

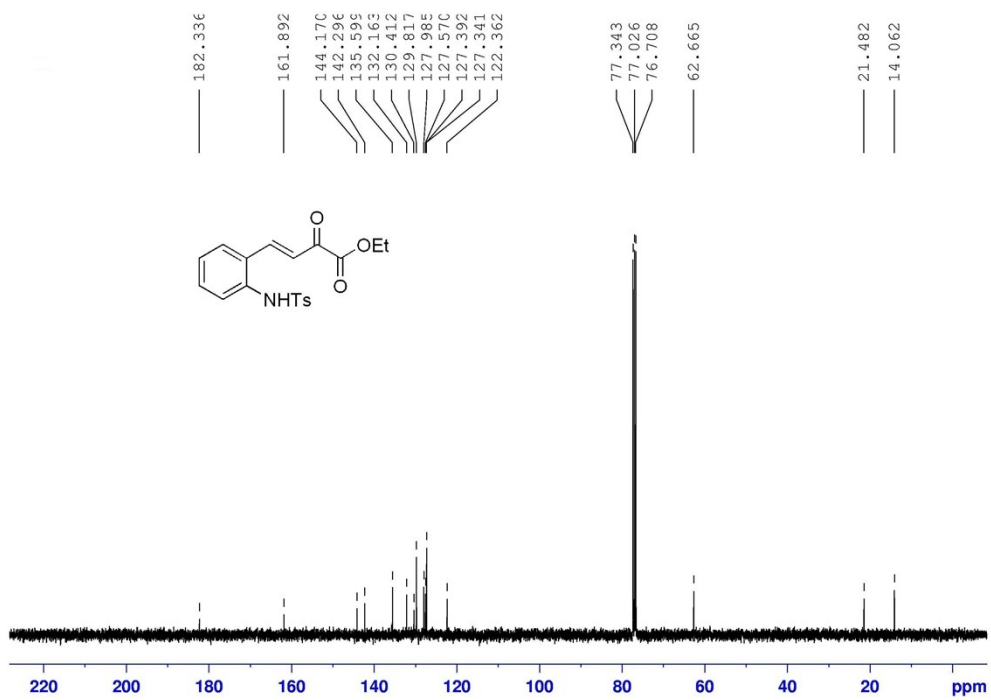
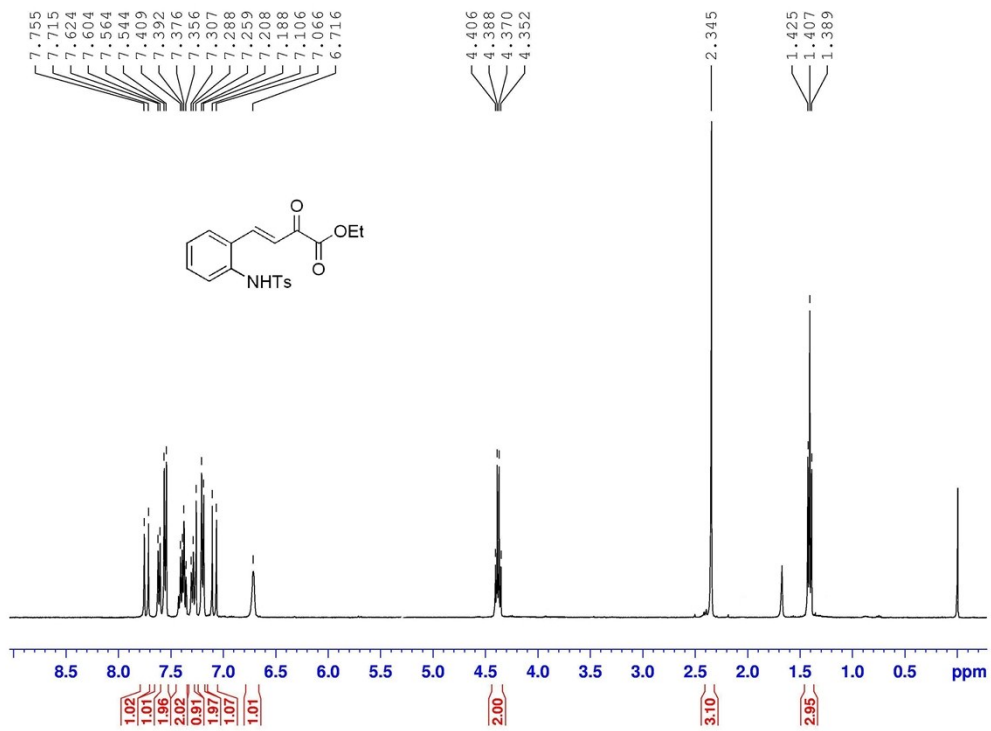
Supporting Information

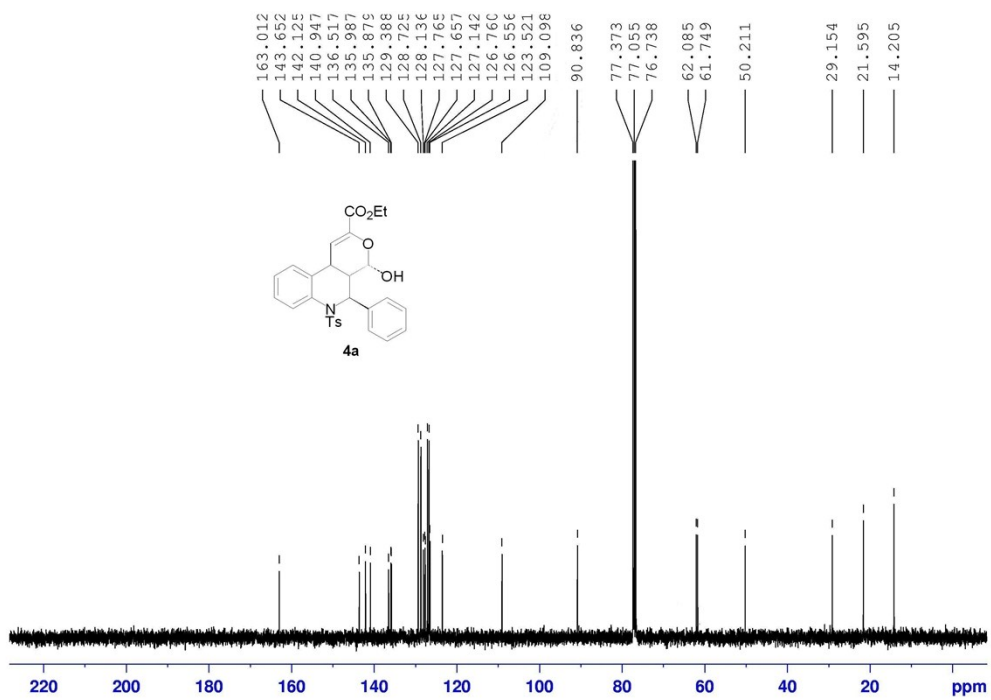
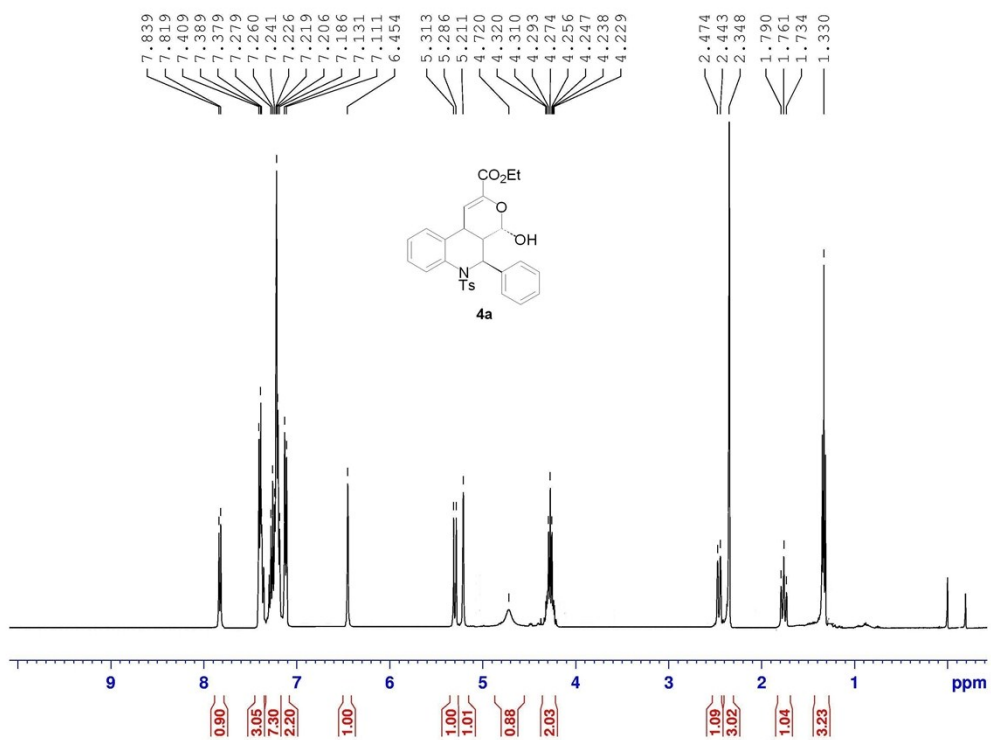
Highly Efficient Construction of Tetrahydropyranoquinoline Derivatives via an Asymmetric Organocatalytic aza-Michael-IED/HAD Cascade Reaction

Lu Dai, Yuxuan Hou, Lvyue Zhang, Zhangtao Chen, Xiaofei Zeng* and Guofu Zhong*

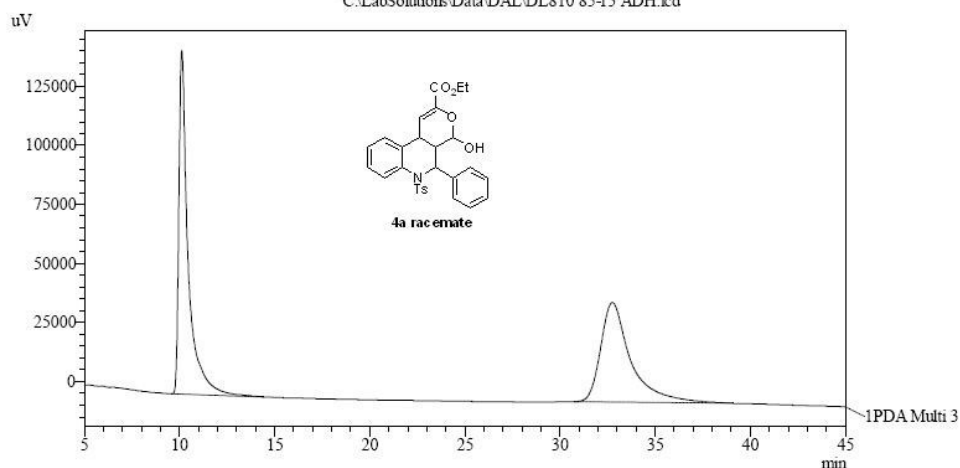
College of Material, Chemistry and Chemical Engineering, Hangzhou Normal
University, Hangzhou 310036, China

E-mail: chemzxf@hznu.edu.cn; zgf@hznu.edu.cn





Chromatogram
C:\LabSolutions\Data\DAL\DL810 85-15 ADH.lcd



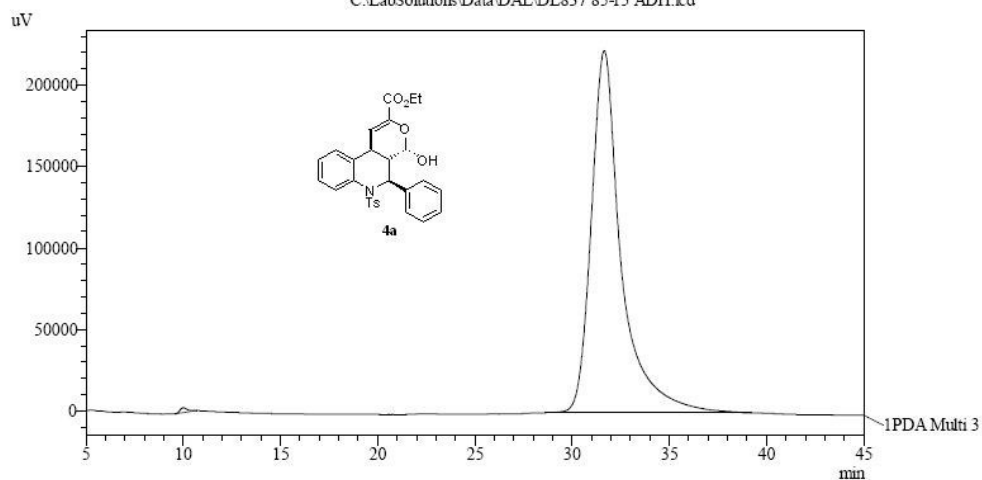
1 PDA Multi 3 / 254nm 4nm

PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	10.116	4974380	145713	51.730
2	32.751	4641590	42209	48.270
Total		9615971	187923	100.000

Chromatogram
C:\LabSolutions\Data\DAL\DL837 85-15 ADH.lcd

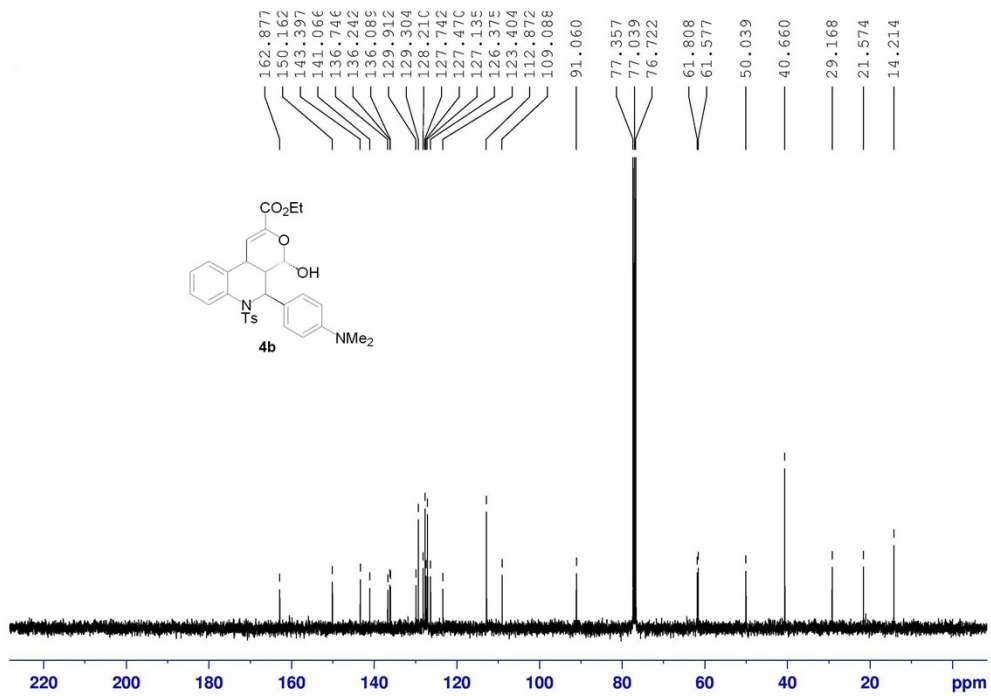
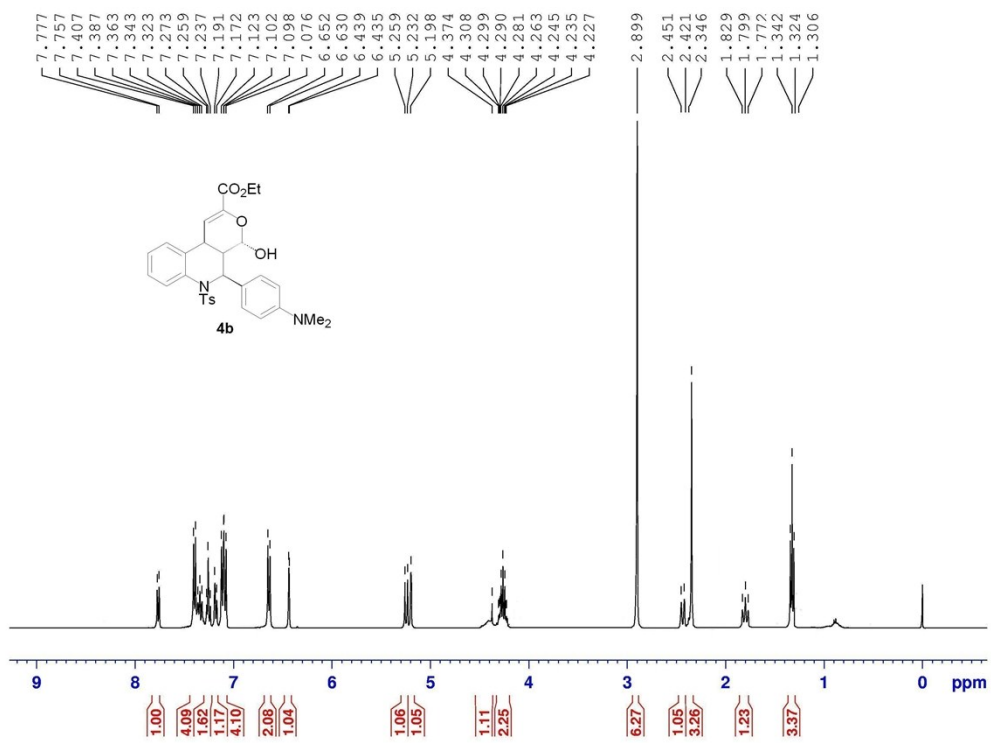


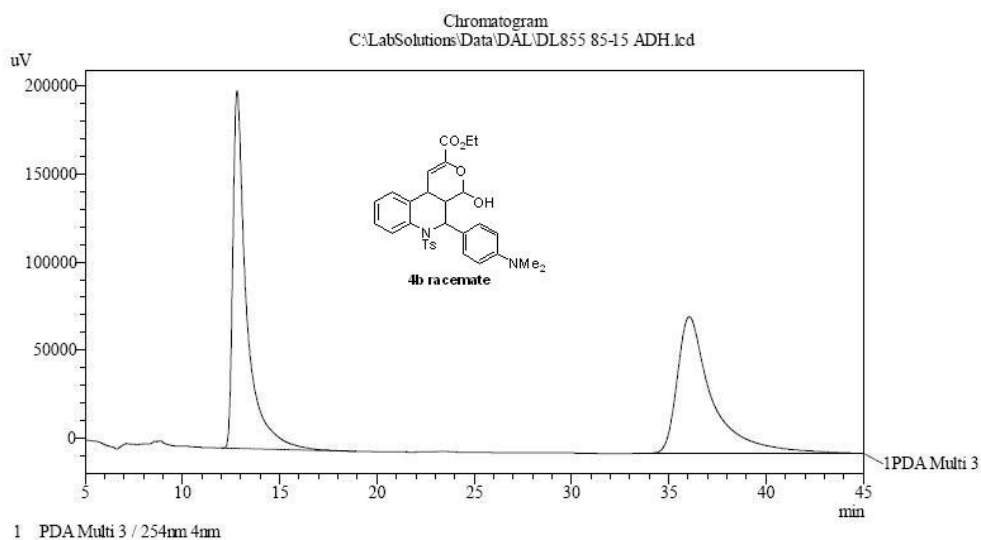
1 PDA Multi 3 / 254nm 4nm

PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	10.005	85520	3028	0.357
2	31.653	23847259	222180	99.643
Total		23932780	225208	100.000

