

**Asymmetric *syn*-selective direct aldol reaction of protected hydroxyacetone  
catalyzed by primary amino acid derived bifunctional organocatalysts in  
the presence of water**

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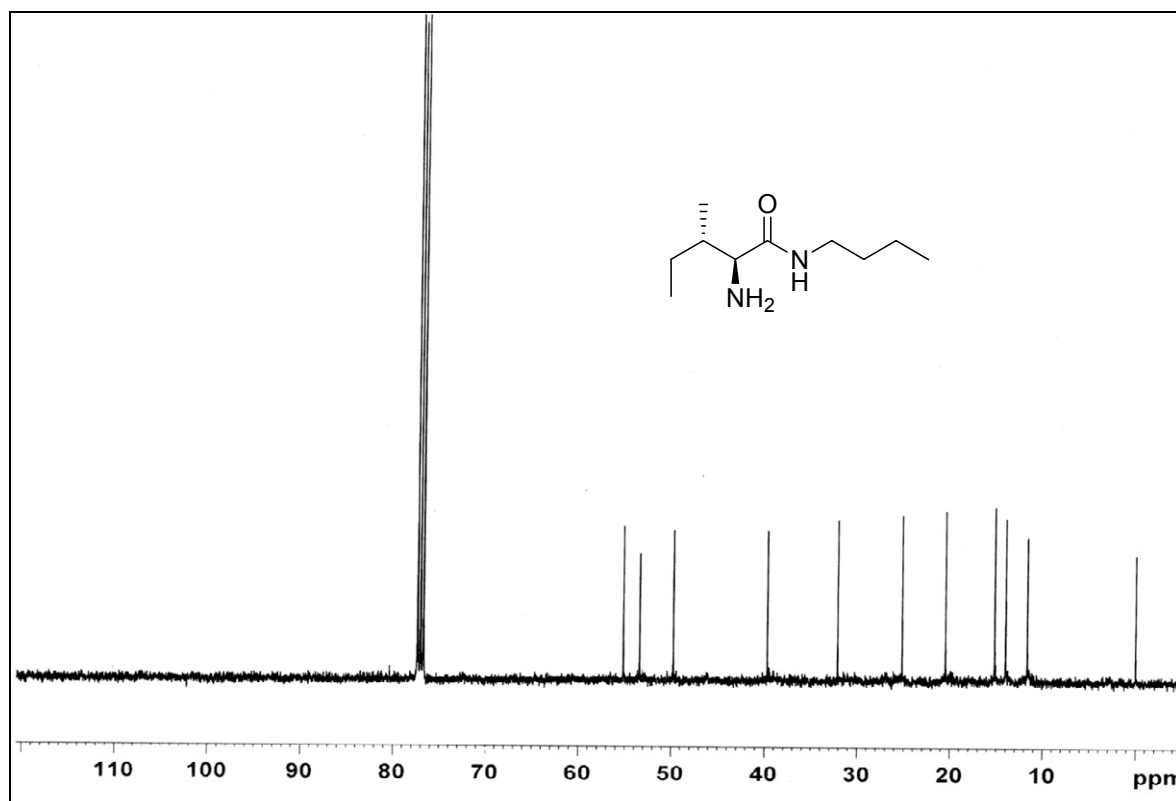
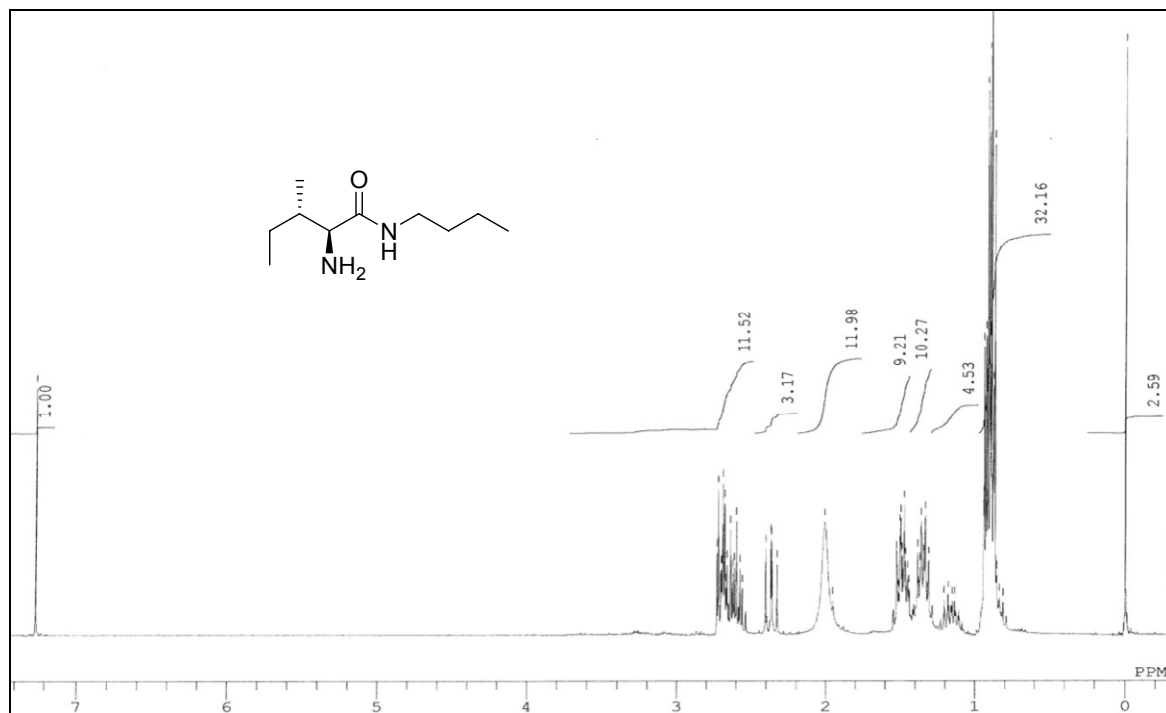
## **Supporting Information**

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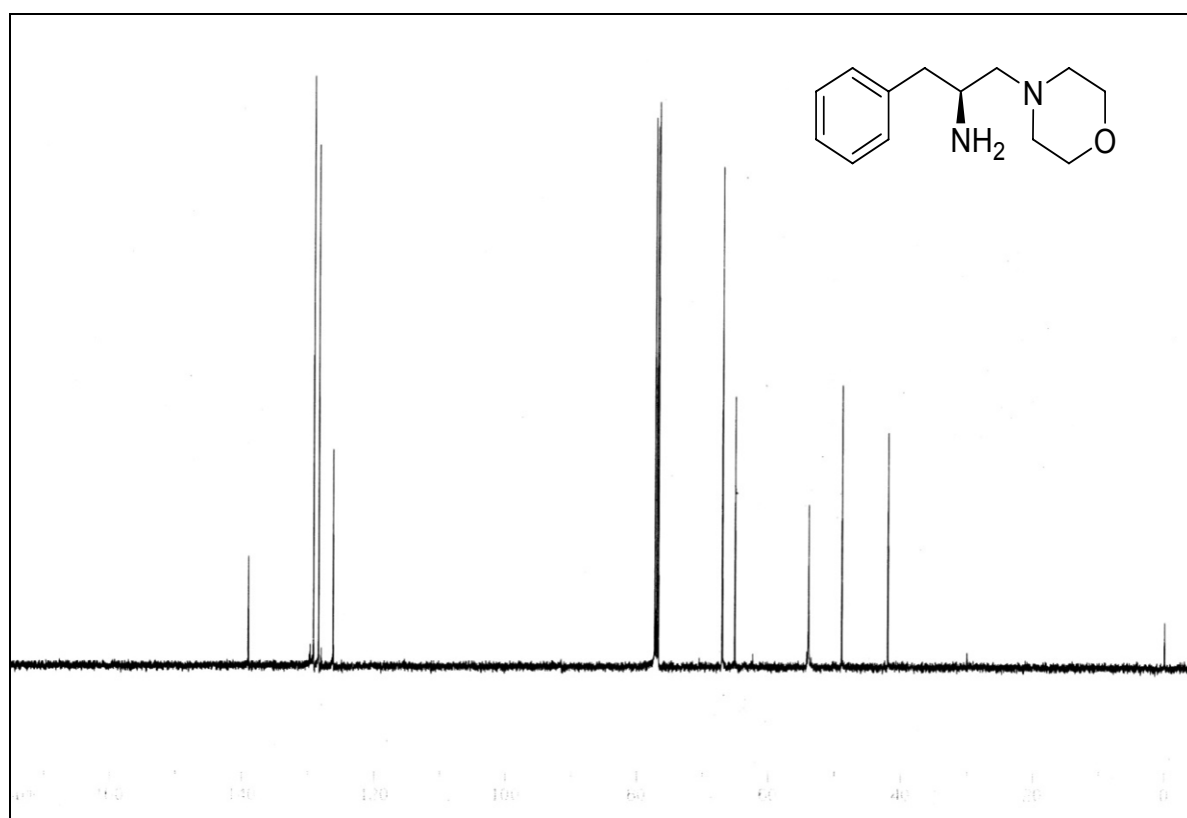
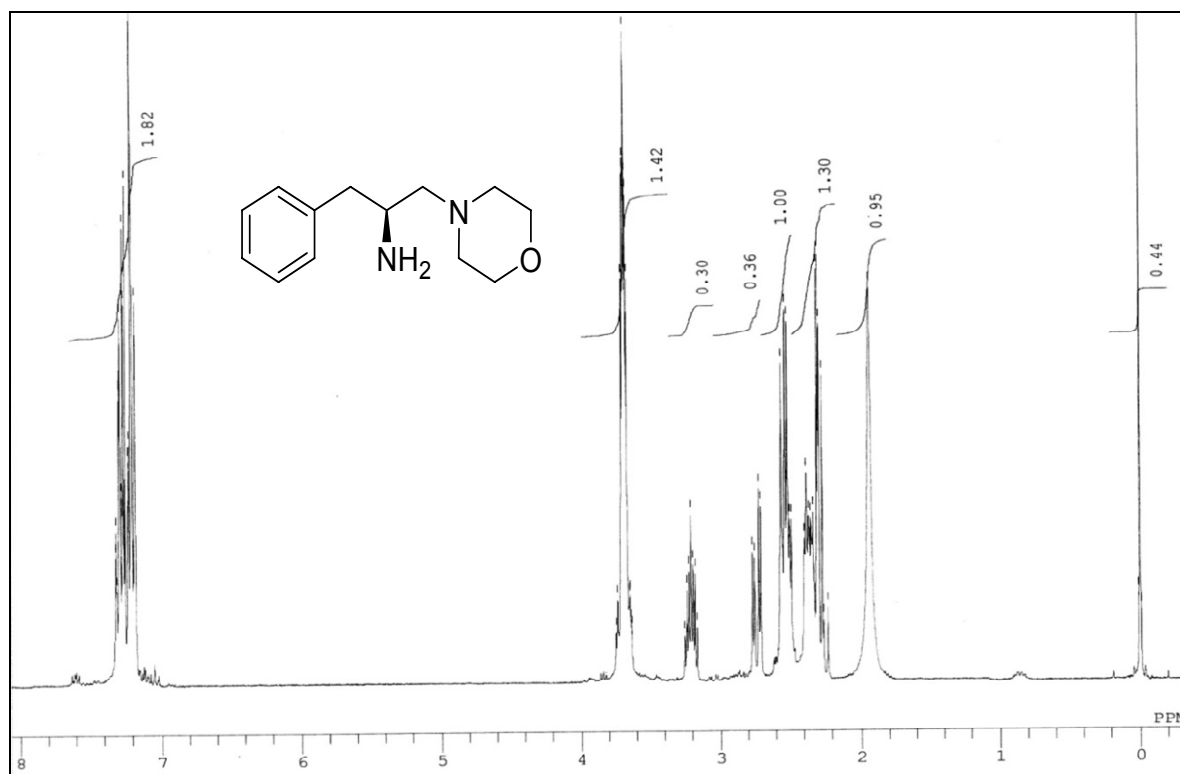
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| <b>1. NMR spectra (<math>^1\text{H}</math> and <math>^{13}\text{C}</math>) of organocatalysts</b> |
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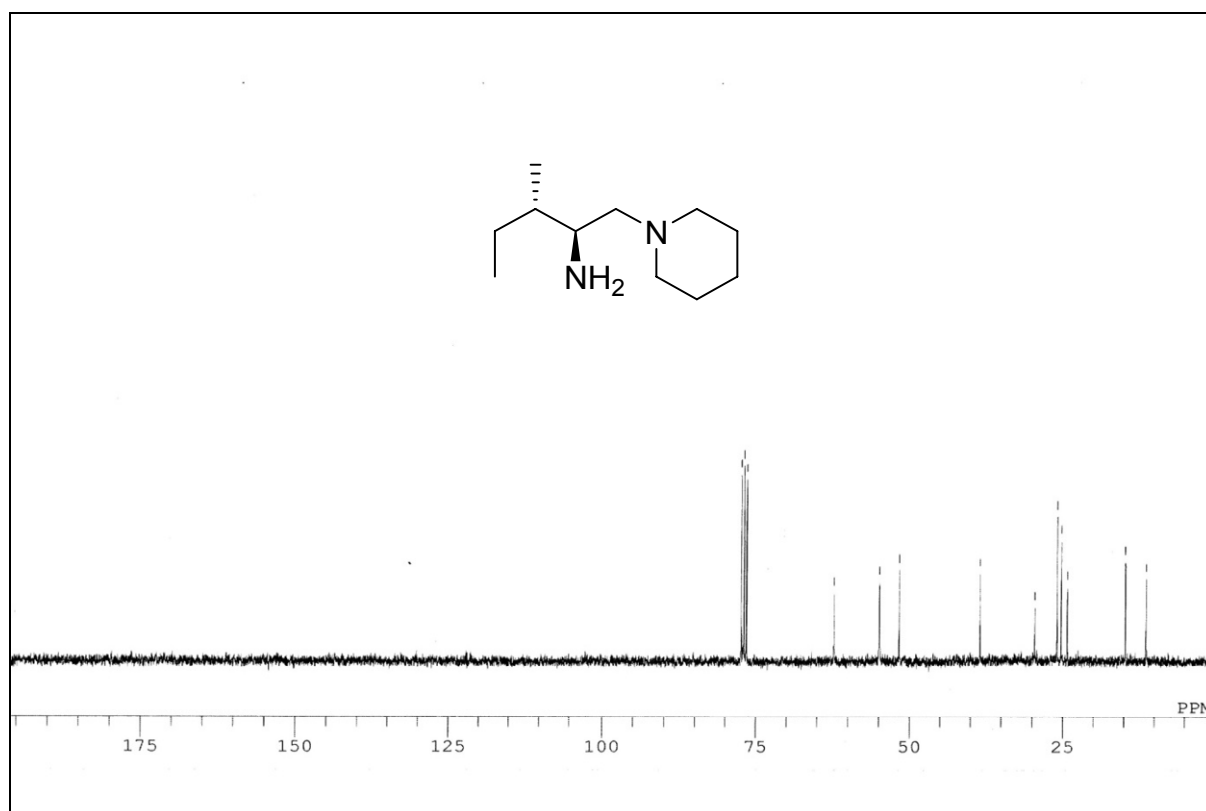
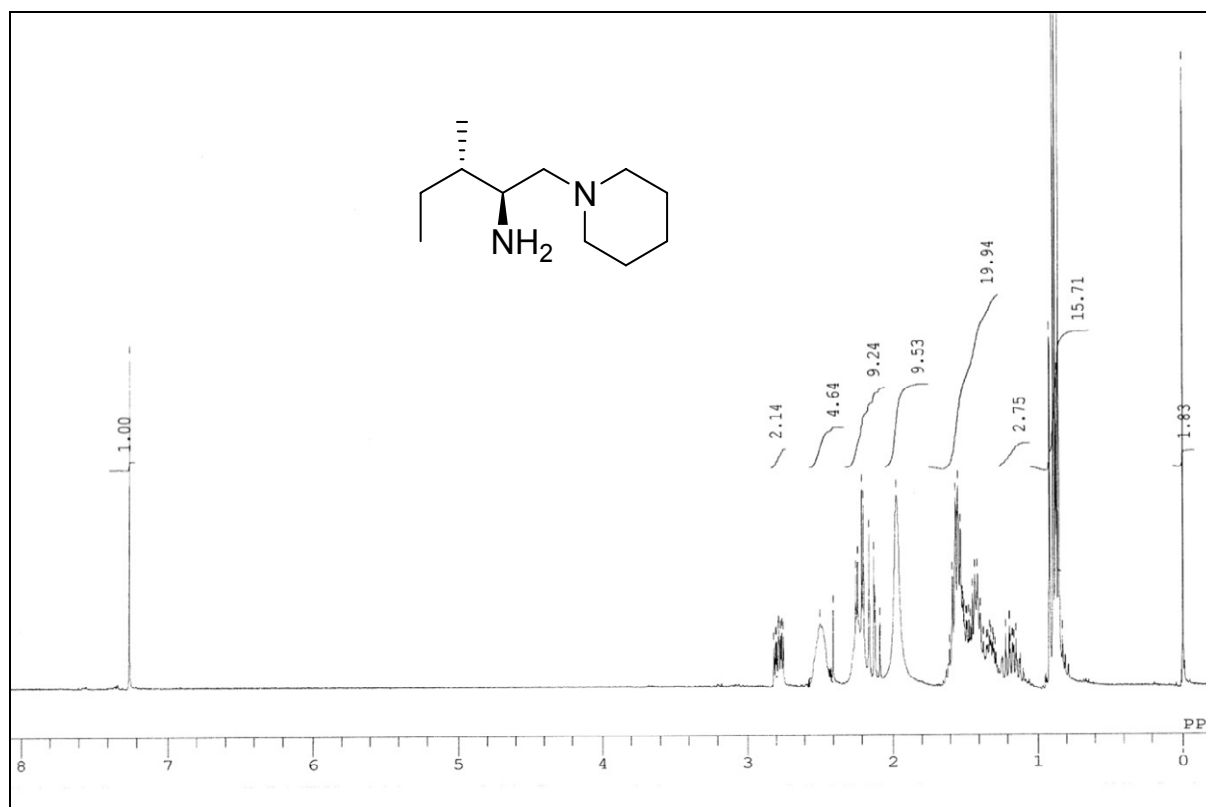
**Organocatalyst 1a:** (2*S*,3*S*)-*N*-butyl-3-methylpentane-1,2-diamine. Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz)



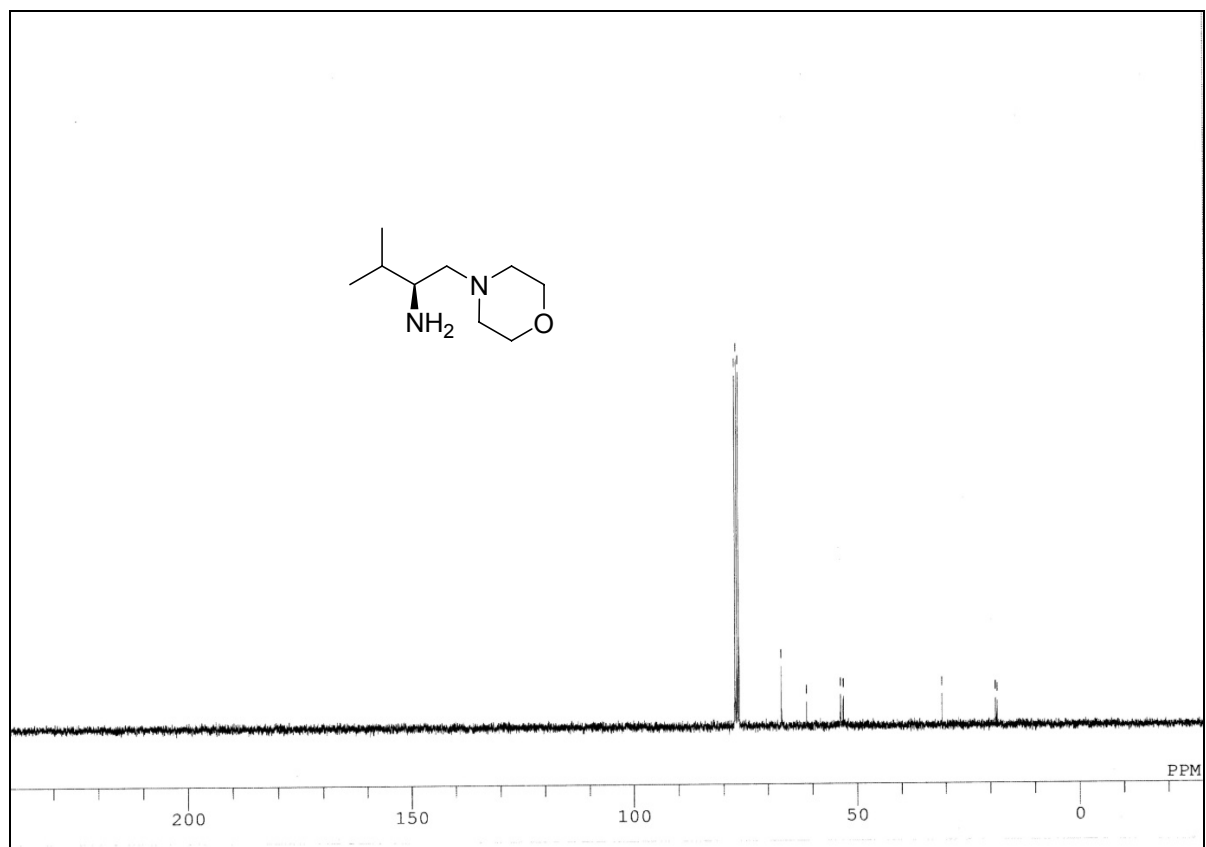
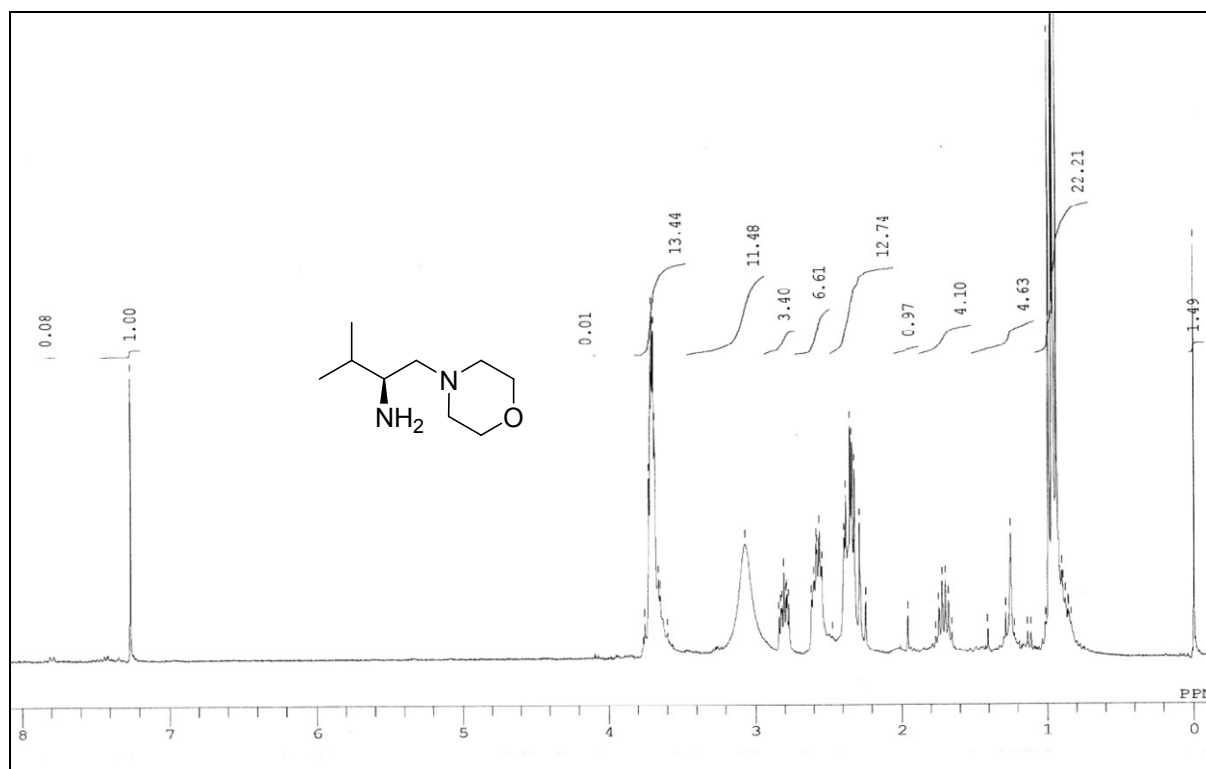
**Organocatalyst 1j:** (*S*)-2-amino-1-morpholino-3-phenylpropane. Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 125MHz (Bruker Avance 500 MHz)



