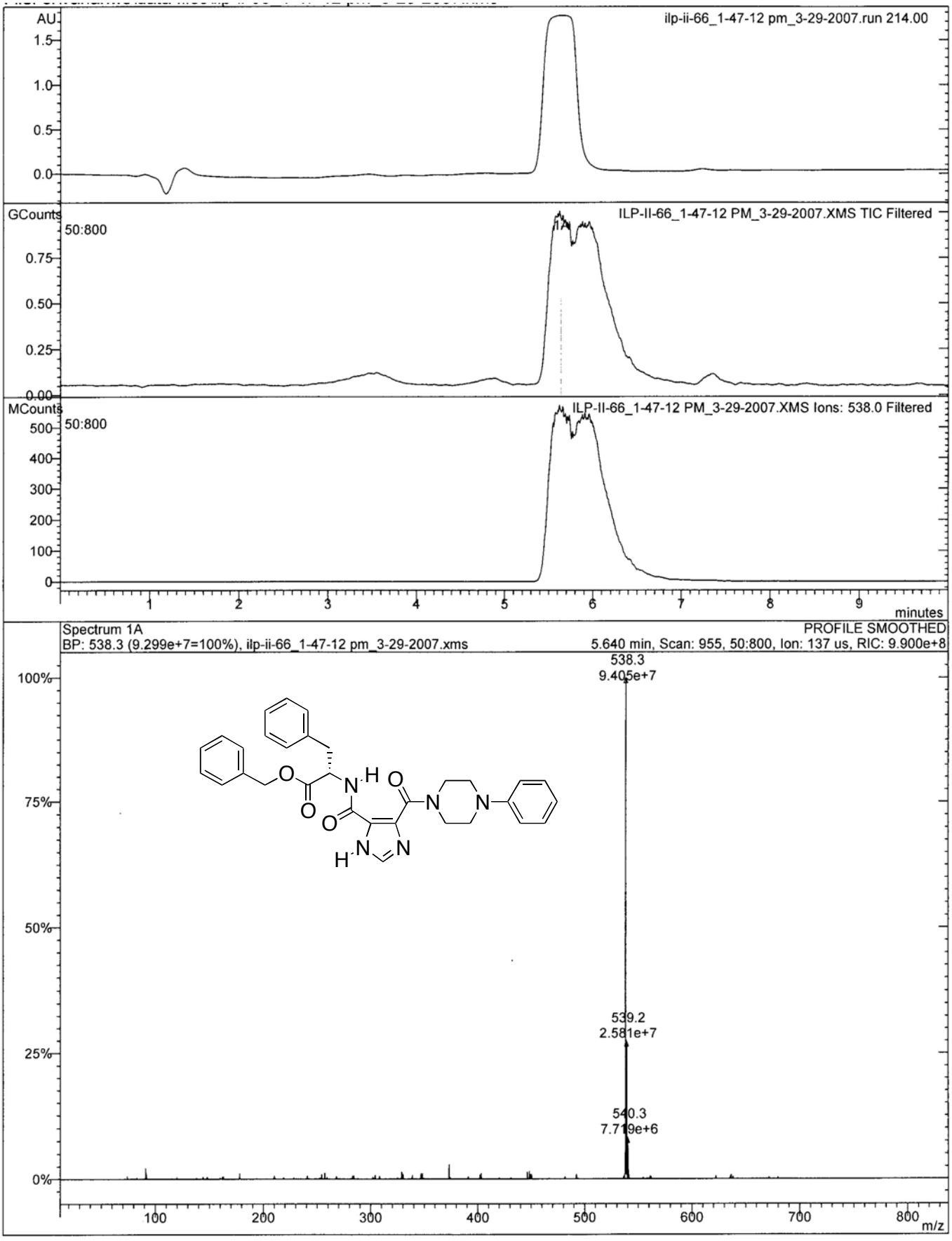

Figure S112. LC/MS data for **5{**112}.

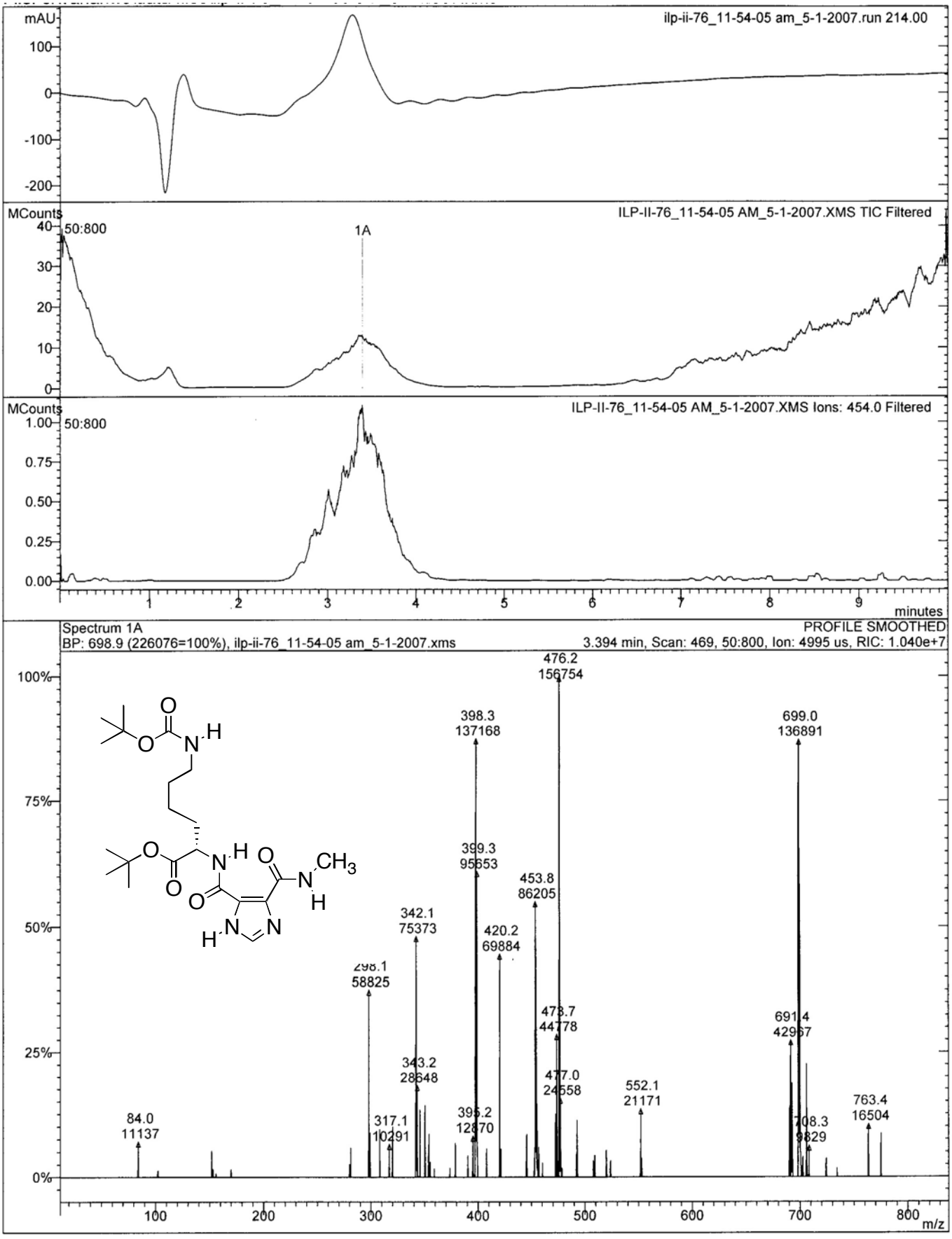

Figure S113. LC/MS data for **5{**113}.

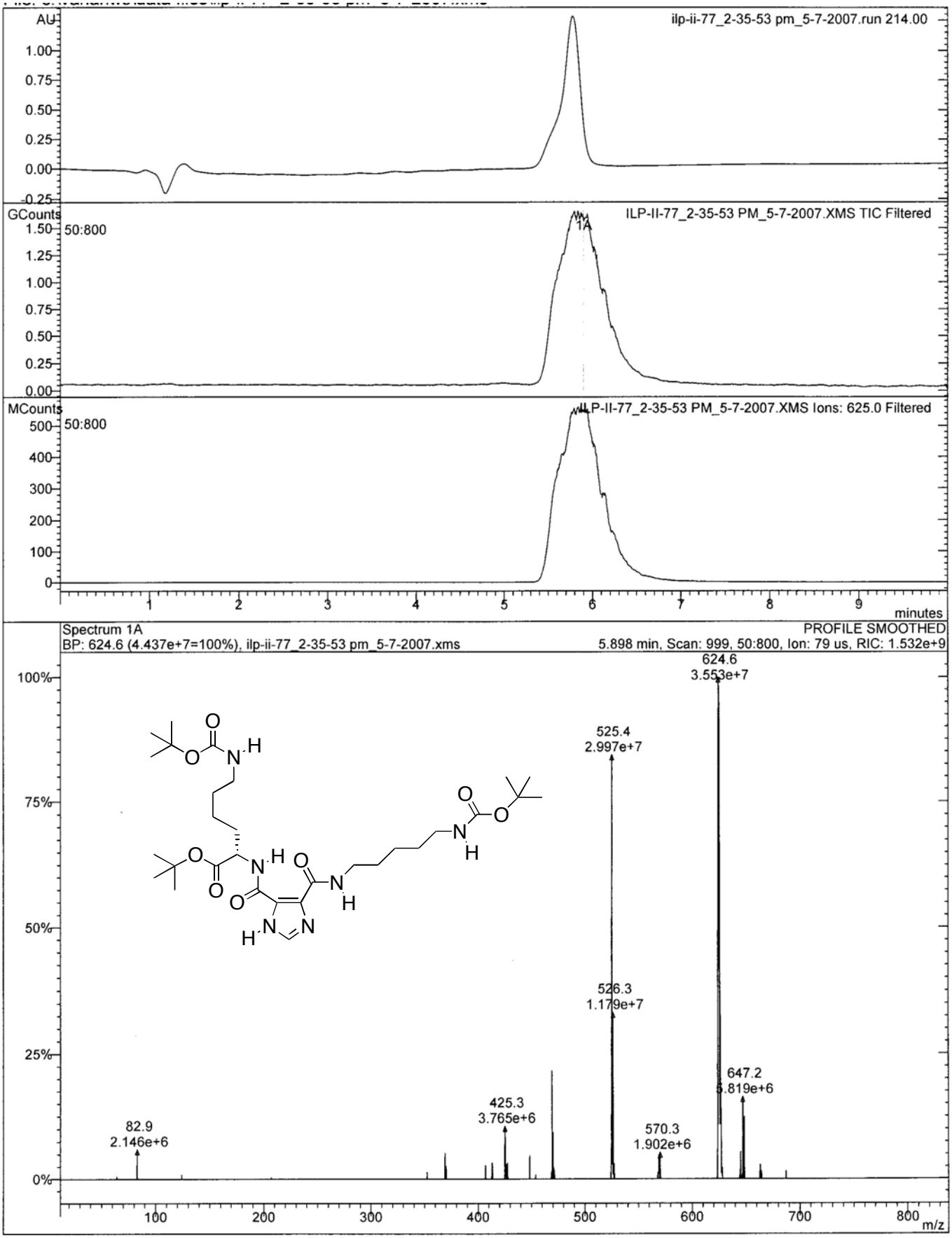

Figure S114. LC/MS data for **5{**114}.

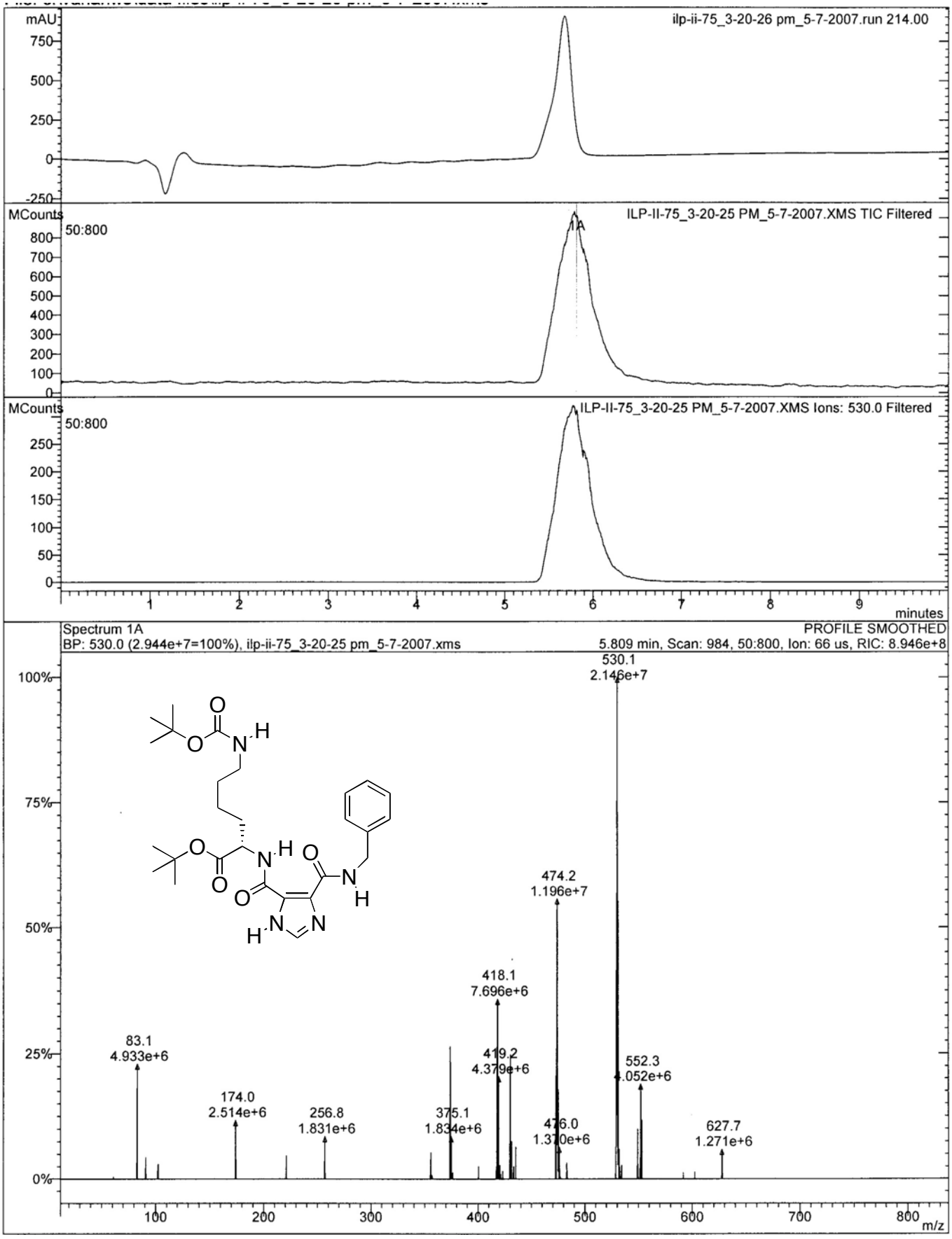

Figure S115. LC/MS data for **5{**115}.

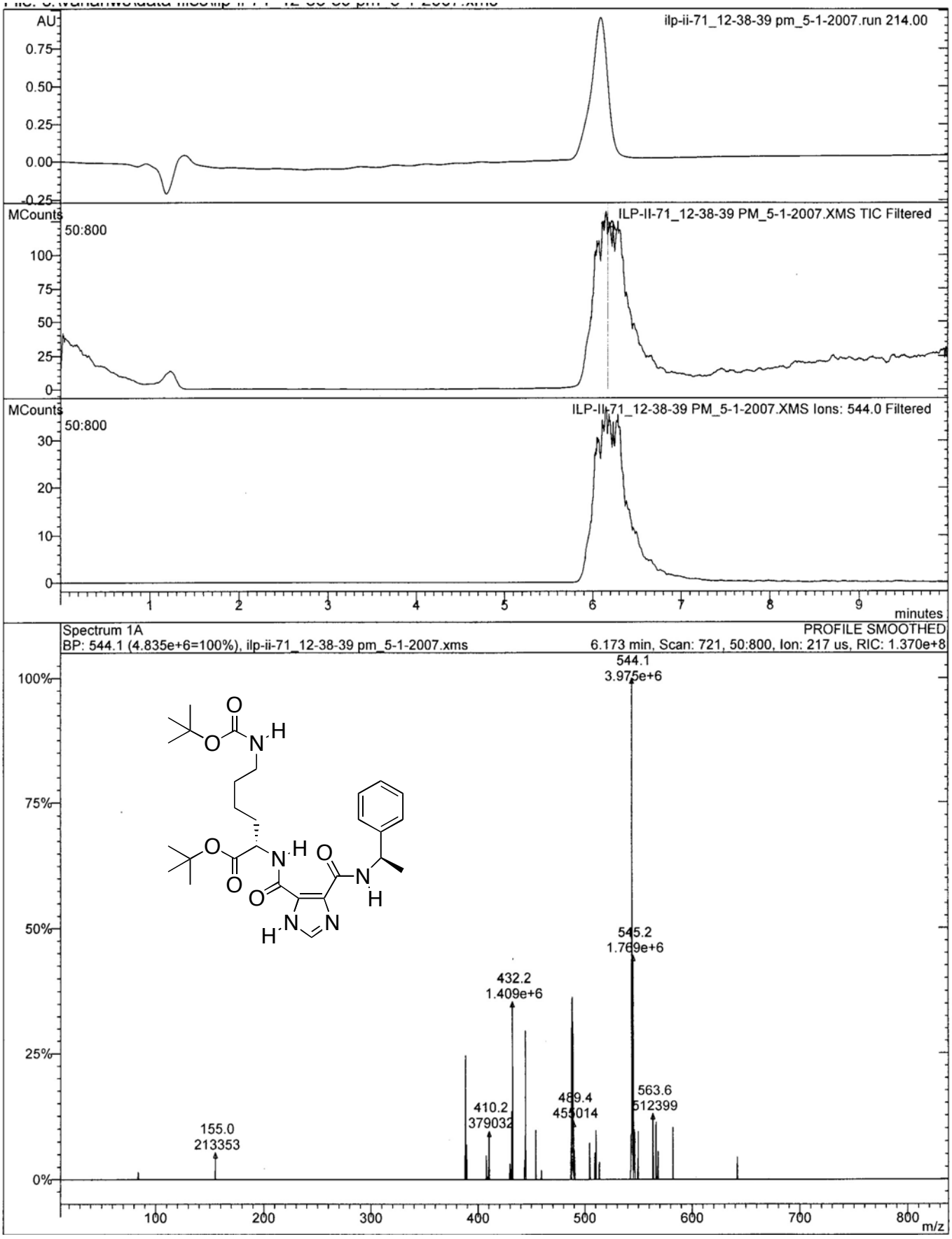

Figure S116. LC/MS data for **5{**116}.

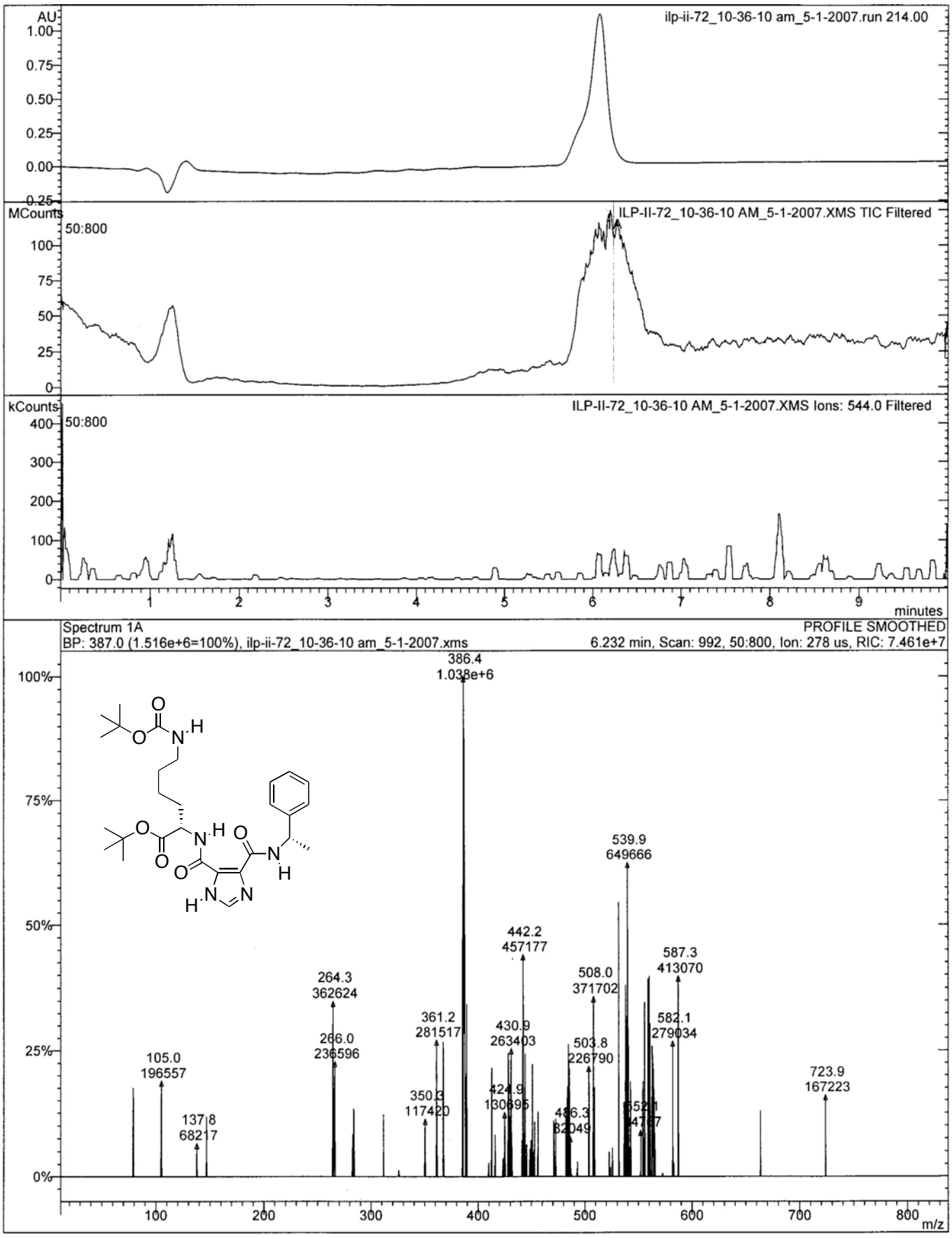

Figure S117. LC/MS data for **5{**117}.

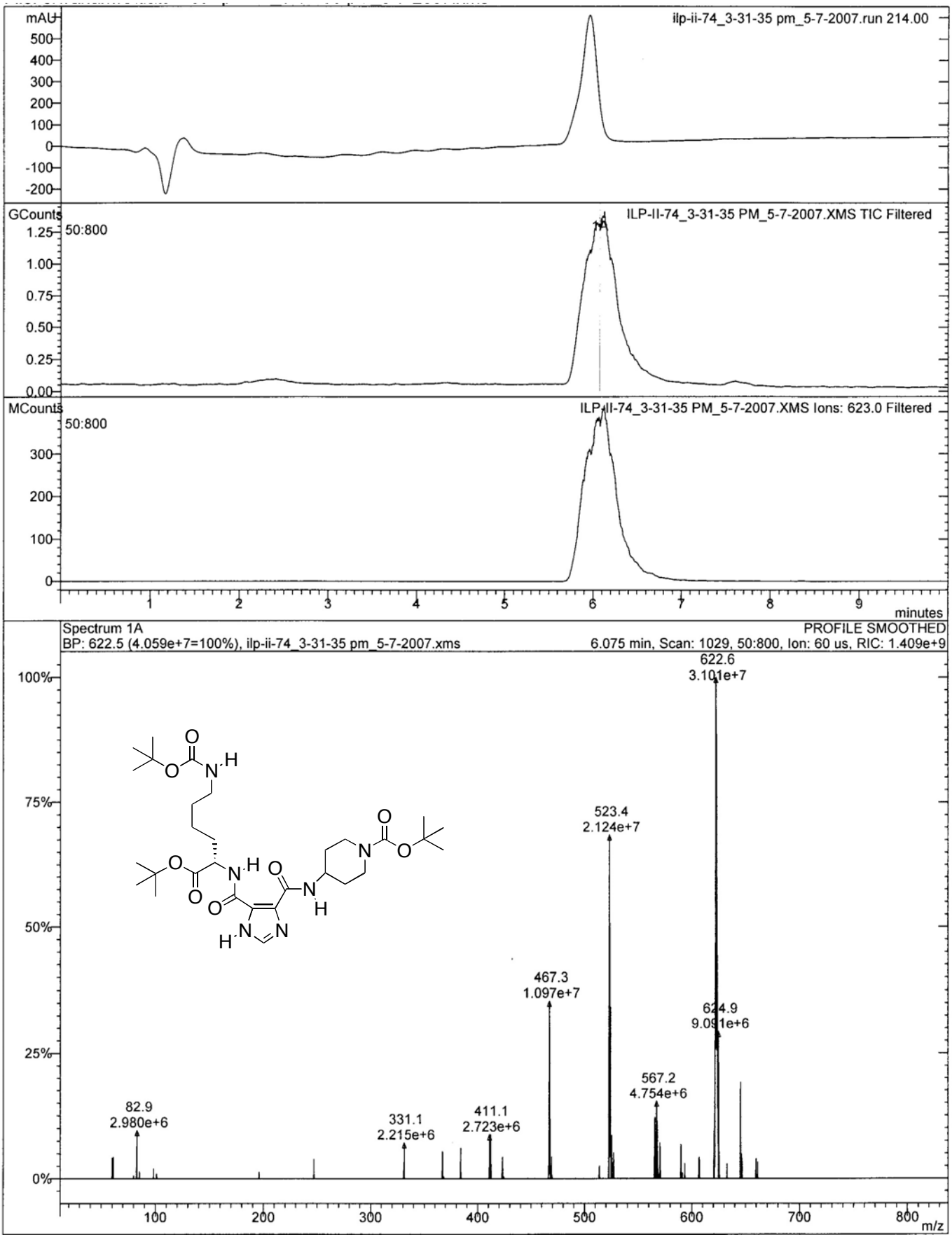

Figure S118. LC/MS data for **5{**118}.

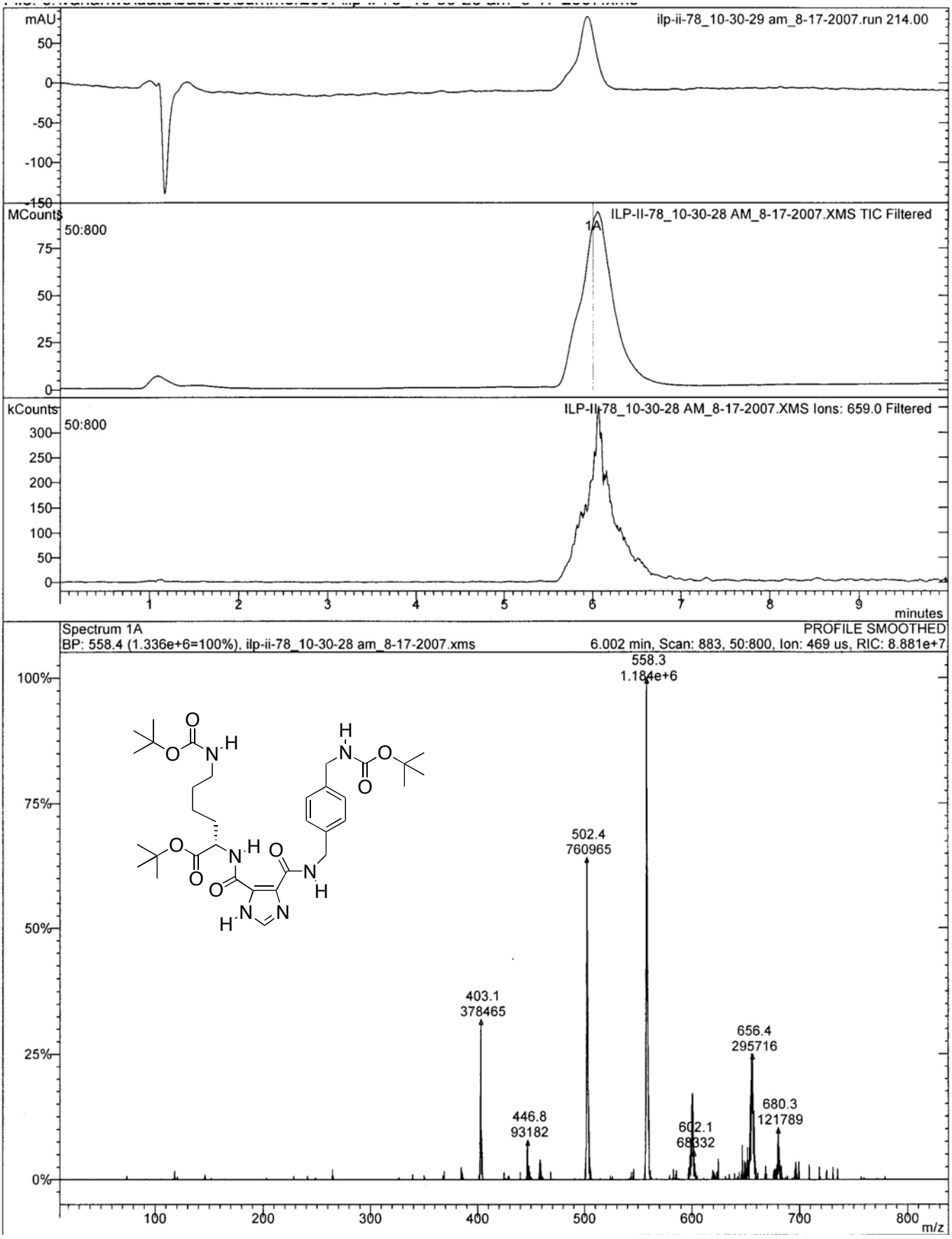

Figure S119. LC/MS data for **5{**119}.

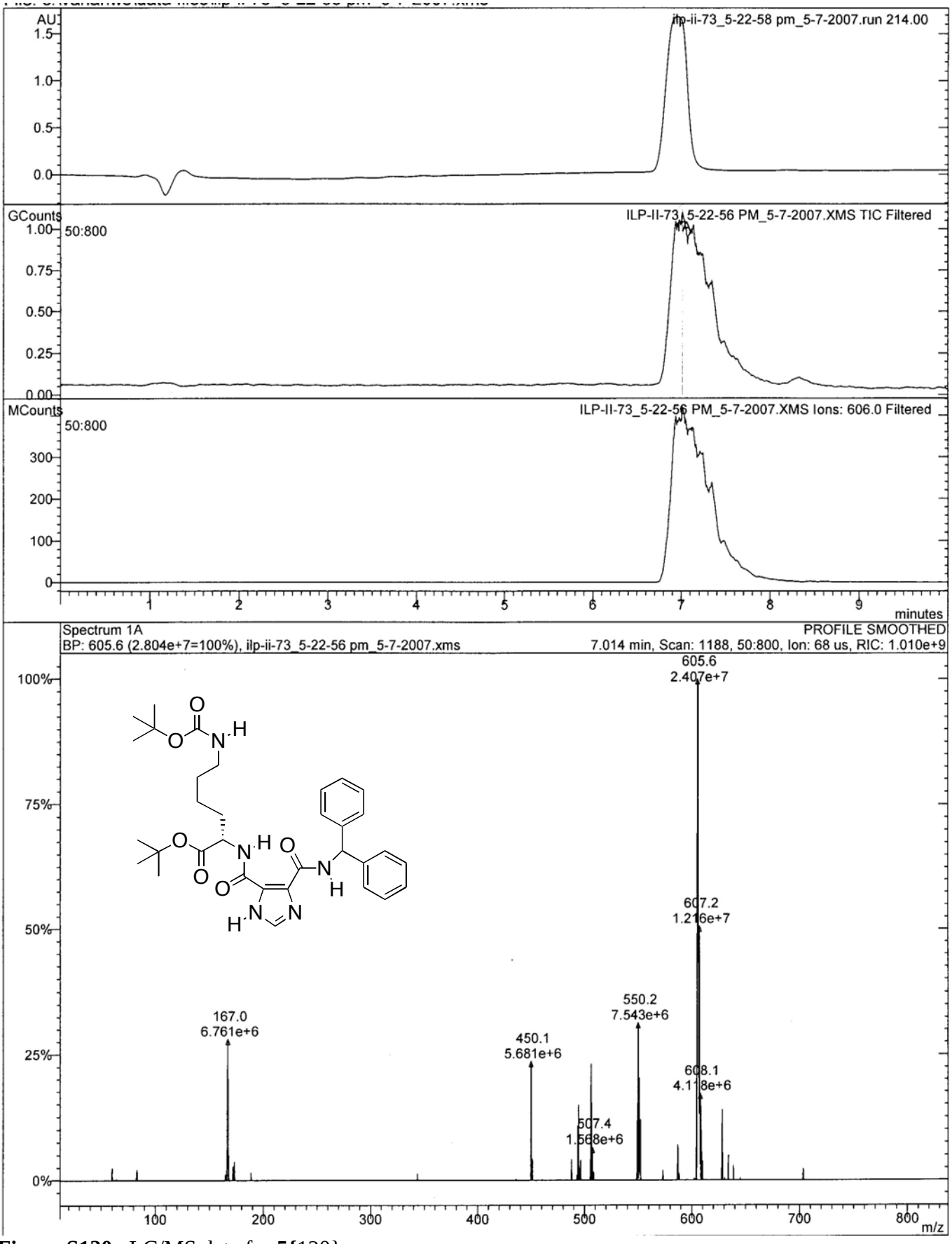

Figure S120. LC/MS data for **5{**120}.

