Supplementary Material

Diverse Modification of the 4-Methylphenyl Moiety of TAK-779 by Late-Stage Suzuki-Miyaura Cross-Coupling

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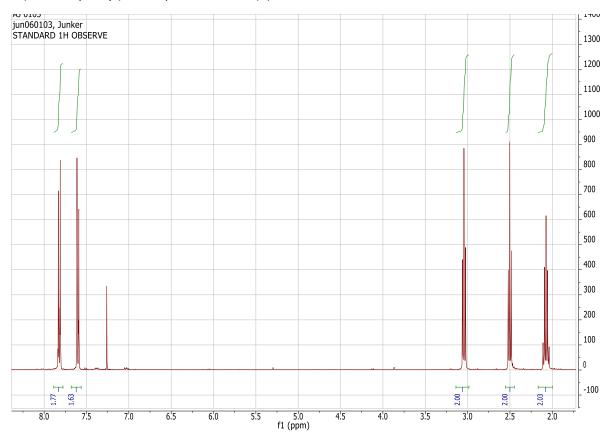
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5-(4-Bromophenyl)-5-oxo-pentanoic acid (4)



Analyzed: 11.02.10 08:46

Reported: 11.02.10 15:15 Processed: 11.02.10 15:15

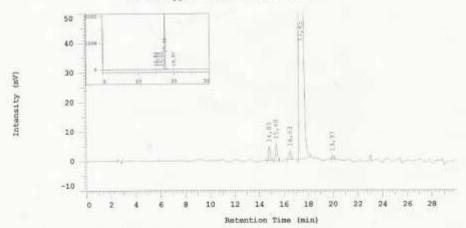
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Application: Chromni

Sample Name: AJ0113

Injection from this vial: 1 of 1

Series:1176 Vial Number: 19 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



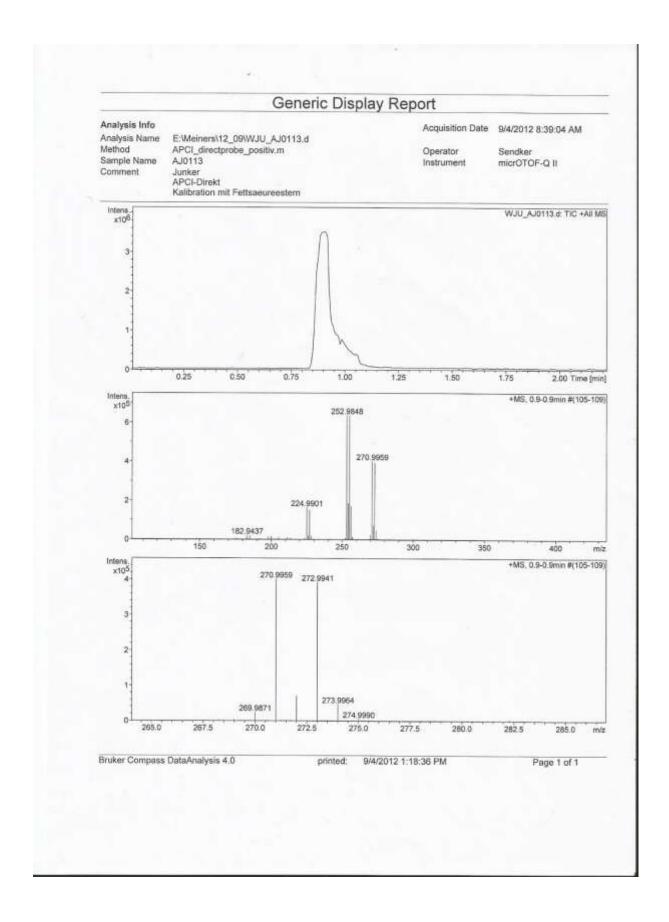
Acquisition Method: Chromni

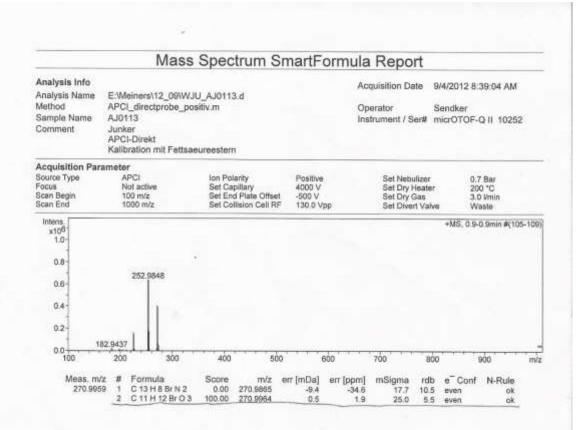
Blank Subtr Sample Name: ACN

Column Type: 010 Solvent A: Wasser + 0,05%TFA Developed by: Jens

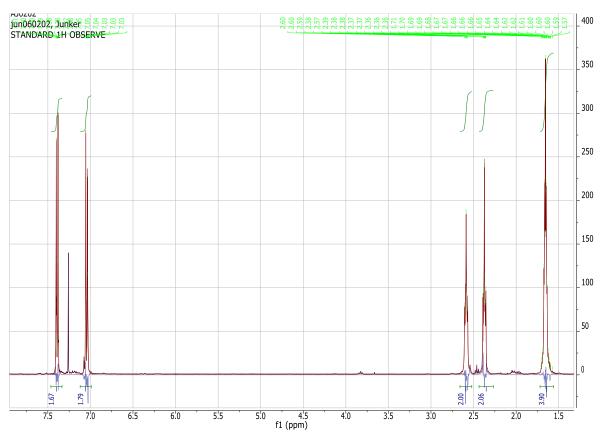
Solvent B: ACN + 0,05%TFA

No.	RT	Area	Conc 1	BC
1 2	14,83	40788	0,196	MC
2	15,40	52660	0,253	MC
3	16,53	29956	0,144	MC
4	17,45	20711131	99,360	MC
5	19,97	10102	0,048	MC
		20844637	100,000	





5-(4-Bromophenyl) pentanoic acid (5)



Analyzed: 18.02.10 11:49

Reported: 19.02.10 10:39 Processed: 19.02.10 10:39

Data Path: D:\WIN32APP\HSM\Chromni\DATA\1210\

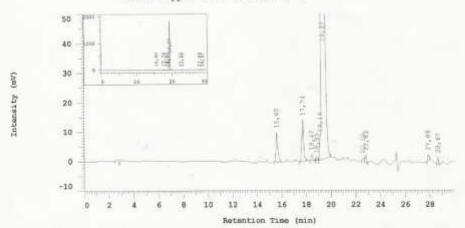
Application: Chromni

Sample Name: AJ 0208

Injection from this vial: 1 of 1

Series:1210 Vial Number: 22 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1

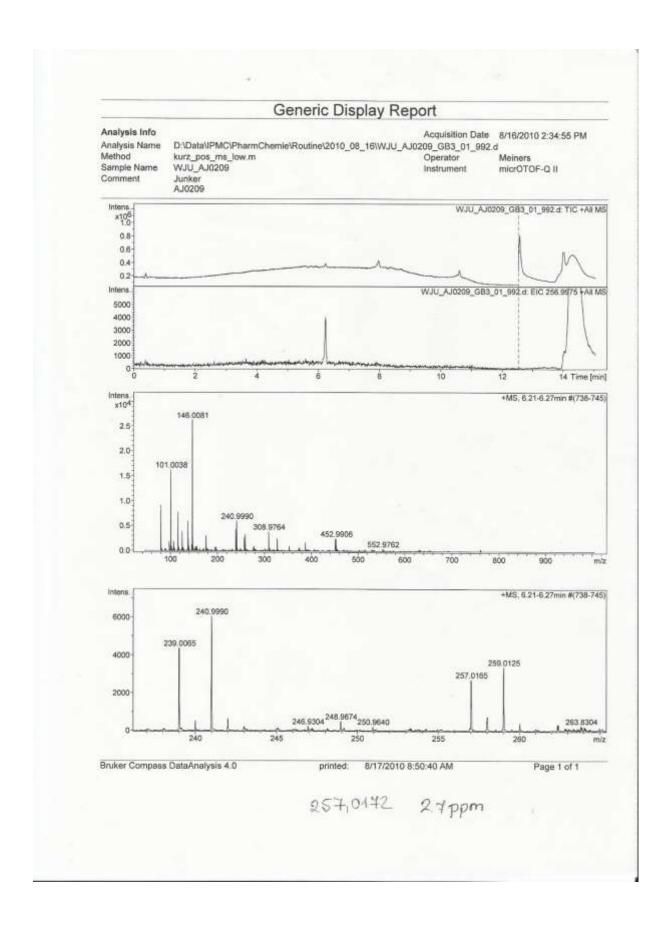


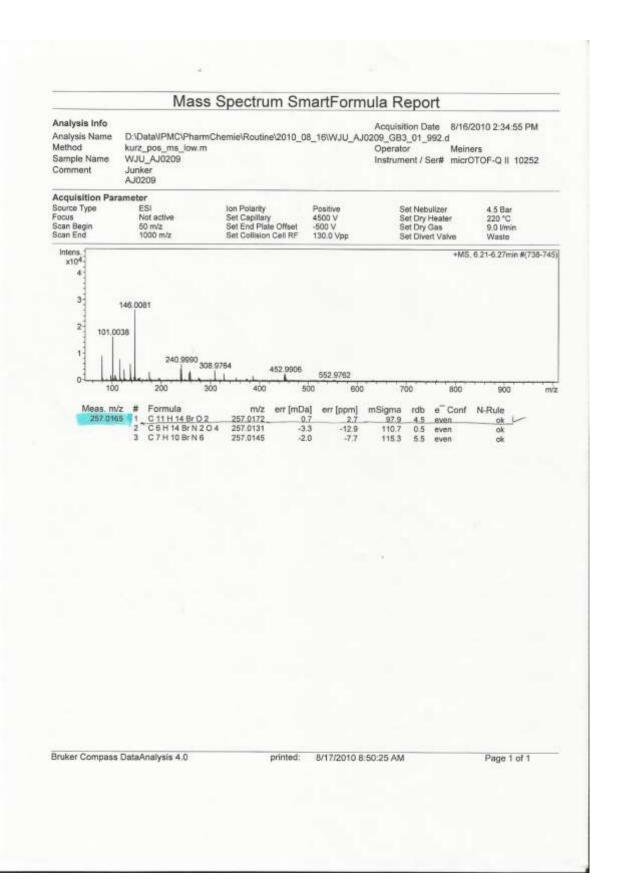
Acquisition Method: Chromni Blank Subtr Sample Name: ACN

Column Type: 010 Solvent A: Wasser + 0,05%TFA Developed by: Jens

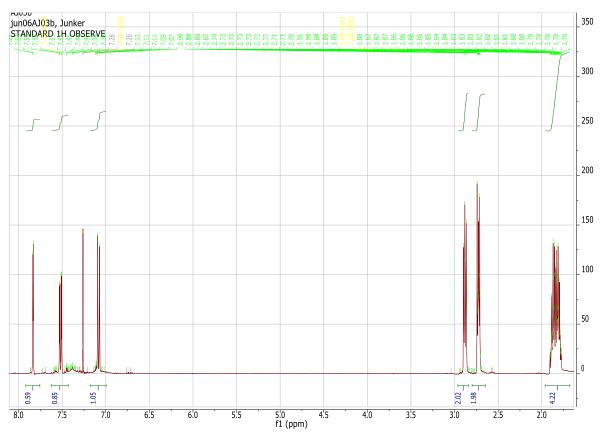
Solvent B: ACN + 0,05%TFA

No.	RT	Area	Conc 1	BC
1	15,60	99963	0,597	MC
1 2 3	17,74	145693	0,869	BB
3	18,47	20954	0,125	BB
4	18,85	7400	0,044	BB
5	19,14	205966	1,229	MC
	19,37	16215217	96,764	VB
6 7 8 9	22,59	13259	0,079	MC
8	22,83	19830	0,118	BB
9	27,89	14126	0,084	MC
10	28,67	15029	0,090	MC
		16757437	100,000	





3-Bromo-6,7,8,9-tetrahydrobenzo[7]annulen-5-one (6)



