

Supporting Information
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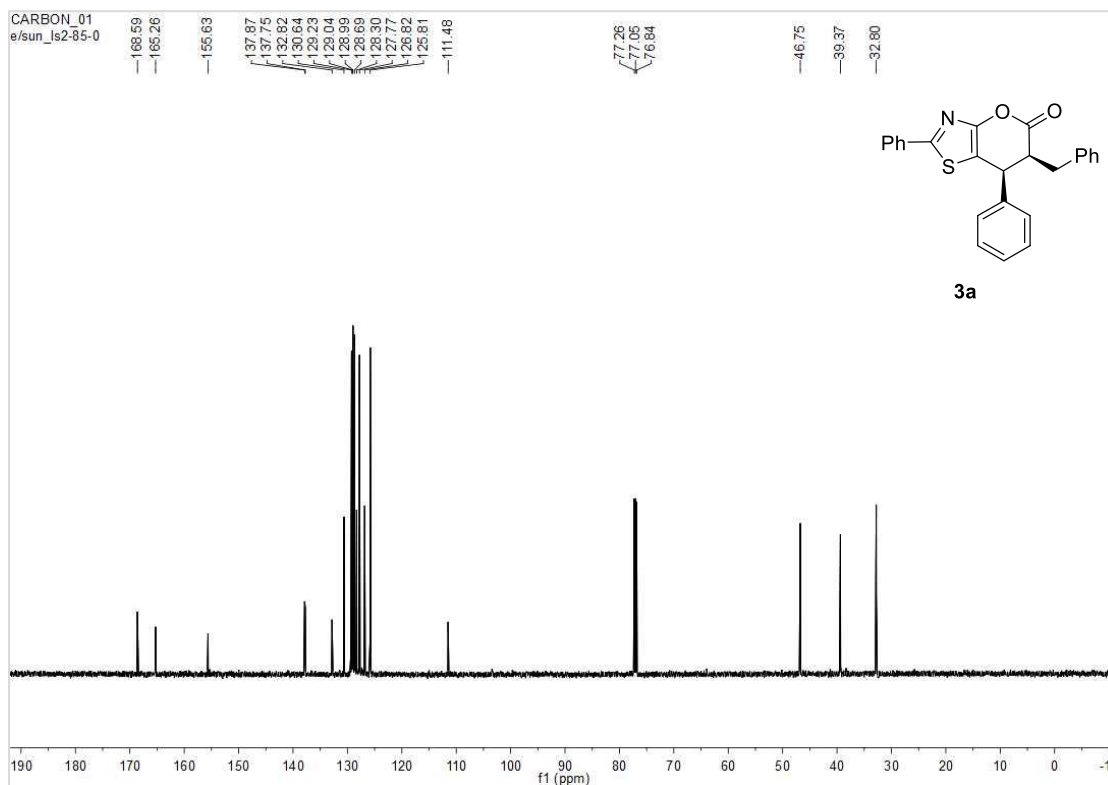
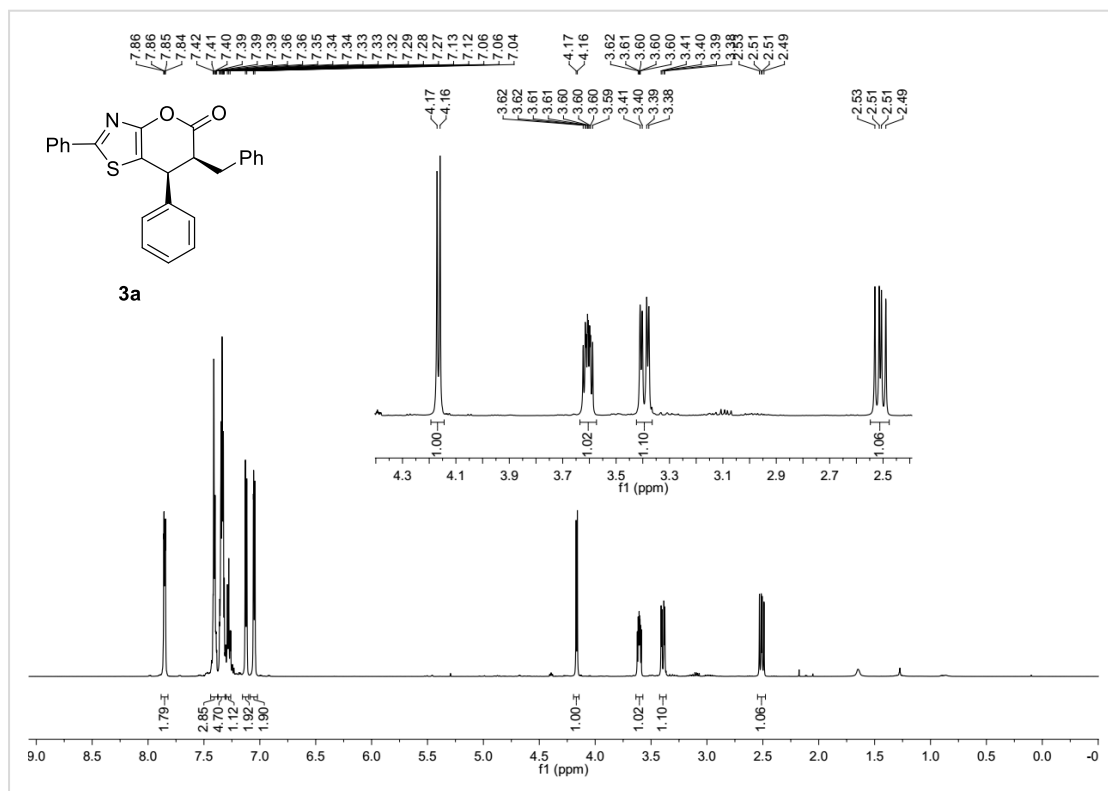
Supporting Information

N-Heterocyclic Carbene Catalyzed Asymmetric Synthesis of Dihydropyrano Thiazoles *via* Azolium Enolate Intermediates *

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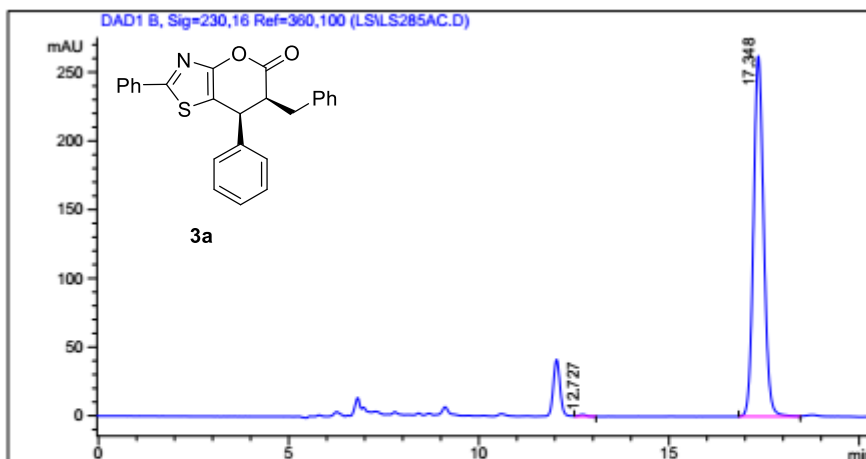
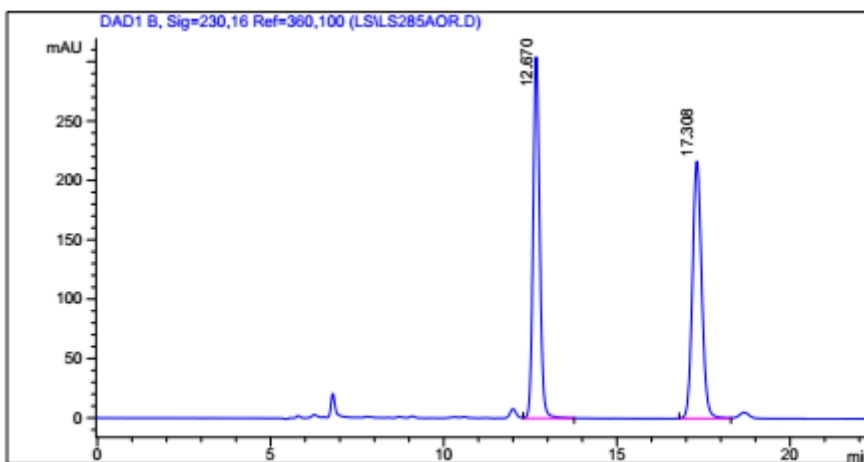


Sample Name: LS2-85-AORAC
 Data file: D:\GONZO\LS\LS285AOR.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7:3;
 The sample is solved in DCM/MP,
 flow rate 0.5 ml/min
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

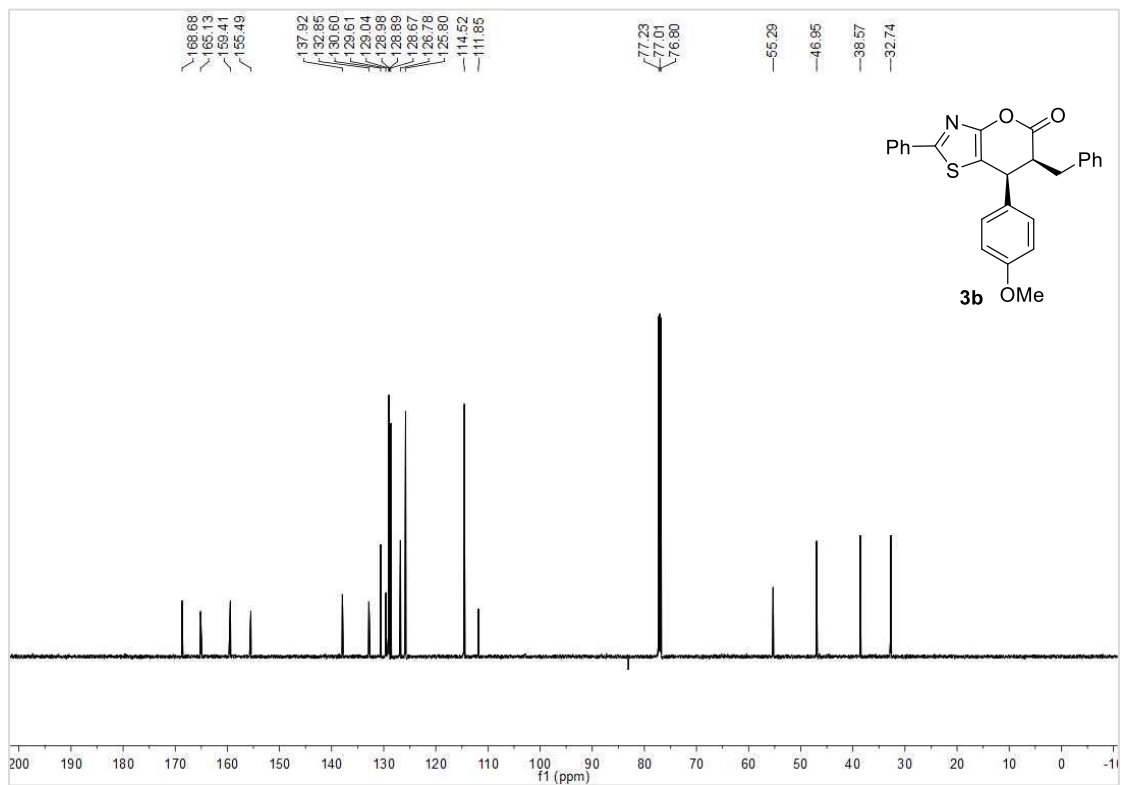
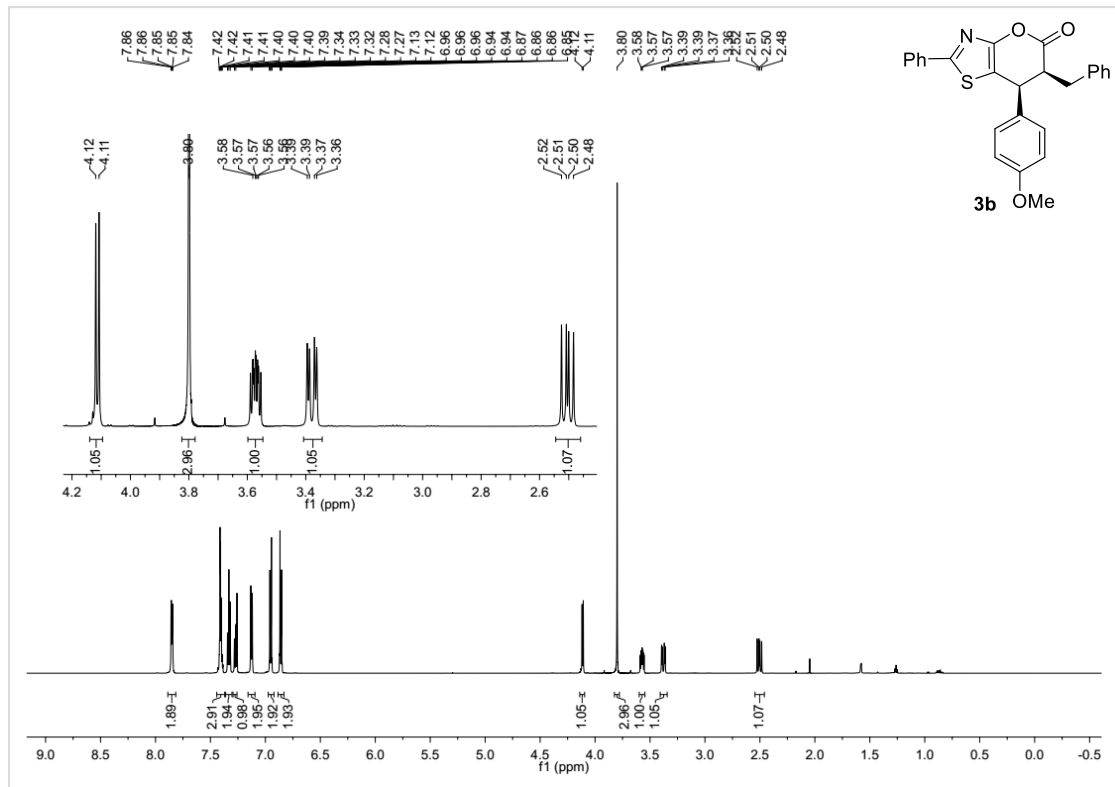