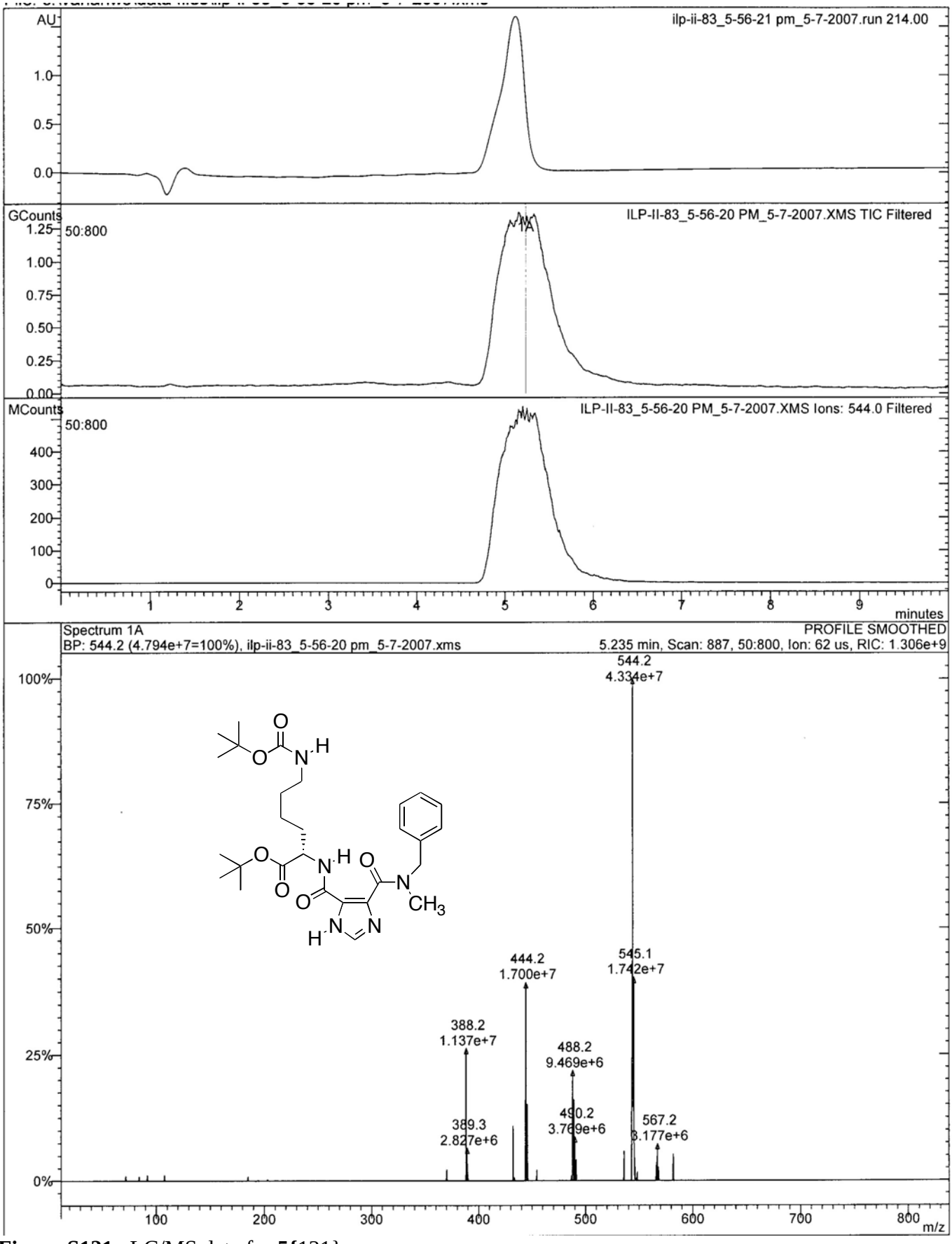

Figure S121. LC/MS data for **5{**121}.

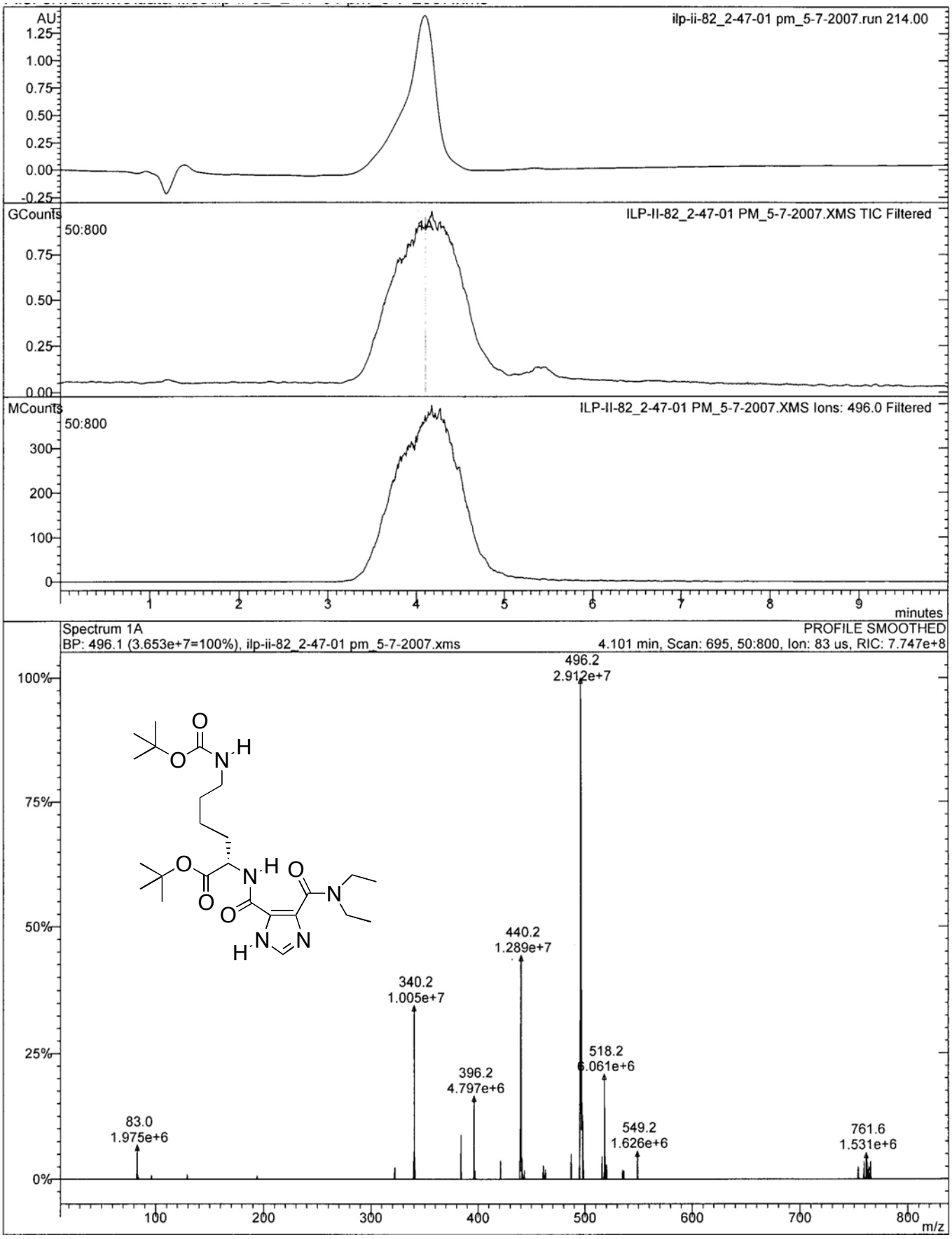

Figure S122. LC/MS data for **5{**122}.

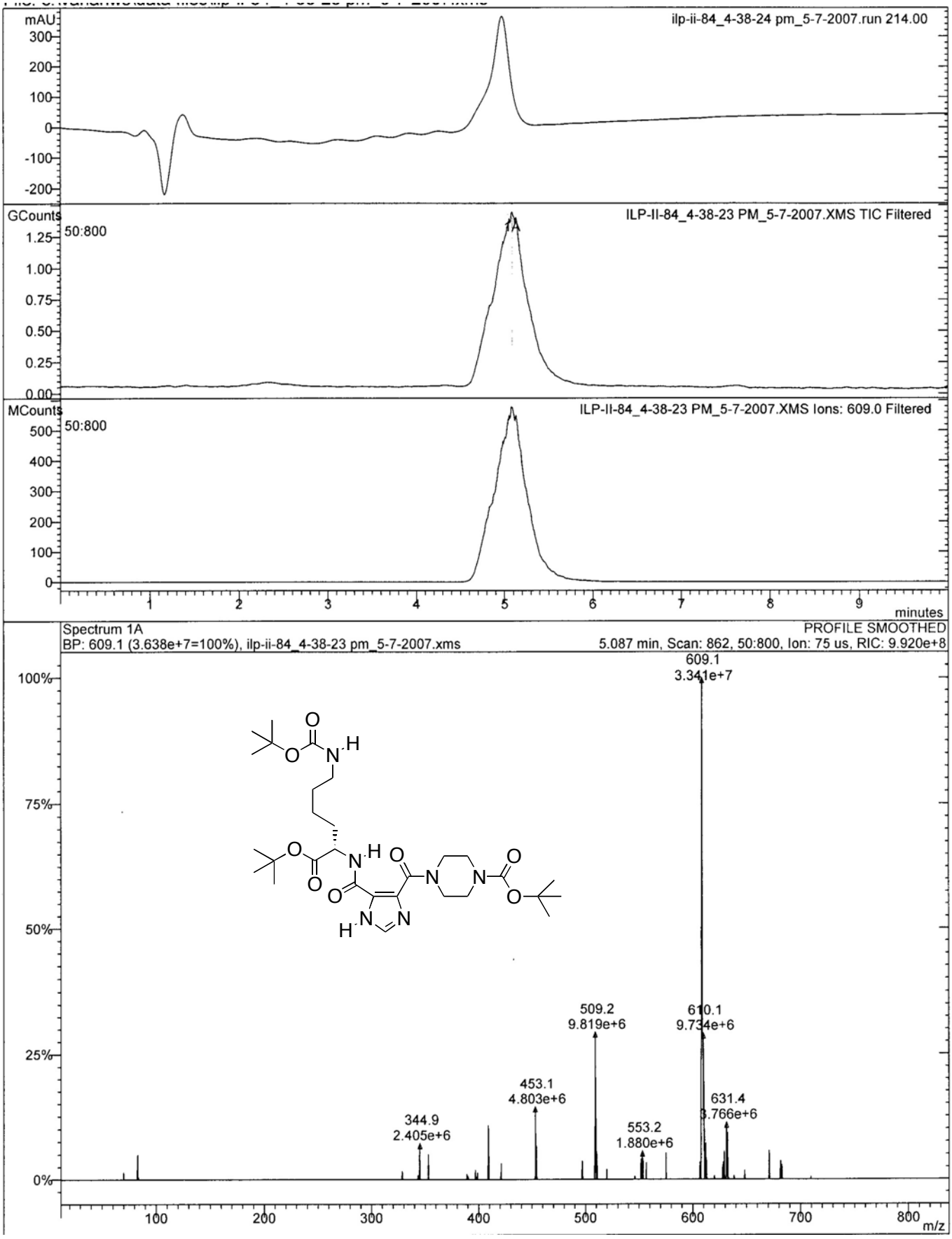

Figure S123. LC/MS data for **5{**123}.

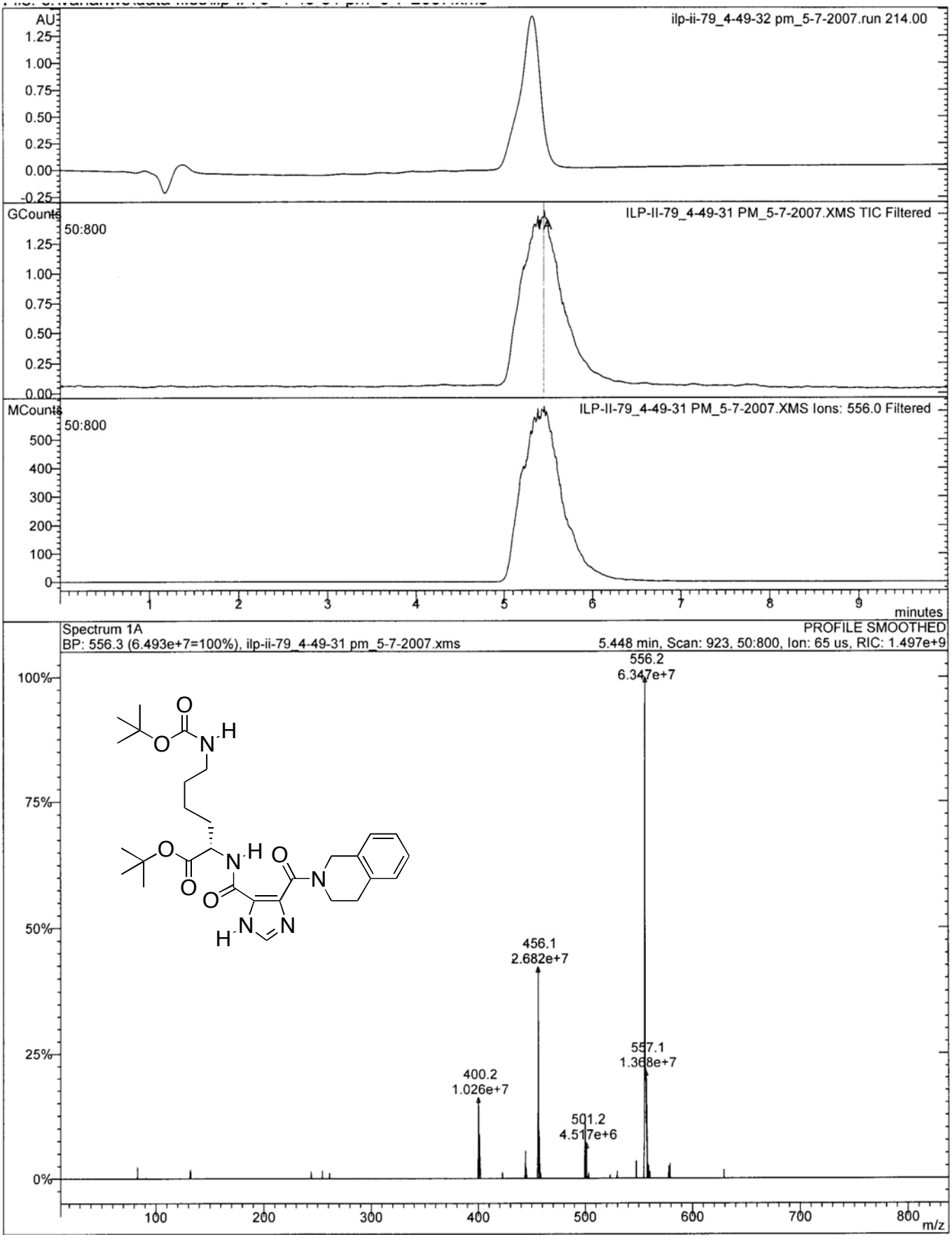

Figure S124. LC/MS data for **5{**124}.

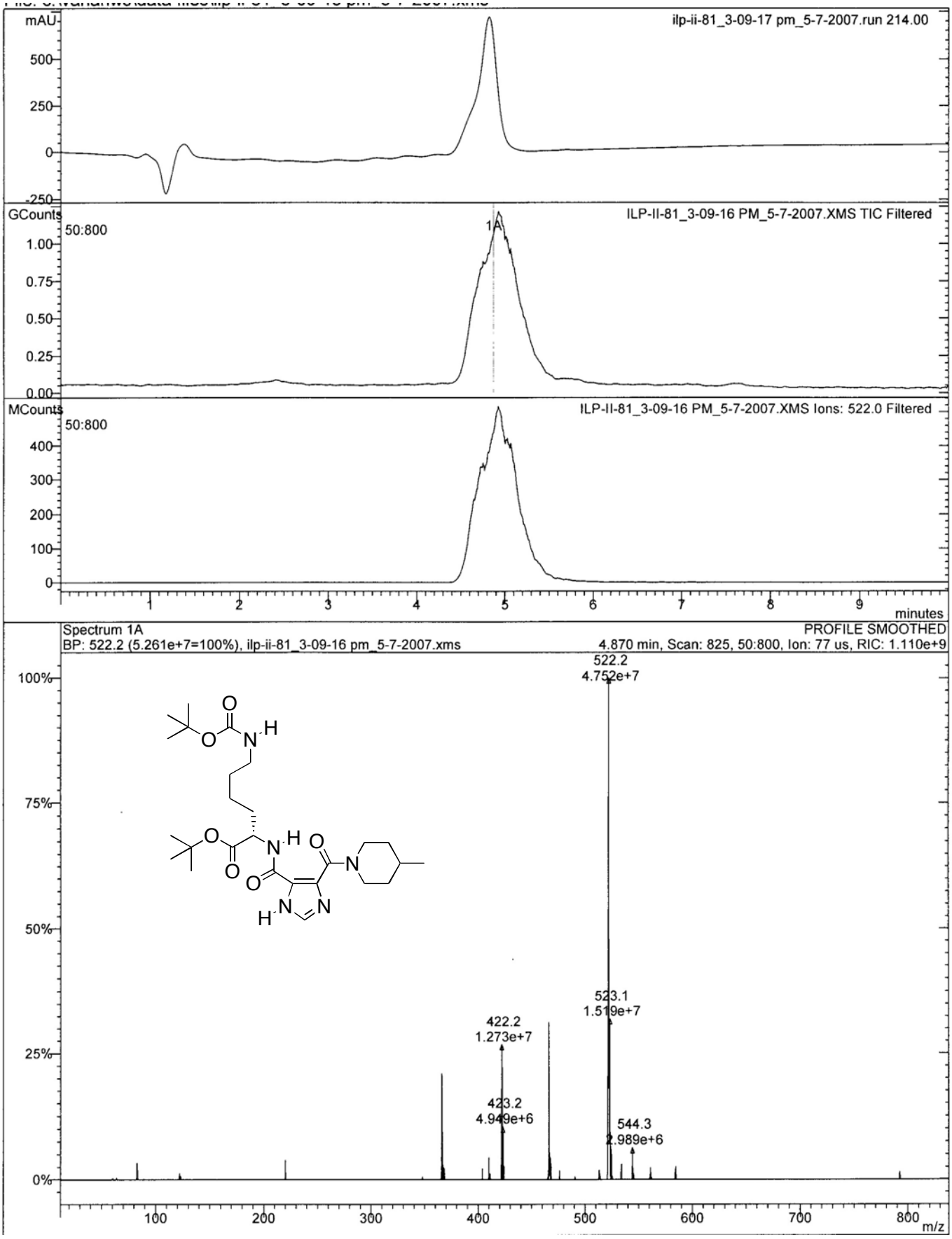

Figure S125. LC/MS data for **5{**125}.

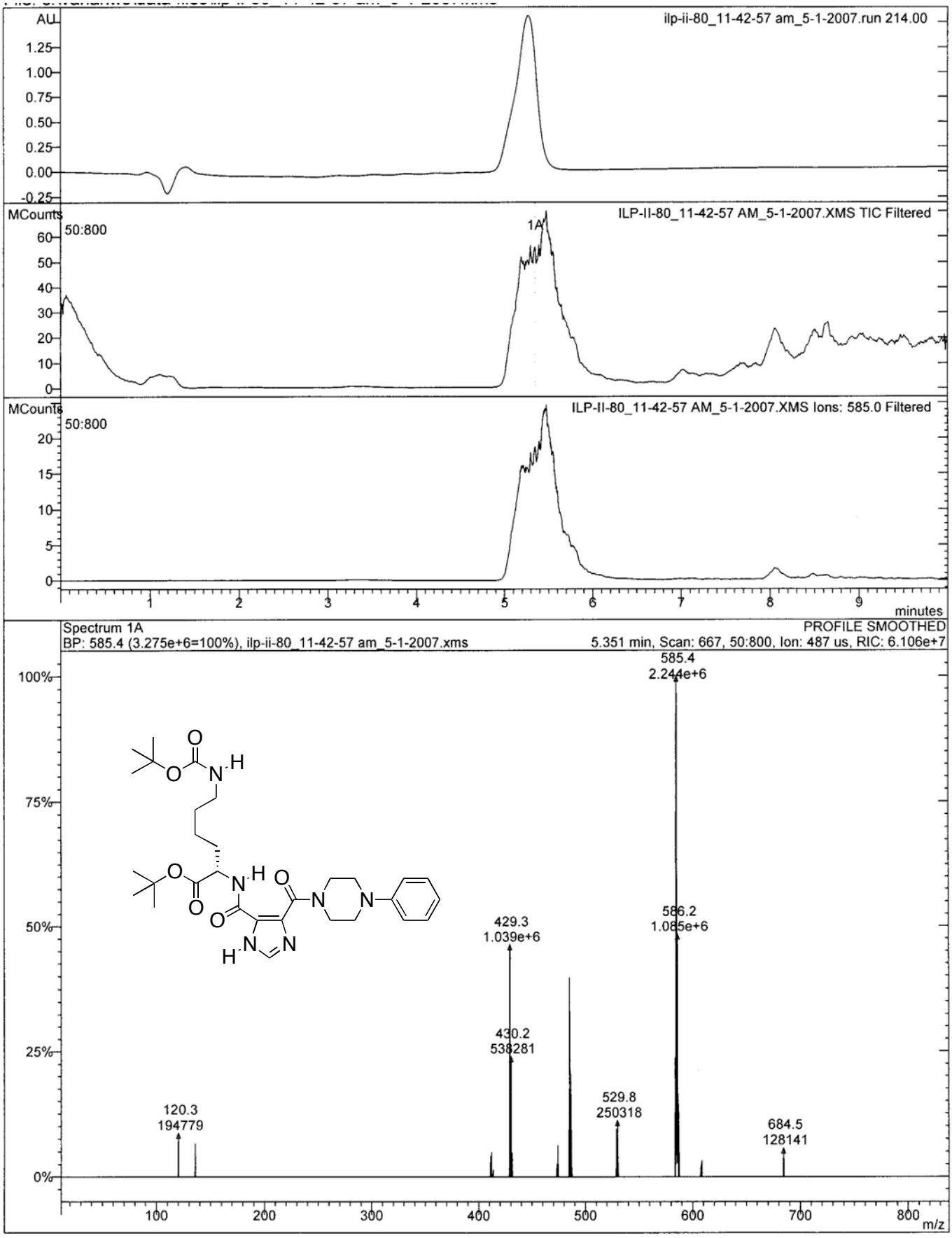

Figure S126. LC/MS data for **5{**126}.

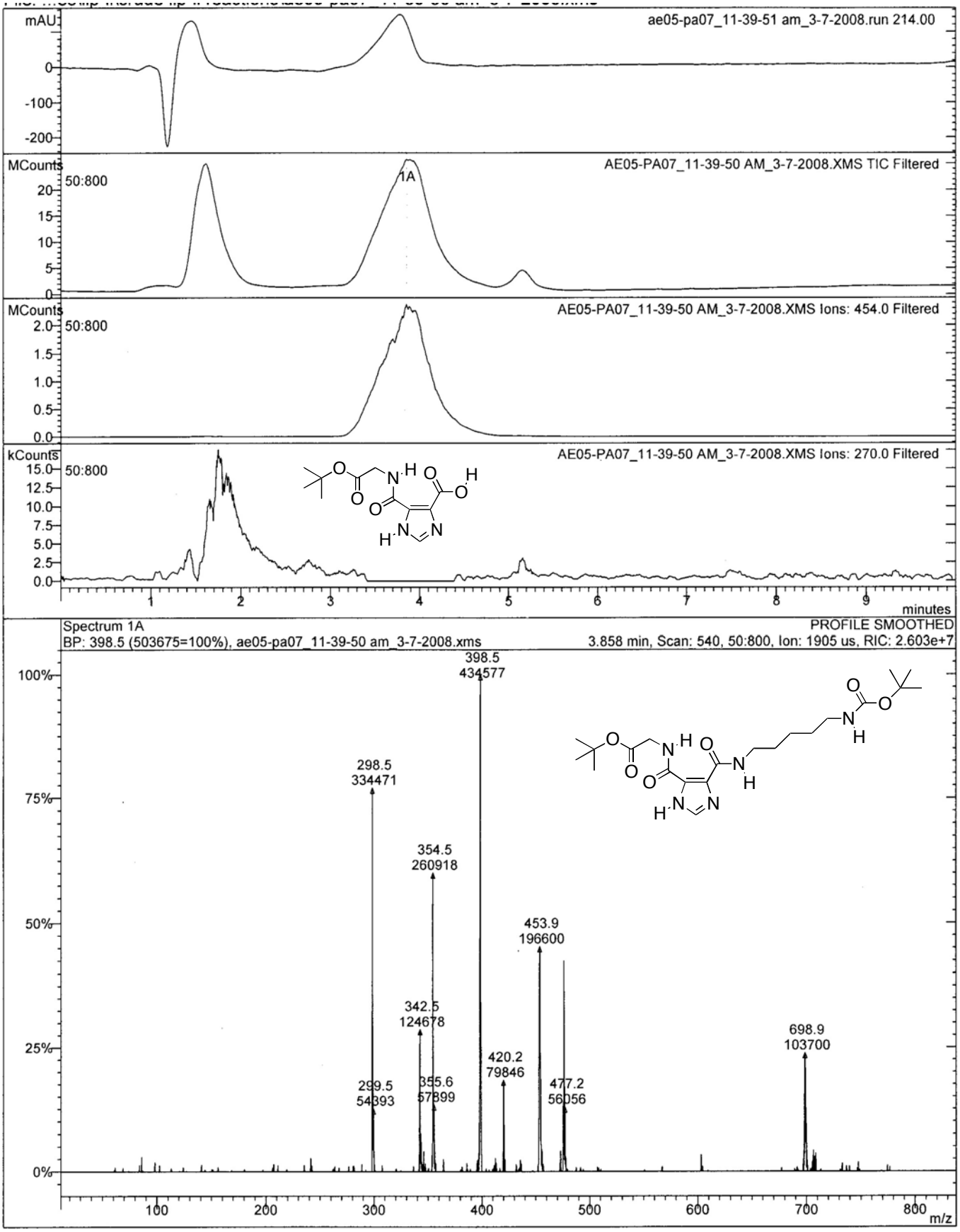

Figure S127. LC/MS data for the crude reaction to yield **5{**2}.

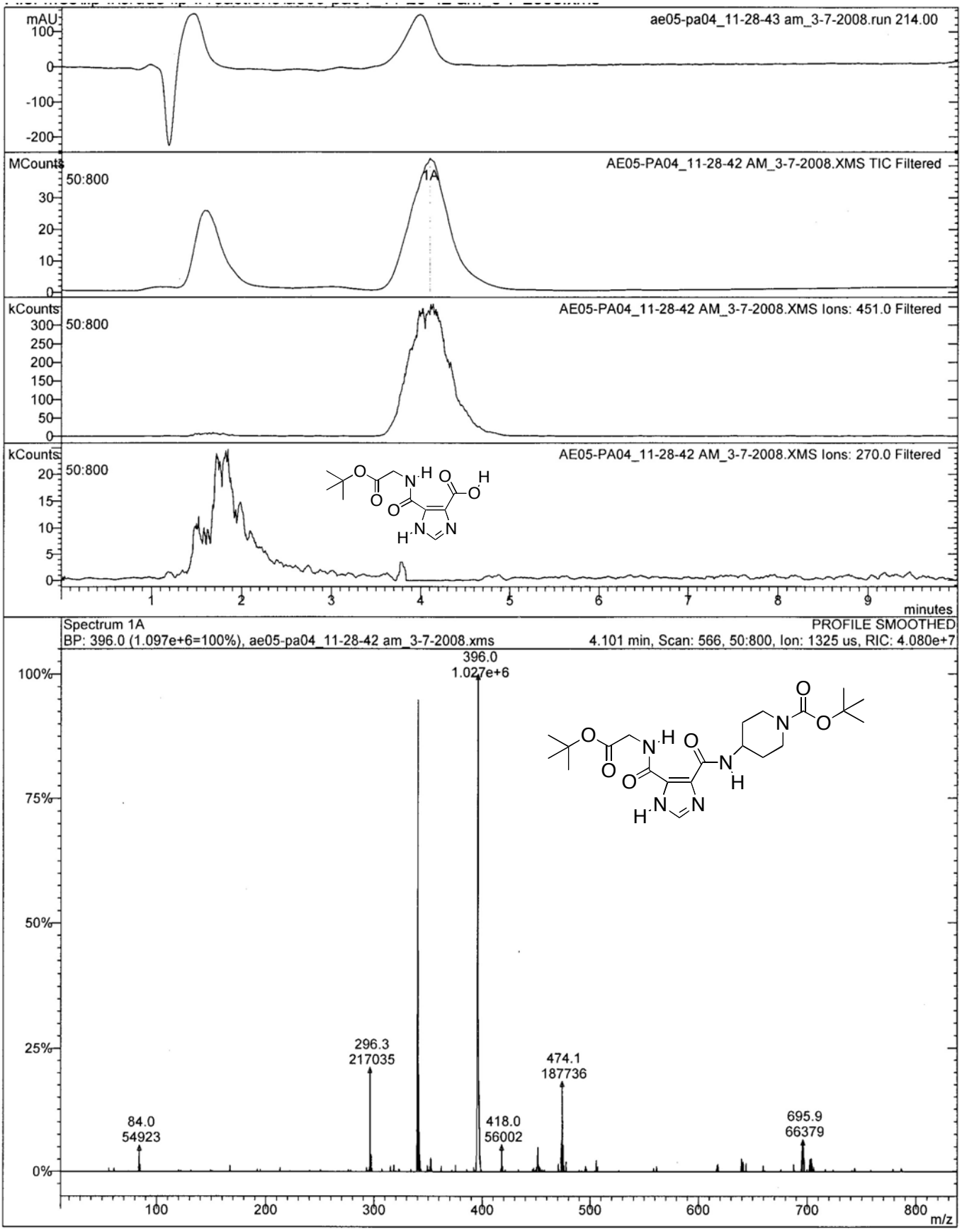

Figure S128. LC/MS data for the crude reaction to yield **5{**6}.

