Catalytic Asymmetric Synthesis of Allylic Thiol Derivatives

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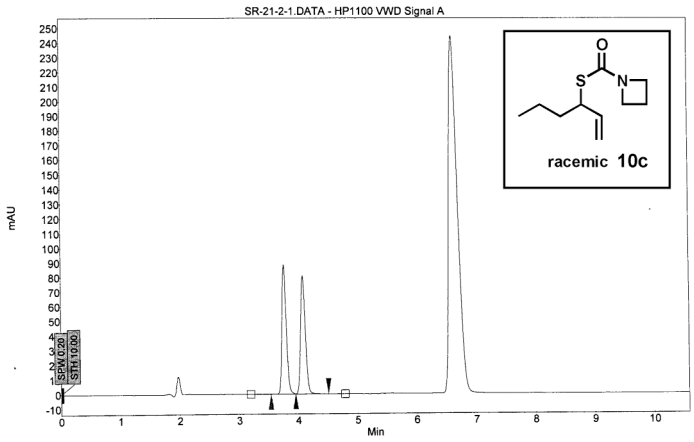
Supporting Information – Table of Contents

SFC and GC Traces used to Determine Enantiomeric Purity.

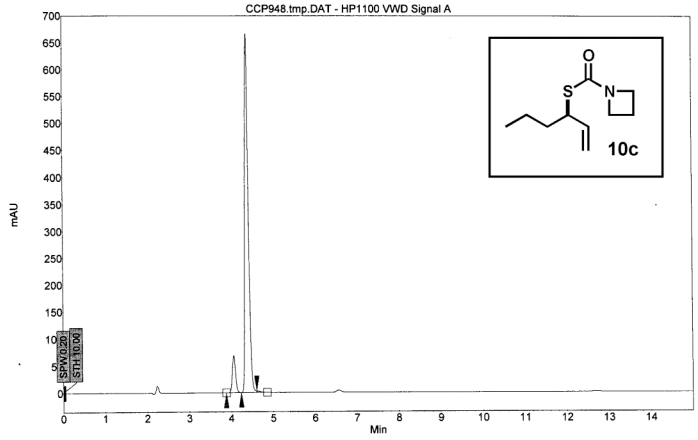
SR-1-21-2

Date:5/29/2007
Time:4:25:24 PM
Method Name:SR-2-OB
Run Name:SR-21-2-1
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



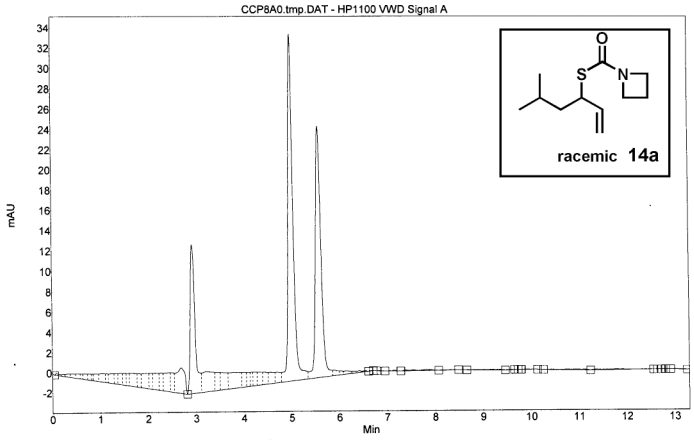
Index	Name	Start	Time	End	RT Offset	Quantity	Height	Area	Area
		[Min]	[Min]	[Min]	[Min]	[% Area]	[µV]	[µV.Min]	[%]
1	UNKNOWN	3.53	3.76	3.95	0.00	50.12	88.5	7.6	50.121
2	UNKNOWN	3.95	4.08	4.50	0.00	49.88	80.9	7.5	49.879
Total						100.00	169.4	15.1	100.000

Date:8/14/2007
Time:11:19:41 AM
Method Name:SR-2-OB
Run Name:SR-1-91-34
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



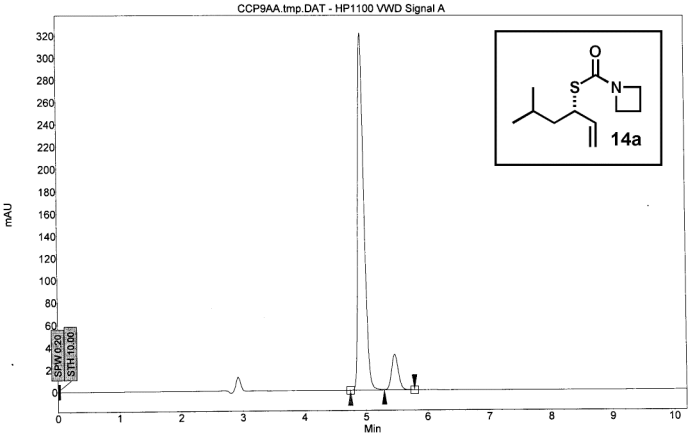
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	3.88	4.06	4.24	69.0	6.1	8.484
2	UNKNOWN	4.24	4.38	4.60	666.4	66.0	91.516
Total					735.4	72.1	100.000