Injektion Time: 11:36:03
 Injektion Date: 08.03.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0 °C 30.0 °C
 Pressure in bar: 30.5 29.9
 Flow in ml/min: 0.50 0.50



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	12.73	0.22	1.41	20.98	0.43
2	17.35	0.29	262.40	4873.53	99.57
Total				4894.51	100.00

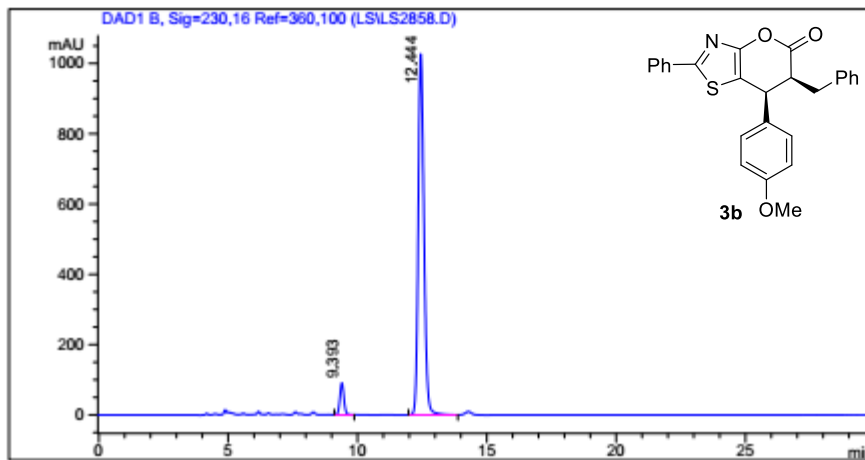
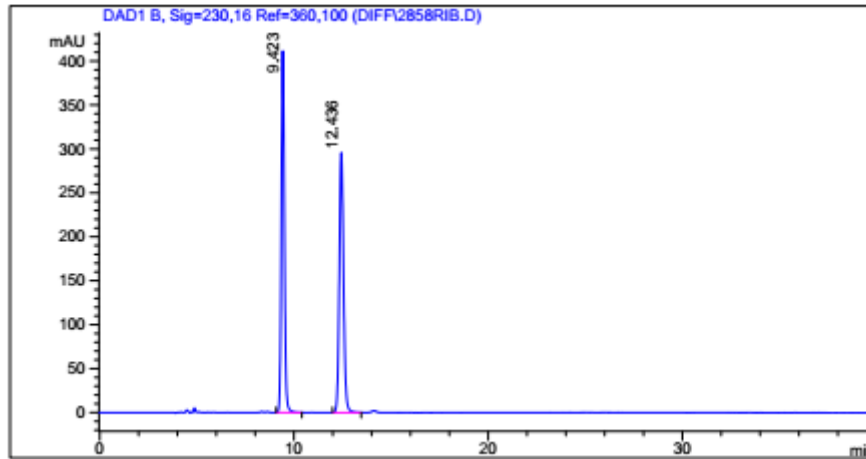


Sample Name: LS2-85-8 rac
 Data file: D:\GONZO\DIFF\2858RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

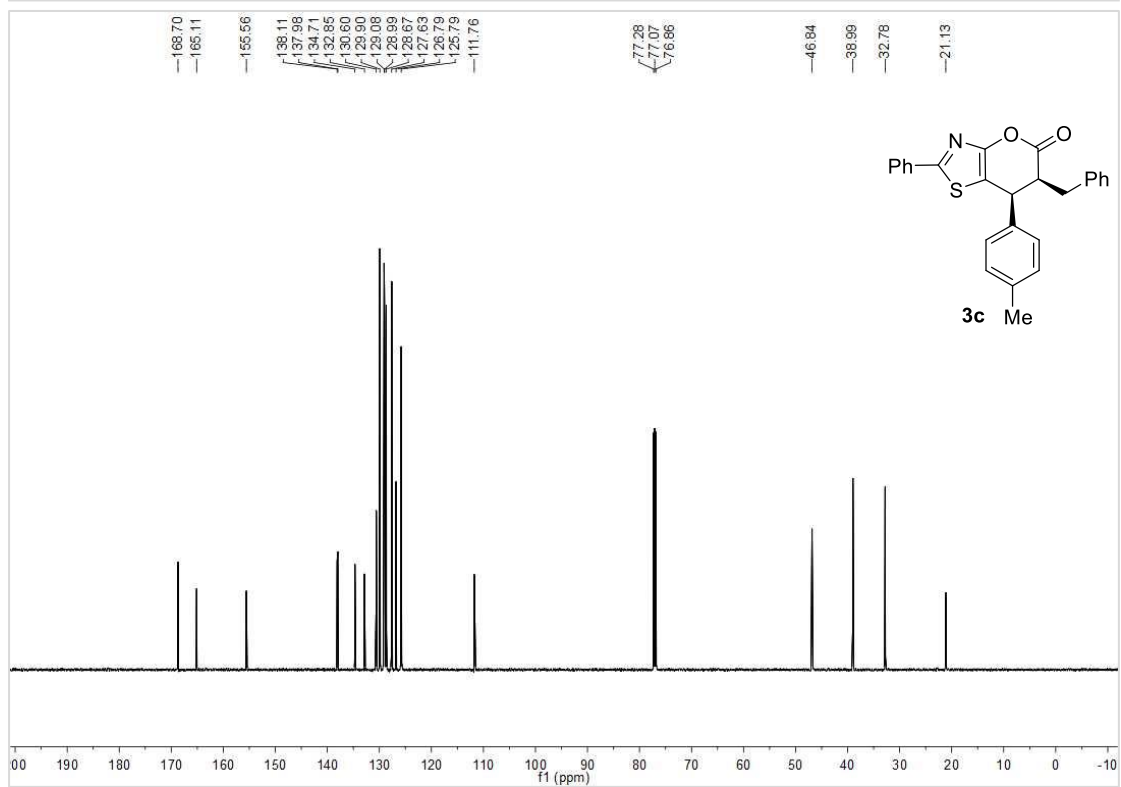
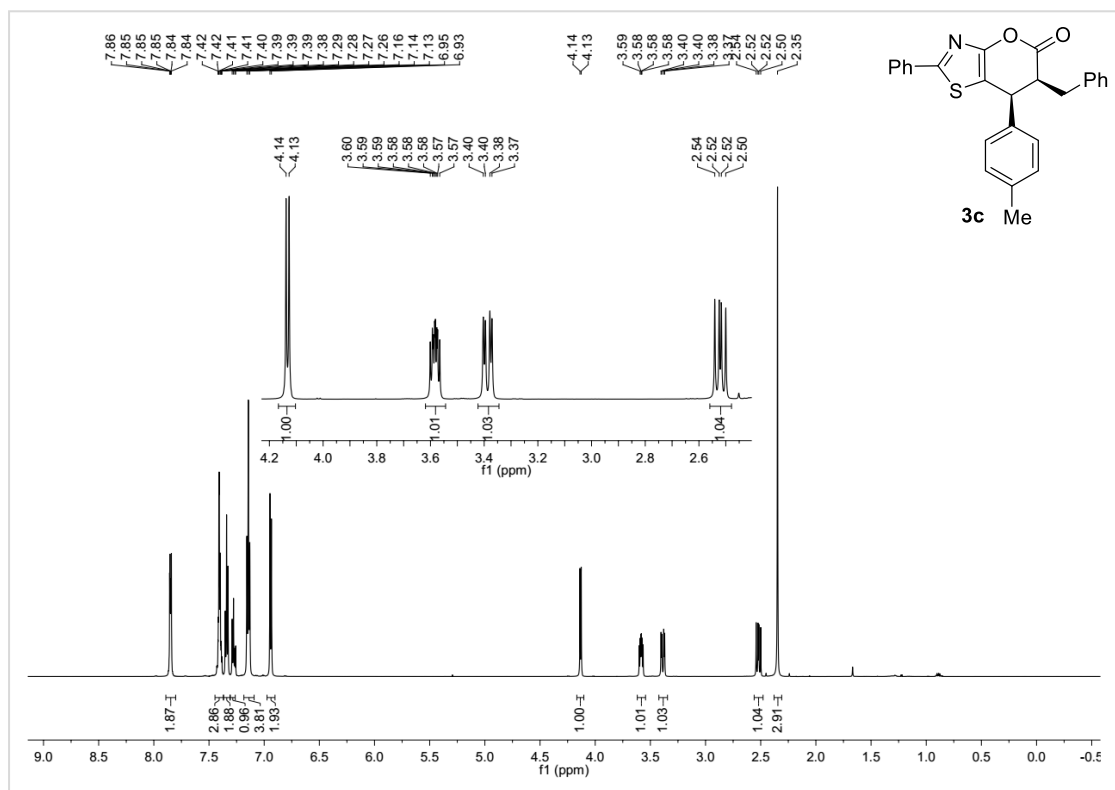


Injektion Time: 15:27:20
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0 °C 30.0 °C
 Pressure in bar: 41.1 42.6
 Flow in ml/min: 0.70 0.70



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	9.39	0.18	91.14	1004.90	5.94
2	12.44	0.24	1027.64	15900.56	94.06
Total				16905.45	100.00

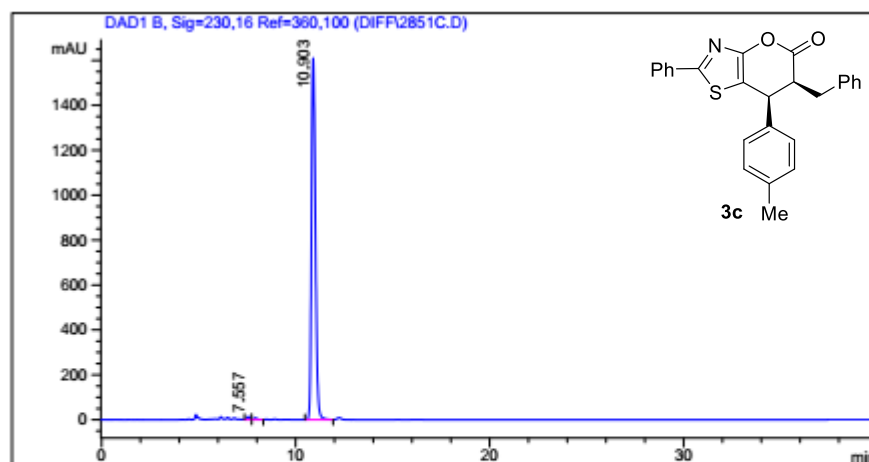
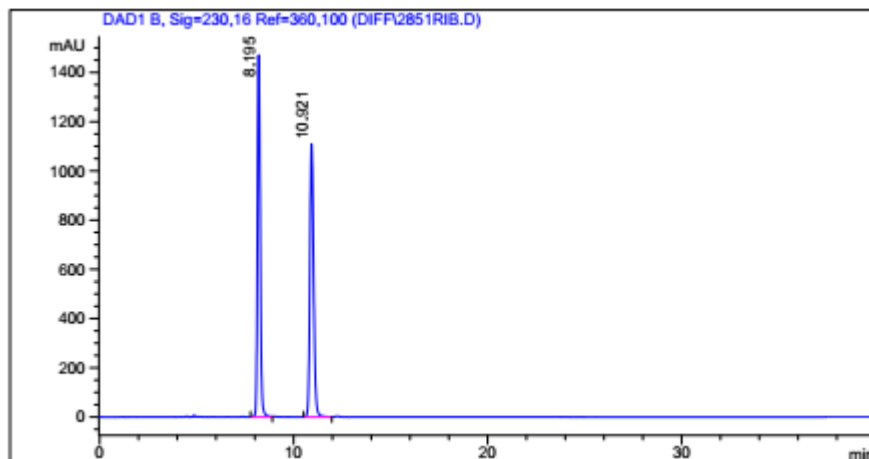


Sample Name: LS2-85-1 rac
 Data file: D:\GONZO\DIFF\2851RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