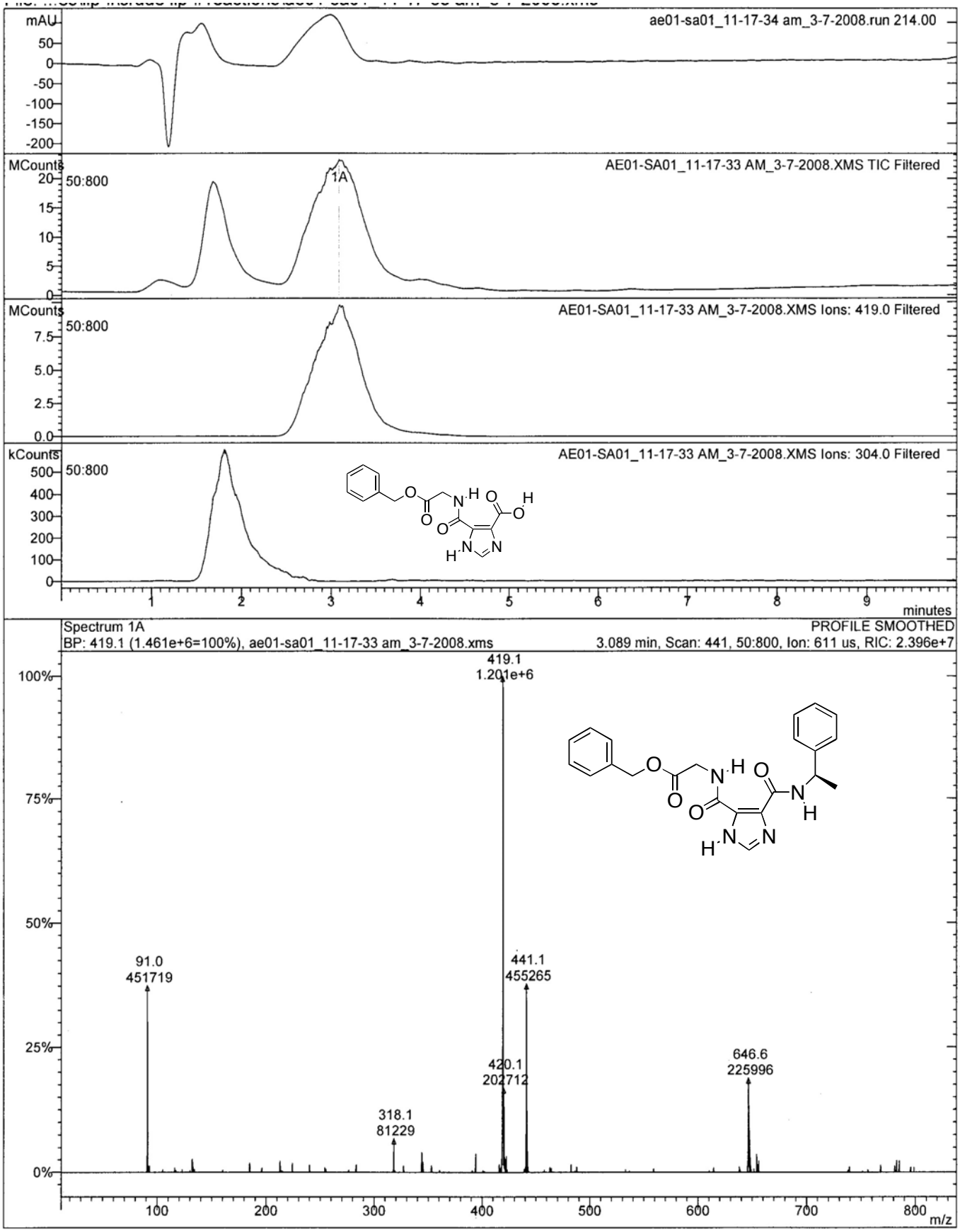

Figure S129. LC/MS data for the crude reaction to yield **5{**26}.

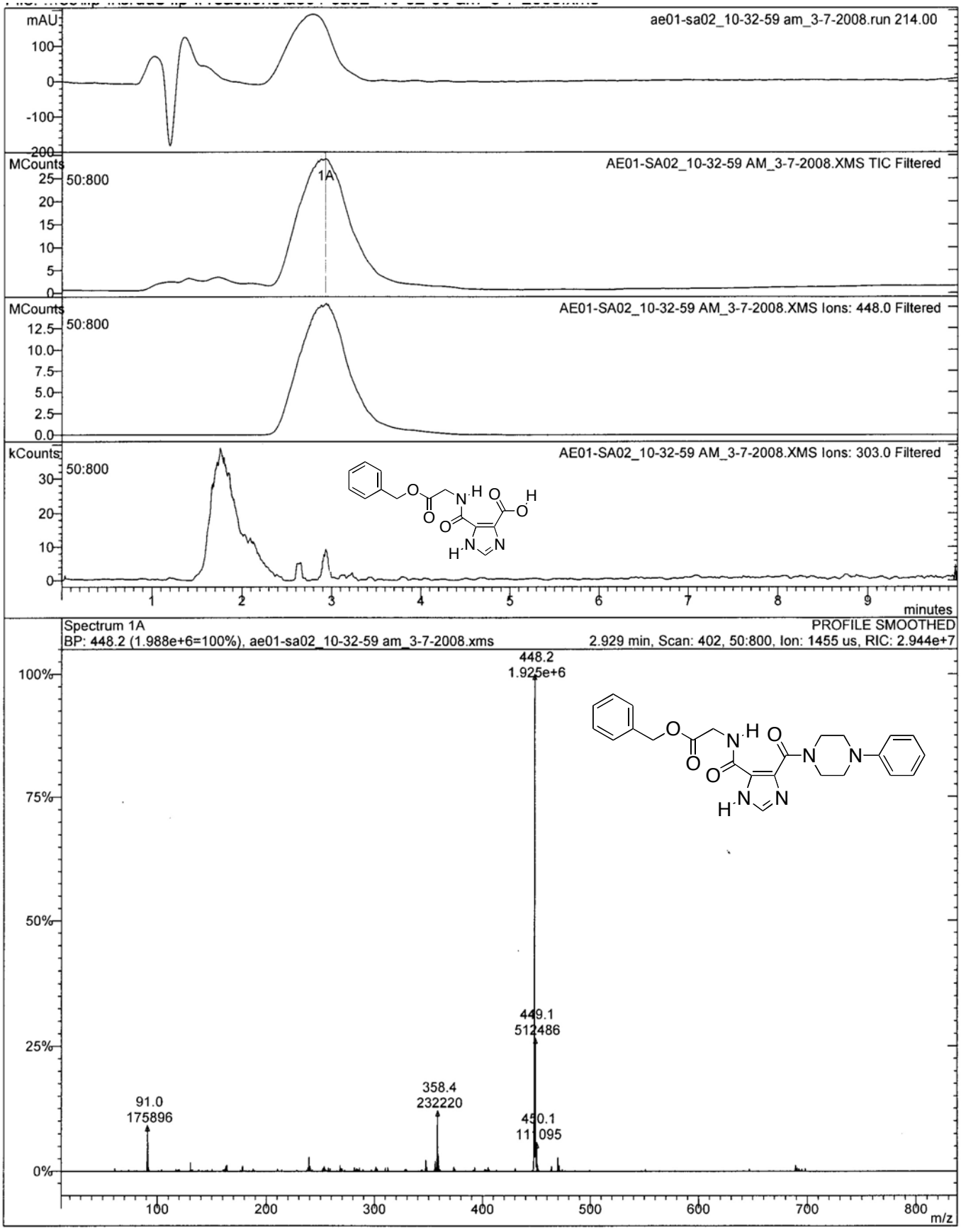

Figure S130. LC/MS data for the crude reaction to yield **5{**28}.

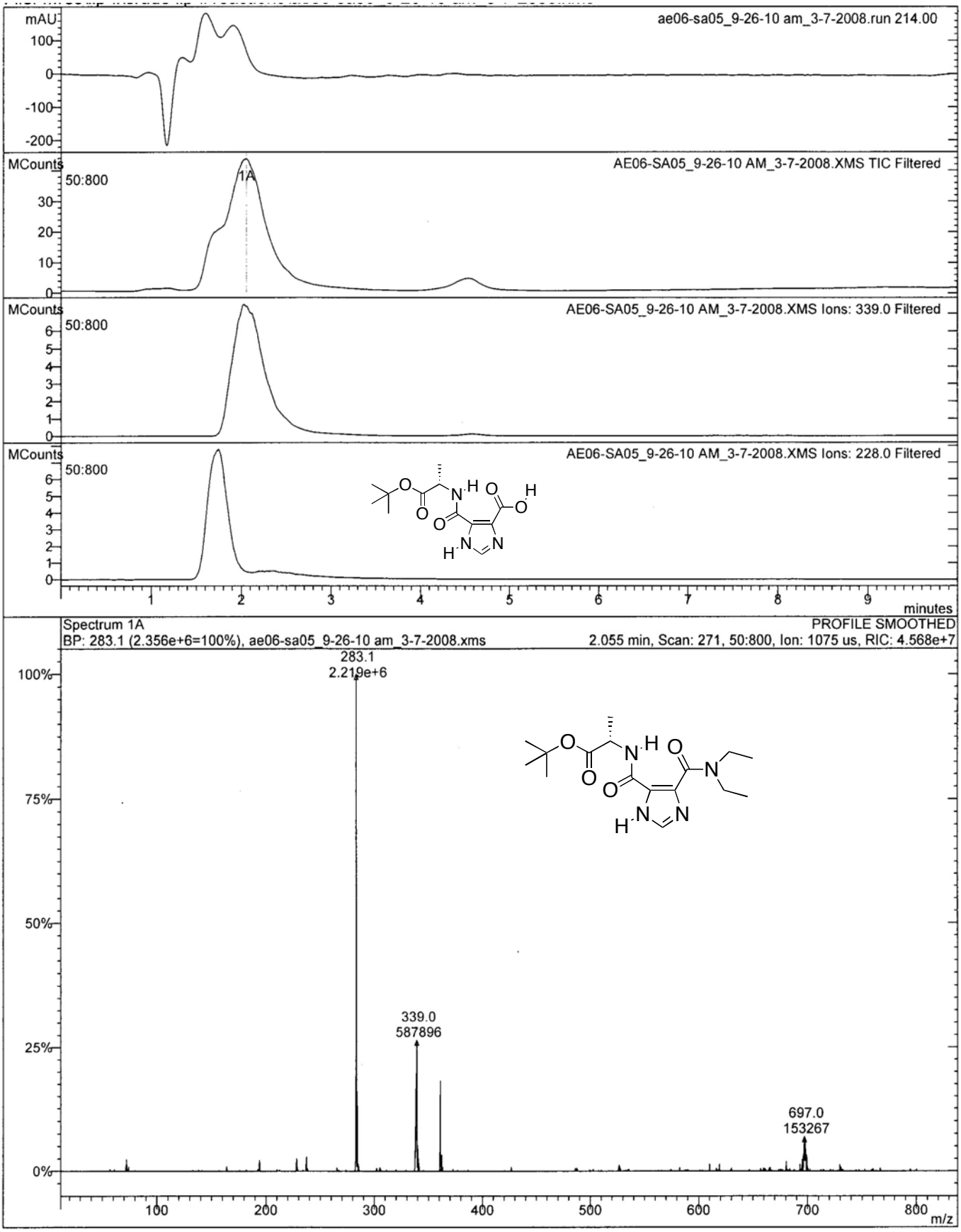

Figure S131. LC/MS data for the crude reaction to yield **5{**38}.

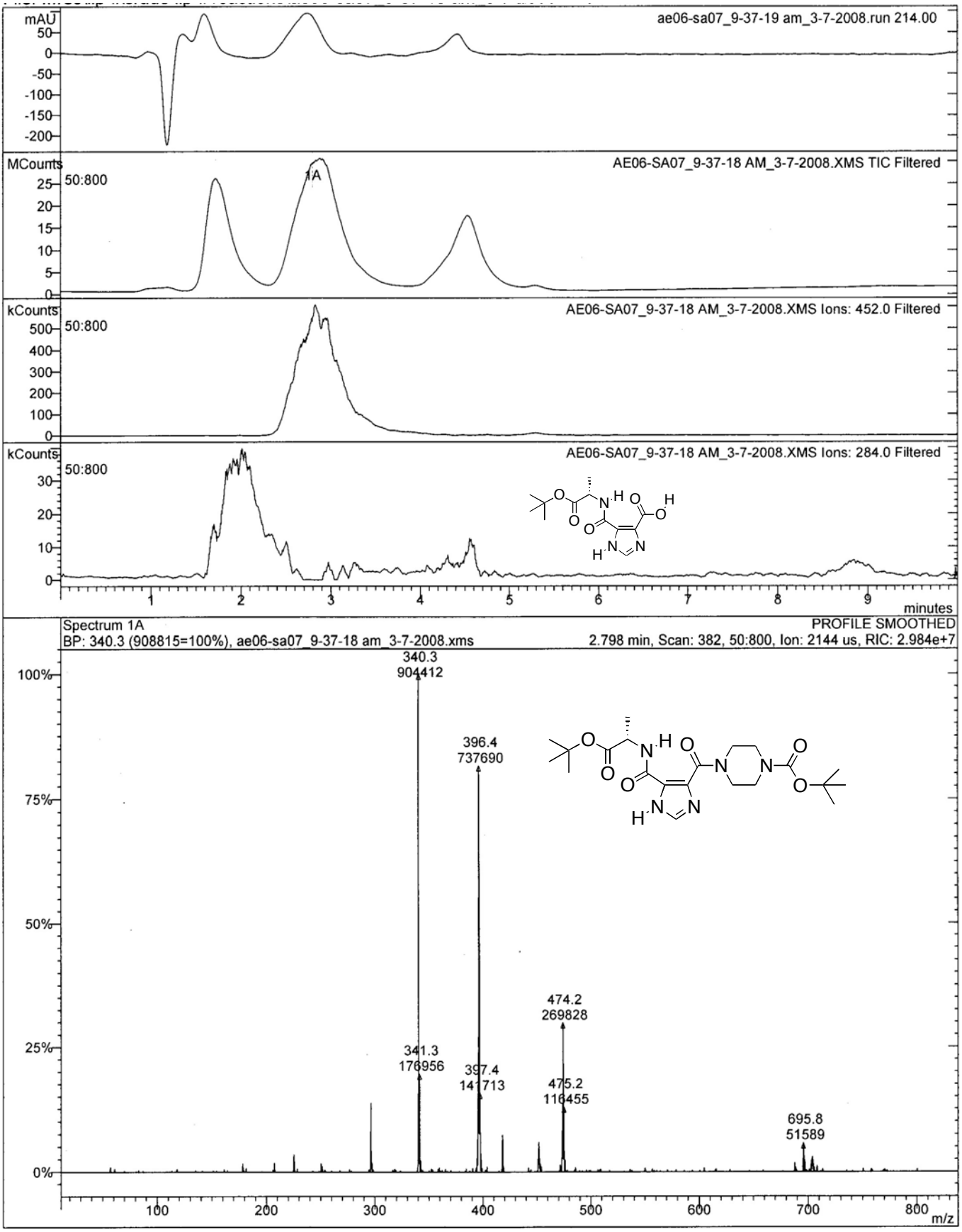

Figure S132. LC/MS data for the crude reaction to yield **5{**39}.

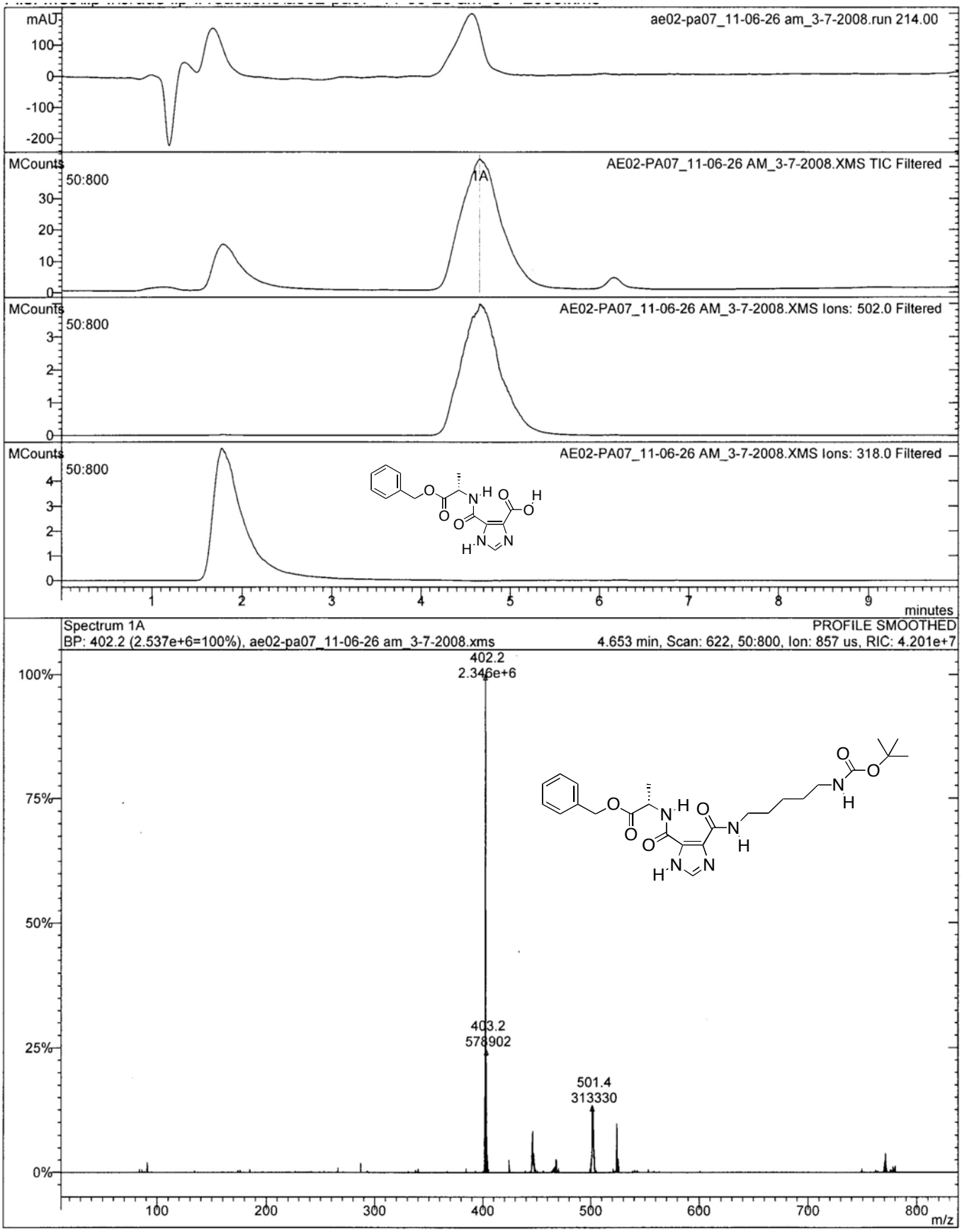

Figure S133. LC/MS data for the crude reaction to yield **5{**44}.

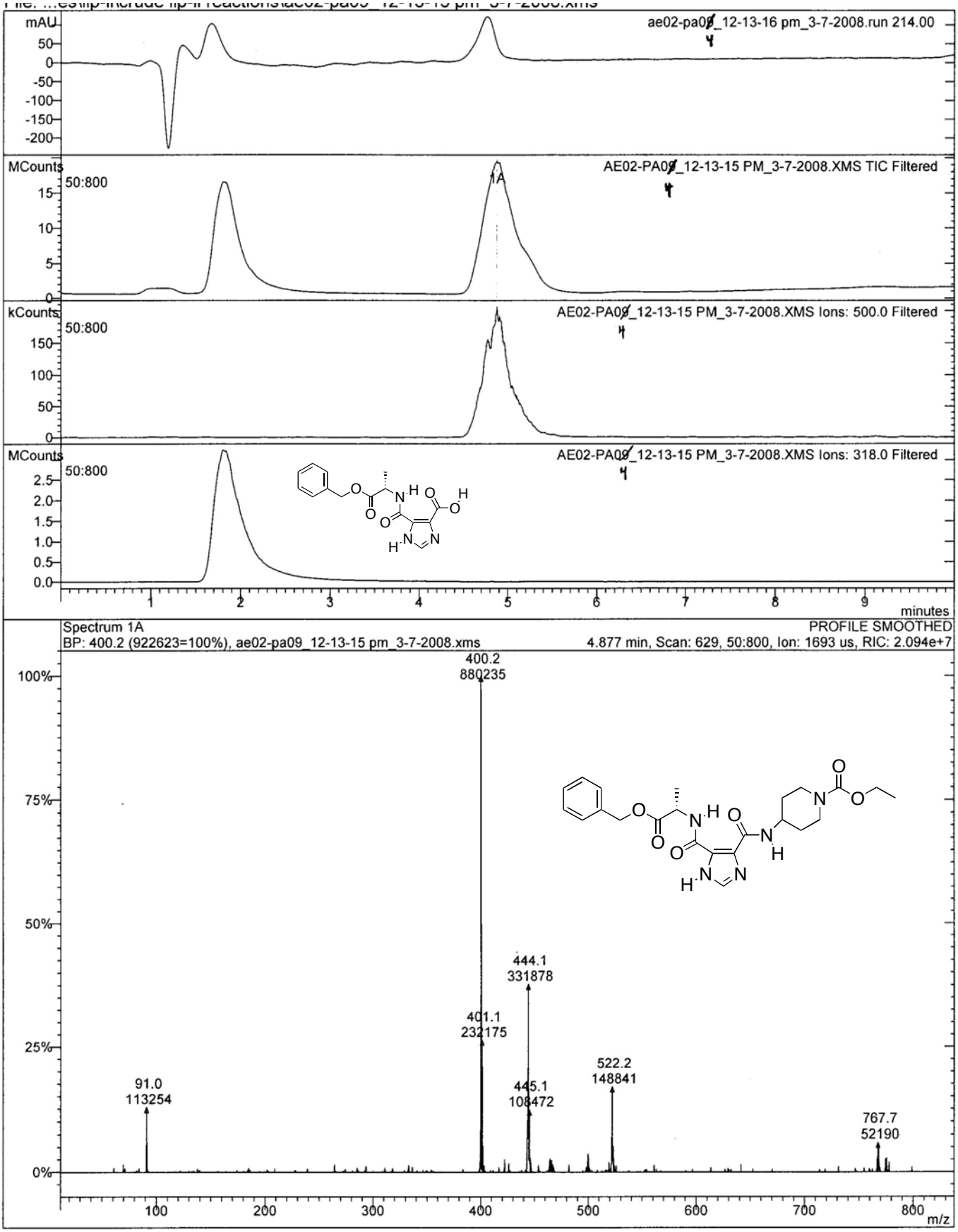

Figure S134. LC/MS data for the crude reaction to yield **5{**48}.

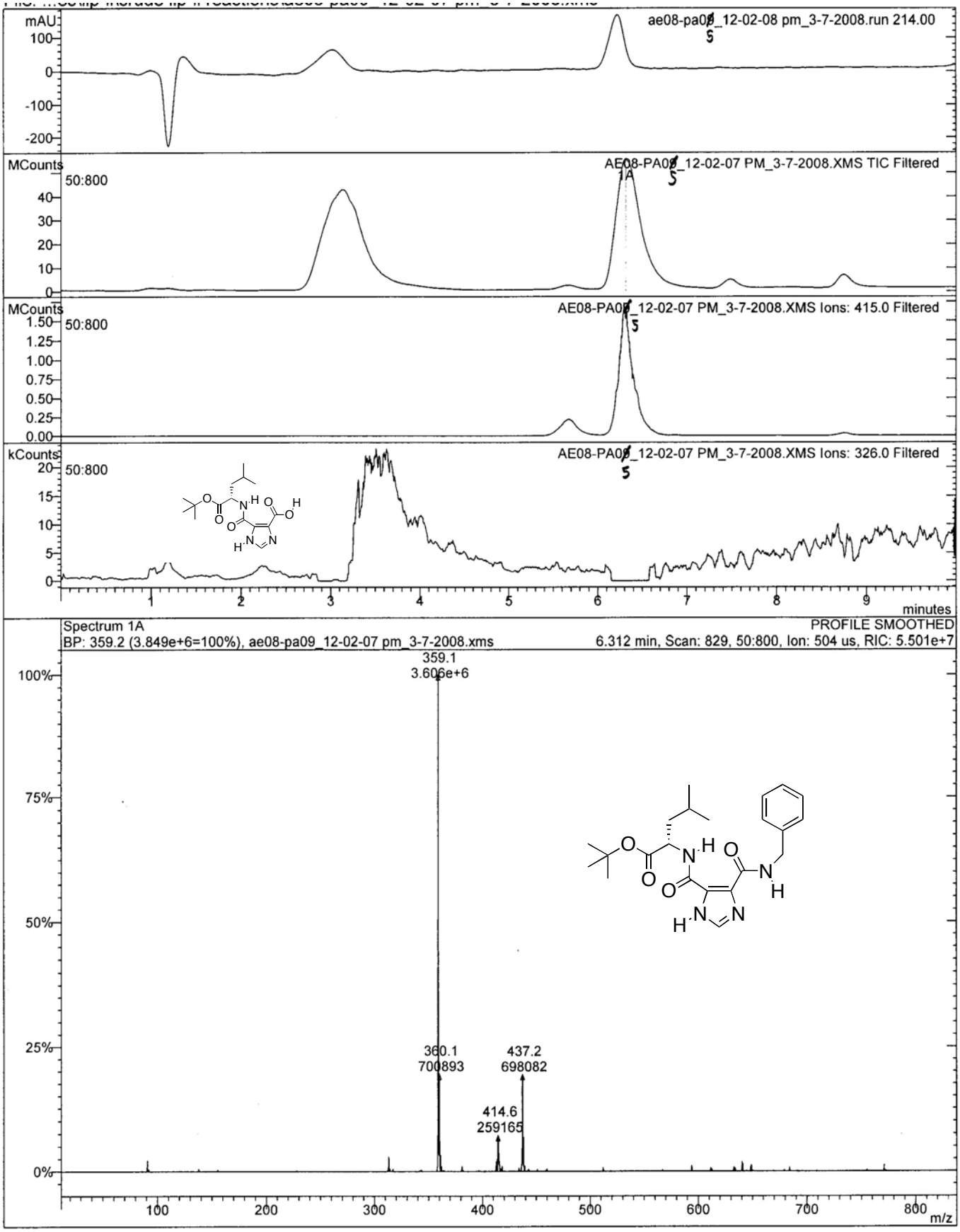

Figure S135. LC/MS data for the crude reaction to yield **5{**59}.

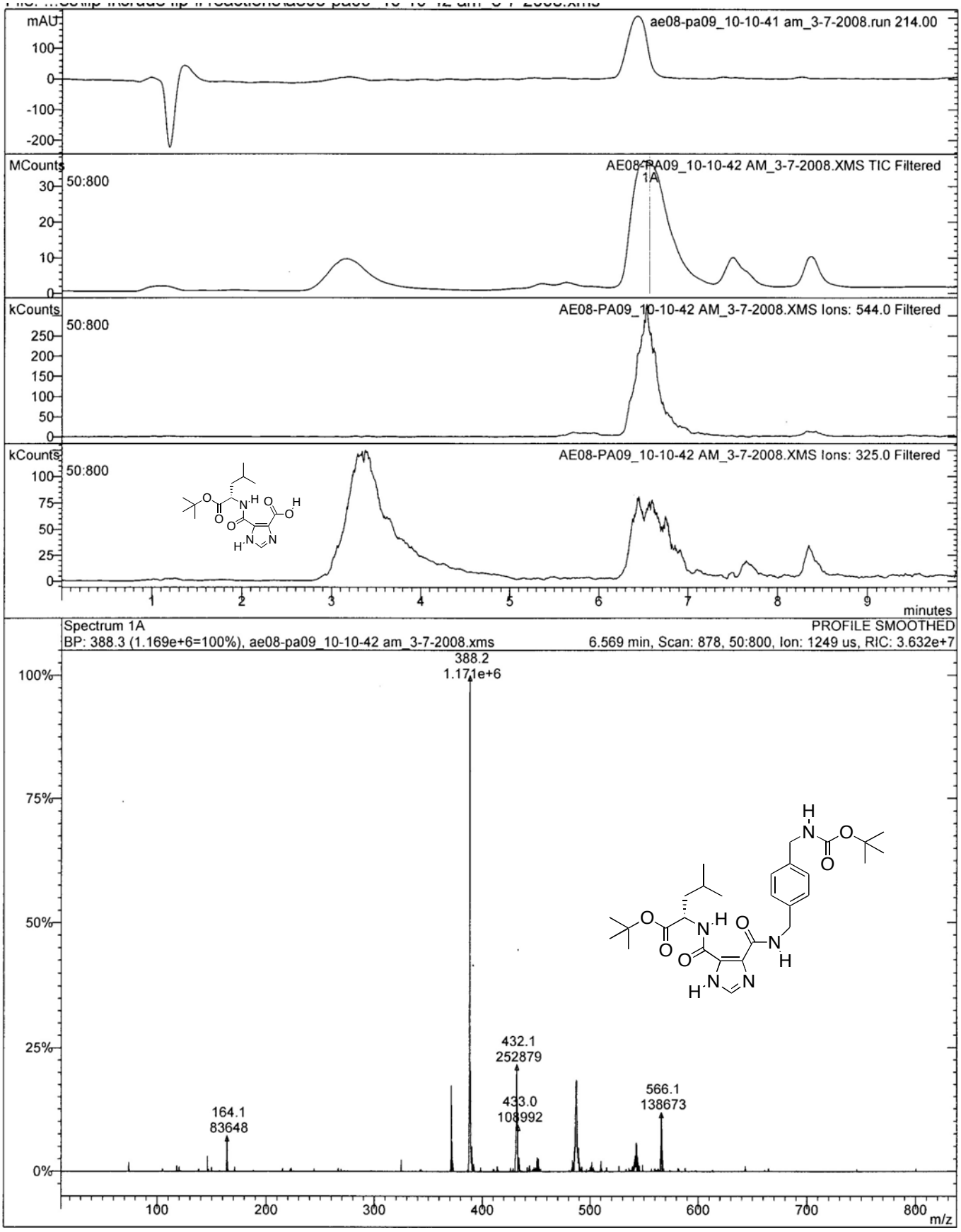

Figure S136. LC/MS data for the crude reaction to yield **5{**63}.

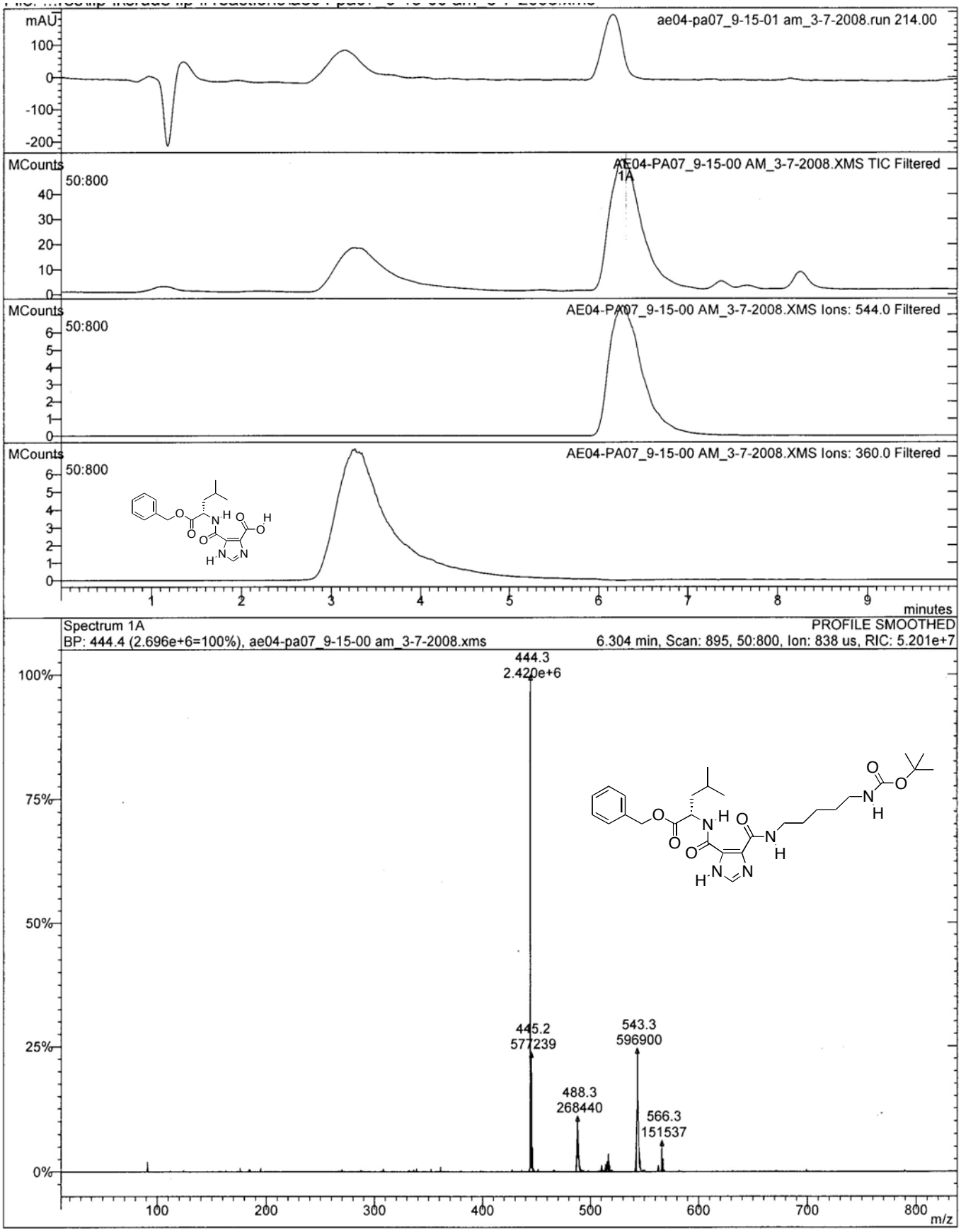

Figure S137. LC/MS data for the crude reaction to yield **5{**72}.