Date:6/4/2007
Time:6:30:13 PM
Method Name:SR-3-OB
Run Name:SR-1-28-30
Runinfo:OB column,10% IPA, 230 nm, 1.0ml/min



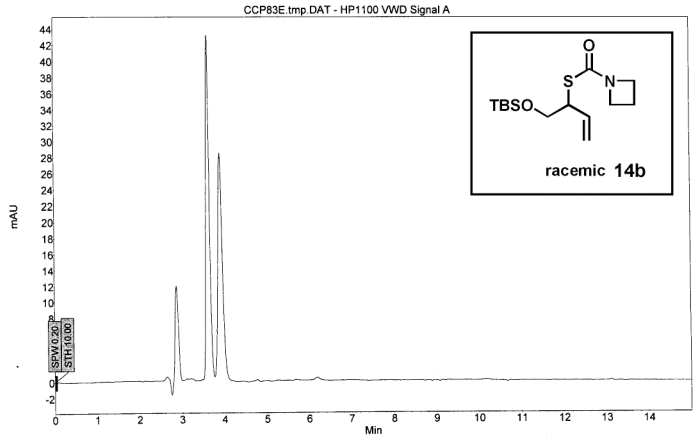
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	0.04	0.08	0.18	0.2	0.0	0.138
2	UNKNOWN	0.18	0.26	0.26	0.2	0.0	0.098
3	UNKNOWN	0.26	0.37	0.37	0.3	0.0	0.216

Date:6/9/2007
Time:12:09:50 PM
Method Name:SR-3-OB
Run Name:SR-1-31-40
Runinfo:OB column,10% IPA, 230 nm, 1.0ml/min



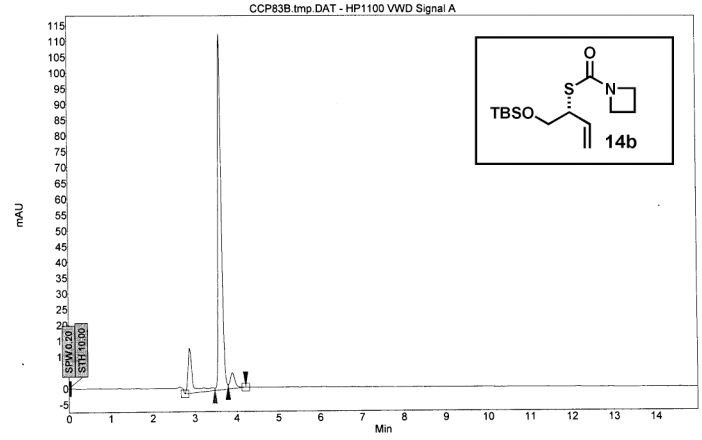
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	4.75	4.94	5.30	321.9	36.9	89.960
2	UNKNOWN	5.30	5.47	5.79	32.2	4.1	10.040
Total					354.1	41.0	100.000

Date:6/3/2007
Time:3:16:36 PM
Method Name:SR-3-OB
Run Name:SR-1-26-30
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



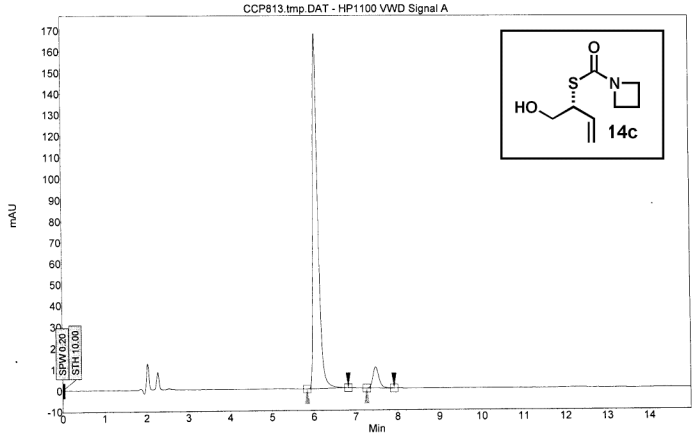
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
Total					0.0	0.0	0.000

Date:6/3/2007
Time:3:04:06 PM
Method Name:SR-3-OB
Run Name:SR-1-14-20
Runinfo:OB column,10% IPA, 230 nm, 1.0ml/min