Analyzed: 24.02.10 21:42

Reported: 25.02.10 16:24 Processed: 25.02.10 16:24

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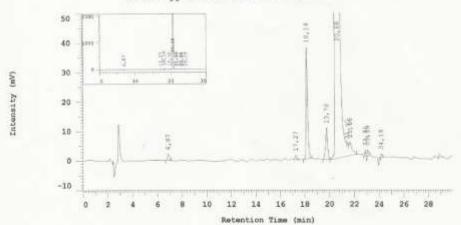
Application: Chromni

Sample Name: AJ 0323

Injection from this vial: 1 of 1

Series:1226 Vial Number: 5 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



Acquisition Method: Chromni Blank Subtr Sample Name: ACN

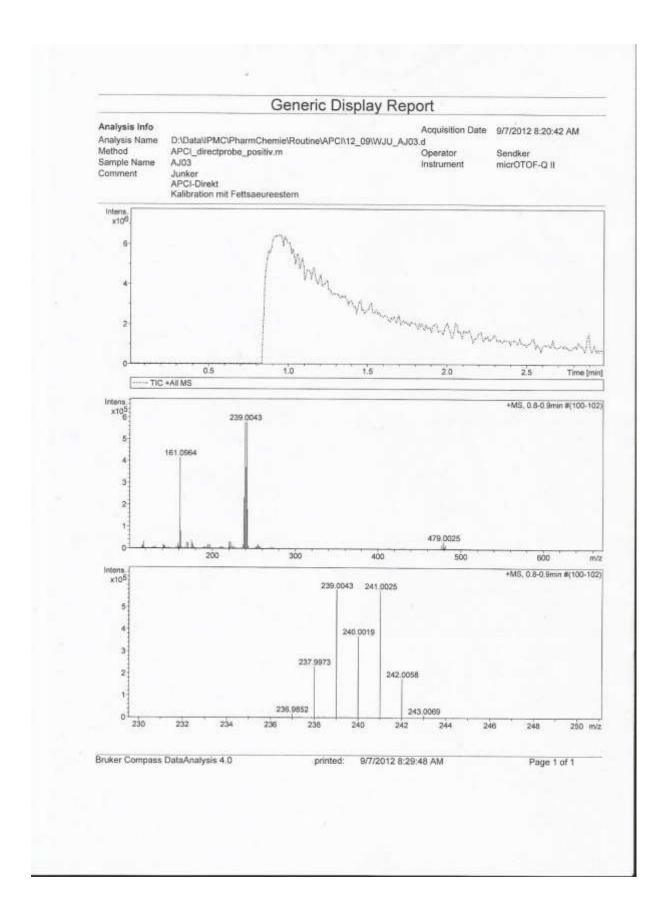
Column Type: 010

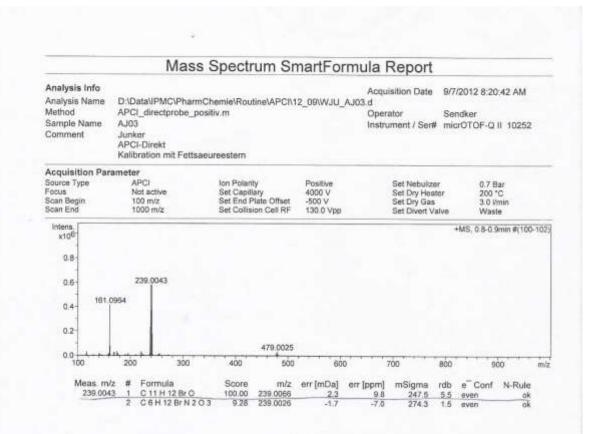
Solvent A: Wasser + 0,05%TFA

Developed by: Jens

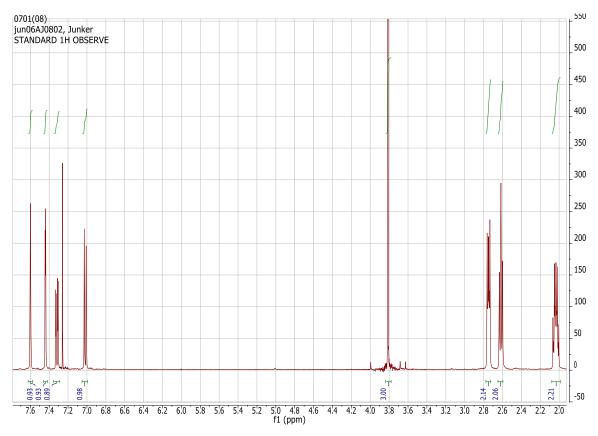
Solvent B: ACN + 0,05%TFA

No.	RT	Area	Conc 1	BC
1	6,87	22760	0,080	MC
2	17,27	10524	0,037	MC
3	18,19	327164	1,147	MC
4	19,78	116383	0,408	BB
5	20,68	27900563	97,792	MC
6	21,45	36189	0,127	MC
7	21,66	80167	0,281	MC
8	22,91	10454	0,037	MC
9	23,09	16657	0,058	MC
10	24,19	9664	0,034	MC
		28530525	100,000	





Methyl 2-bromo-6,7-dihydro-5H-benzo[7]annulene-8-carboxylate (9)



Analyzed: 20.06.11 17:18

Process
Data Path: D:\WIN32APP\HSM\Chromni\DATA\3186\

Application: Chromni

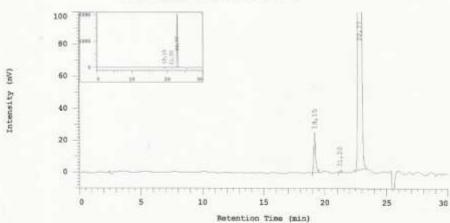
Sample Name: AJ0804

Injection from this vial: 1 of 1

Reported: 21.06.11 09:38 Processed: 21.06.11 09:38

Series:3186 Vial Number: 5 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



Acquisition Method: Chromni

Blank Subtr Sample Name: ACN

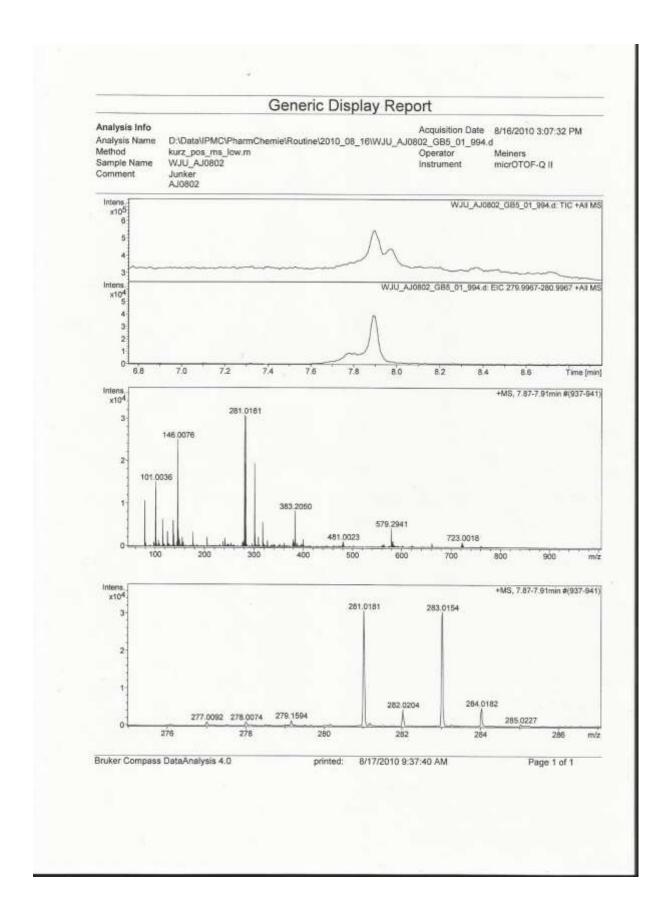
Column Type: 010

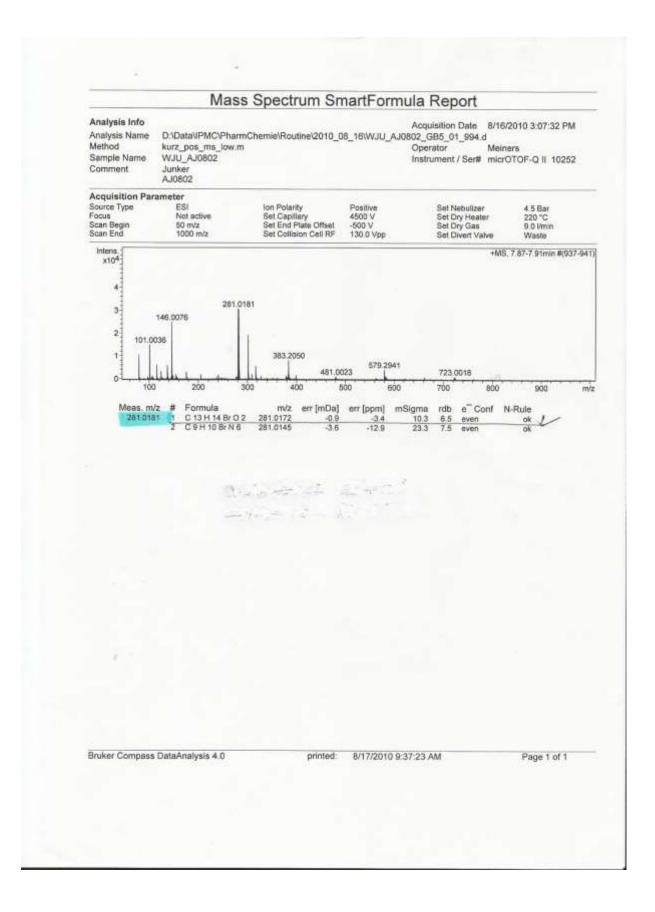
Solvent A: Wasser + 0,05%TFA

Developed by: Jens

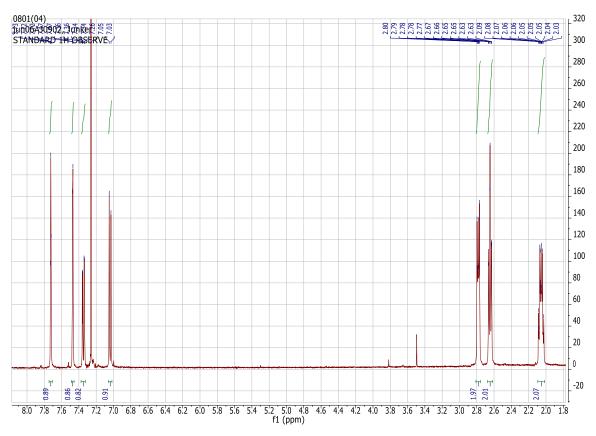
Solvent B: ACN + 0,05%TFA

No.	RT	Area	Conc 1	ВС
1	19,15	240471	1,228	MC
2	21,20	5846	0,030	BB
3	22,77	19338883	98,742	MC
		19585200	100,000	





2-Bromo-6,7-dihydro-5H-benzo[7]annulene-8-carboxylic acid (10)