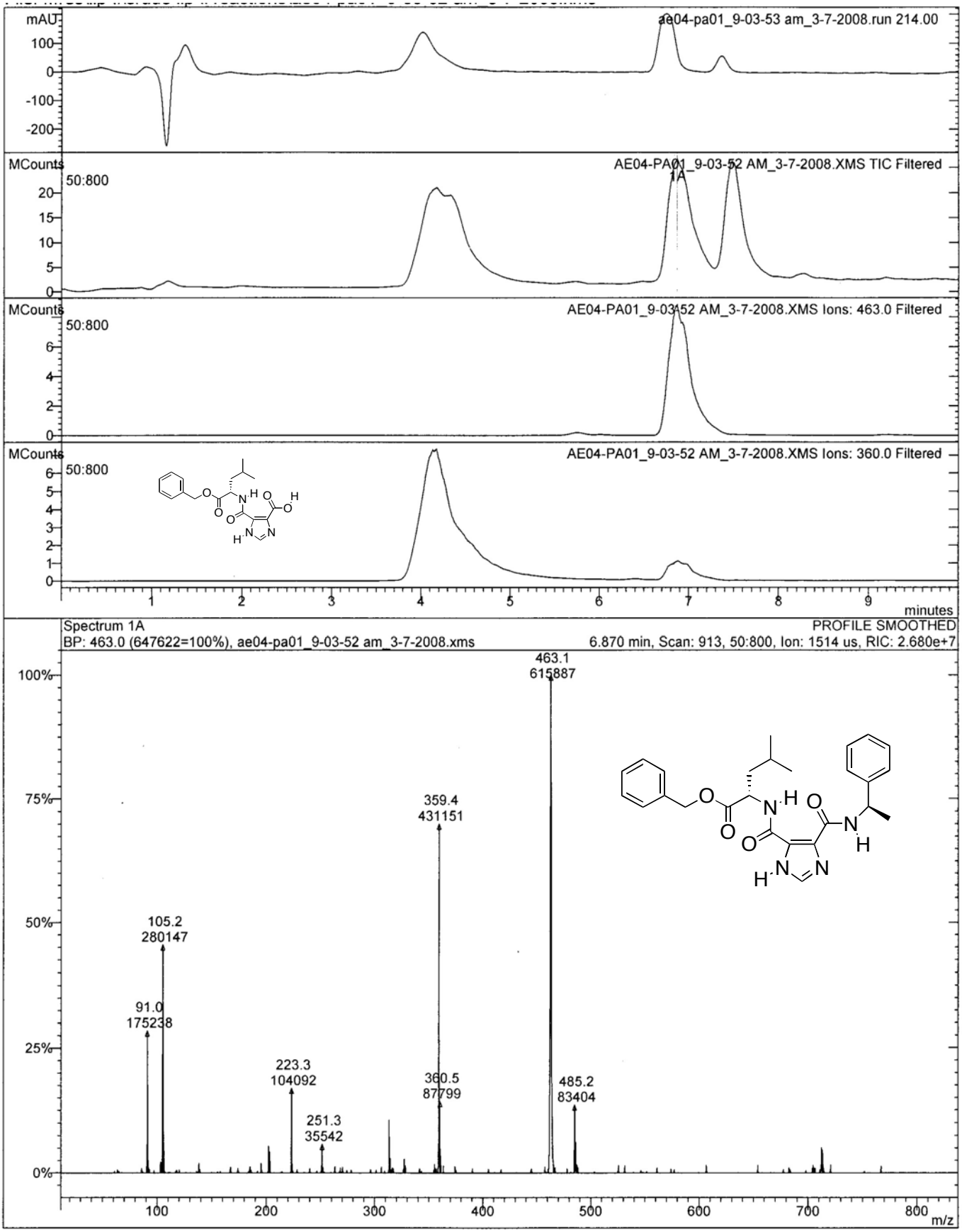

Figure S138. LC/MS data for the crude reaction to yield **5{**74}.

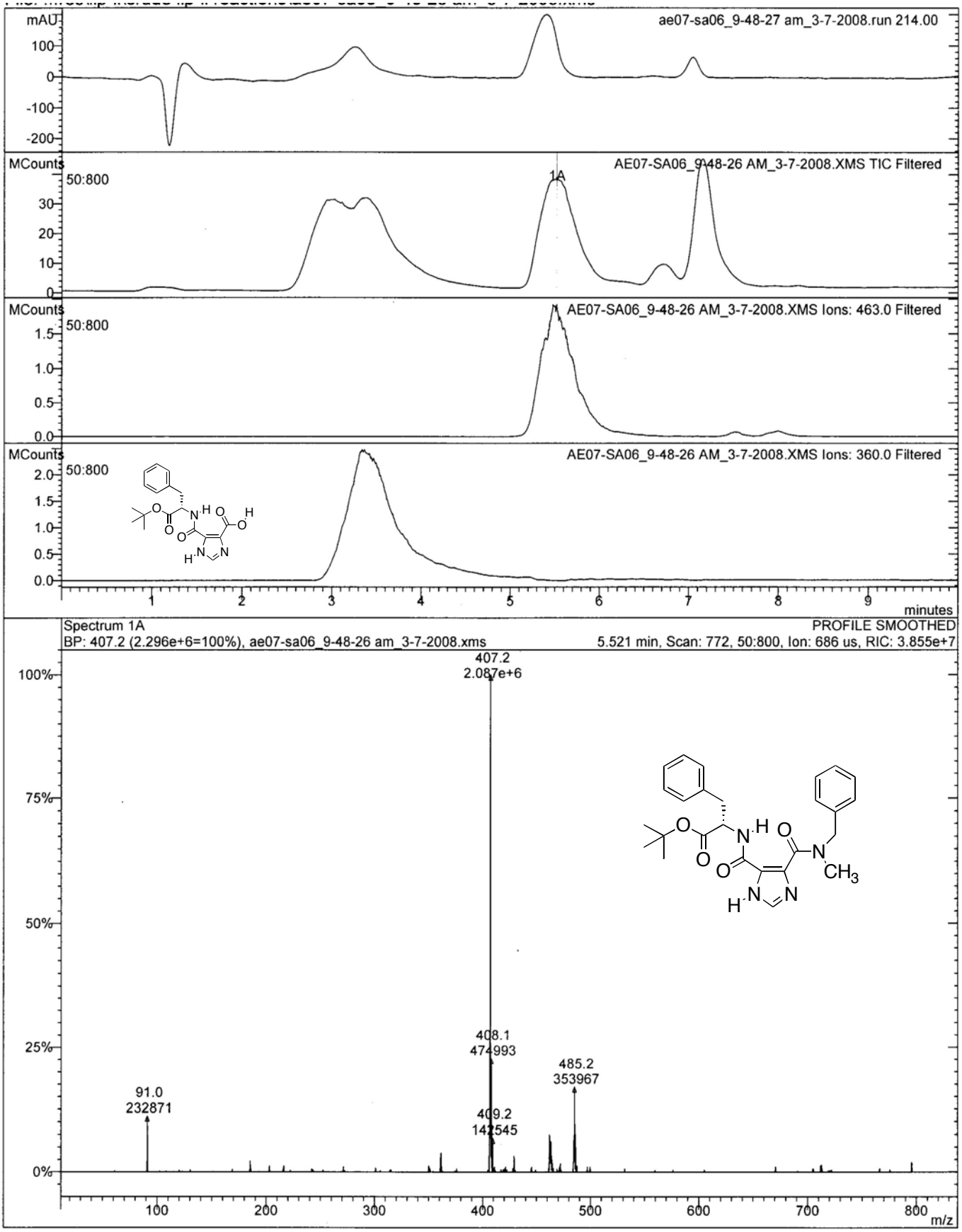

Figure S139. LC/MS data for the crude reaction to yield **5{**93}.

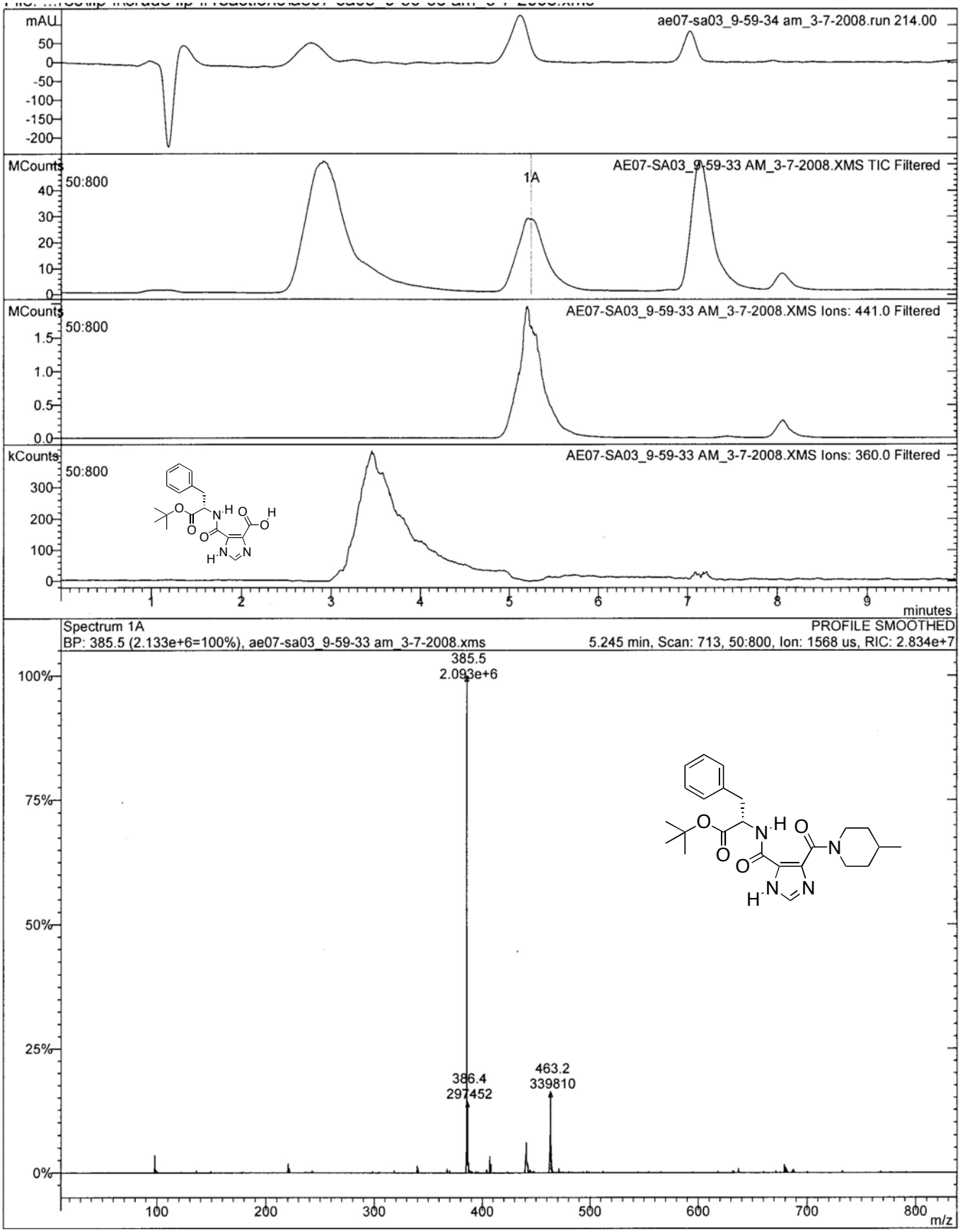

Figure S140. LC/MS data for the crude reaction to yield **5{**97}.

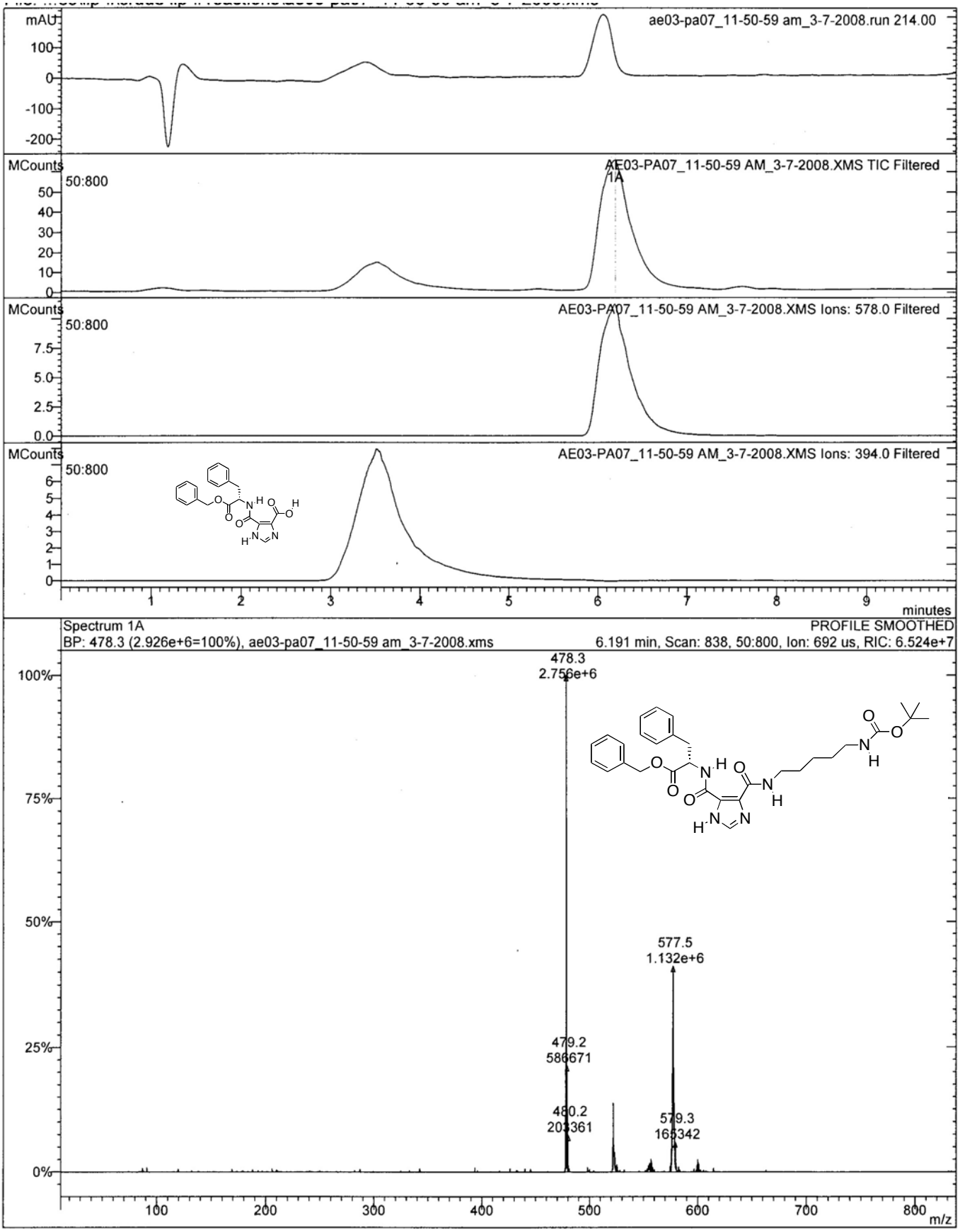

Figure S141. LC/MS data for the crude reaction to yield **5{**100}.

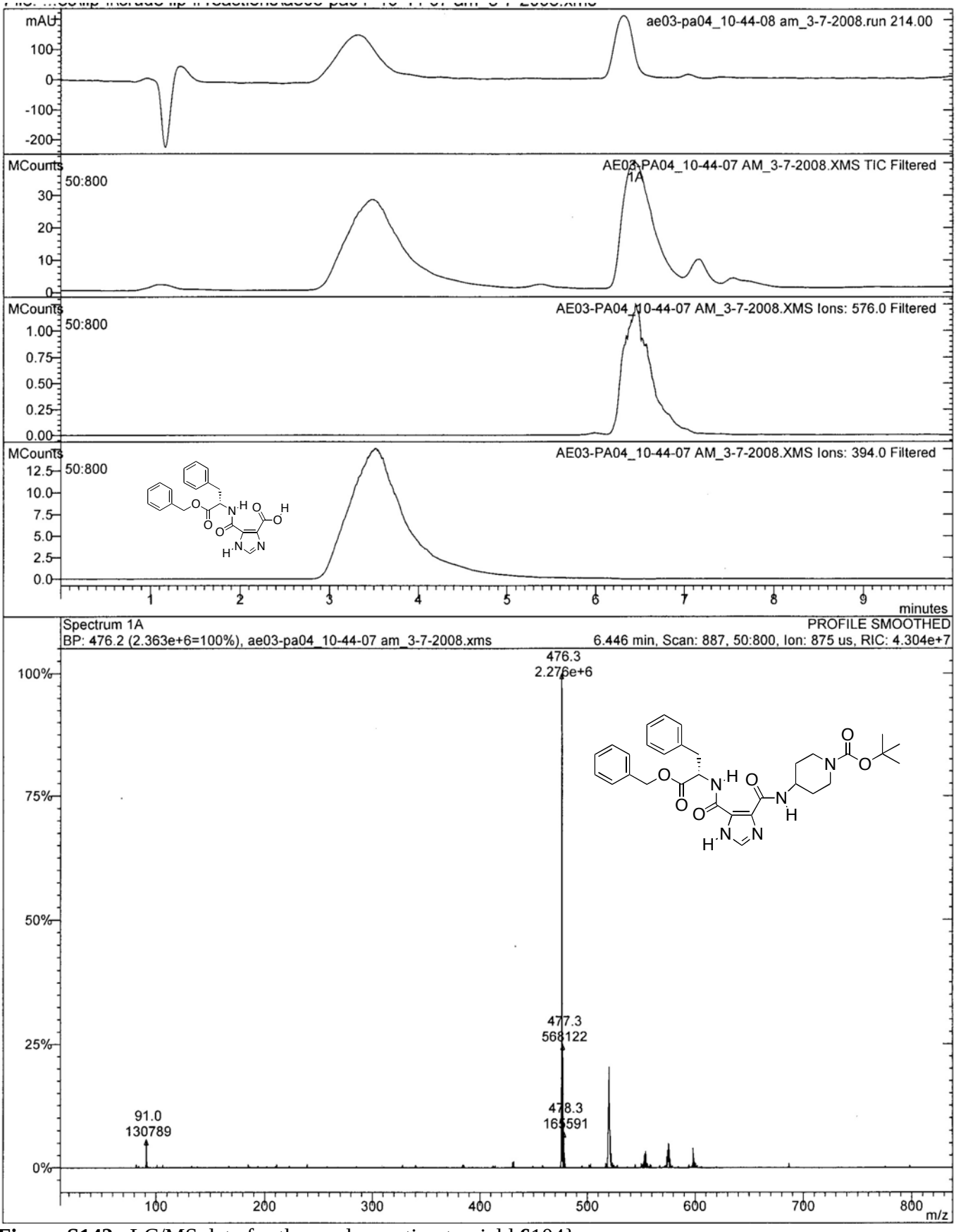

Figure S142. LC/MS data for the crude reaction to yield **6**104}.

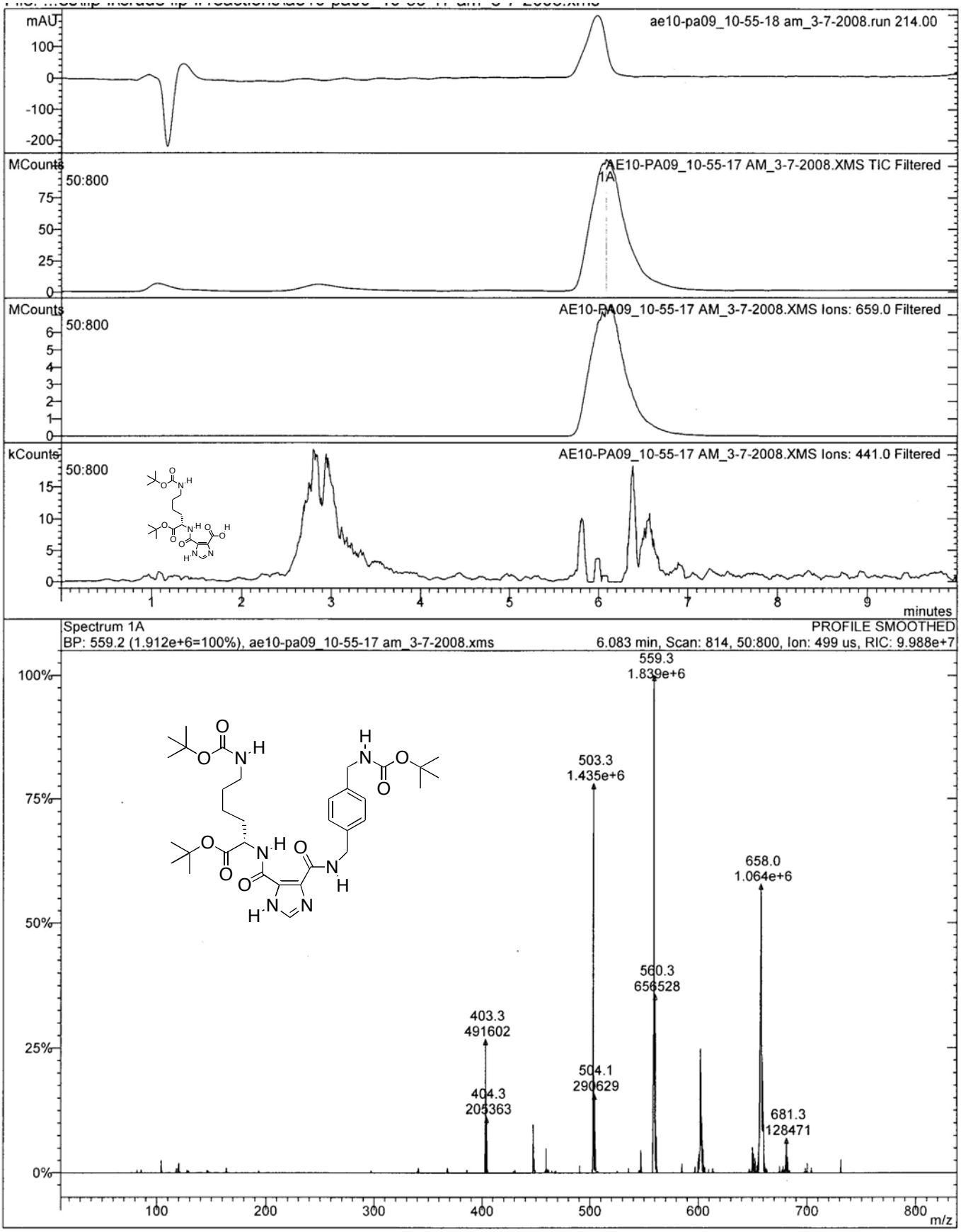

Figure S143. LC/MS data for the crude reaction to yield **5{**119}.

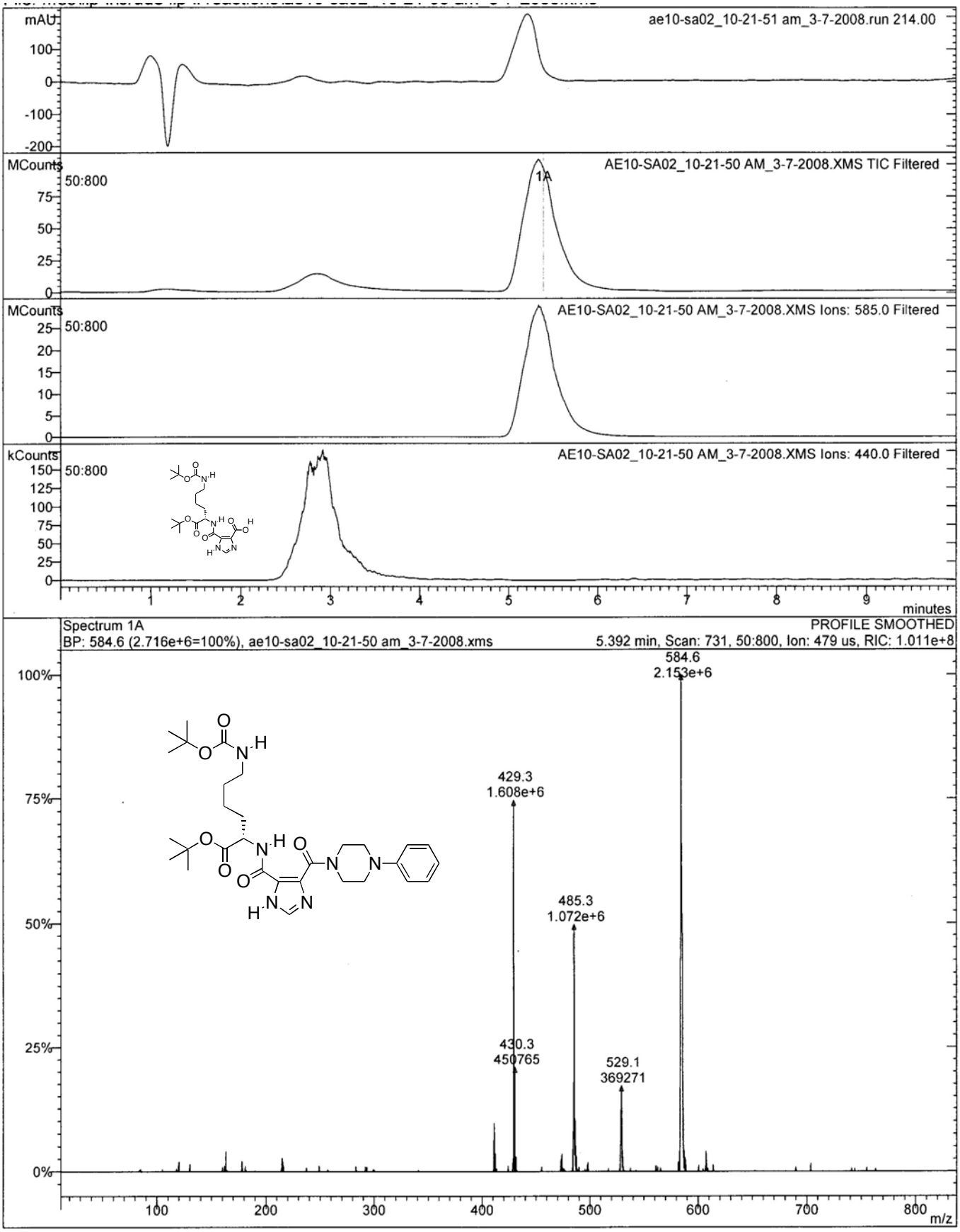

Figure S144. LC/MS data for the crude reaction to yield **5{**126}.

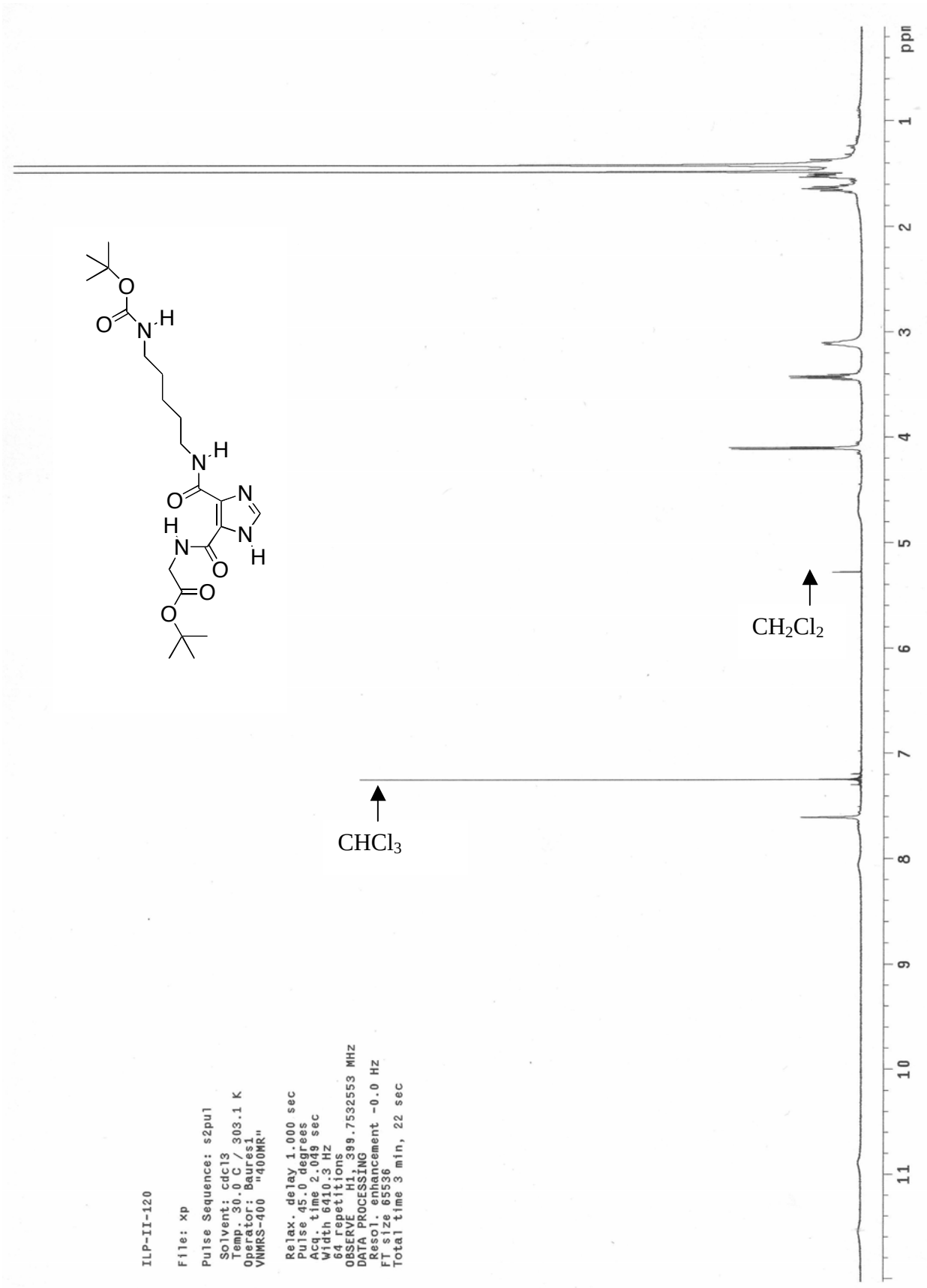

Figure S145. ^{1}H-NMR for **5{**2}.

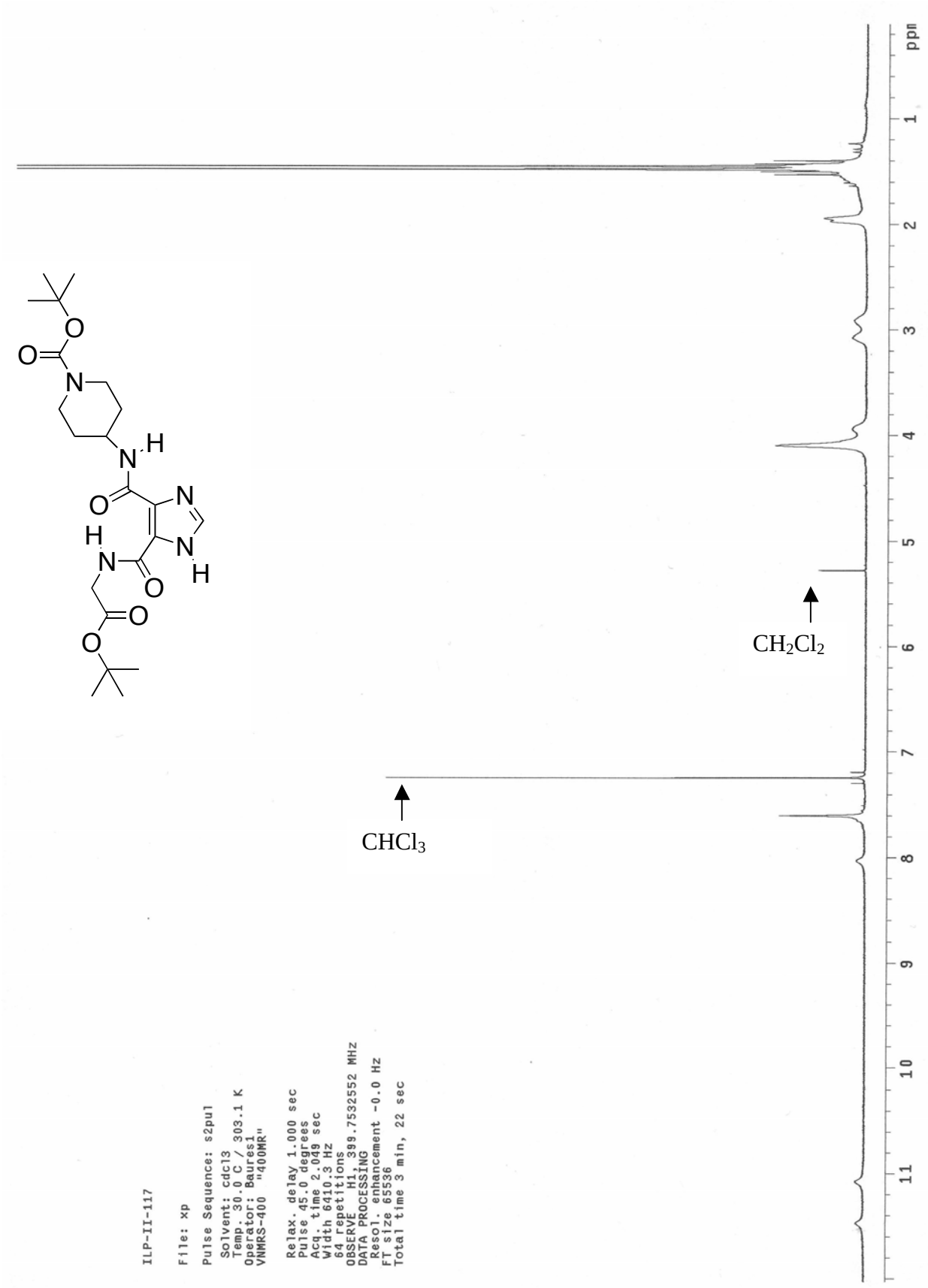

Figure S146. ^{1}H-NMR for **5{**6}.