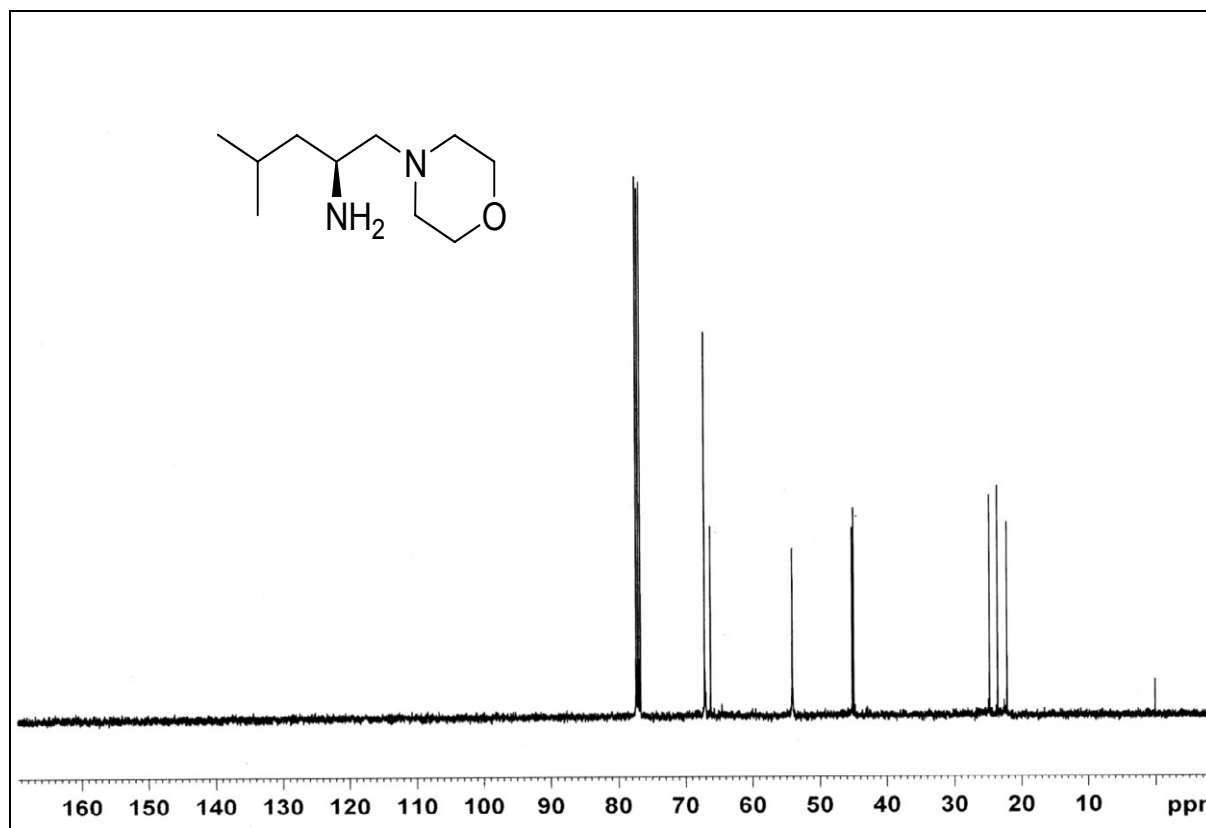
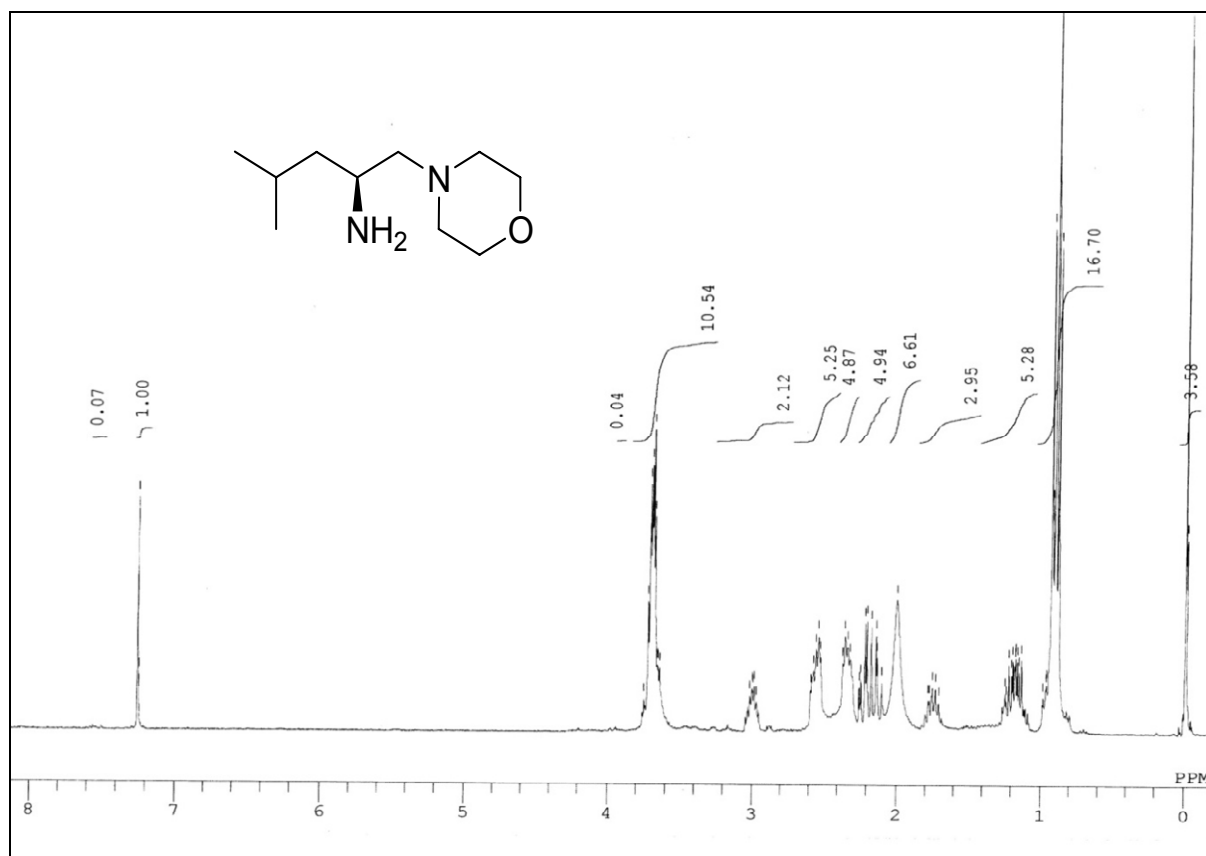
**Oragnocatalyst 1f.** (2*S*,3*S*) 2-amino-3-methyl-1-(pyrrolidin-1-yl)pentane Spectra; <sup>1</sup>H NMR at 300 MHz (Jeol AL-300) and <sup>13</sup>C at 75 MHz (Jeol AL-300).



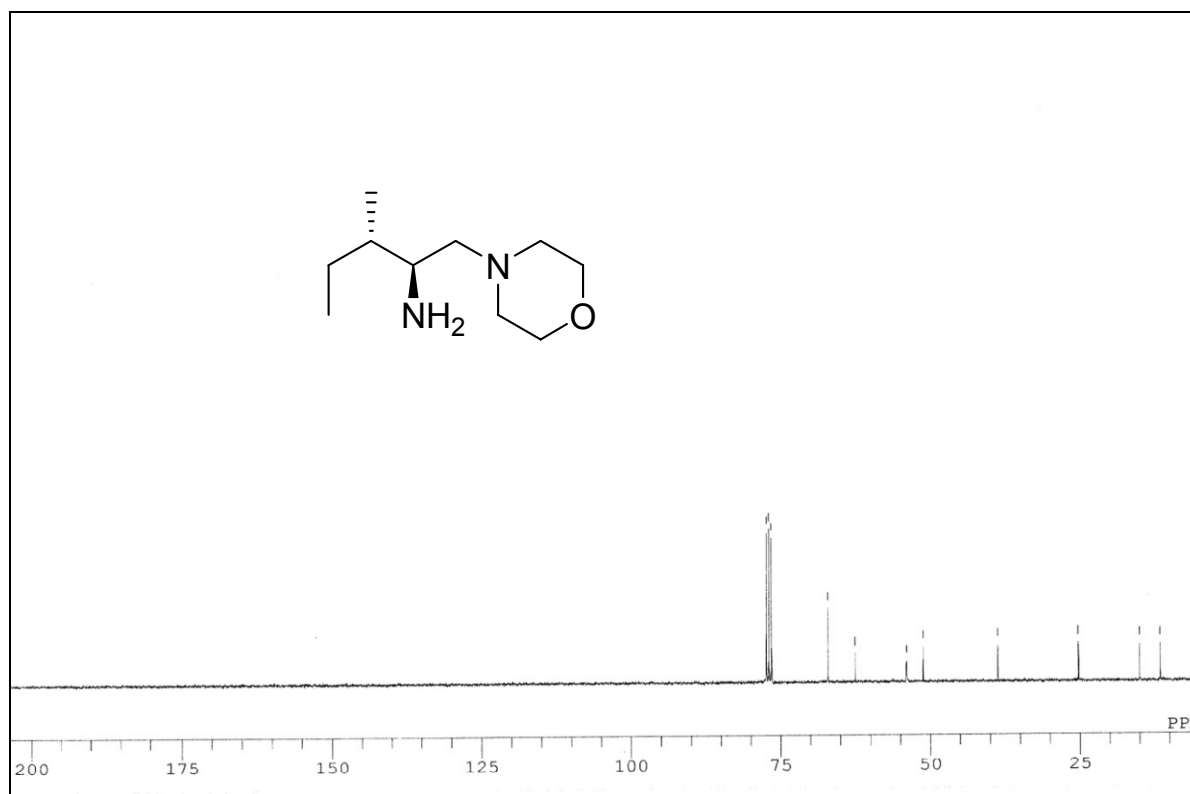
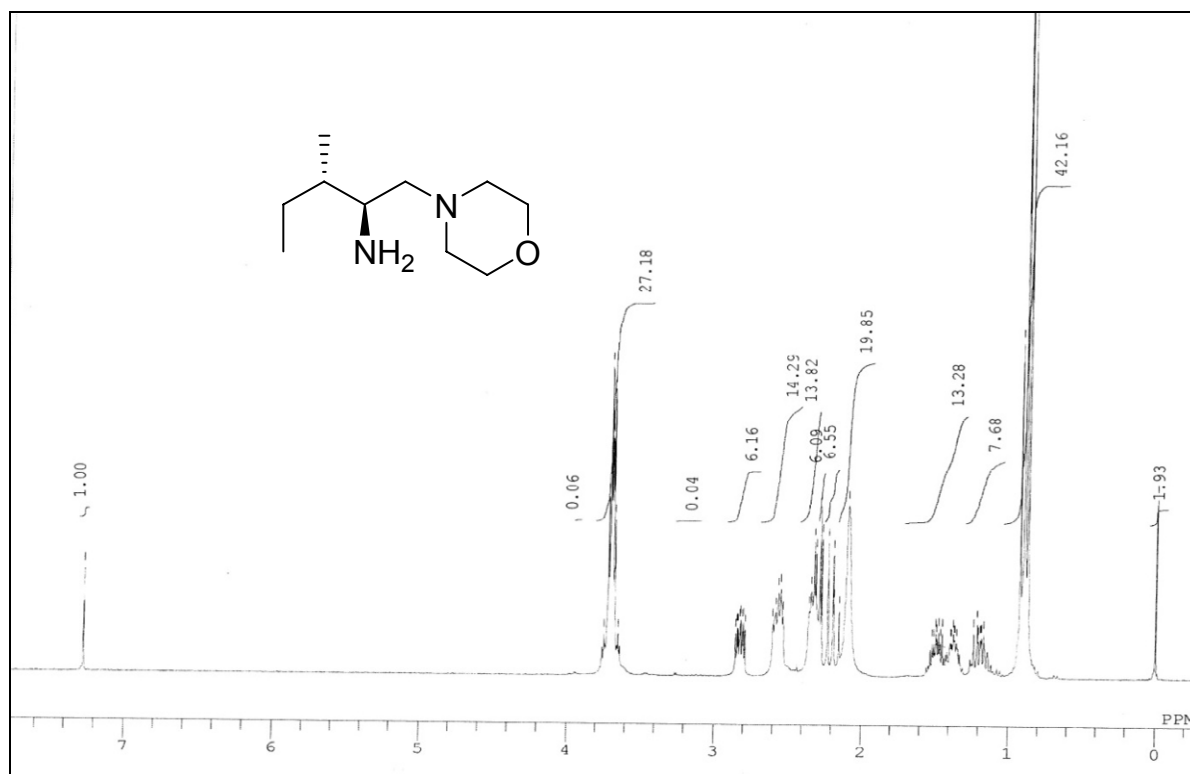
**Oragnocatalyst 1i.** (*S*)-2-amino-3-methyl-1-morpholinobutane. Spectra; <sup>1</sup>H NMR at 300 MHz (Jeol AL-300) and <sup>13</sup>C at 75 MHz (Jeol AL-300).



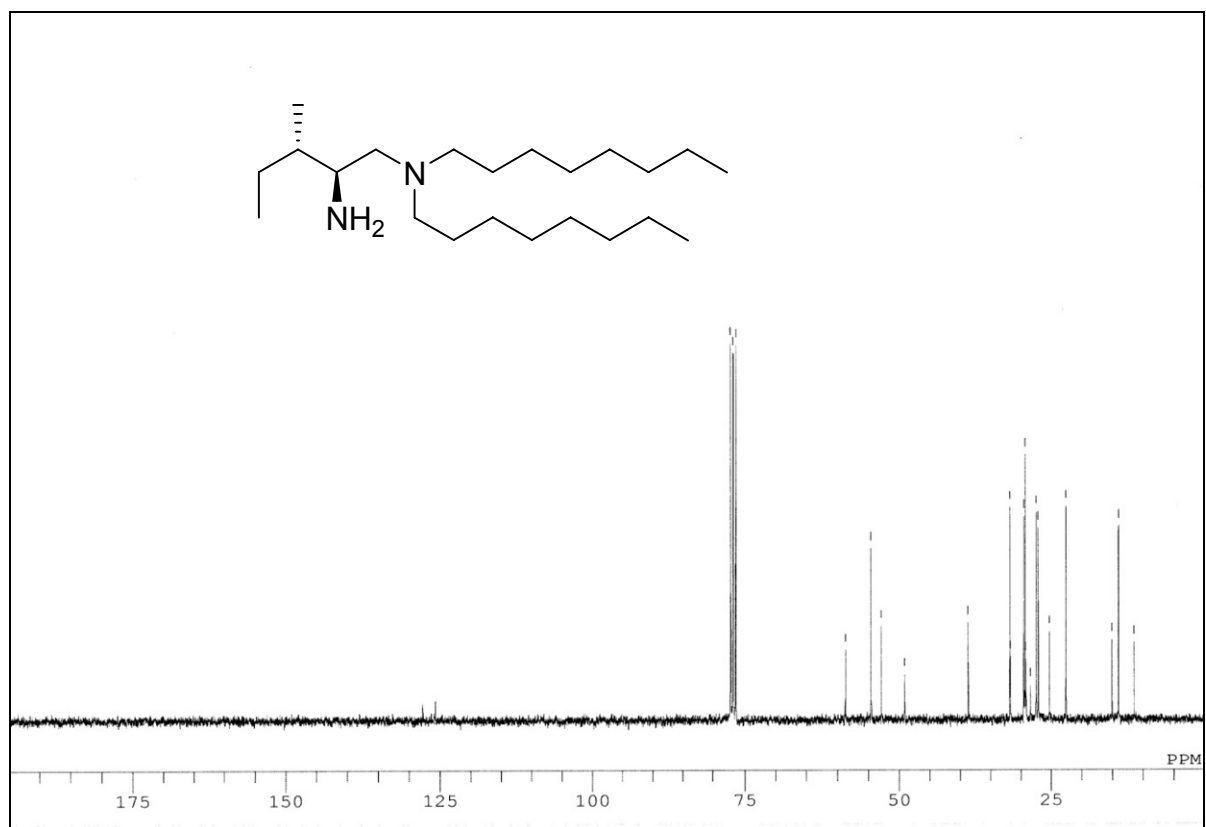
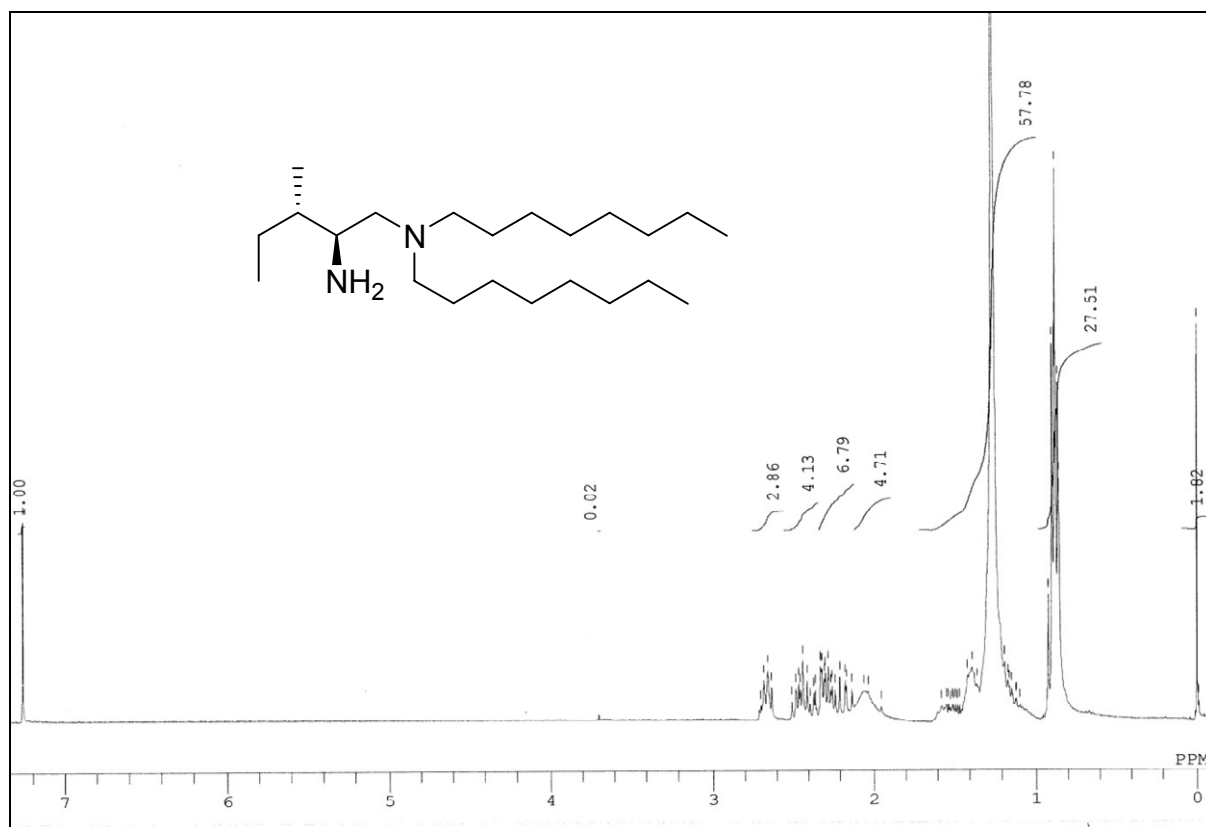
**Oragnocatalyst 1h.** (*S*)-2-amino-4-methyl-1-morpholinopentane. Spectra; <sup>1</sup>H NMR at 300 MHz (Jeol AL-300) and <sup>13</sup>C at 100 MHz (Bruker Avance 500 MHz) .



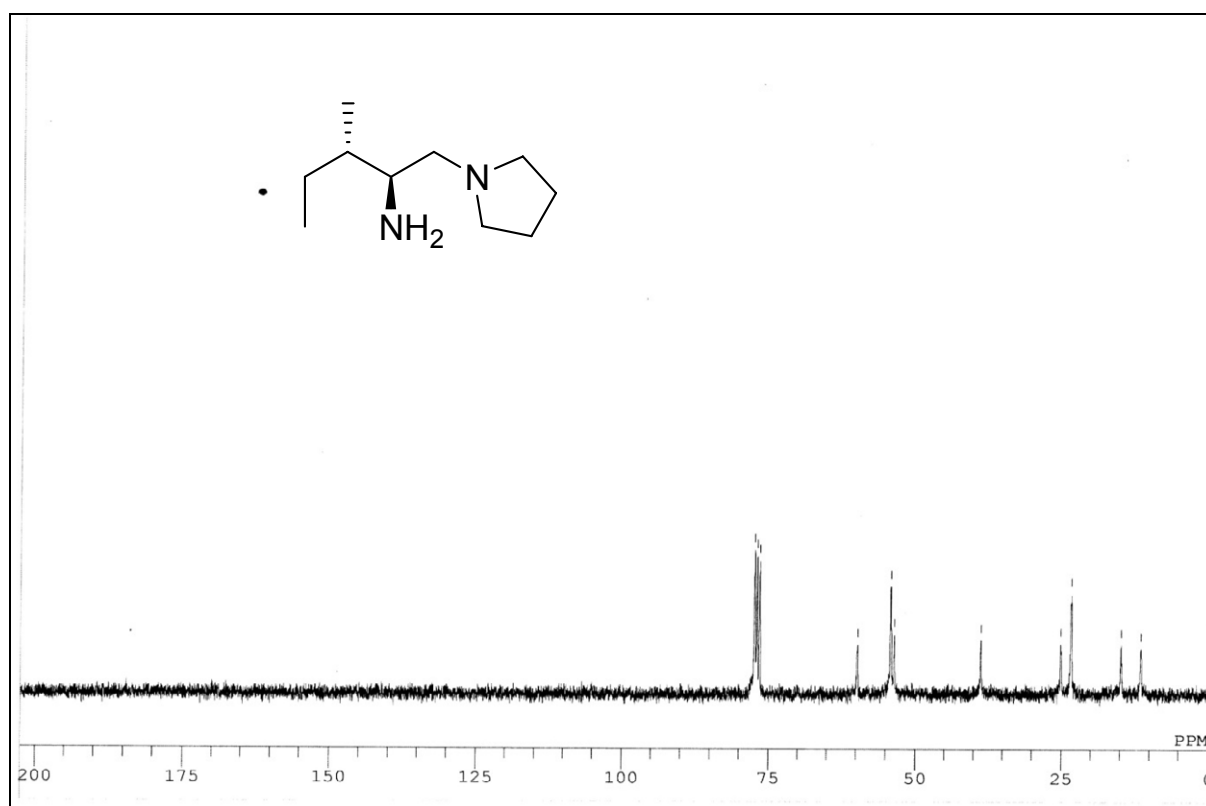
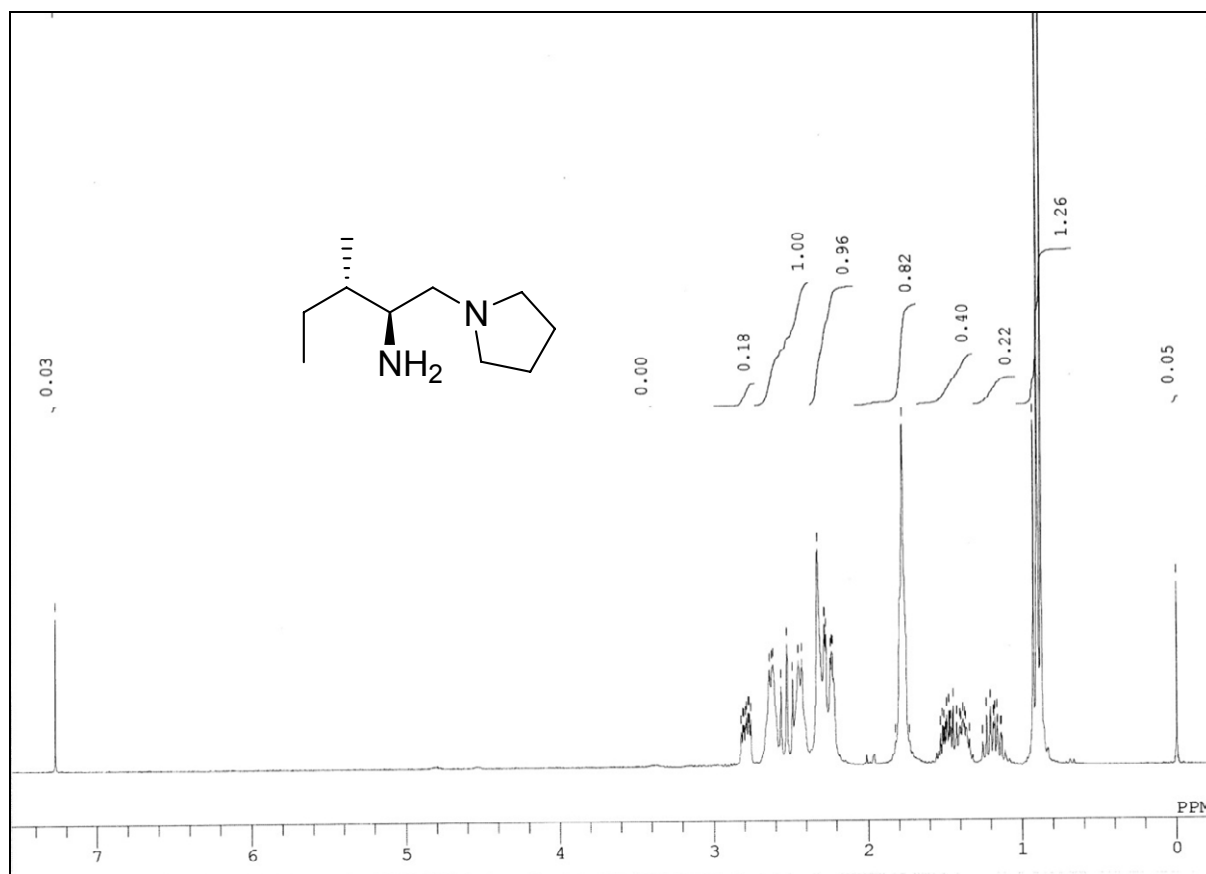
**Oragnocatalyst 1g.** (*S*)-2-amino-3-methyl-1-morpholinopentane. Spectra; <sup>1</sup>H NMR at 300 MHz (Jeol AL-300) and <sup>13</sup>C at 75 MHz (Jeol AL-300).



**Oragnocatalyst 1d.** (2*S*,3*S*)-3methyl-*N*', *N*'-dioctylpentane-1,2-diamine. Spectra; <sup>1</sup>H NMR at 300 MHz (Jeol AL-300) and <sup>13</sup>C at 75 MHz (Jeol AL-300).

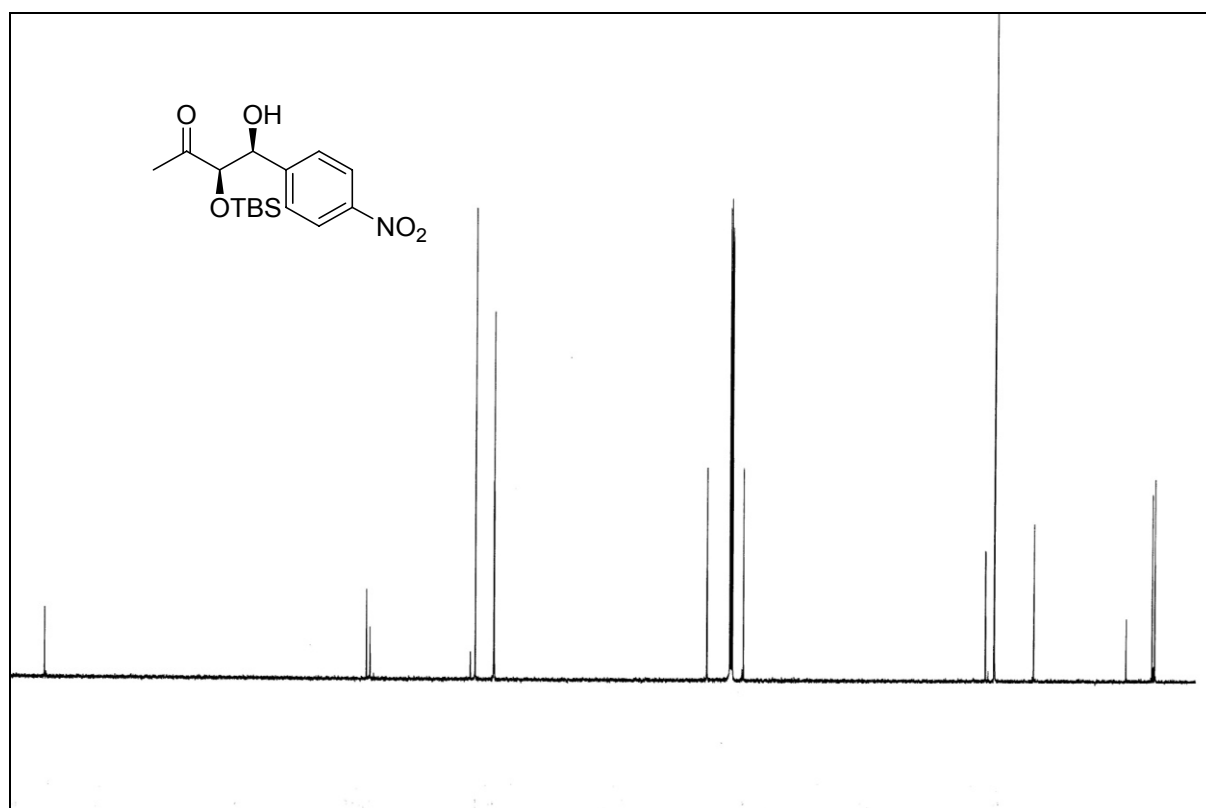
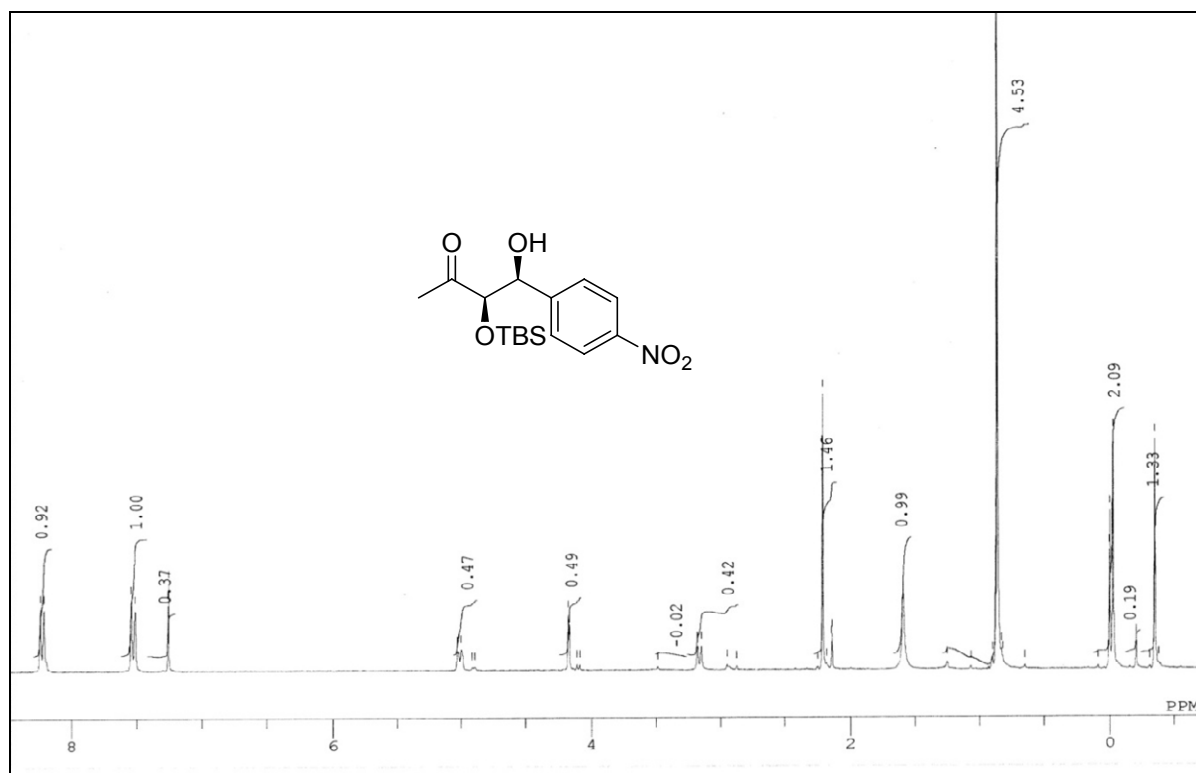


**Oragnocatalyst 1e.** (2*S*,3*S*)-2-amino-3-methyl-1-(pyrrolidin-1-yl)pentane. Spectra; <sup>1</sup>H NMR at 300 MHz (Jeol AL-300) and <sup>13</sup>C at 75 MHz (Jeol AL-300).