Analyzed: 20.06.11 17:59

Data Path: D:\WIN32APP\HSM\Chromni\DATA\3187\

Application: Chrommi

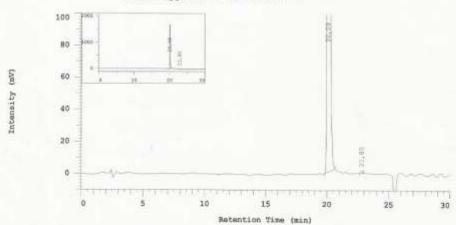
Sample Name: AJ0904

Injection from this vial: 1 of 1

Reported: 21.06.11 09:39 Processed: 21.06.11 09:39

Series:3187 Vial Number: 6 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



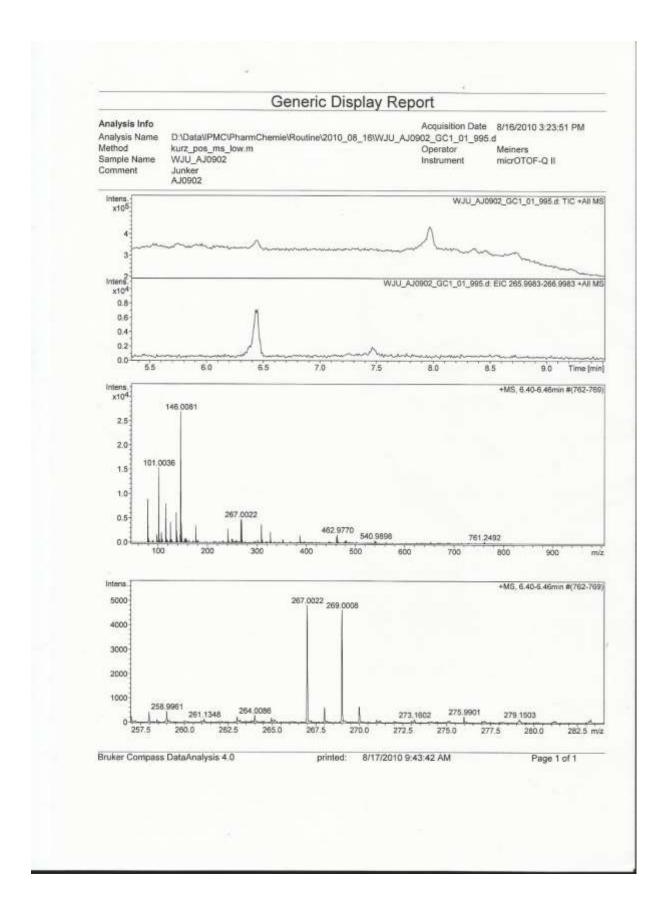
Acquisition Method: Chromni

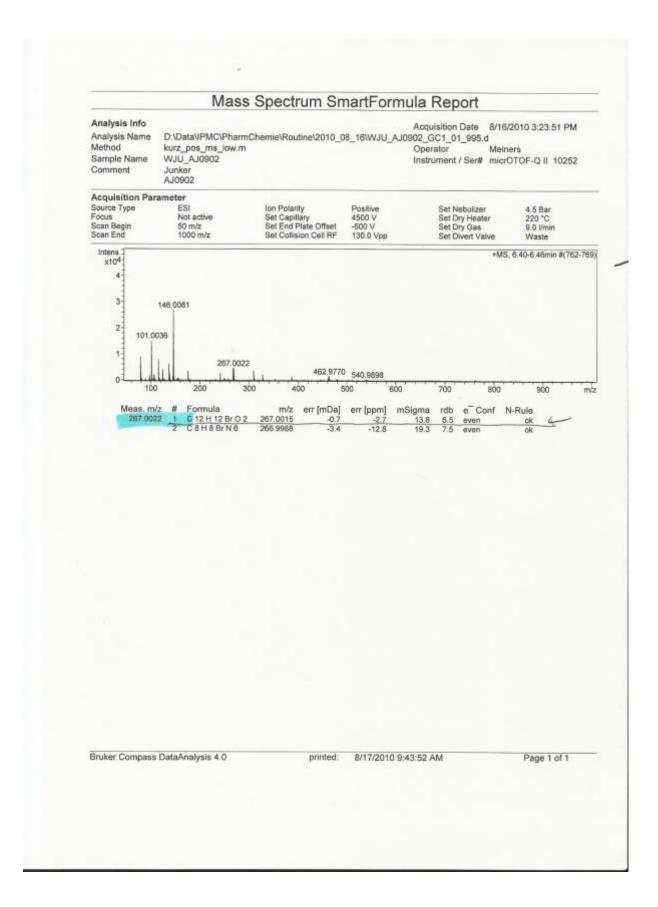
Blank Subtr Sample Name: ACN

Column Type: 010 Solvent A: Wasser + 0,05%TFA Developed by: Jens

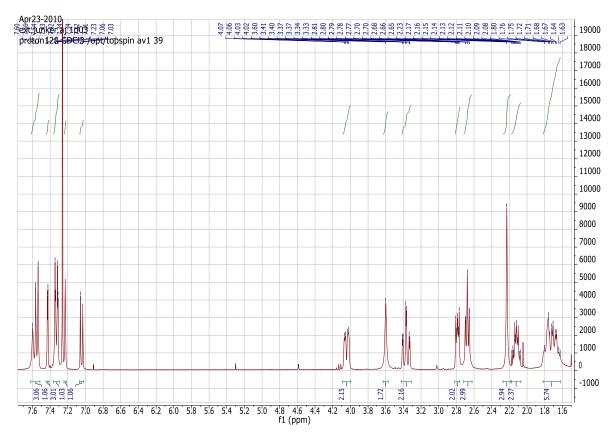
Solvent B: ACN + 0,05%TFA

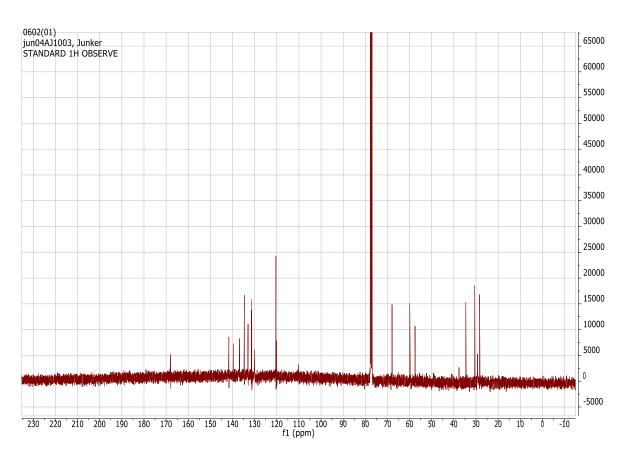
No.	RT	Area	Conc 1	BC
1 2	20,09 22,80	16077145 10224	99,936 0,064	MC BB
		16087369	100,000	

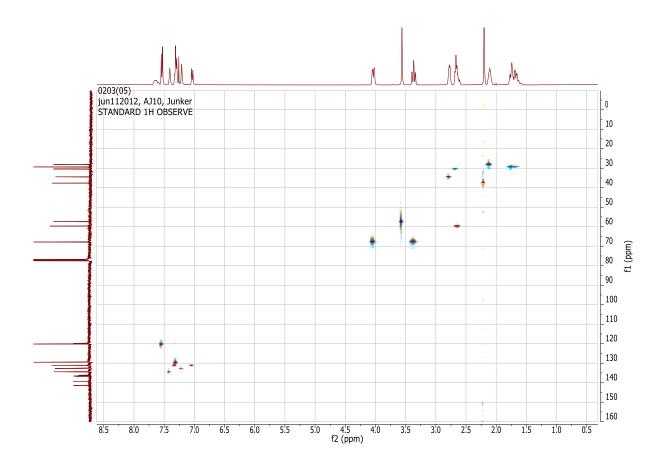


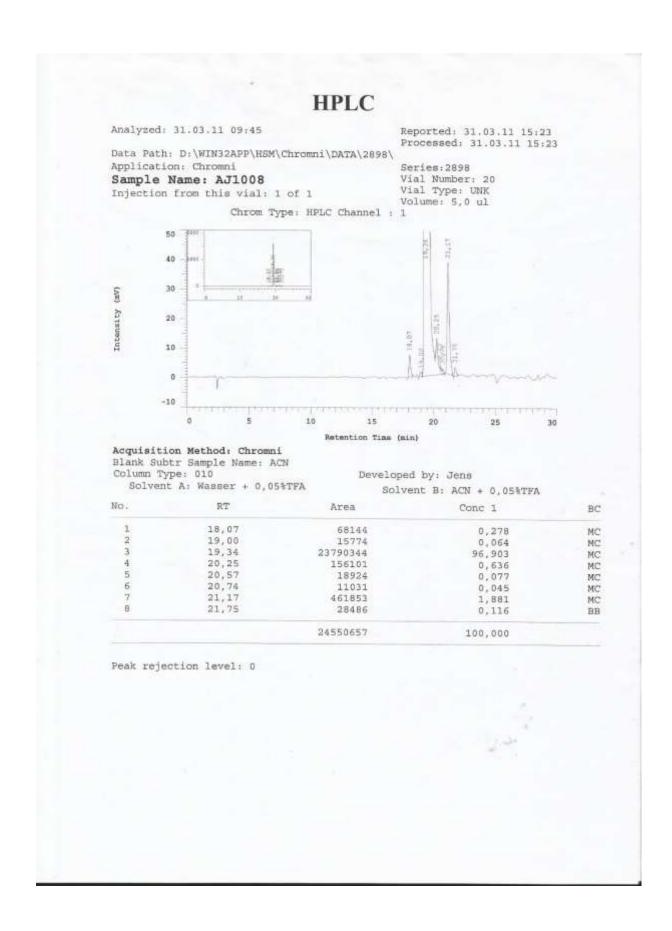


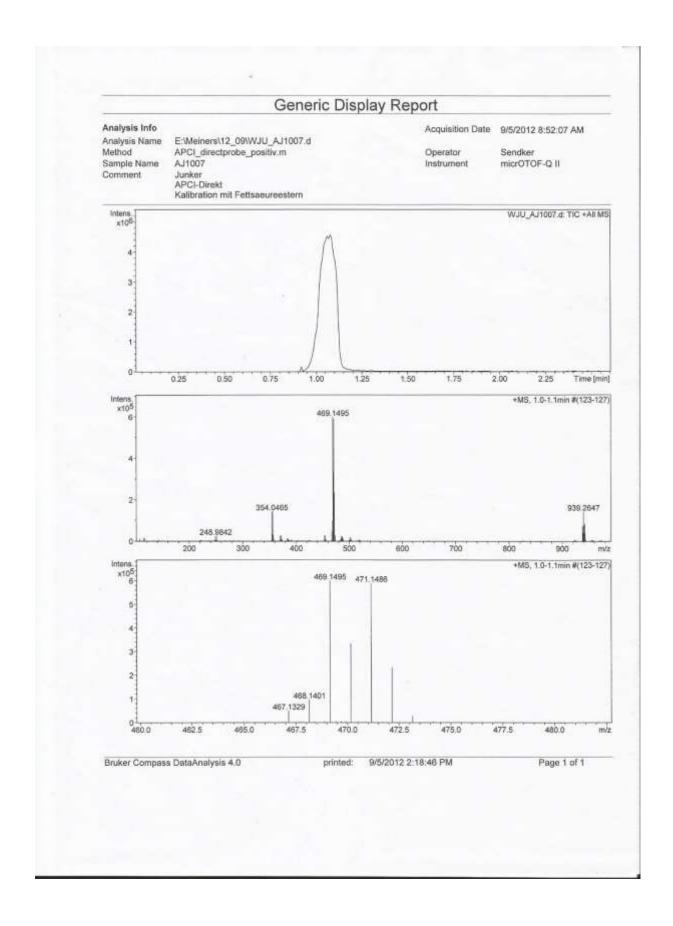
2-Bromo-N-{4-[N-methyl-N-(tetrahydro-2H-pyran-4-yl)aminomethyl]phenyl}-6,7-dihydro-5H-benzo[7]annulene-8-carboxamide (**3**)