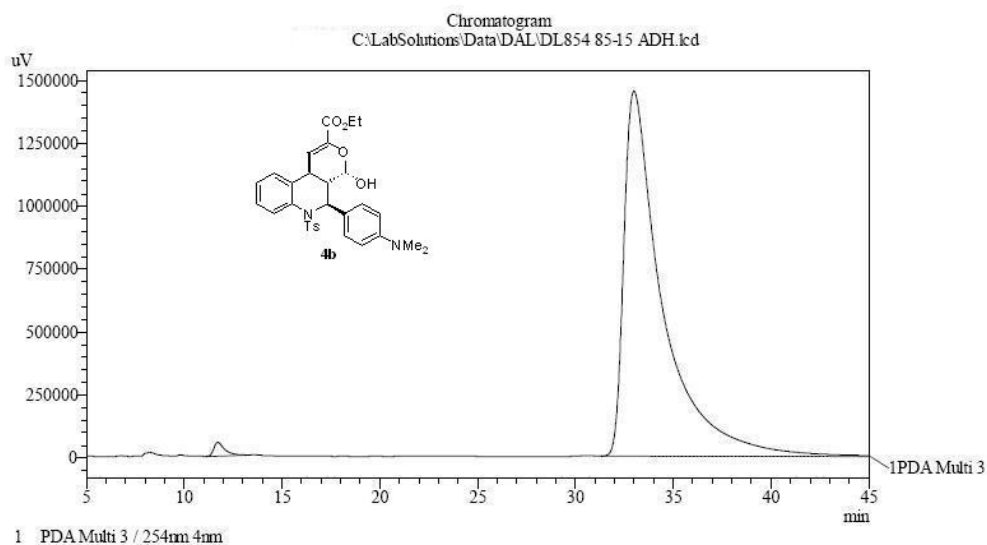




PeakTable

PDA Ch3 254nm 4nm

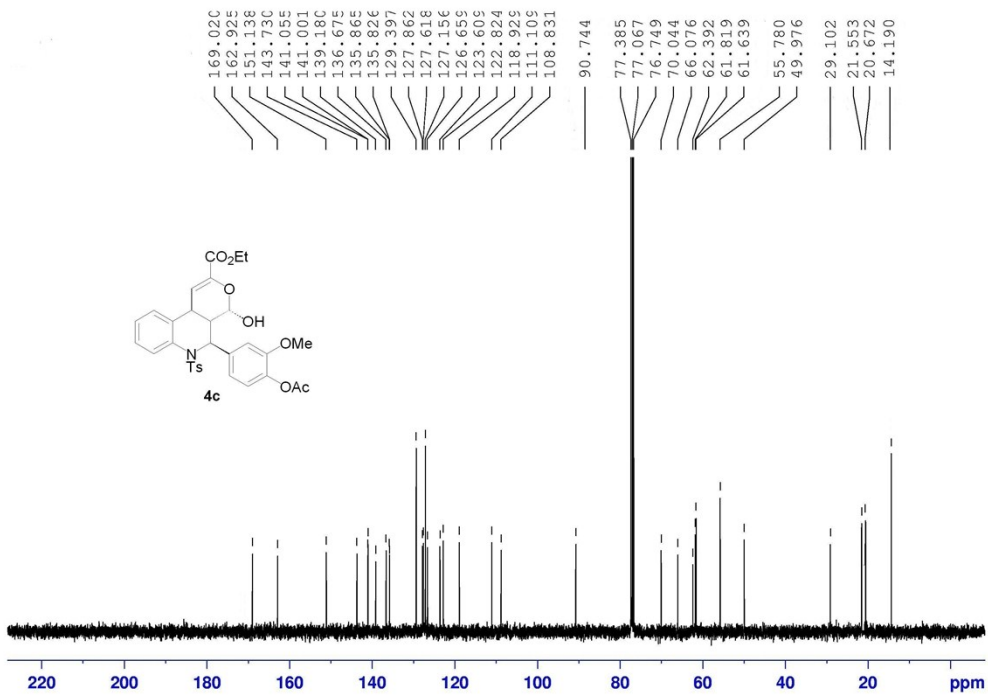
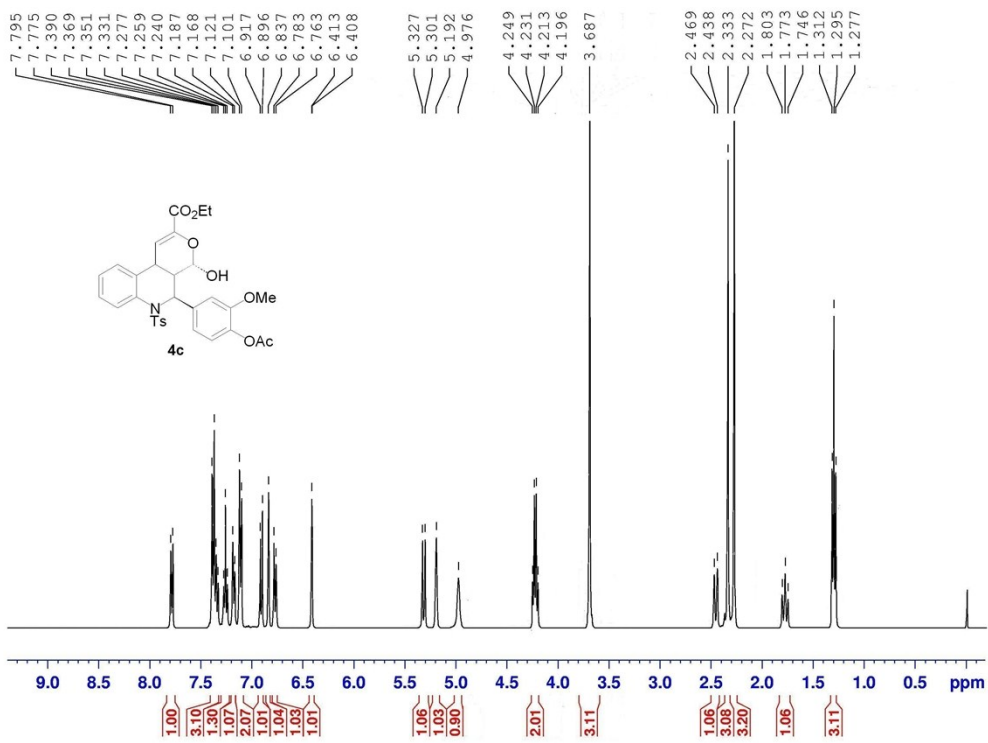
Peak#	Ret. Time	Area	Height	Area %
1	12.810	9948703	202925	50.950
2	36.058	9577542	77412	49.050
Total		19526245	280338	100.000

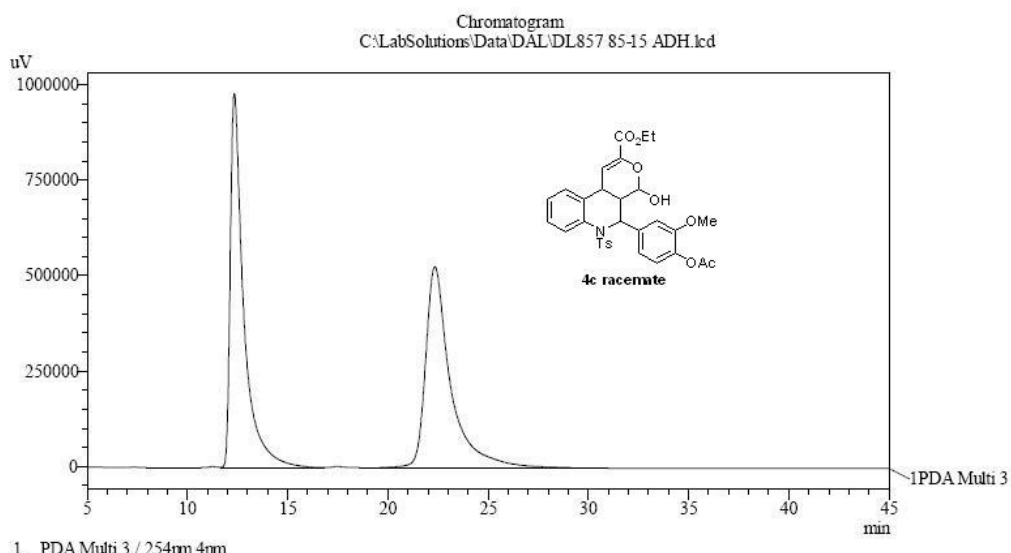


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	11.714	2112561	54298	1.048
2	32.991	199443427	1450841	98.952
Total		201555988	1505139	100.000

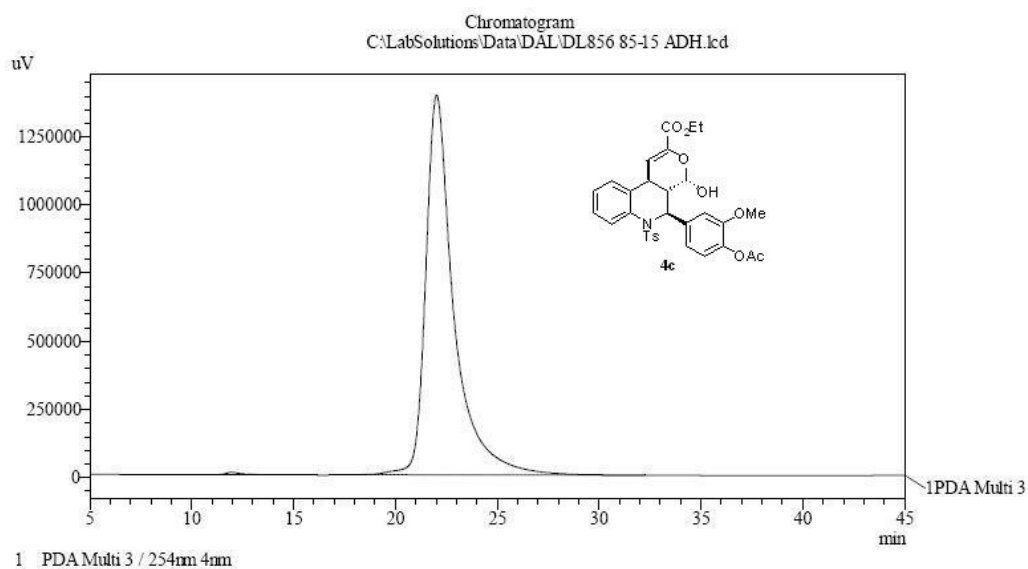




PeakTable

PDA Ch3 254nm 4nm

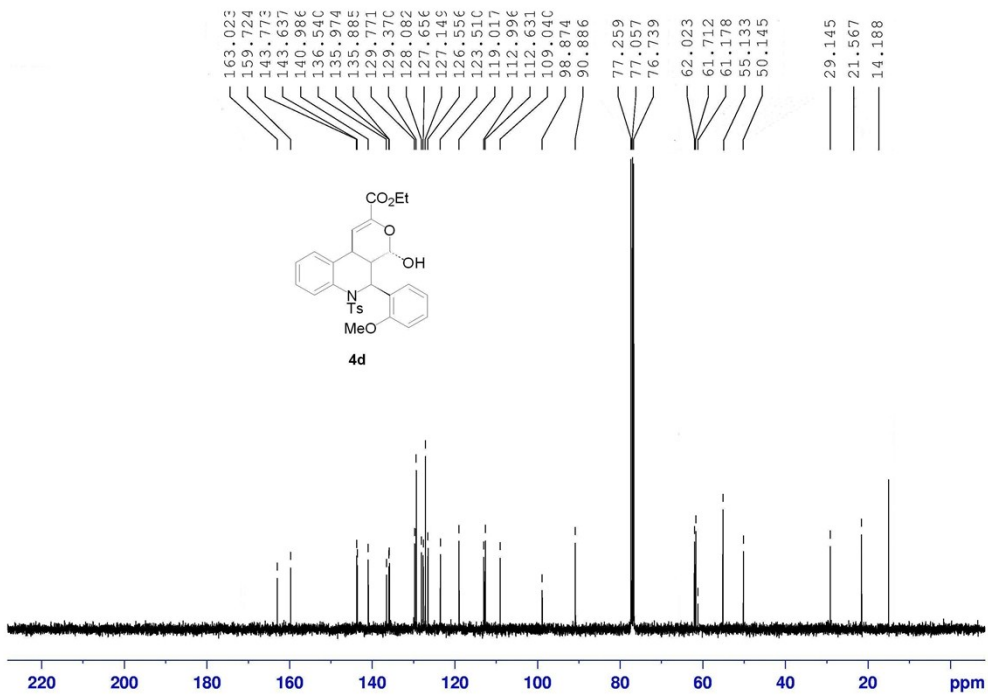
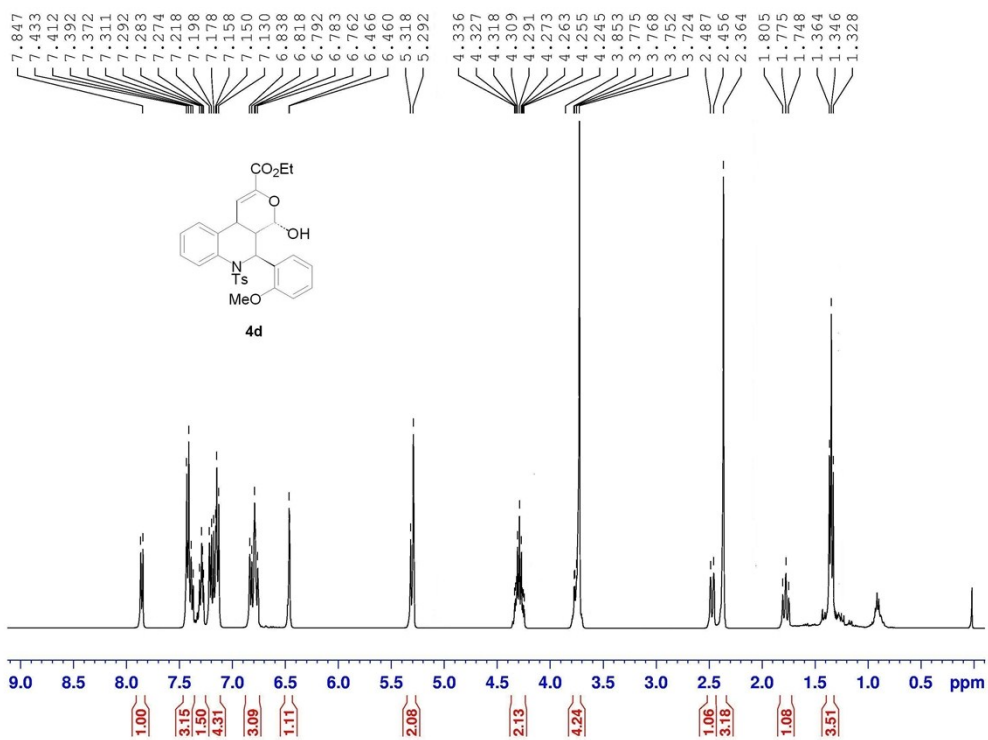
Peak#	Ret. Time	Area	Height	Area %
1	12.338	45508270	979391	49.654
2	22.343	46142486	527571	50.346
Total		91650757	1506962	100.000

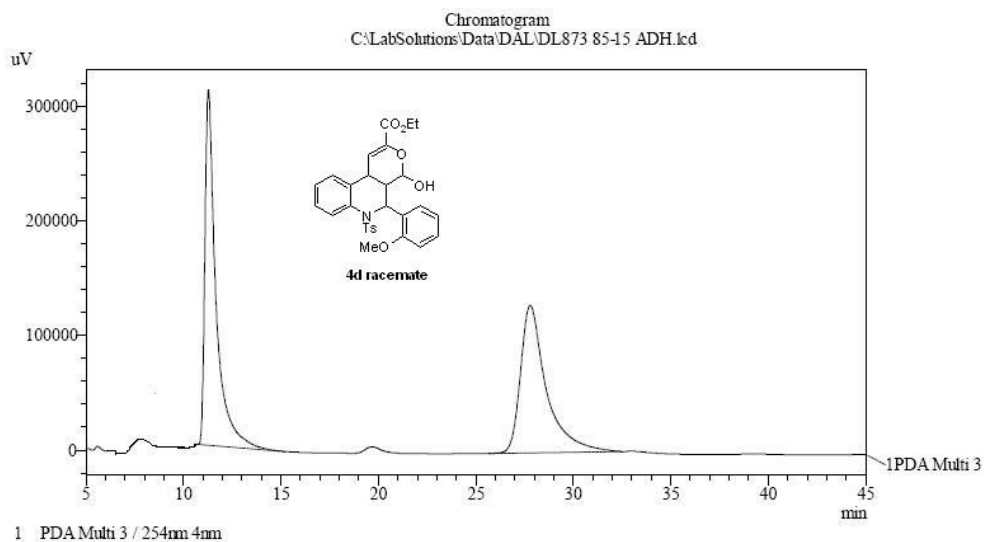


PeakTable

PDA Ch3 254nm 4nm

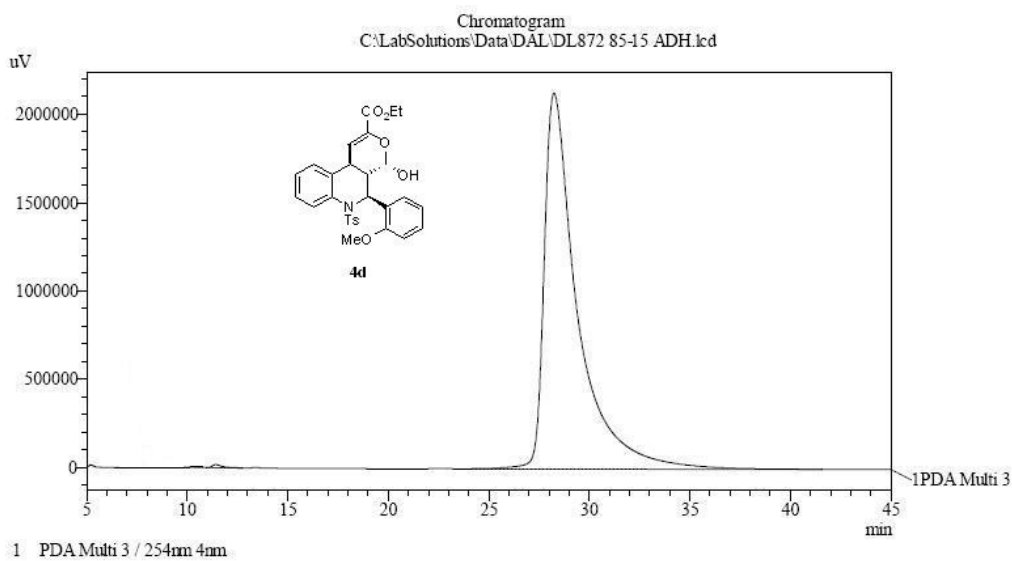
Peak#	Ret. Time	Area	Height	Area %
1	11.954	362627	8145	0.268
2	22.023	134788719	1392642	99.732
Total		135151346	1400787	100.000





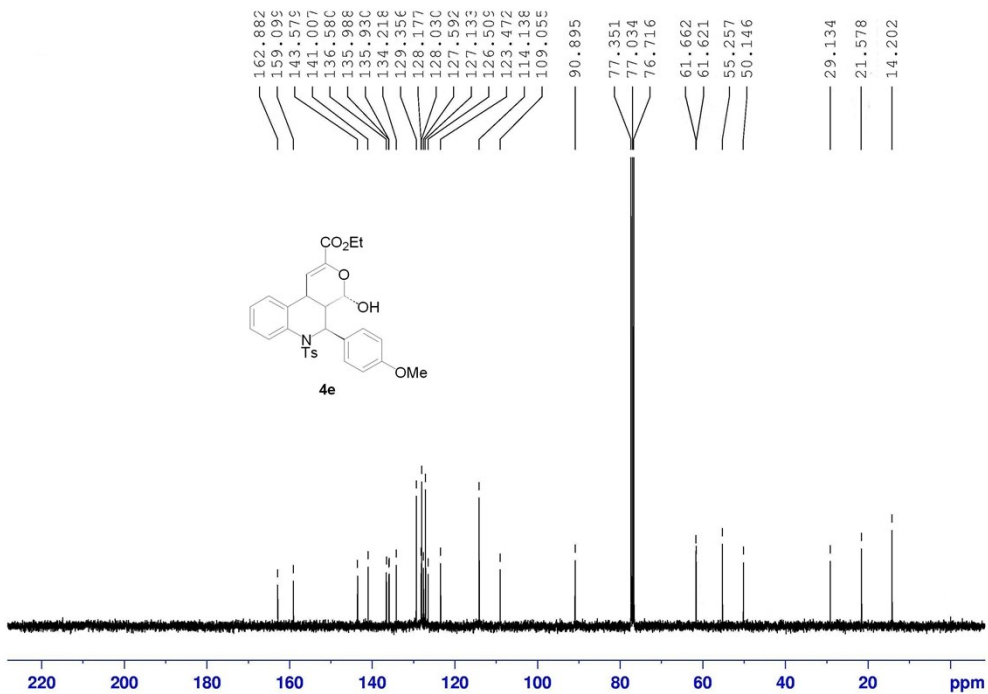
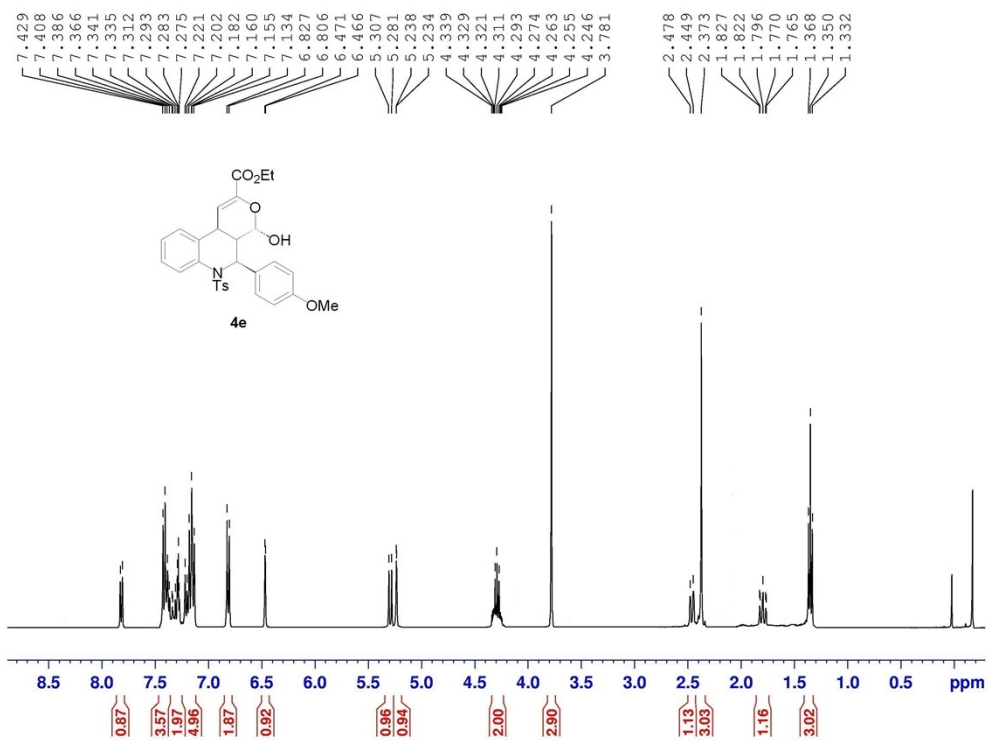
PeakTable