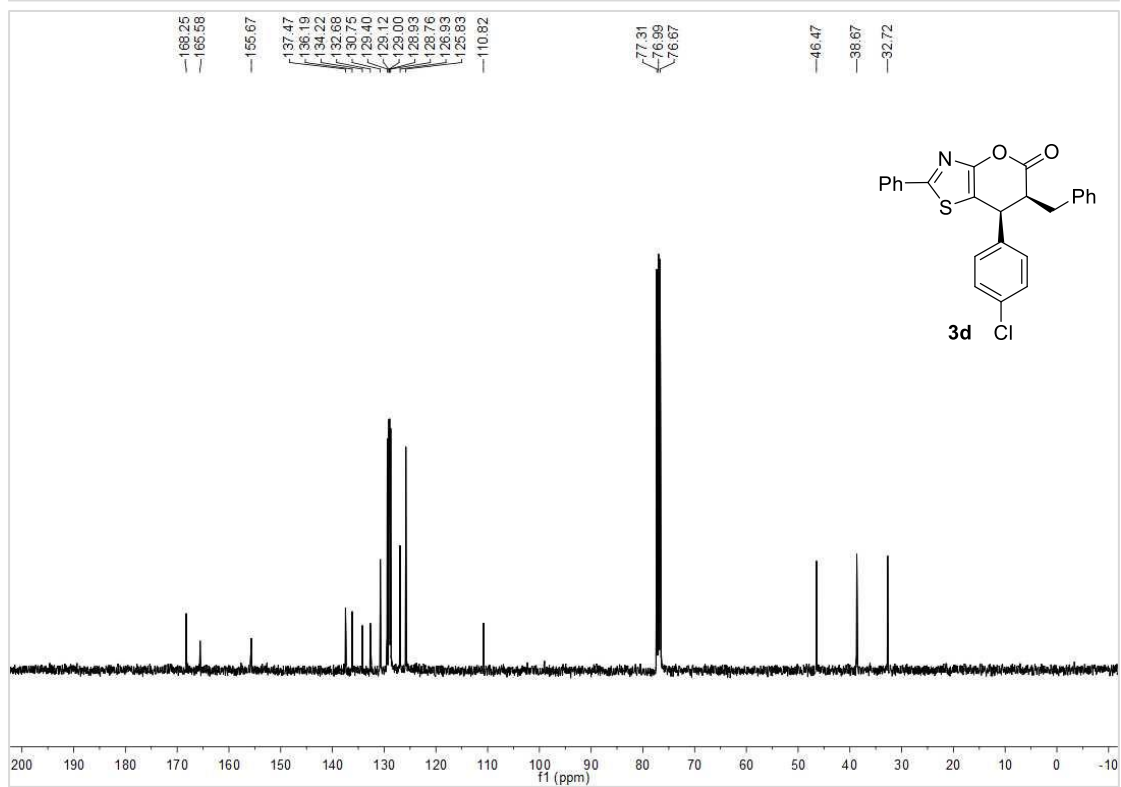
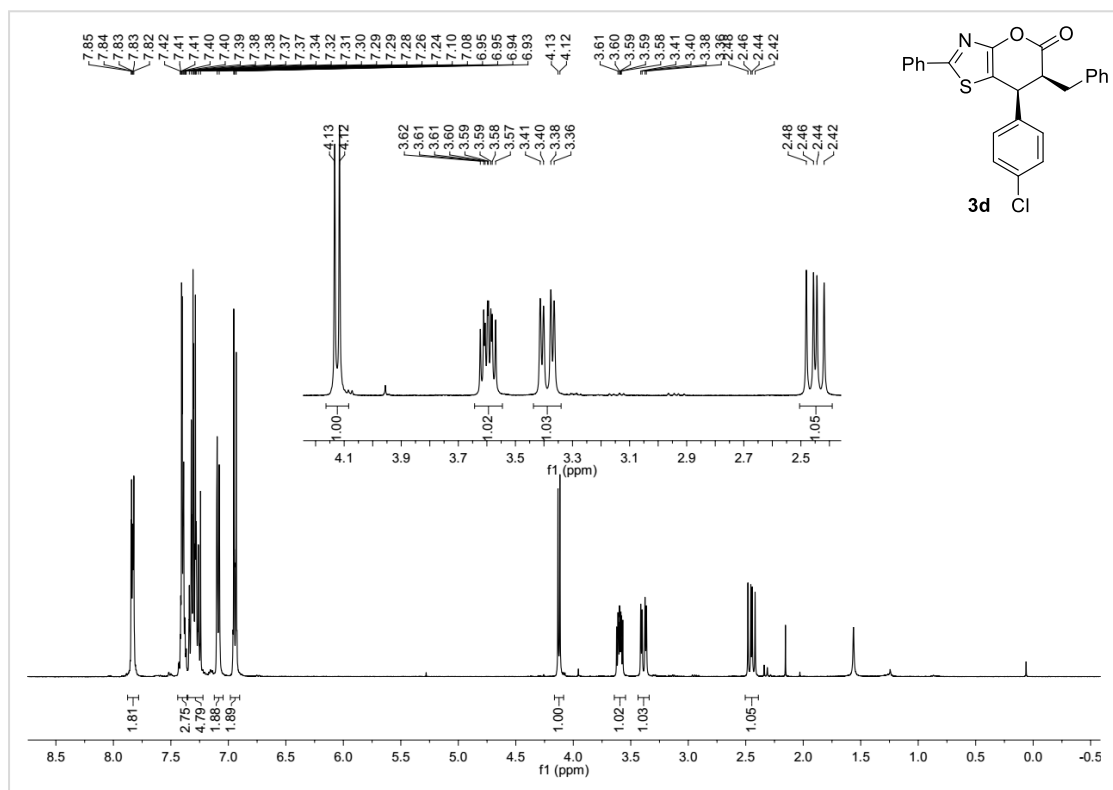


Injektion Time: 10:38:43
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0 °C 30.0 °C
 Pressure in bar: 41.5 41.8
 Flow in ml/min: 0.70 0.70



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	7.56	0.17	14.46	155.03	0.67
2	7.93	0.19	8.51	112.86	0.49
3	10.90	0.22	1611.11	22974.62	98.85
Total				23242.51	100.00

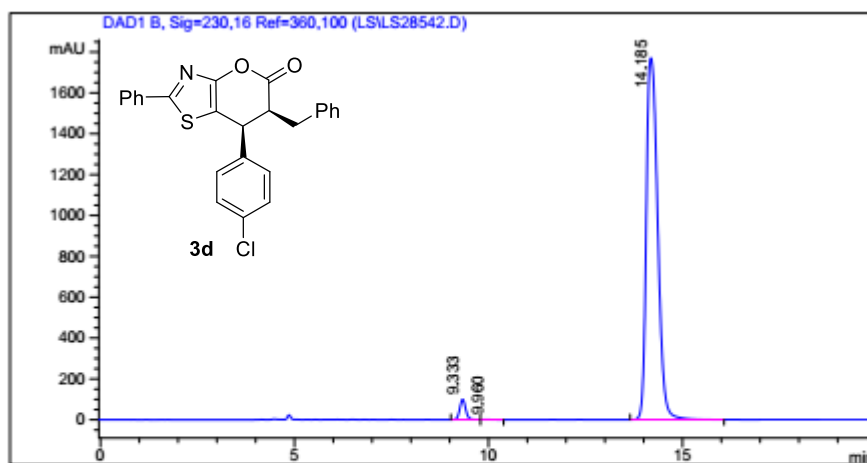
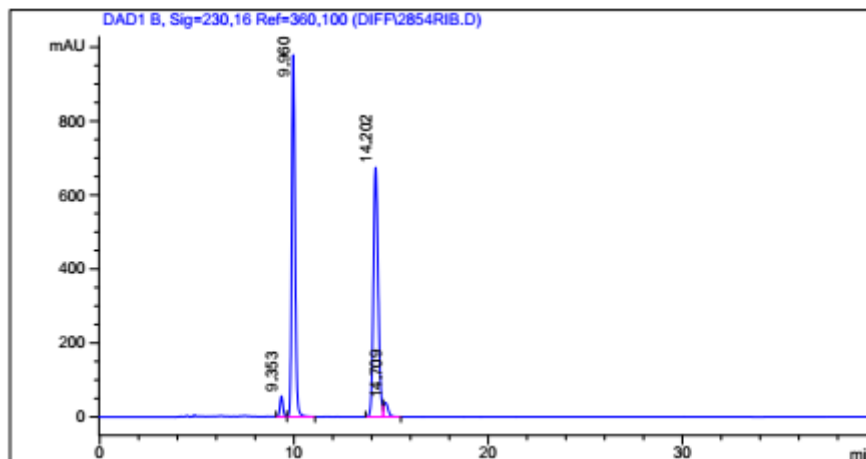


Sample Name: LS2-85-4 rac
 Data file: D:\GONZO\DIFF\2854RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 : 3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

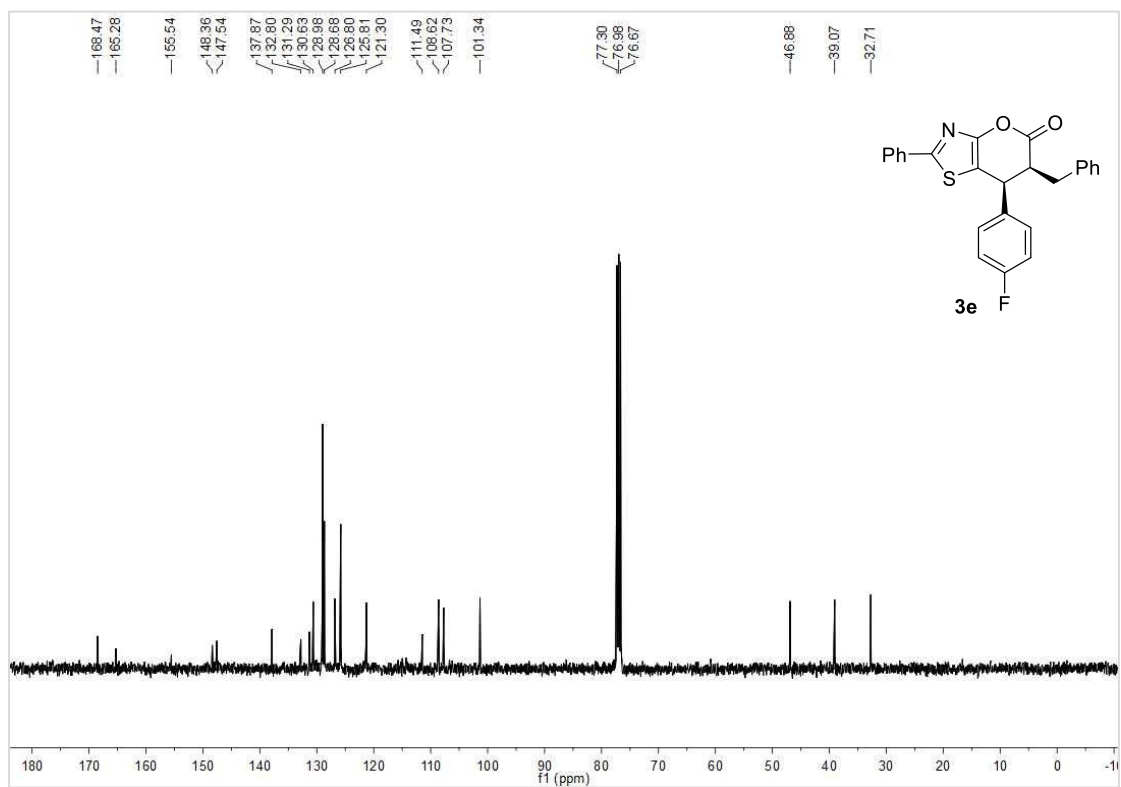
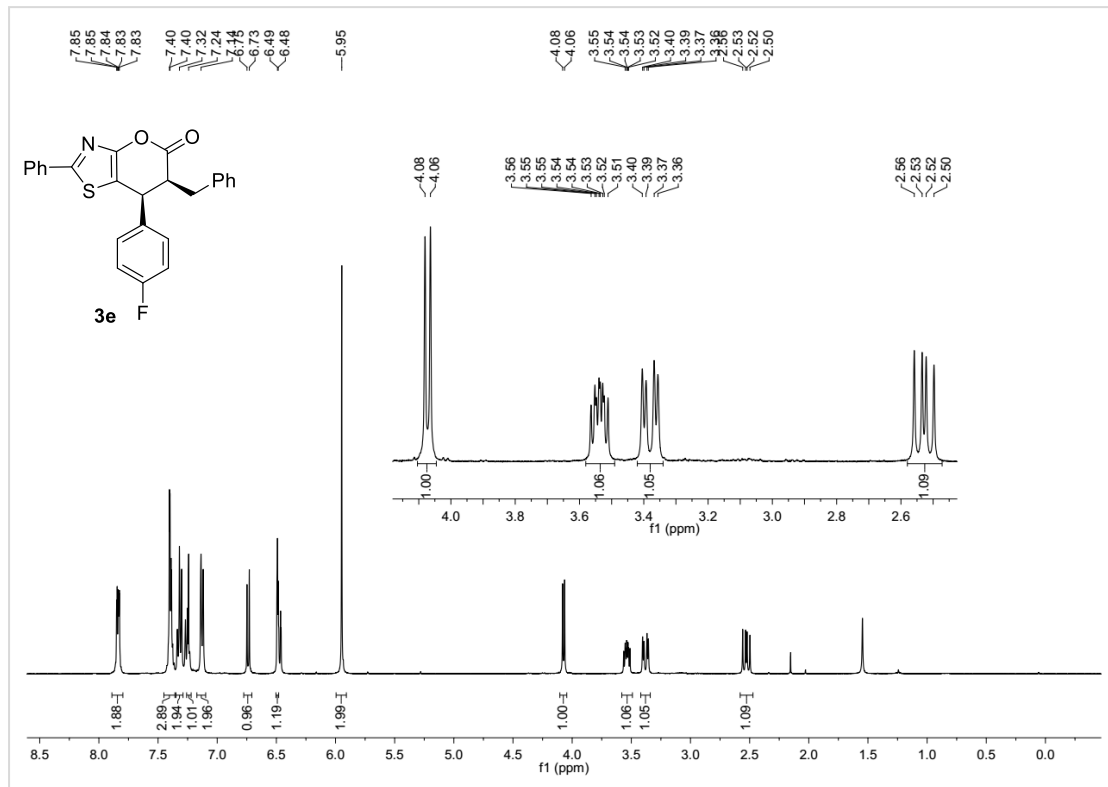


Injektion Time: 13:23:38
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0°C 30.0°C
 Pressure in bar: 41.7 41.8
 Flow in ml/min: 0.70 0.70



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	9.33	0.17	99.11	1065.53	2.87
2	9.96	0.24	1.31	18.88	0.05
3	14.18	0.32	1770.93	36051.00	97.08
Total				37135.41	100.00