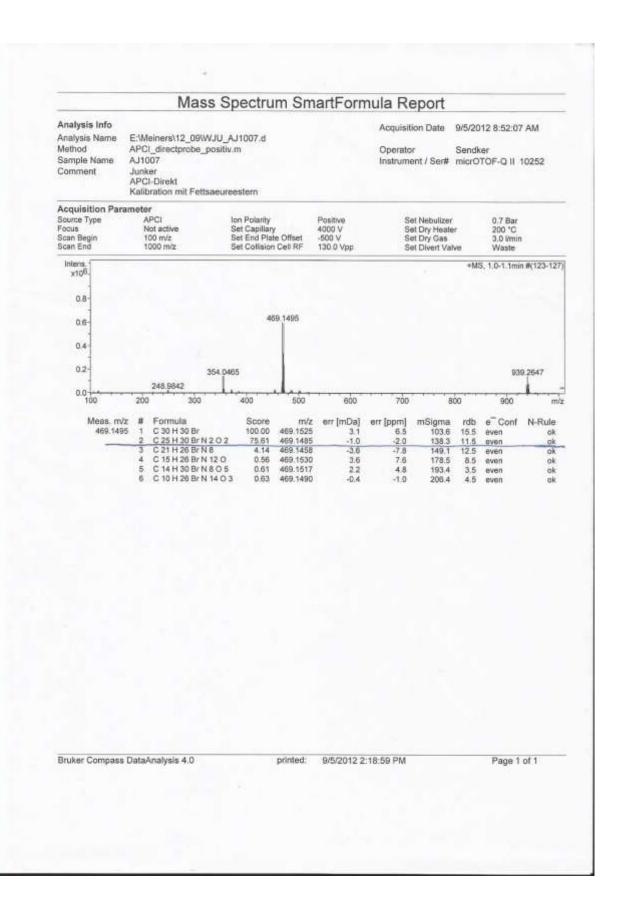




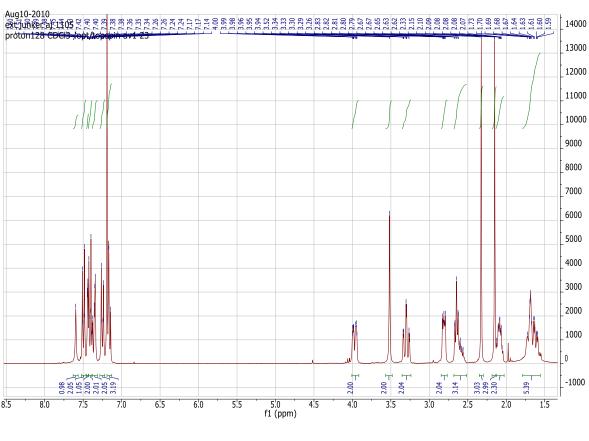


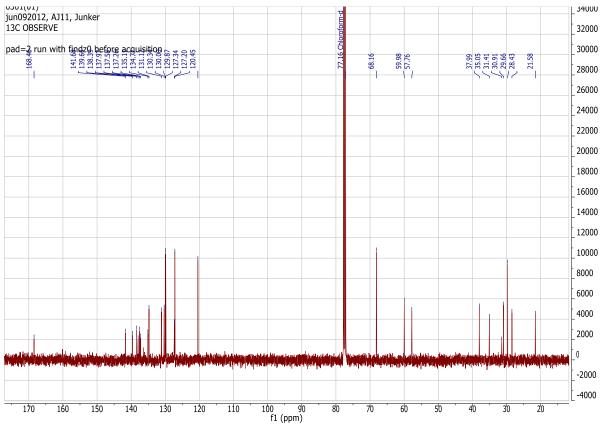






2-(4-Methyphenyl)-N-{4-[N-methyl-N-(tetrahydro-2H-pyran-4-yl)aminomethyl]phenyl}-6,7-dihydro-5H-benzo[7]annulene-8-carboxamide (**2a**)





Analyzed: 27.10.10 21:41

Data Path: D:\WIN32APP\HSM\Chromni\DATA\2304\

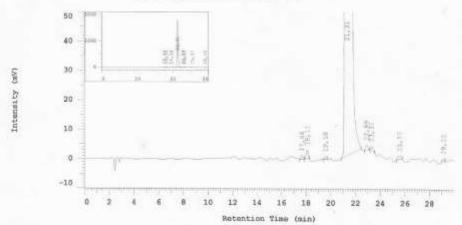
Application: Chromni Sample Name: AJ1106

Injection from this vial: 1 of 1

Reported: 28.10.10 16:22 Processed: 28.10.10 16:22

Series:2304 Vial Number: 6 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



Acquisition Method: Chromni

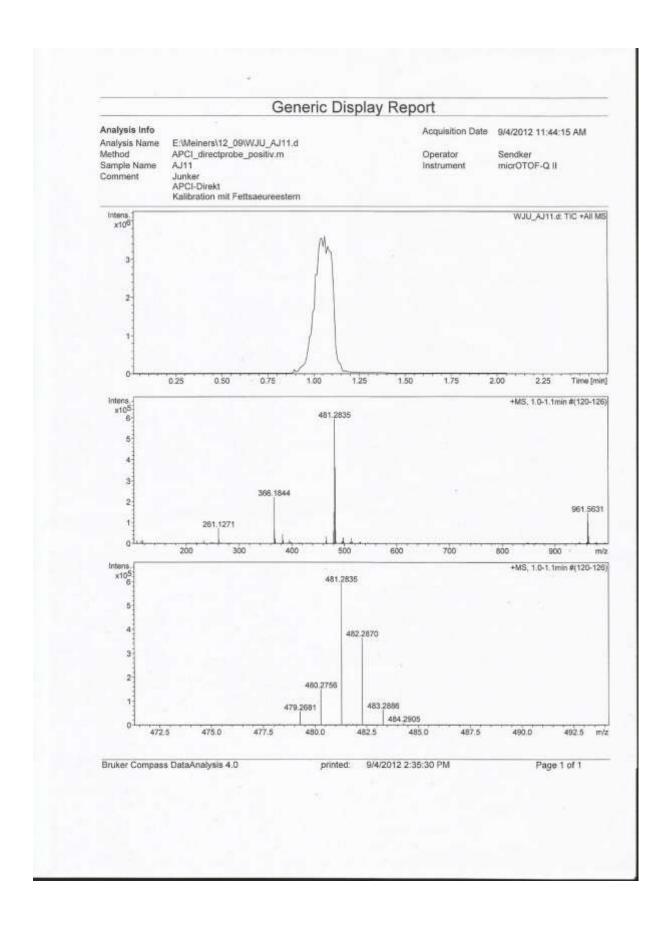
Blank Subtr Sample Name: ACN Column Type: 010

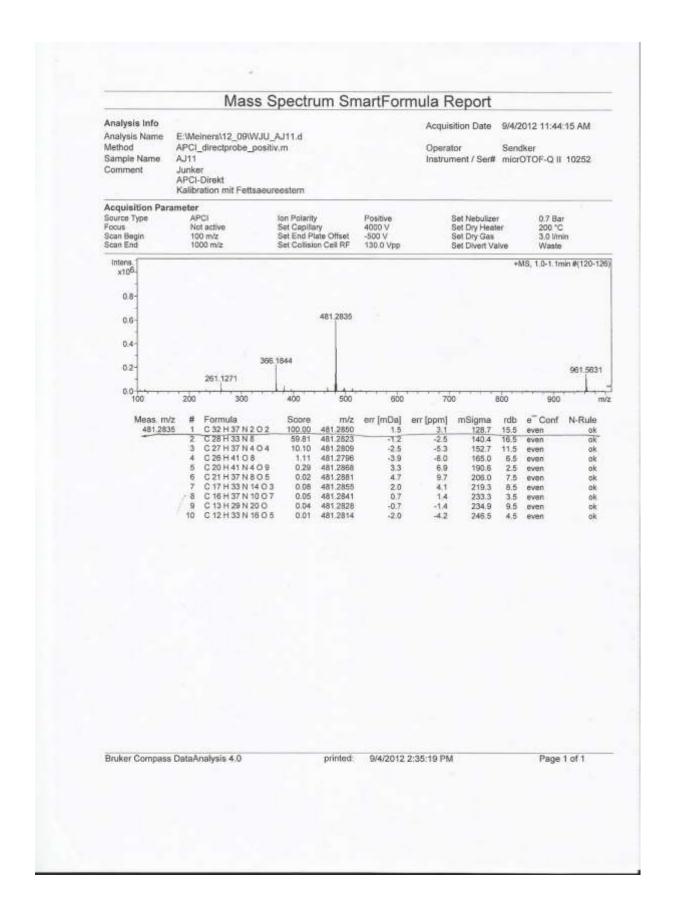
Solvent A: Wasser + 0,05%TFA

Developed by: Jens

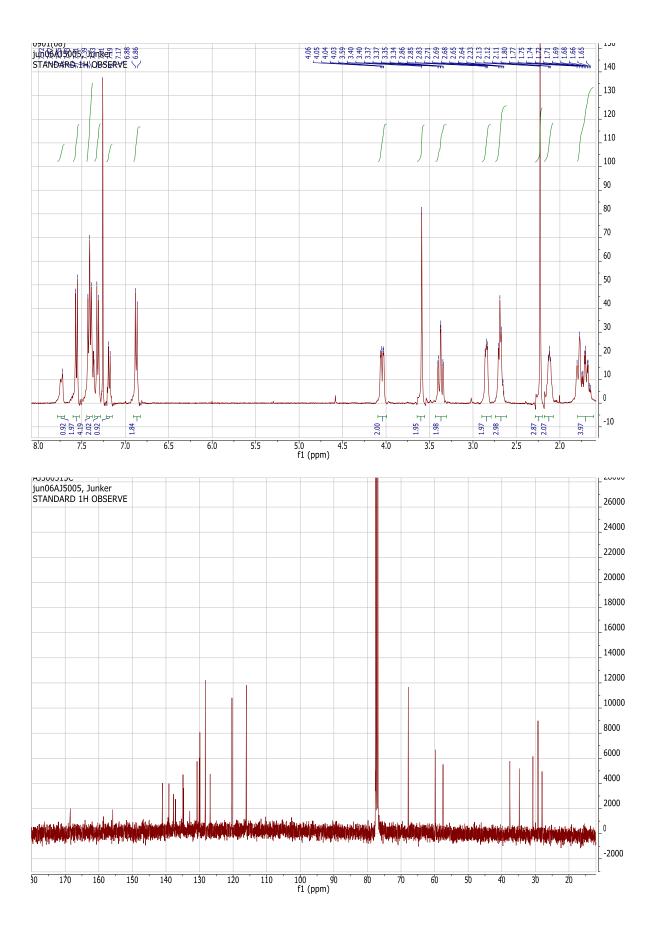
Solvent B: ACN + 0,05%TFA

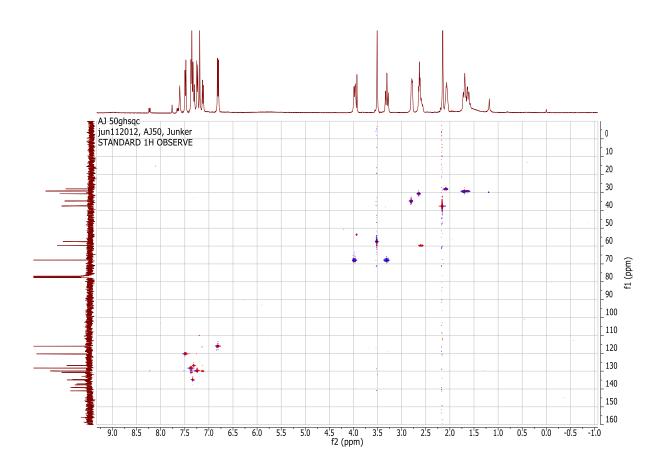
No.	RT	Area	Conc 1	BC
1	17,66	13404	0,039	ВВ
2	18,11	36545	0,108	BB
3	19,5B	11382	0,033	BB
4	21,31	33844163	99,601	MC
5	22,89	19358	0,057	MC
6	23,31	20396	0,060	MC
7	25,57	22792	0,067	BB
8 29,15	29,15	11760	0,035	BB
		33979800	100,000	





2-(4-Hydroxyphenyl)-N-{4-[N-methyl-N-(tetrahydro-2H-pyran-4-yl)aminomethyl]phenyl}-6,7-dihydro-5H-benzo[7]annulene-8-carboxamide (**2b**)





Analyzed: 22.06.11 01:18

Reported: 22.06.11 11:32 Processed: 22.06.11 11:32

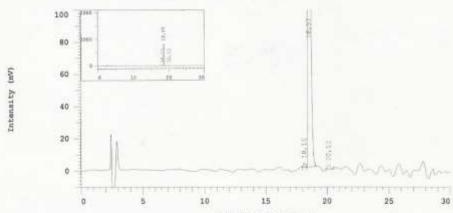
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Application: Chromni

Sample Name: AJ5005

Injection from this vial: 1 of 1

Series:3219 Vial Number: 17 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel :