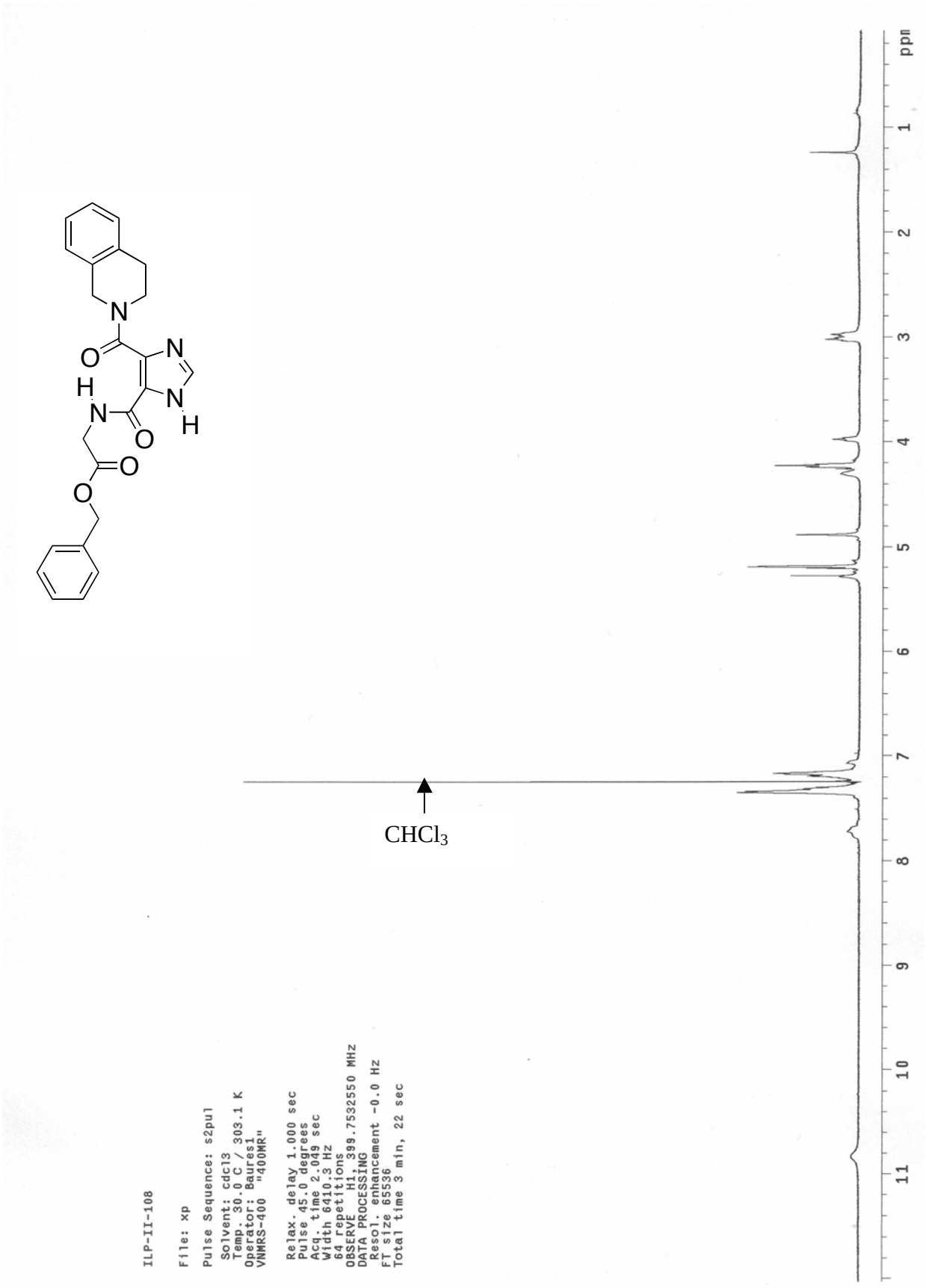

Figure S147. ^{1}H-NMR for **5{**26}.

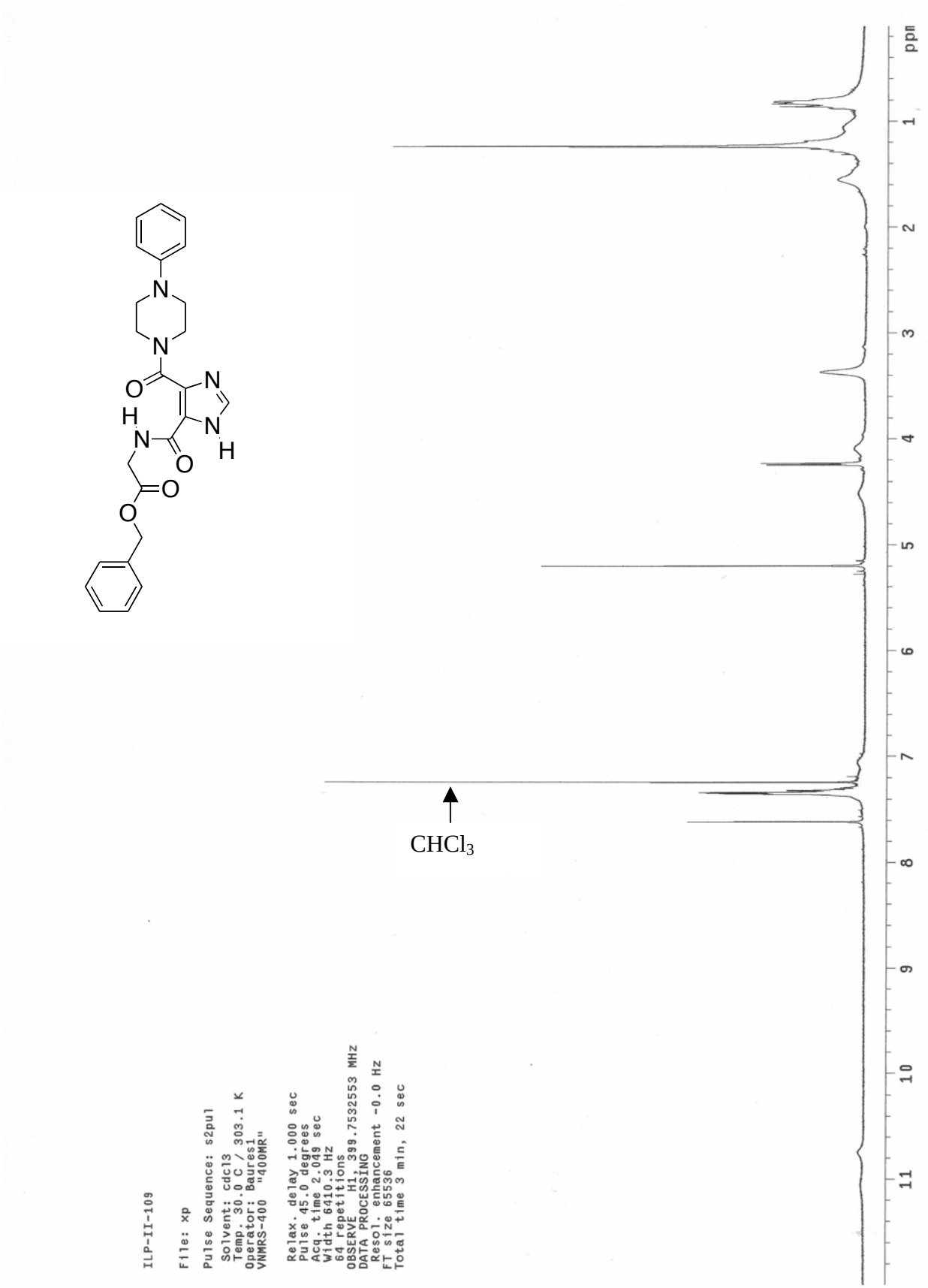

Figure S148. ^{1}H-NMR for **5{**28}.

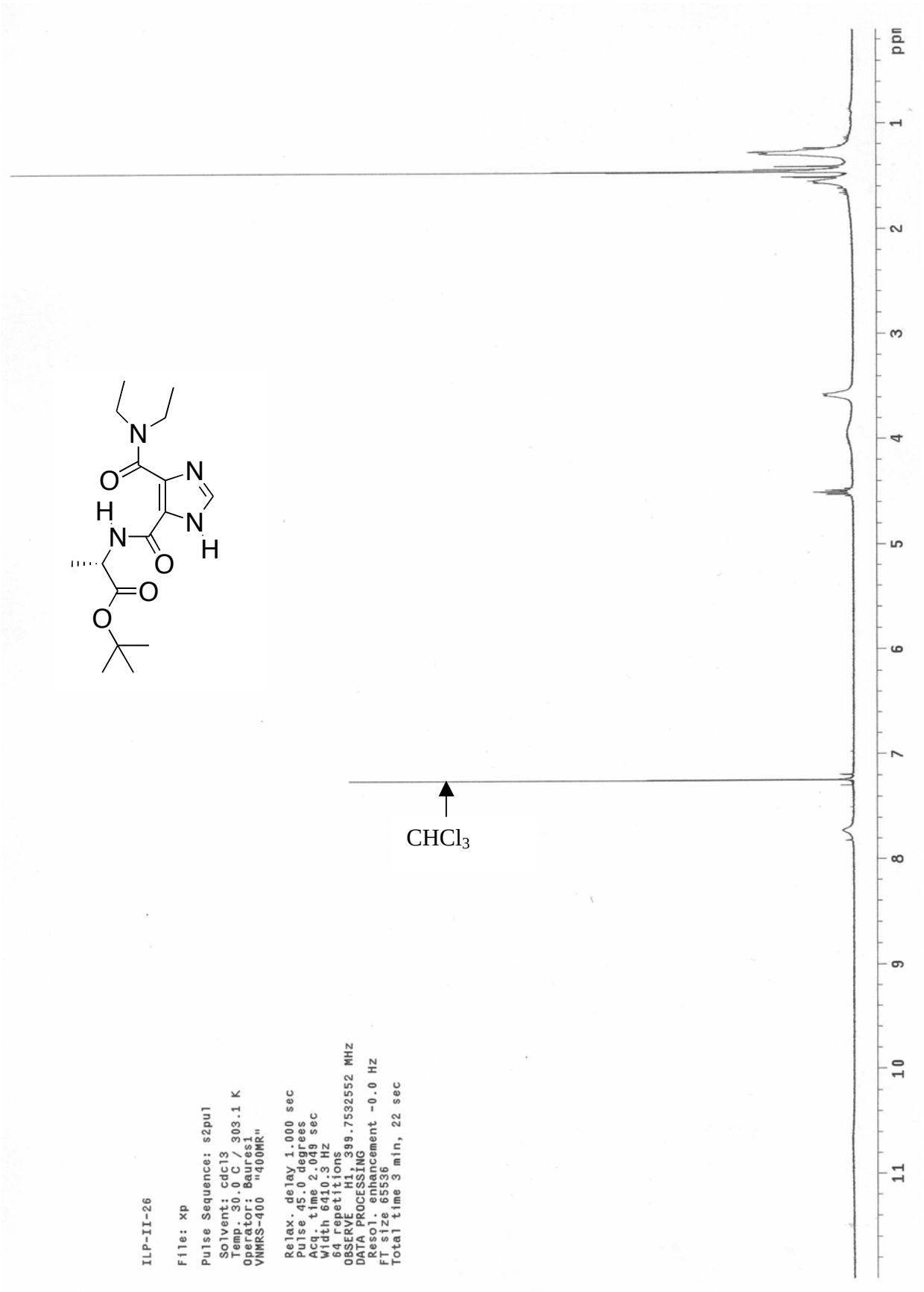

Figure S149. ^{1}H-NMR for **5{**38}.

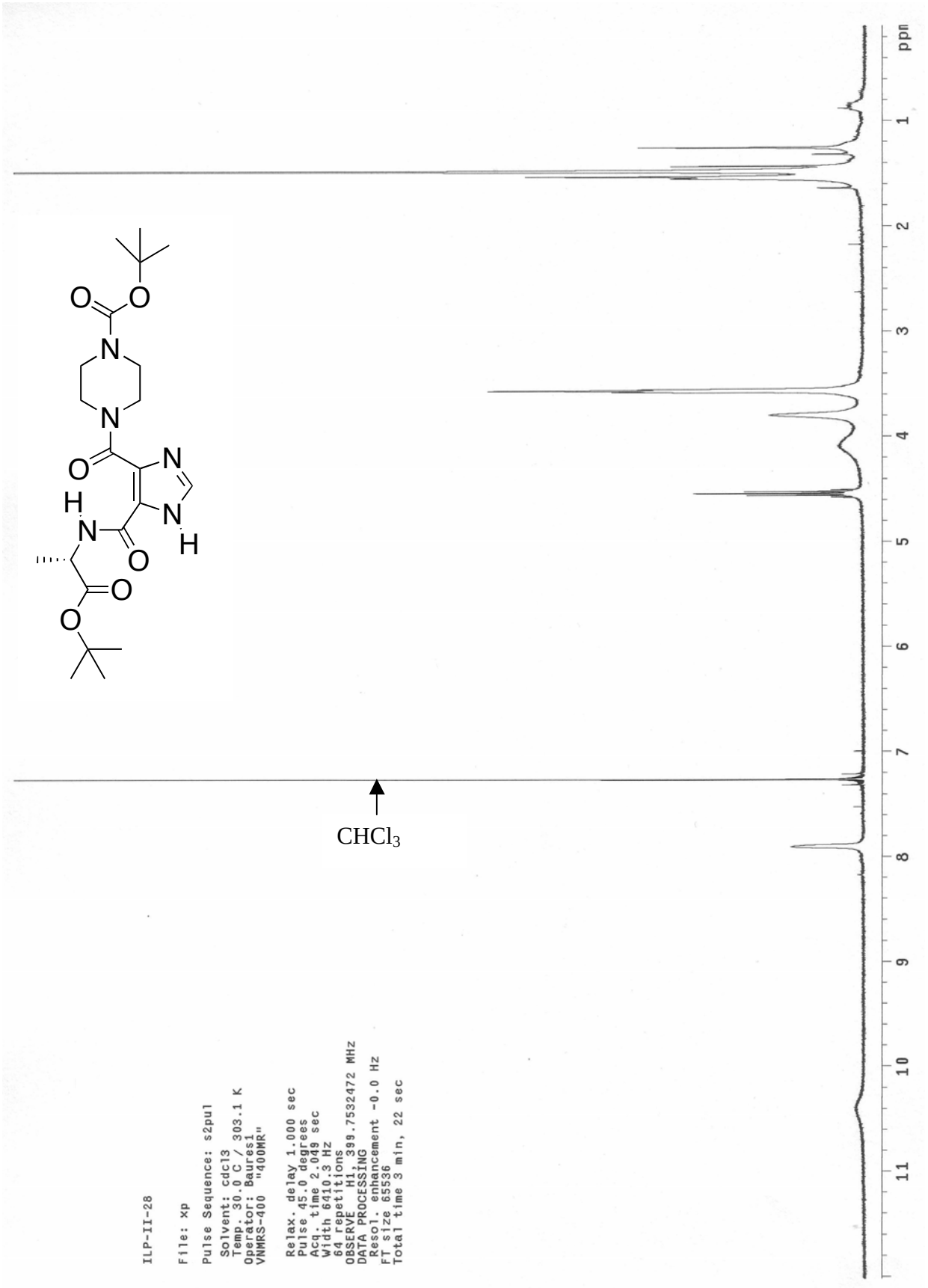

Figure S150. ^{1}H-NMR for **5{**39}.

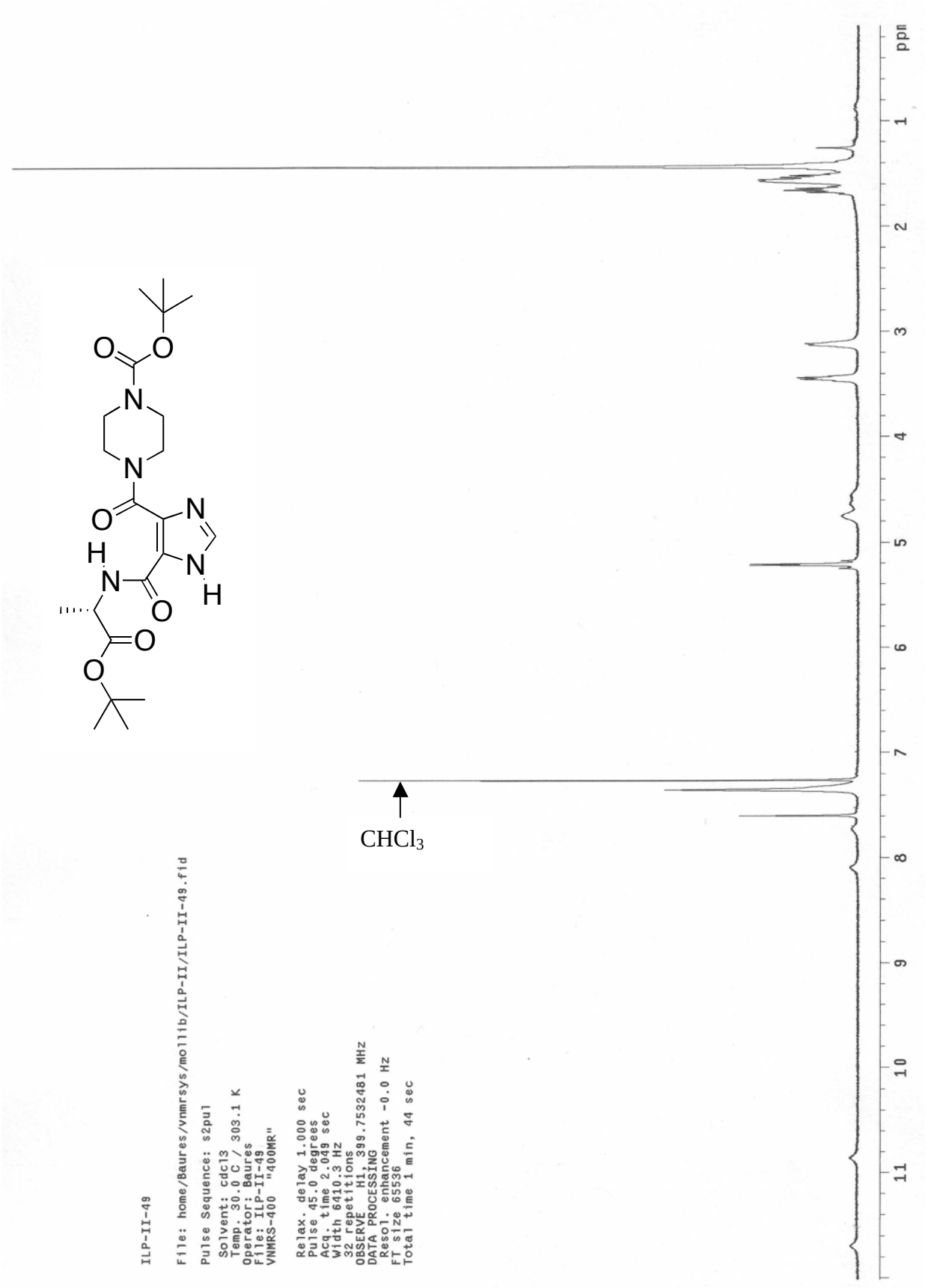

Figure S151. ^{1}H-NMR for **5{**44}.

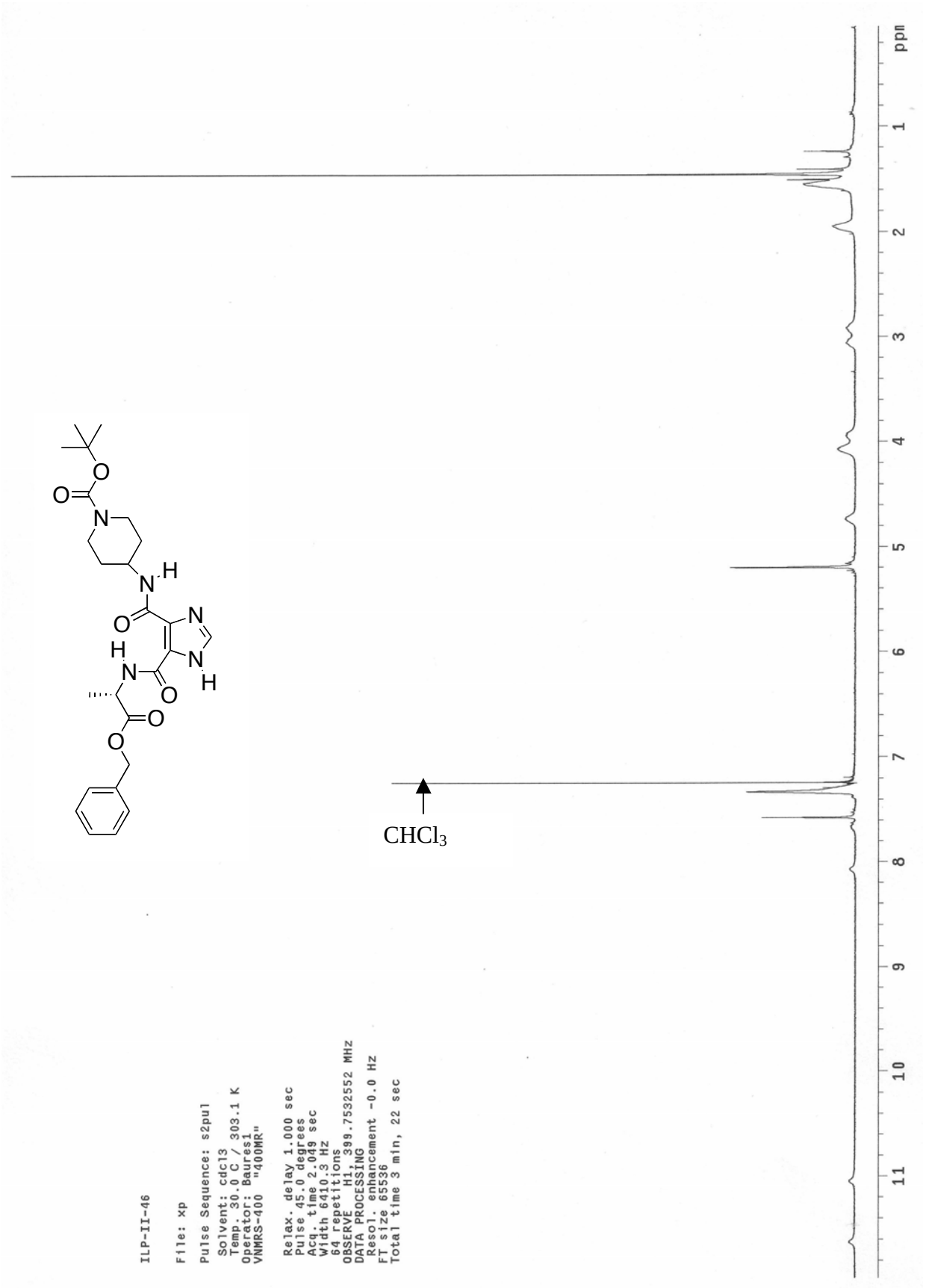

Figure S152. ^{1}H-NMR for **5{**48}.

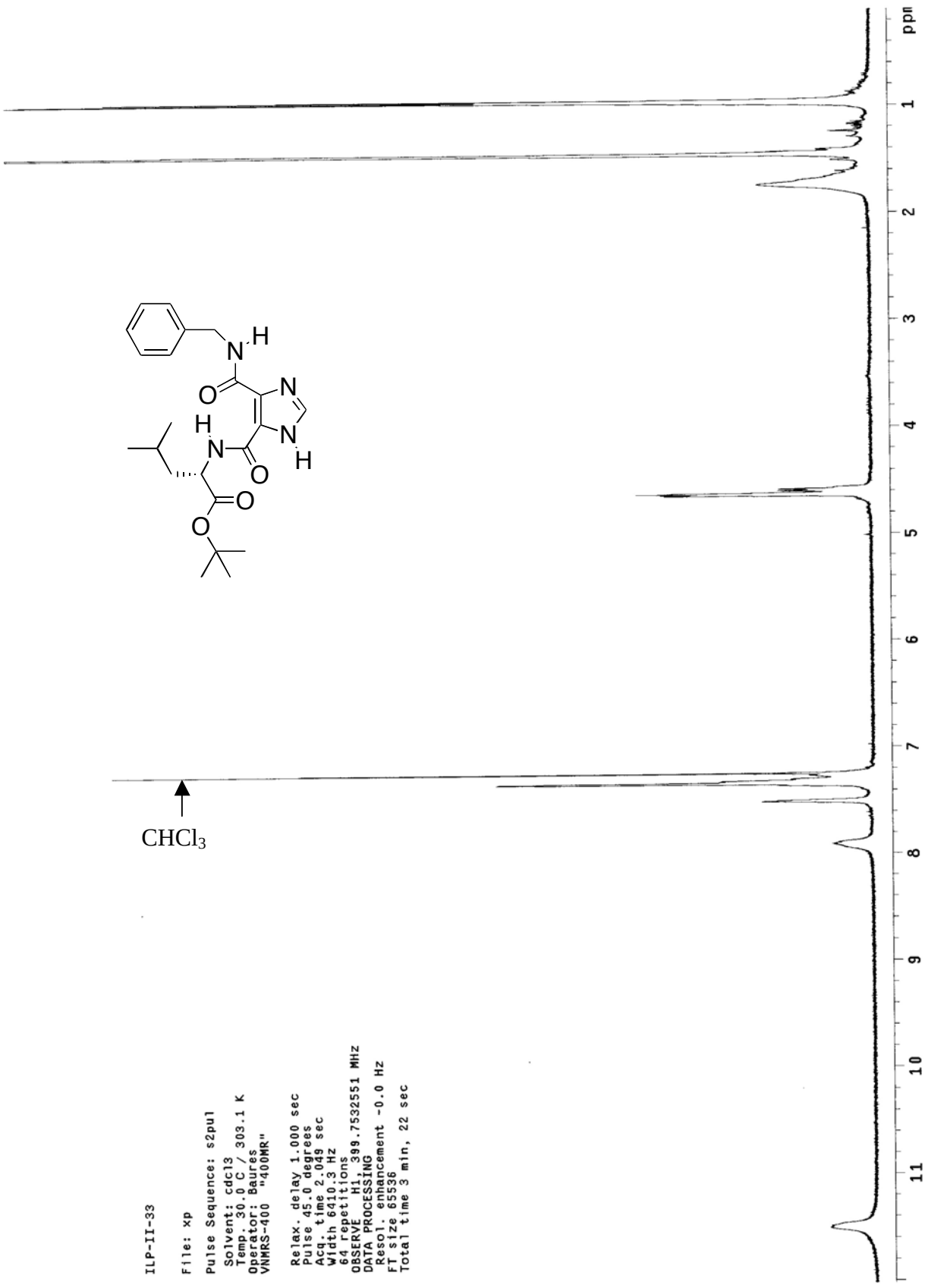

Figure S153. ^{1}H-NMR for **5{**59}.

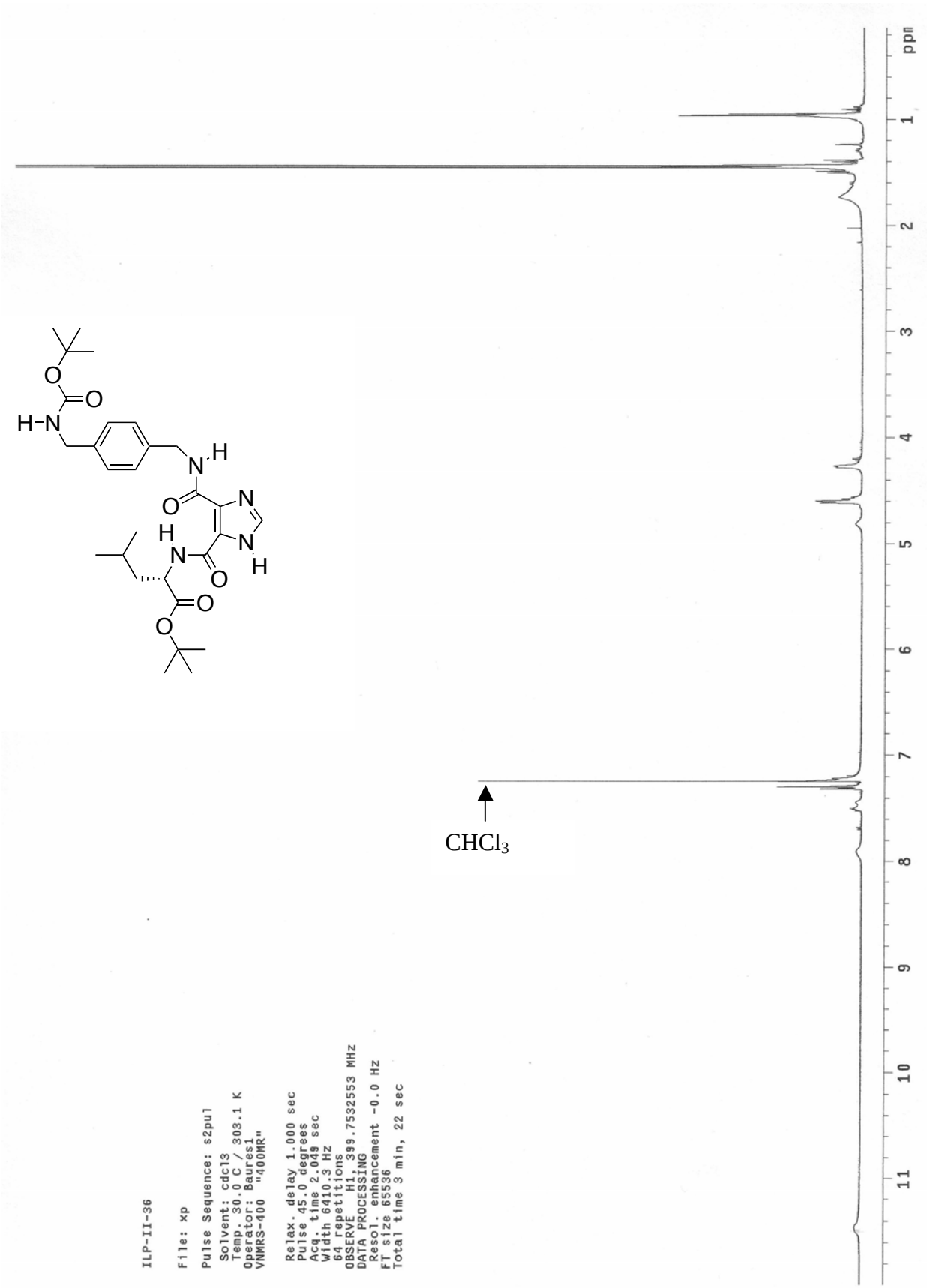

Figure S154. ^{1}H-NMR for **5{**63}.