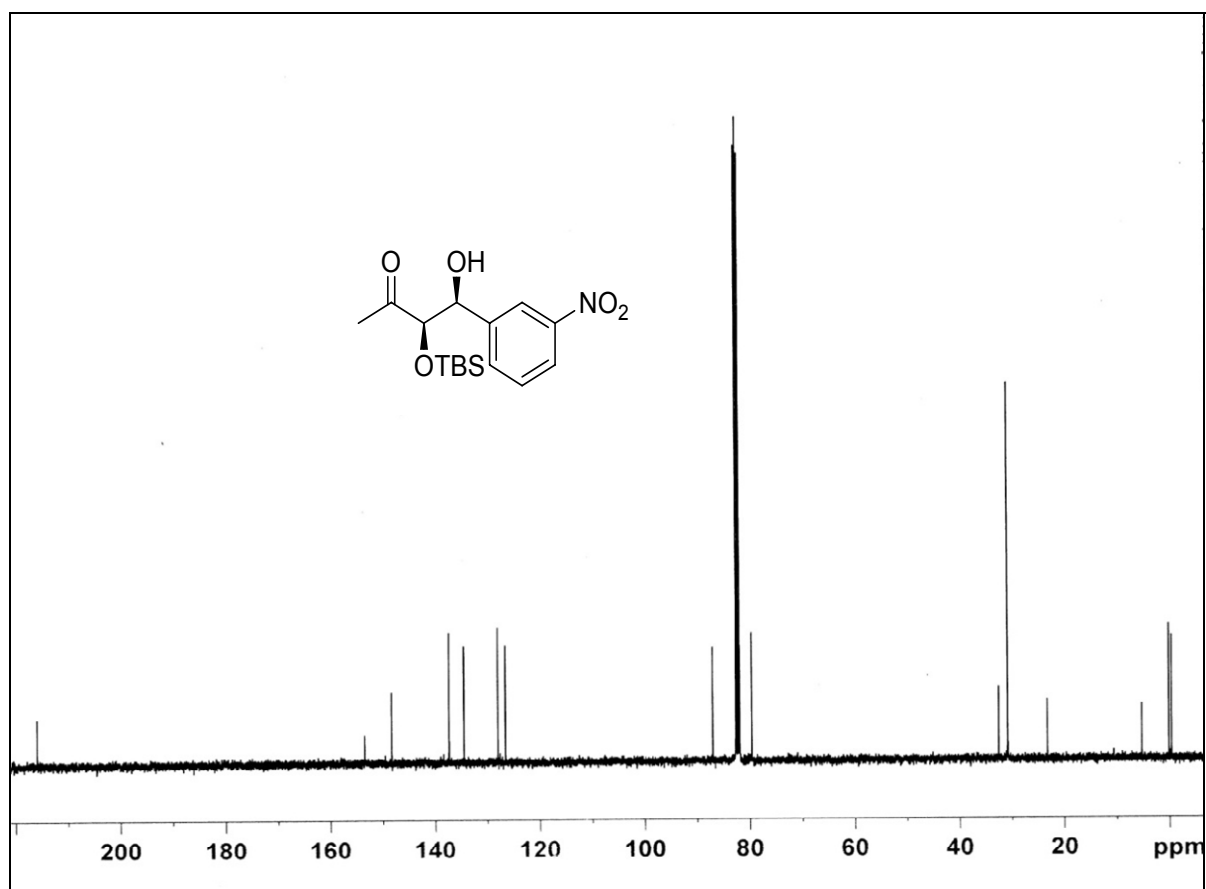
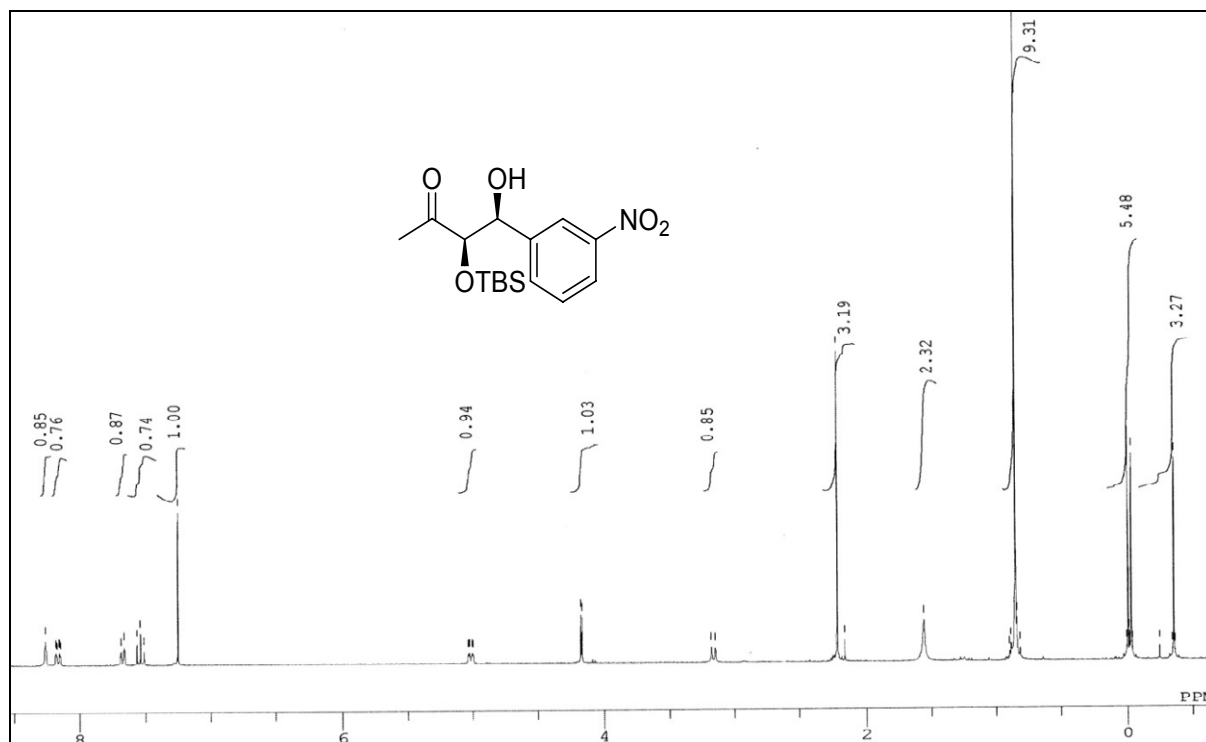


## 2. NMR spectra (<sup>1</sup>H and <sup>13</sup>C) of aldol addition products

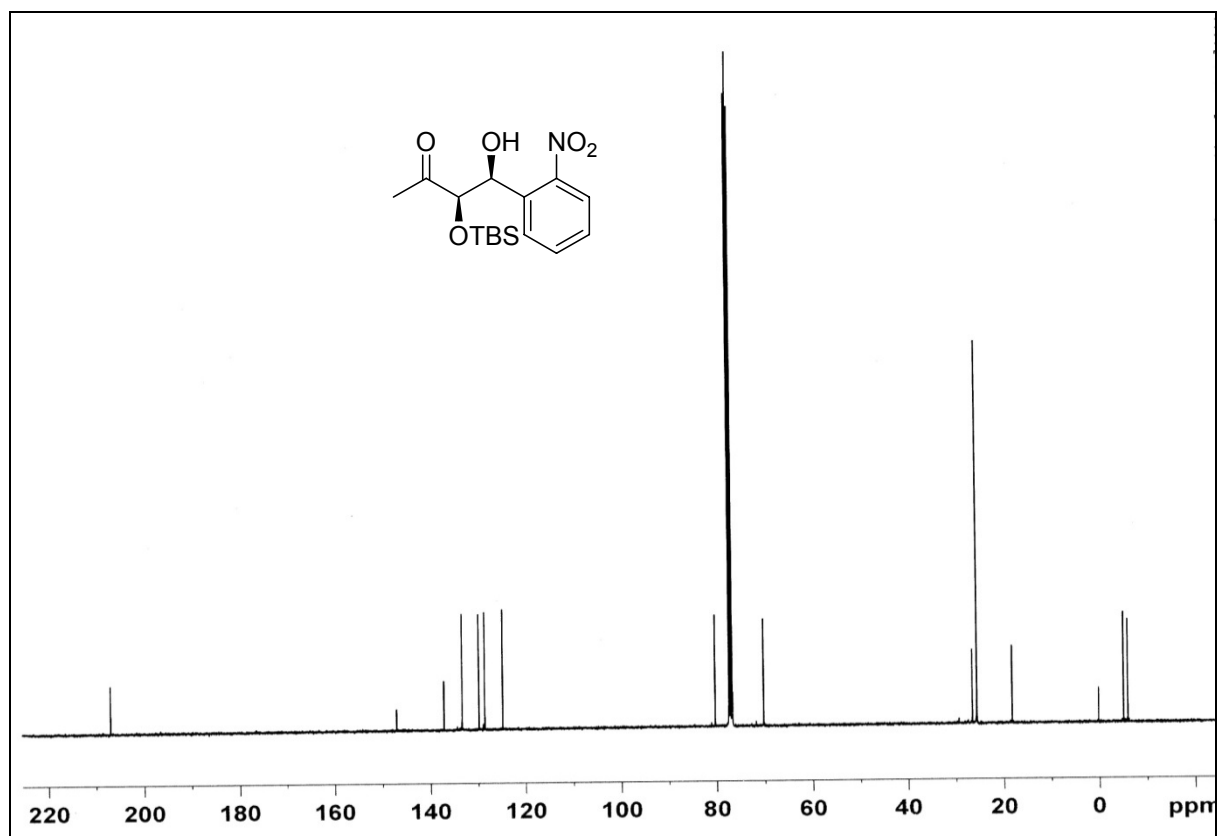
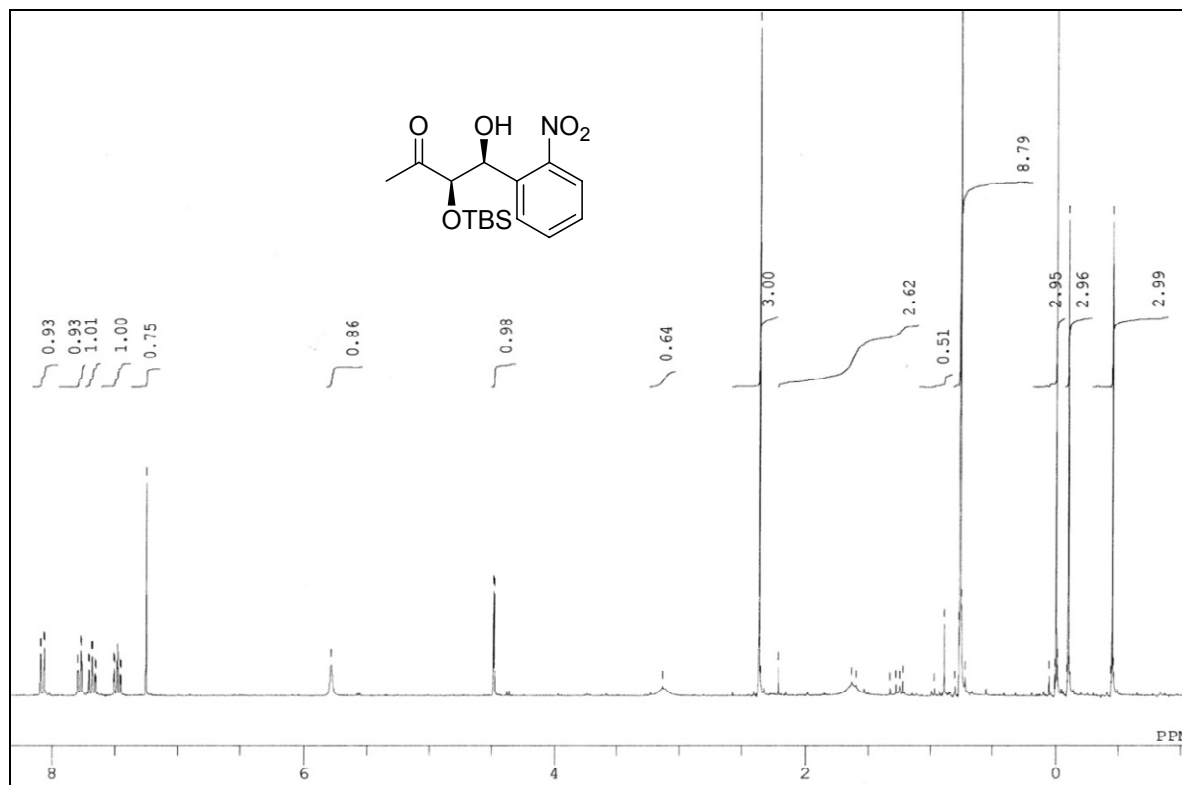
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(4'-nitrophenyl)butan-2-one **(4b)**.  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz)



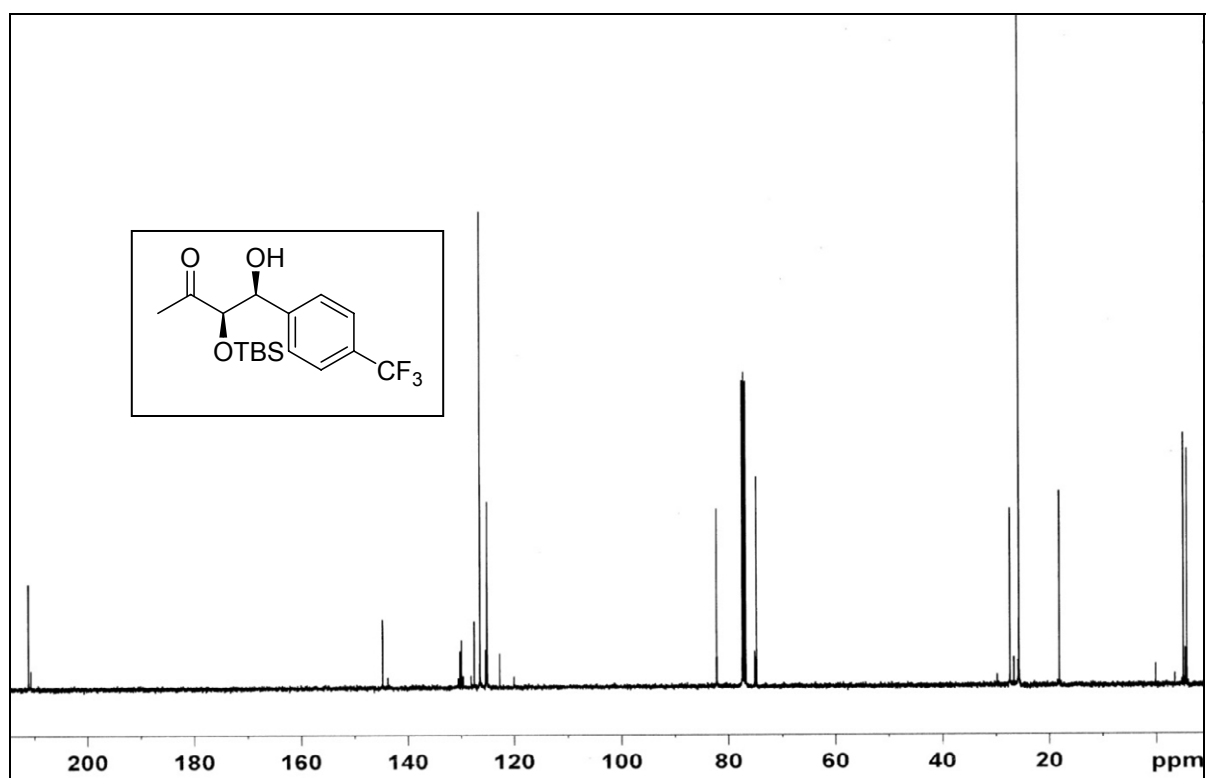
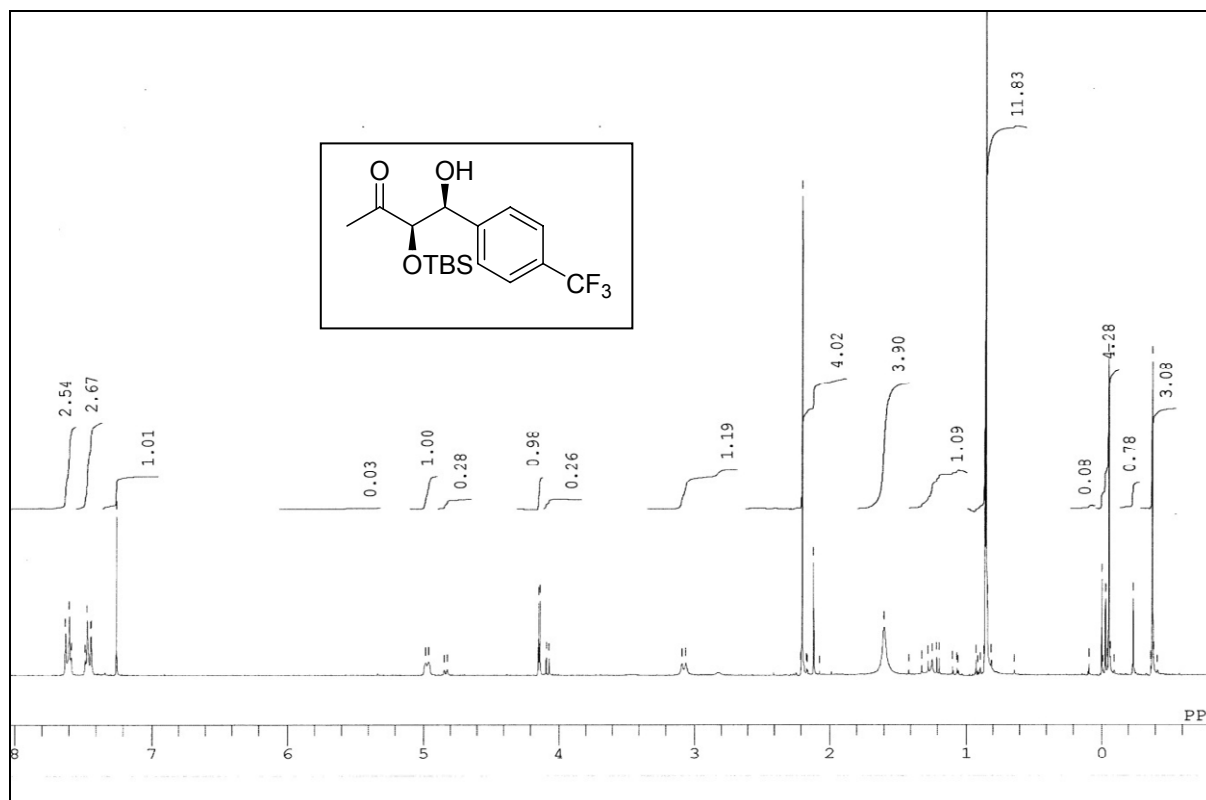
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(3'-nitrophenyl)butan-2-one (4f).  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz)



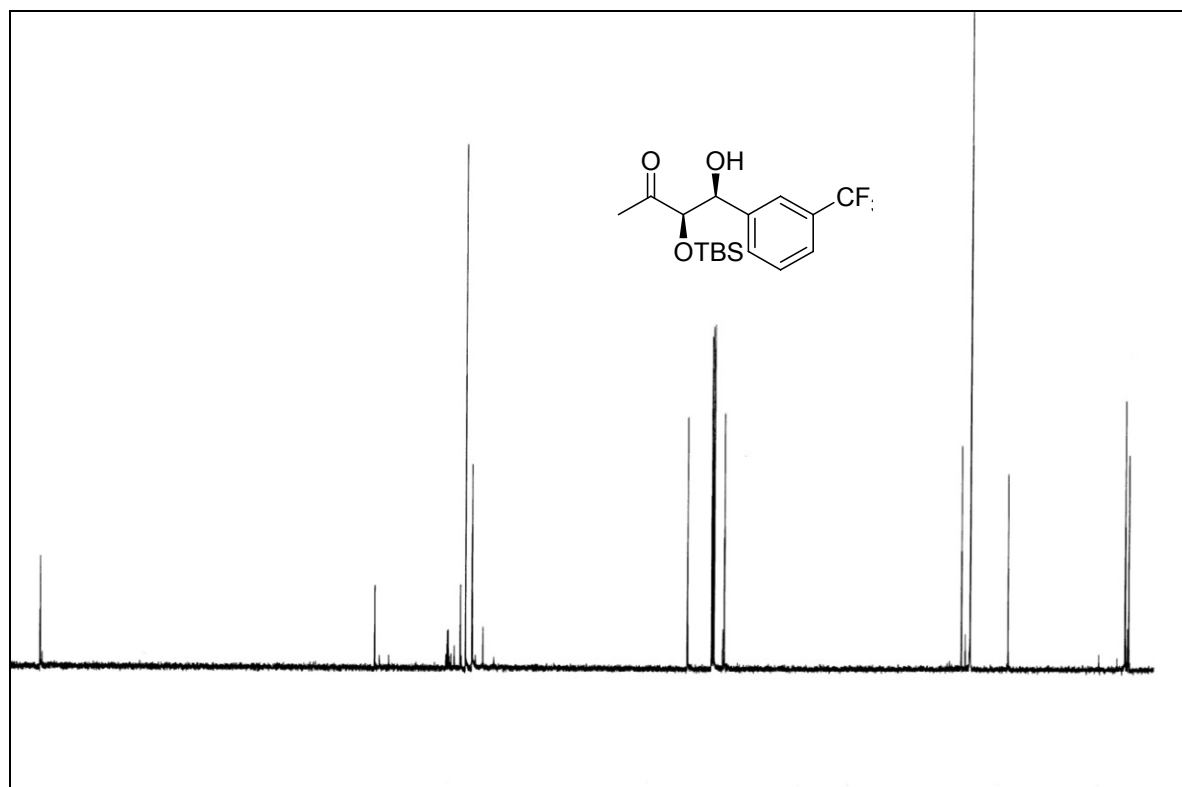
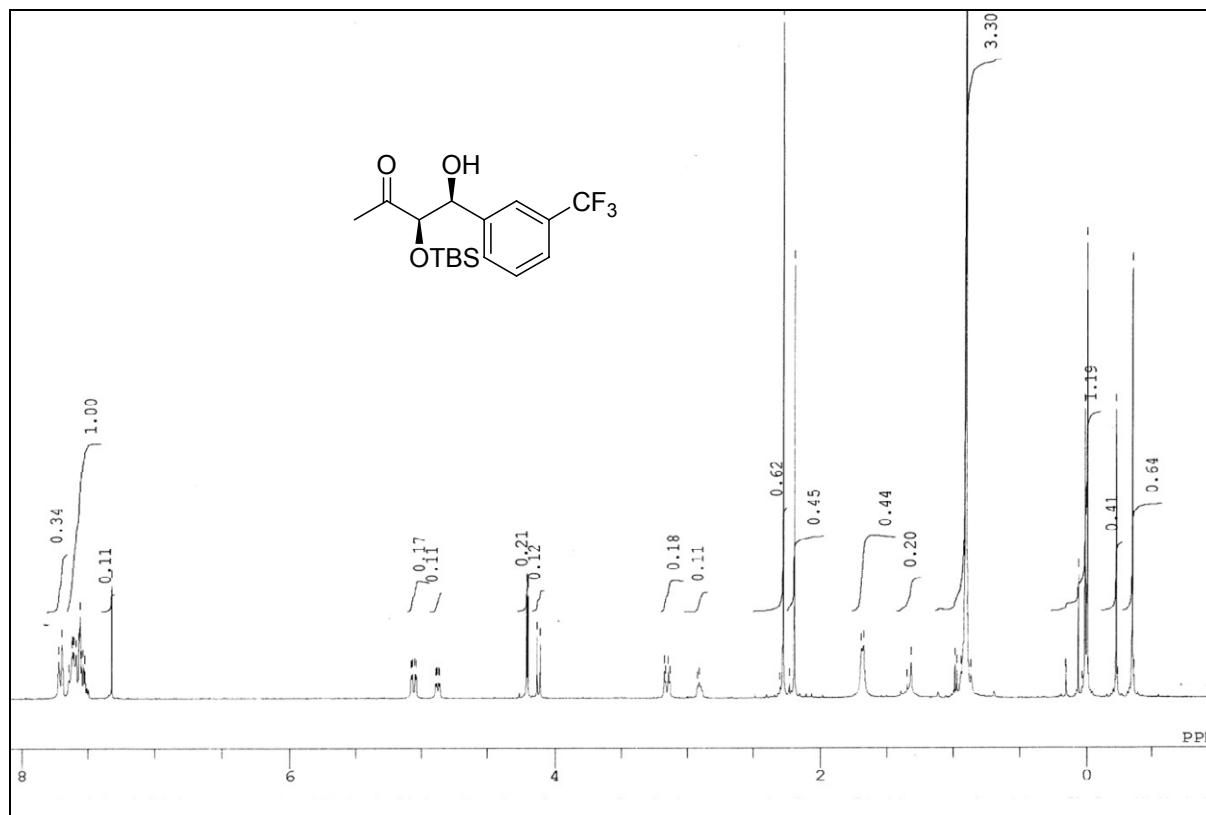
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(2'-nitrophenyl)butan-2-one (4g).  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