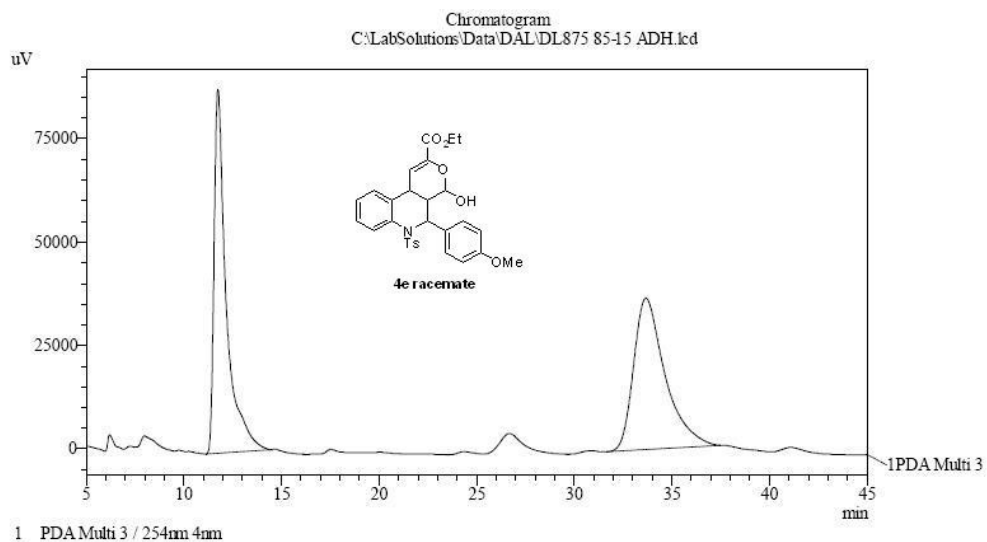
Peak#	Ret. Time	Area	Height	Area %
1	11.278	12259078	310085	50.925
2	27.787	11813674	128524	49.075
Total		24072751	438609	100.000



PeakTable

Peak#	Ret. Time	Area	Height	Area %
1	11.415	598533	17624	0.243
2	28.243	245341232	2126756	99.757
Total		245939765	2144380	100.000

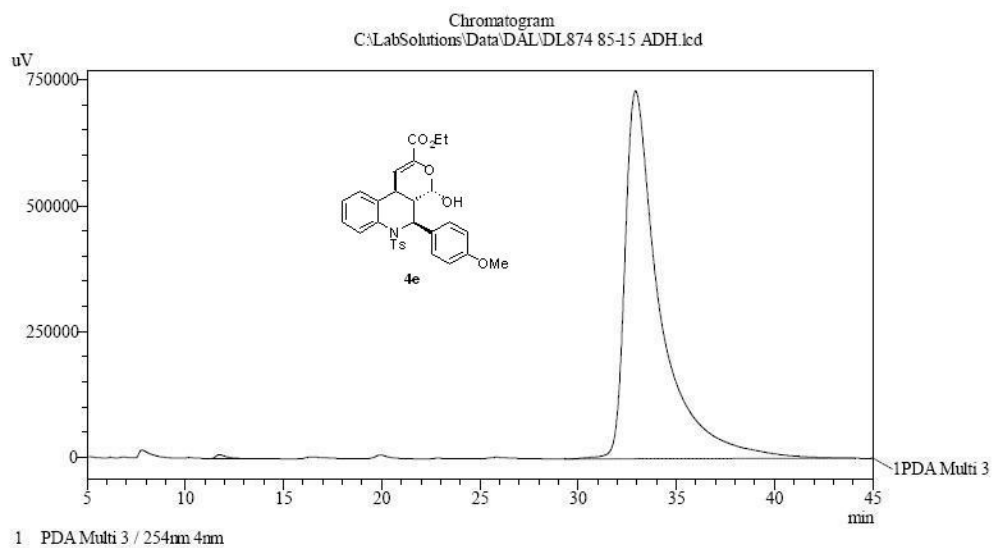




PeakTable

PDA Ch3 254nm 4nm

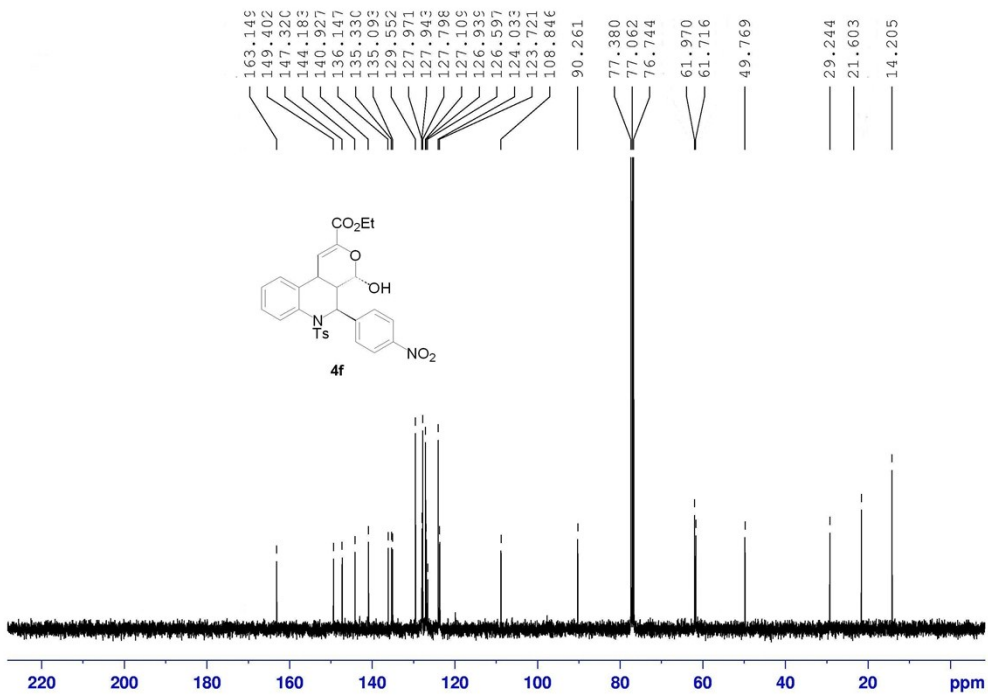
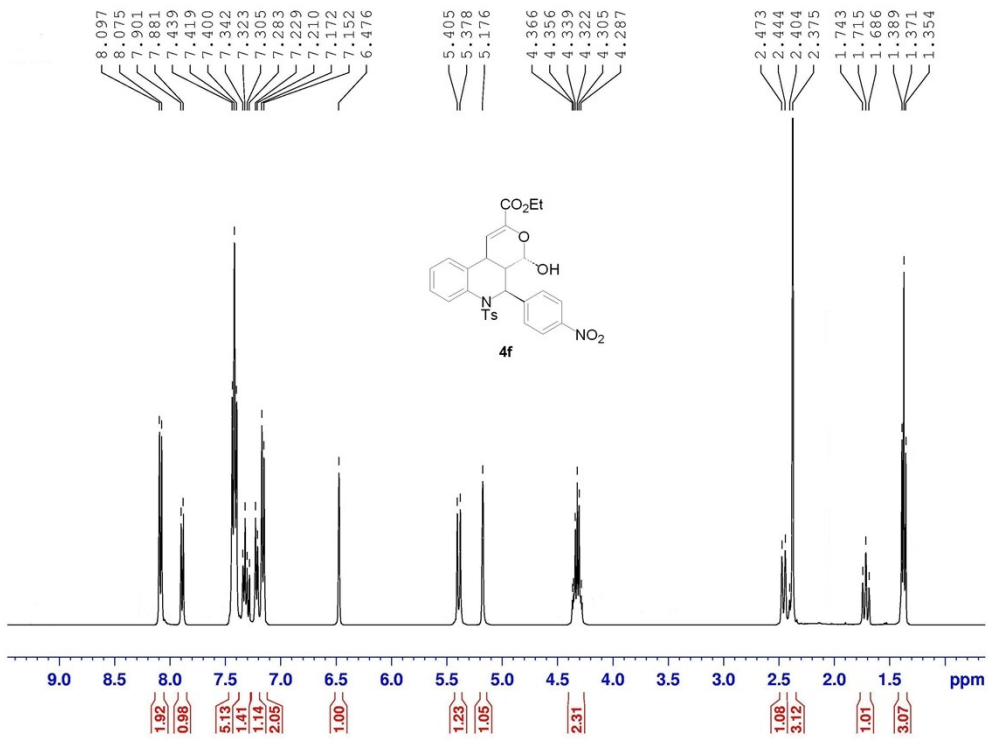
Peak#	Ret. Time	Area	Height	Area %
1	11.744	3827186	87985	48.247
2	33.674	4105247	36617	51.753
Total		7932433	124602	100.000



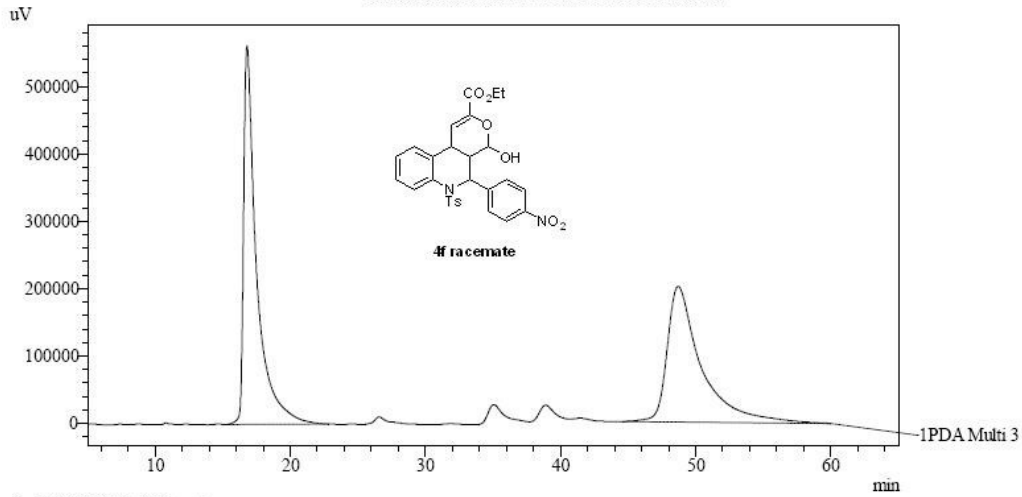
PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	11.737	287618	7864	0.316
2	32.925	90714583	730090	99.684
Total		91002202	737954	100.000



Chromatogram
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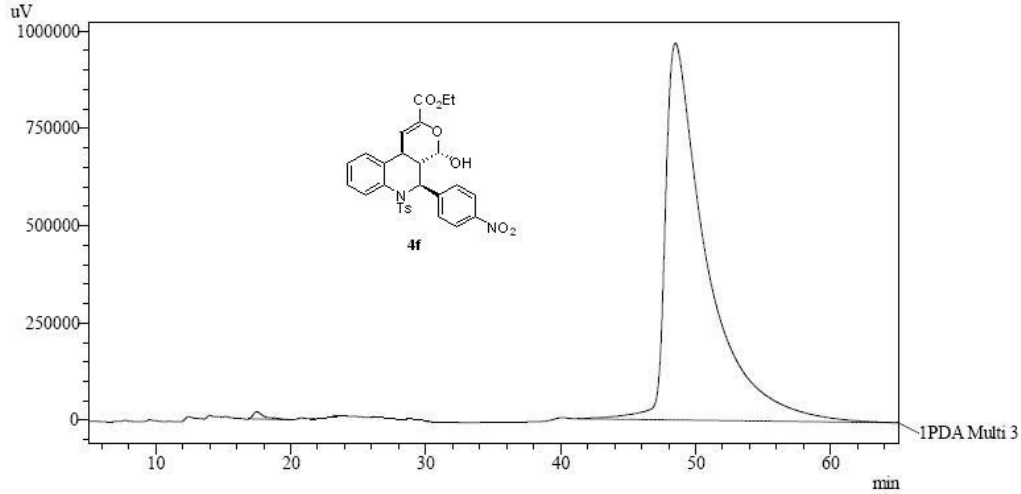
1 PDA Multi 3 / 254nm 4nm

PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	16.796	37524026	561250	51.681
2	48.700	35082849	200912	48.319
Total		72606876	762162	100.000

Chromatogram
C:\LabSolutions\Data\DAL\DL880 85-15 ADH.kcd

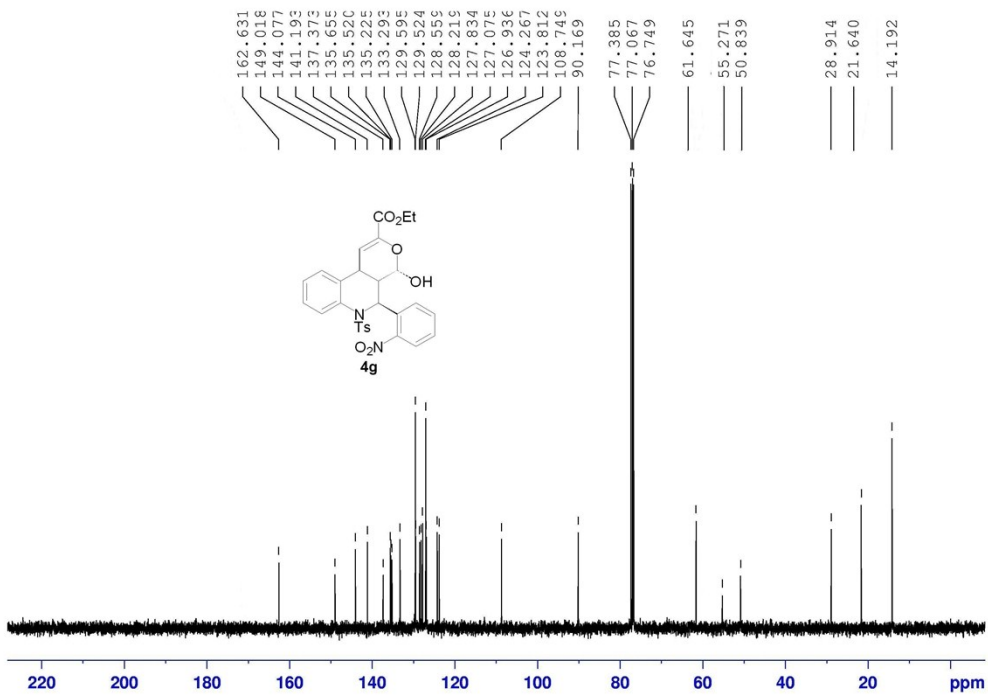
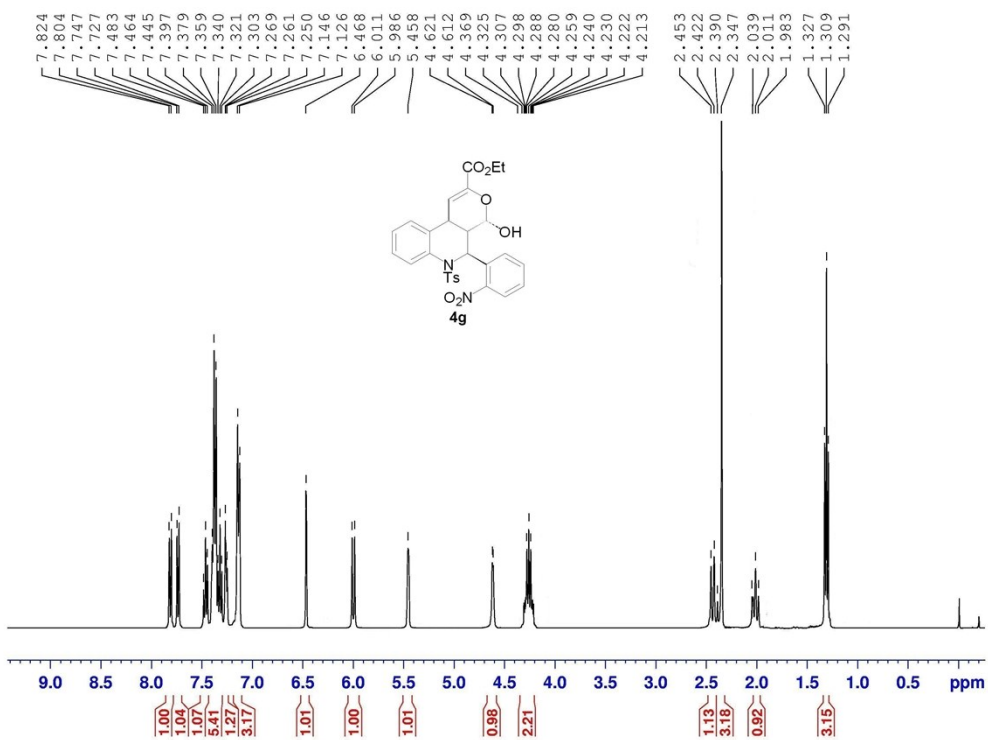


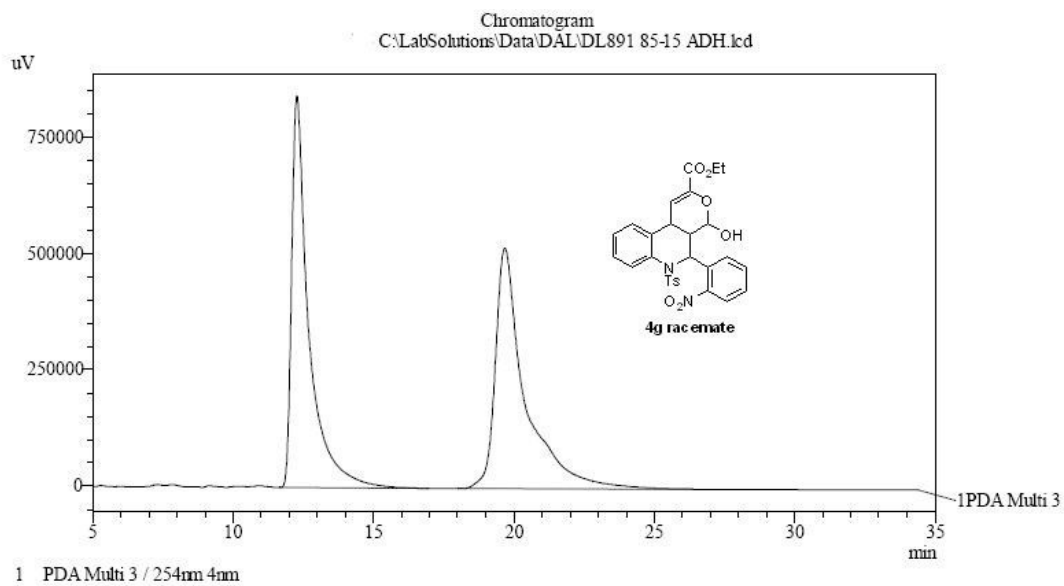
1 PDA Multi 3 / 254nm 4nm

PeakTable

PDA Ch3 254nm 4nm

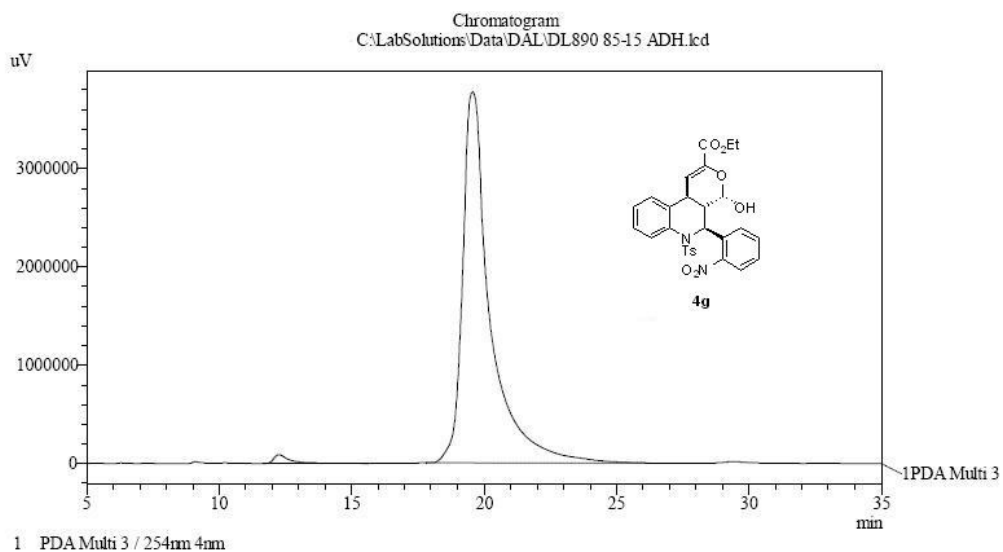
Peak#	Ret. Time	Area	Height	Area %
1	17.476	1097809	18715	0.532
2	48.495	205252245	968189	99.468
Total		206350055	986904	100.000