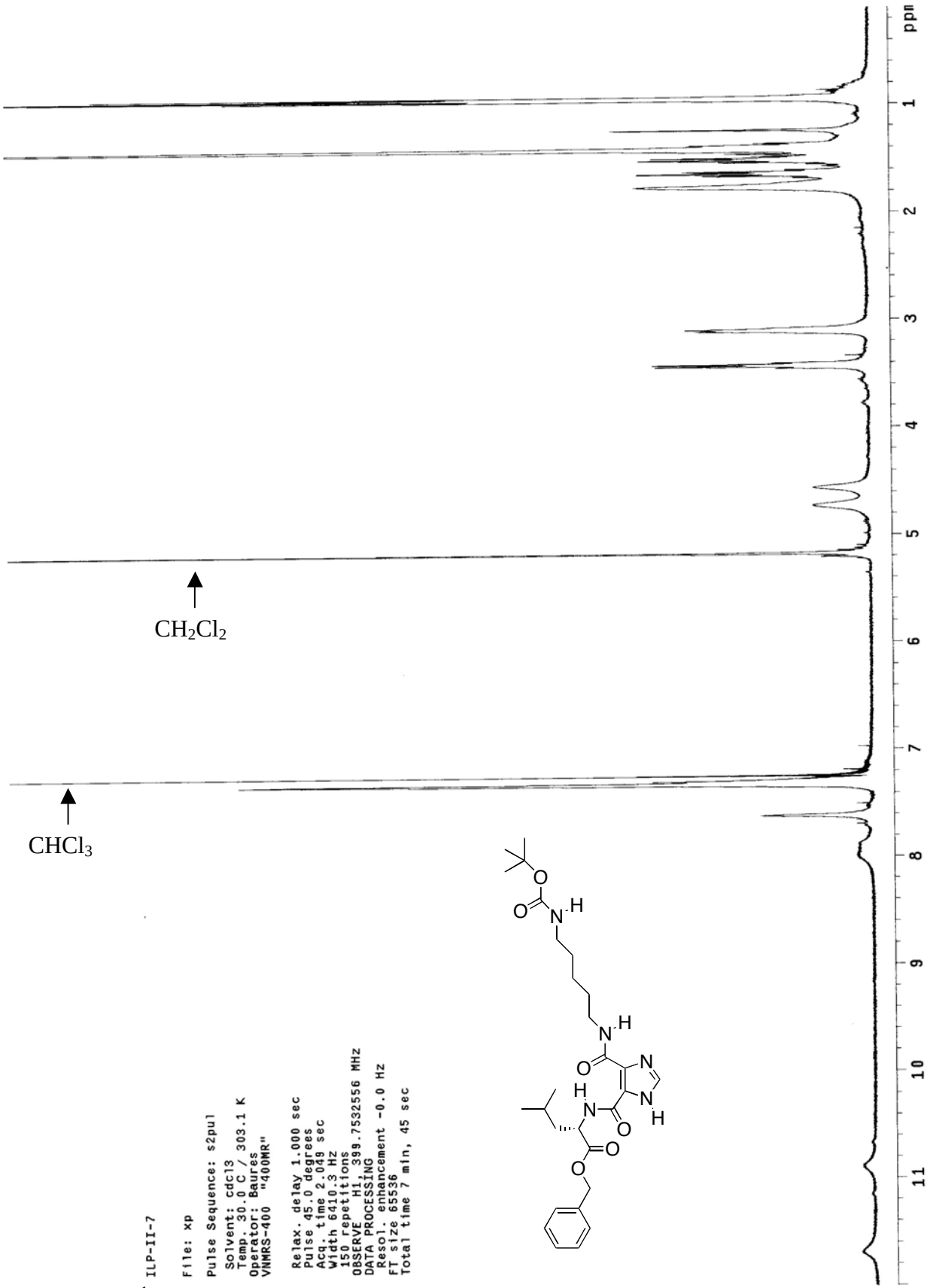

Figure S155. ^{1}H-NMR for **5{**72}.

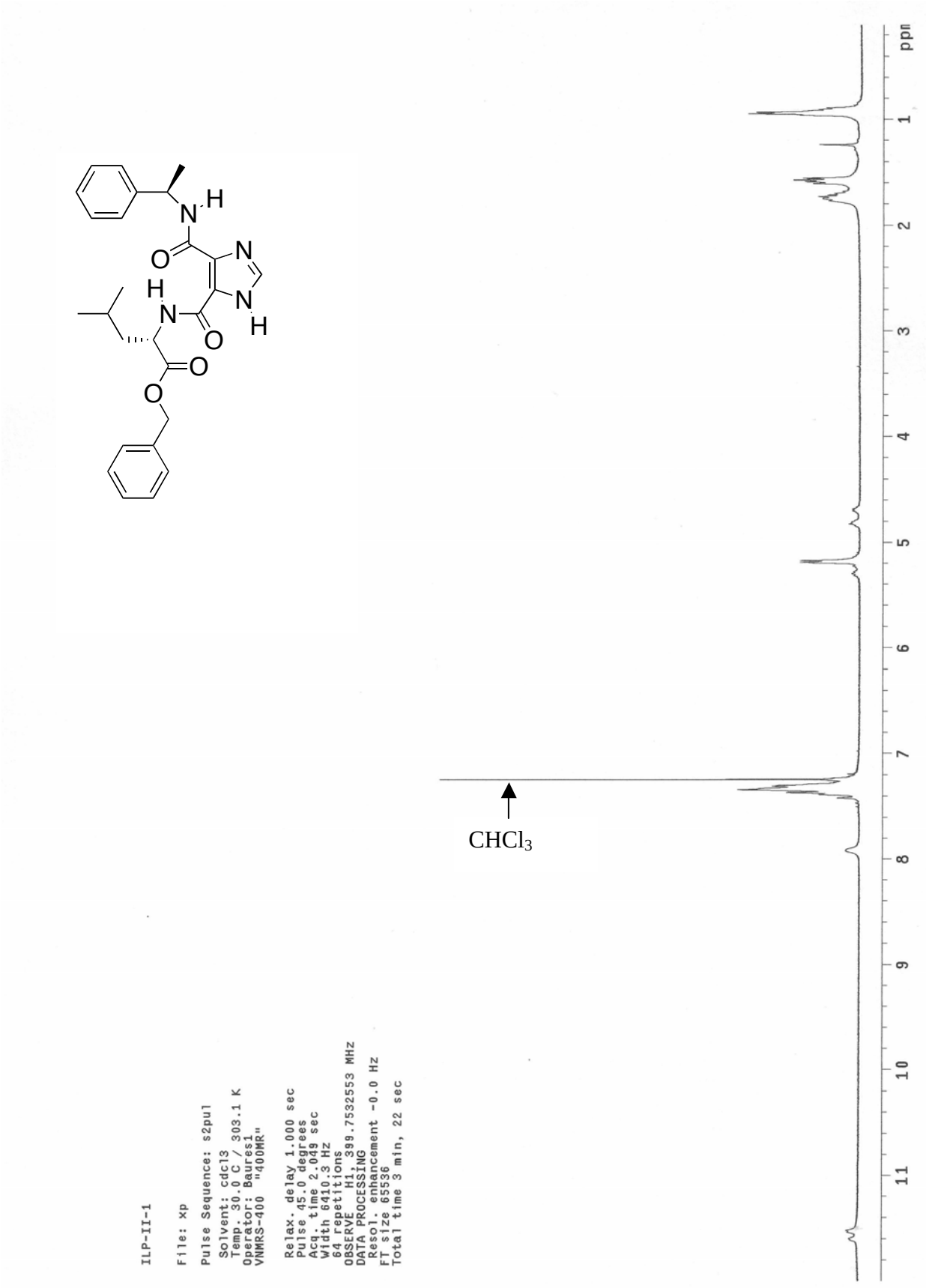

Figure S156. ^{1}H-NMR for **5{**74}.

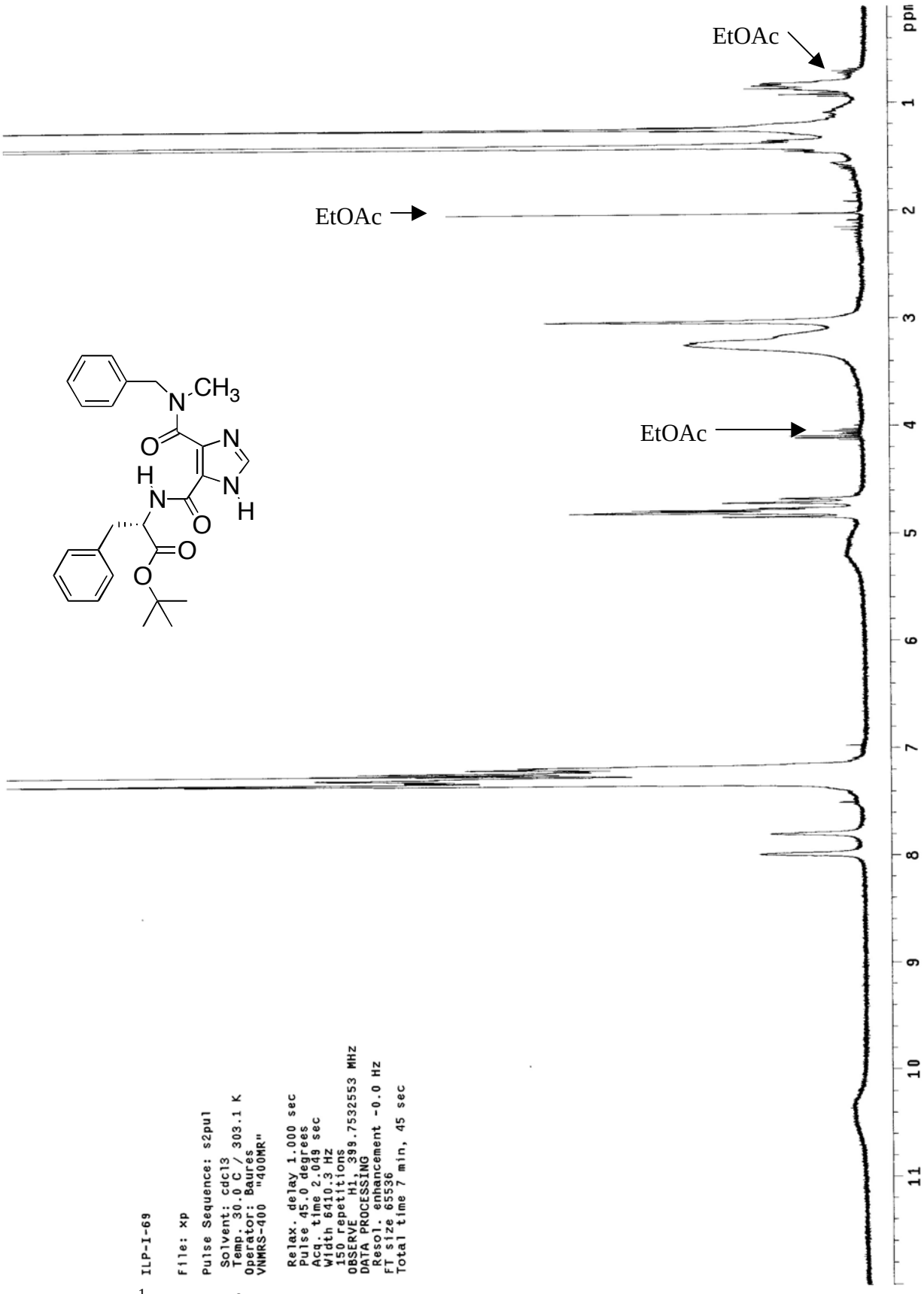

Figure S157. ^{1}H-NMR for **5{**93}.

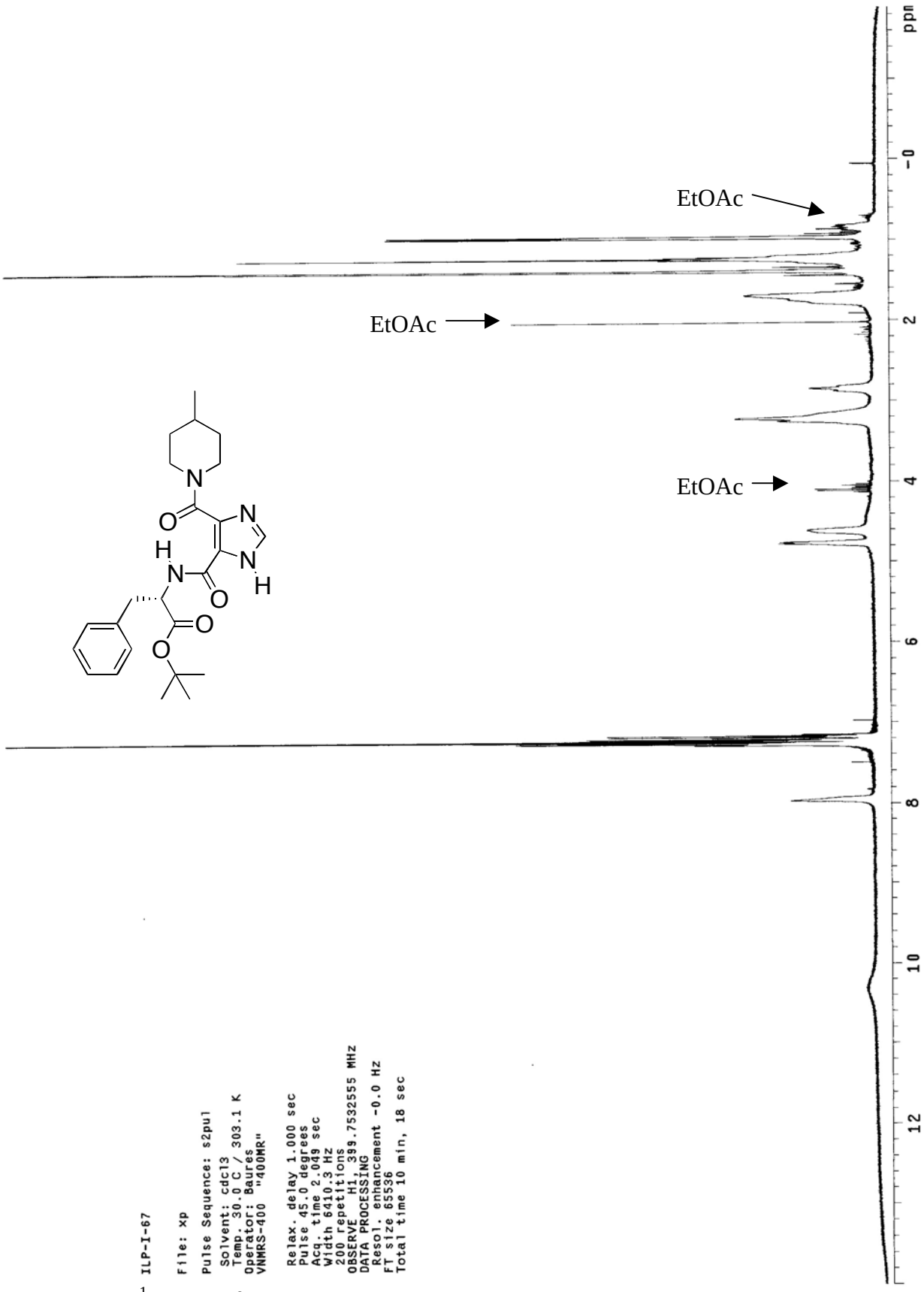

Figure S158. ^{1}H-NMR for **5{**97}.

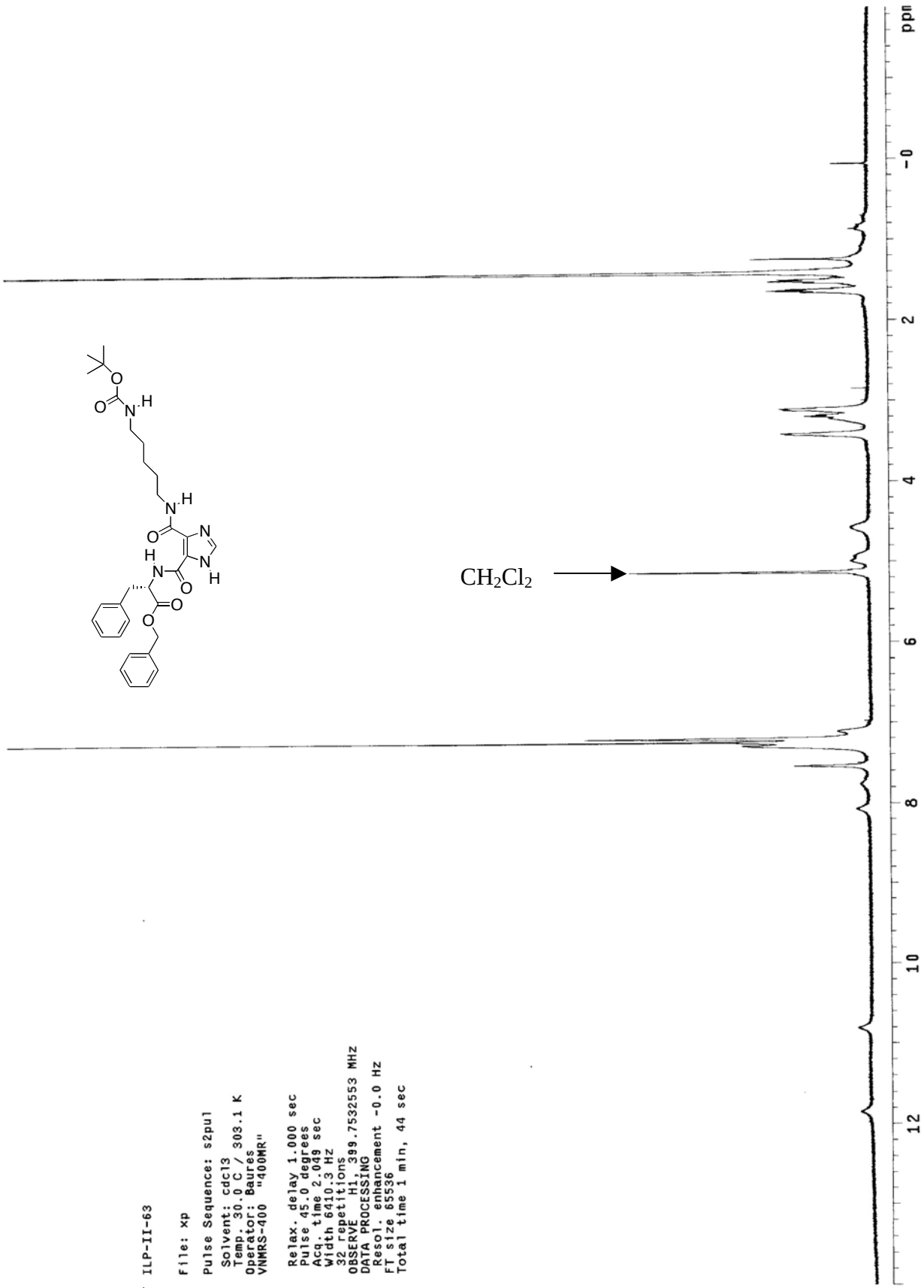

Figure S159. ^{1}H-NMR for **5{**100}.

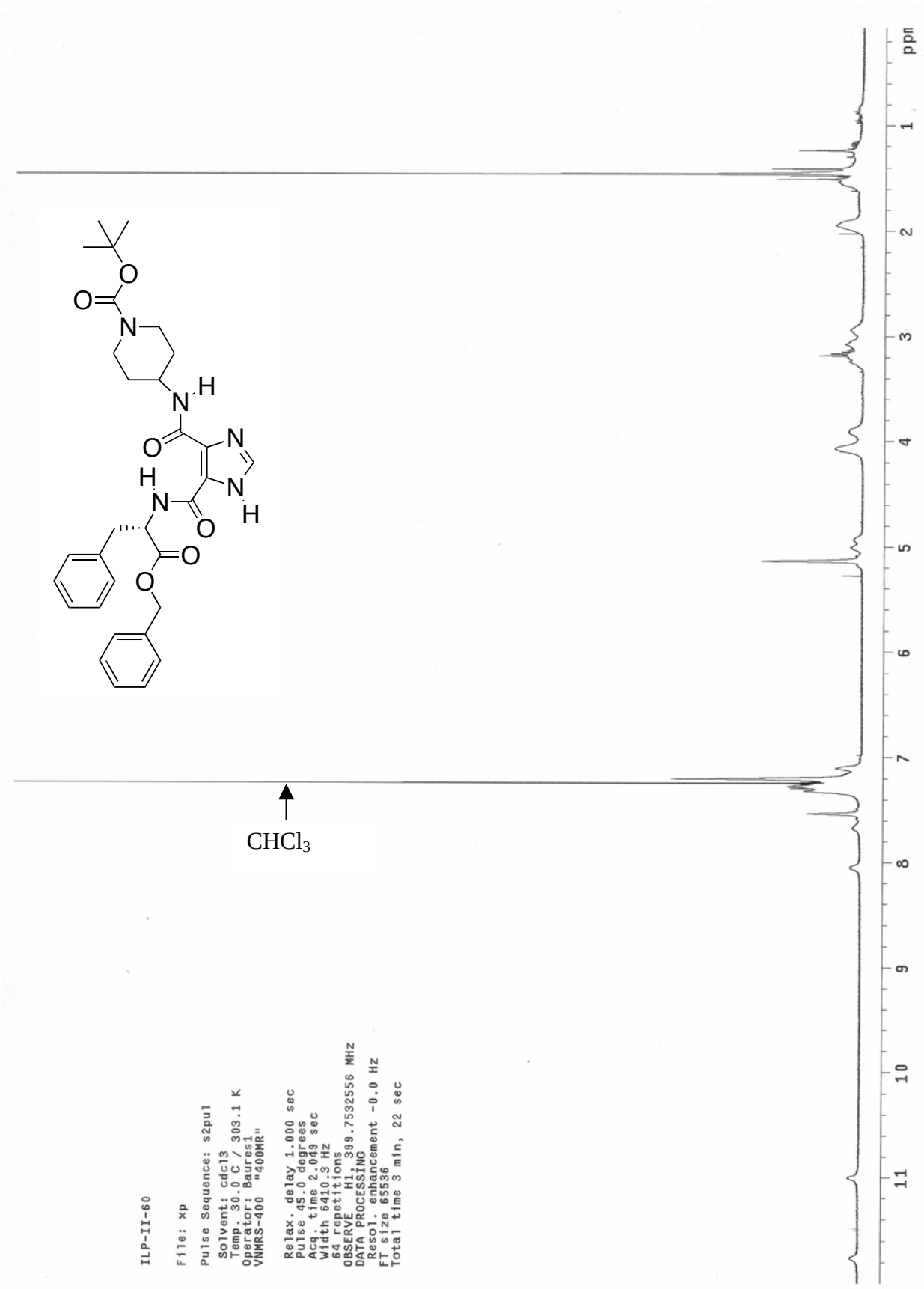

Figure S160. ^{1}H-NMR for **5{**104}.

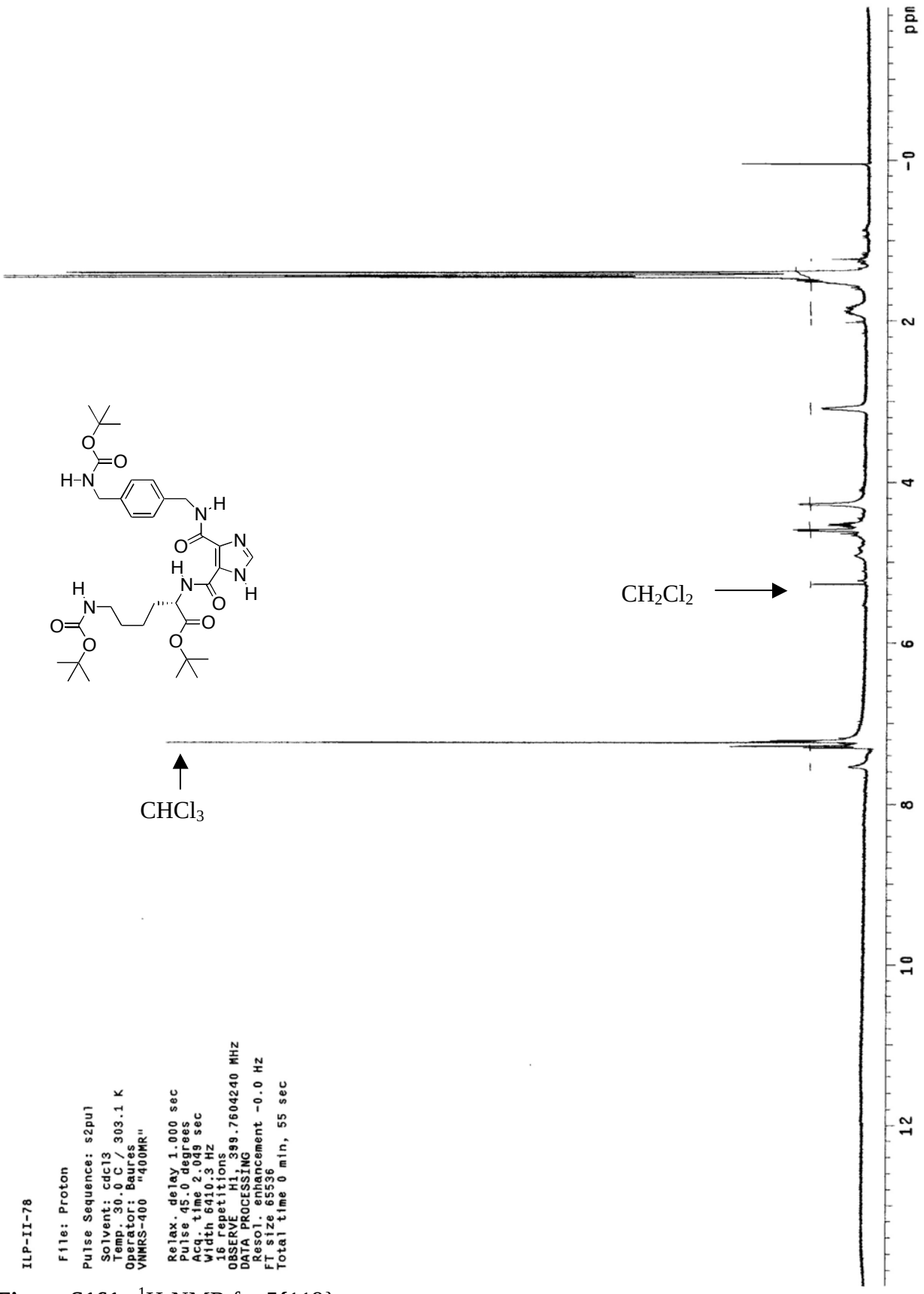

Figure S161. ^{1}H-NMR for **5{**119}.

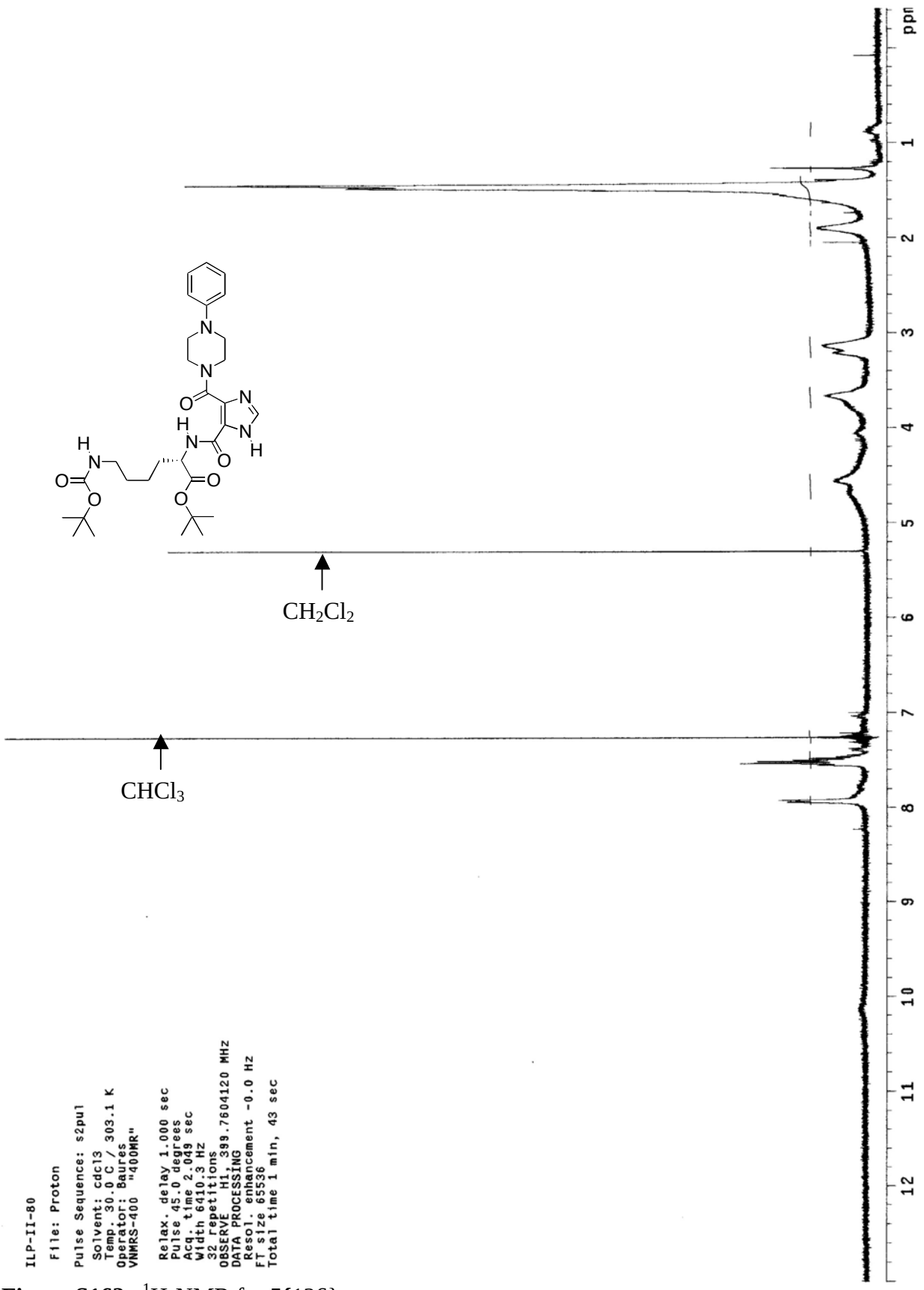

Figure S162. ^{1}H-NMR for **5{**126}.

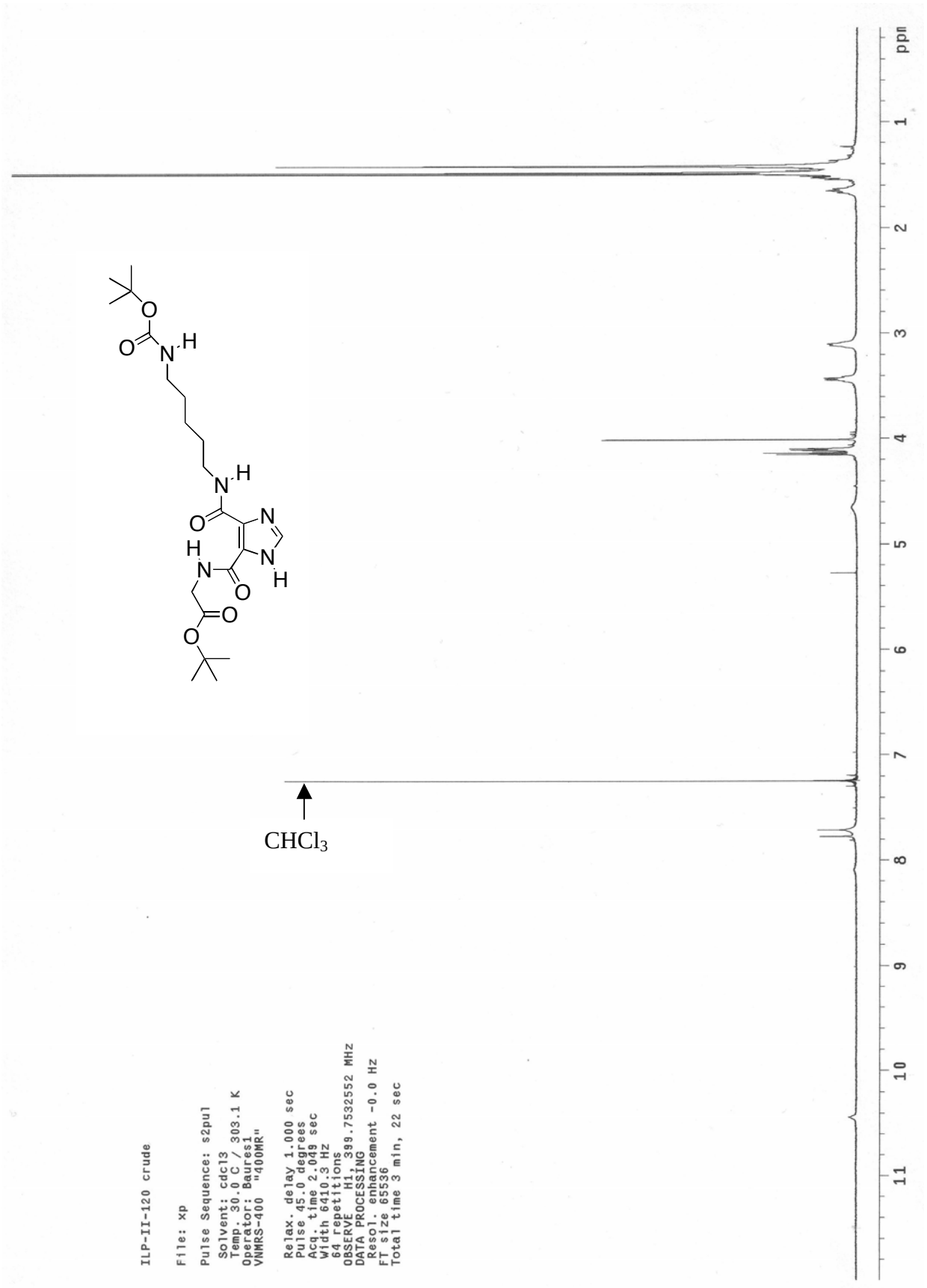

Figure S163. [1]H-NMR for the crude reaction to yield **5{**2}.