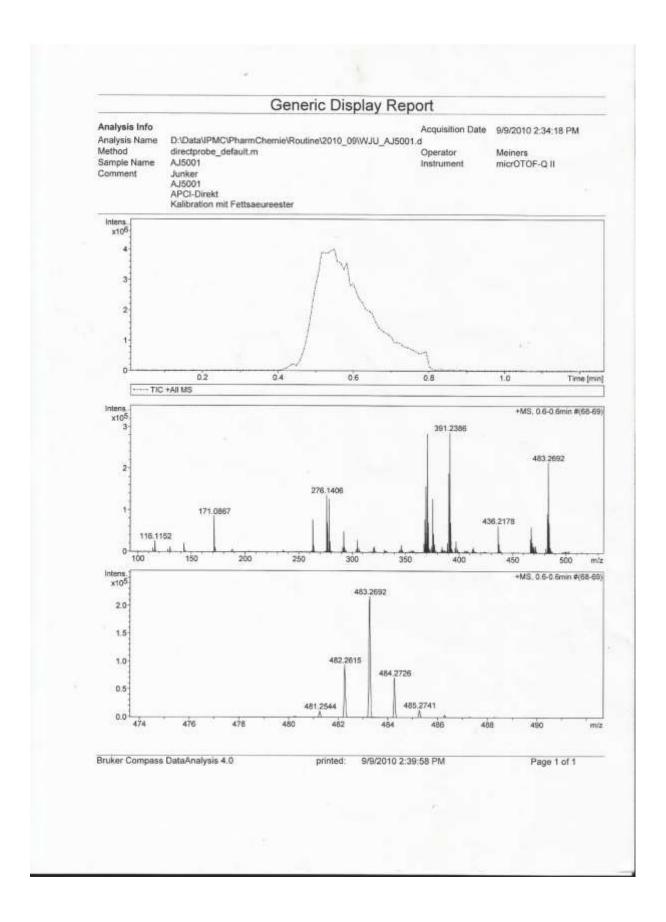
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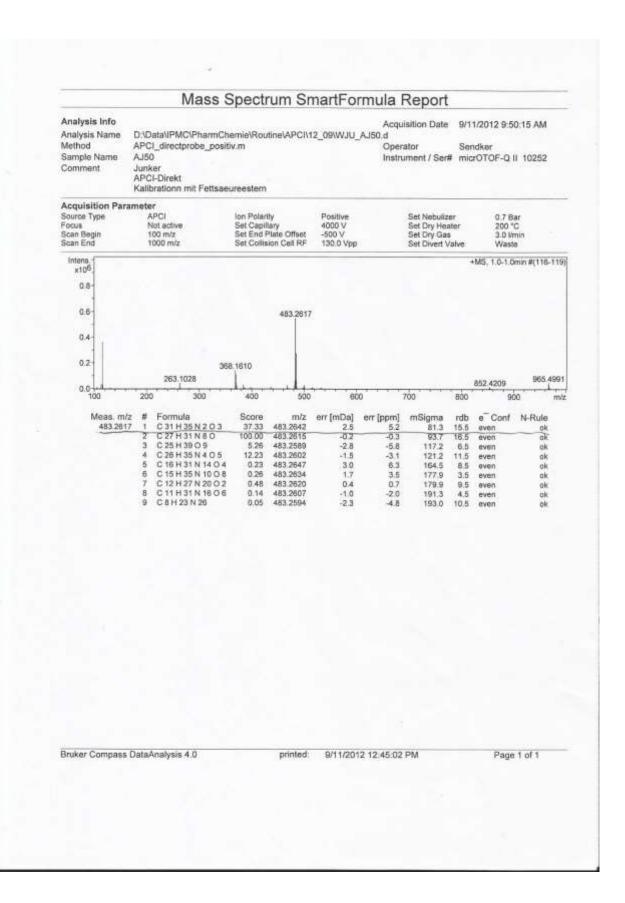
Acquisition Method: Chromni Blank Subtr Sample Name: ACN

Column Type: 010 Solvent A: Wasser + 0,05%TFA Developed by: Jens

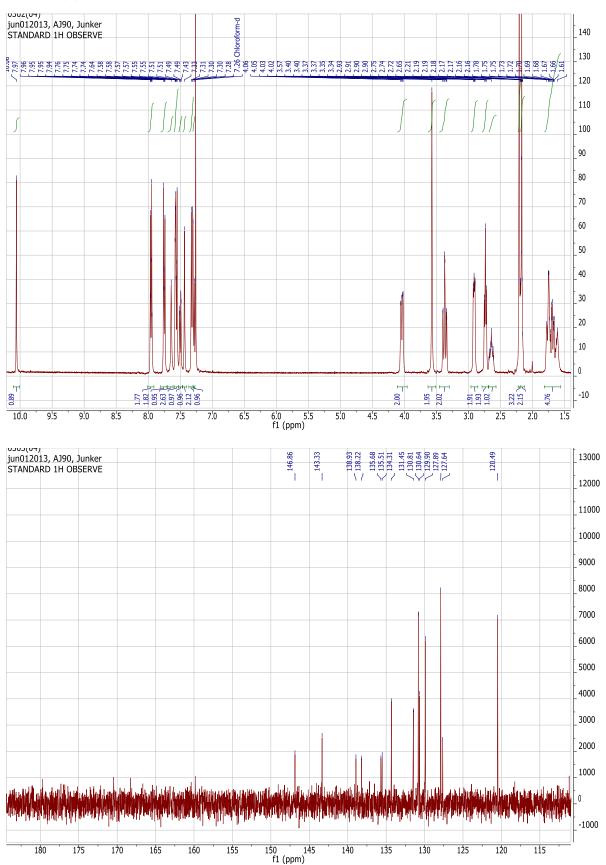
Solvent B: ACN + 0,05%TFA

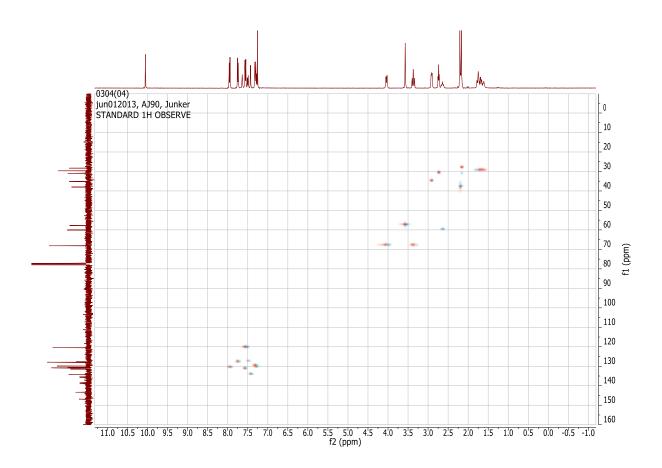
No.	RT	Area	Conc 1	BC
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2	18,57	8652428	99,290	MC
3	20,12	38556	0,442	BB
		8714320	100,000	

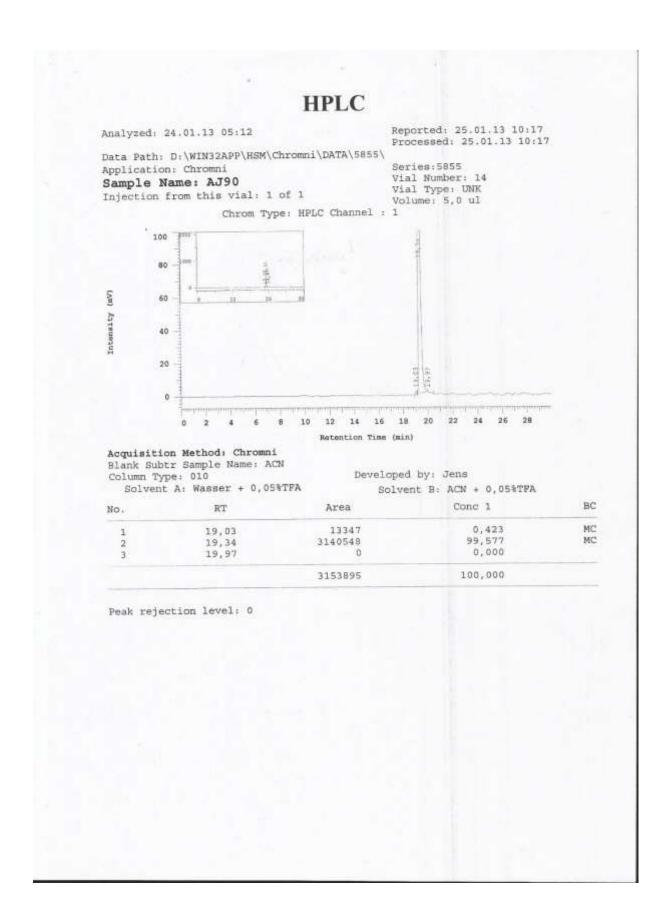


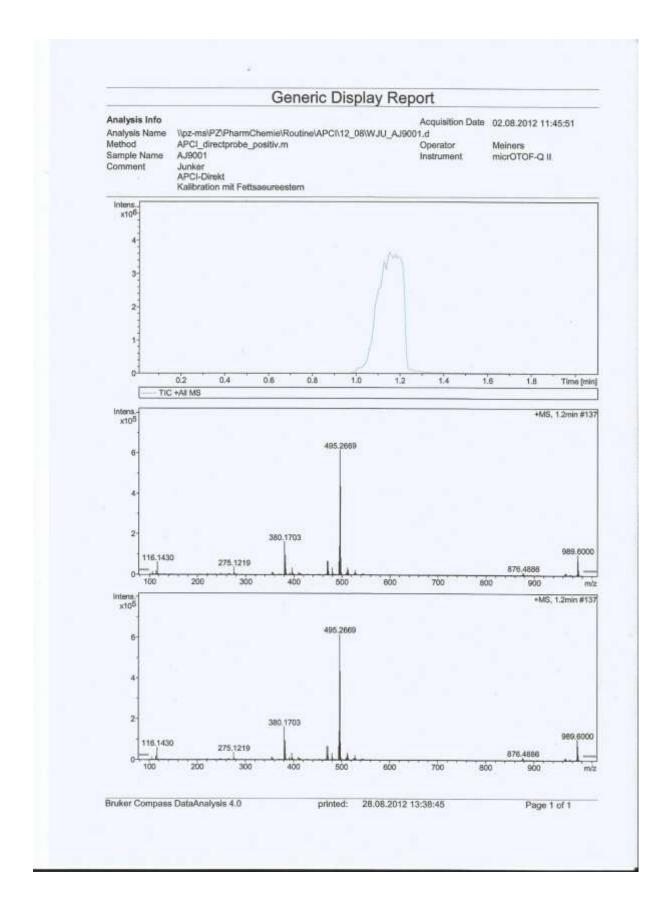


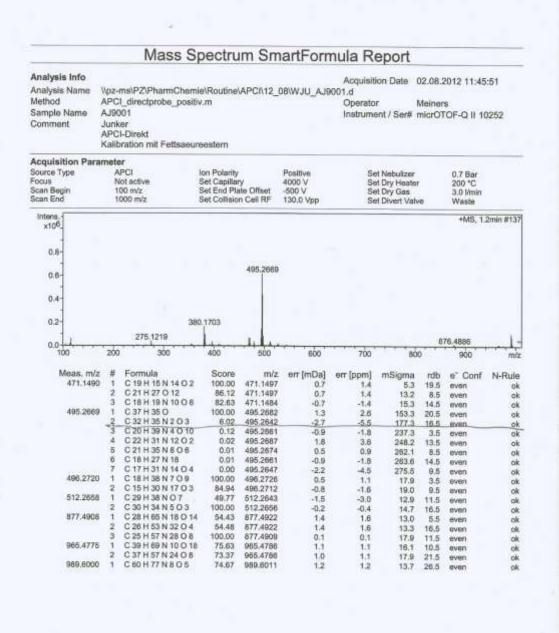
2-(4-Formylphenyl)-N-{4-[N-methyl-N-(tetrahydro-2H-pyran-4-yl)aminomethyl]phenyl}-6,7-dihydro-5H-benzo[7]annulene-8-carboxamide (**2c**)