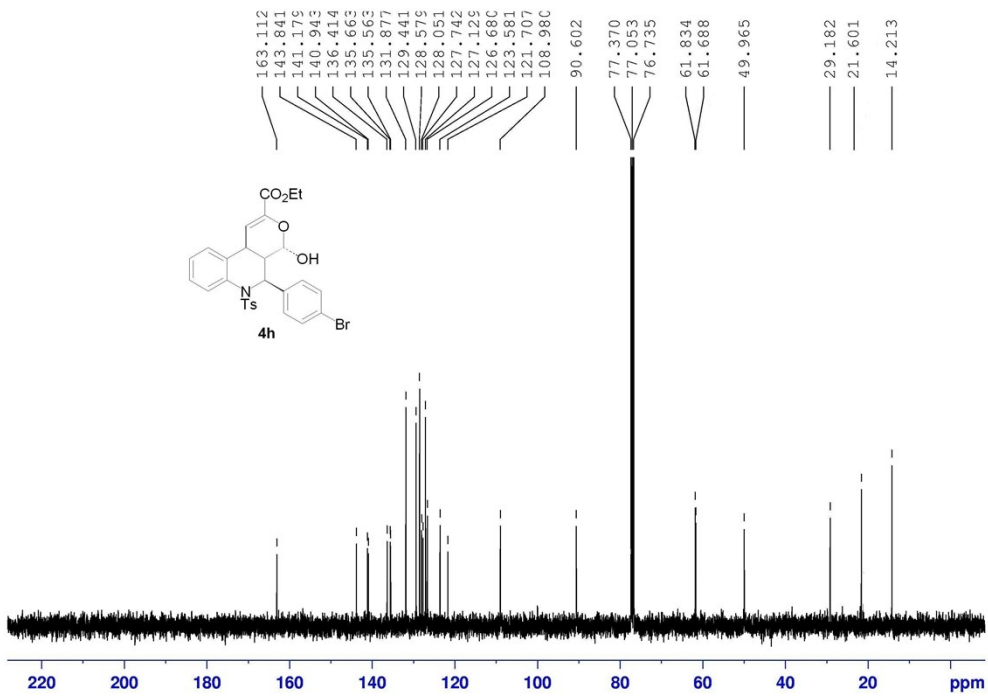
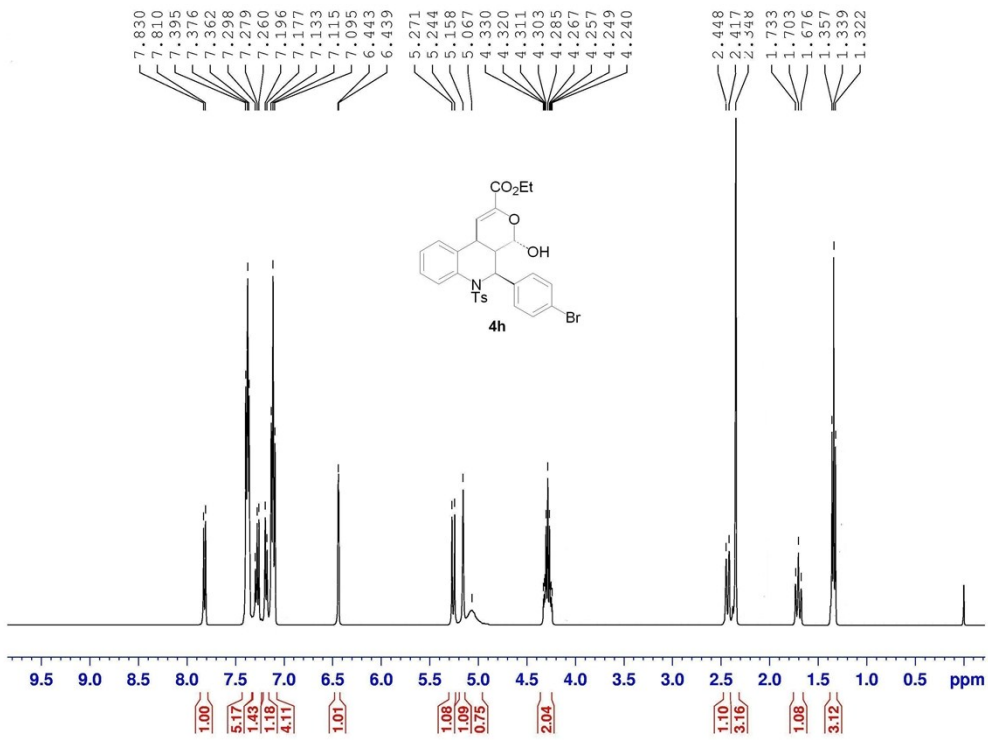
PeakTable
PDA Ch3 254nm 4mm

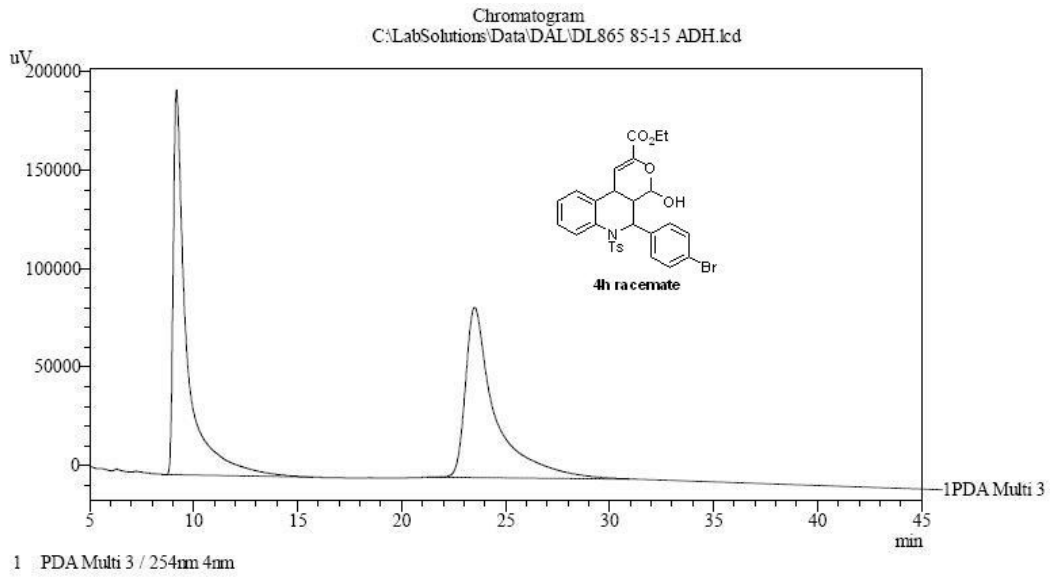
Peak#	Ret. Time	Area	Height	Area %
1	12.271	35829651	841649	48.341
2	19.673	38289292	517389	51.659
Total		74118943	1359038	100.000



PeakTable
PDA Ch3 254nm 4mm

Peak#	Ret. Time	Area	Height	Area %
1	12.253	3891953	89413	1.397
2	19.565	274654634	3776370	98.603
Total		278546587	3865782	100.000

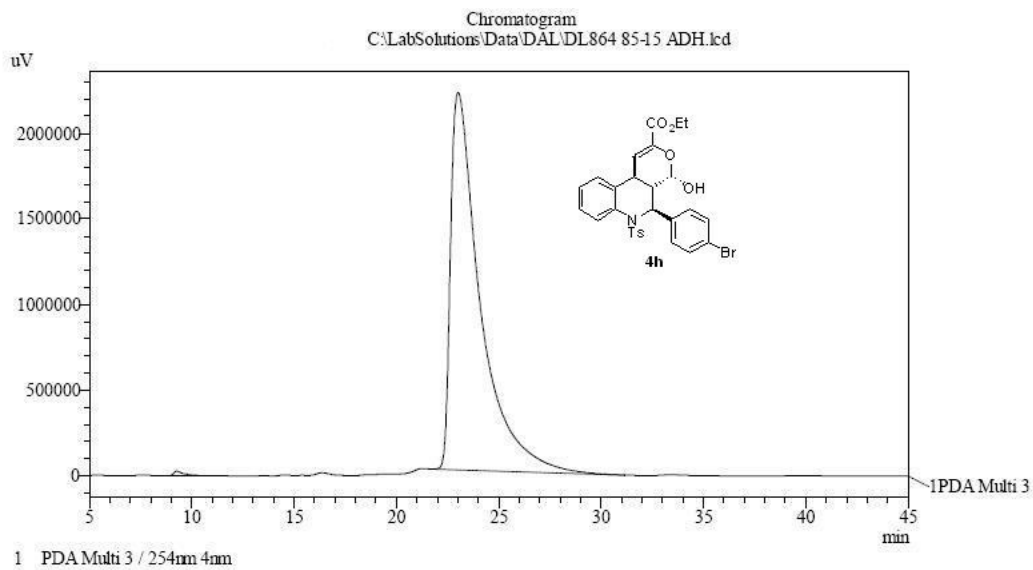




PeakTable

PDA Ch3 254nm 4nm

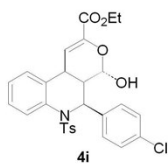
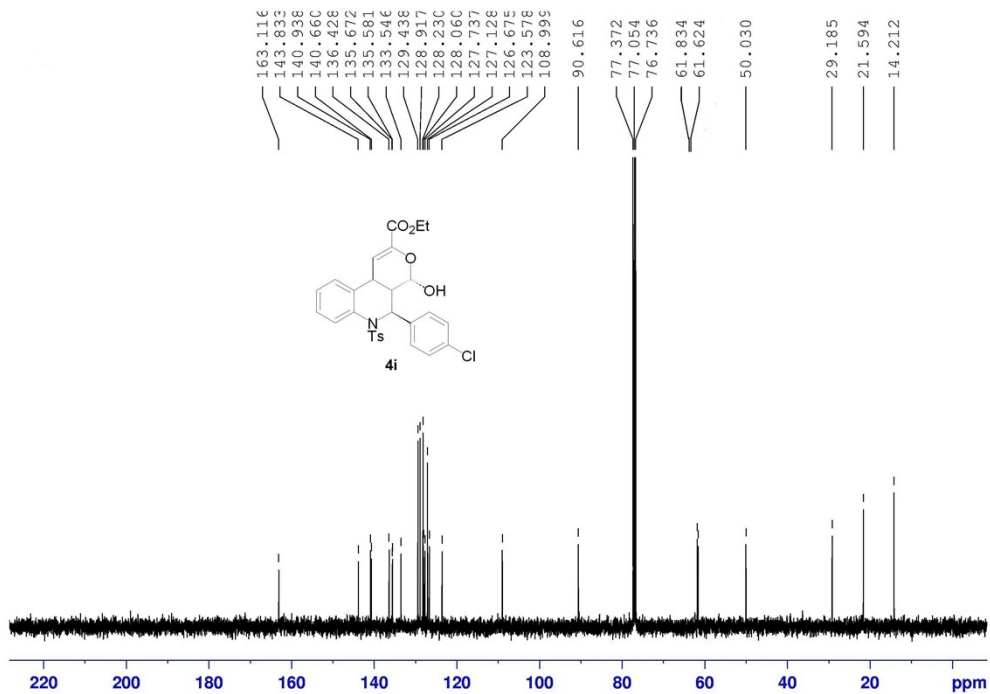
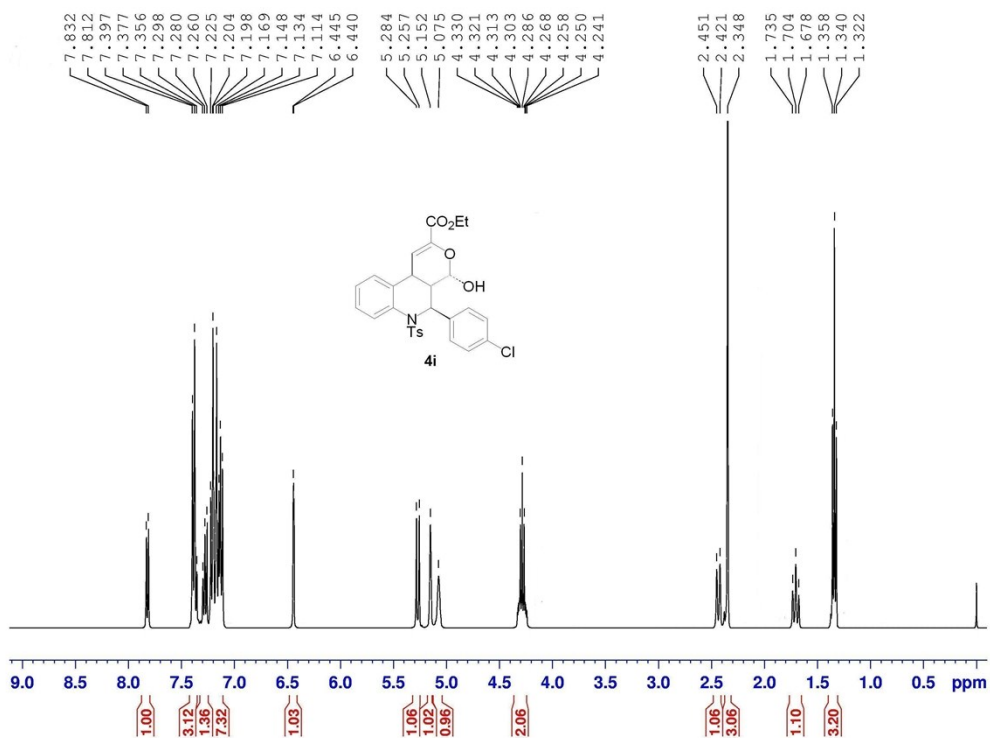
Peak#	Ret. Time	Area	Height	Area %
1	9.172	8784404	195438	50.671
2	23.510	8551718	86486	49.329
Total		17336122	281924	100.000

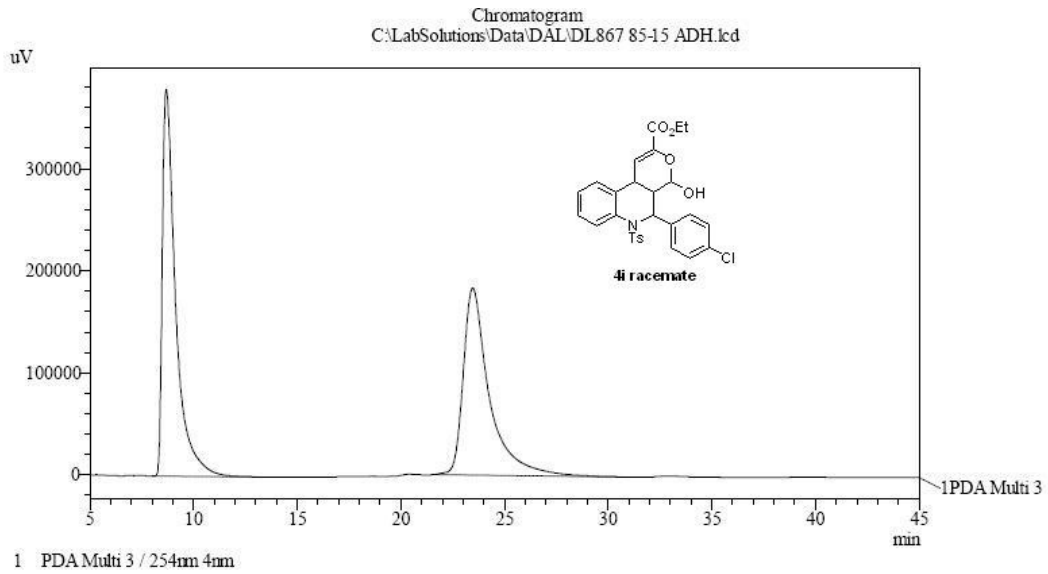


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	9.270	966885	26792	0.432
2	23.006	222630775	2204551	99.568
Total		223597660	2231343	100.000

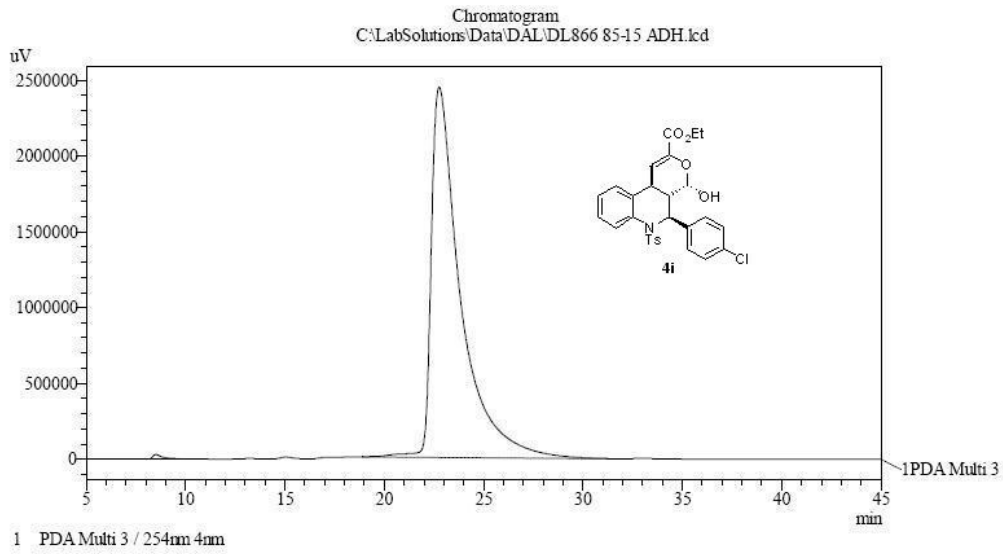




PeakTable

PDA Ch3 254nm 4nm

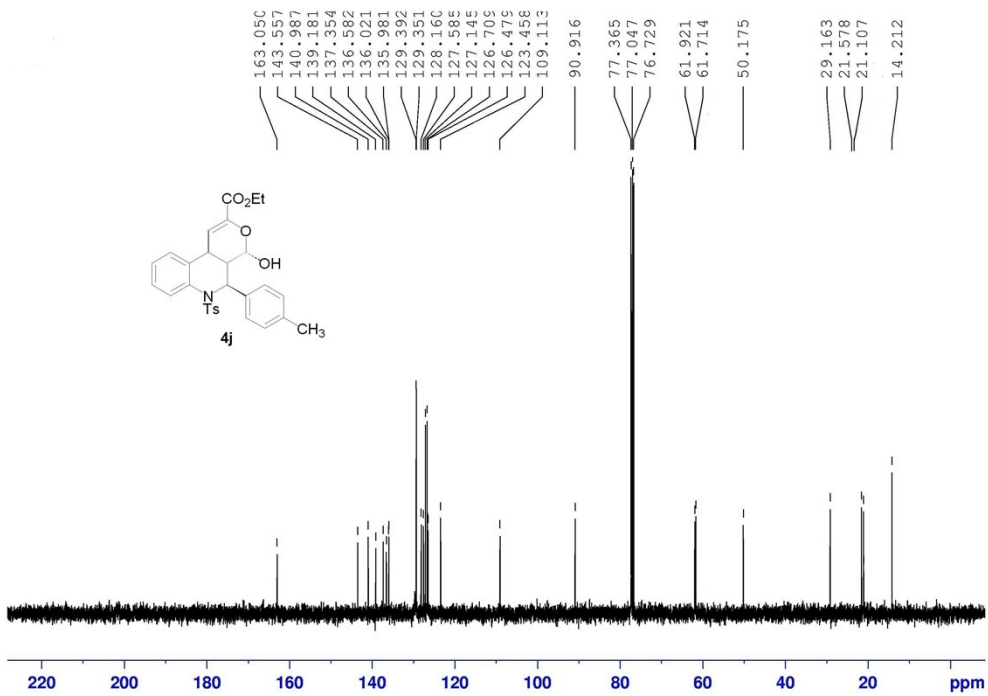
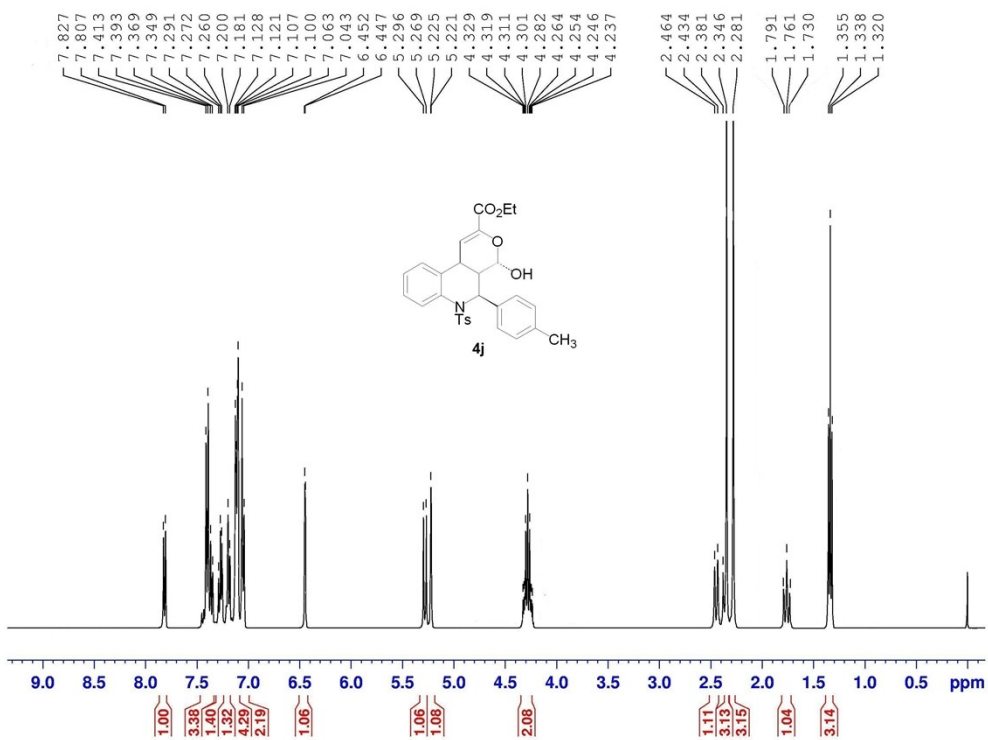
Peak#	Ret. Time	Area	Height	Area %
1	8.680	17020556	379214	51.333
2	23.465	16136589	183392	48.667
Total		33157145	562607	100.000