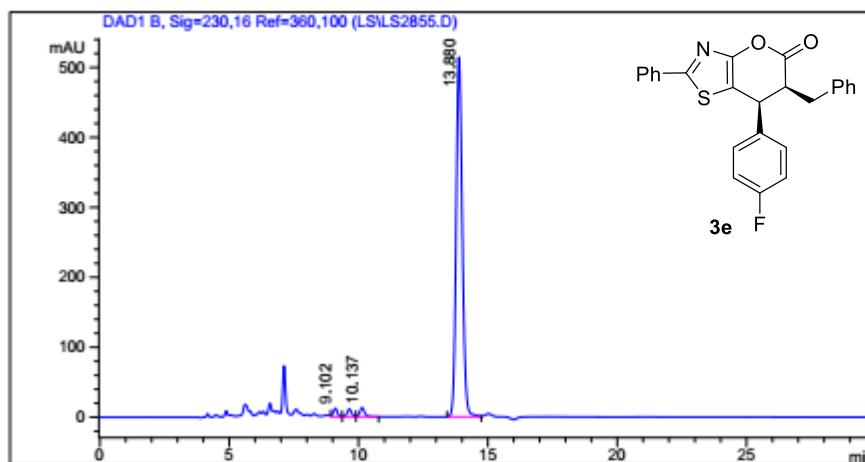
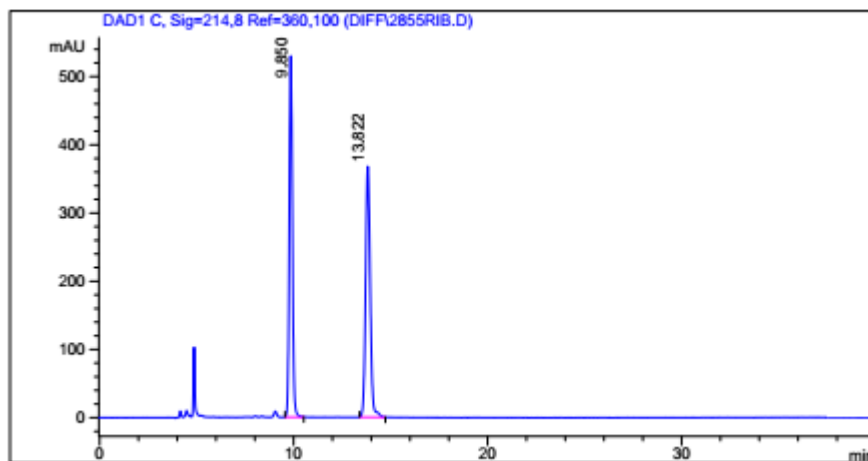


Sample Name: LS2-85-5 rac
 Data file: D:\GONZO\DIFF\2855RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

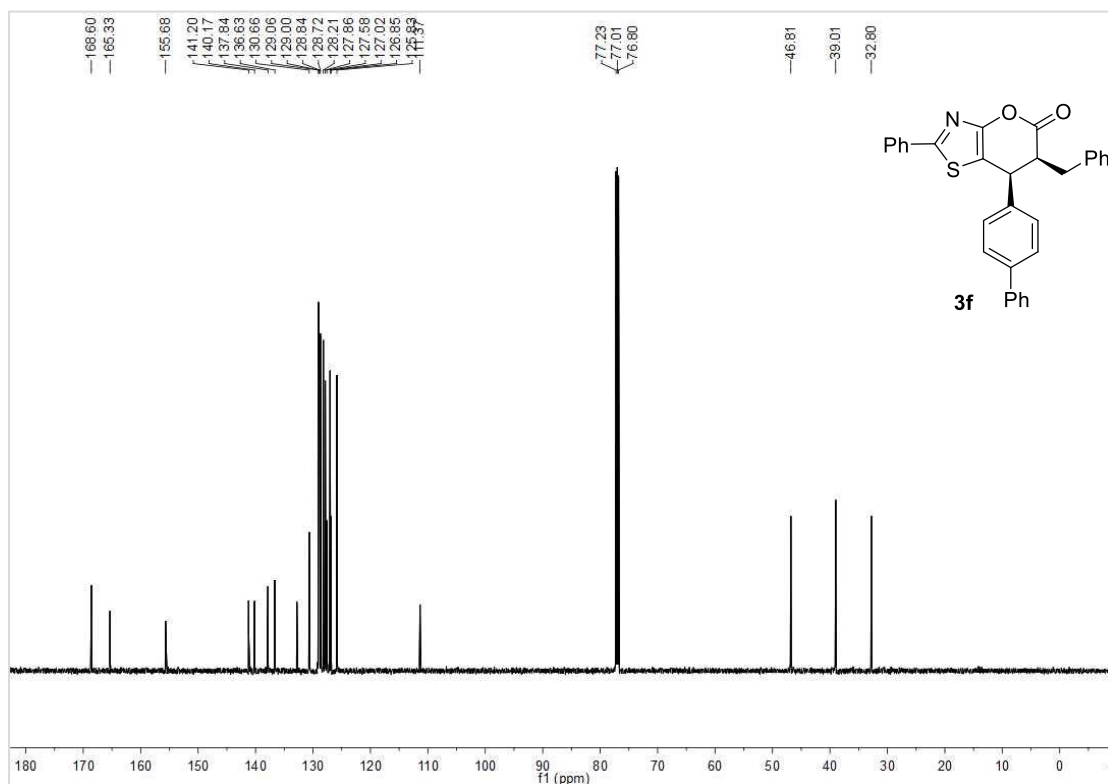
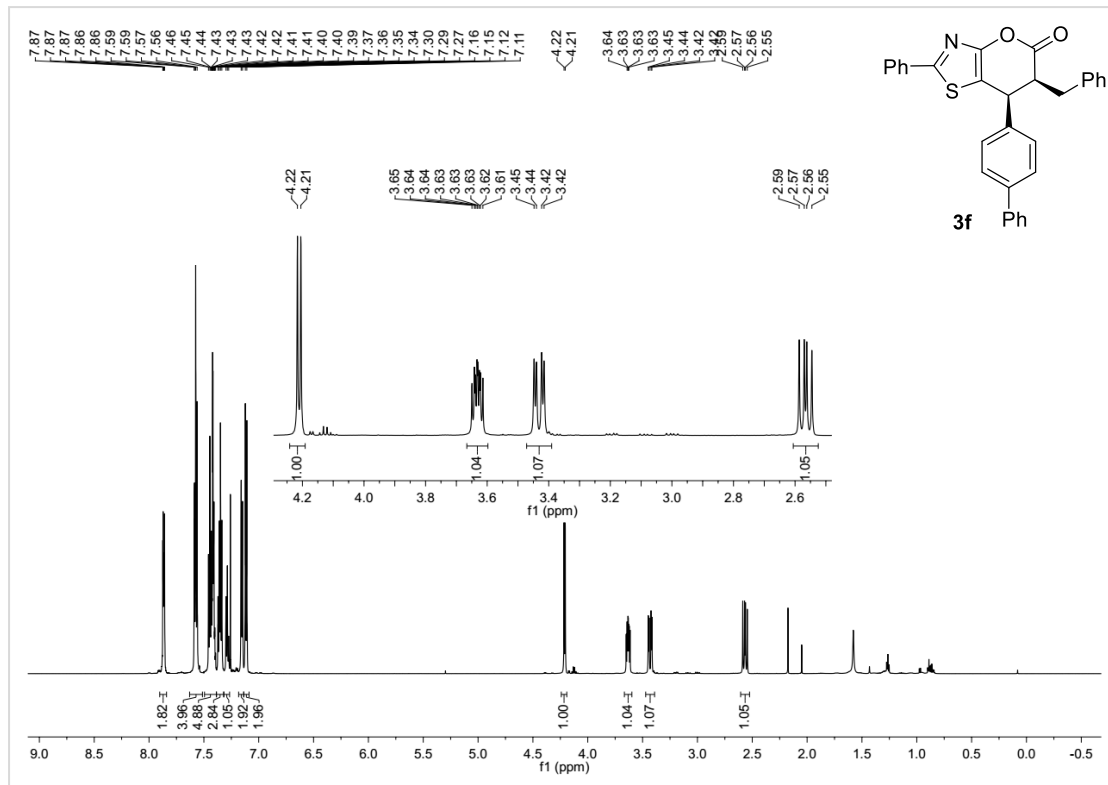


Injektion Time: 14:04:50
 Injektion Date: 07.04.2017

Instrument Conditions:	At Start	At Stop
Temperature in °C:	30.0 °C	30.0 °C
Pressure in bar:	41.6	41.4
Flow in ml/min:	0.70	0.70



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	9.10	0.19	12.26	137.35	1.54
2	9.64	0.21	11.24	140.58	1.57
3	10.14	0.20	13.08	172.57	1.93
4	13.88	0.26	514.48	8491.59	94.96
Total				8942.09	100.00

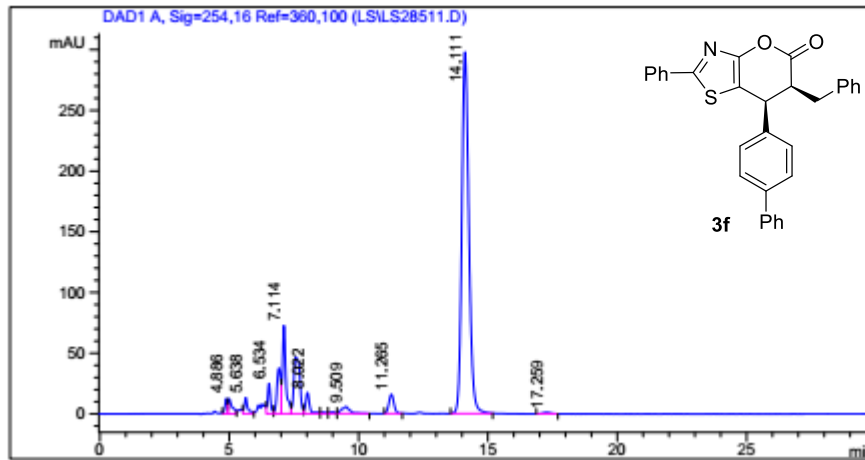
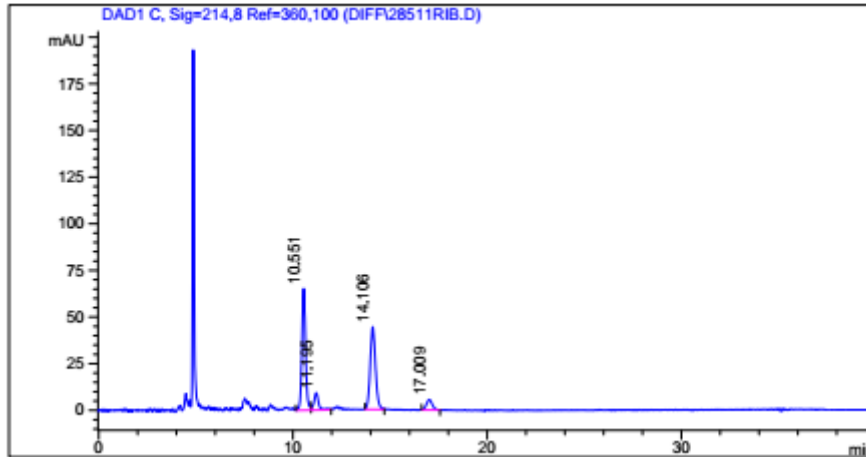


Sample Name: LS2-85-11 rac
 Data file: D:\GONZO\DIFF\28511RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

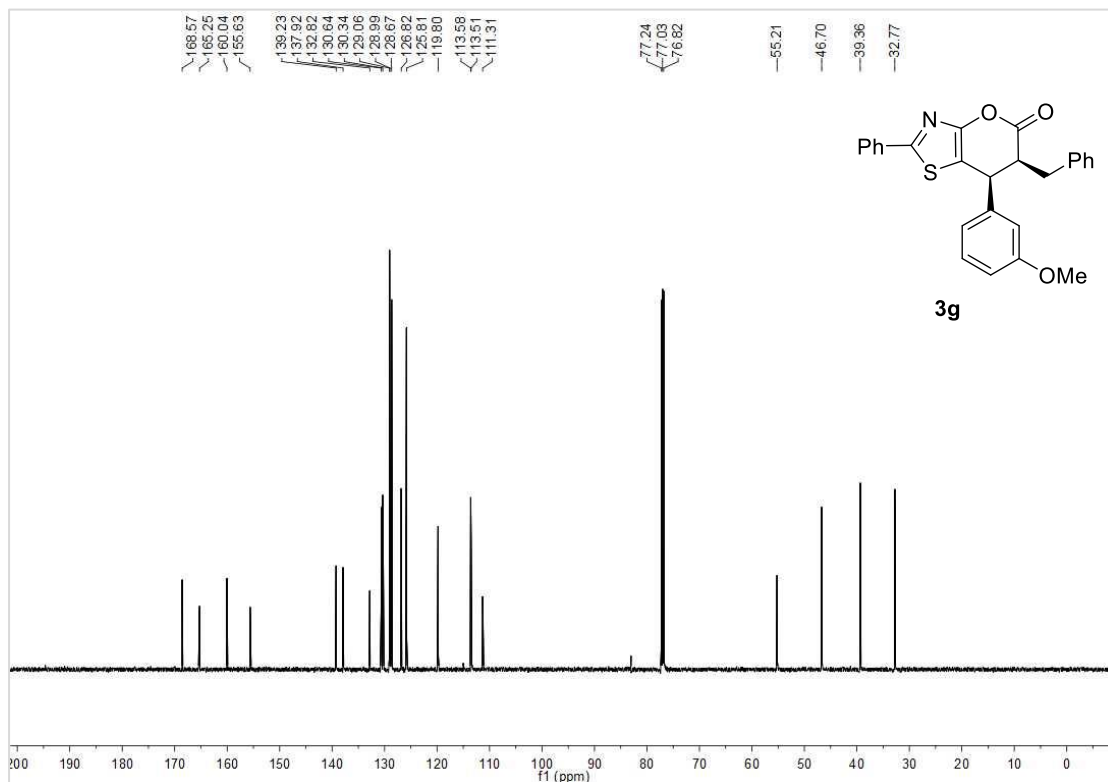
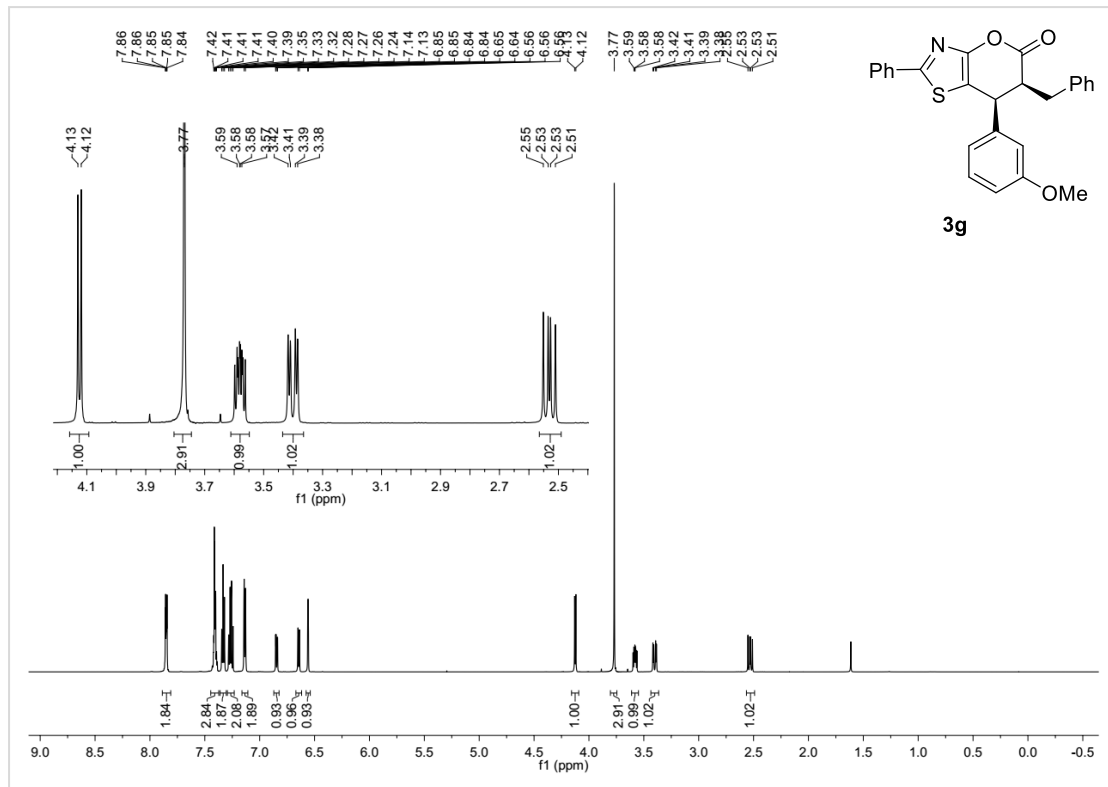