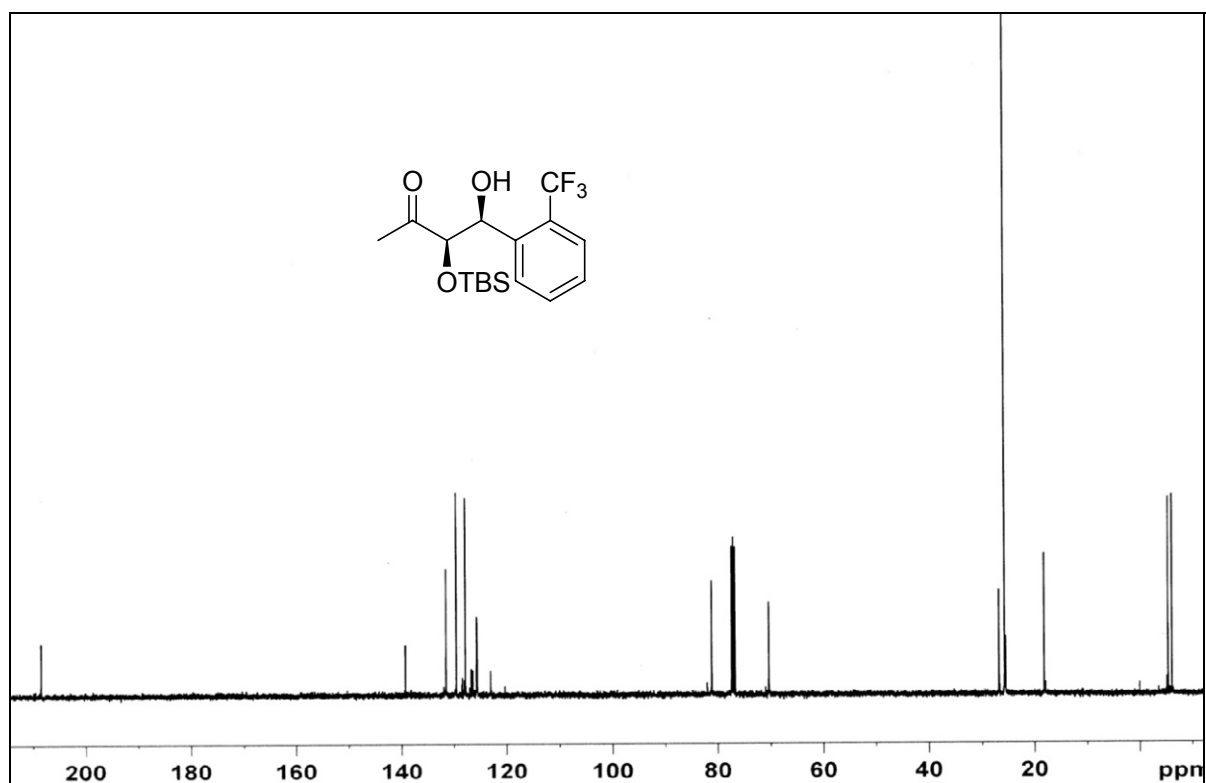
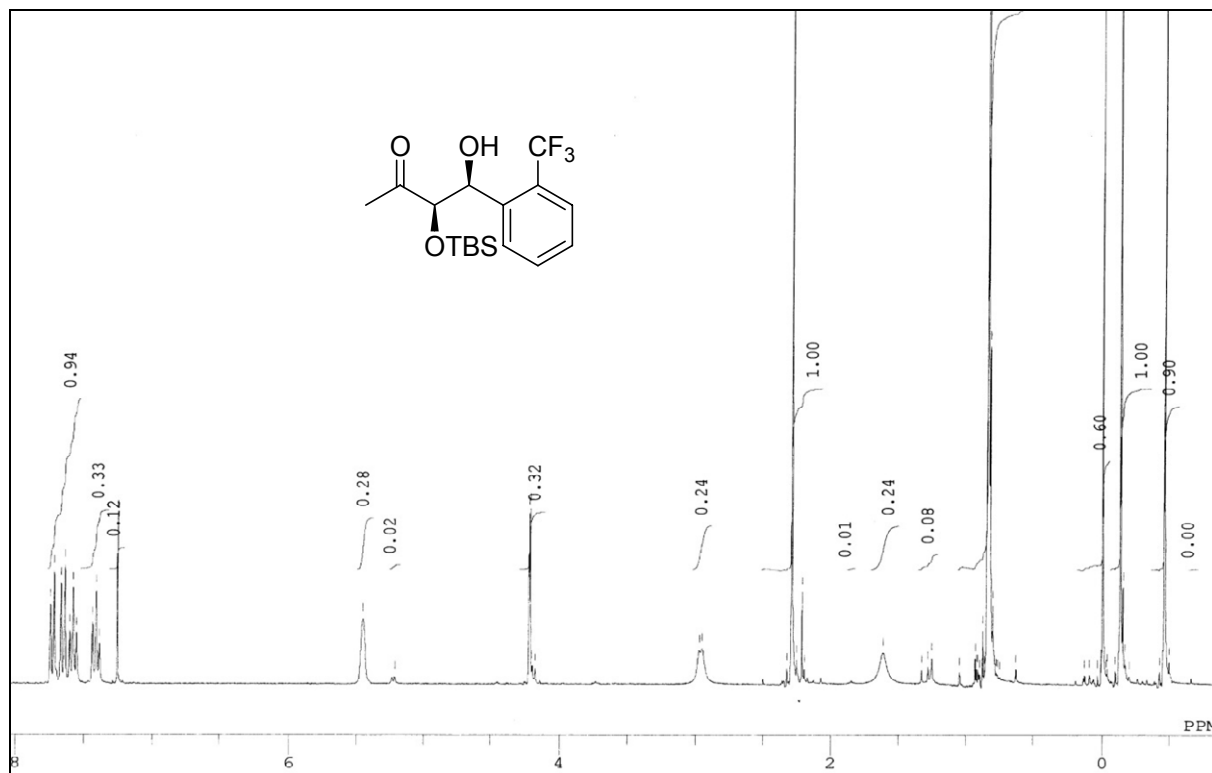
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(4'-trifluoromethylphenyl)butan-2-one  
(4*h*). Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



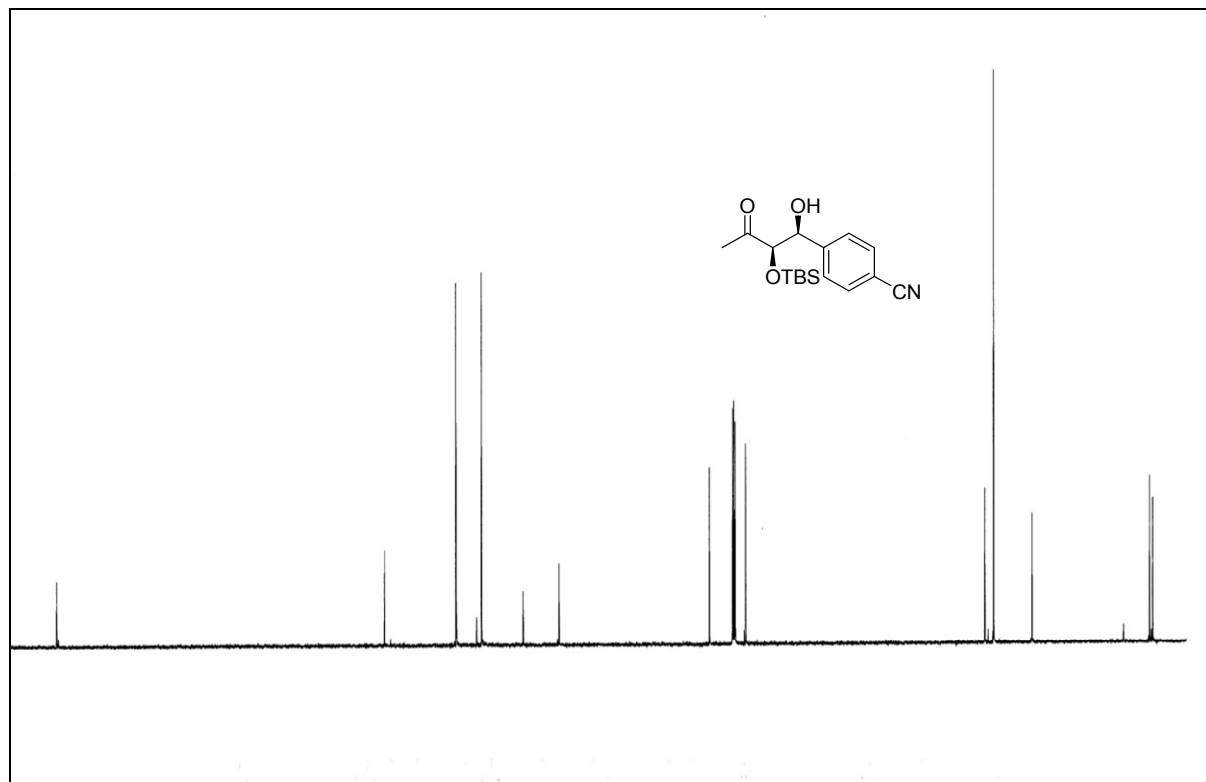
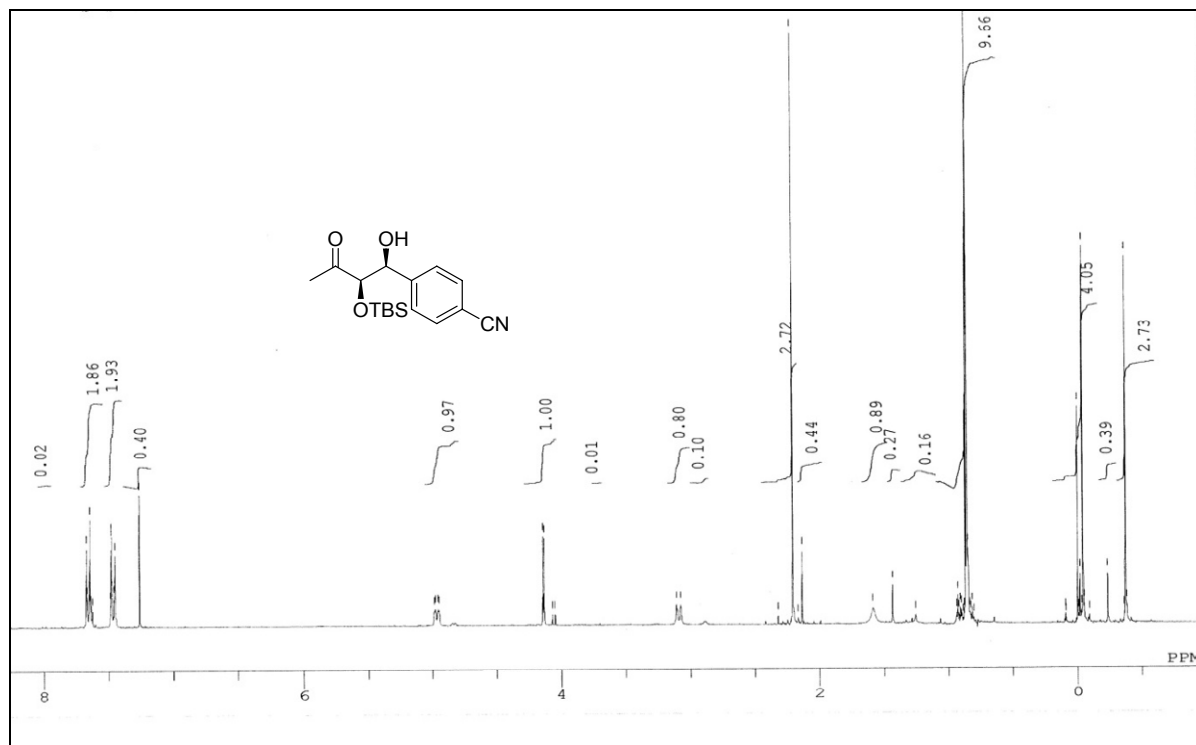
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(3'-trifluoromethylphenyl)butan-2-one  
(4i). Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



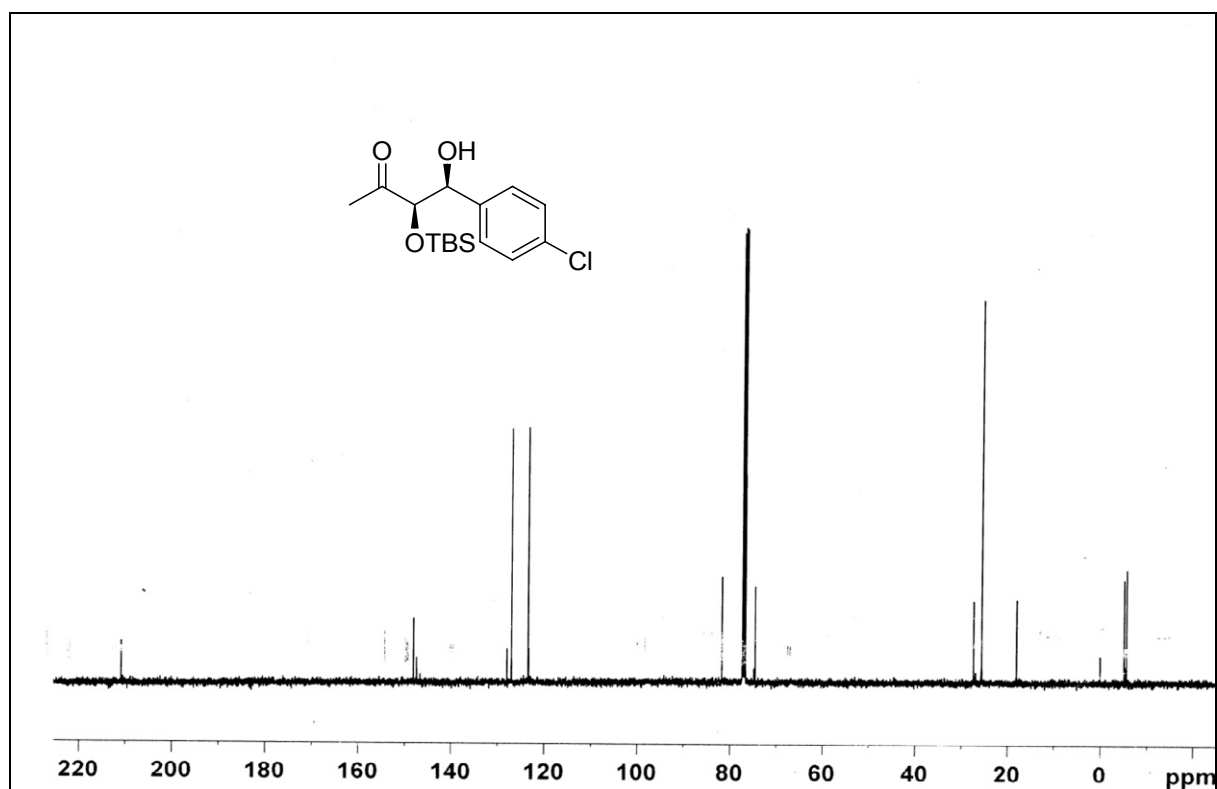
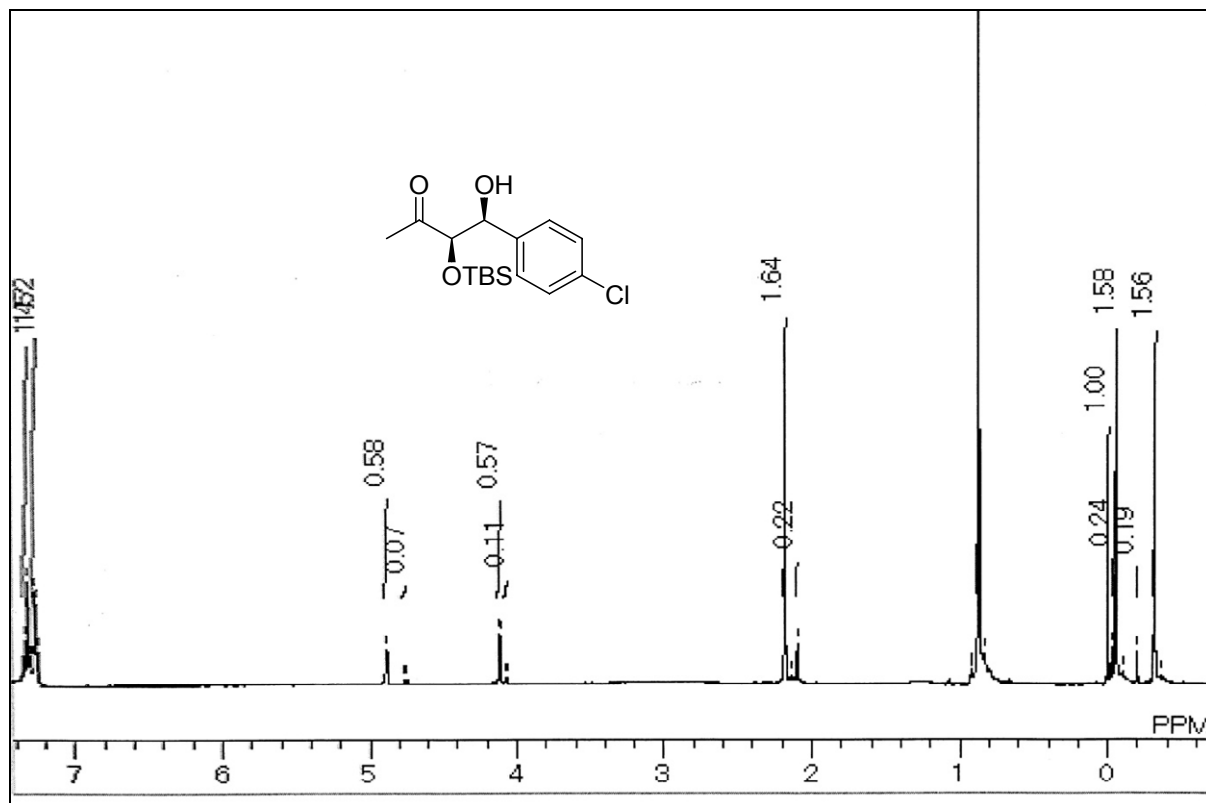
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(2'-trifluoromethylphenyl)butan-2-one  
(4j). Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



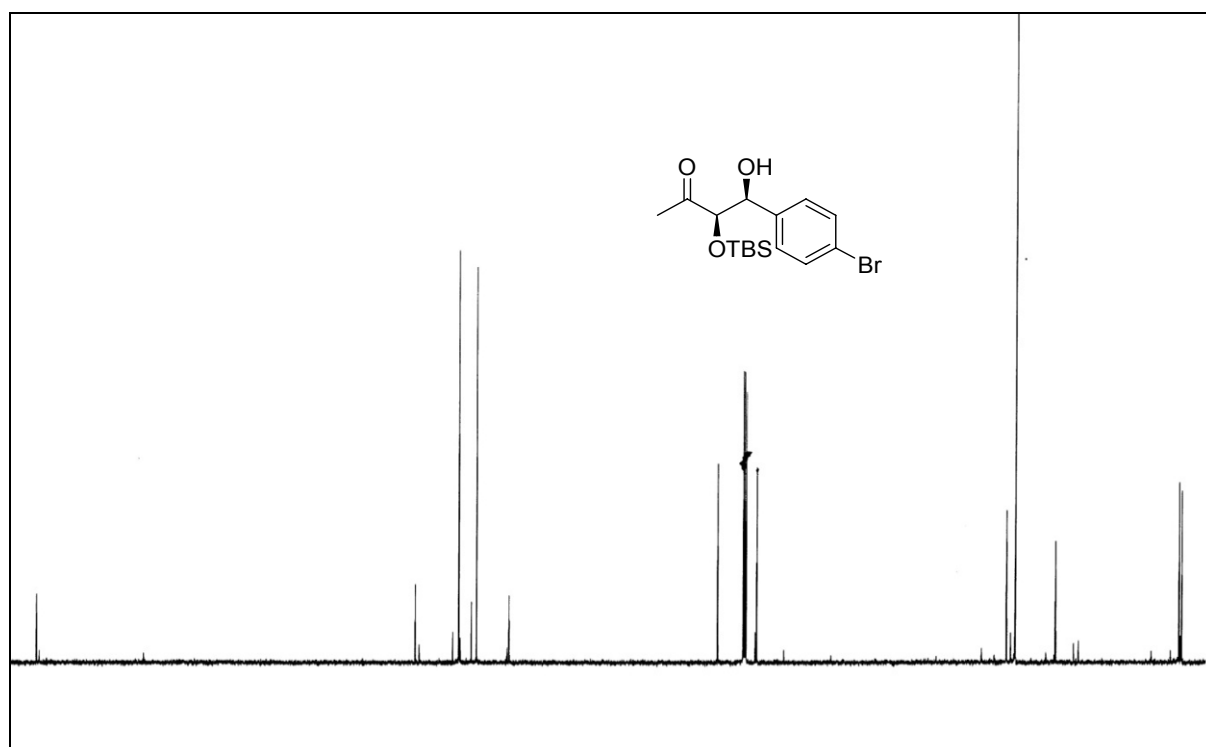
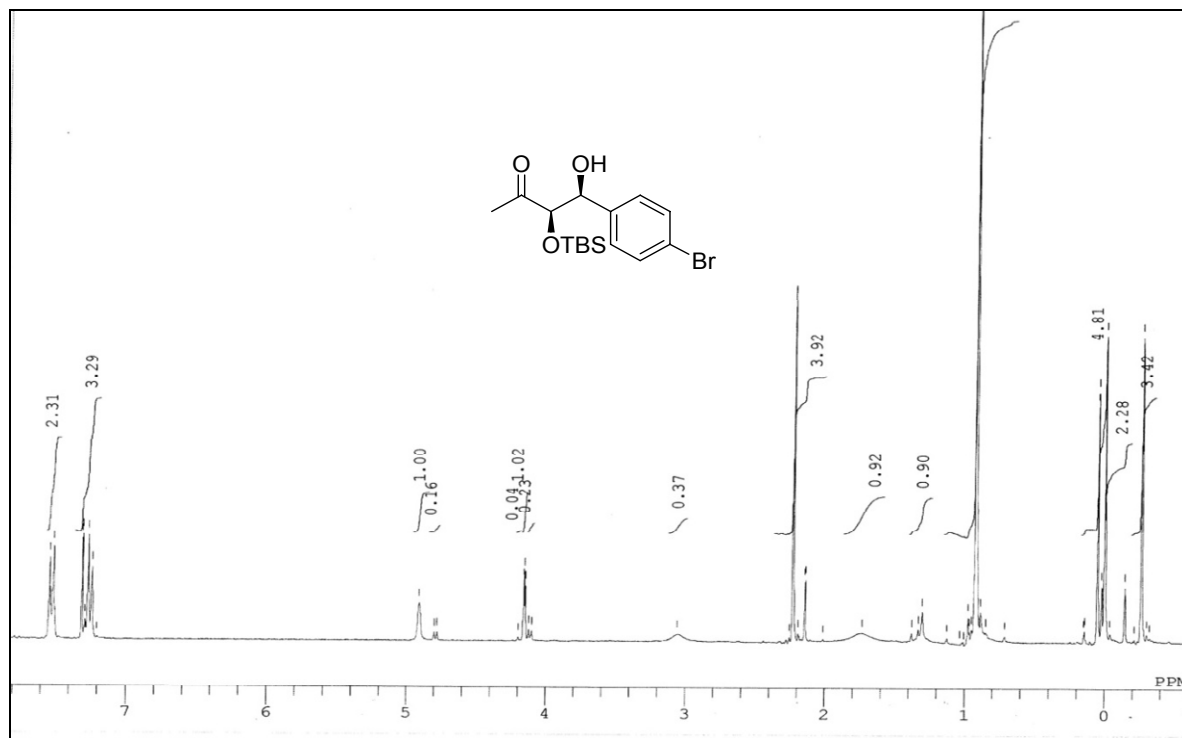
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(4'-cyanophenyl)butan-2-one (4k).  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