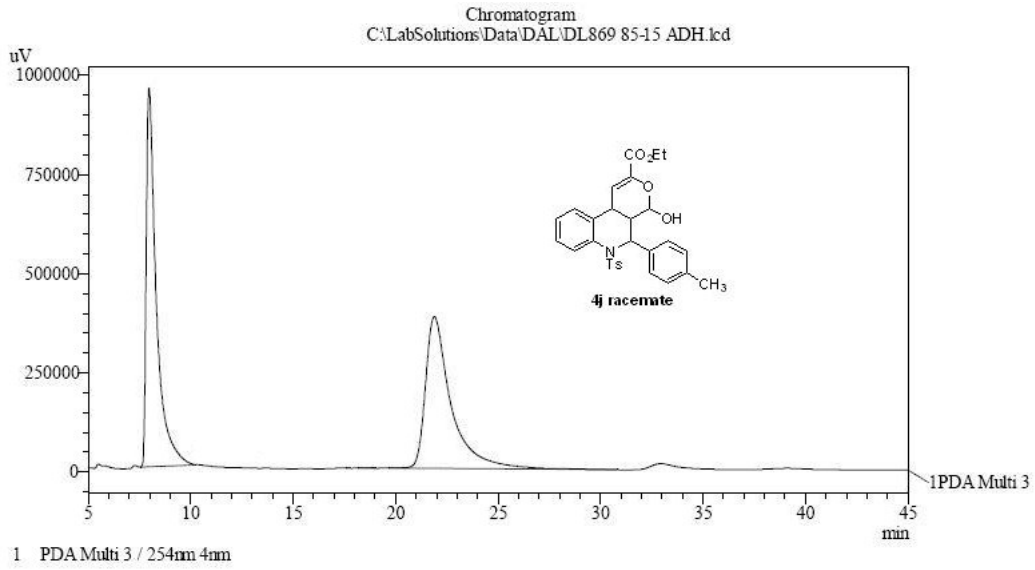


PeakTable

PDA Ch3 254nm 4nm

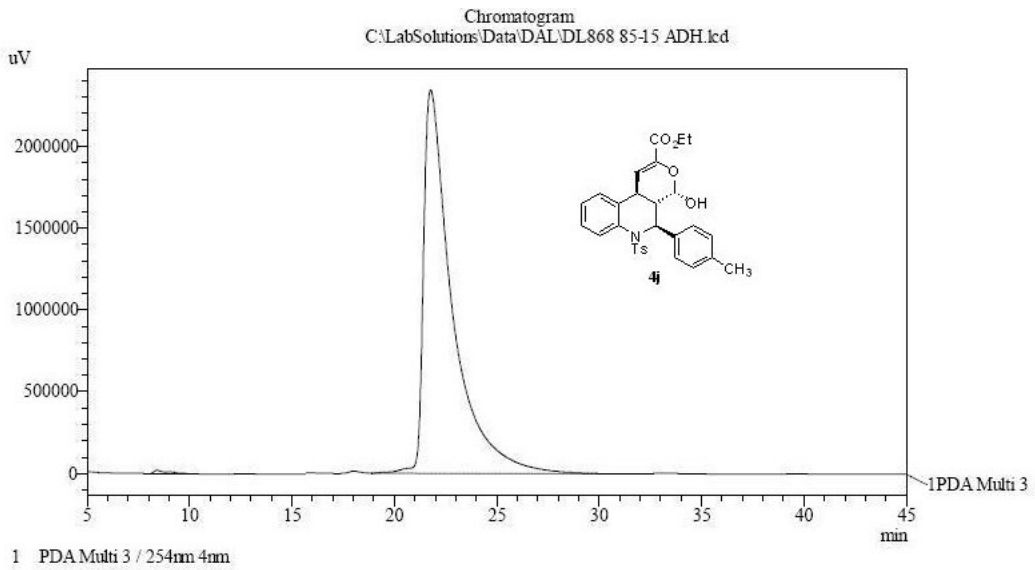
Peak#	Ret. Time	Area	Height	Area %
1	8.499	1086591	30775	0.432
2	22.769	250533334	2441411	99.568
Total		251619924	2472185	100.000





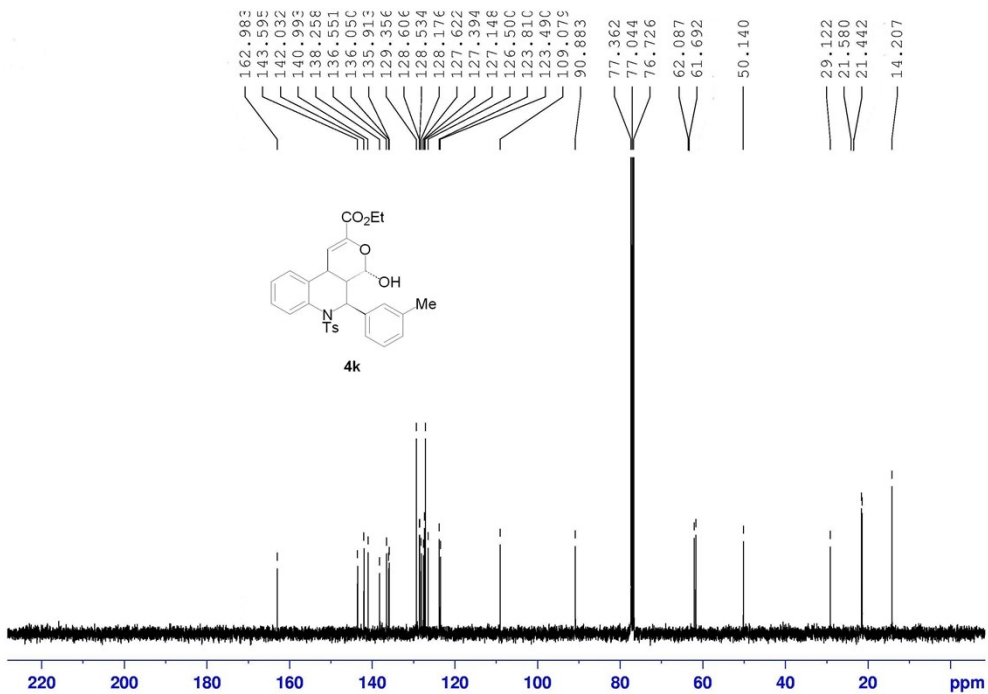
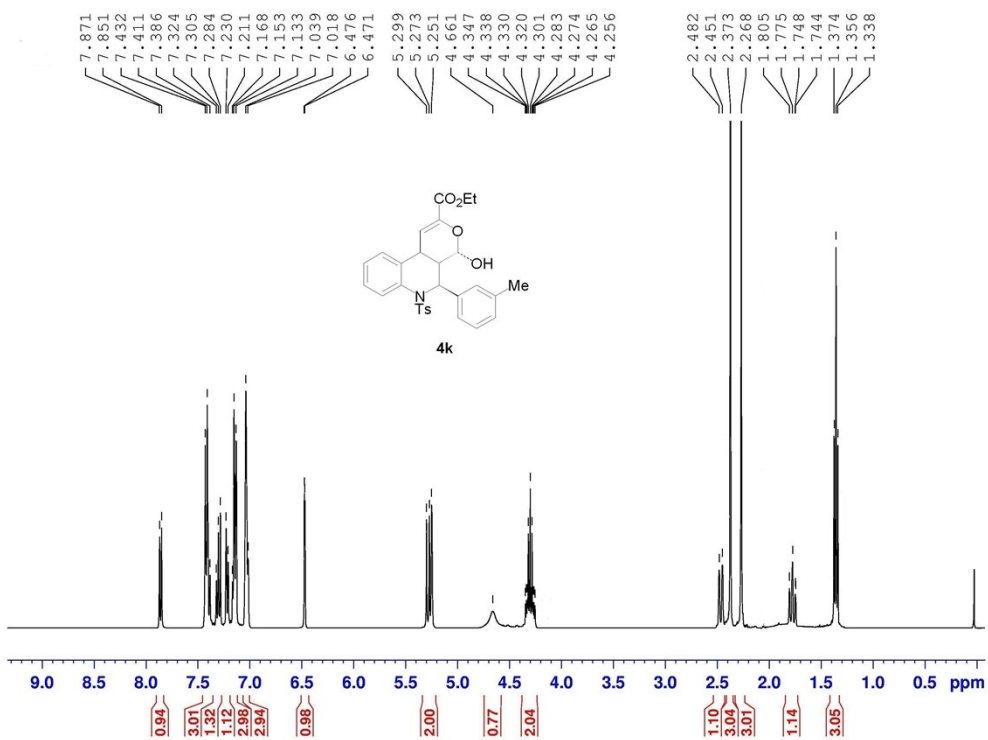
PeakTable

Peak#	Ret. Time	Area	Height	Area %
1	7.964	32779815	955668	49.403
2	21.887	33571930	383370	50.597
Total		66351745	1339038	100.000

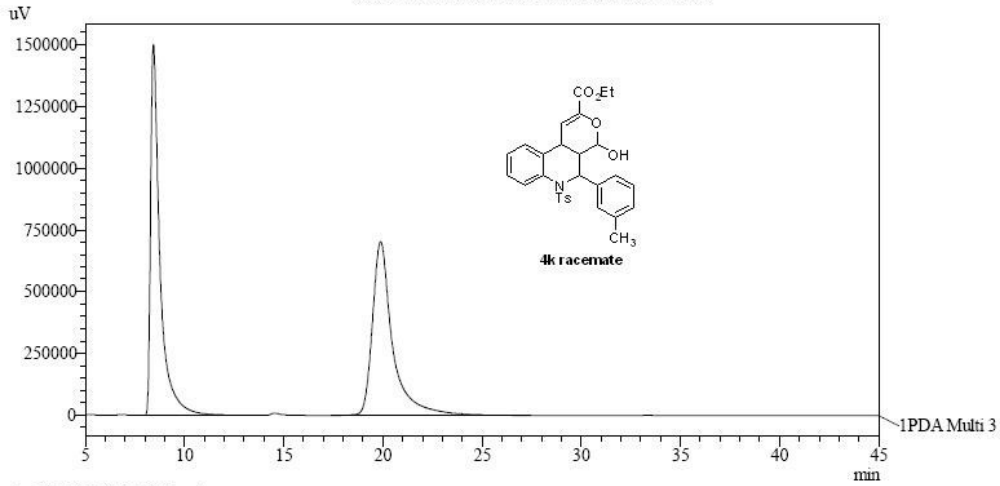


PeakTable

Peak#	Ret. Time	Area	Height	Area %
1	8.402	902335	20180	0.392
2	21.773	229166365	2343217	99.608
Total		230068700	2363397	100.000



Chromatogram
C:\LabSolutions\Data\DAL\DL879 85-15 ADH.lcd

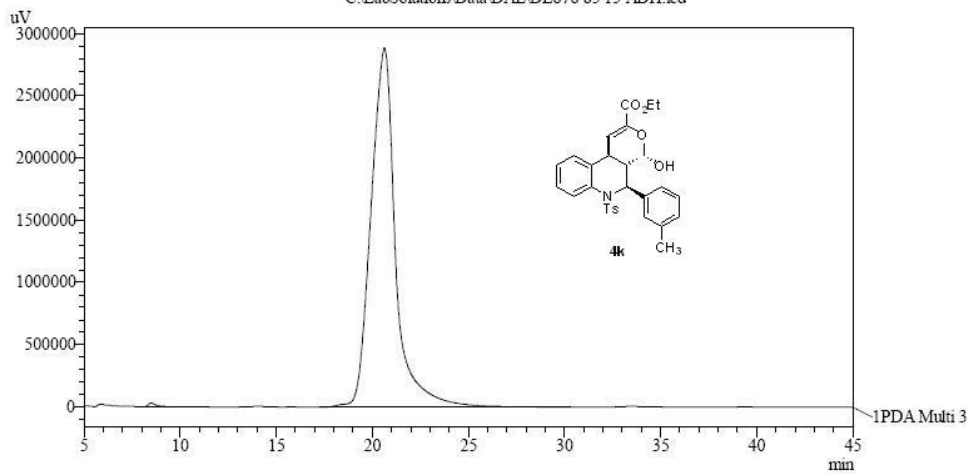


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	8.427	49289291	1500585	49.611
2	19.884	50061724	703543	50.389
Total		99351015	2204128	100.000

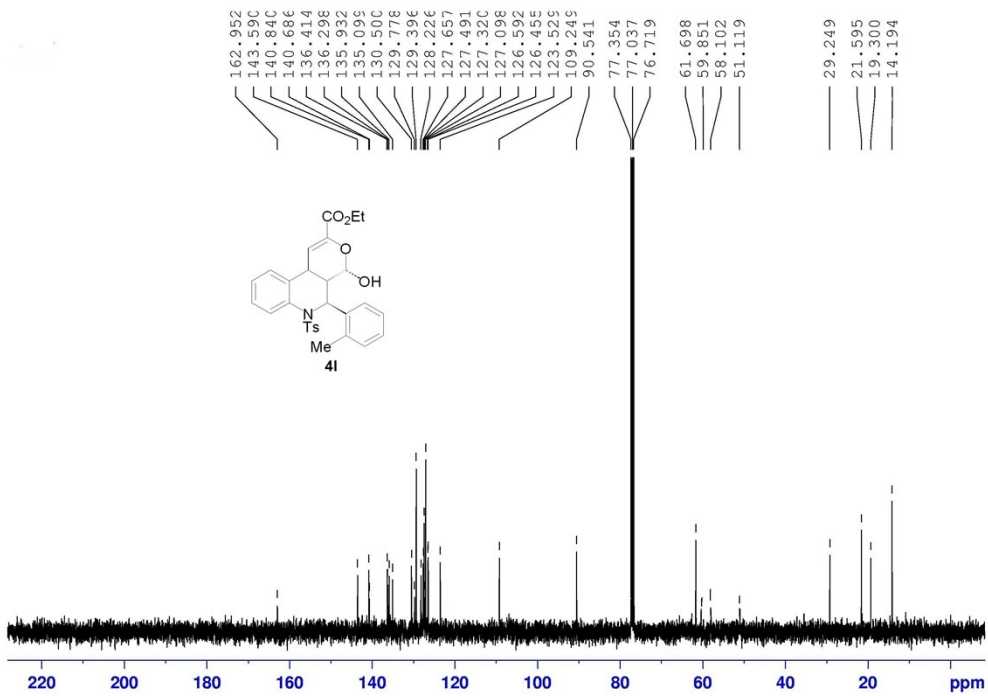
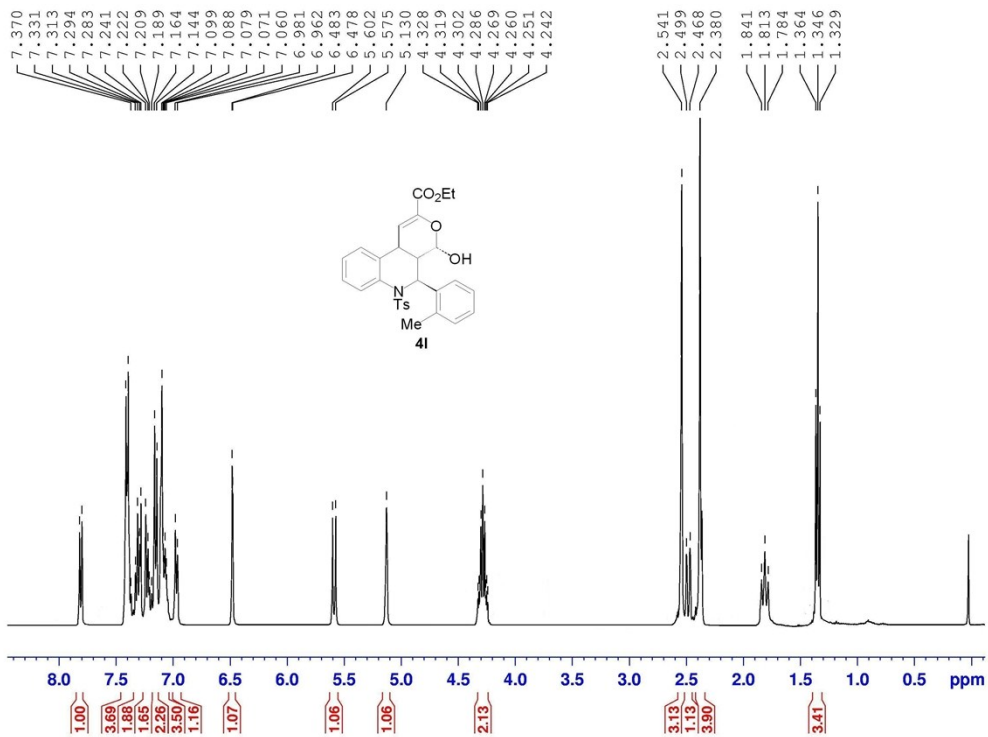
Chromatogram
C:\LabSolutions\Data\DAL\DL878 85-15 ADH.lcd

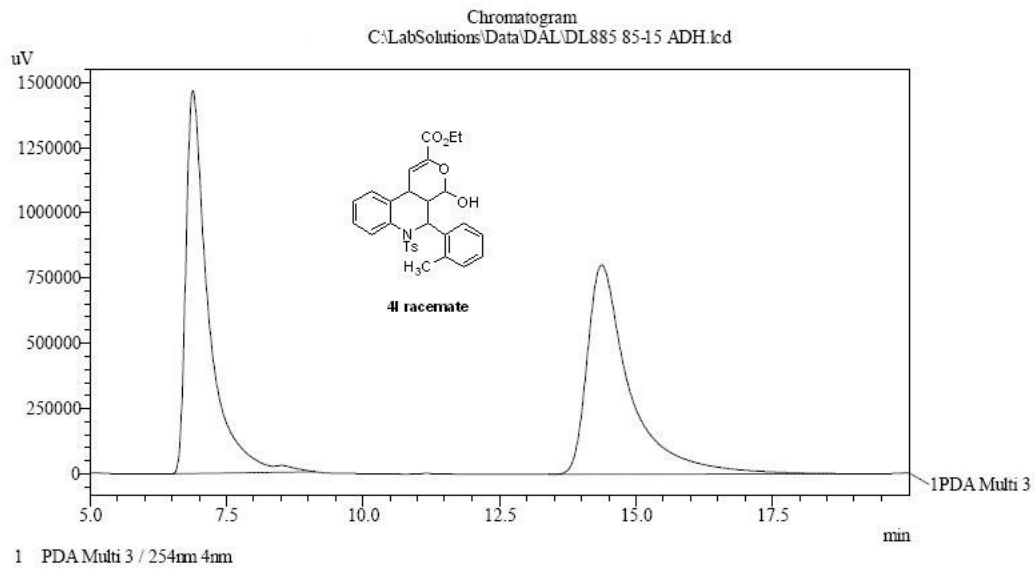


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	8.484	841559	29900	0.327
2	20.626	256797173	2893169	99.673
Total		257638732	2923070	100.000