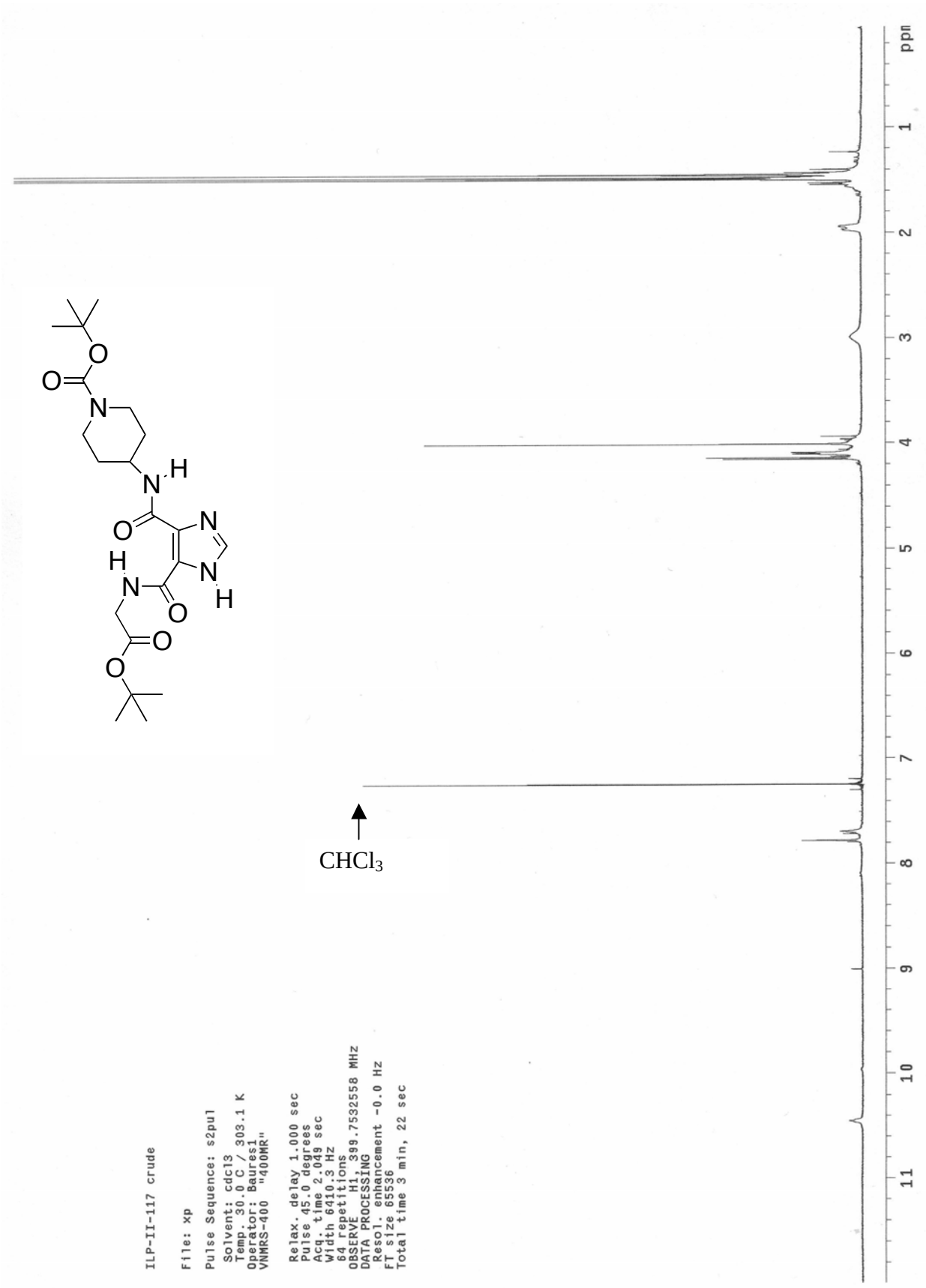

Figure S164. [1]H-NMR for the crude reaction to yield **5{**6}.

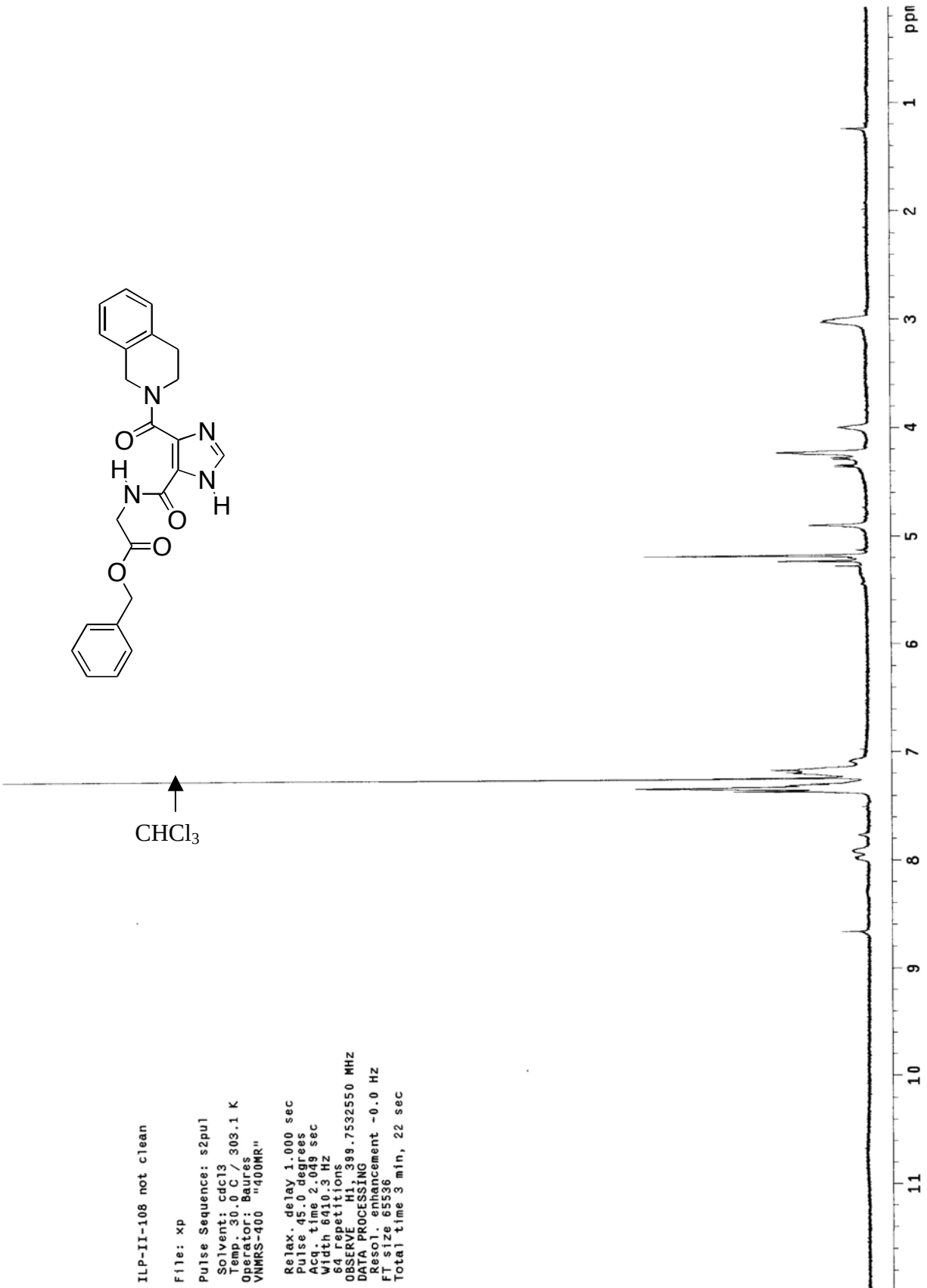

Figure S165. ^{1}H-NMR for the crude reaction to yield **5{**26}.

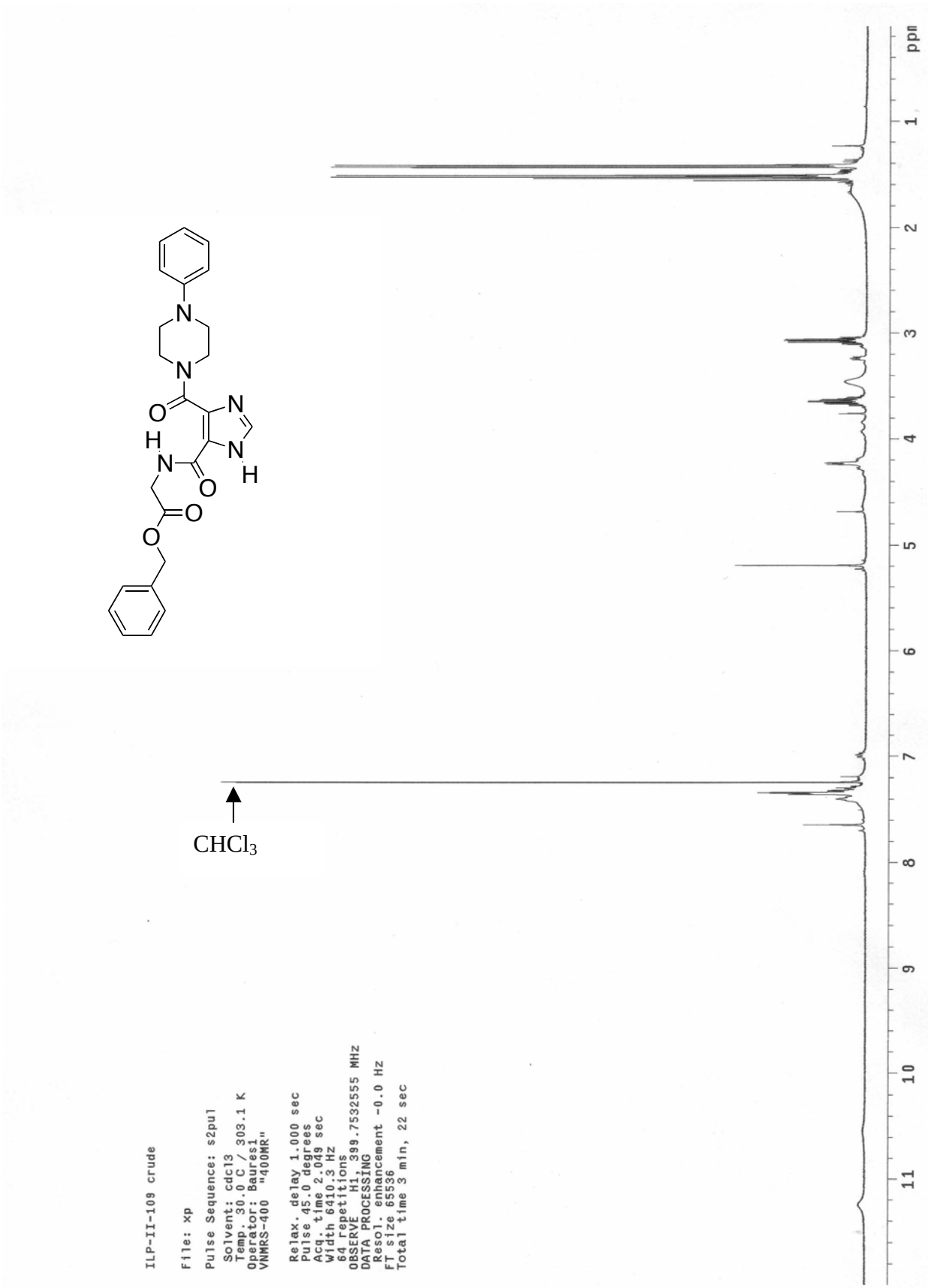

Figure S166. ^{1}H-NMR for the crude reaction to yield **5{**28}.

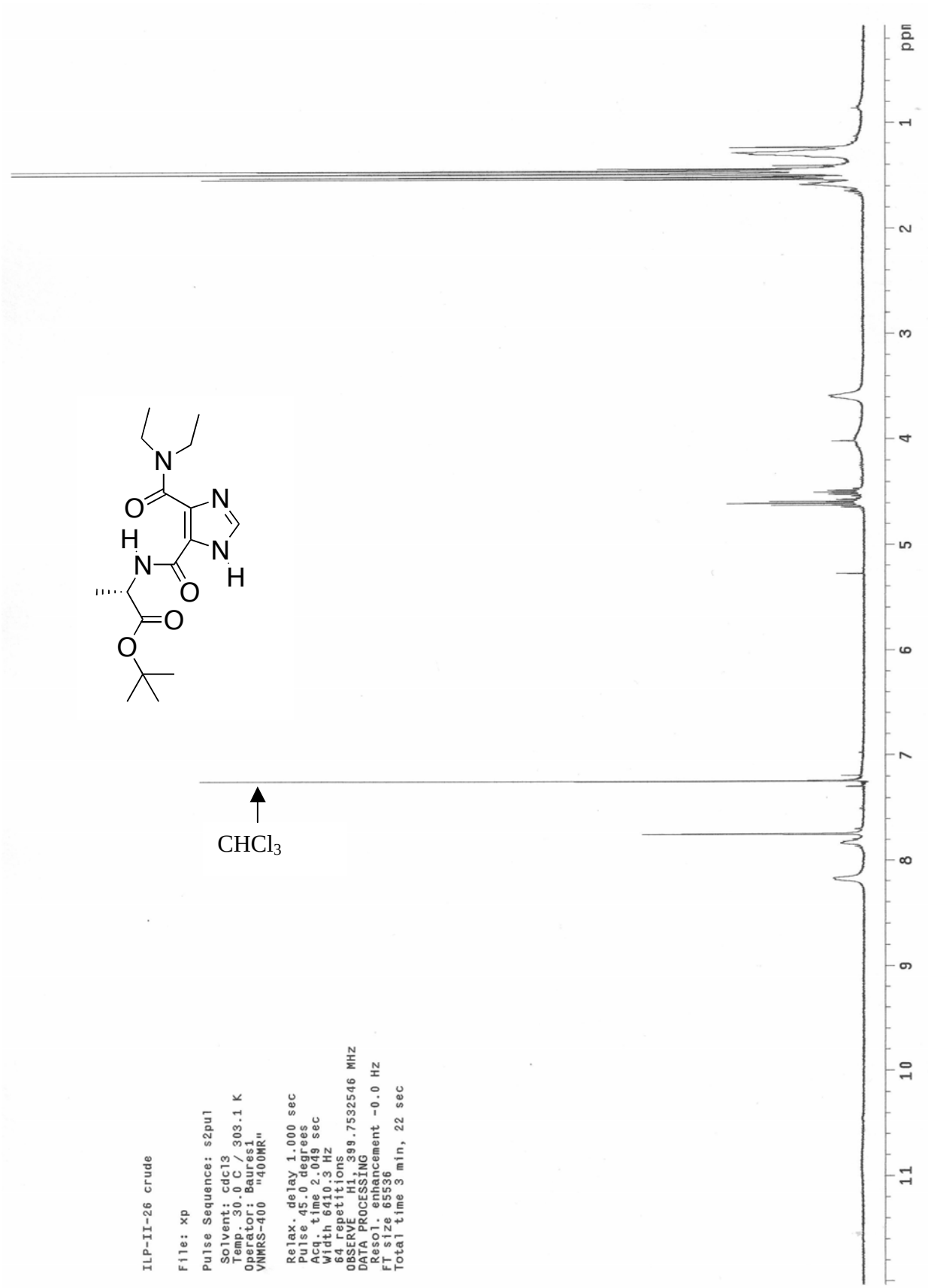

Figure S167. [1]H-NMR for the crude reaction to yield **5{**38}.

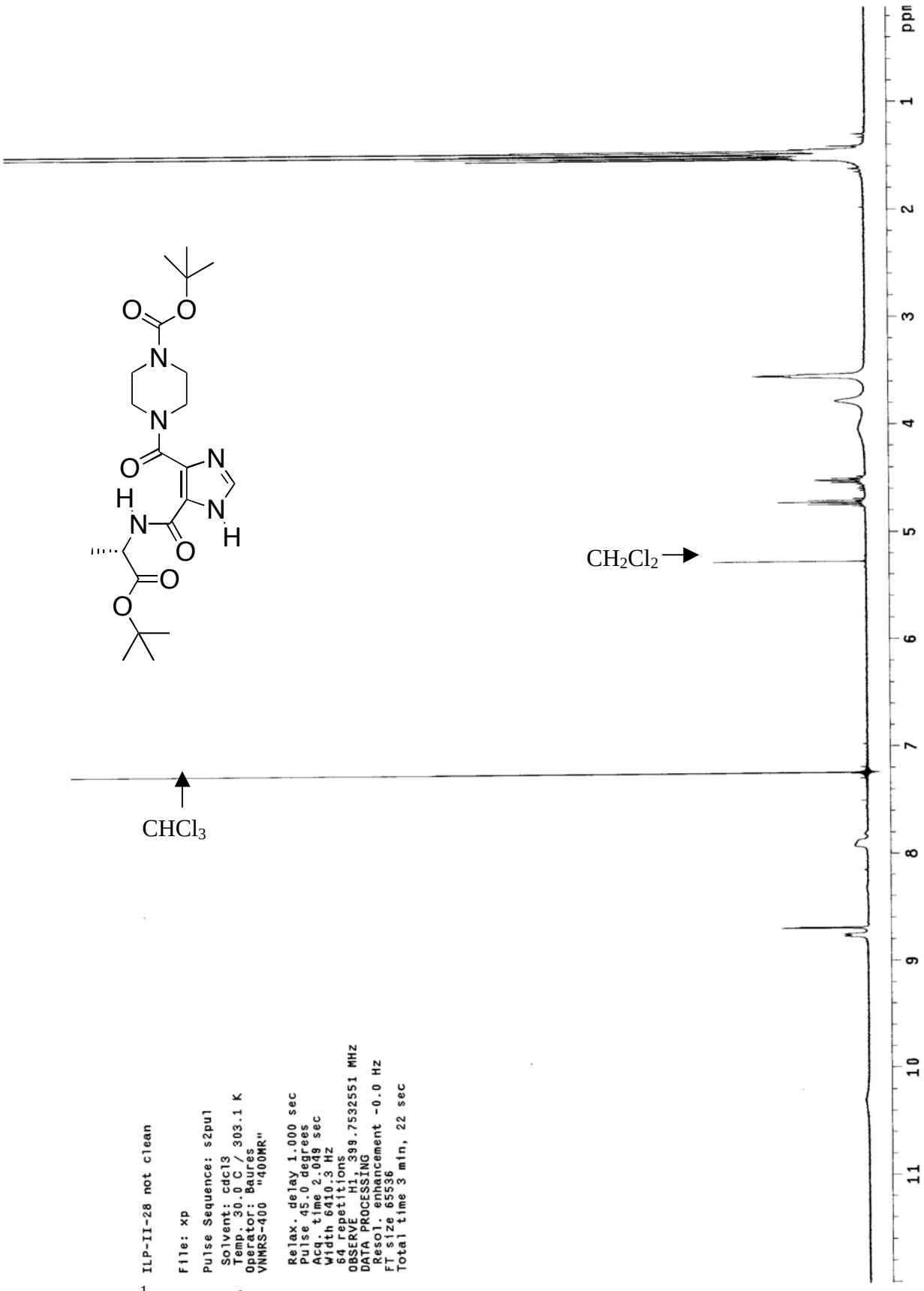

Figure S168. ^{1}H-NMR for the crude reaction to yield **5{**39}.

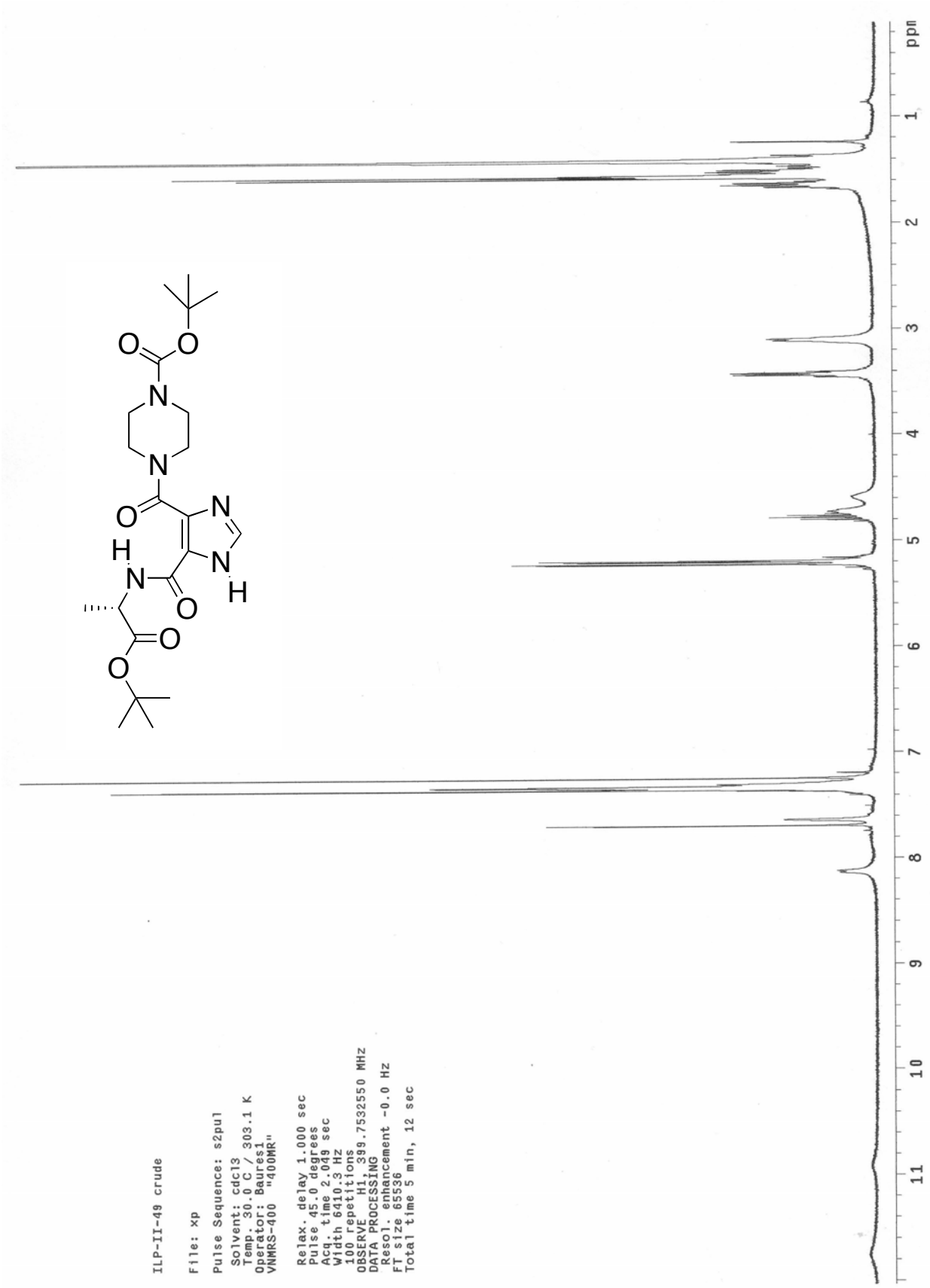

Figure S169. [1]H-NMR for the crude reaction to yield **5{**44}.

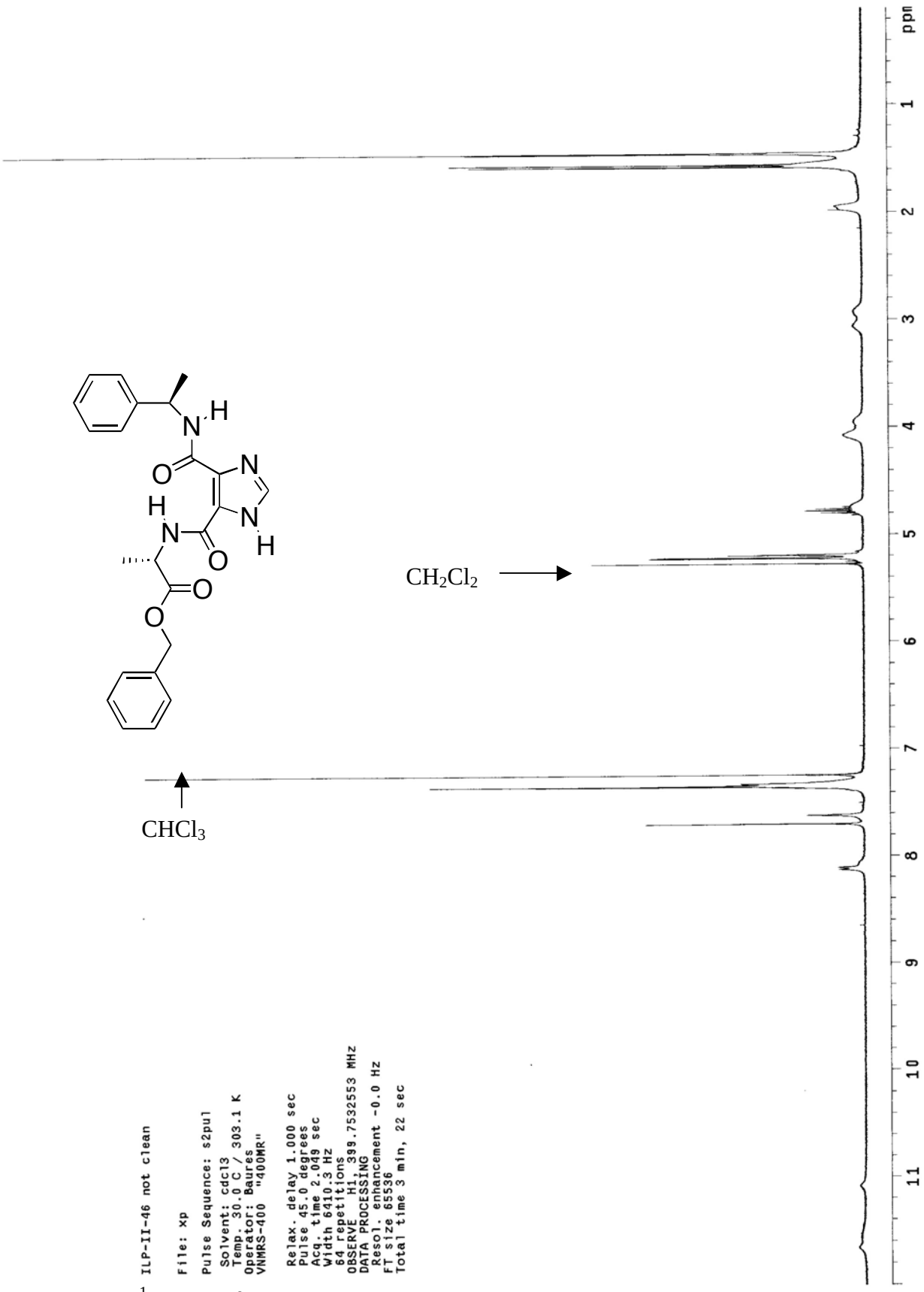

Figure S170. ^{1}H-NMR for the crude reaction to yield **5{**48}.

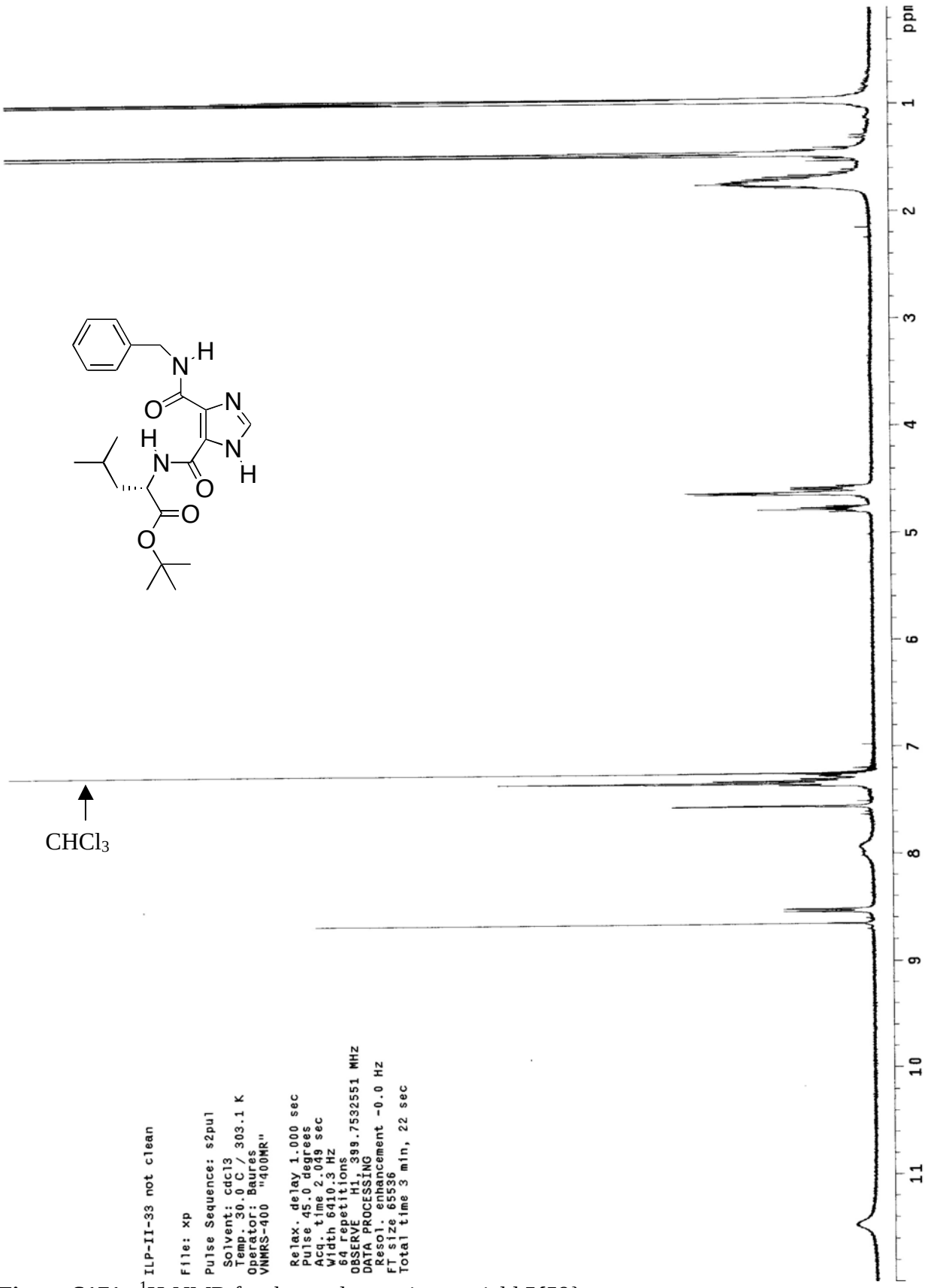

Figure S171. ^{1}H-NMR for the crude reaction to yield **5{**59}.