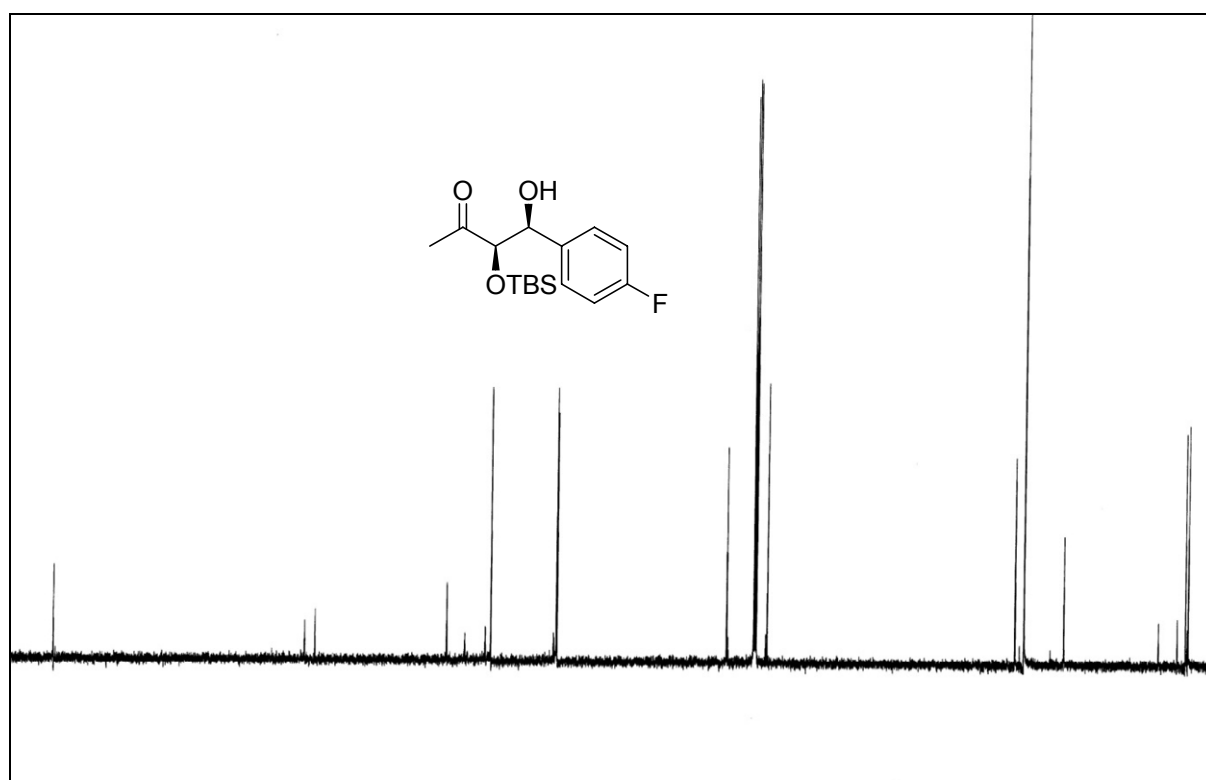
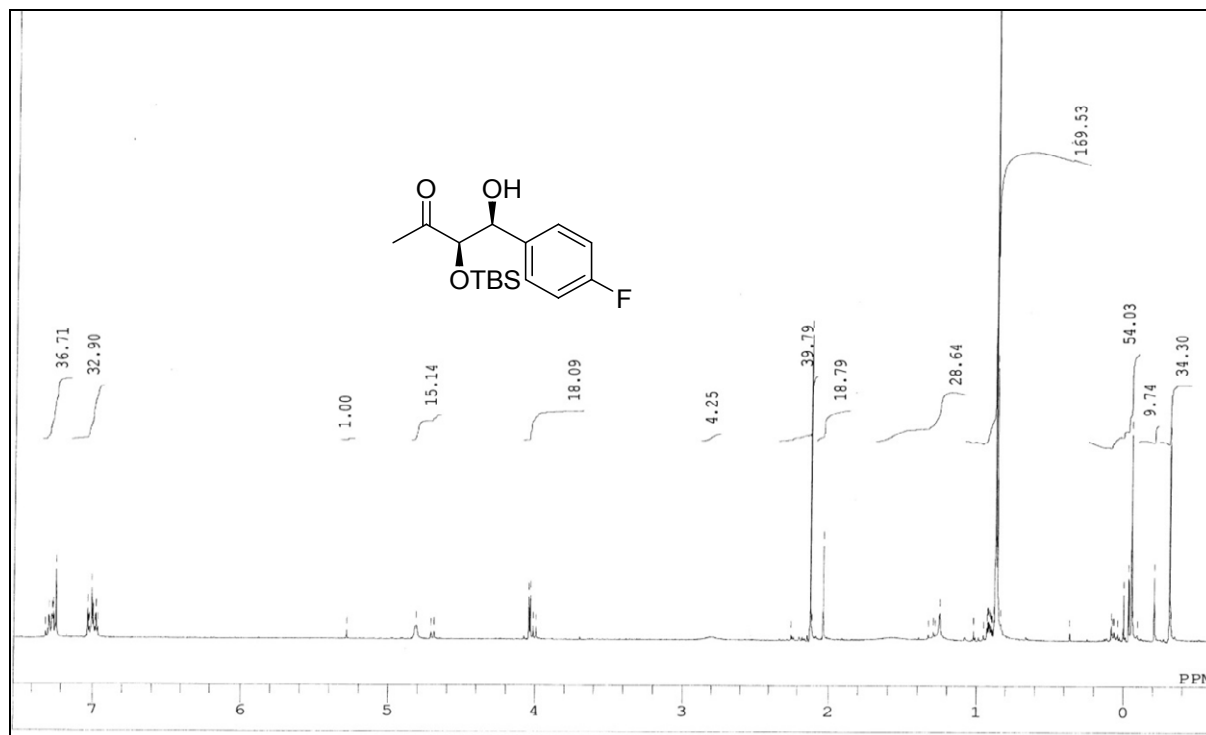
(3R,4S)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(4'-chlorophenyl)butan-2-one (**4m**).  
Spectra:  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



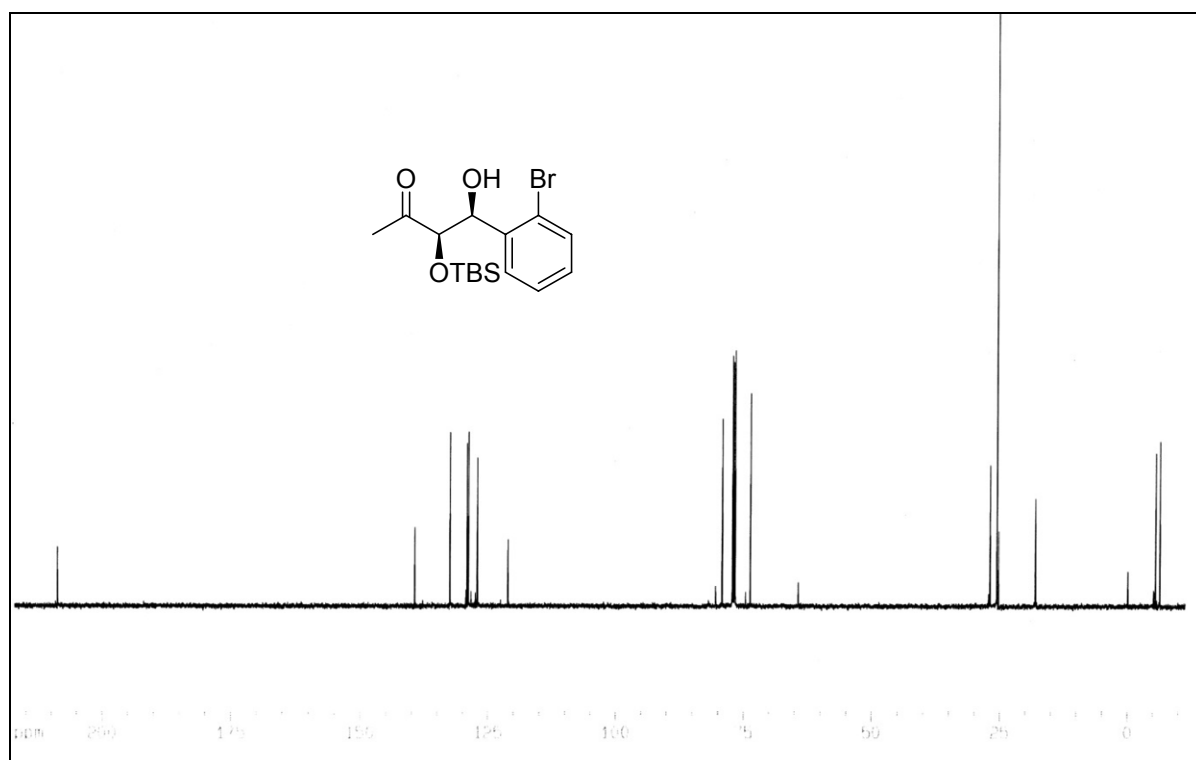
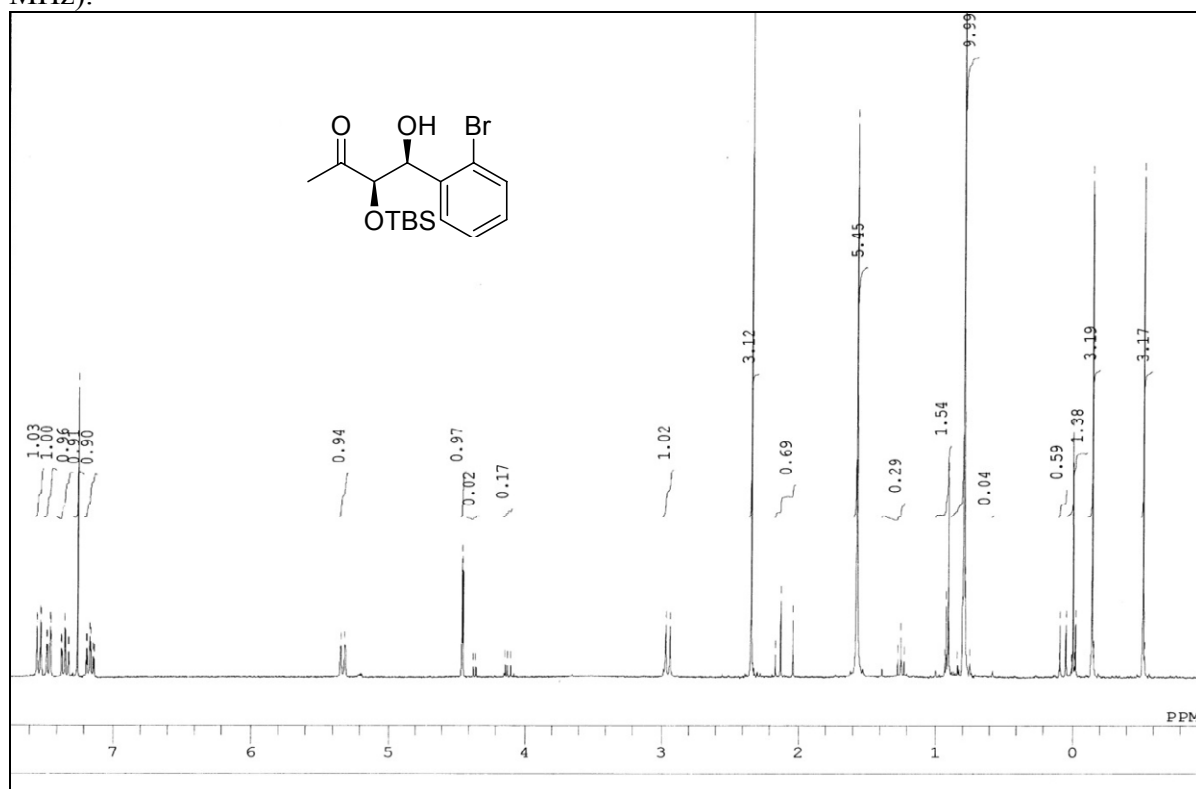
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(4'-bromophenyl)butan-2-one (**4n**).  
Spectra:  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



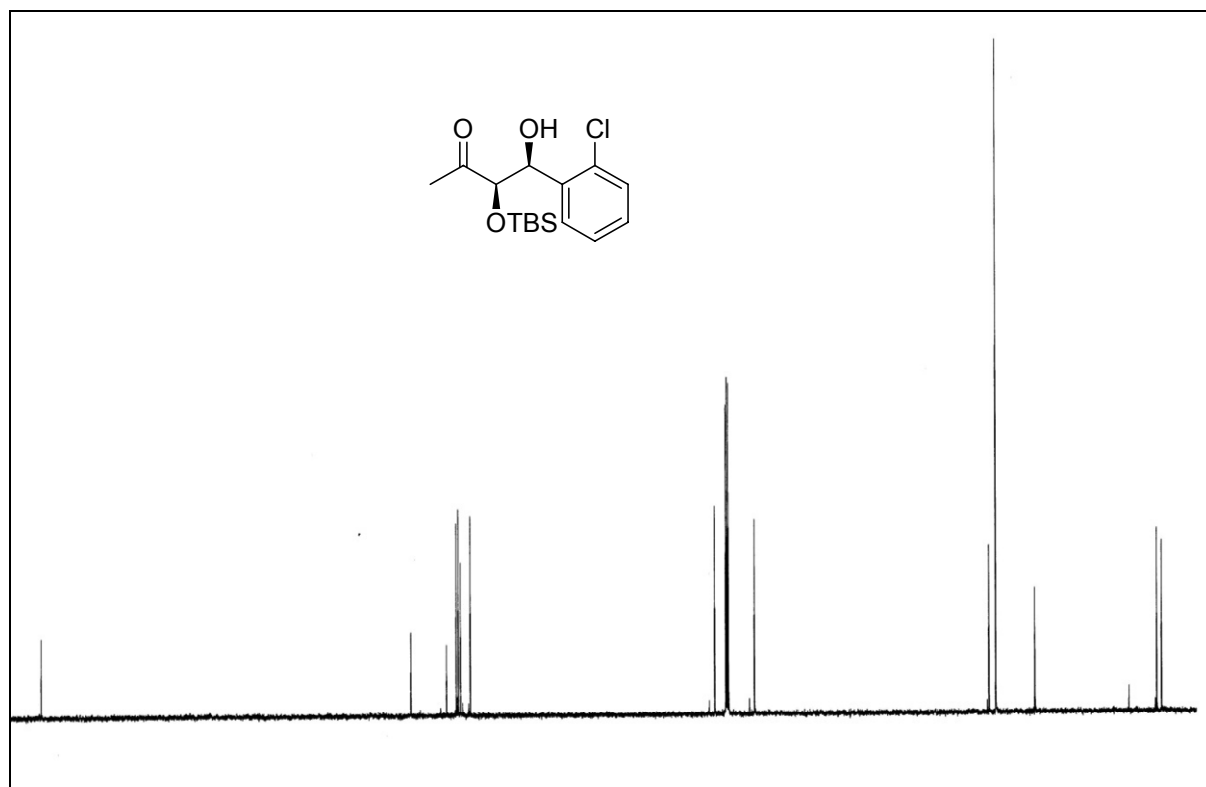
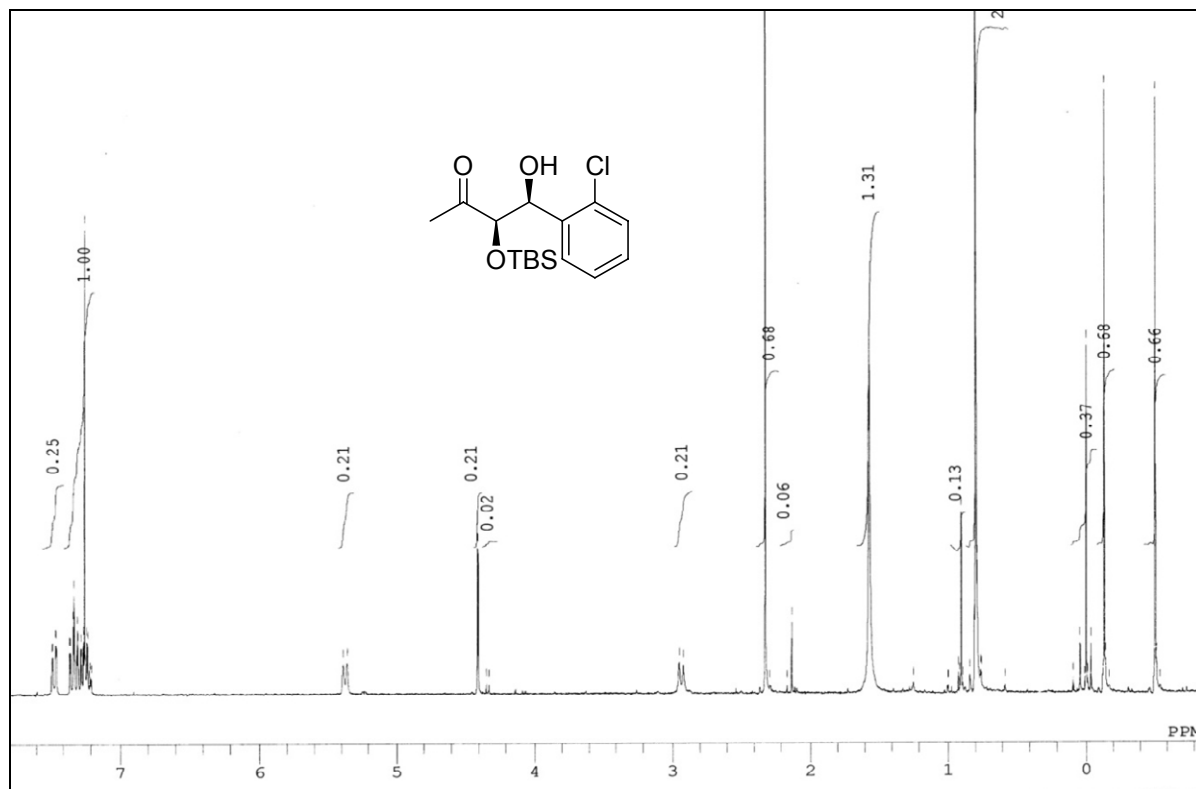
(3R,4S)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(4'-fluorophenyl)butan-2-one (4I).  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



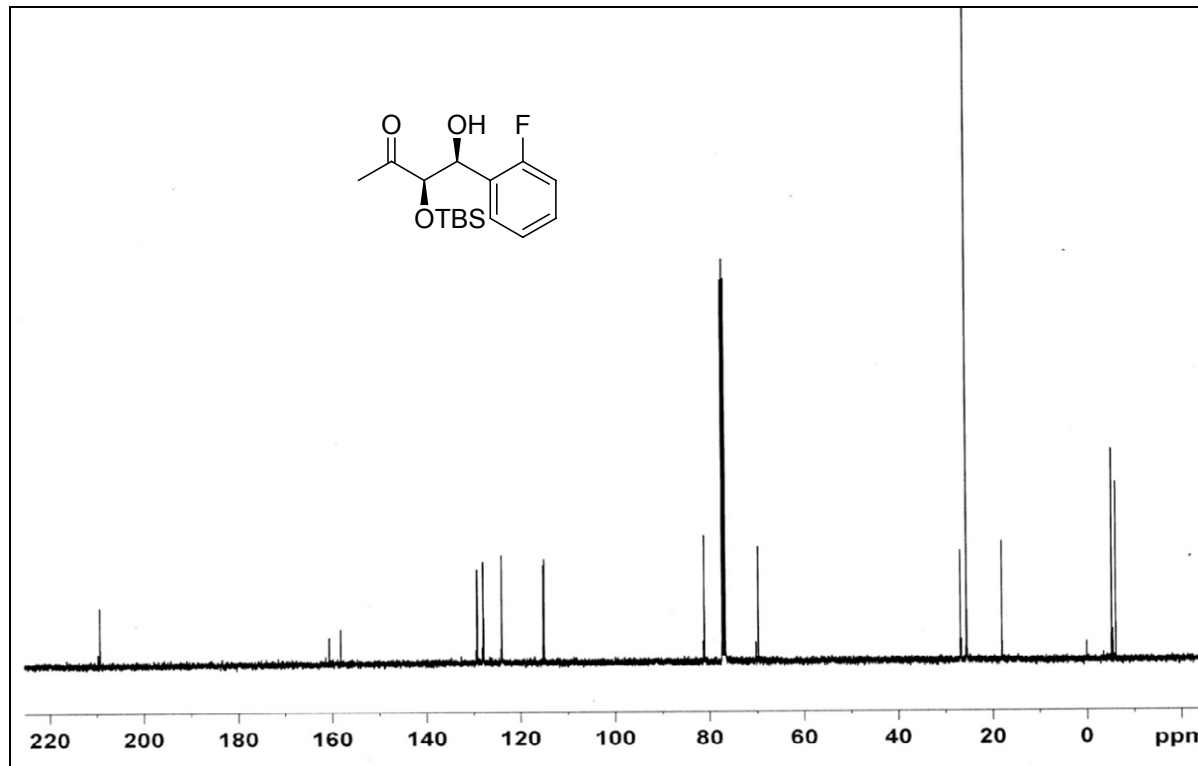
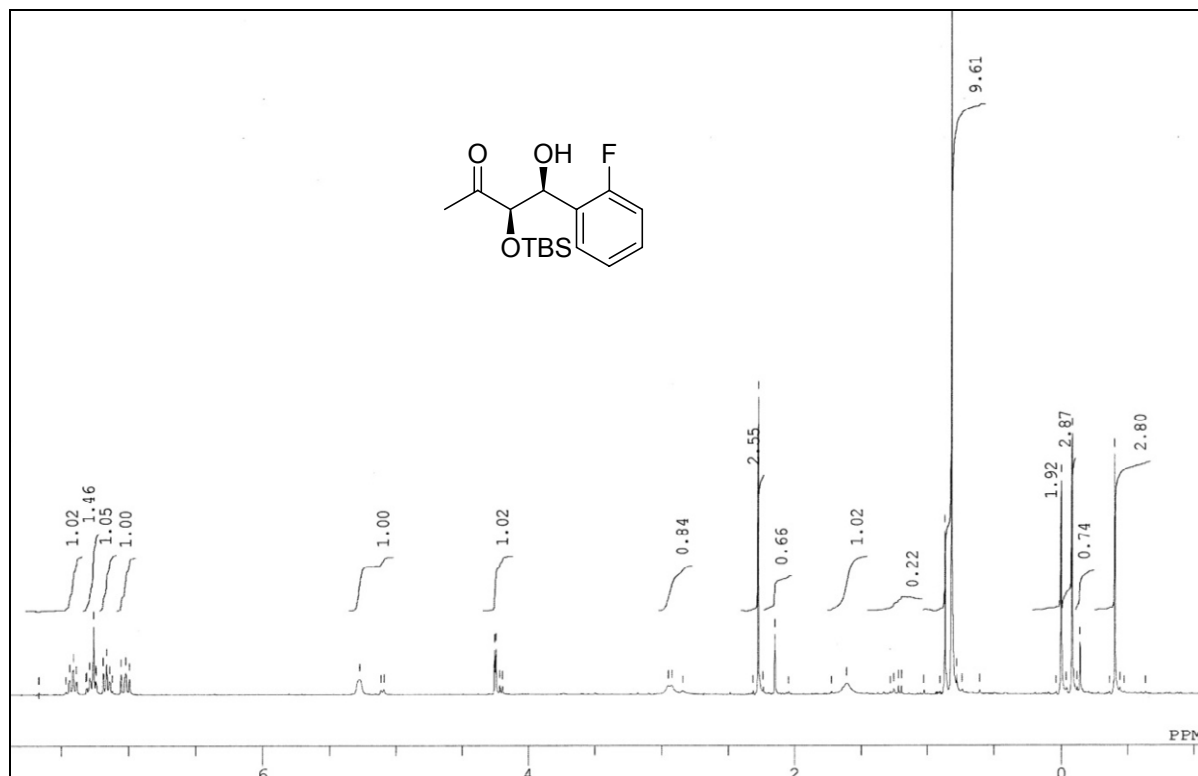
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(2'-bromophenyl)butan-2-one (**4q**).  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



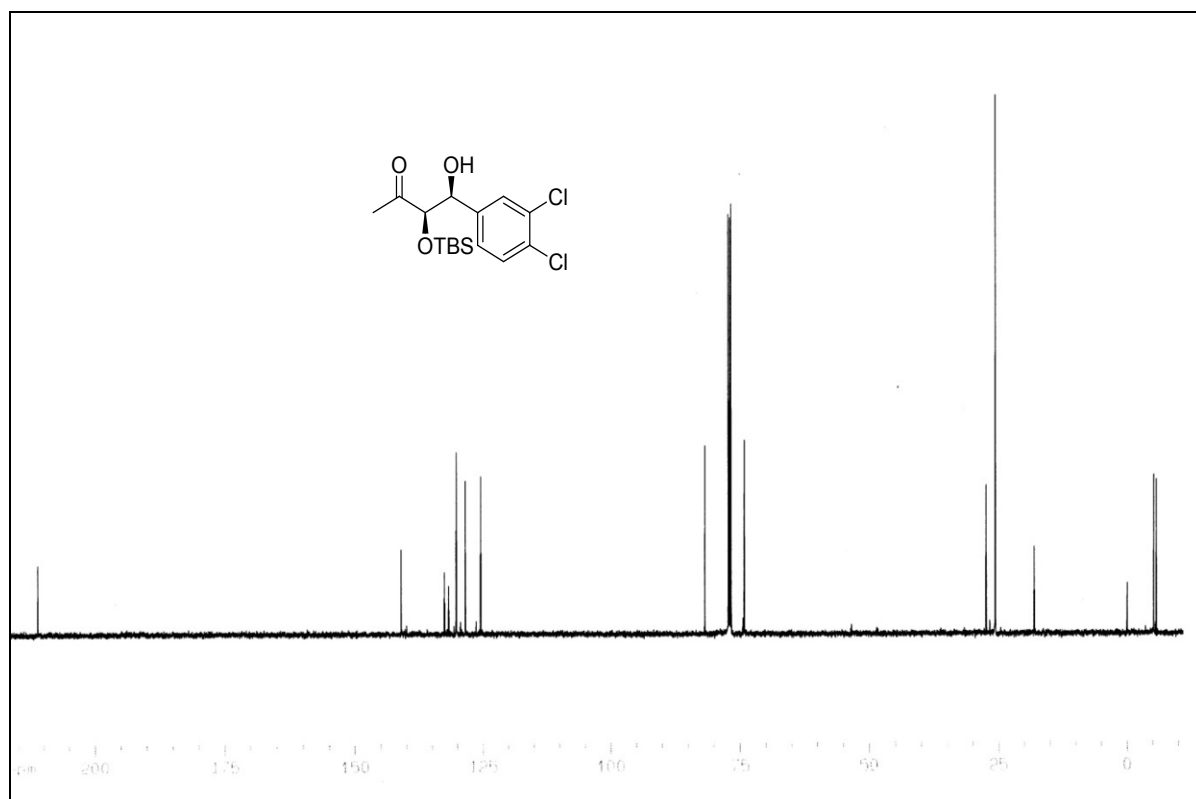
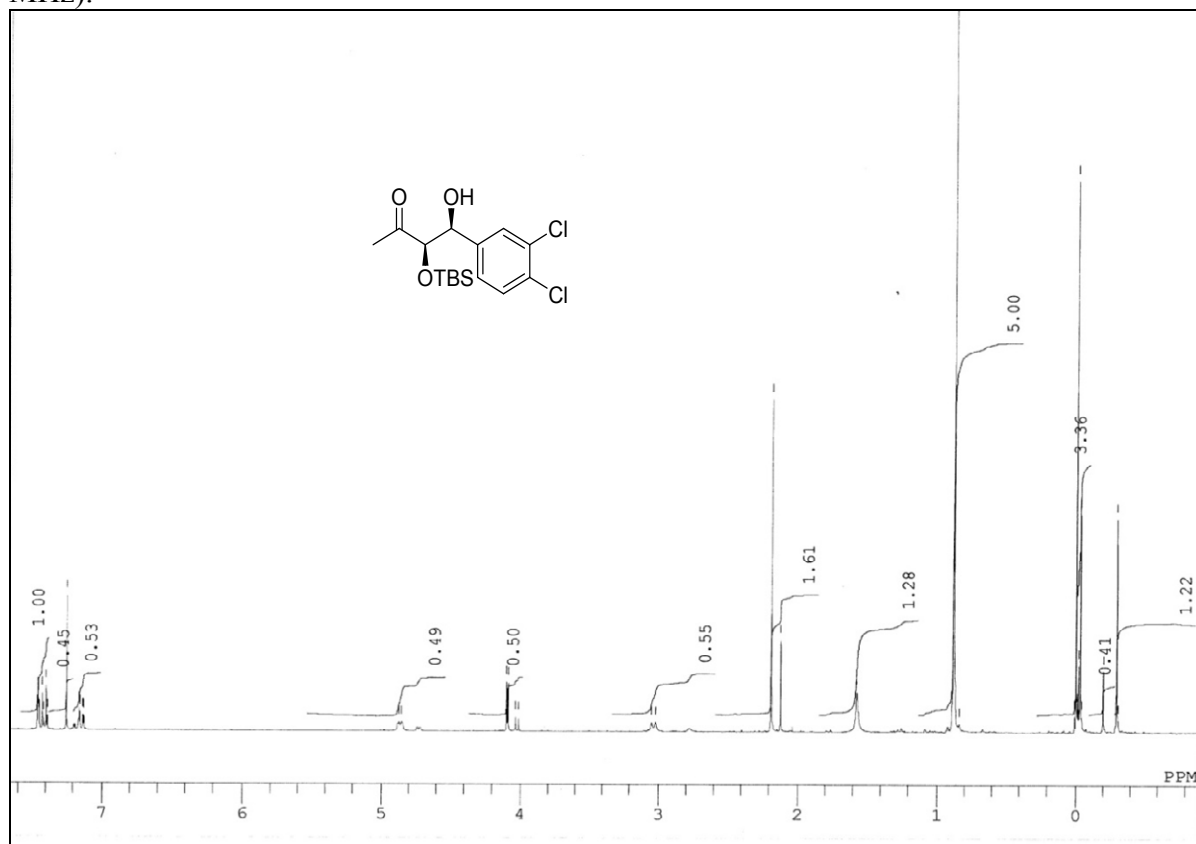
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(2'-chlorophenyl)butan-2-one **(4p)**.  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