Injektion Time: 21:38:25
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in°C: 30.0°C 30.0°C
 Pressure in bar: 42.0 42.7
 Flow in ml/min: 0.70 0.70



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	4.89	0.10	12.72	83.59	0.98
2	5.00	0.14	12.38	131.49	1.54
3	5.64	0.13	13.29	123.88	1.45
4	6.53	0.11	24.94	189.84	2.22
5	6.92	0.16	37.55	381.97	4.46
6	7.11	0.15	72.62	669.36	7.82
7	7.57	0.27	46.75	749.38	8.75
8	8.02	0.18	17.45	187.10	2.18
9	8.63	0.20	1.17	16.54	0.19
10	8.99	0.23	1.37	19.09	0.22
11	9.51	0.38	5.69	130.83	1.53
12	11.27	0.21	15.84	217.56	2.54
13	14.11	0.29	297.89	5638.85	65.85
14	17.26	0.30	1.15	23.81	0.28
Total				8563.28	100.00

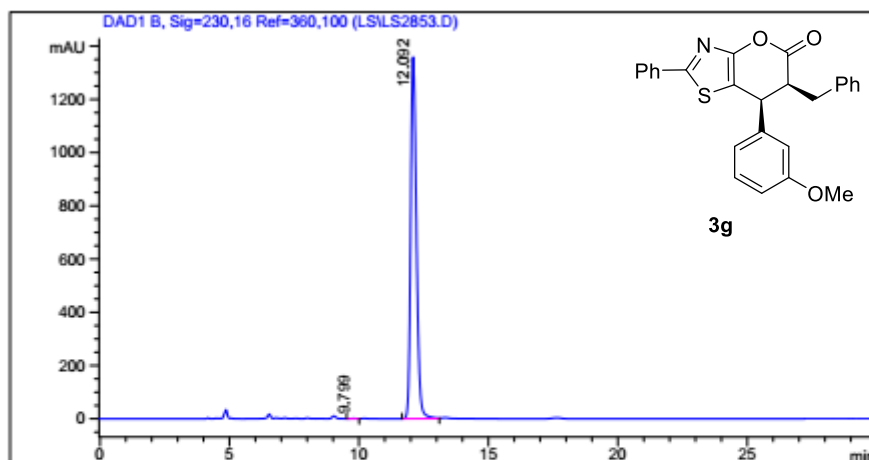
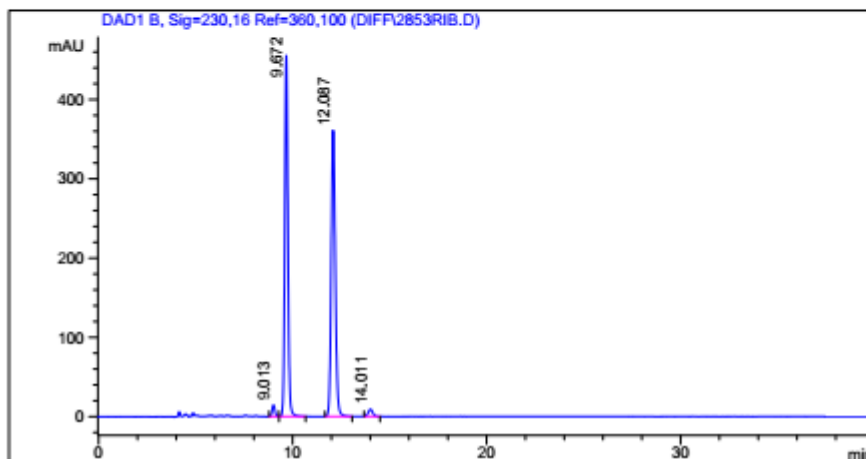


Sample Name: LS2-85-3 rac
 Data file: D:\GONZO\DIFF\2853RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

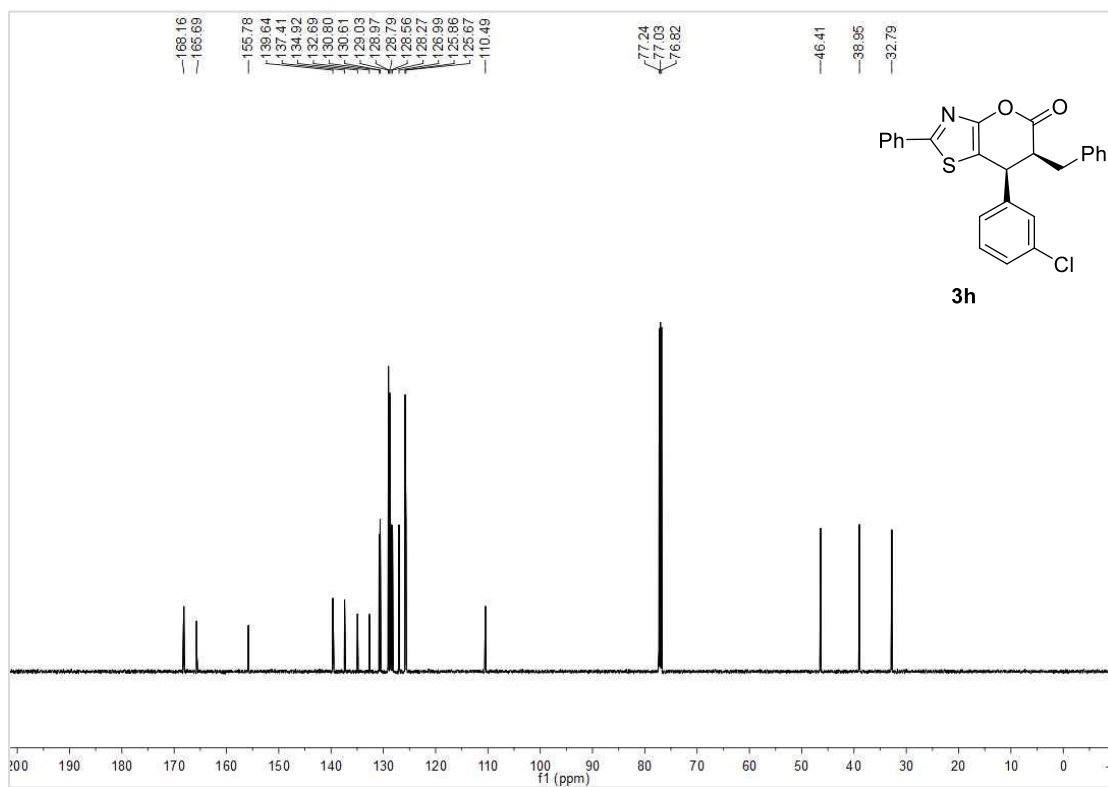
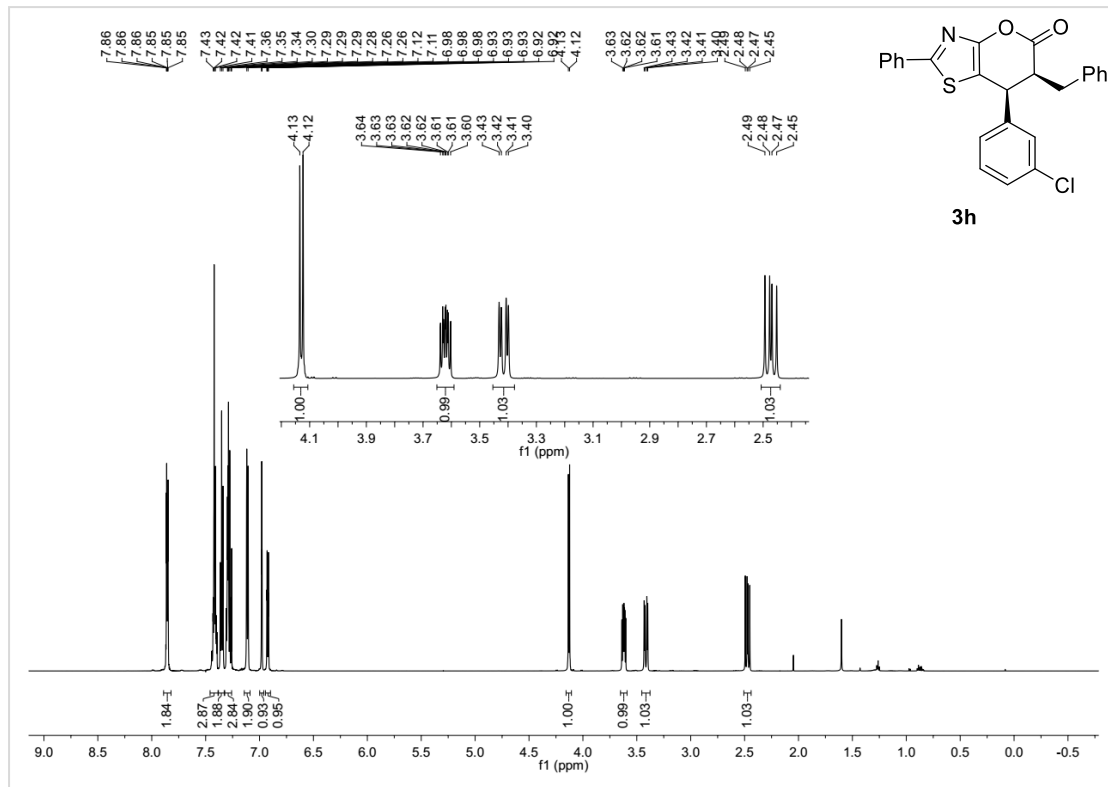


Injektion Time: 12:42:24
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0°C 30.0°C
 Pressure in bar: 41.3 41.5
 Flow in ml/min: 0.70 0.70



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	9.80	0.27	1.66	27.01	0.13
2	12.09	0.24	1359.61	21015.51	99.87
Total				21042.52	100.00

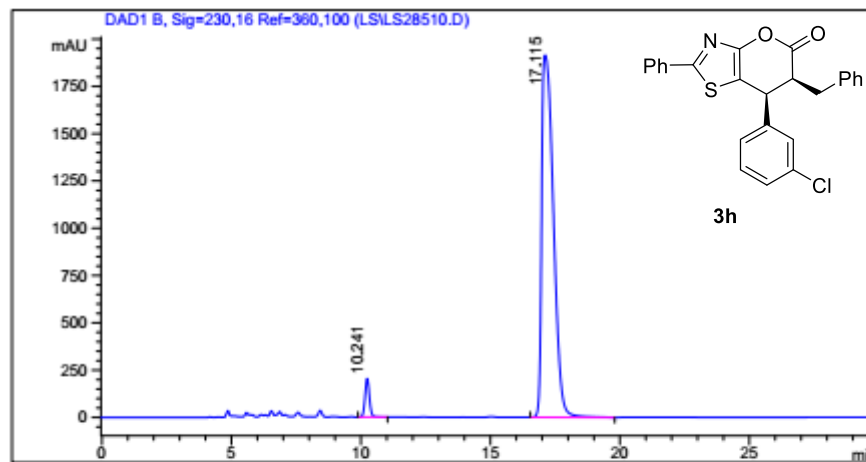
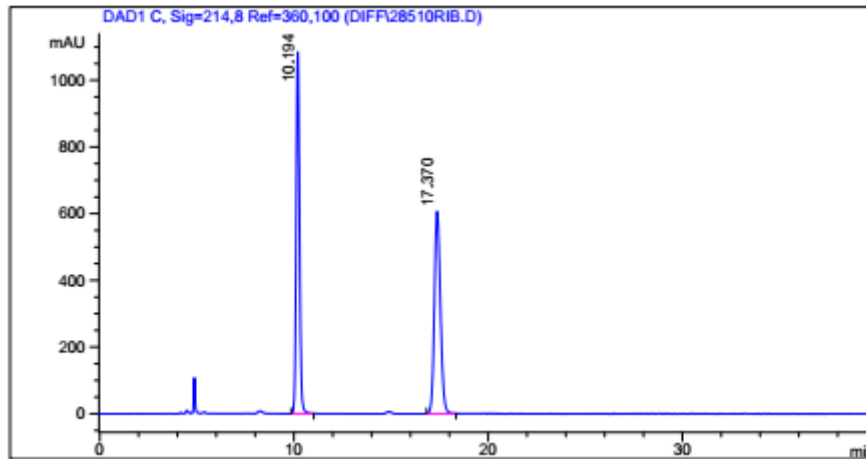