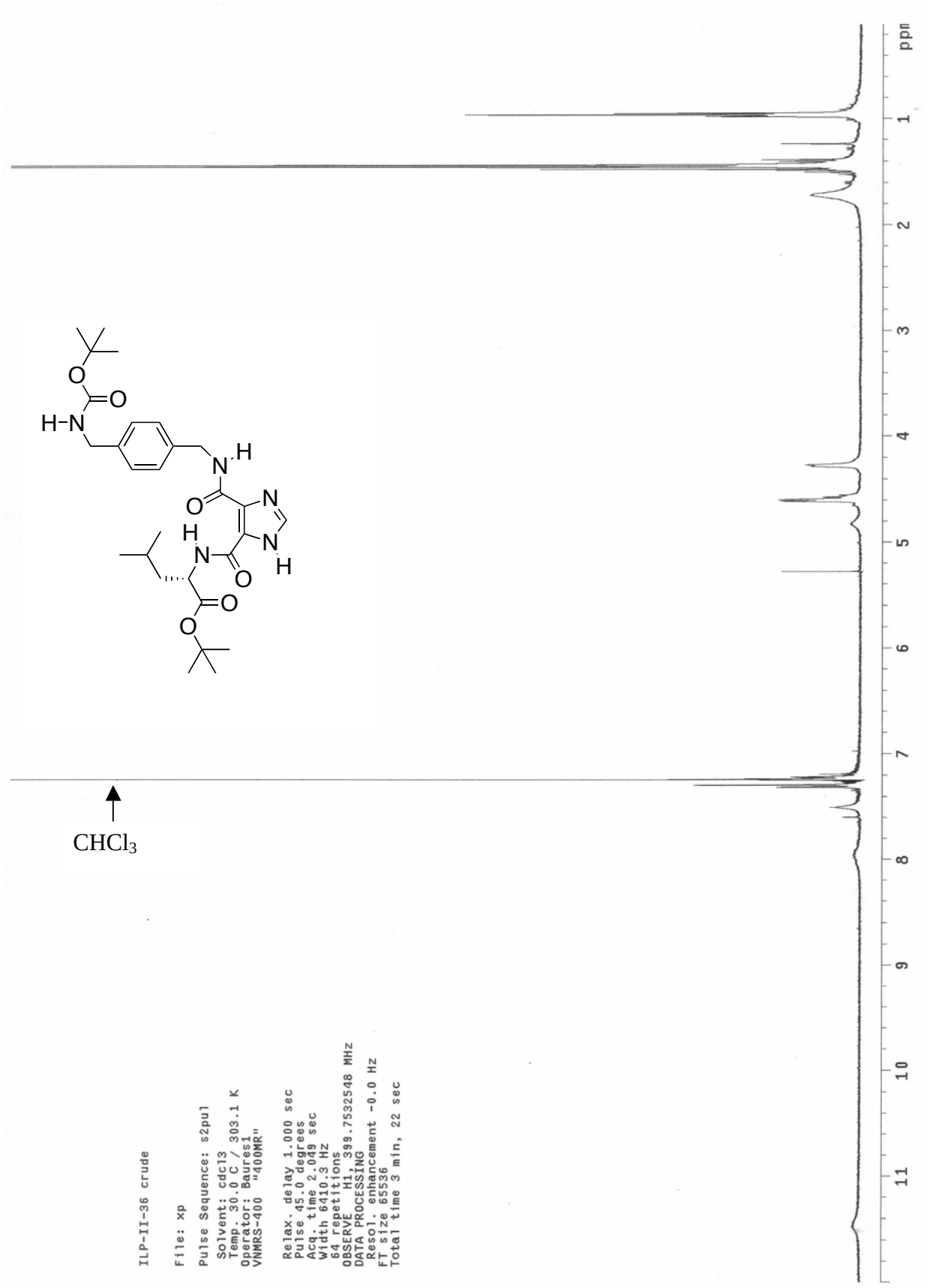

Figure S172. [1]H-NMR for the crude reaction to yield **5{**63}.

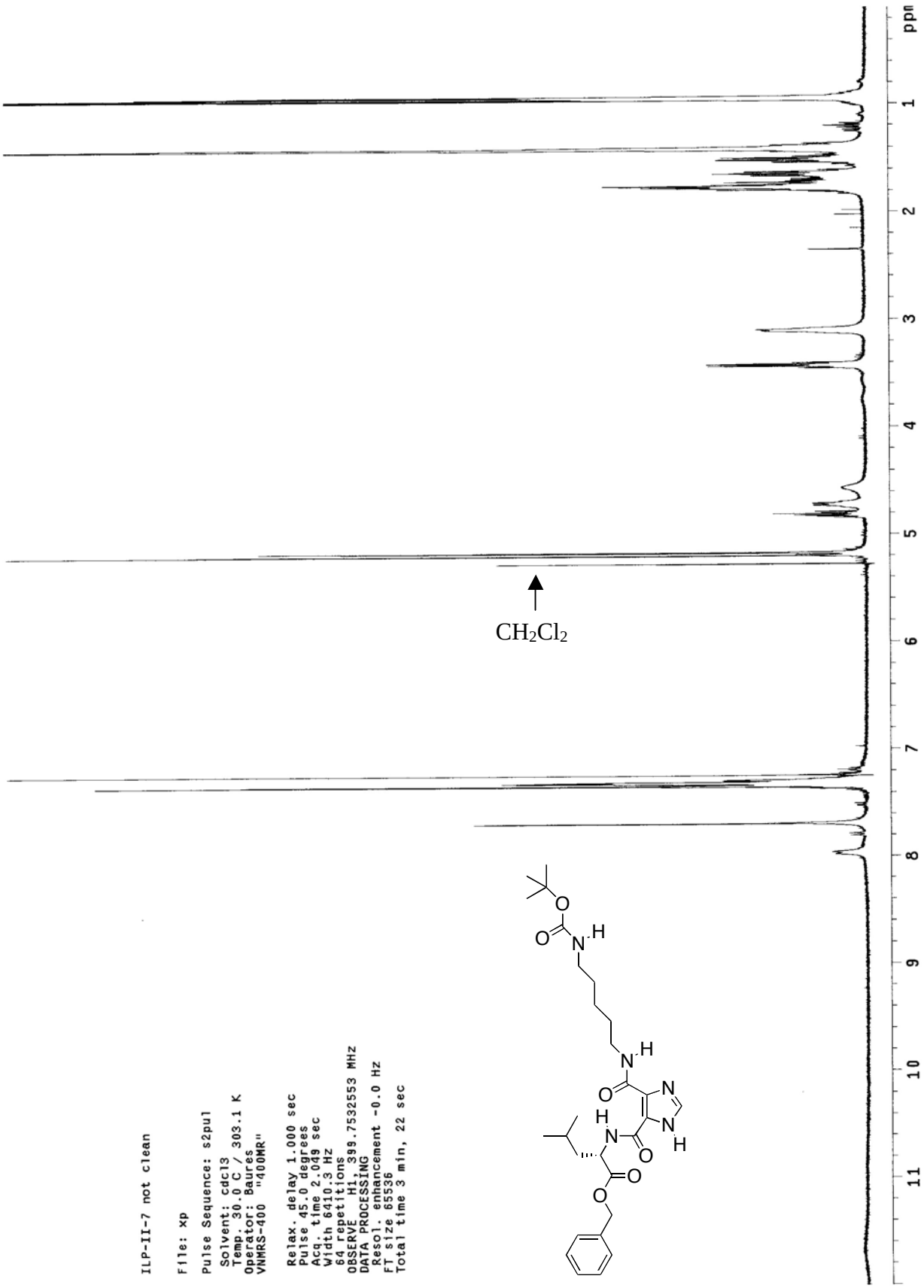

Figure S173. ^{1}H-NMR for the crude reaction to yield **5{**72}.

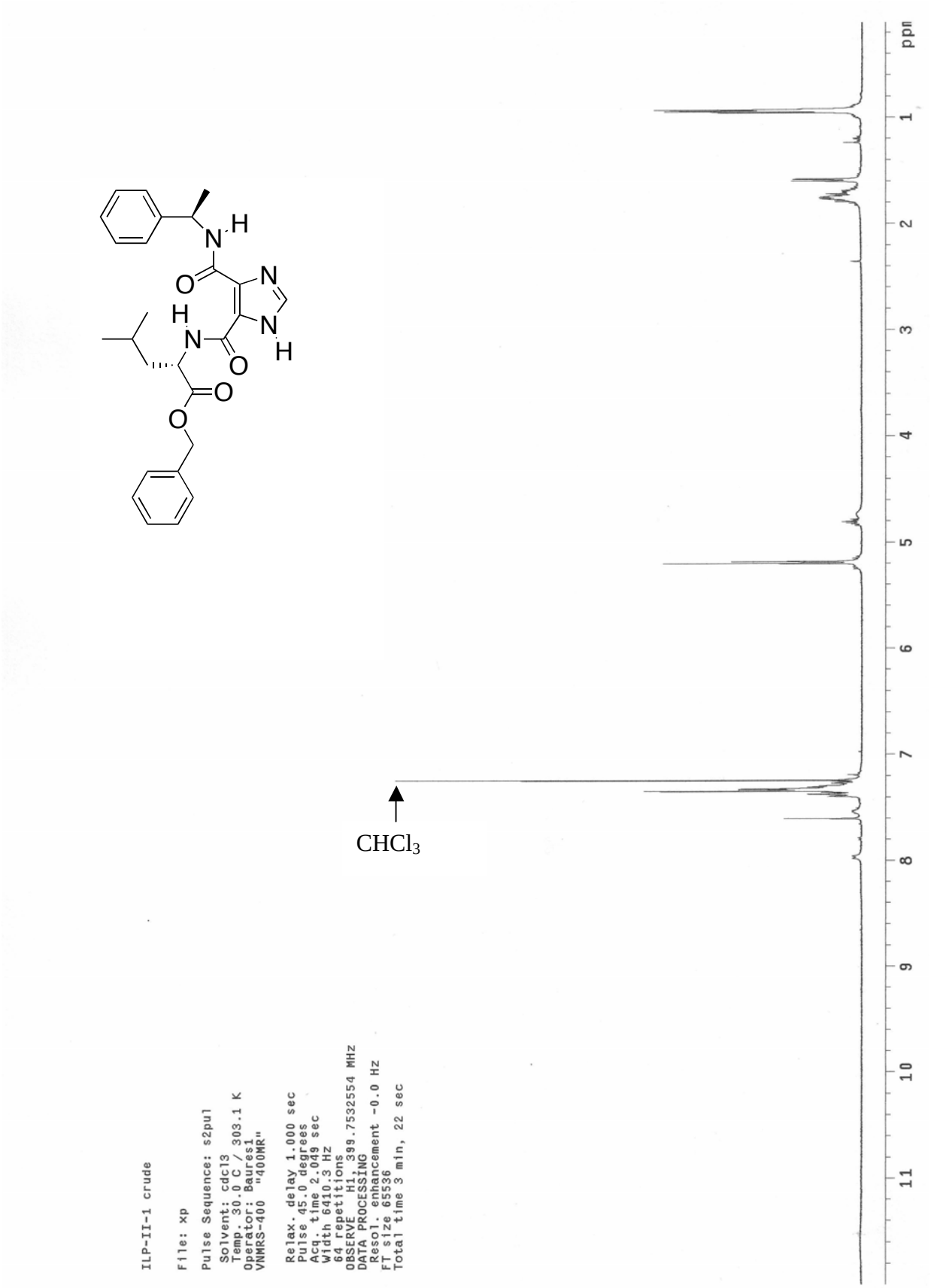

Figure S174. [1]H-NMR for the crude reaction to yield **5{**74}.

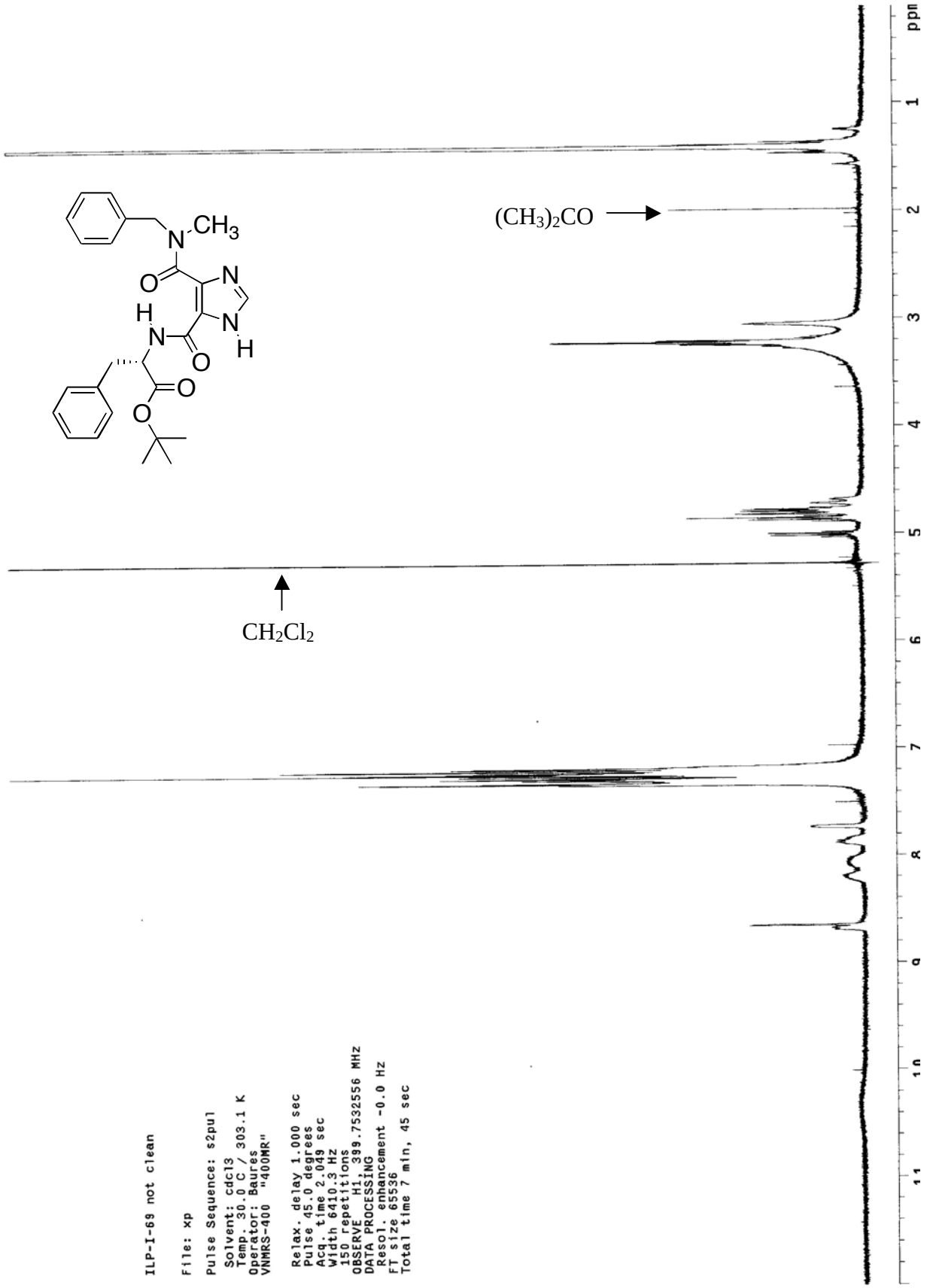

Figure S175. ^{1}H-NMR for the crude reaction to yield **5{**93}.

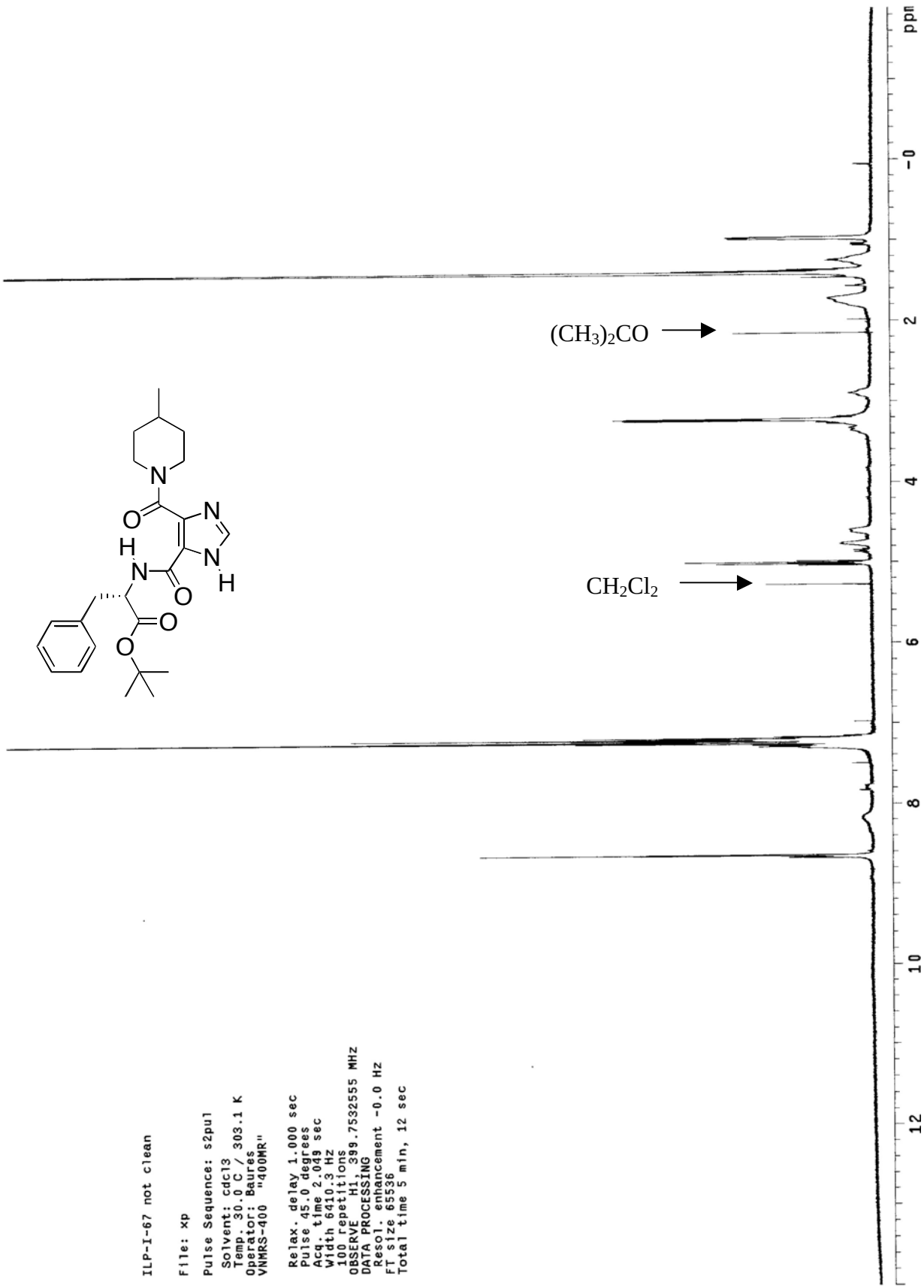

Figure S176. ^{1}H-NMR for the crude reaction to yield **5{**97}.

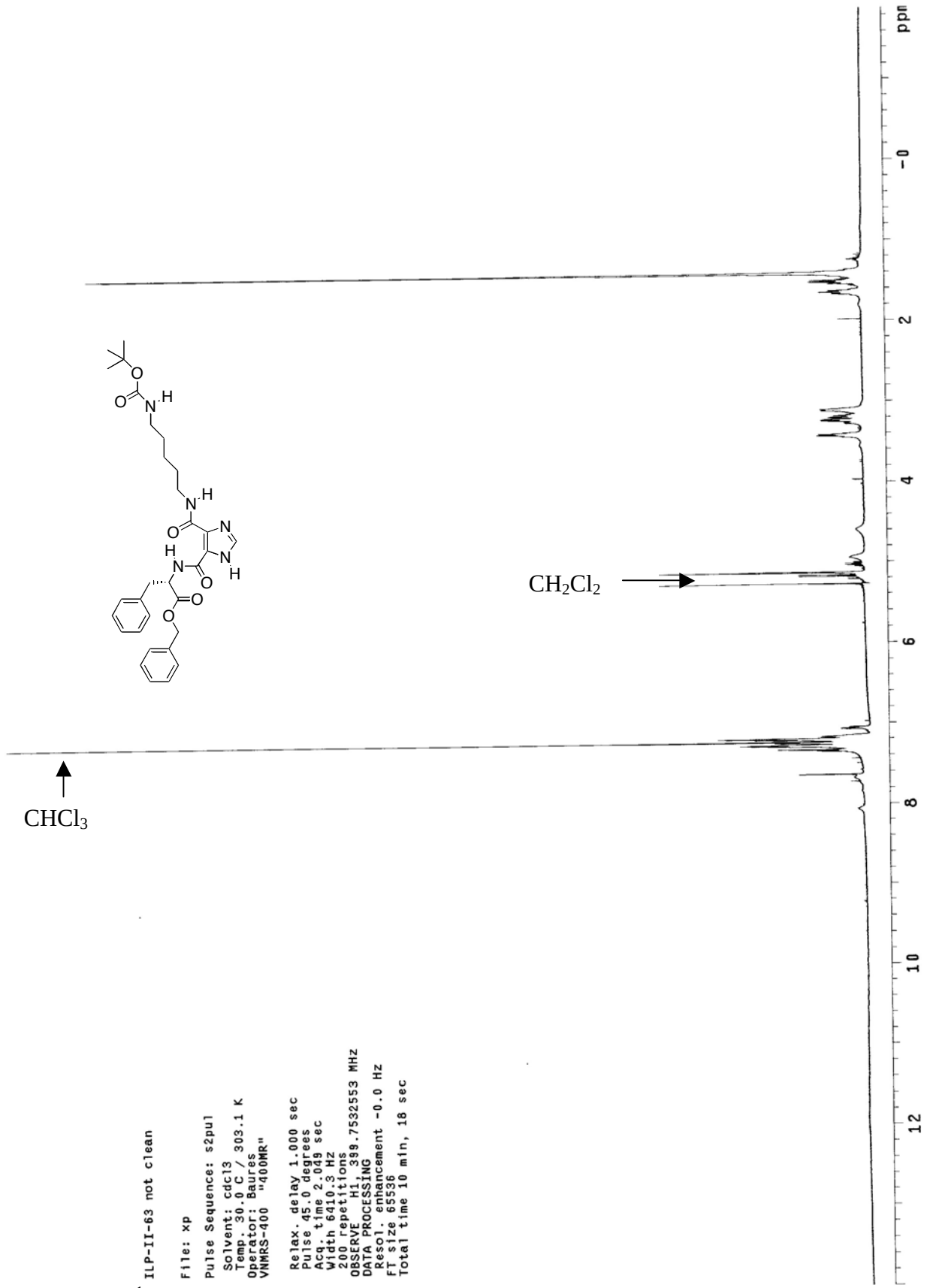

Figure S177. [1]H-NMR for the crude reaction to yield **5{**100}.

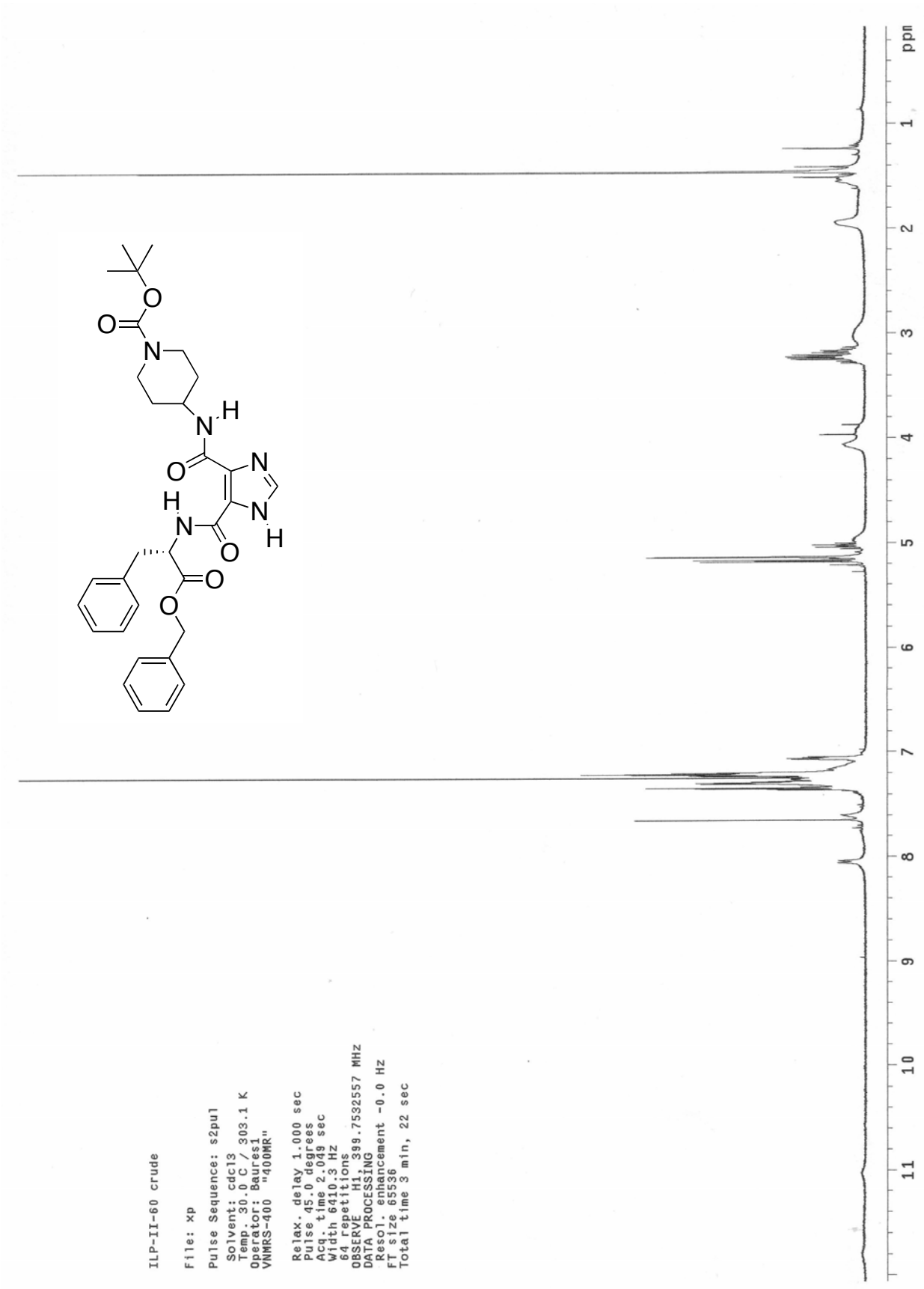

Figure S178. [1]H-NMR for the crude reaction to yield **5{**104}.

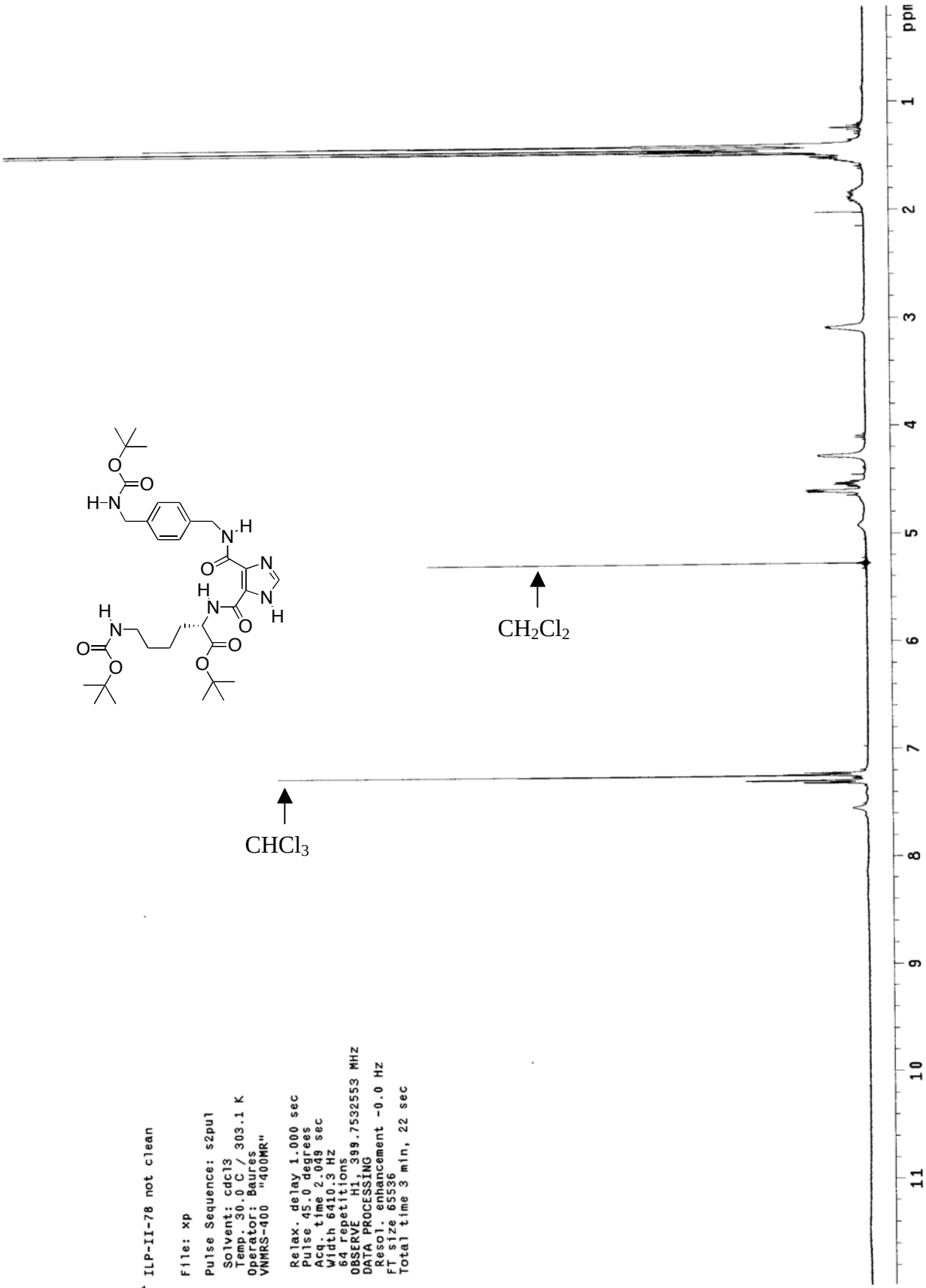

Figure S179. ^{1}H-NMR for the crude reaction to yield **5{**119}.

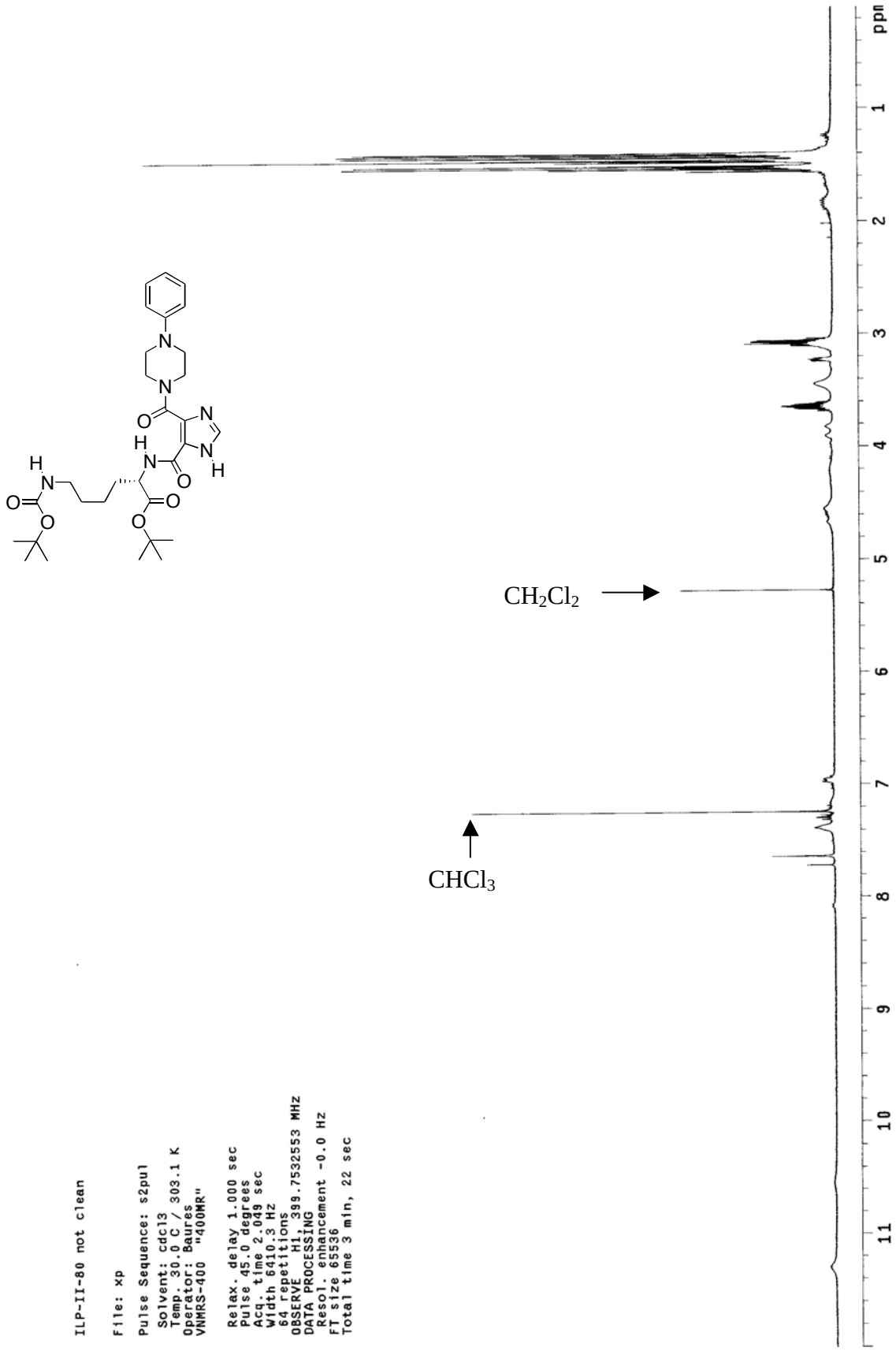

Figure S180. ^{1}H-NMR for the crude reaction to yield **5{**126}.