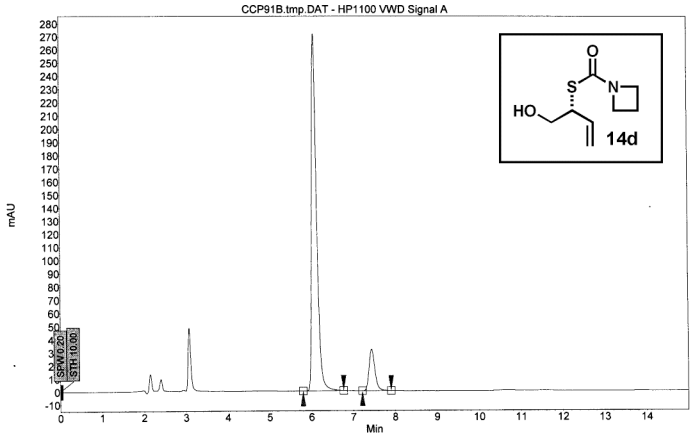
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	3.48	3.63	3.79	113.0	10.7	94.053
2	UNKNOWN	3.79	3.90	4.21	5.0	0.7	5.947
Total					118.0	11.3	100.000

Date:7/24/2007
Time:11:20:36 AM
Method Name:SR-2-OB
Run Name:SR-1-67-34
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	5.84	6.07	6.82	168.2	23.8	93.450
2	UNKNOWN	7.26	7.48	7.92	10.1	1.7	6.550
Total					178.3	25.5	100.000

Date:8/11/2007
Time:12:35:43 PM
Method Name:SR-2-OB
Run Name:SR-1-90-44
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



Index	Name	Start	Time	End	Height	Area	Area
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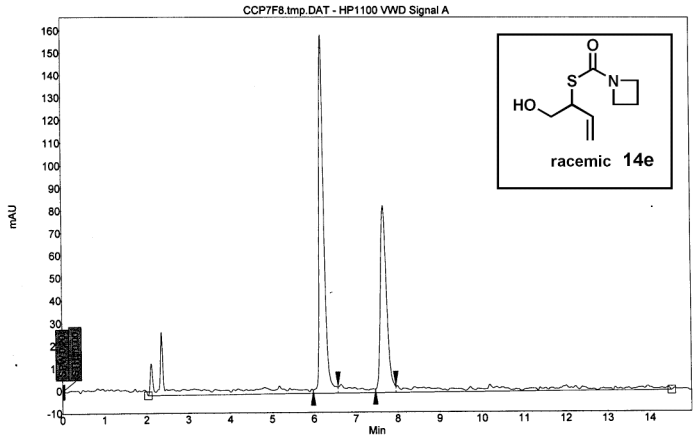
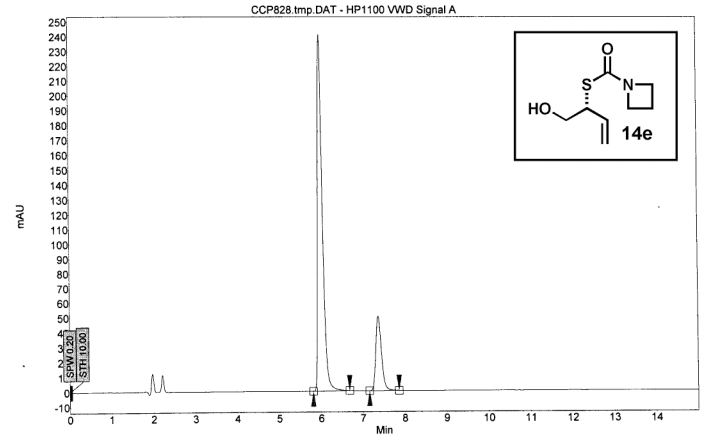
1	UNKNOWN	5.80	6.08	6.76	272.0	37.9	88.085
2	UNKNOWN	7.22	7.44	7.90	31.8	5.1	11.915
Total					303.8	43.1	100.000

Date:6/27/2007
Time:2:48:47 PM
Method Name:SR-2-OB
Run Name:SR-1-48-124
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



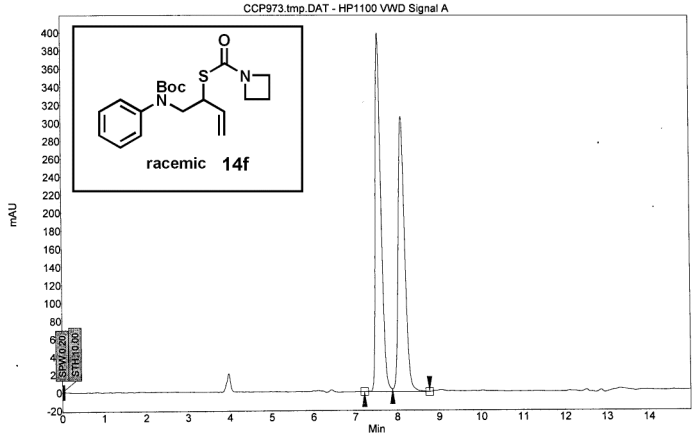
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	5.98	6.21	6.57	159.6	21.0	59.240
2	UNKNOWN	7.47	7.67	7.95	83.3	14.4	40.760
Total					242.9	35.4	100.000

Date:6/28/2007
Time:4:36:07 PM
Method Name:SR-2-OB
Run Name:SR-1-50-34
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