Sample Name: LS2-85-10 rac
 Data file: D:\GONZO\DIFF\28510RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

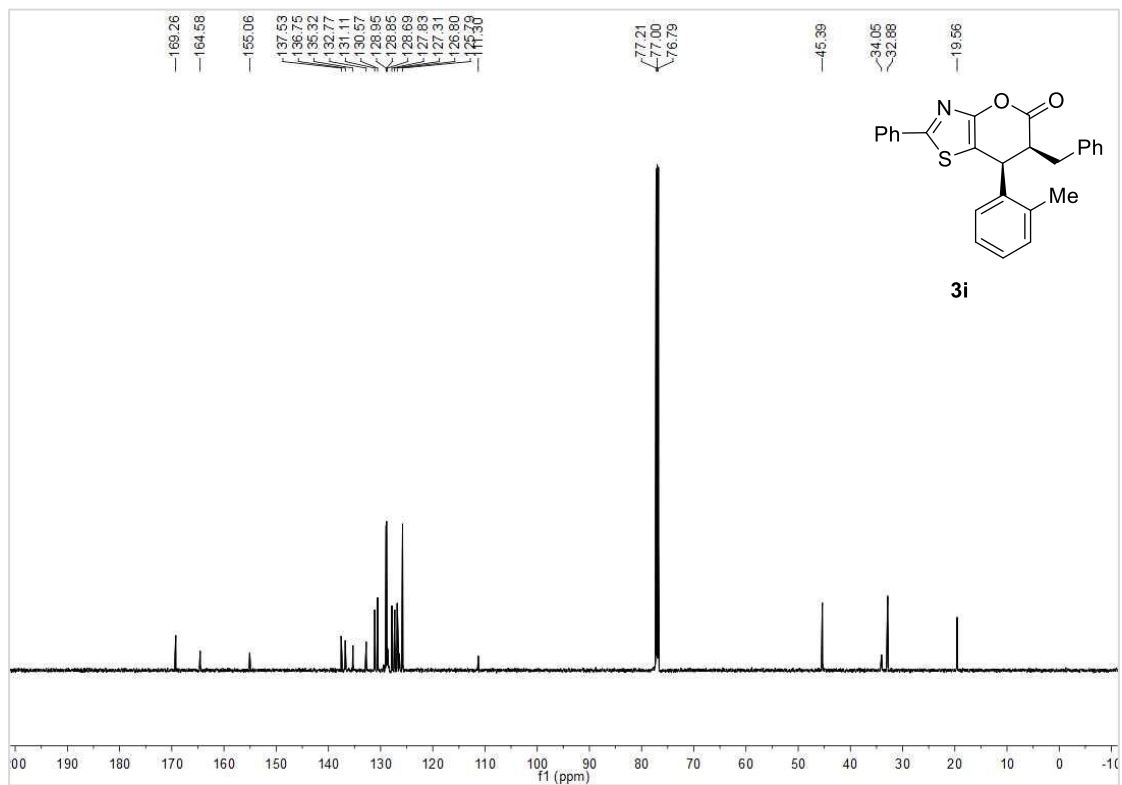
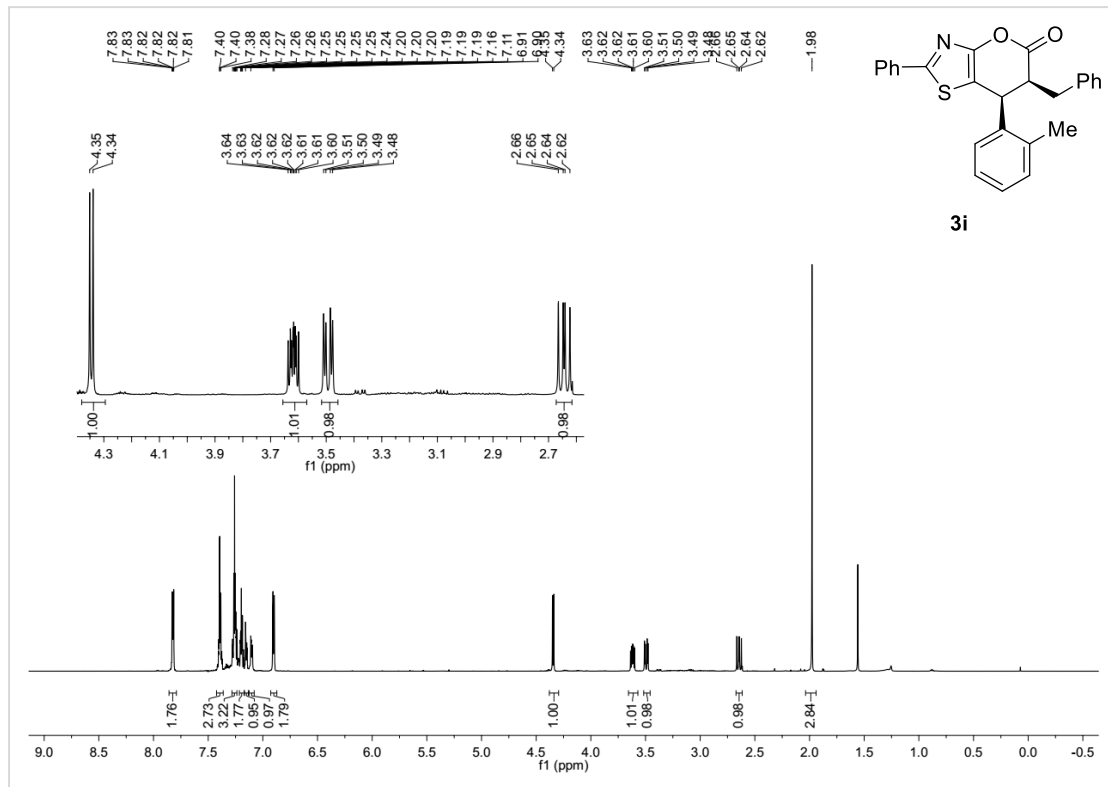


Injektion Time: 20:57:14
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0°C 30.0°C
 Pressure in bar: 42.6 42.4
 Flow in ml/min: 0.70 0.70



#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	10.24	0.18	203.85	2387.42	3.81
2	17.11	0.41	1915.39	60194.55	96.19
Total				62581.98	100.00

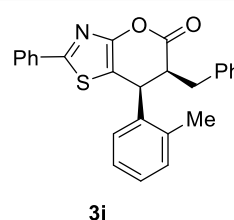
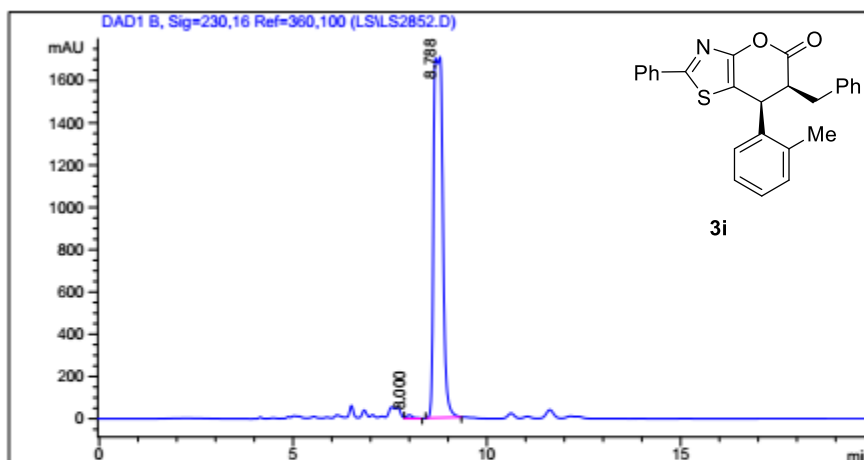
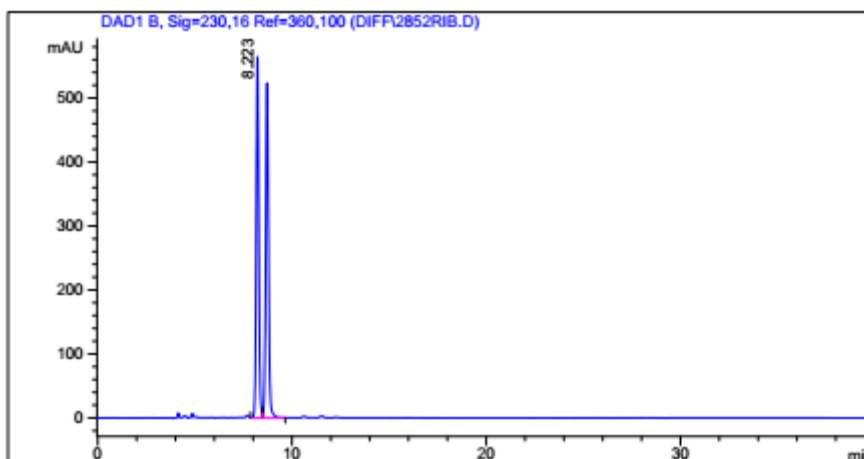


Sample Name: LS2-85-2 rac
 Data file: D:\GONZO\DIFF\2852RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiralpak IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN

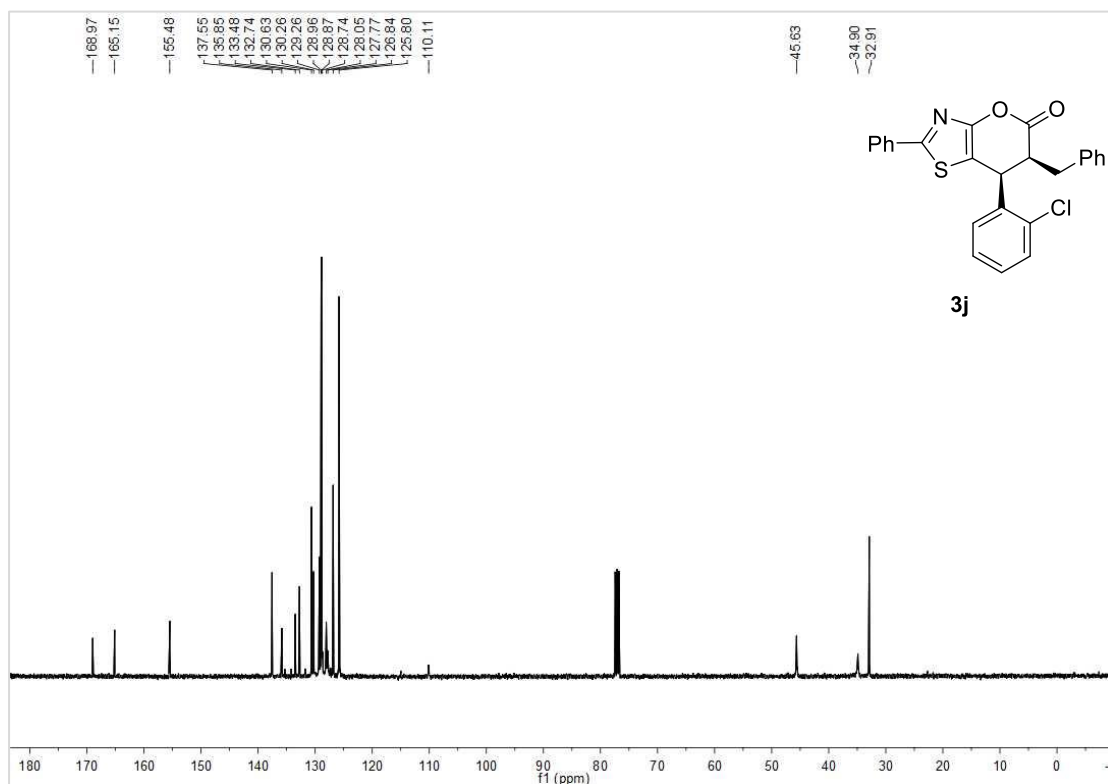
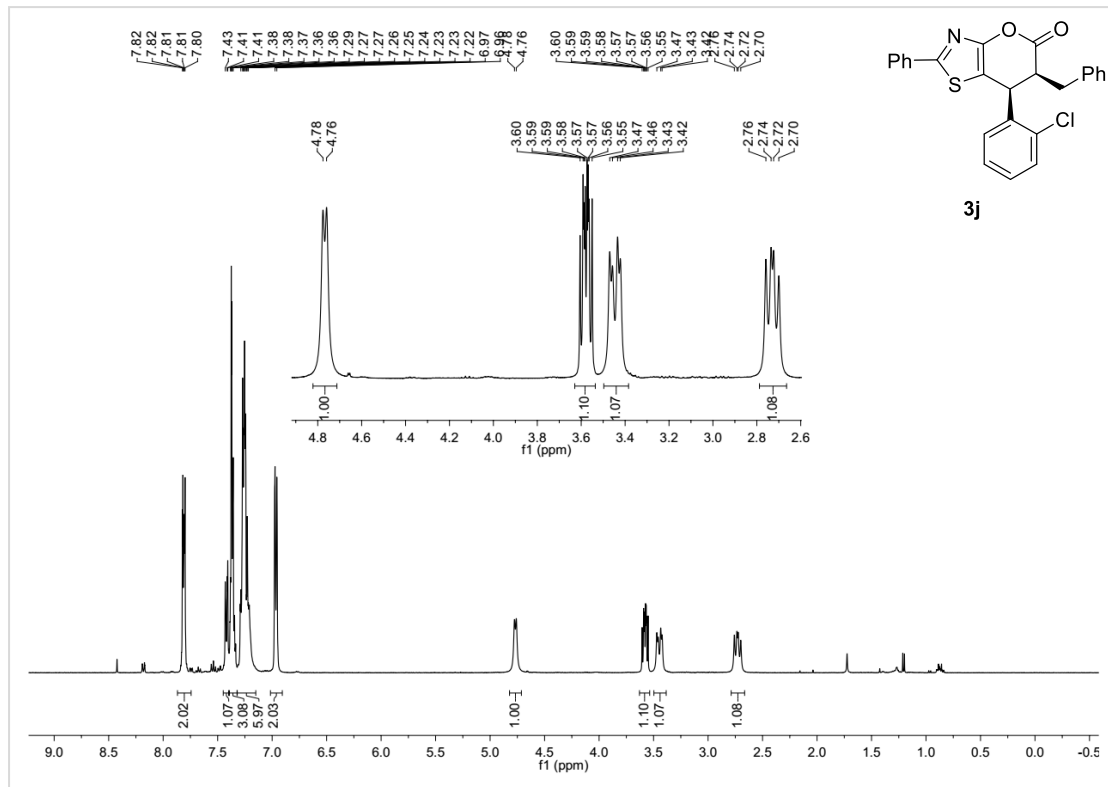