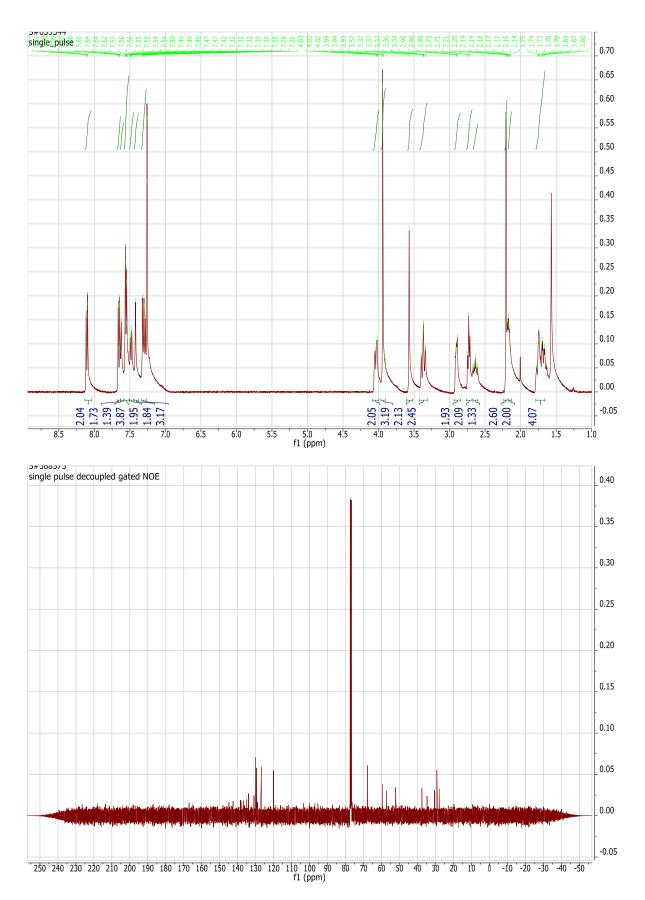












Analyzed: 20.09.12 07:40

Reported: 21.09.12 08:58 Processed: 21.09.12 08:58

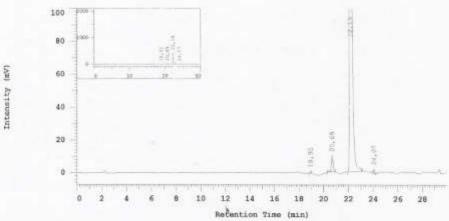
Data Path: D:\WIN32APP\HSM\Chromni\DATA\5281\
Application: Chromni

Sample Name: AJ91A

Injection from this vial: 1 of 1

Series:5281 Vial Number: 20 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



Acquisition Method: Chromni Blank Subtr Sample Name: ACN

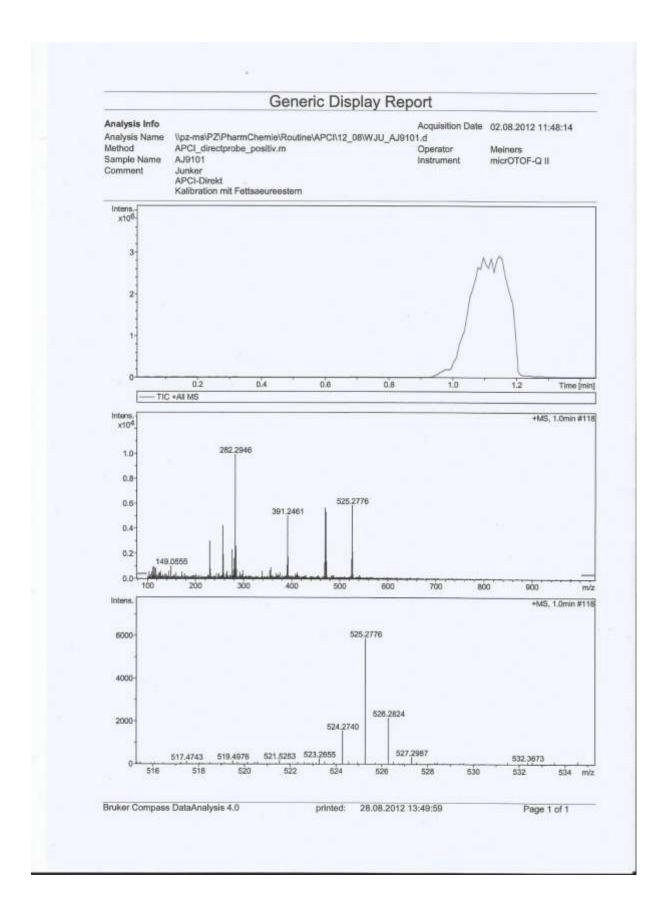
Column Type: 010

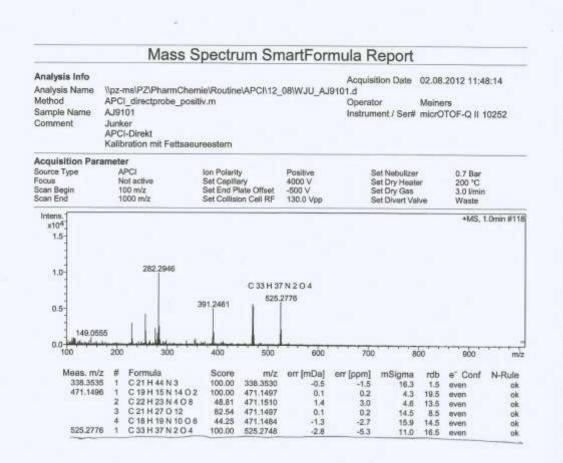
Solvent A: Wasser + 0,05%TFA

Developed by: Jens

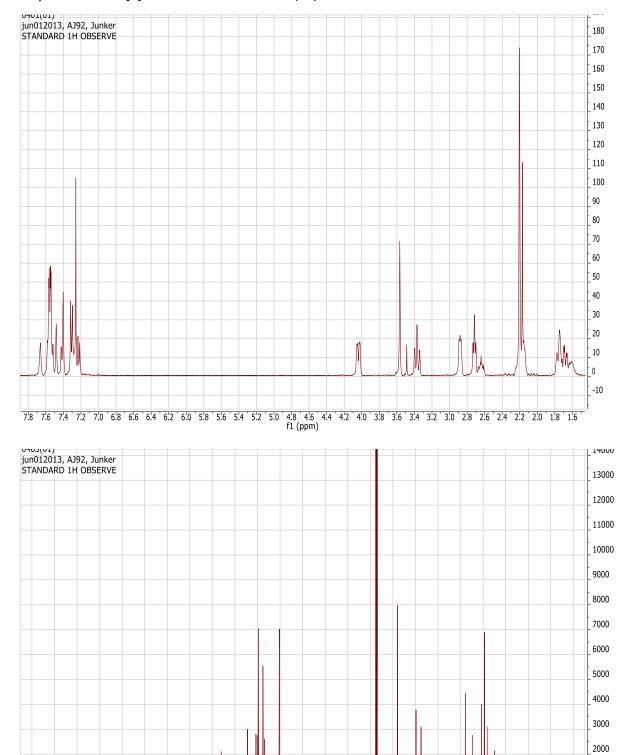
Solvent B: ACN + 0,05%TFA

No.	RT	Area	Conc 1	BC
1	18,95	7714	0,160	BB
2	20,69	89493	1,861	BB
3	22,19	4697648	97,695	BB
4	24,07	13635	0,284	BB
		4808490	100,000	





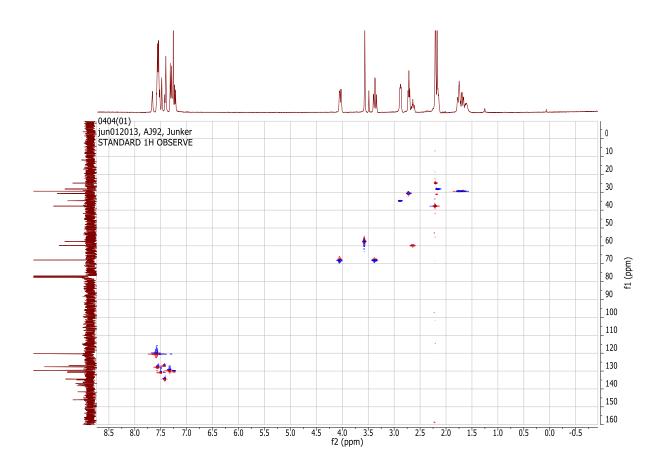
$2-[4-(Acetamido)phenyl]-N-\{4-[N-methyl-N-(tetrahydro-2H-pyran-4-yl)aminomethyl]phenyl\}-6,7-dihydro-5H-benzo[7]annulene-8-carboxamide ($ **2e**)



20 10

230 220 210 200 190 180 170 160 150 140 130 120 110 100 f1 (ppm)

-1000



Analyzed: 05.07.12 08:11

Data Path: D:\WIN32APP\HSM\Chromni\DATA\4978\

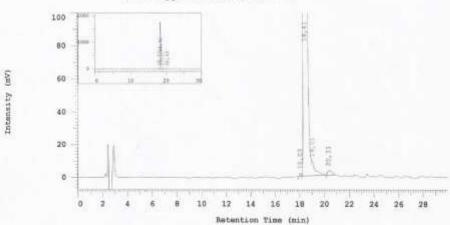
Application: Chromni Sample Name: AJ9201

Injection from this vial: 1 of 1

Reported: 05.07.12 15:55 Processed: 05.07.12 15:55

Series:4978 Vial Number: 19 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



Acquisition Method: Chromni

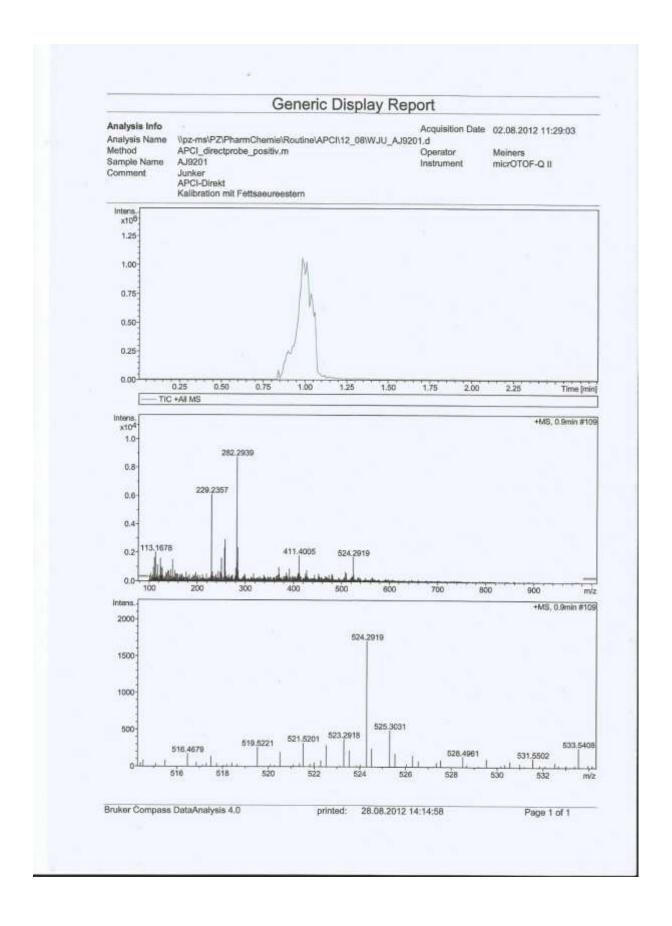
Blank Subtr Sample Name: ACN Column Type: 010