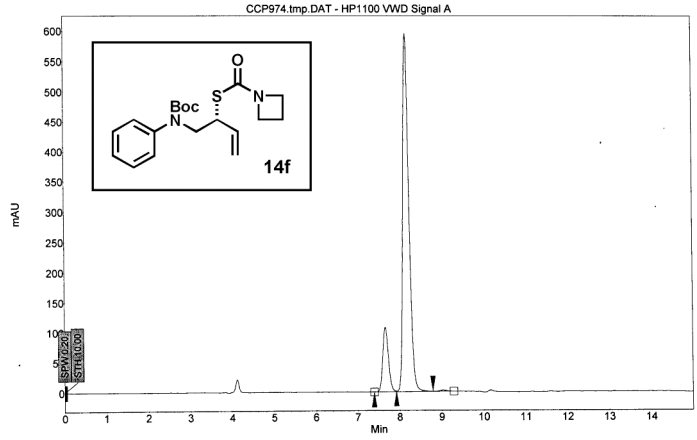
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	5.81	6.00	6.68	241.1	32.1	80.386
2	UNKNOWN	7.15	7.37	7.86	50.0	7.8	19.614
Total					291.1	39.9	100.000

Date:9/25/2007
Time:9:33:52 AM
Method Name:SR-2-AD
Run Name:SR-1-131-AD-10
Runinfo:AD column,10% IPA, 230 nm, 1.5ml/min



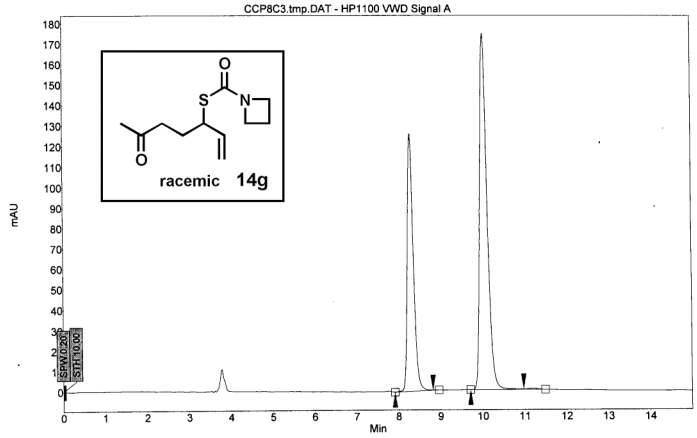
Index	Name	Start	Time	End	RT Offset	Quantity	Height	Area	Area
		[Min]	[Min]	[Min]	[Min]	[% Area]	[µV]	[µV.Min]	[%]
1	UNKNOWN	7.22	7.58	7.89	0.00	52.68	399.7	61.9	52.677
2	UNKNOWN	7.89	8.13	8.77	0.00	47.32	306.9	55.6	47.323
Total						100.00	706.7	117.6	100.000

Date:9/25/2007
Time:9:44:38 AM
Method Name:SR-2-AD
Run Name:SR-1-132-AD-60
Runinfo:AD column,10% IPA, 230 nm, 1.5ml/min



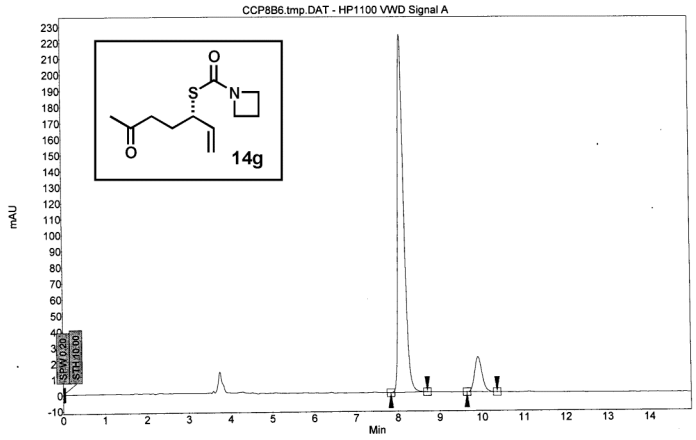
Index	Name	Start	Time	End	RT Offset	Quantity	Height	Area	Area
		[Min]	[Min]	[Min]	[Min]	[% Area]	[µV]	[µV.Min]	[%]
1	UNKNOWN	7.39	7.66	7.92	0.00	14.30	107.1	16.6	14.295
2	UNKNOWN	7.92	8.18	8.79	0.00	85.70	595.0	99.8	85.705
Total						100.00	702.1	116.5	100.000

Date:9/20/2007
Time:11:29:46 AM
Method Name:SR-2-OB
Run Name:SR-1-127-45
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	7.91	8.30	8.81	126.5	21.1	37.116
2	UNKNOWN	9.71	10.04	10.97	175.0	35.8	62.884
Total					301.5	56.9	100.000

Date:9/20/2007
Time:10:52:04 AM
Method Name:SR-2-OB
Run Name:SR-1-126-45
Runinfo:OB column,10% IPA, 230 nm, 1.5ml/min



Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	7.83	8.11	8.70	224.6	37.6	89.196
2	UNKNOWN	9.65	9.91	10.36	22.2	4.6	10.804
Total					246.7	42.2	100.000

```
==================================================================
Injection Date  : 11/14/2007 2:27:56 PM
Sample Name     : swr-1-136                    Location : Vial 1
Acq. Operator   : SCOTT                           Inj :   1
Acq. Instrument : Instrument 2                 Inj Volume : Manually
Acq. Method     : C:\HPCHEM\2\METHODS\SCOTT\SCOTT.M
Last changed    : 11/14/2007 2:23:08 PM by angie
                  (modified after loading)
Analysis Method : C:\HPCHEM\2\METHODS\SCOTT\SCOTT.M
Last changed    : 11/14/2007 2:58:45 PM by SCOTT
                  (modified after loading)
Checkout first runs on new instrument
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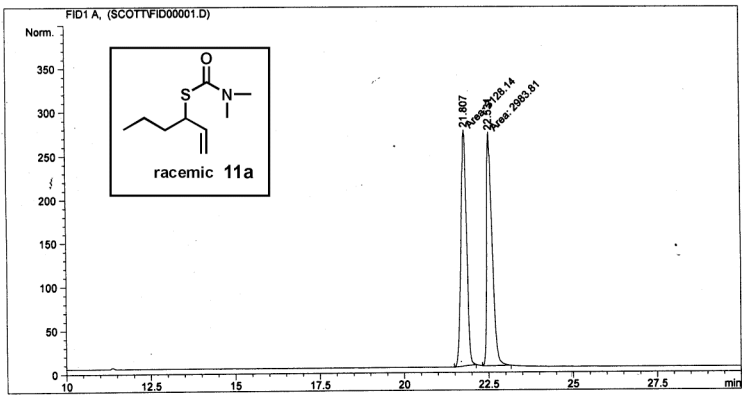

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
6	2.228		0.0000	0.00000	0.00000	acenaphthalene
7	2.266		0.0000	0.00000	0.00000	dodecanol
8	2.528		0.0000	0.00000	0.00000	C15
9	21.807	MM	0.1928	3128.13940	51.18075	?
10	22.531	MM	0.1861	2983.80566	48.81925	?

```
Totals :                    6111.94507

 Results obtained with standard integrator!
1 Warnings or Errors :

Warning : Calibrated compound(s) not found
```

```
120 C/100 min  Flow: 1.5 mL/min
Agilent 112-6632, Cyclosil-B, Capillary 30.0m x 250um x
 0.25um nominal, 250 degree centigrade max
CH2CH2Ph PhOH rac std

==================================================================
Injection Date  : 11/14/2007 3:03:18 PM
Sample Name     : swr-1-144                    Location : Vial 1
Acq. Operator   : SCOTT                           Inj :   1
Acq. Instrument : Instrument 2                 Inj Volume : Manually
Acq. Method     : C:\HPCHEM\2\METHODS\SCOTT\SCOTT.M
Last changed    : 11/14/2007 2:58:45 PM by SCOTT
                  (modified after loading)
Analysis Method : C:\HPCHEM\2\METHODS\SCOTT\SCOTT.M
Last changed    : 11/14/2007 3:38:51 PM by SCOTT
                  (modified after loading)
Checkout first runs on new instrument
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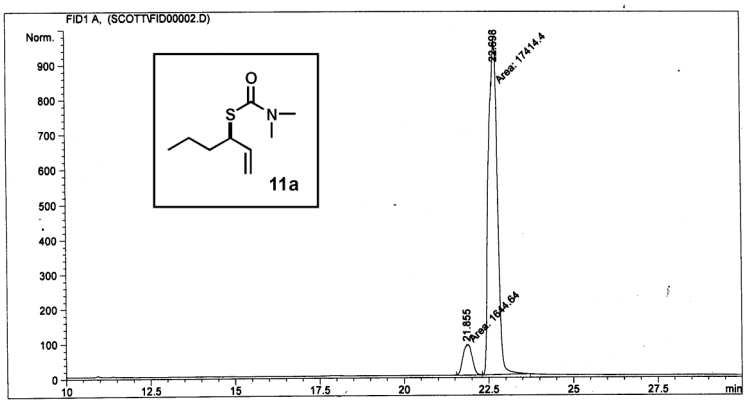

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
6	2.228		0.0000	0.00000	0.00000	acenaphthalene
7	2.266		0.0000	0.00000	0.00000	dodecanol
8	2.528		0.0000	0.00000	0.00000	C15
9	21.855	MM	0.3119	1644.63892	8.62919	?
10	22.698	MM	0.3022	1.74144e4	91.37081	?