Injektion Time: 12:01:11
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0°C 30.0°C
 Pressure in bar: 41.2 41.5
 Flow in ml/min: 0.70 0.70



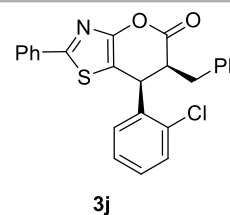
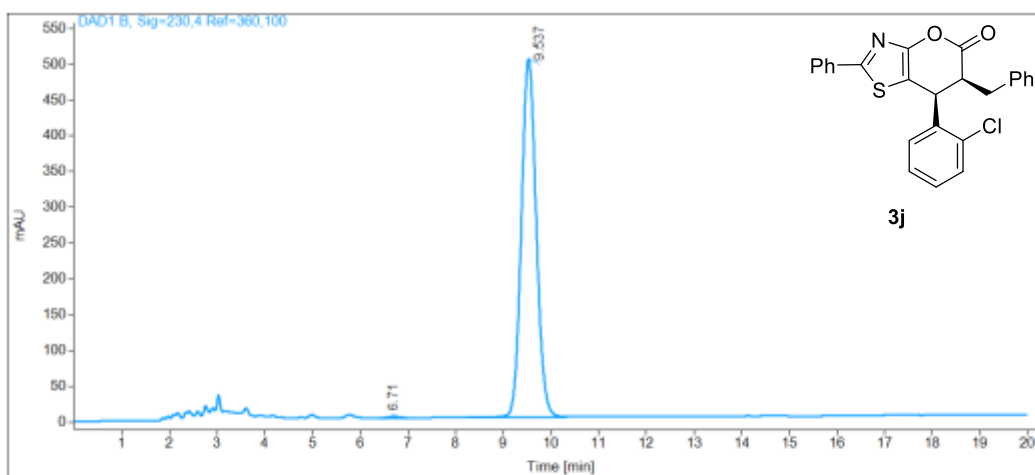
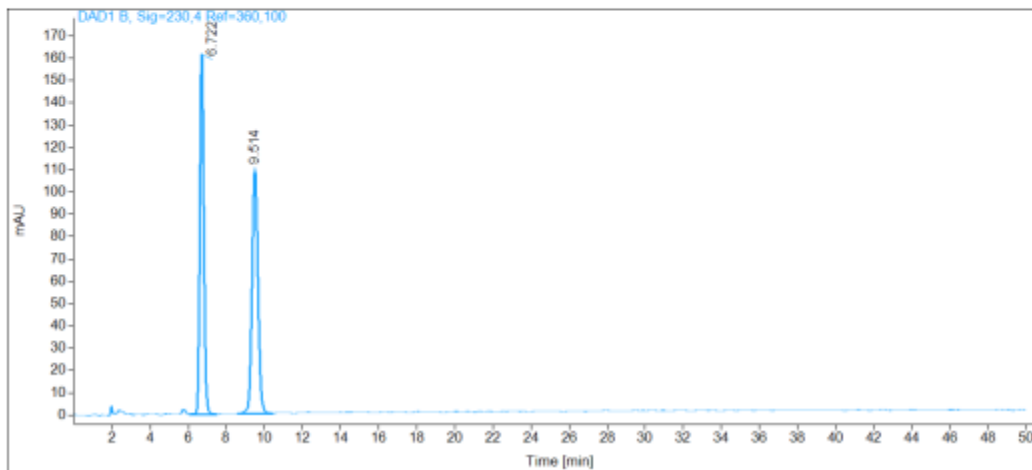
#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	8.00	0.18	17.27	210.05	0.74
2	8.79	0.27	1707.21	28024.81	99.26
Total				28234.86	100.00



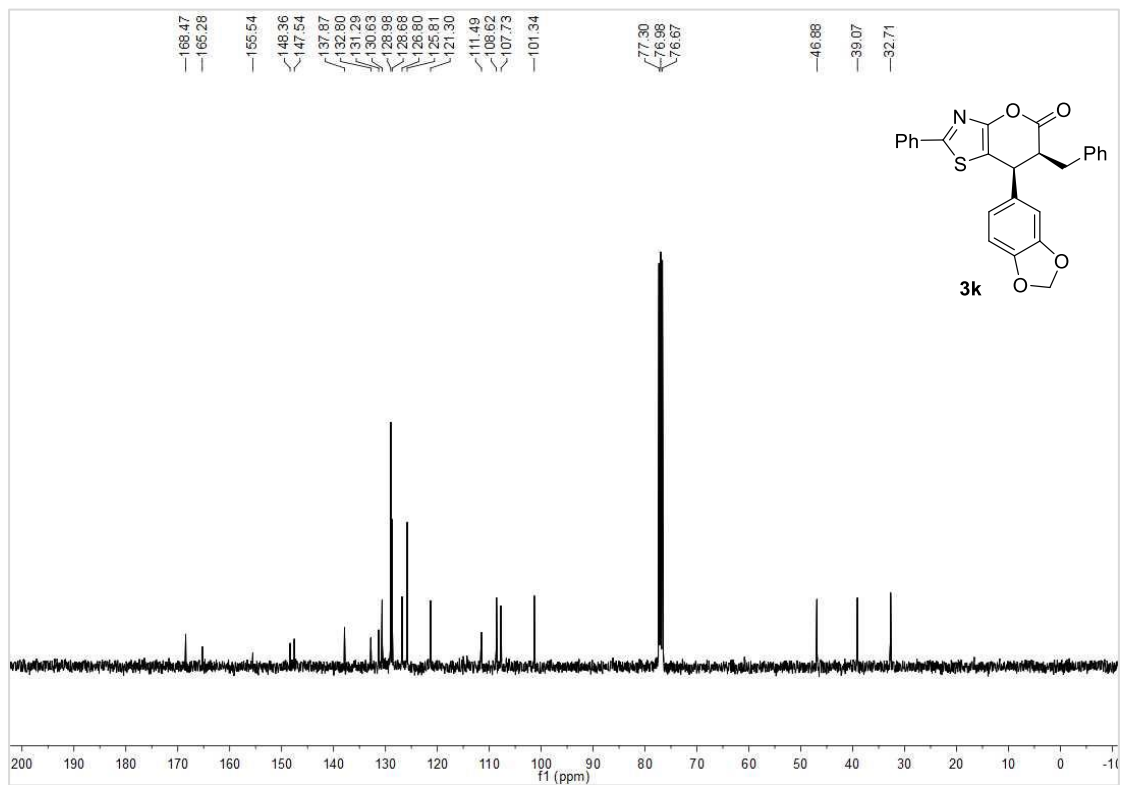
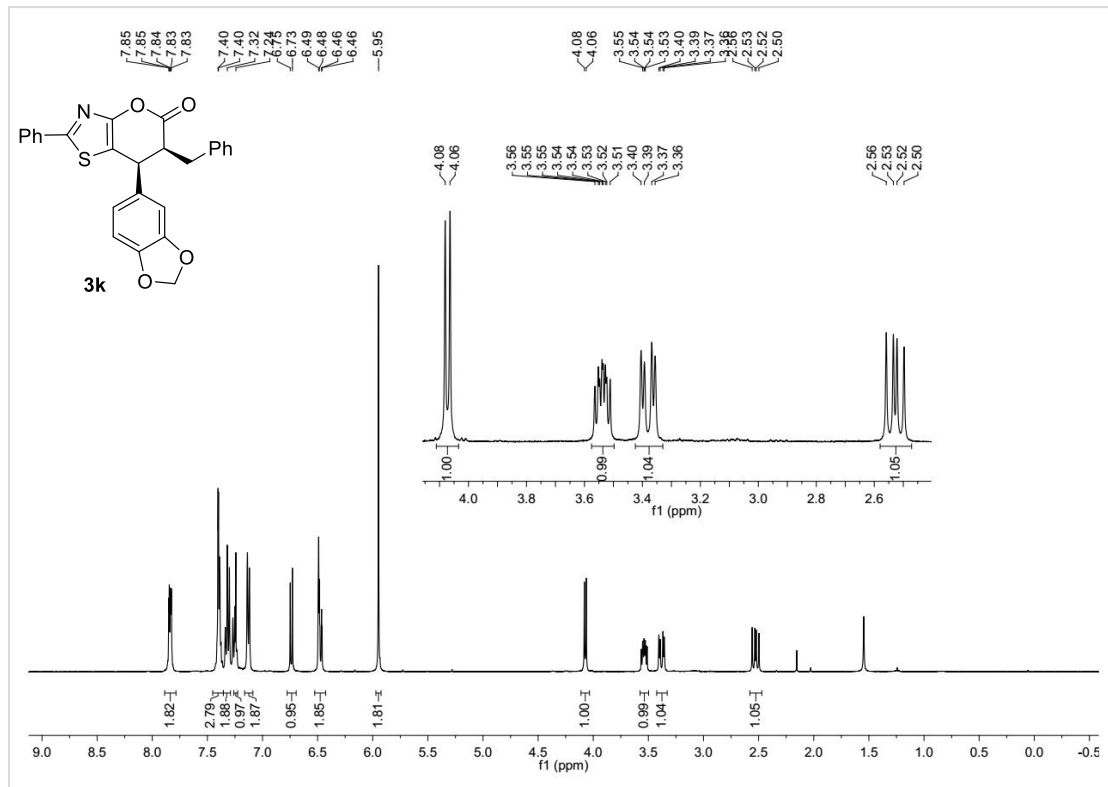
Sample name: LS2-85-9 RAC
Data file: C:\SNOOPY\FVLS2859.D
Description: Mobil phase: n-Heptane/iPrOH 7:3, Flow = 1, Chiralpak IC
 The sample is solved in DCM/MP
Injection date: 4/12/2017 11:13:43 AM
Acq. Analysis method: CHIRALPAK-IC.M

Column: Chiralpak IC, (150 x 4,6) mm, 5 μ , SN: IC00CD-QF015

Pressure at start: 43 bar **Start flow:** 1.000 ml/min **Column oven:** 29.99 °C



Name	ls2-85-9 chi				
RT [min]	Type	Area%	Area	Height	Width [min]
6.71	BB	0.27	29.83	1.97	0.23
9.54	BV	99.73	10820.66	500.97	0.34
	Sum	100.00	10850.50		

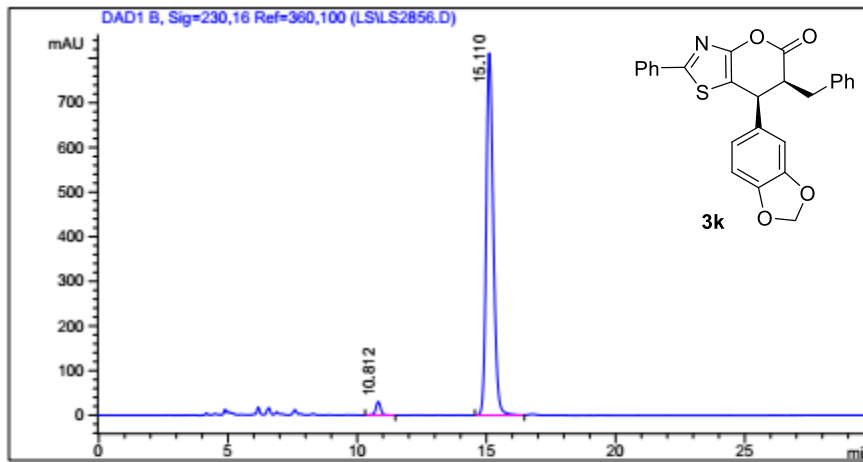
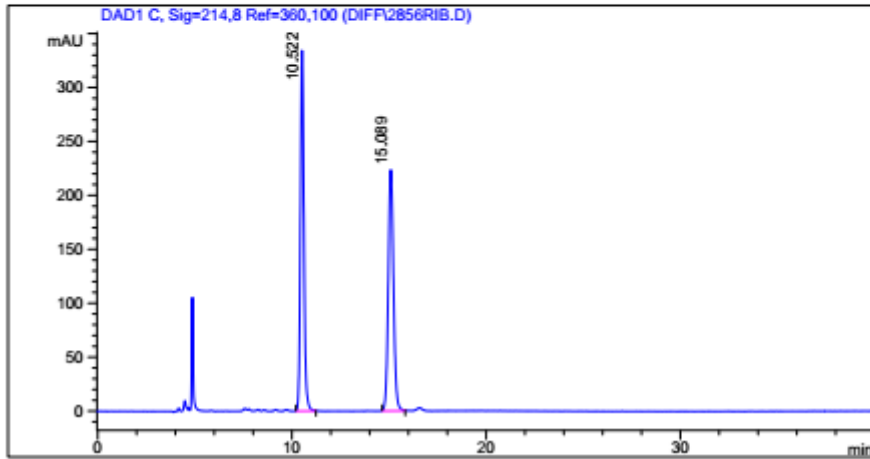


Sample Name: LS2-85-6 rac
 Data file: D:\GONZO\DIFF\2856RIB.D
 Sample Info: Mobile phase: n-Heptane/EtOH 7 :3 , Flow = 0.7, Chiral pack IB
 The sample is solved in DCM/MP
 Column: DAICELIB.M
 Column info: Chiralpak IB (250x4,6)mm
 Operator: Analytik Labor AKEN