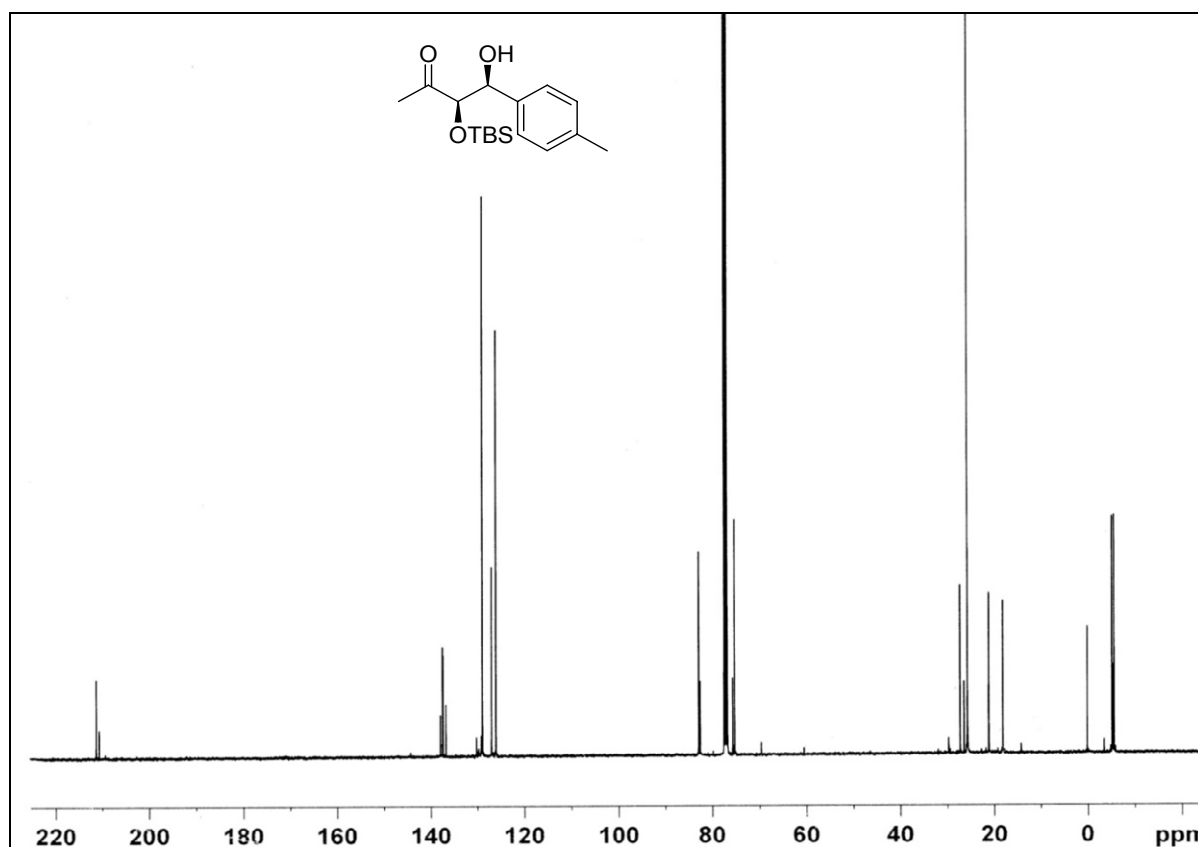
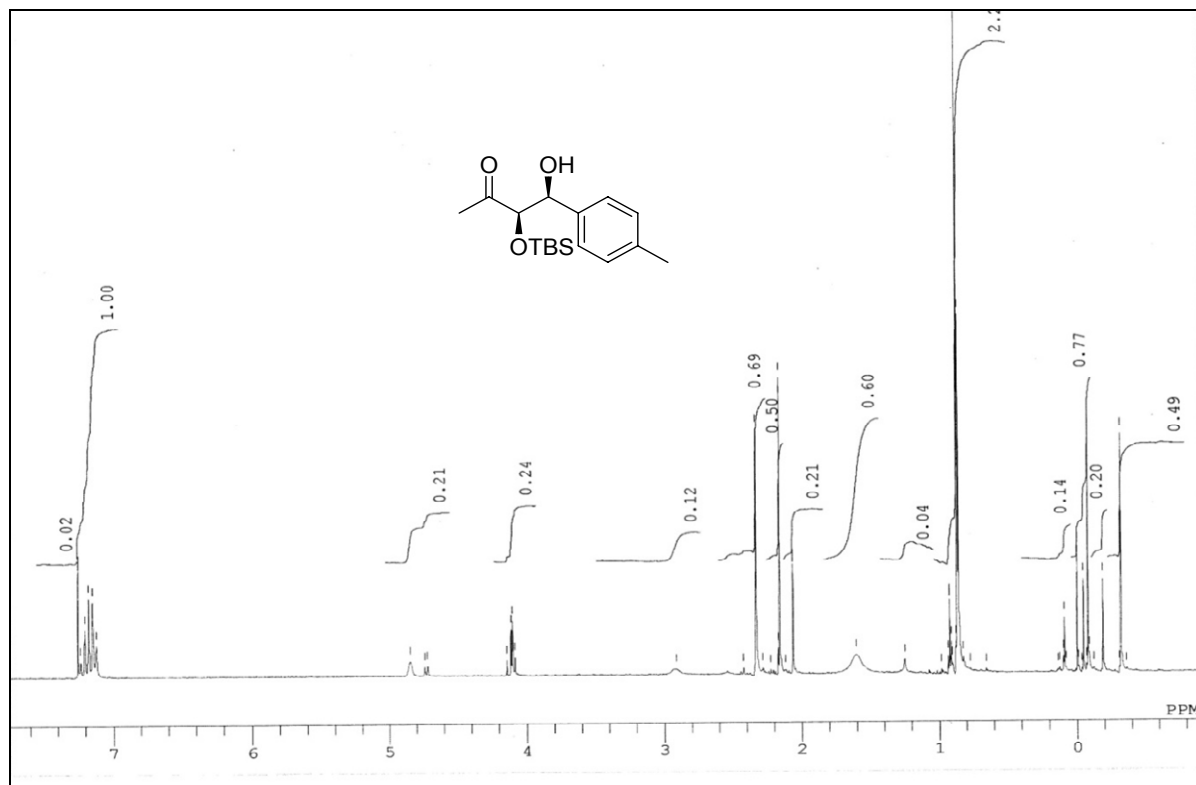
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(2'-fluorophenyl)butan-2-one (**4o**).  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(3',4'-dichlorophenyl)butan-2-one (**4r**).  
Spectra;  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).

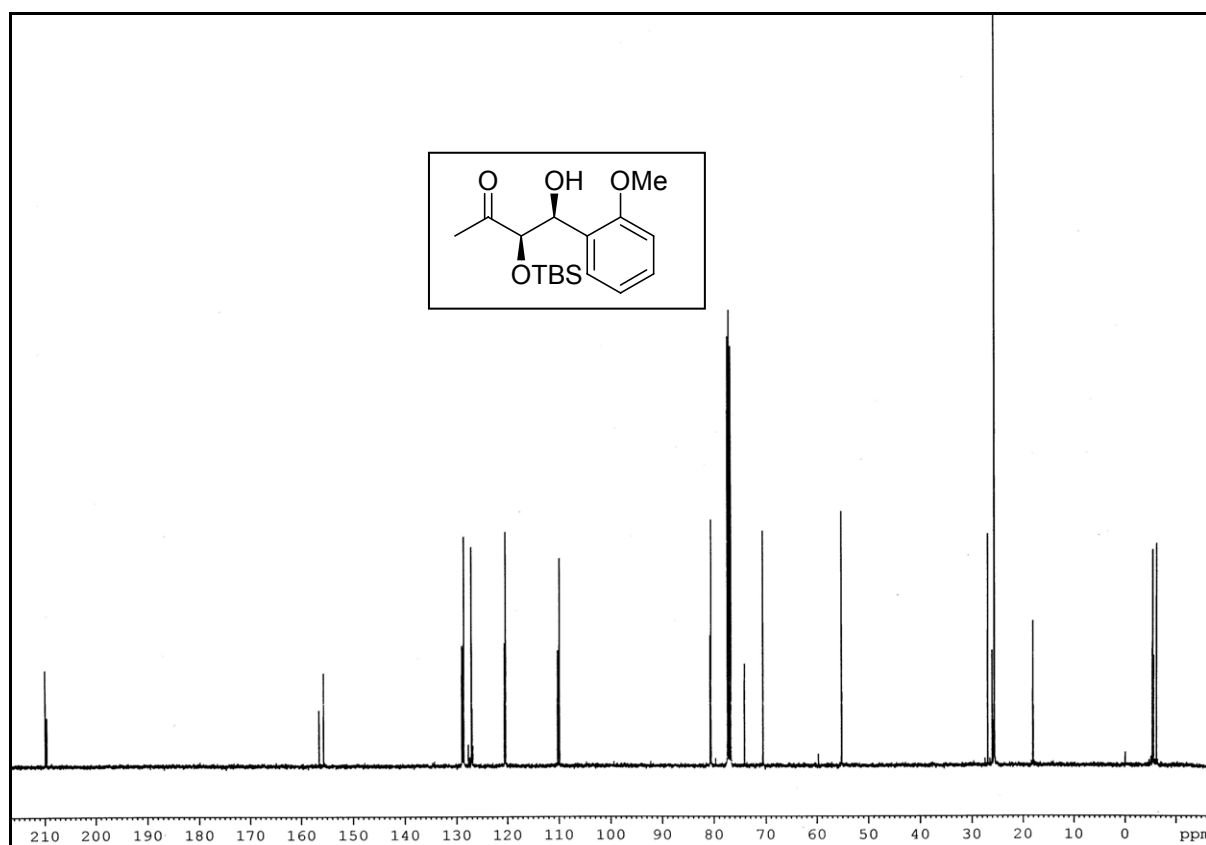
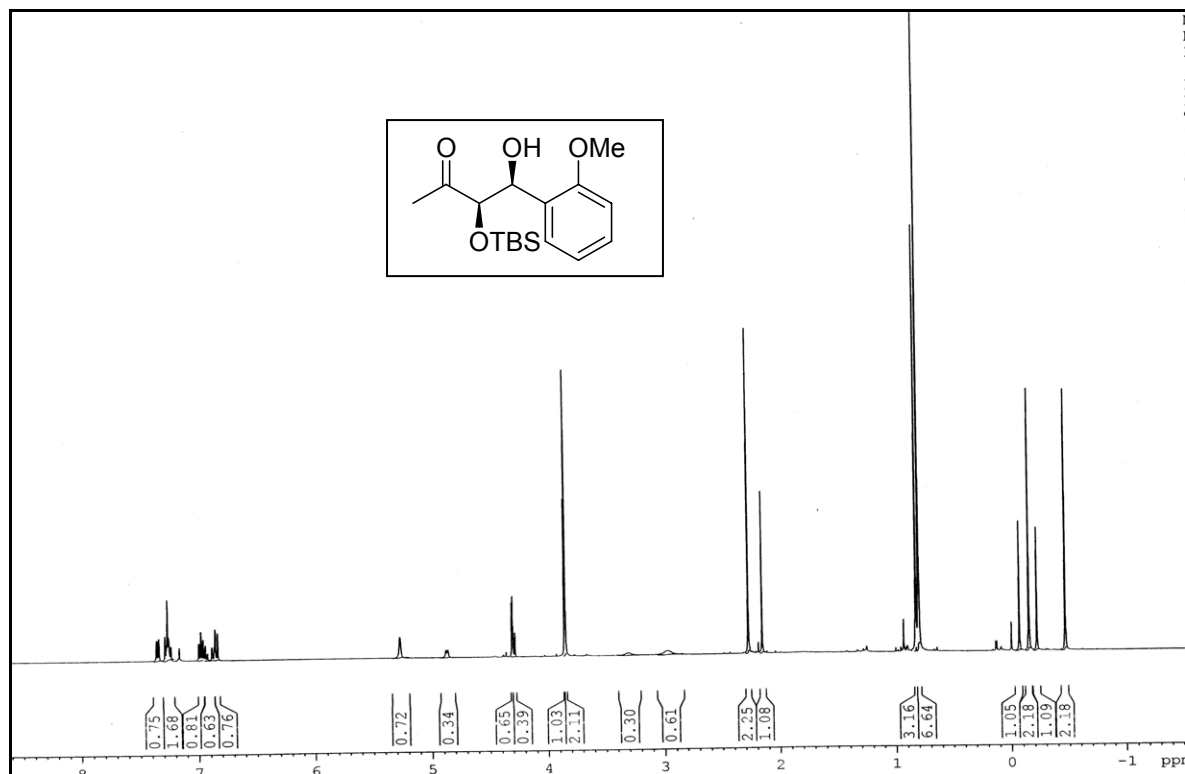


(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(4'-methylphenyl)butan-2-one (4t).  
Spectra:  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).

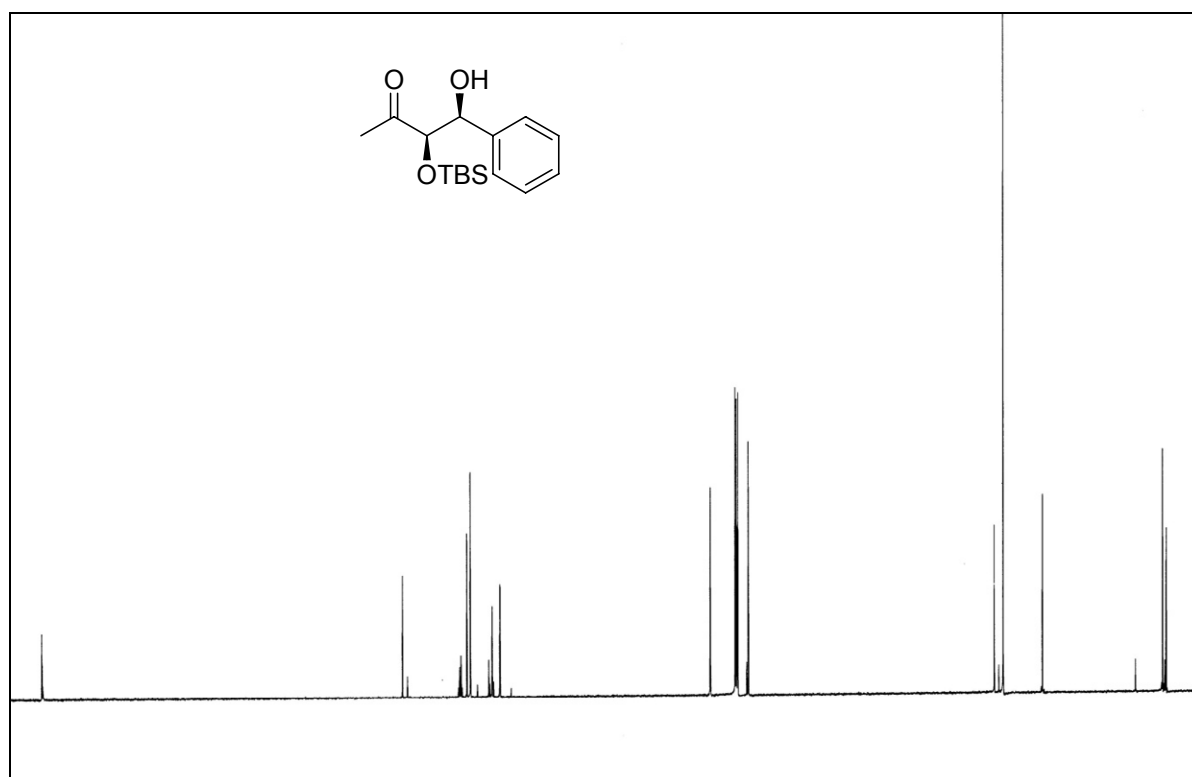
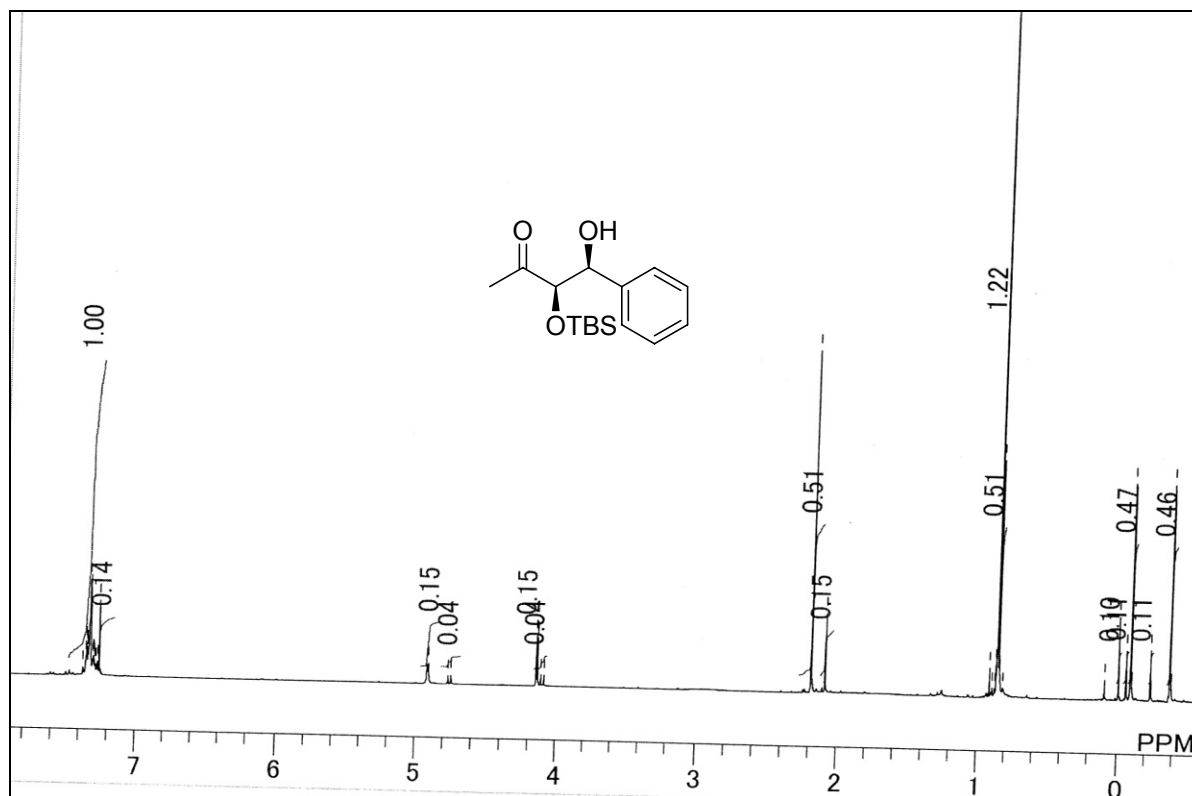


(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(2'-methoxyphenyl)butan-2-one (**4u**).

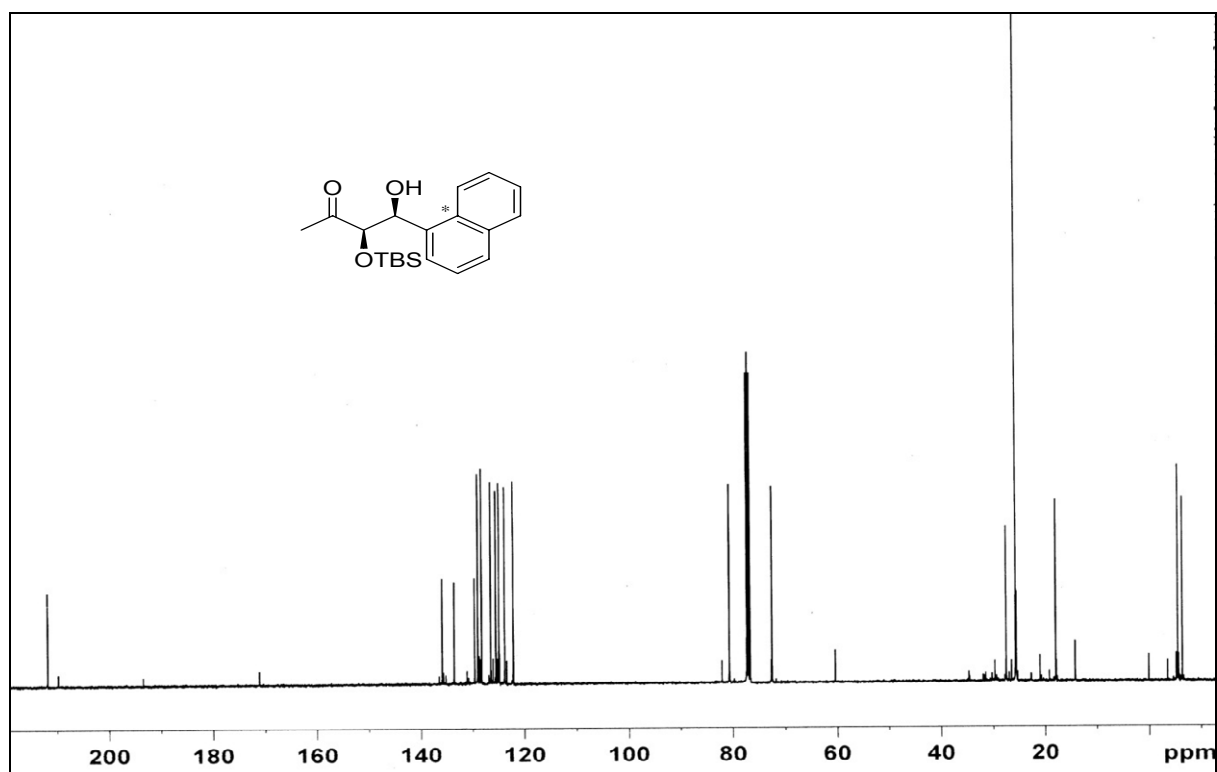
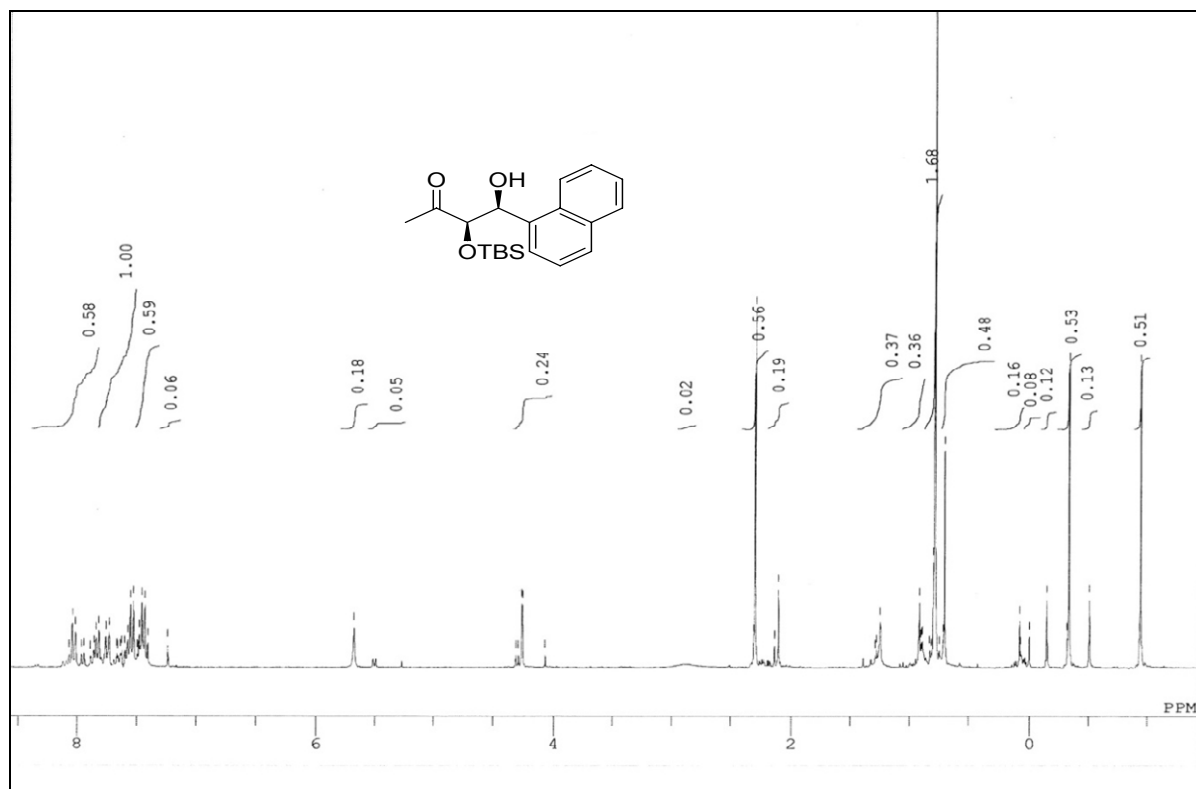
Spectra:  $^1\text{H}$  NMR at 400 MHz (Bruker Avance 400 MHz) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 400 MHz).