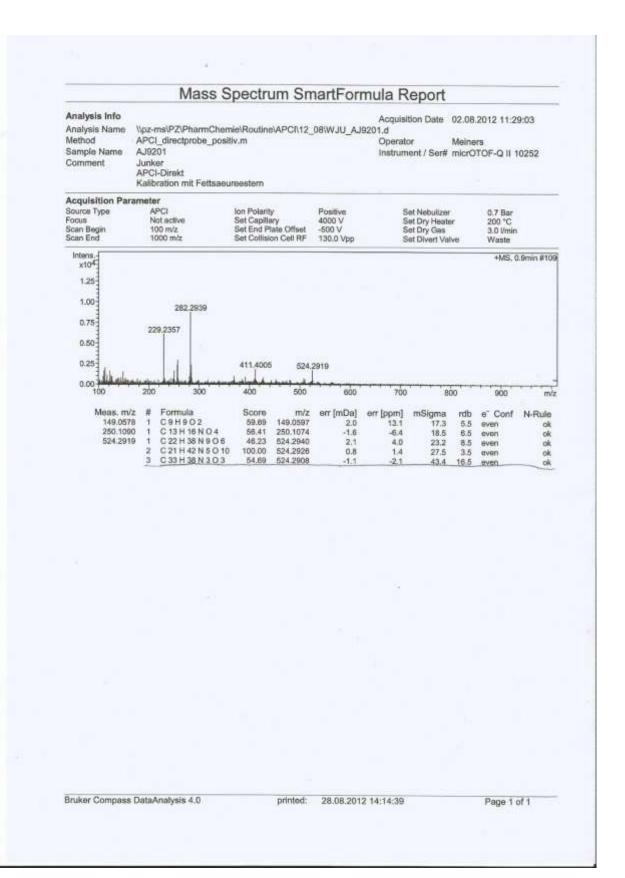
Solvent A: Wasser + 0,05%TFA

Developed by: Jens

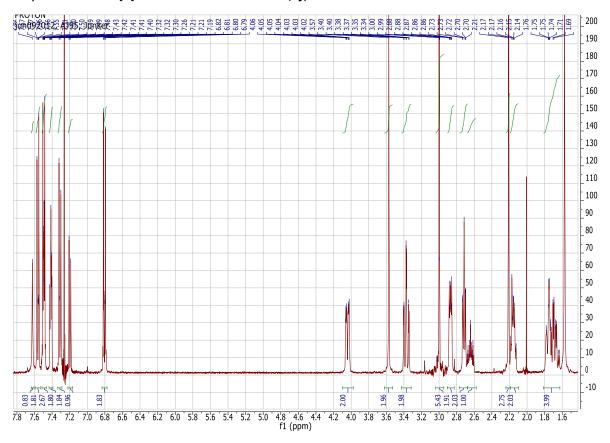
Solvent B: ACN + 0,05%TFA

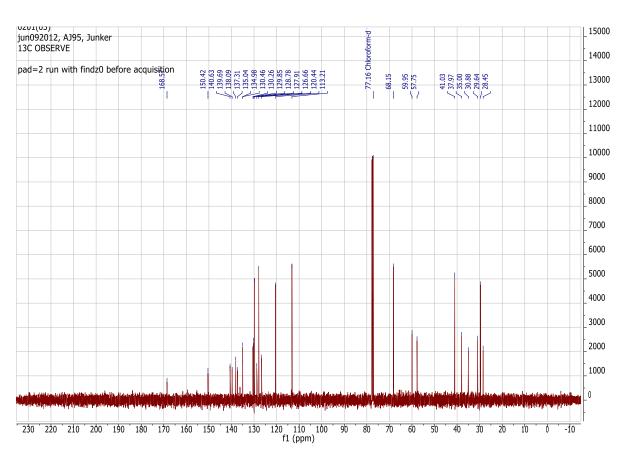
No.	RT	Area	Conc 1	BC
1	18,03	14581	0,067	ВВ
2	18,41	21532304	98,900	MC
3	19,01	170567	0,783	MC
4	20,33	54233	0,249	MC
		21771685	100,000	

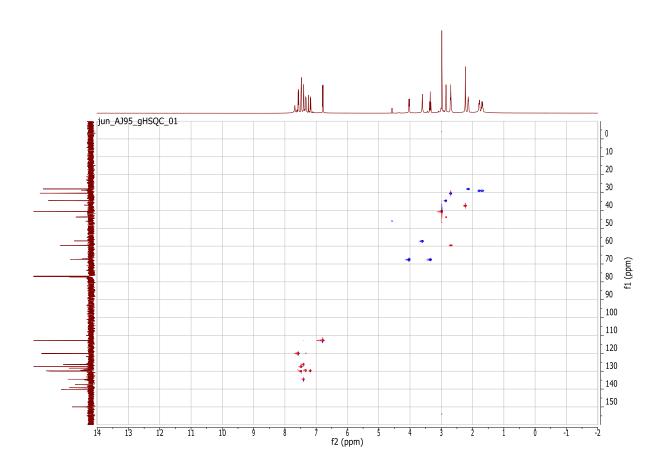




2-[4-(Dimethylamino)phenyl]-N-{4-[N-methyl-N-(tetrahydro-2H-pyran-4-yl)aminomethyl]phenyl}-6,7-dihydro-5H-benzo[7]annulene-8-carboxamide (**2f**)







Analyzed: 20.09.12 02:50

Reported: 21.09.12 08:55 Processed: 21.09.12 08:55

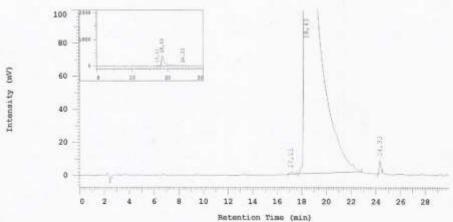
Data Path: D:\WIN32APP\HSM\Chromni\DATA\5274\

Application: Chromni Sample Name: AJ95

Injection from this vial: 1 of 1

Series:5274 Vial Number: 14 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1



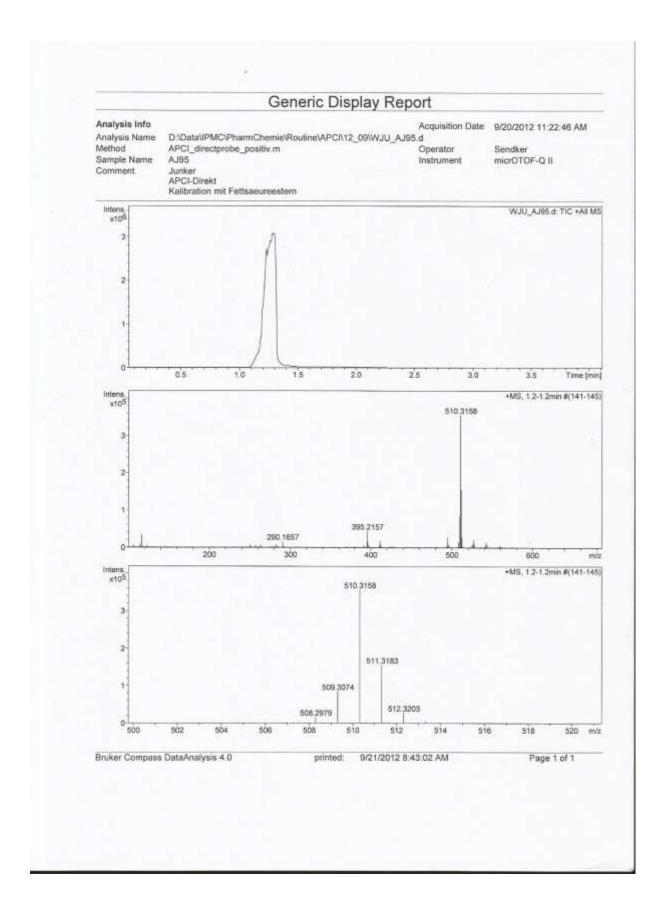
Acquisition Method: Chromni Blank Subtr Sample Name: ACN Column Type: 010

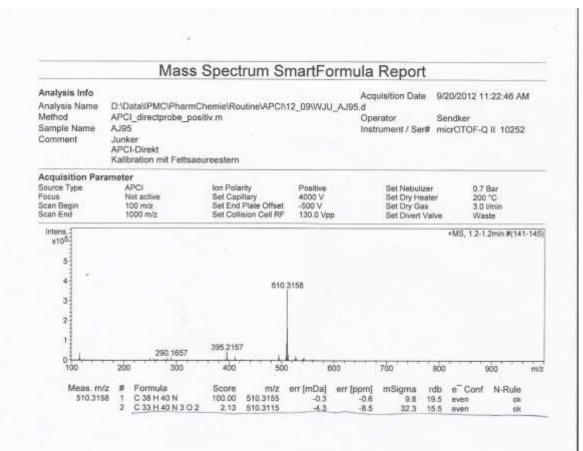
Solvent A: Wasser + 0,05%TFA

Developed by: Jens

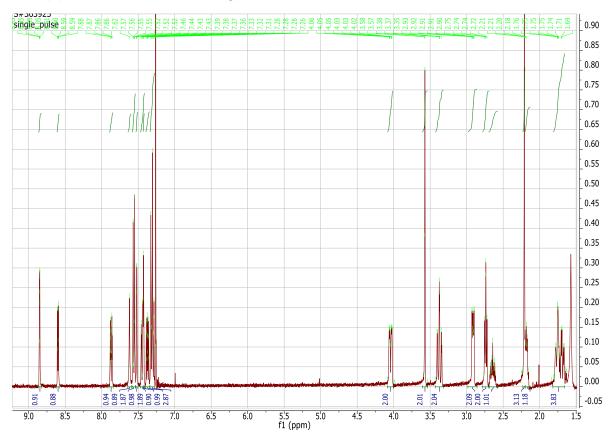
Solvent B: ACN + 0,05%TFA

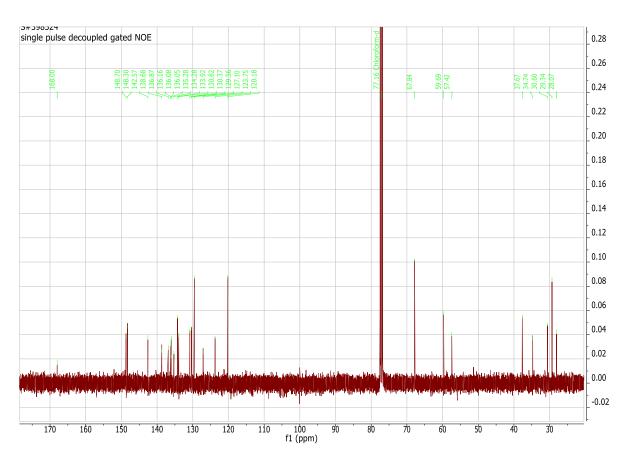
No.	RT	Area	Conc 1	вс
1	17,11	27263	0,129	BB
2	18,43	21104094	99,540	MC
3	24,33	70181	0,331	BB
		21201538	100,000	

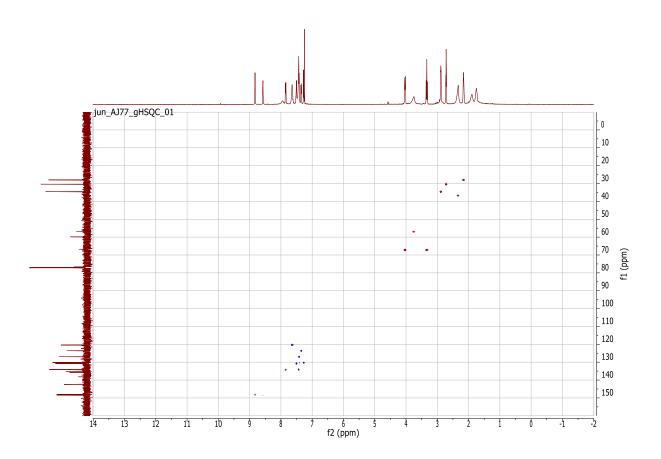




N-{4-[*N-Methyl-N-*(tetrahydro-2*H-pyran-4-yl*)aminomethyl]phenyl}-2-(pyridin-3-yl)-6,7-dihydro-5*H-benzo*[7]annulene-8-carboxamide (**2g**)







Analyzed: 05.07.12 05:25

Reported: 05.07.12 15:49 Processed: 05.07.12 15:48

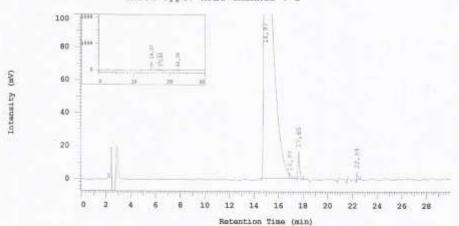
Data Path: D:\WIN32APP\HSM\Chromni\DATA\4974\

Application: Chromni

Vial

Sample Name: AJ7701 Injection from this vial: 1 of 1 Series:4974 Vial Number: 15 Vial Type: UNK Volume: 5,0 ul