Injektion Time: 14:46:05
 Injektion Date: 07.04.2017

Instrument Conditions: At Start At Stop
 Temperature in °C: 30.0 °C 30.0 °C
 Pressure in bar: 41.4 42.0
 Flow in ml/min: 0.70 0.70

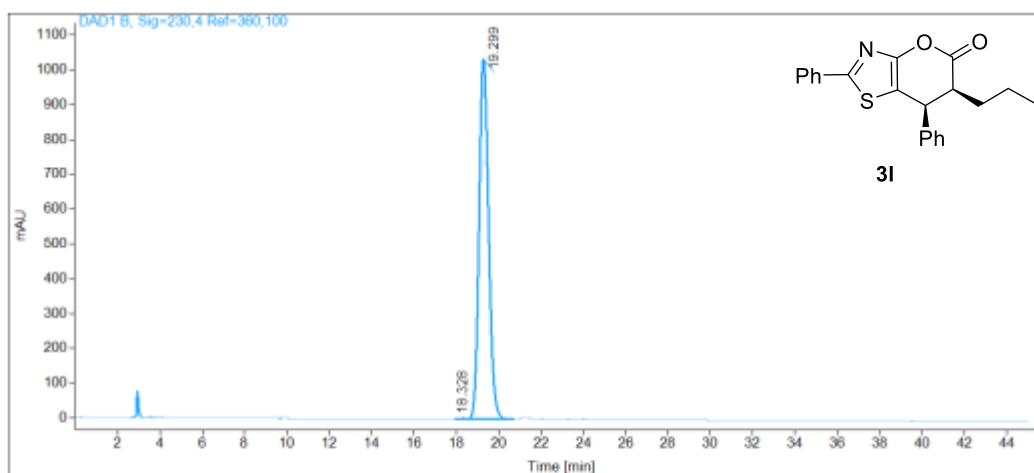
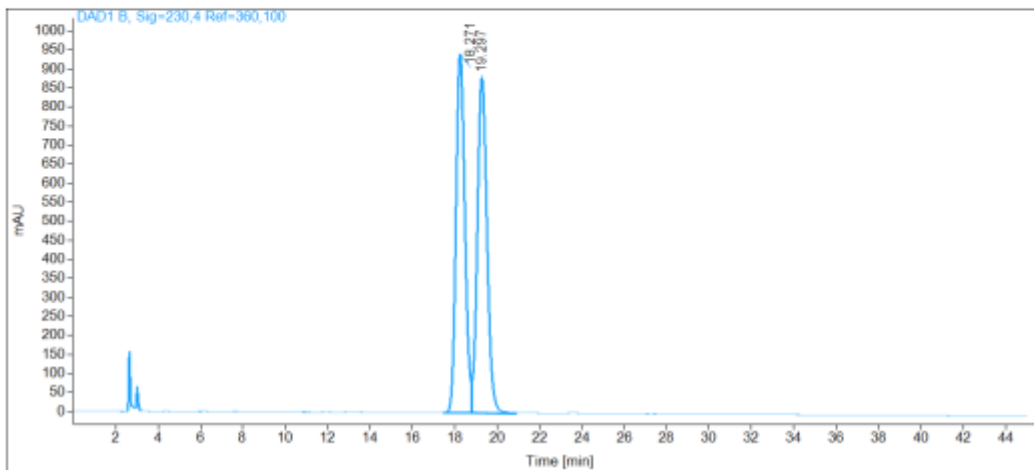


#	Ret. Time (min)	Width	Height (mAU)	Area (mAU*s)	Area %
1	10.81	0.20	30.50	396.88	2.50
2	15.11	0.29	811.86	15448.84	97.50
Total				15845.72	100.00

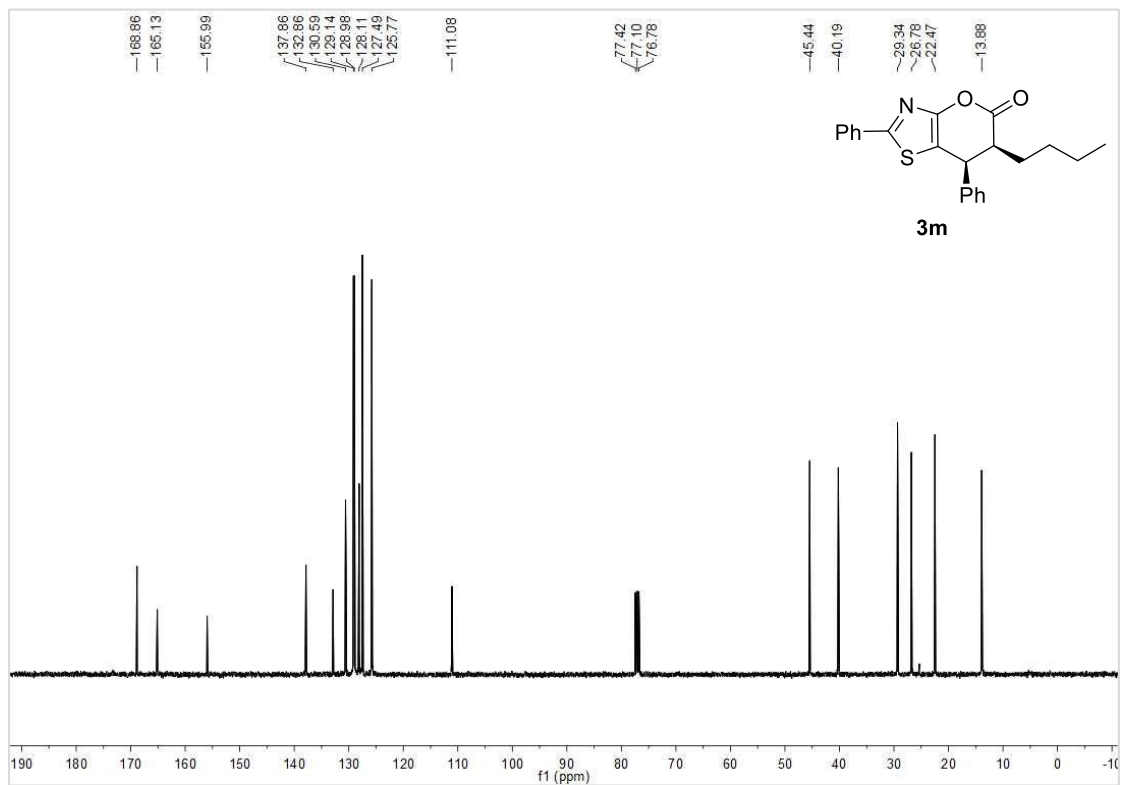
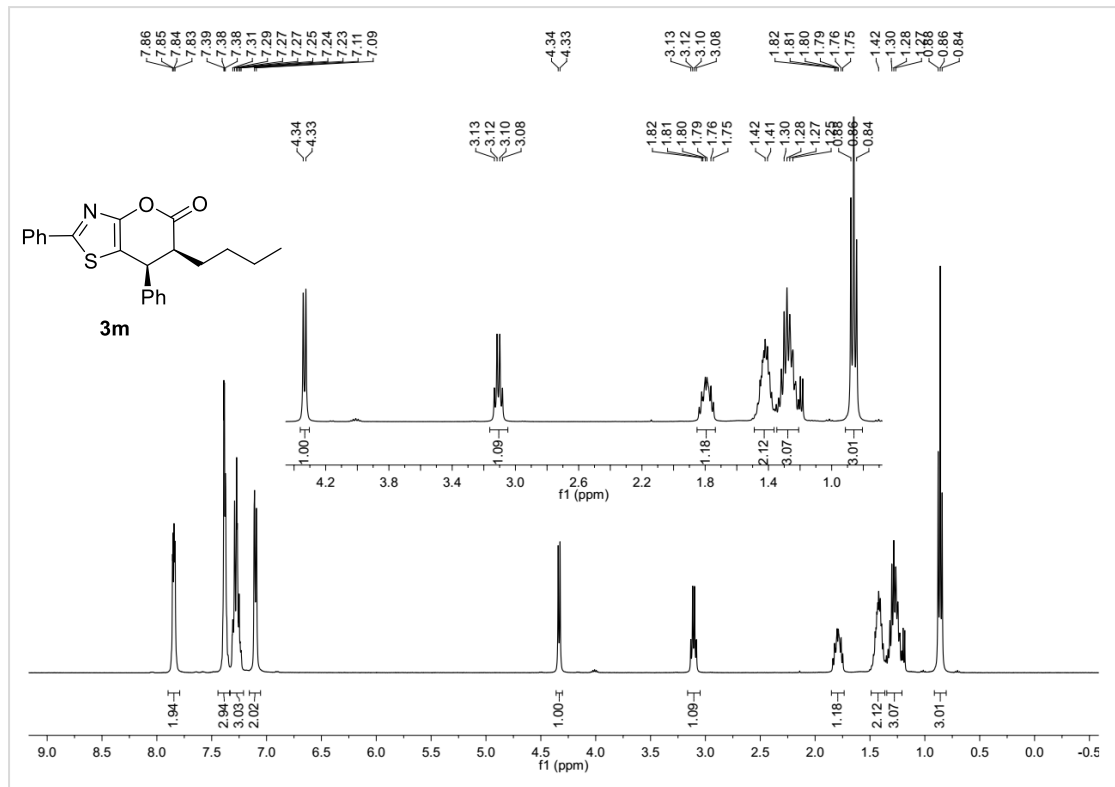
Sample name: LS2-85-12 RAC
Data file: C:\SNOOPY\DIFF\LS28512RAC.D
Description: Mobil phase: n-Heptane/EtOH 95:5, Flow = 0.7, Chiralpak IC
 The sample is solved in DCM/MP
Injection date: 4/24/2017 9:52:03 AM
Acq. Analysis method: CHIRALPAK-IC.M

Column: Chiralpak IC, (150 x 4,6) mm, 5µ, SN: IC00CD-QF015

Pressure at start: 22 bar **Start flow:** 0.700 ml/min **Column oven:** 29.99 °C



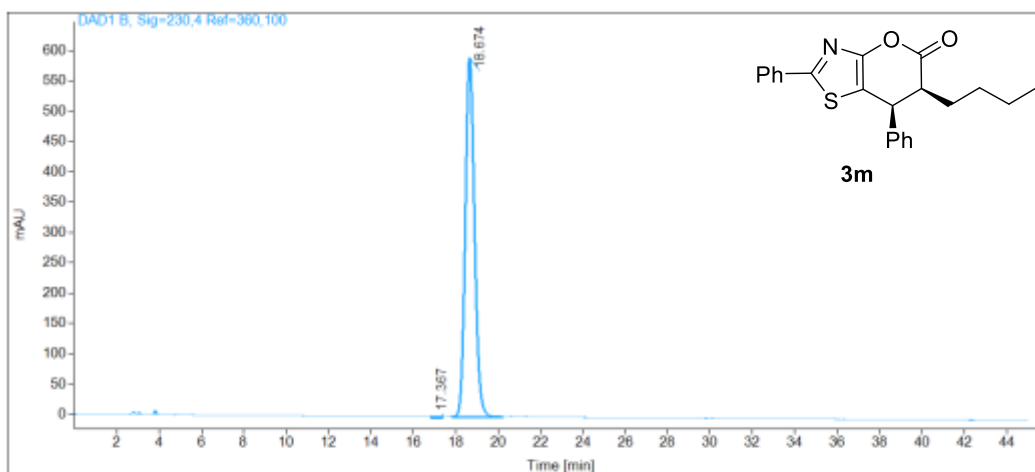
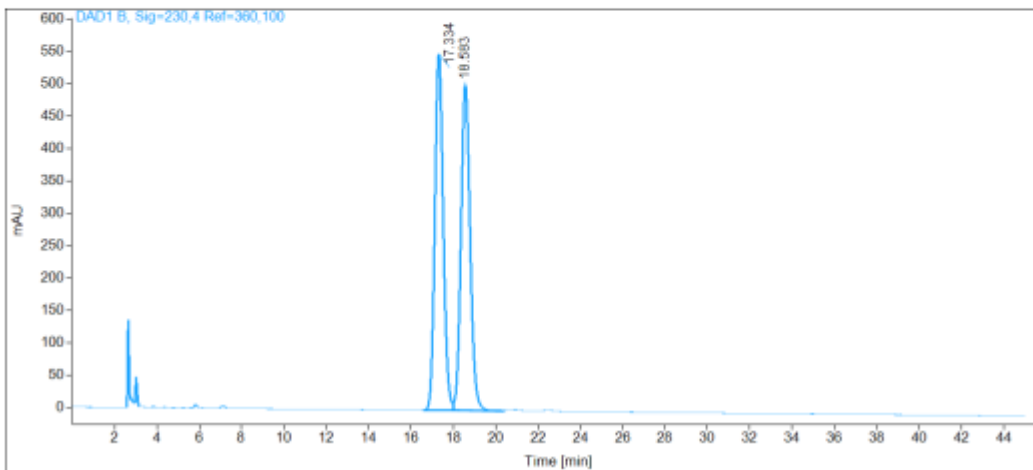
Name		LS2-85-12 chi			
RT [min]	Type	Area%	Area	Height	Width [min]
18.33	BV	0.05	16.65	0.80	0.25
19.30	VV	99.95	32388.59	1035.88	0.49
Sum		100.00	32405.24		



Sample name: LS2-85-13 RAC
Data file: C:\SNOOPY\DIFF\LS28513RAC.D
Description: Mobil phase: n-Heptane/EtOH 95:5, Flow = 0.7, Chiralpak IC
 The sample is solved in DCM/MMP
Injection date: 4/24/2017 10:38:10 AM
Acq. Analysis method: CHIRALPAK-IC.M

Column: Chiralpak IC, (150 x 4,6) mm, 5µ, SN: IC00CD-QF015

Pressure at start: 22 bar **Start flow:** 0.700 ml/min **Column oven:** 30 °C



Name	RT [min]	Type	Area%	Area	Height	Width [min]
LS2-85-13 chi	17.37	MM T	0.50	90.23	2.98	0.50
	18.67	BB	99.50	17834.40	591.99	0.47
	Sum		100.00	17924.63		