Totals : 1.90590e4

Results obtained with standard integrator!
1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Data File C:\HPCHEM\2\DATA\SCOTT\FID00021.D Sample Name: swr-1-162

110 C/120 min Flow: 1.5 mL/min
Agilent 112-6632, Cyclosil-B, Capillary 30.0m x 250um x
0.25um nominal, 250 degree centigrade max
CH2CH2Ph PhOH rac std

Injection Date : 11/19/2007 10:17:28 AM
Sample Name : swr-1-162 Location : Vial 1
Acq. Operator : SCOTT Inj : 1
Acq. Instrument : Instrument 2 Inj Volume : Manually
Acq. Method : C:\HPCHEM\2\METHODS\SCOTT\SCOTT.M
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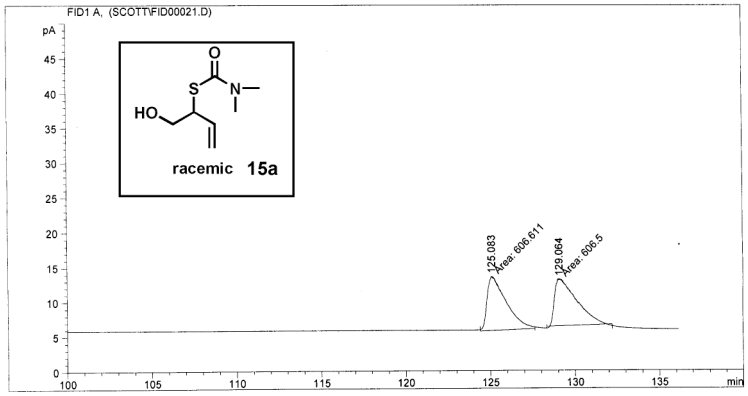
(modified after loading)
Analysis Method : C:\HPCHEM\2\METHODS\SHUTDOWN.M
Last changed : 11/19/2007 5:33:47 PM by SCOTT
(modified after loading)
Checkout first runs on new instrument



Area Percent Report

Sorted By : Signal
Multiplier : 1.0000
Dilution : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	125.083	MM	1.2911	606.61066	7.83068	50.00455
2	129.064	MM	1.4918	606.50018	6.77580	49.99545

Totals : 1213.11084 14.60648

Results obtained with standard integrator!

Data File C:\HPCHEM\2\DATA\SCOTT\FID00023.D Sample Name: swr-1-164

110 C/160 min Flow: 1.5 mL/min
Agilent 112-6632, Cyclosil-B, Capillary 30.0m x 250um x
0.25um nominal, 250 degree centigrade max
CH2CH2Ph PhOH rac std

```
Injection Date  : 11/19/2007 2:57:39 PM
Sample Name     : swr-1-164                    Location : Vial 1
Acq. Operator   : SCOTT                        Inj :  1
Acq. Instrument : Instrument 2                 Inj Volume : Manually
Acq. Method     : C:\HPCHEM\2\METHODS\SCOTT\SCOTT.M
Last changed    : 11/19/2007 2:56:27 PM by SCOTT
                  (modified after loading)
Analysis Method : C:\HPCHEM\2\METHODS\SHUTDOWN.M
Last changed    : 11/19/2007 5:33:47 PM by SCOTT
                  (modified after loading)
Checkout first runs on new instrument
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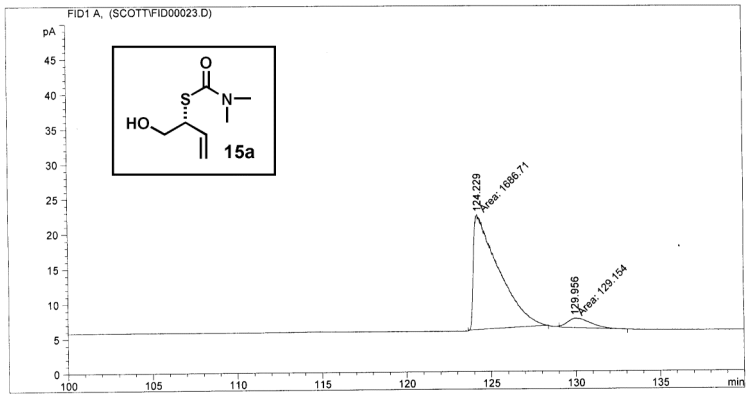


Area Percent Report

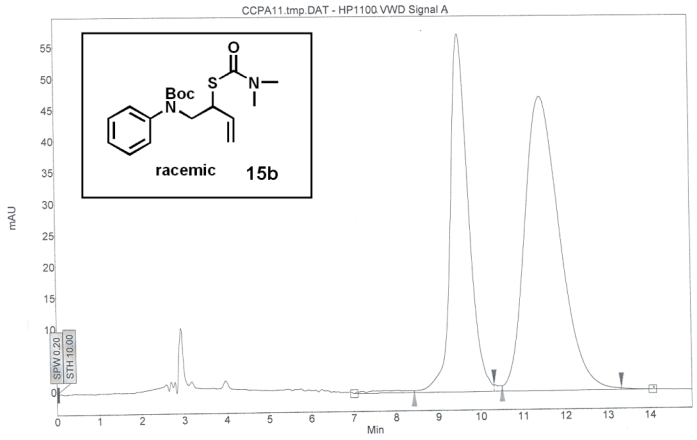
```
Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	124.229	MM	1.7073	1686.70764	16.46583	92.88744
2	129.956	MM	1.5509	129.15434	1.38794	7.11256
Totals :				1815.86198	17.85376	