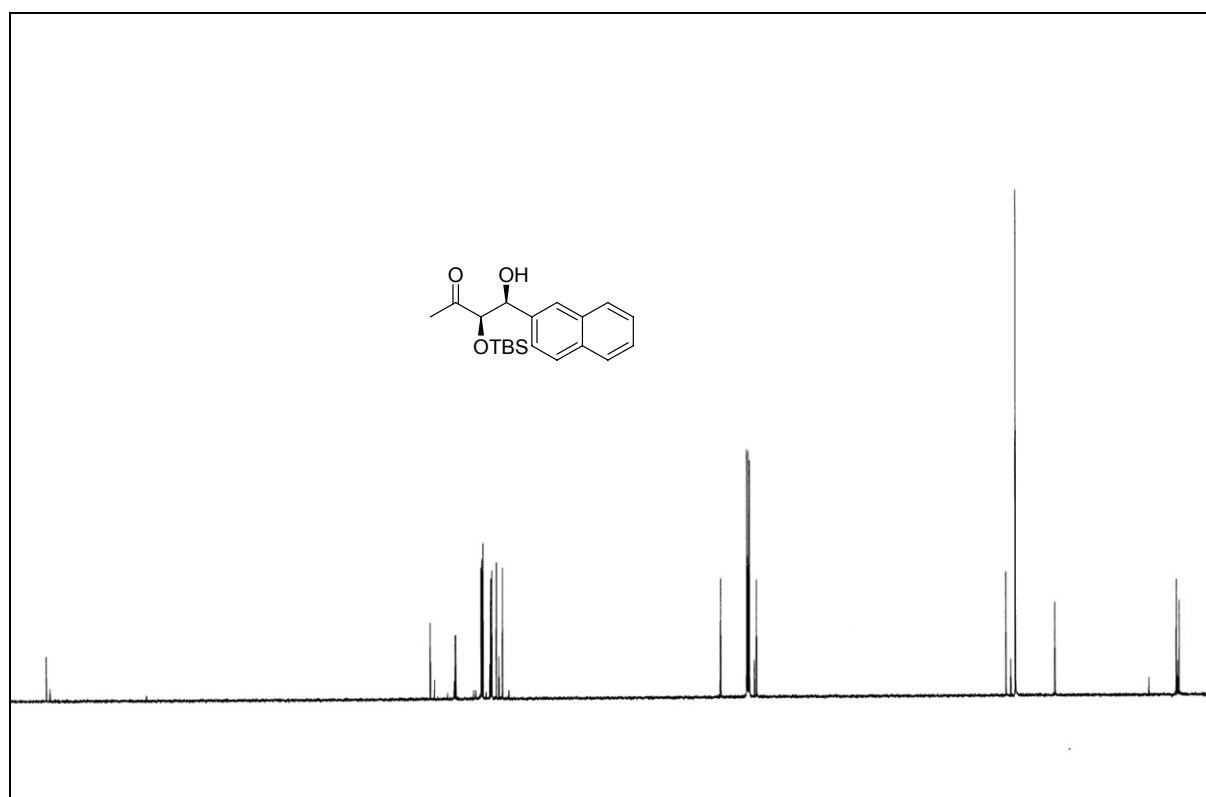
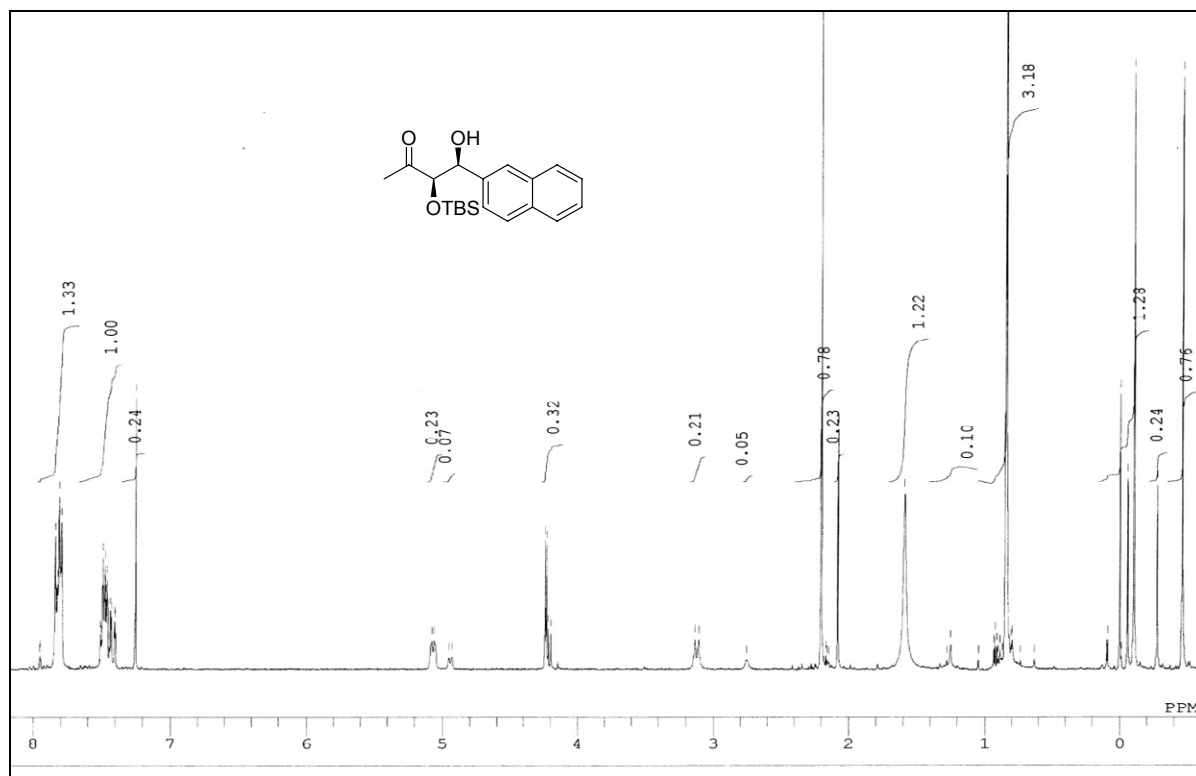
(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(phenyl)butan-2-one (**4s**). Spectra:  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(1'-naphthyl)butan-2-one (**4u**). Spectra;  
 $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).

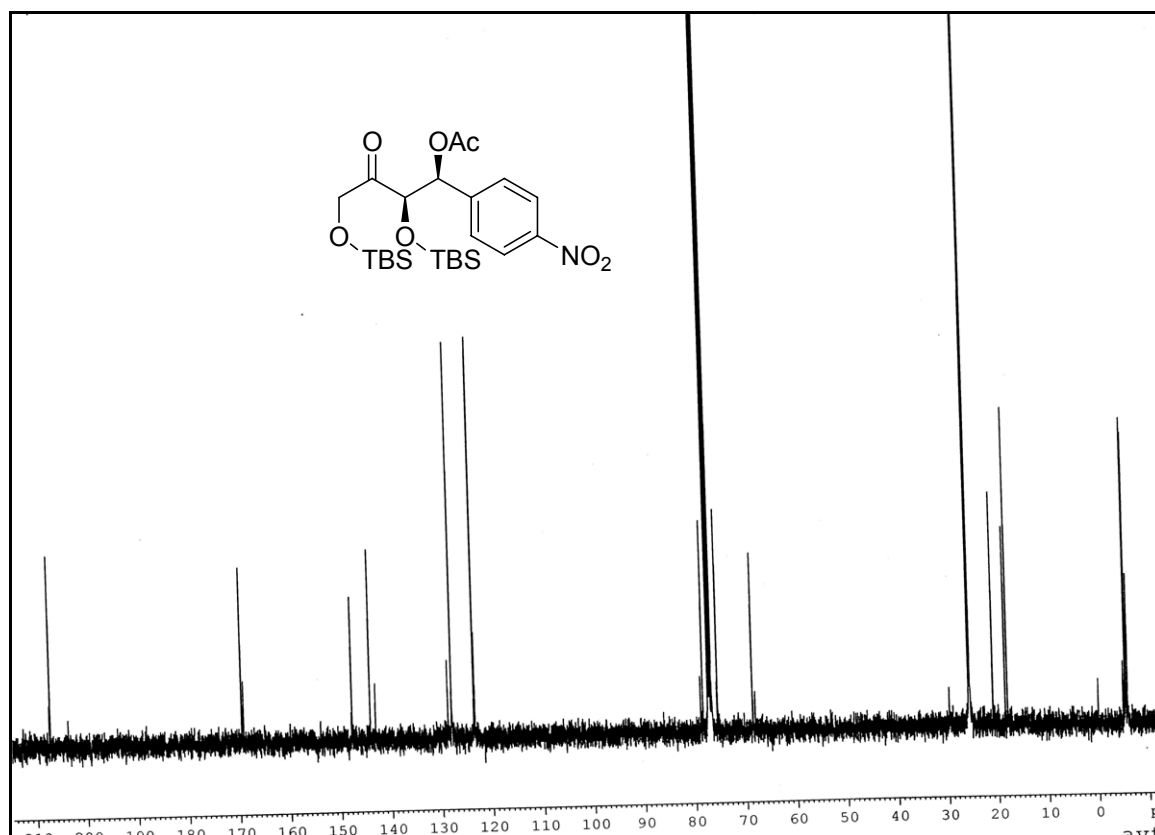
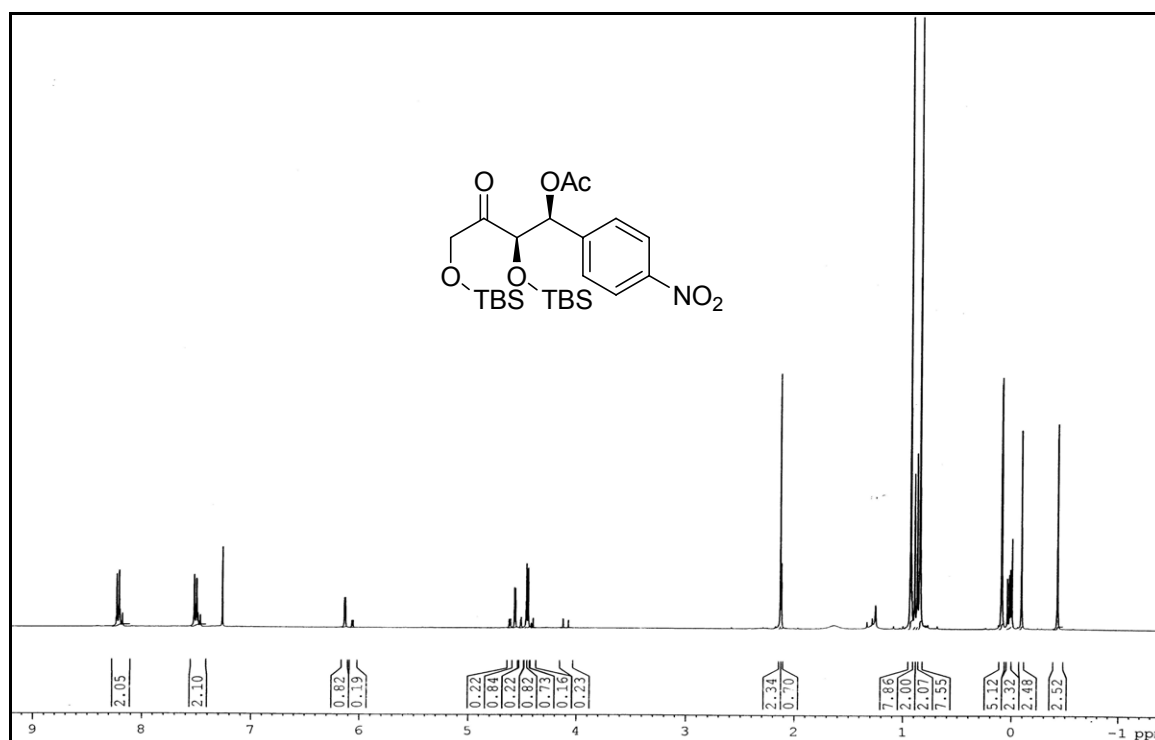


(3*R*,4*S*)-3-(*tert*-butyldimethylsilyloxy)-4-hydroxy-4-(2'-naphthyl)butan-2-one (**4v**). Spectra;  
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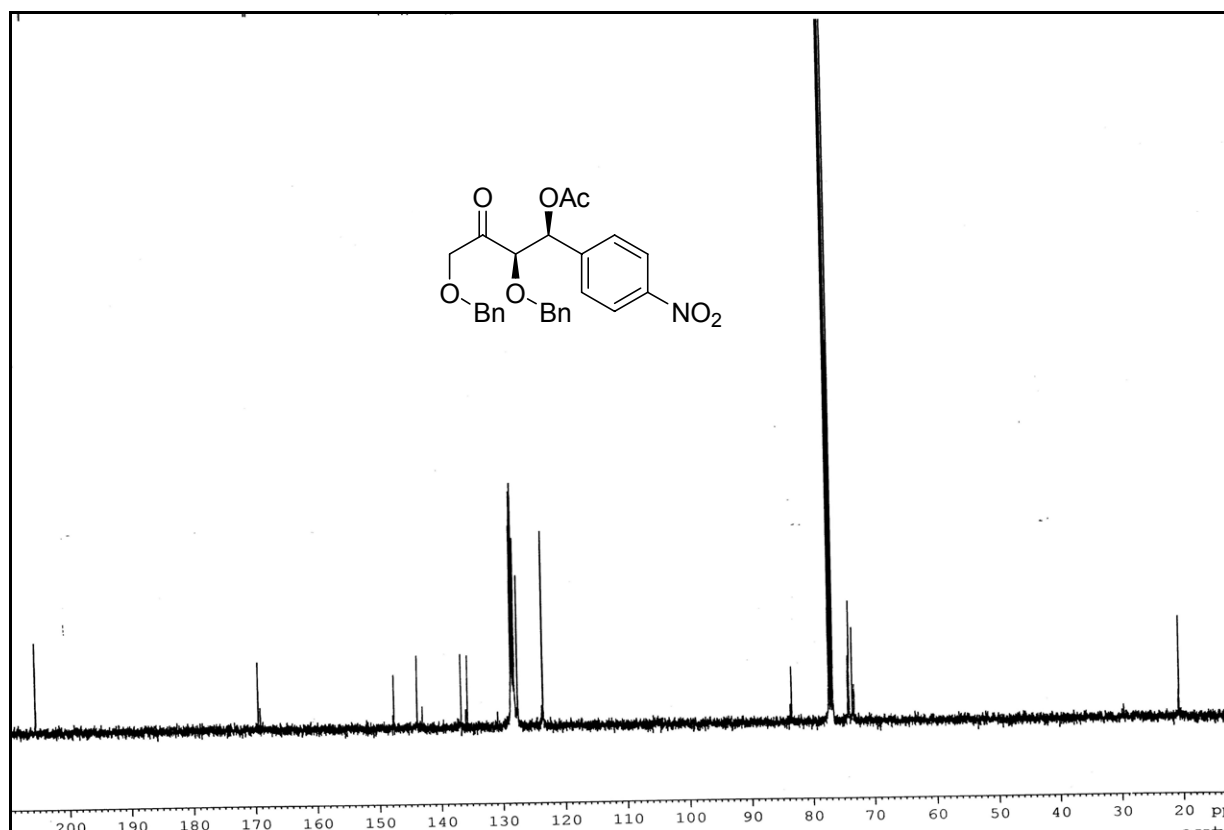
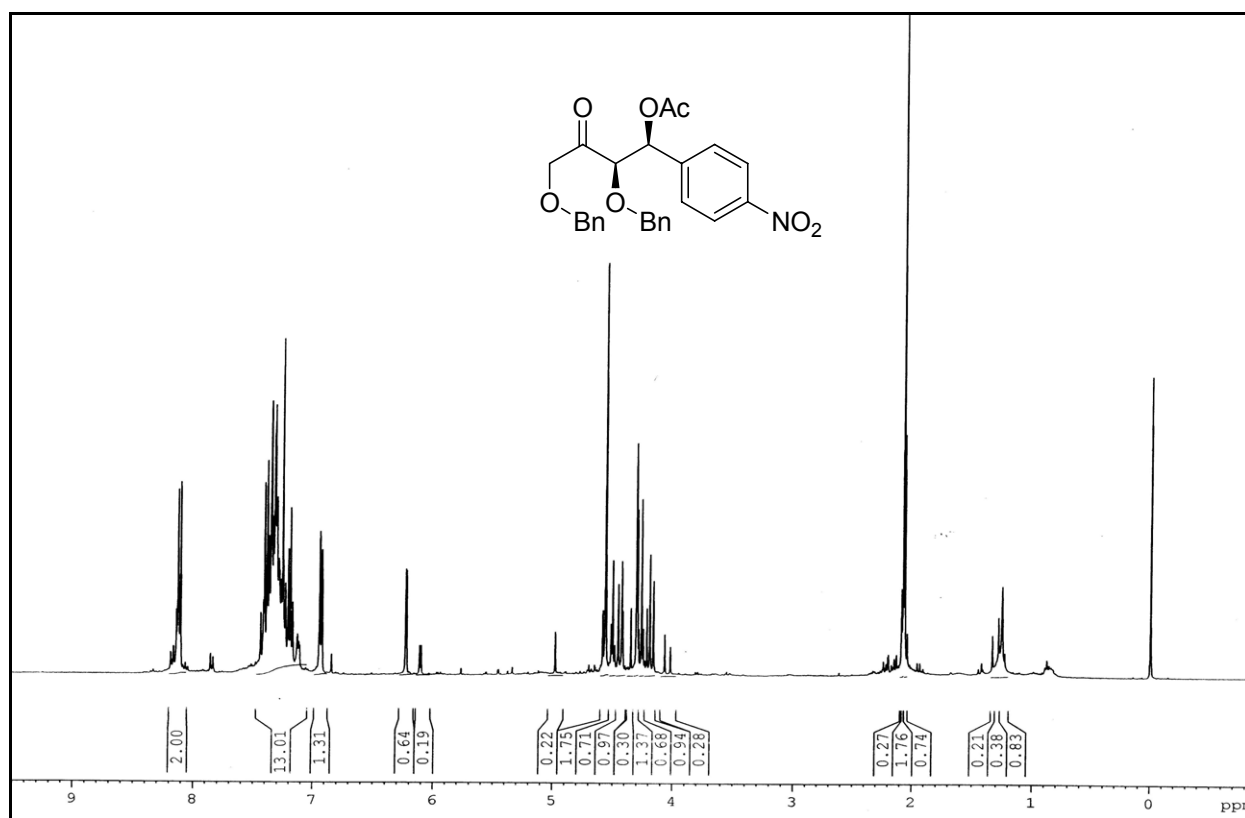
(3*R*,4*S*)-4-Acetoxy-1,3-bis(*tert*-butyldimethylsiloxy)-4-(4'-nitrophenyl)butan-2-one (**4Z**)

Spectra:  $^1\text{H}$  NMR at 400 MHz (Bruker Avance 400 MHz) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 400 MHz).

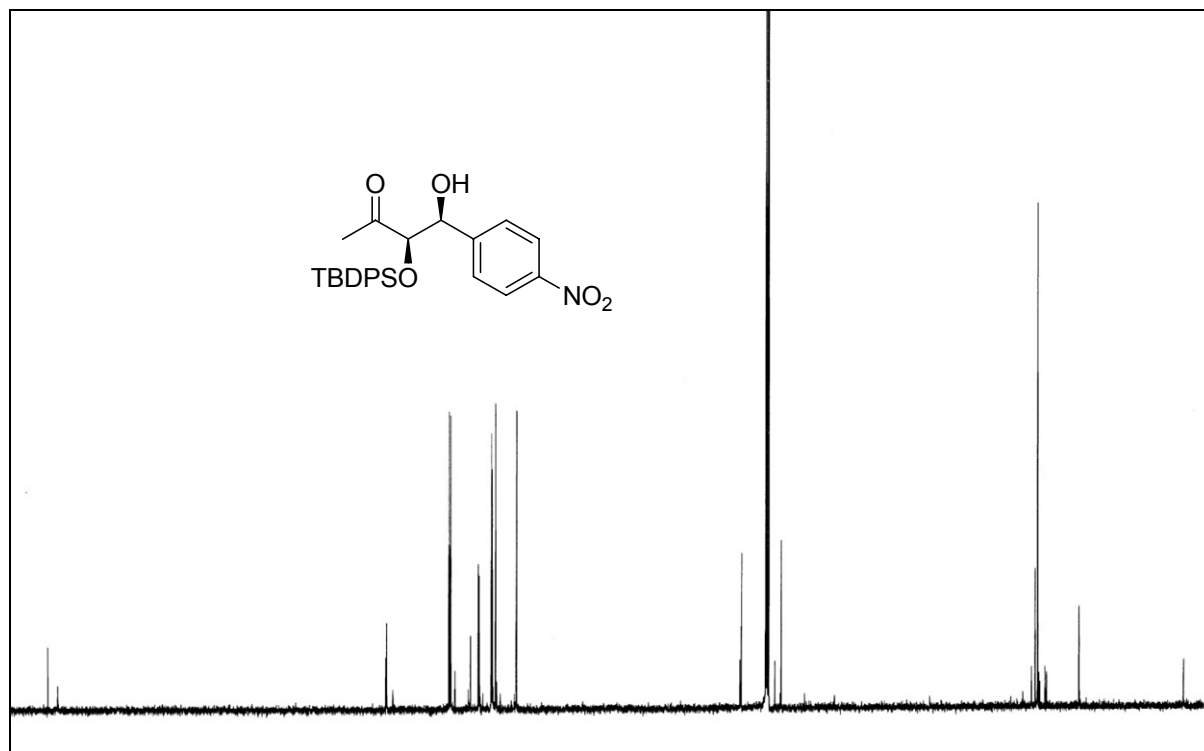
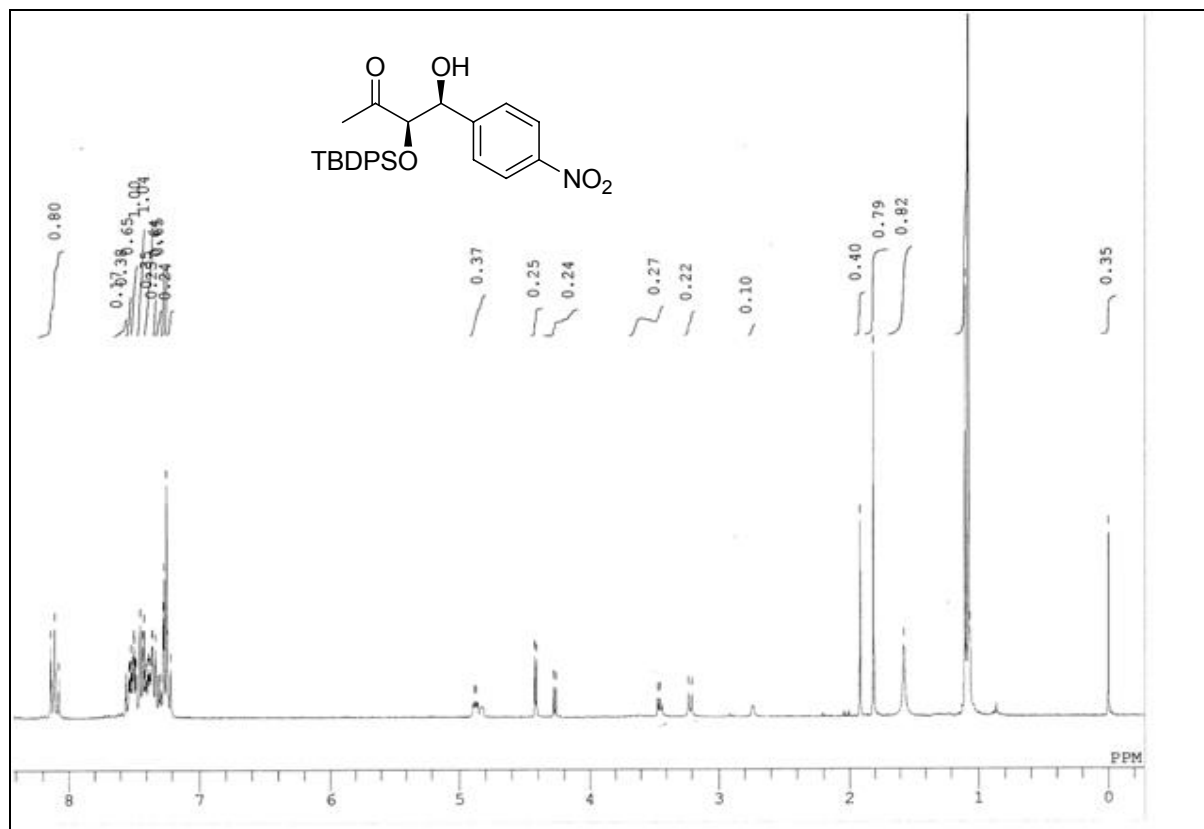


(3*R*,4*S*)-4-Acetoxy-1,3-bis(benzyloxy)-4-(4'-nitrophenyl)butan-2-one (**4y**).

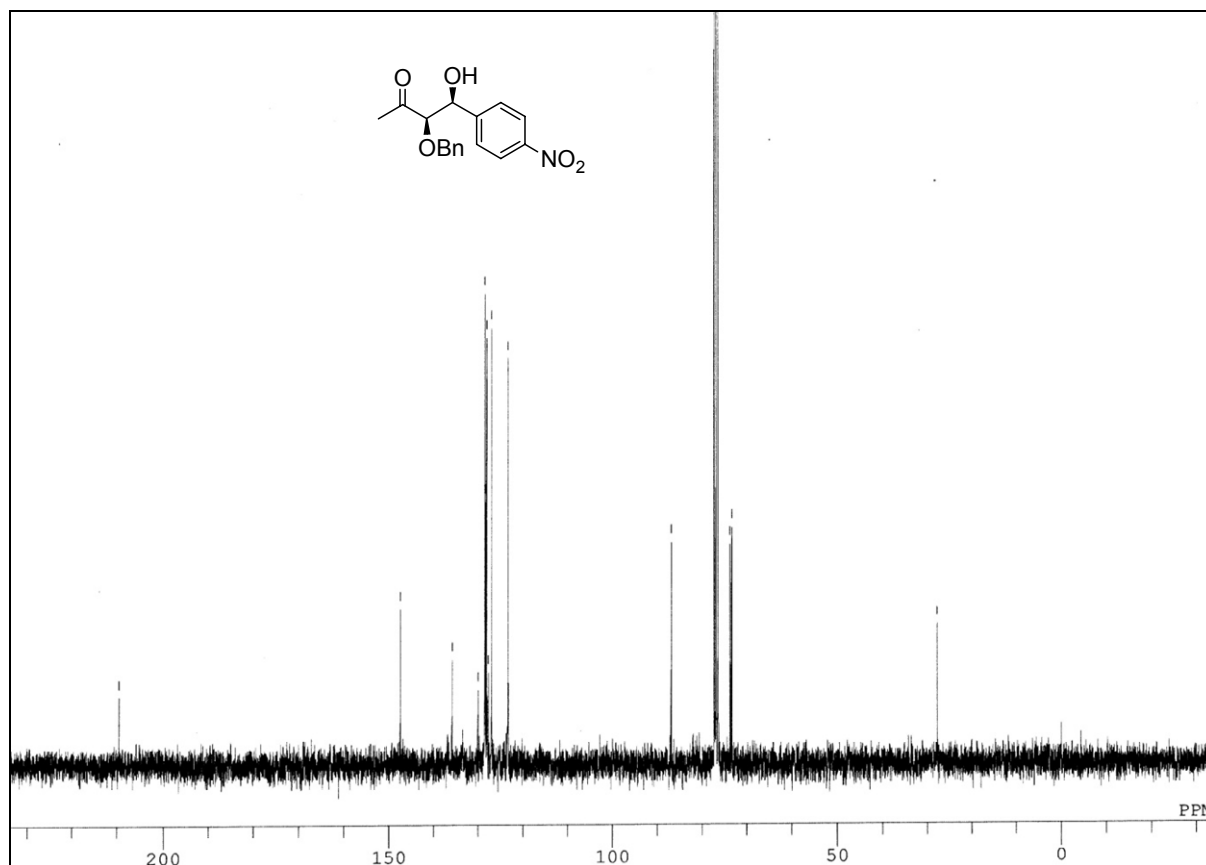
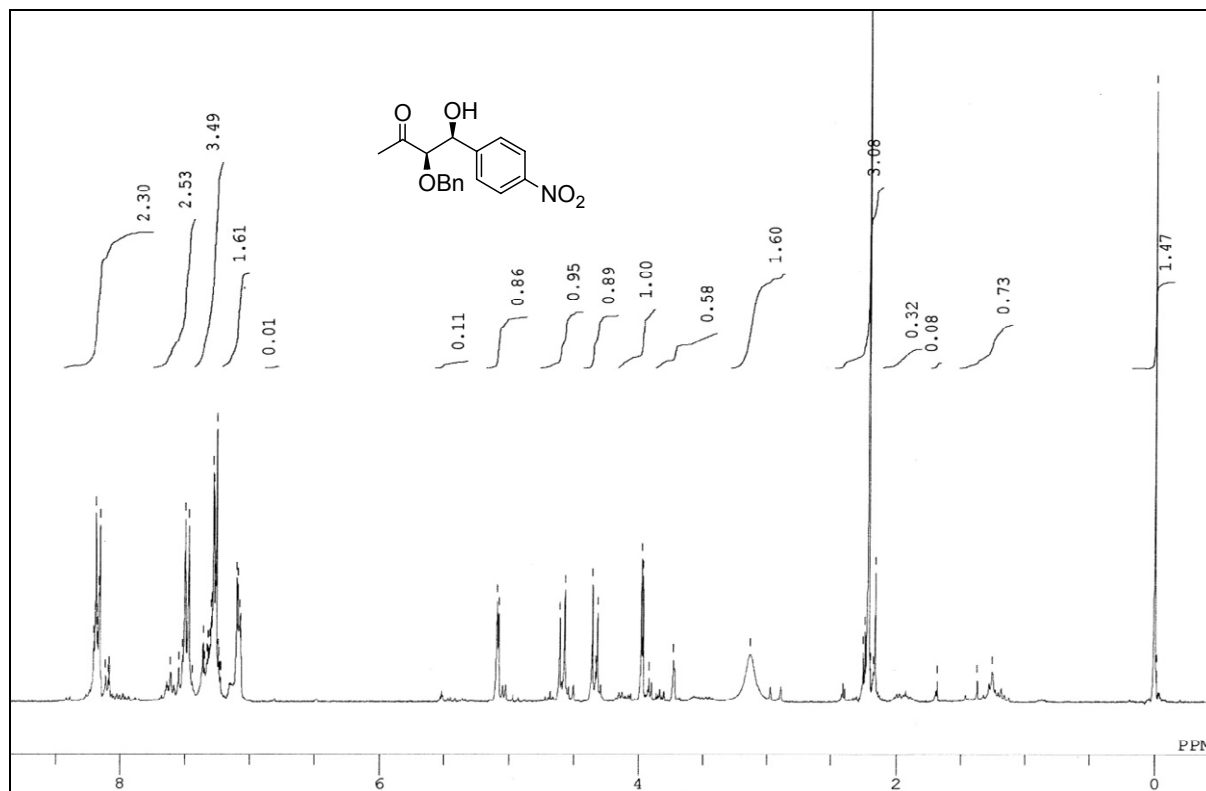
Spectra:  $^1\text{H}$  NMR at 400 MHz (Bruker Avance 400 MHz) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 400 MHz).