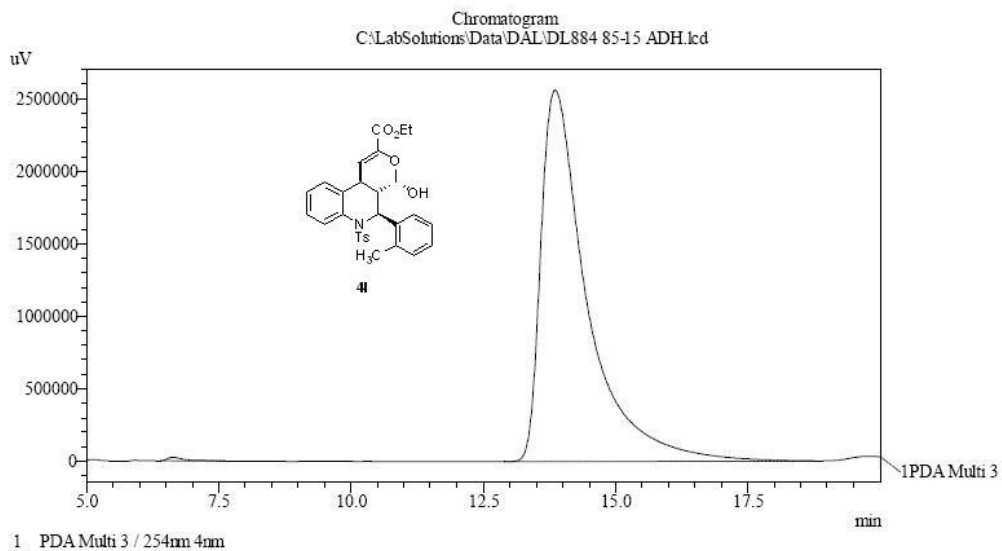




PeakTable

PDA Ch3 254nm 4nm

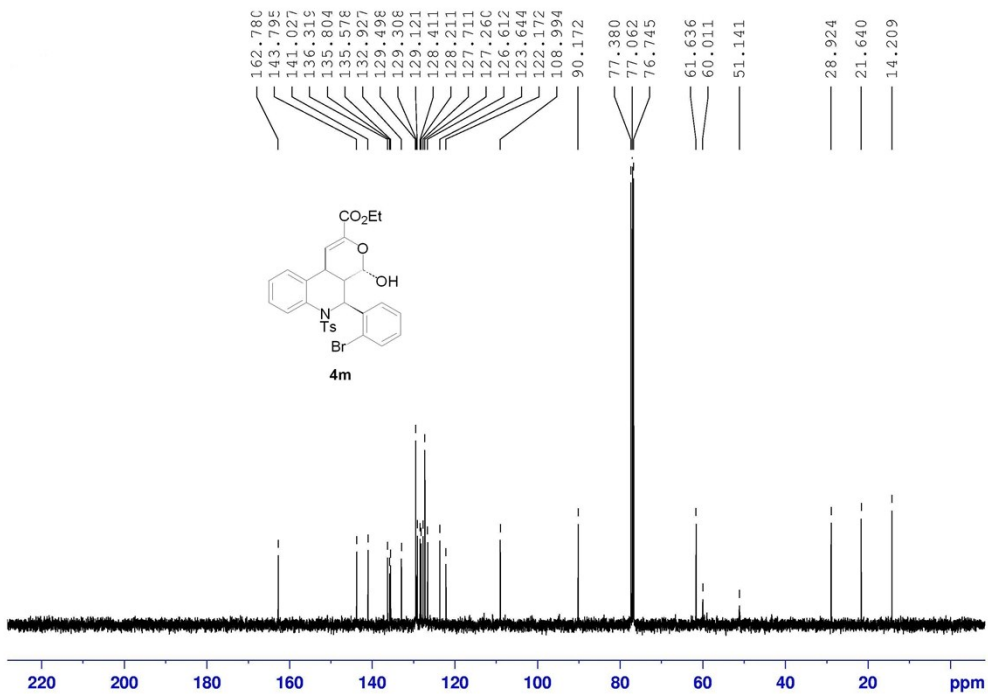
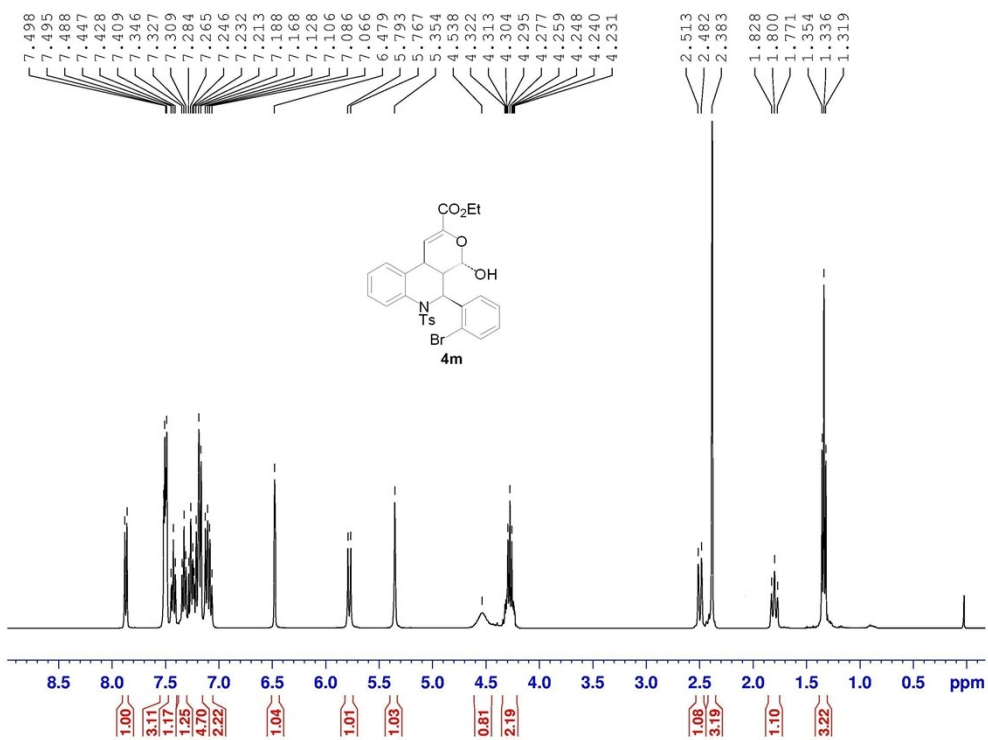
Peak#	Ret. Time	Area	Height	Area %
1	6.883	42466097	1468262	49.497
2	14.368	43328841	802340	50.503
Total		85794938	2270602	100.000

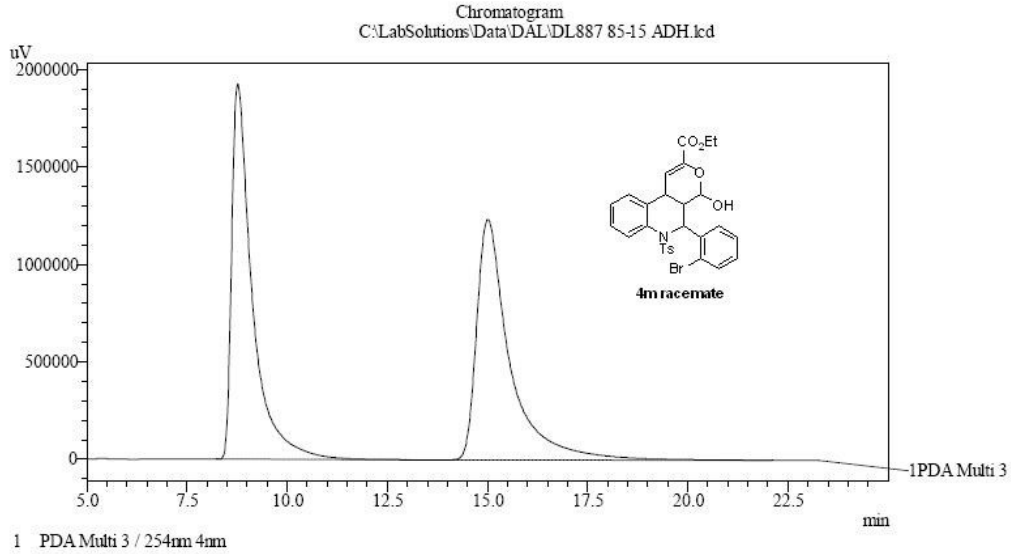


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	6.630	610730	25335	0.391
2	13.851	155667766	2562500	99.609
Total		156278496	2587835	100.000

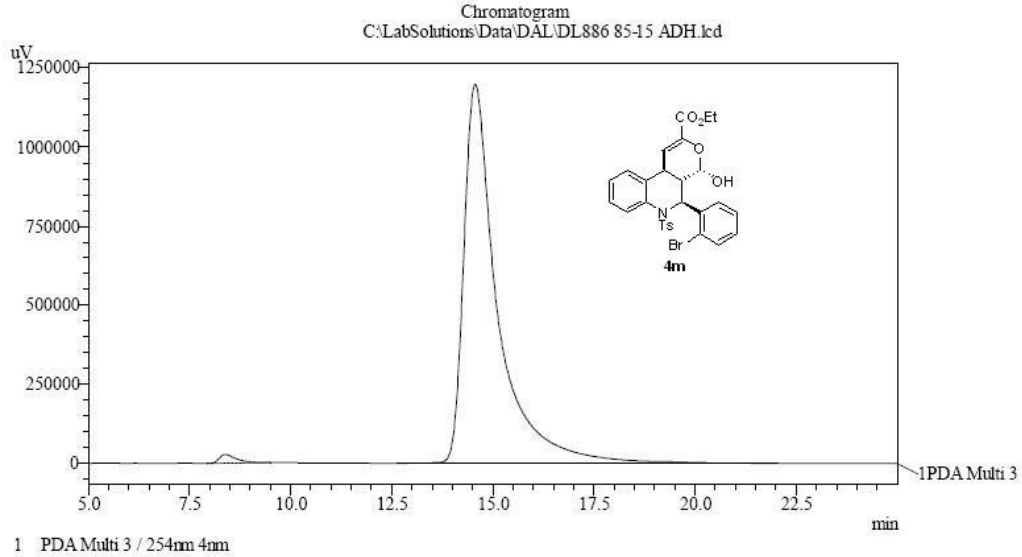




PeakTable

PDA Ch3 254nm 4nm

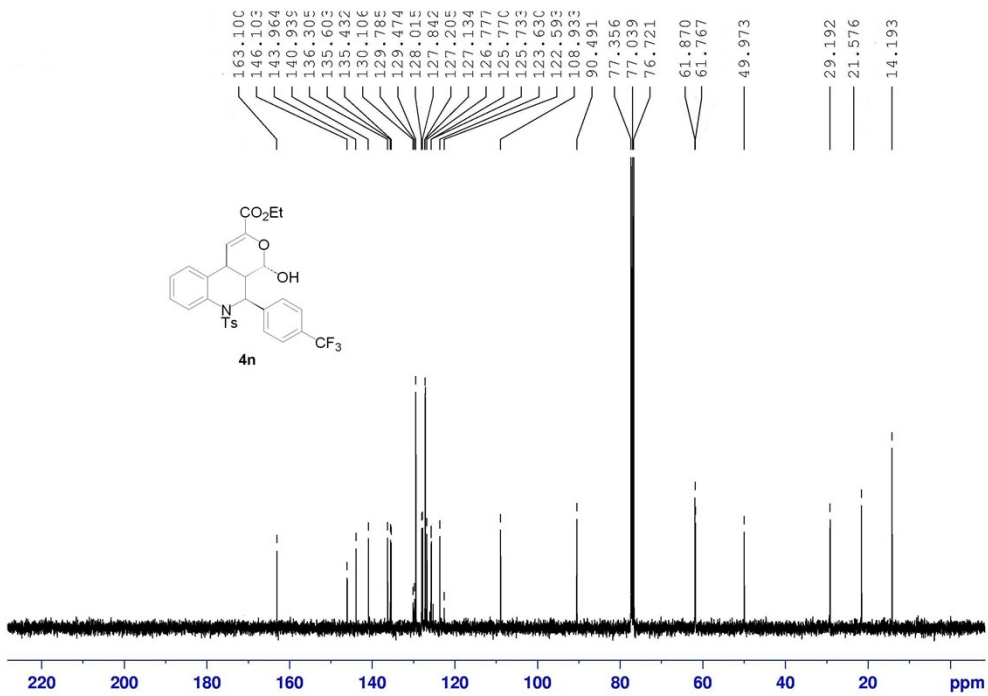
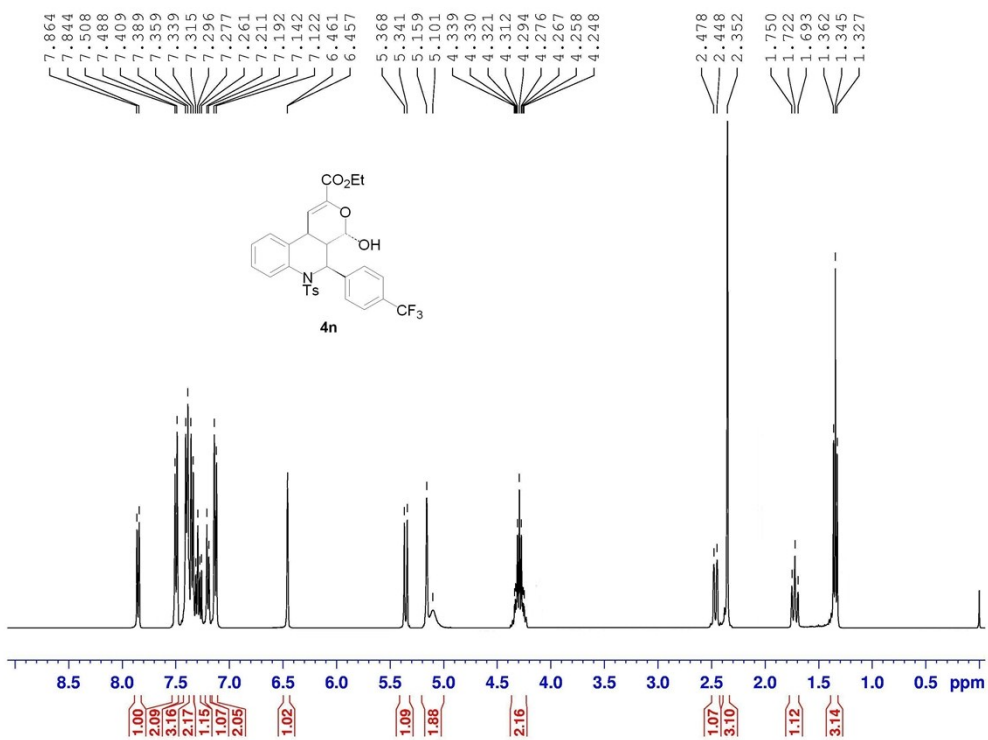
Peak#	Ret. Time	Area	Height	Area %
1	8.766	68974819	1925868	49.154
2	15.007	71349248	1234177	50.846
Total		140324067	3160045	100.000

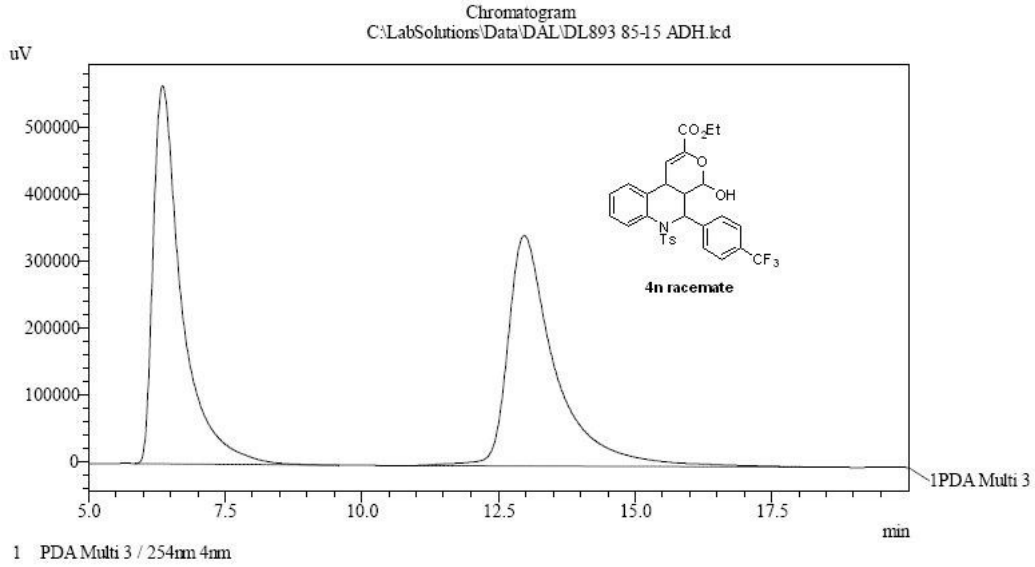


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	8.382	826879	27730	1.167
2	14.561	70020614	1199109	98.833
Total		70847493	1226839	100.000

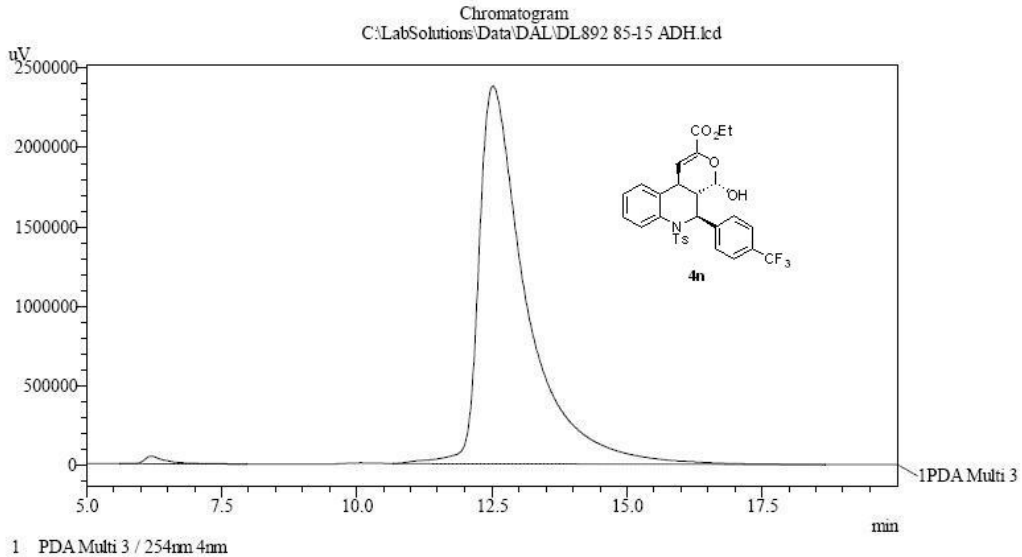




PeakTable

PDA Ch3 254nm 4nm

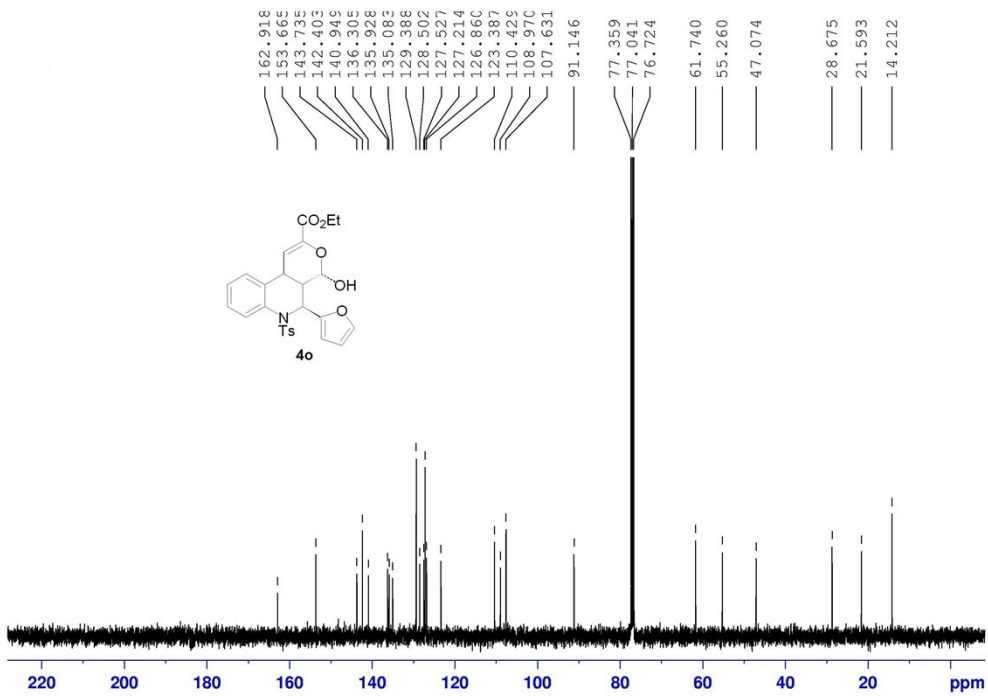
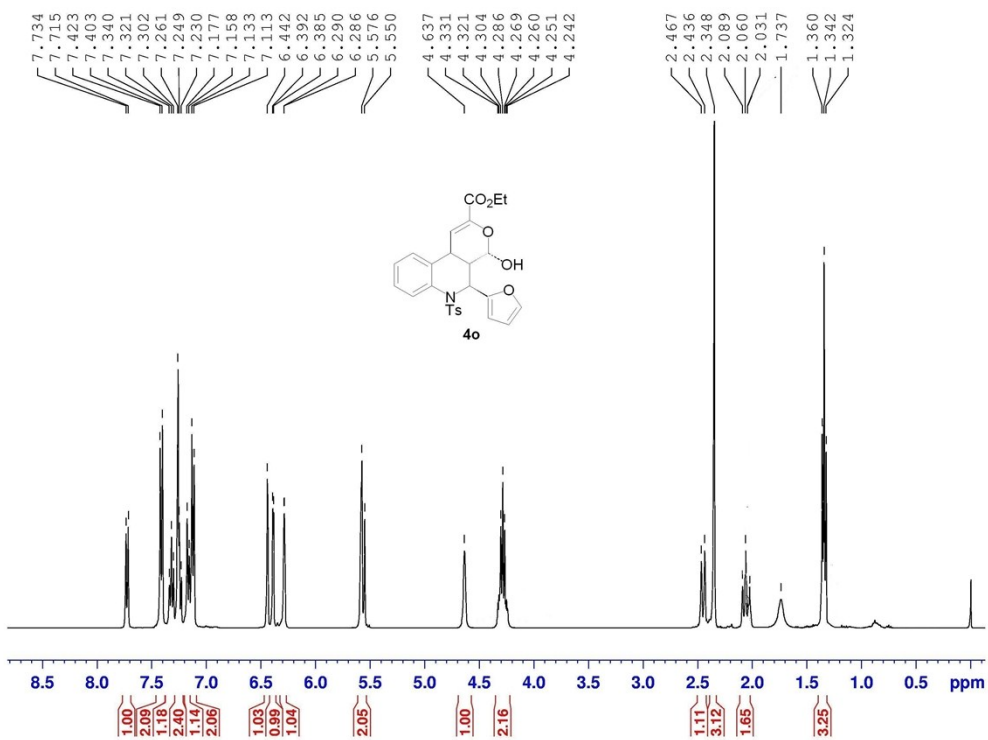
Peak#	Ret. Time	Area	Height	Area %
1	6.355	20409154	564175	49.537
2	12.969	20790918	344056	50.463
Total		41200073	908231	100.000