Chrom Type: HPLC Channel : 1

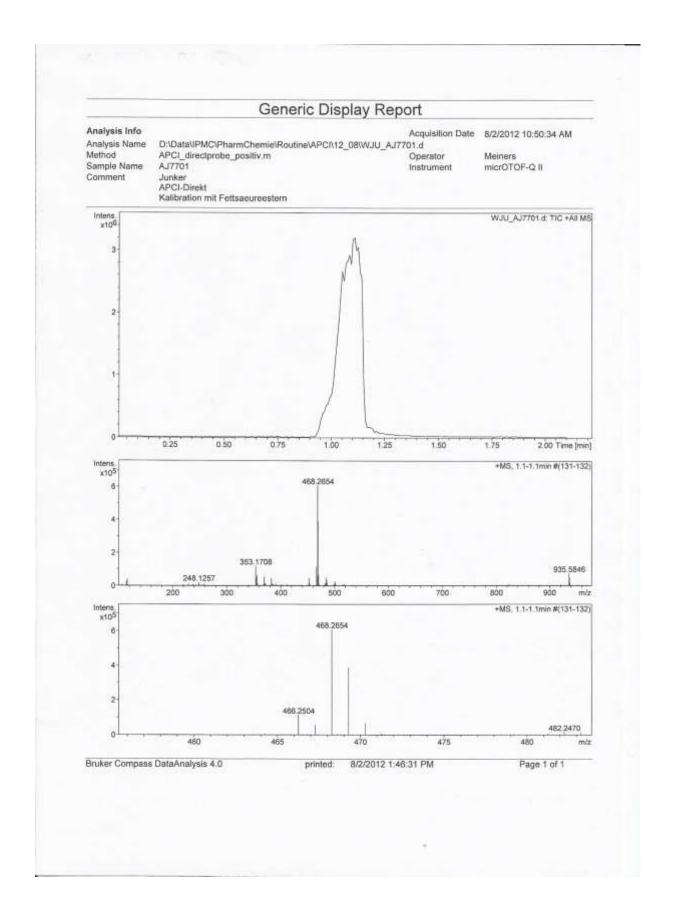


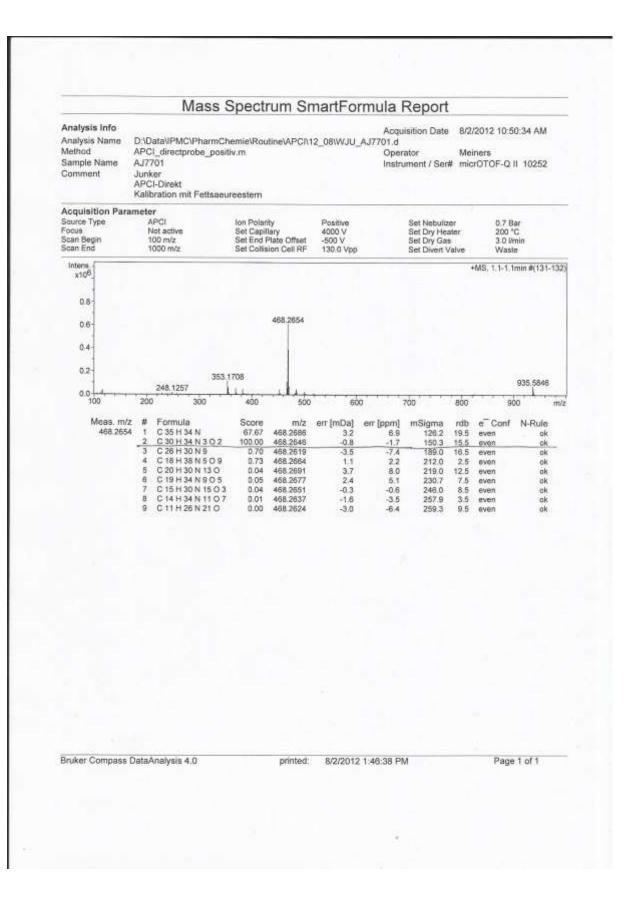
Acquisition Method: Chromni Blank Subtr Sample Name: ACN

Column Type: 010 Solvent A: Wasser + 0,05%TFA Developed by: Jens

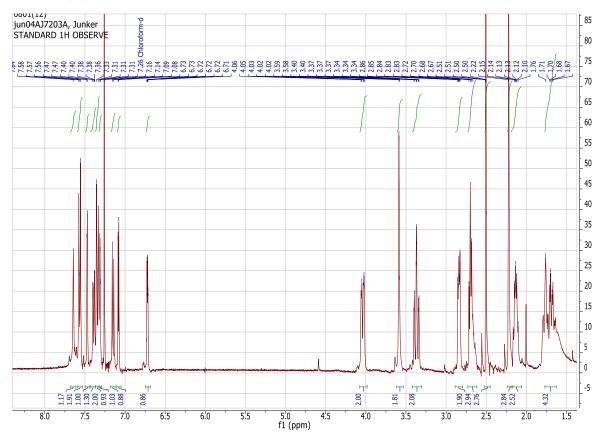
Solvent B: ACN + 0,05%TFA

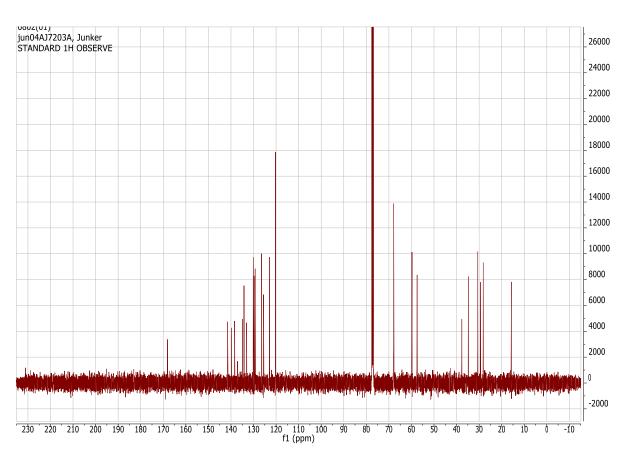
No.	RT	Area	Conc 1	BC
1	14,97	11287230	98,134	MC
2	16,97	31255	0,272	MC
3	17,65	148383	1,290	MC
4	22,39	34939	0,304	MC
		11501807	100,000	

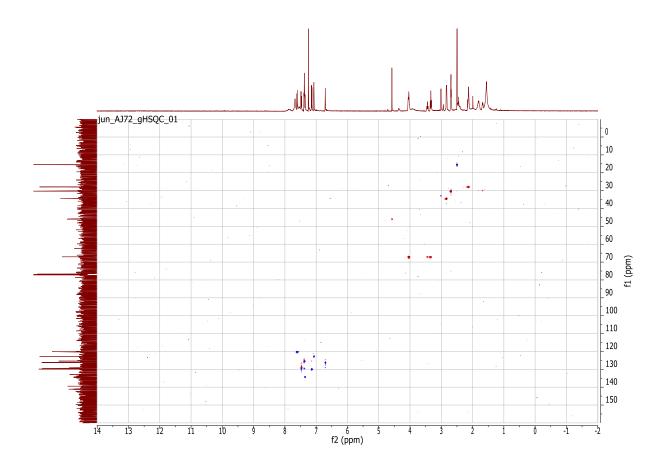


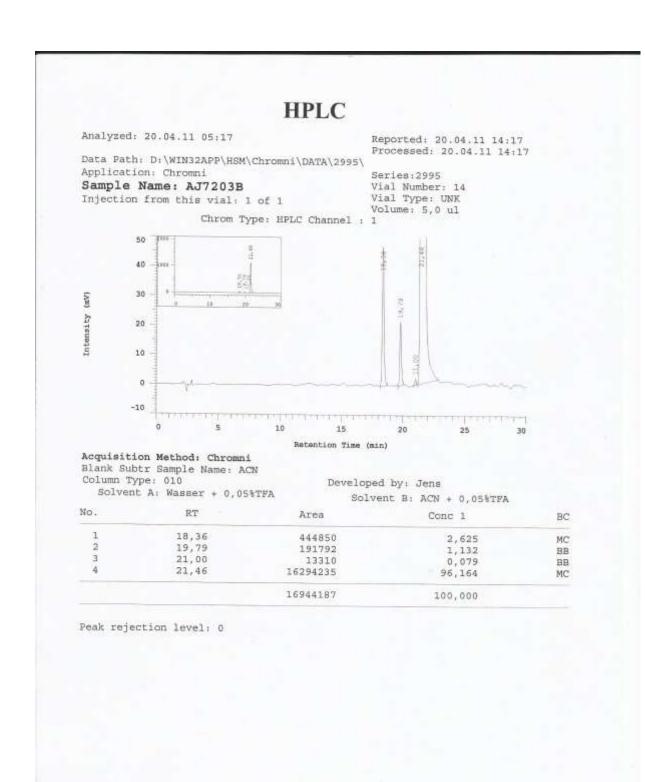


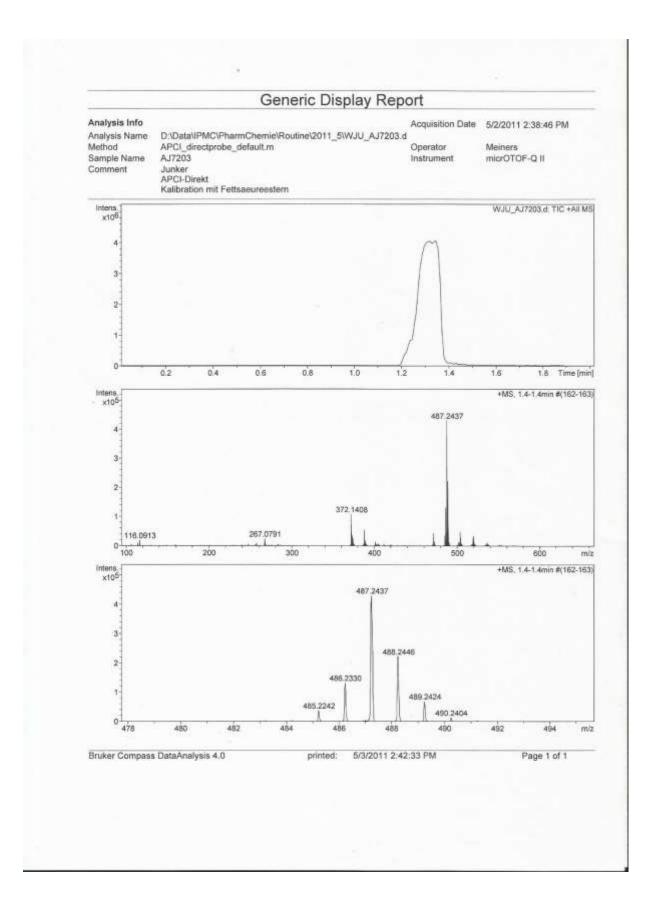
 $N-\{4-[Methyl(tetrahydro-2H-pyran-4-yl)aminomethyl]phenyl-2-(5-methylthiophen-2-yl)-6,7-dihydro-5H-benzo[7]annulene-8-carboxamide (\mathbf{2h})$











Mass Spectrum SmartFormula Report Analysis Info 5/2/2011 2:38:46 PM Acquisition Date Analysis Name D:\Data\IPMC\PharmChemie\Routine\2011_5\WJU_AJ7203.d APCI_directprobe_default.m Method AJ7203 Sample Name Instrument / Ser# micrOTOF-Q II 10252 Junker APCI-Direkt Comment Kalibration mit Fettsaeureestern Acquisition Parameter Source Type Focus Scan Begin APCI 0.7 Bar 200 °C 3.0 l/min Ion Polarity Set Nebulizer Set Dry Heater Set Dry Gas Not active 100 m/z Set Capillary Set End Plate Offset 4000 V -500 V Scan End 1000 m/z Set Collision Cell RF 130.0 Vpp +MS, 1.4-1.4min #(162-163) 487.2437 372 1408 287.0791 Meas. m/z Score err [mDa] mSigma rdb e Conf N-Rule err [ppm] m/z 487.2437 C 35 H 35 S C 27 H 39 N 2 O 2 S 2 100.00 63.69 487.2454 487.2447 3.6 88.0 9.5 even ak C 30 H 35 N 2 O 2 S C 20 H 39 N 8 S 3 25.11 15.77 487.2414 even 487.2454 1.8 3.6 108.3 even even ak C 23 H 35 N 8 S 2 C 22 H 47 O 3 S 4 C 19 H 43 N 4 O 4 S 3 16.62 -1.6 -3.3 109.6 10.5 ak -7.0 0.4 3.08 487.2403 112.0 -0.5 even ak ok 19.26 487.2441 0.9 119.5 even C 22 H 39 N 4 O 4 S 2 2.88 487.2407 487.2472 -6.0 7.4 ak ok -2.9 122.0 5.5 even C 23 H 39 N 2 O 7 S 3.6 128.1 5.5 even C 20 H 31 N 12 O S C 15 H 39 N 10 O 2 S 3 3.70 3.56 2.2 4.6 ok ok 487,2459 128.4 11.5 even 10 11 12 13 487.2414 129.0 1.5 evenok ok C 19 H 35 N 8 O 5 S C 15 H 31 N 14 O 3 S 4.66 487.2446 487.2419 0.9 1.9 139.8 151.6 6.5 -3.7 7.5 -1.8even C 18 H 39 N 4 O 9 S C 12 H 35 N 14 O 3 S 2 14 2.78 487.2432 -0.4 -0.9 151.6 0.87 487,2452 1.6 3.3 158.9 even ok C 14 H 35 N 10 O 7 S 2.5