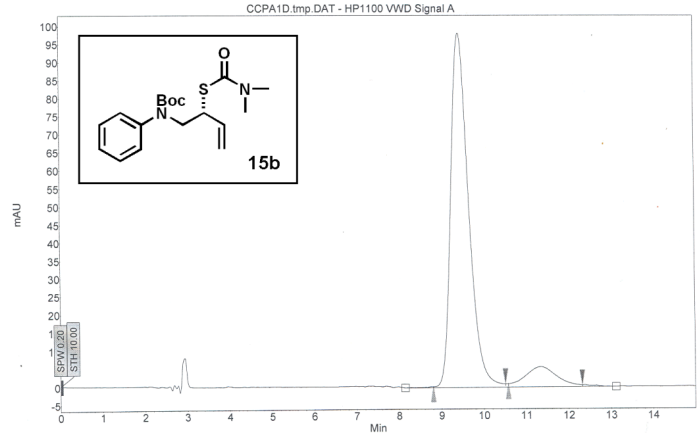
Results obtained with standard integrator!

Date:1/16/2008
Time:10:59:53 AM
Method Name:SR-3-OB
Run Name:SR-1-155-251
Runinfo:OB column,10% of a 1:1 Hex:IPA, 230 nm, 1.0ml/min



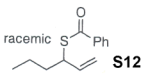
Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	8.43	9.55	10.31	57.5	28.4	38.586
2	UNKNOWN	10.50	11.47	13.32	47.3	45.3	61.414
Total					104.8	73.7	100.000

Date:1/16/2008
Time:11:32:09 AM
Method Name:SR-3-OB
Run Name:SR-1-154-211
Runinfo:OB column,10% of a 1:1 Hex:IPA, 230 nm, 1.0ml/min

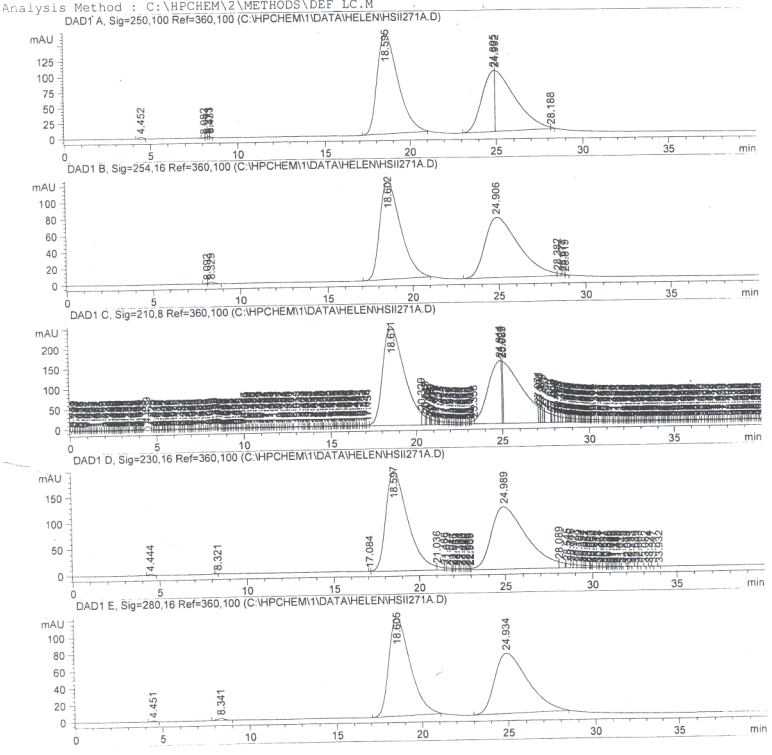


Index	Name	Start	Time	End	Height	Area	Area
		[Min]	[Min]	[Min]	[µV]	[µV.Min]	[%]
1	UNKNOWN	8.80	9.45	10.51	98.6	47.8	90.609
2	UNKNOWN	10.57	11.35	12.32	5.6	5.0	9.391
Total					104.2	52.7	100.000