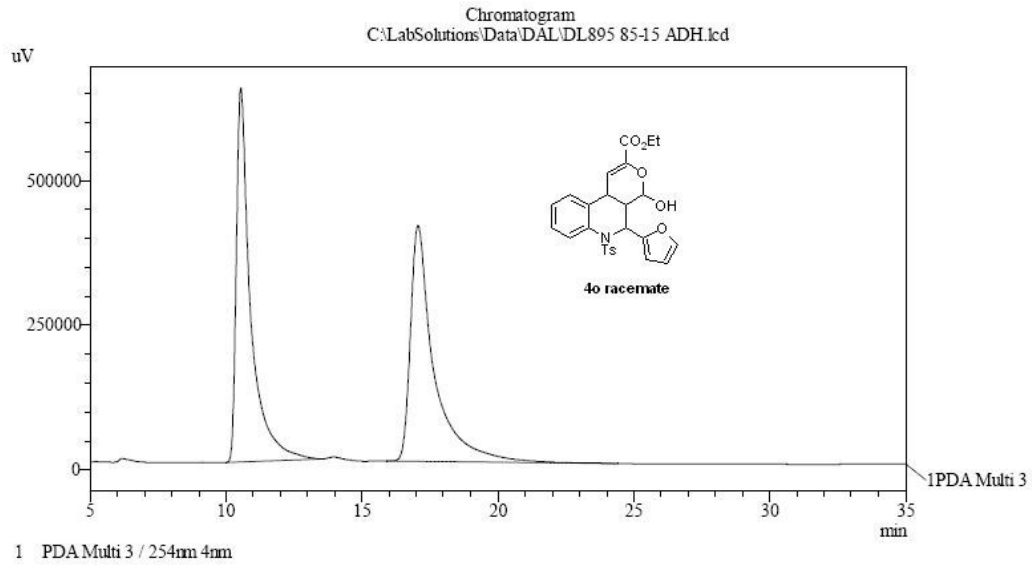


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	6.198	1328128	47290	0.902
2	12.521	145896697	2376854	99.098
Total		147224825	2424144	100.000

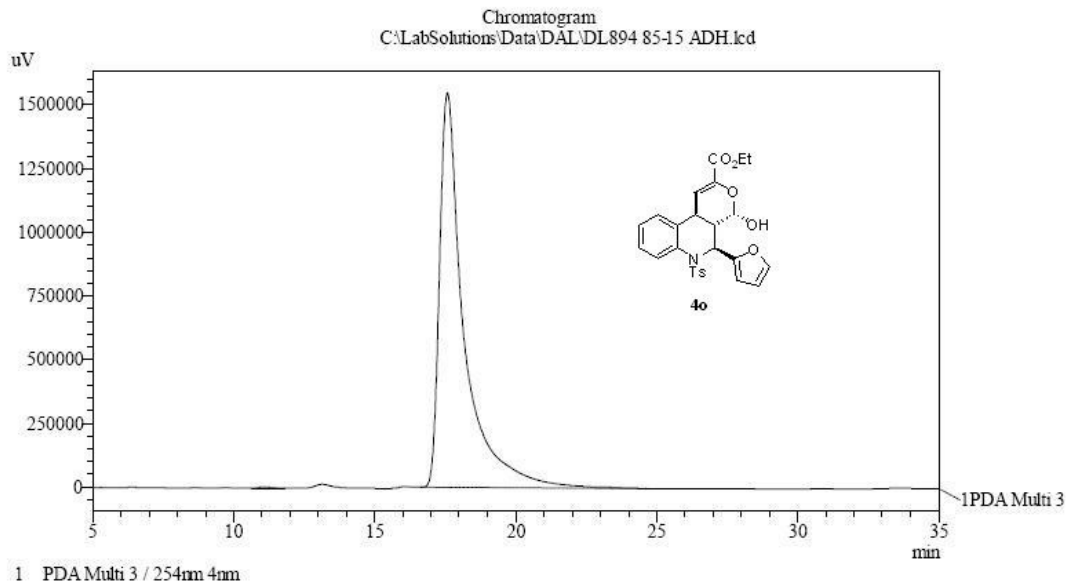




PeakTable

PDA Ch3 254nm 4nm

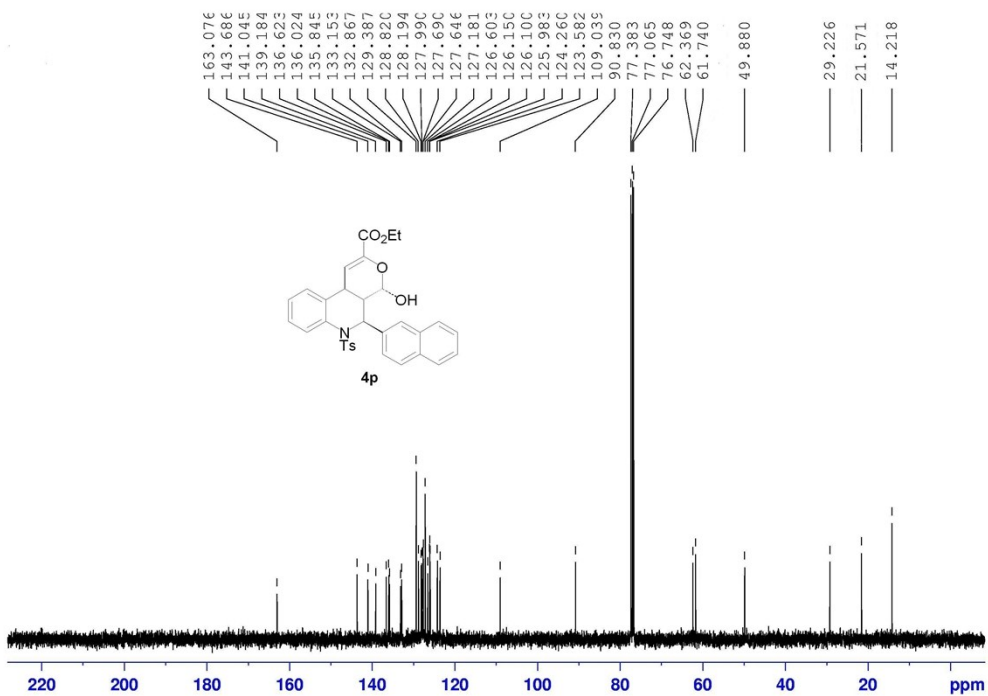
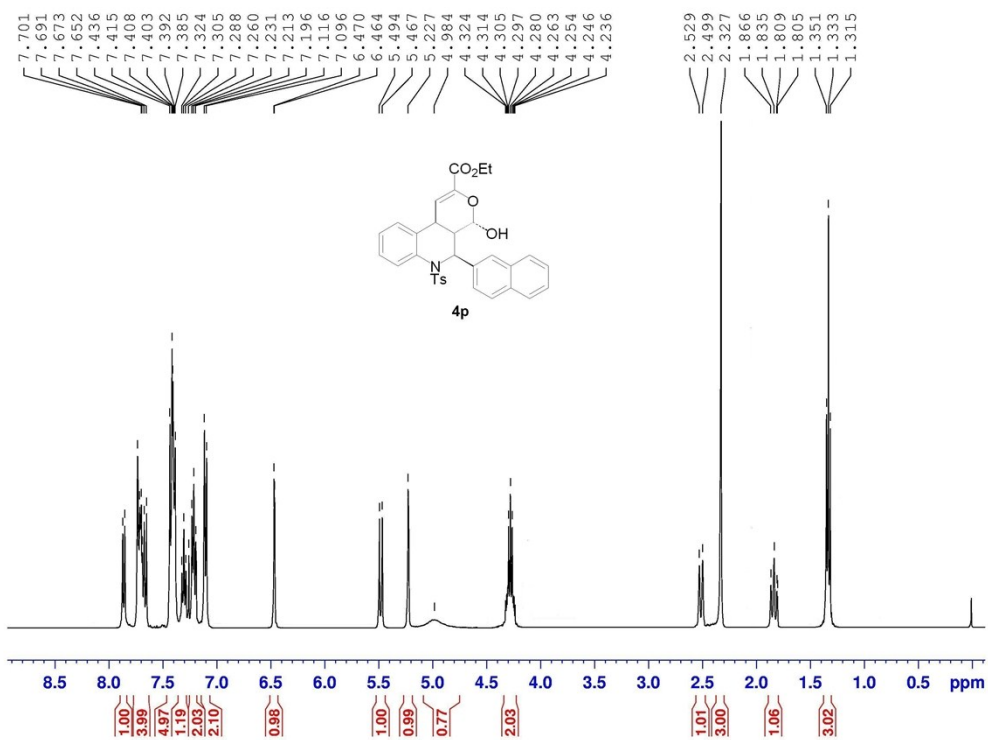
Peak#	Ret. Time	Area	Height	Area %
1	10.543	23629033	646045	48.958
2	17.060	24634626	407596	51.042
Total		48263660	1053641	100.000



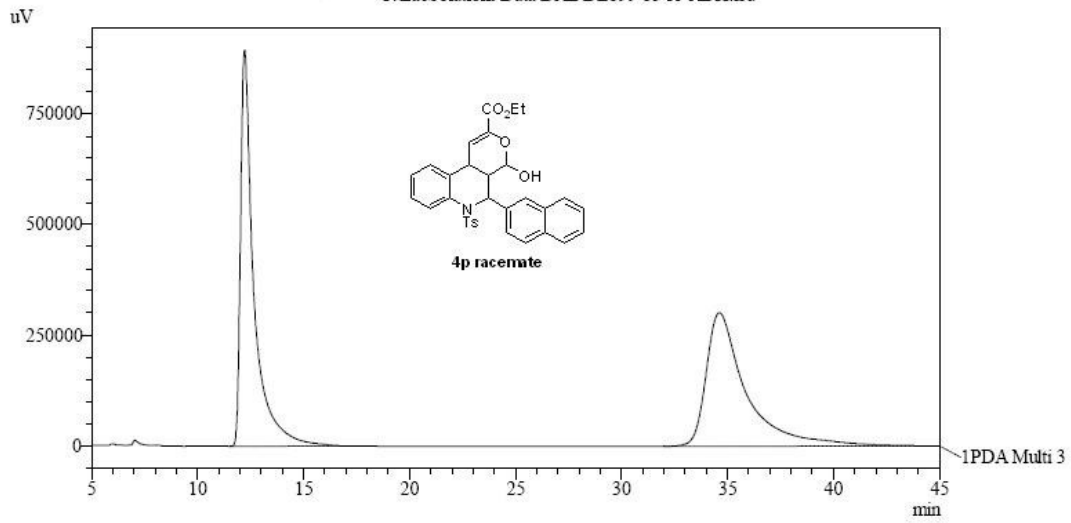
PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	11.059	156880	5300	0.167
2	17.576	94001519	1549048	99.833
Total		94158399	1554349	100.000



Chromatogram
C:\LabSolutions\Data\DAL\DL899 85-15 ADH.lcd

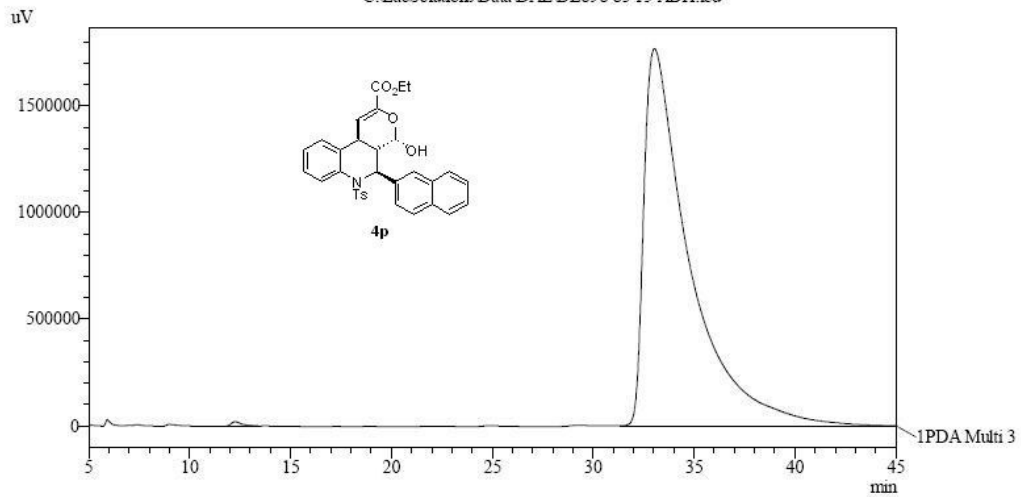


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	12.216	39231037	896084	49.710
2	34.616	39689266	302238	50.290
Total		78920303	1198321	100.000

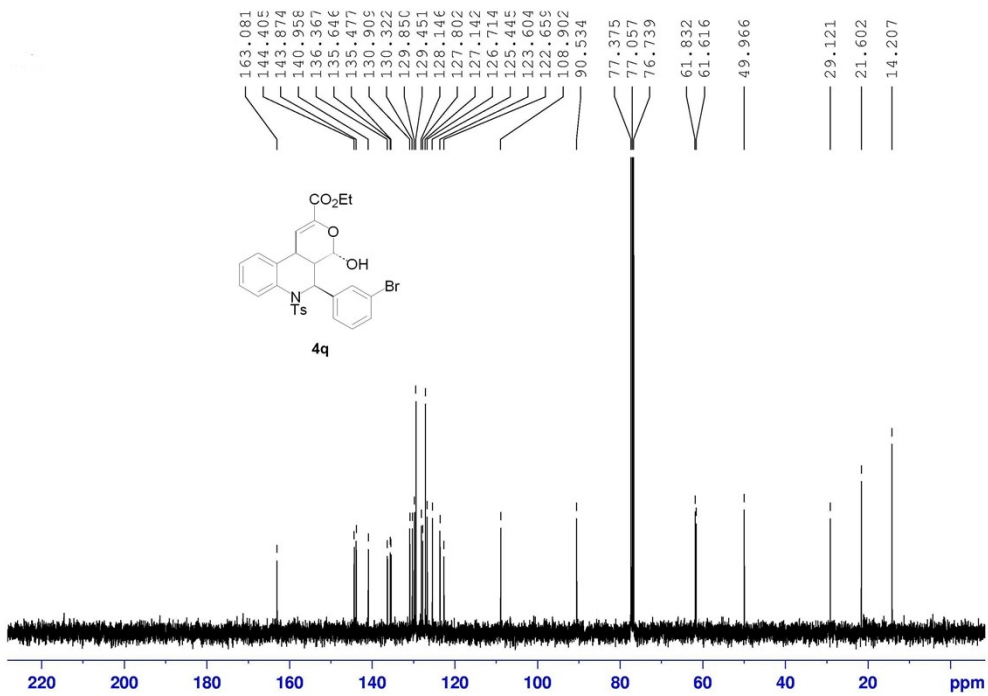
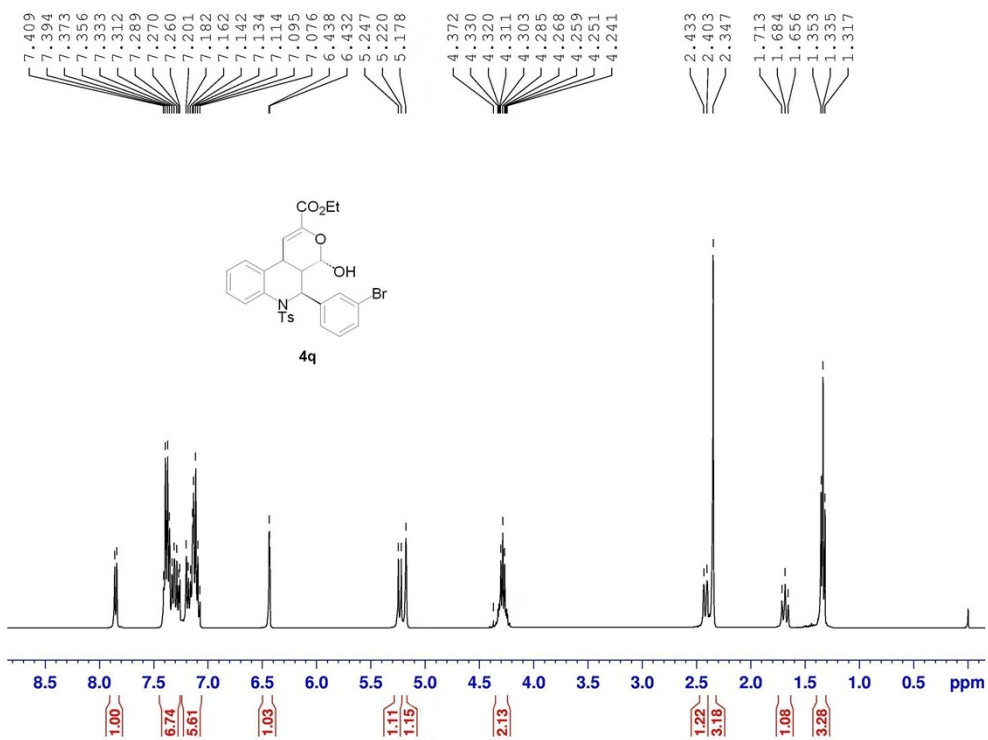
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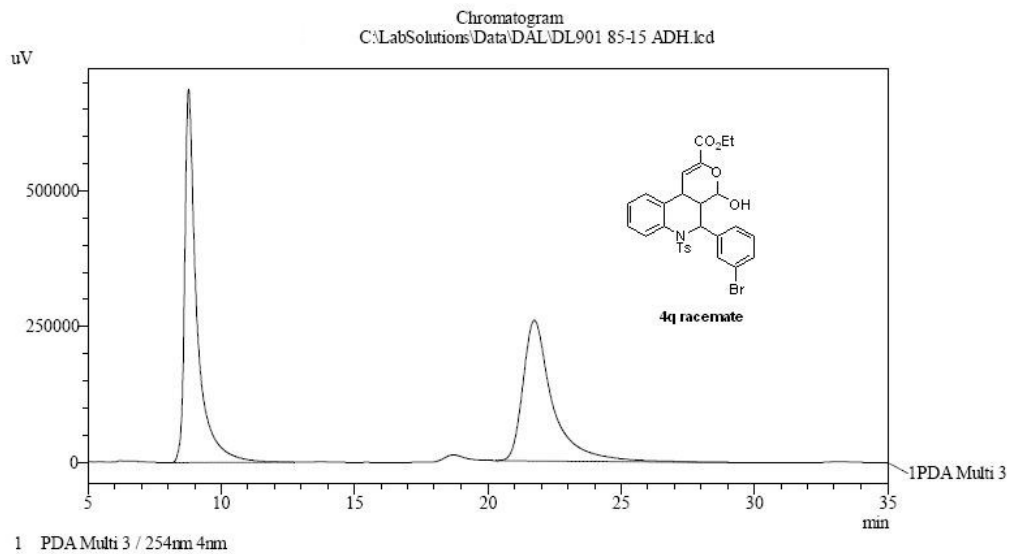