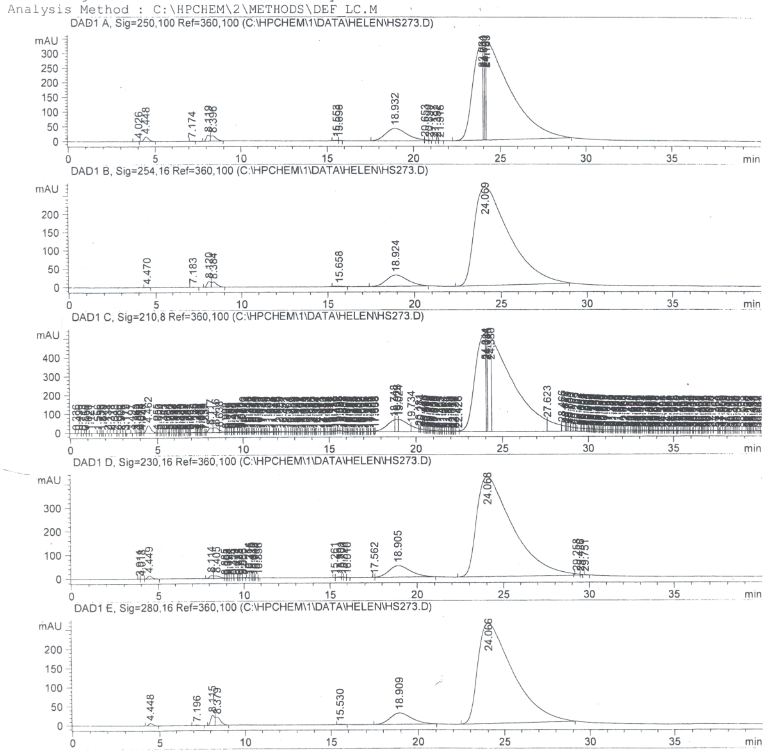
```
Injection Date  : 12/30/06 12:54:50 PM          Seq. Line :   2
Sample Name     : HSII271a                      Location : Vial 2
Acq. Operator   : Helen                            Inj :   1
Acq. Instrument : Chiral                    Inj Volume : 10 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 5 µl
Acq. Method     : C:\HPCHEM\1\METHODS\HFS.M
Last changed    : 12/30/06 12:10:14 PM by Helen
Analysis Method : C:\HPCHEM\2\METHODS\DEF_LC.M
```

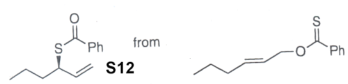


S12



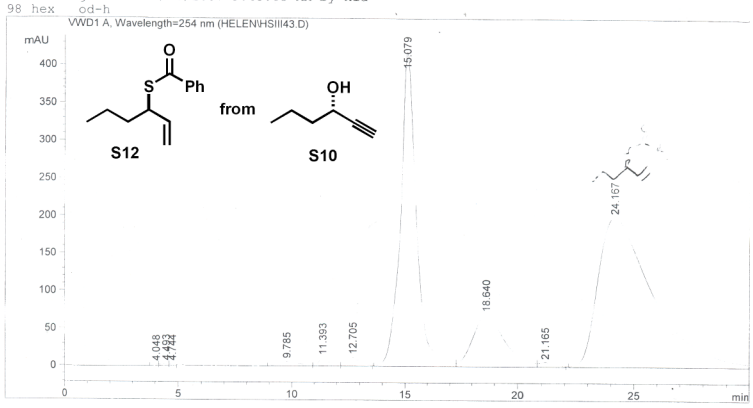
```
================================================================
Injection Date  : 12/30/06 6:25:45 PM           Seq. Line :  10
Sample Name     : HSII273                        Location : Vial 10
Acq. Operator   : Helen                               Inj :   1
Acq. Instrument : Chiral                       Inj Volume : 10 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 5 µl
Acq. Method     : C:\HPCHEM\1\METHODS\HFS.M
Last changed    : 12/30/06 12:10:14 PM by Helen
Analysis Method : C:\HPCHEM\2\METHODS\DEF_LC.M
```





```
================================================================================
Injection Date  : 1/15/2007 10:52:59 AM          Seq. Line :   2
Sample Name     : HSIII43                         Location : Vial 82
Acq. Operator   : Helen                              Inj :   1
                                                 Inj Volume : 10 µl

Sequence File   : C:\HPCHEM\1\SEQUENCE\HELEN.S
Method          : C:\HPCHEM\1\METHODS\JASONSD.M\HFS.M
Last changed    : 1/15/2007 9:45:05 AM by xia
98 hex   od-h
```




```
================================================================================
                              Area Percent Report
================================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: VWD1 A, Wavelength=254 nm

Peak RetTime Type  Width     Area      Height     Area
  #   [min]      [min]  mAU   *s    [mAU   ]      %
----|-------|----|-------|---------|----------|--------|
   1   4.048 PV    0.1939   33.76759    2.41183   0.0543
   2   4.493 VV    0.2924   67.45816    2.97299   0.1084
   3   4.744 VV    0.1894   35.52735    2.60917   0.0571
   4   9.785 BV    0.8218  378.49341    6.29923   0.6082
   5  11.393 VV    0.4832  362.81226   11.01764   0.5830
   6  12.705 VB    0.5398  436.62988   12.15947   0.7016
   7  15.079 BV    0.7110 2.07810e4   418.01144  33.3933
   8  18.640 VV    1.4581 6795.22314   69.76746  10.9194
   9  21.165 VB    0.6929  305.19711    6.38687   0.4904
  10  24.167 BBA   2.4191 3.30349e4   200.45934  53.0843

Totals :                  6.22310e4   732.09543
```

0.829 - 0.171
= 66 %.