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	12.254	800693	21189	0.290
2	33.042	275483765	1765879	99.710
Total		276284458	1787068	100.000

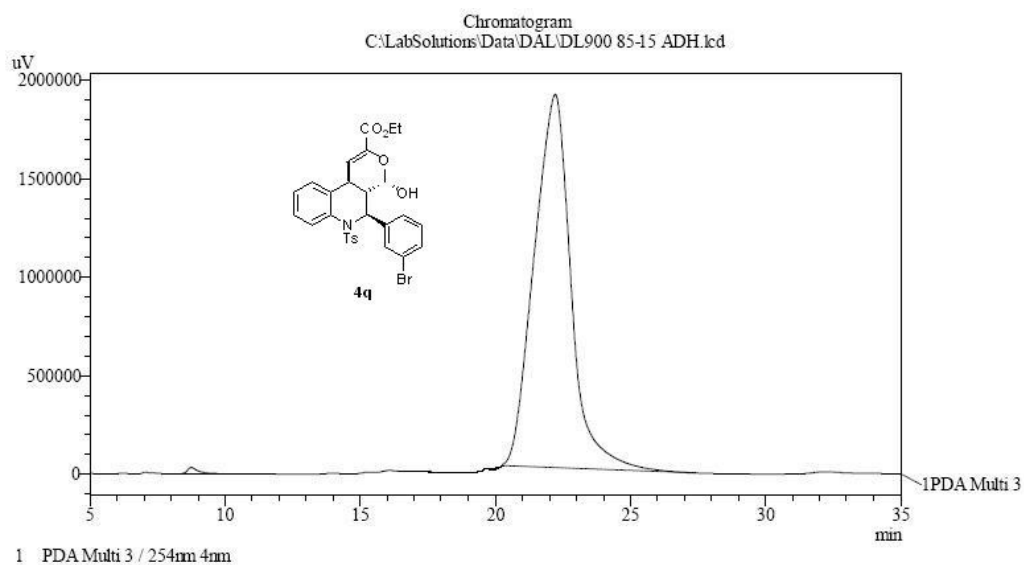




PeakTable

PDA Ch3 254nm 4nm

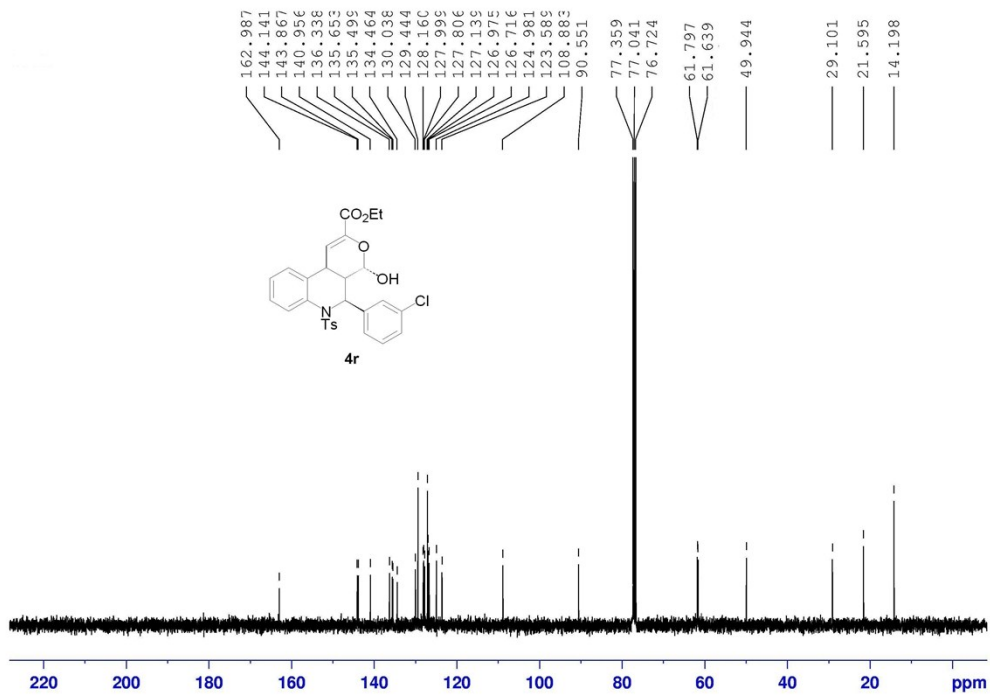
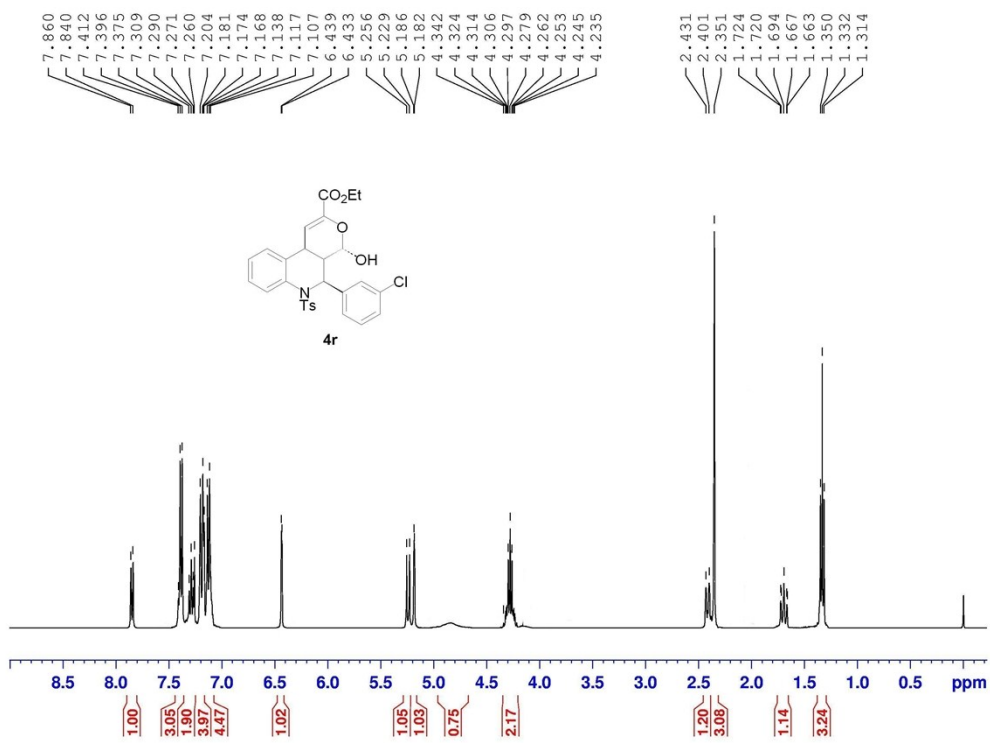
Peak#	Ret. Time	Area	Height	Area %
1	8.776	21866107	687654	52.410
2	21.743	19855334	258851	47.590
Total		41721441	946505	100.000

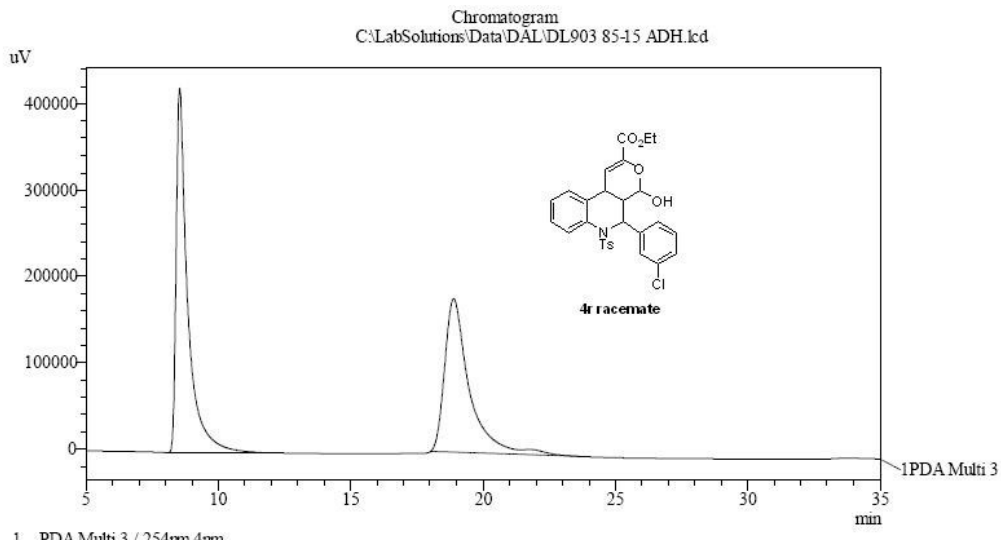


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	8.748	959726	32661	0.532
2	22.216	179366639	1895011	99.468
Total		180326365	1927672	100.000

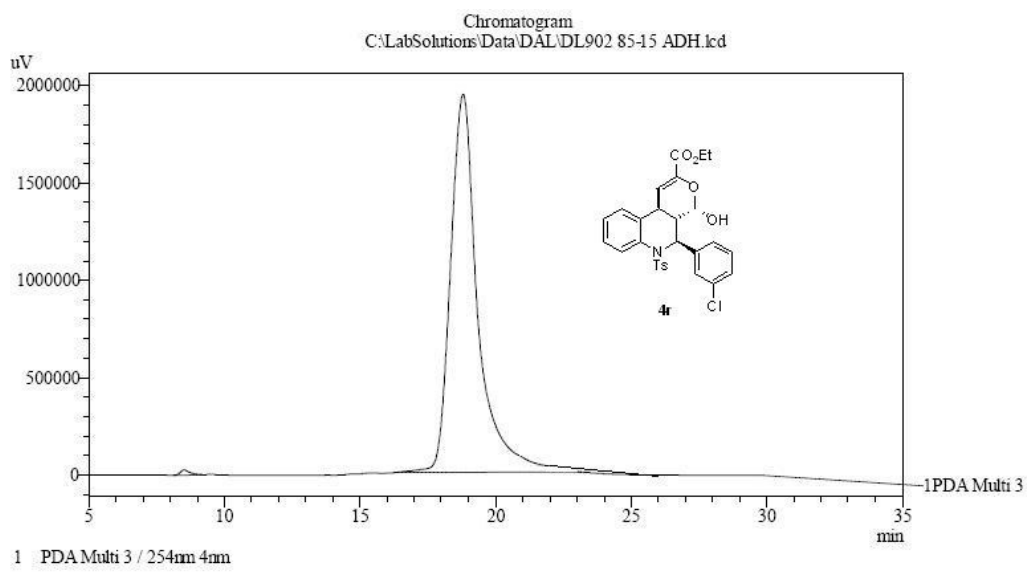




PeakTable

PDA Ch3 254nm 4nm

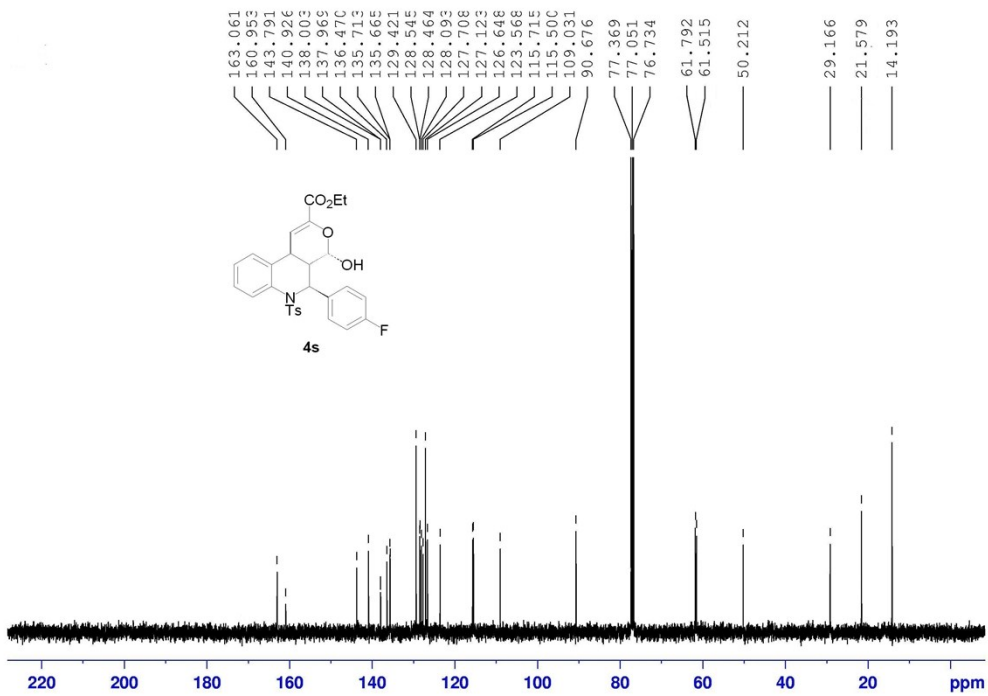
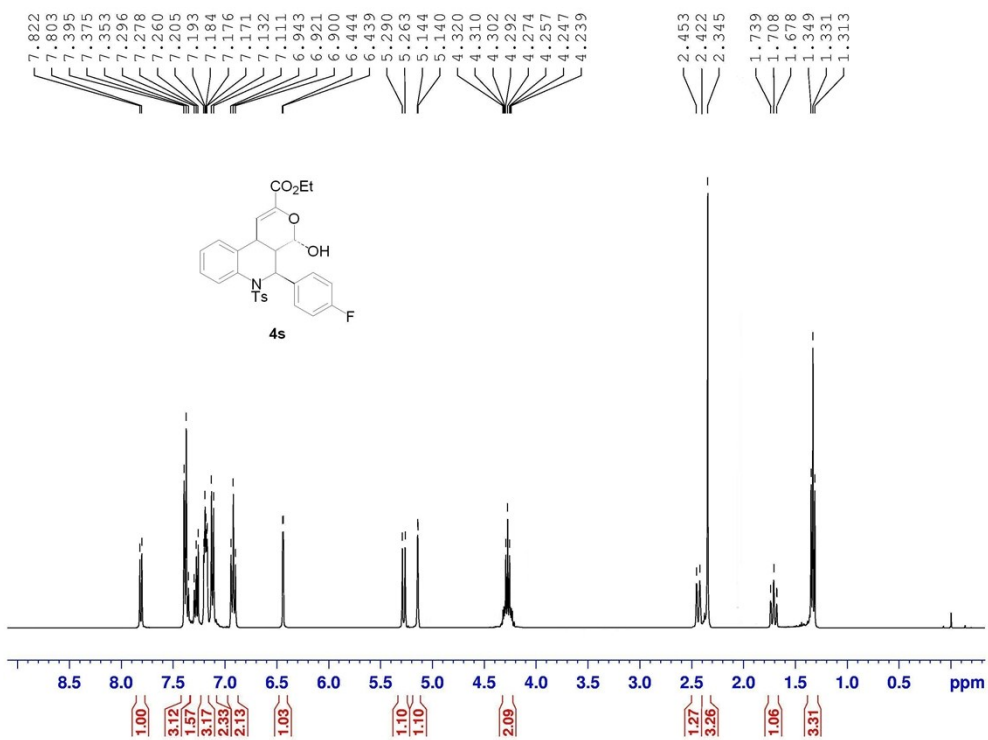
Peak#	Ret. Time	Area	Height	Area %
1	8.538	12811214	422466	52.675
2	18.887	11509876	177573	47.325
Total		24321090	600038	100.000

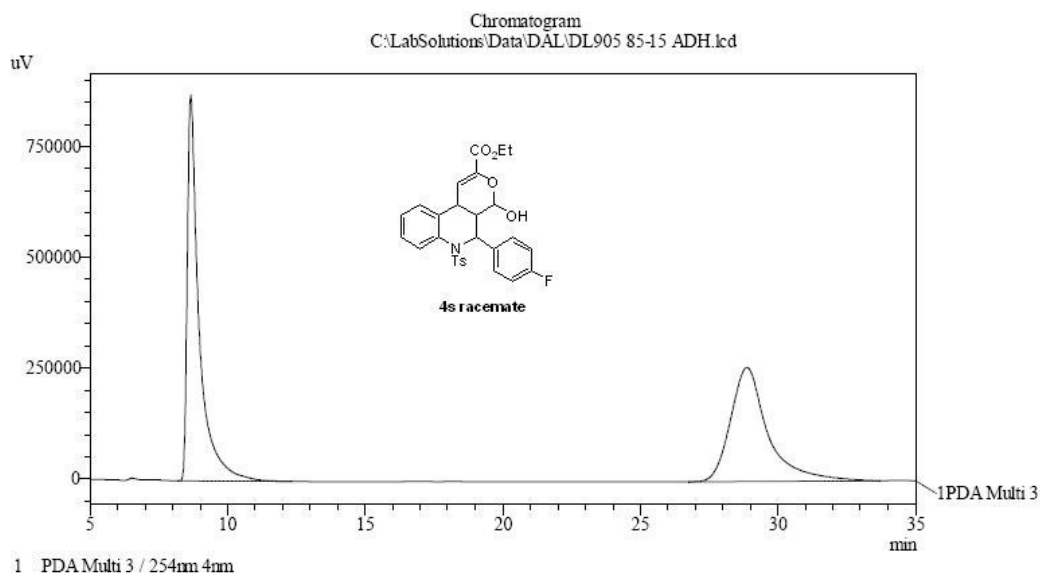


PeakTable

PDA Ch3 254nm 4nm

Peak#	Ret. Time	Area	Height	Area %
1	8.509	646207	26241	0.463
2	18.801	138963241	1939854	99.537
Total		139609448	1966095	100.000

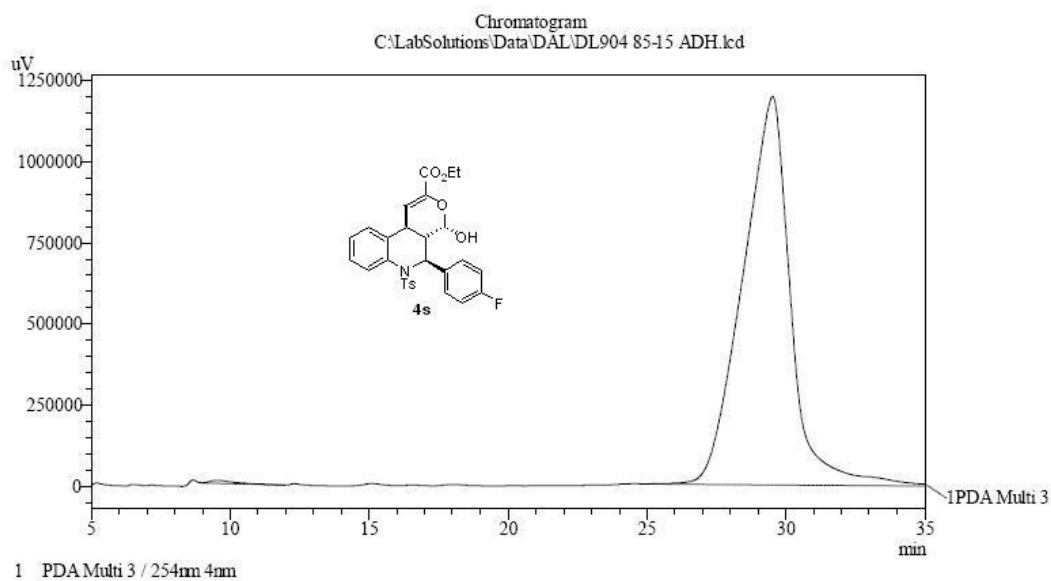




PeakTable

PDA Ch3 254nm 4mm

Peak#	Ret. Time	Area	Height	Area %
1	8.659	26257762	870744	52.074
2	28.871	24166532	257202	47.926
Total		50424294	1127946	100.000



PeakTable

PDA Ch3 254nm 4mm

Peak#	Ret. Time	Area	Height	Area %
1	9.504	553293	8934	0.385
2	29.514	143036831	1196088	99.615
Total		143590124	1205023	100.000