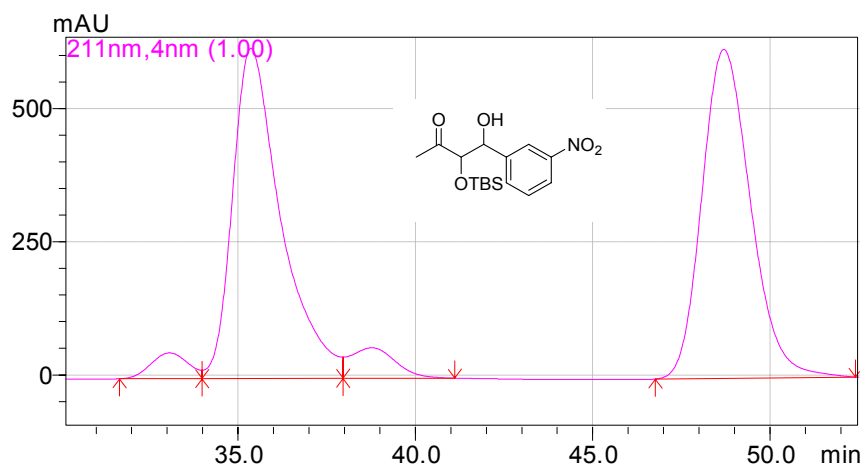
(3*R*,4*S*)-3-(*tert*-butyldiphenylsilyloxy)-4-hydroxy-4-(4'-nitrophenyl)butan-2-one (4c).  
Spectra:  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



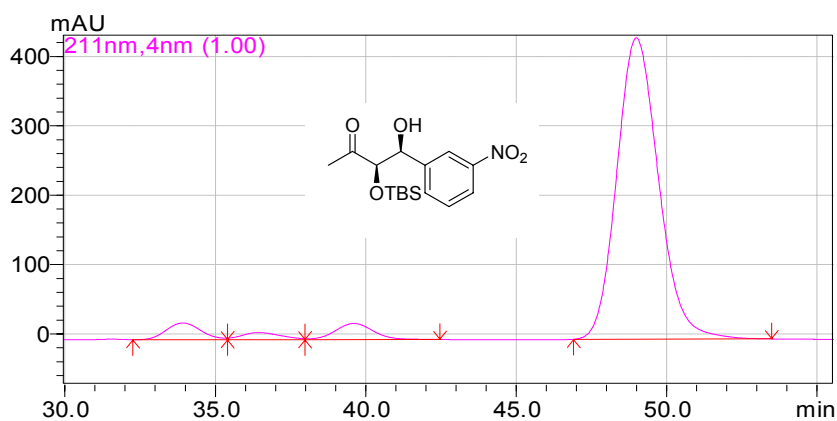
(3*R*,4*S*)-3-(benzyloxy)-4-hydroxy-4-(4'-nitrophenyl)butan-2-one (**4e**). Spectra:  $^1\text{H}$  NMR at 300 MHz (Jeol AL-300) and  $^{13}\text{C}$  at 100 MHz (Bruker Avance 500 MHz).



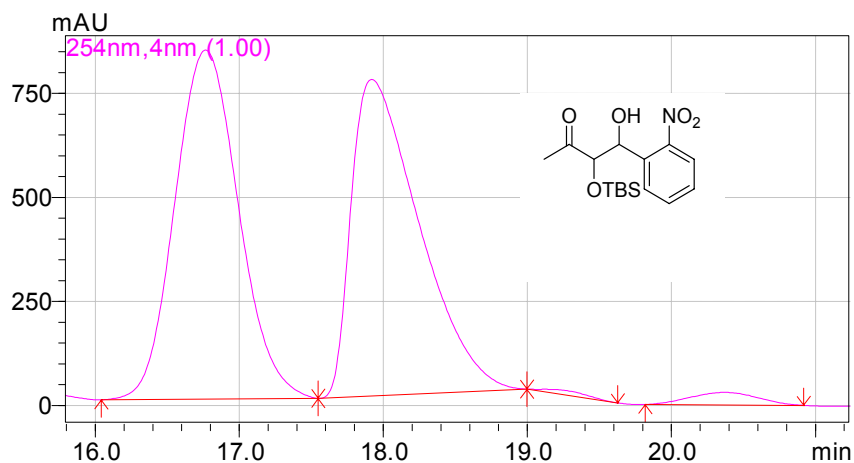
### 3. HPLC Chromatograms of aldol addition products



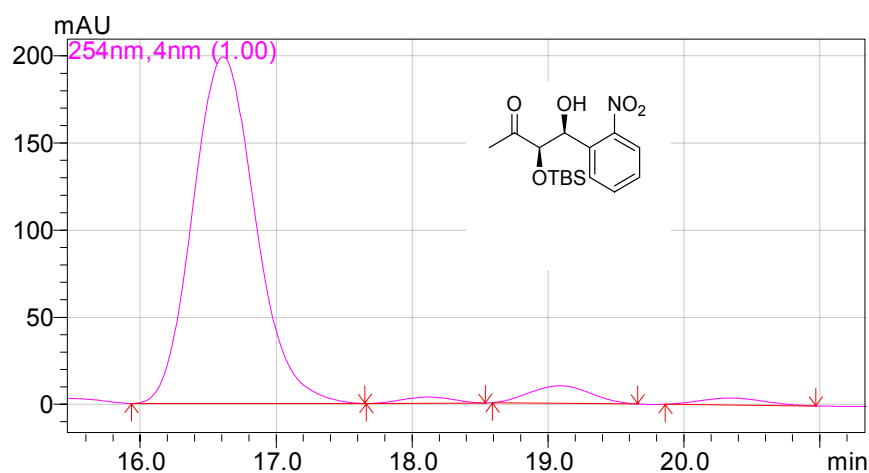
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT33.055 | 33.055    | 2.7935  |
| 2    | RT35.359 | 35.359    | 46.5166 |
| 3    | RT38.766 | 38.766    | 3.9958  |
| 4    | RT48.694 | 48.694    | 46.6941 |



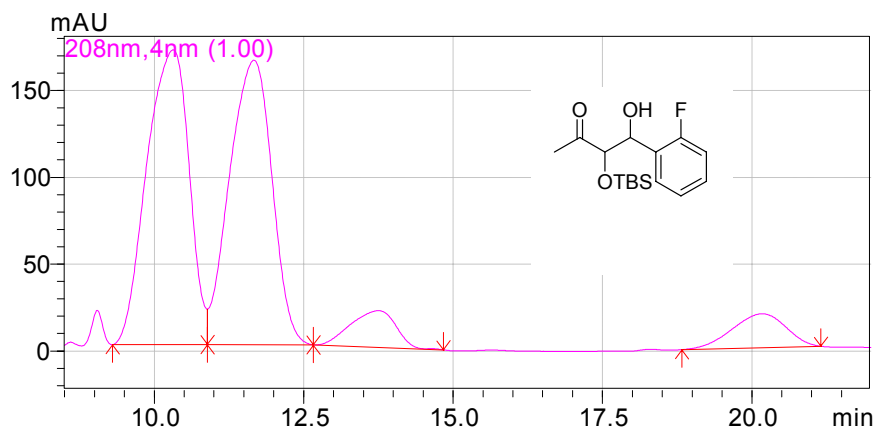
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT33.908 | 33.908    | 4.1185  |
| 2    | RT36.429 | 36.429    | 1.9602  |
| 3    | RT39.593 | 39.593    | 4.3389  |
| 4    | RT48.989 | 48.989    | 89.5824 |



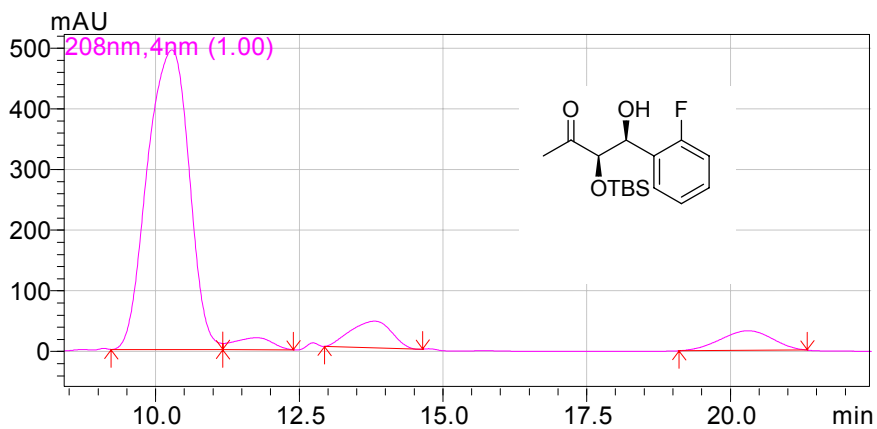
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT16.760 | 16.760    | 49.6854 |
| 2    | RT17.914 | 17.914    | 48.0272 |
| 3    | RT19.008 | 19.008    | 0.4049  |
| 4    | RT20.364 | 20.364    | 1.8825  |



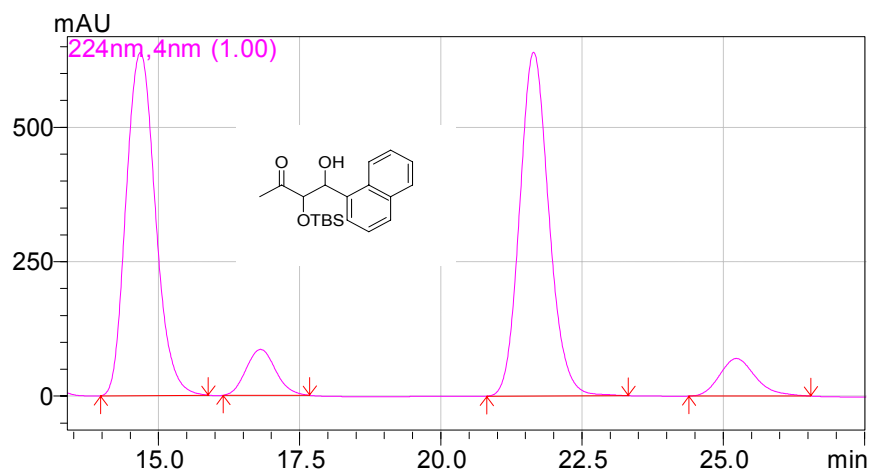
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT16.604 | 16.604    | 92.2896 |
| 2    | RT18.116 | 18.116    | 1.3159  |
| 3    | RT19.080 | 19.080    | 4.5392  |
| 4    | RT20.344 | 20.344    | 1.8553  |



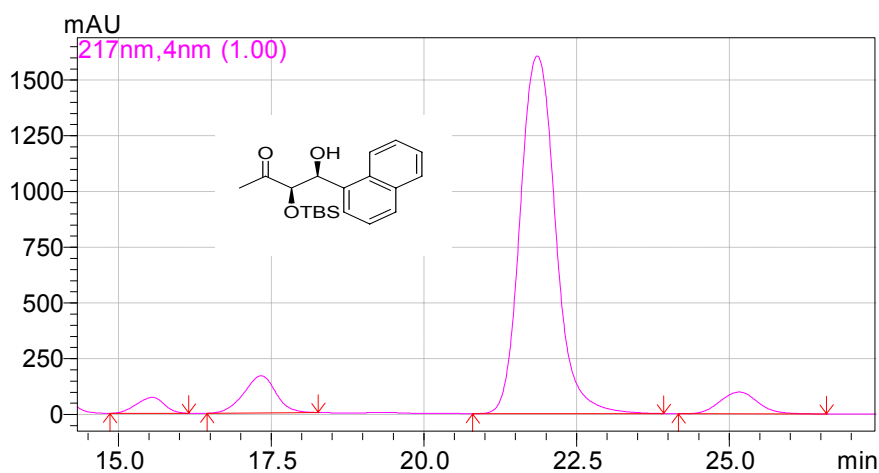
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT10.311 | 10.311    | 44.4803 |
| 2    | RT11.660 | 11.660    | 43.0224 |
| 3    | RT13.746 | 13.746    | 5.9476  |
| 4    | RT20.173 | 20.173    | 6.5497  |



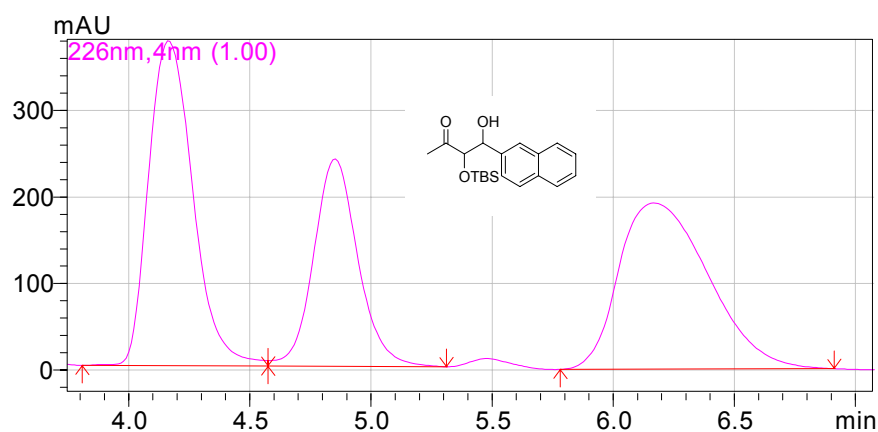
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT10.279 | 10.279    | 82.9391 |
| 2    | RT11.751 | 11.751    | 3.0467  |
| 3    | RT13.803 | 13.803    | 7.2474  |
| 4    | RT20.300 | 20.300    | 6.7668  |



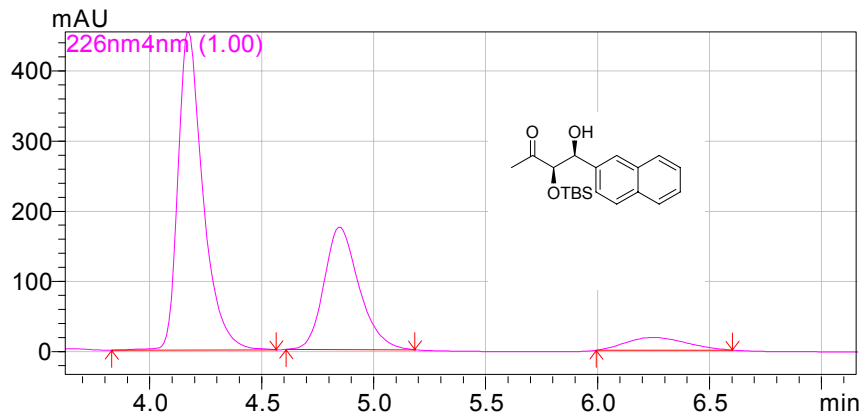
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT14.674 | 14.674    | 44.0190 |
| 2    | RT16.804 | 16.804    | 5.9458  |
| 3    | RT21.638 | 21.638    | 44.1025 |
| 4    | RT25.227 | 25.227    | 5.9327  |



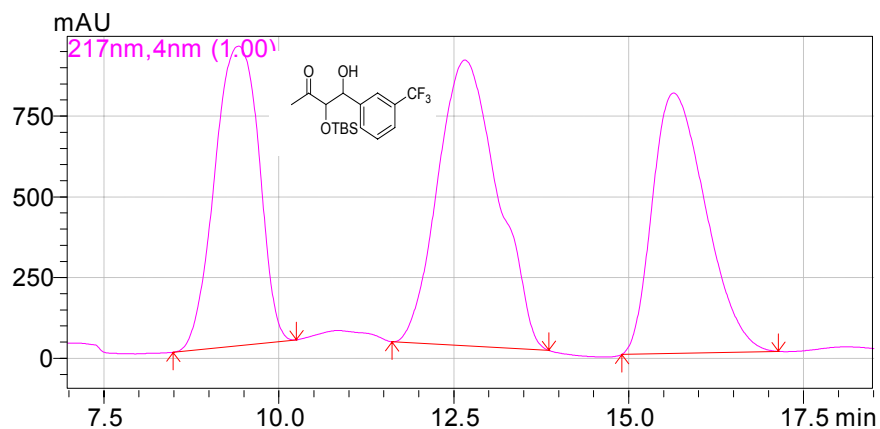
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT15.548 | 15.548    | 2.9145  |
| 2    | RT17.330 | 17.330    | 7.8837  |
| 3    | RT21.851 | 21.851    | 83.6665 |
| 4    | RT25.158 | 25.158    | 5.5353  |



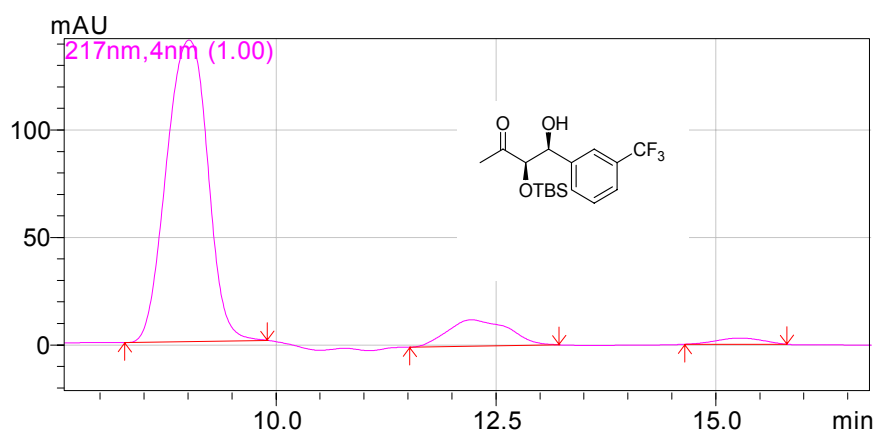
| Peak | Name    | Ret. Time | Area %  |
|------|---------|-----------|---------|
| 1    | RT4.159 | 4.159     | 37.5190 |
| 2    | RT4.845 | 4.845     | 23.8698 |
| 3    | RT6.164 | 6.164     | 38.6112 |



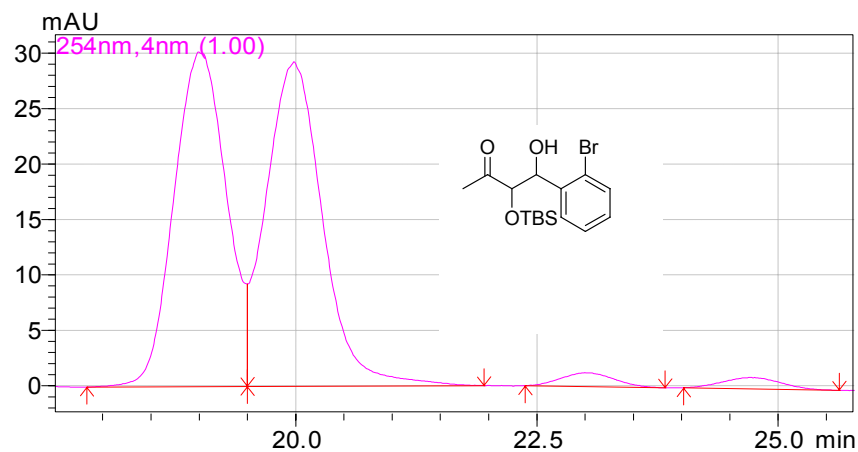
| Peak | Name    | Ret. Time | Area %  |
|------|---------|-----------|---------|
| 1    | RT4.166 | 4.166     | 61.1756 |
| 2    | RT4.842 | 4.842     | 32.9709 |
| 3    | RT6.242 | 6.242     | 5.8535  |



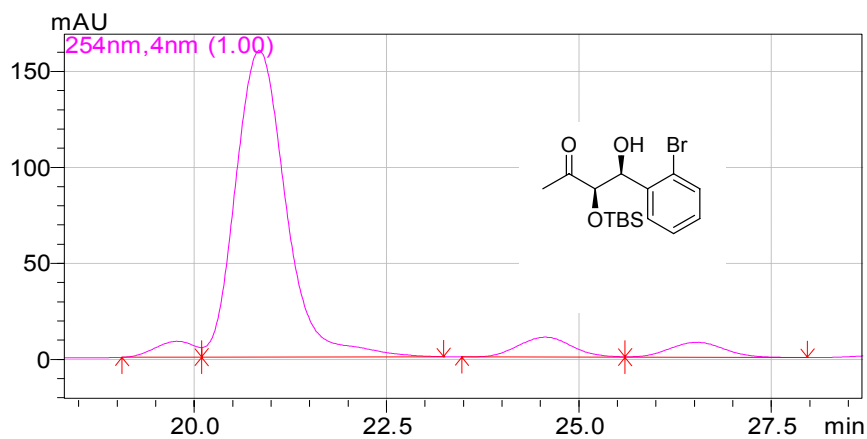
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT9.416  | 9.416     | 29.9809 |
| 2    | RT12.654 | 12.654    | 38.6616 |
| 3    | RT15.636 | 15.636    | 31.3575 |



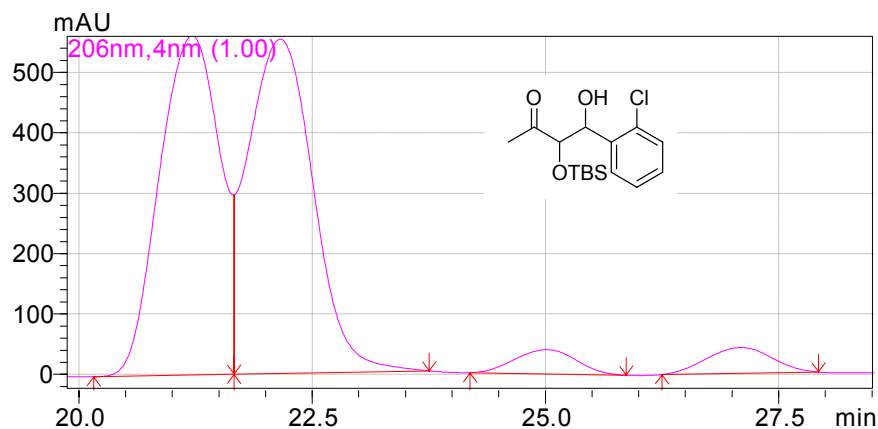
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT9.005  | 9.005     | 86.7521 |
| 2    | RT12.215 | 12.215    | 11.2645 |
| 3    | RT15.267 | 15.267    | 1.9834  |



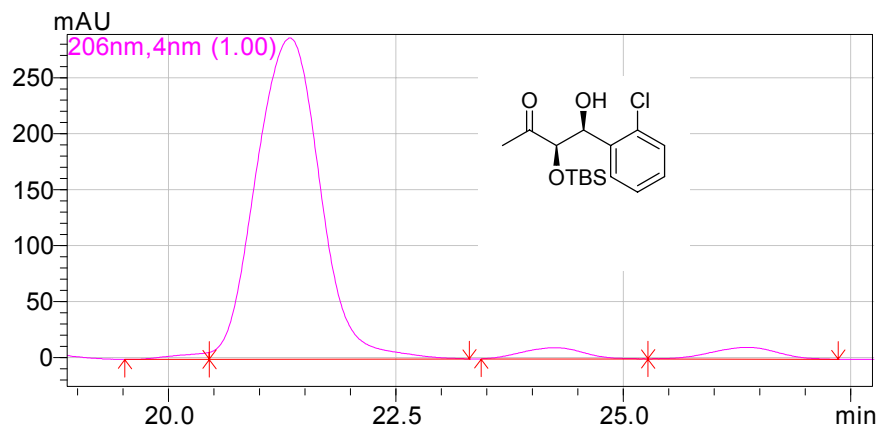
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT18.986 | 18.986    | 47.1202 |
| 2    | RT19.977 | 19.977    | 49.1191 |
| 3    | RT22.991 | 22.991    | 1.9918  |
| 4    | RT24.703 | 24.703    | 1.7688  |



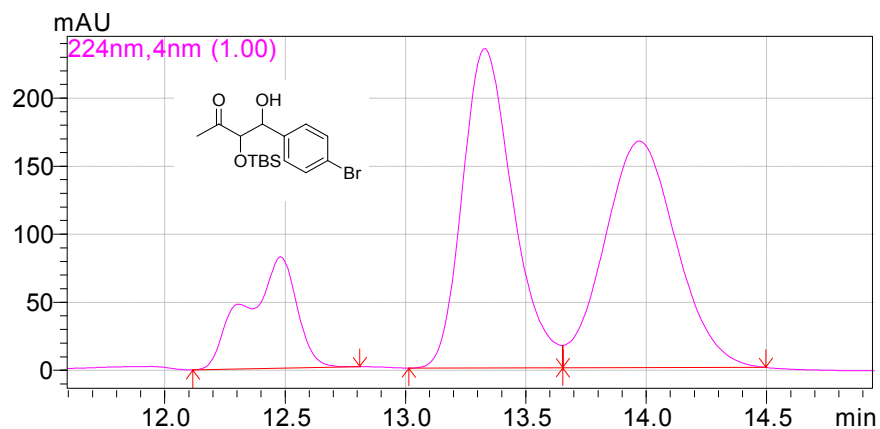
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT19.766 | 19.766    | 3.4996  |
| 2    | RT20.839 | 20.839    | 85.9012 |
| 3    | RT24.555 | 24.555    | 5.9566  |
| 4    | RT26.552 | 26.552    | 4.6426  |



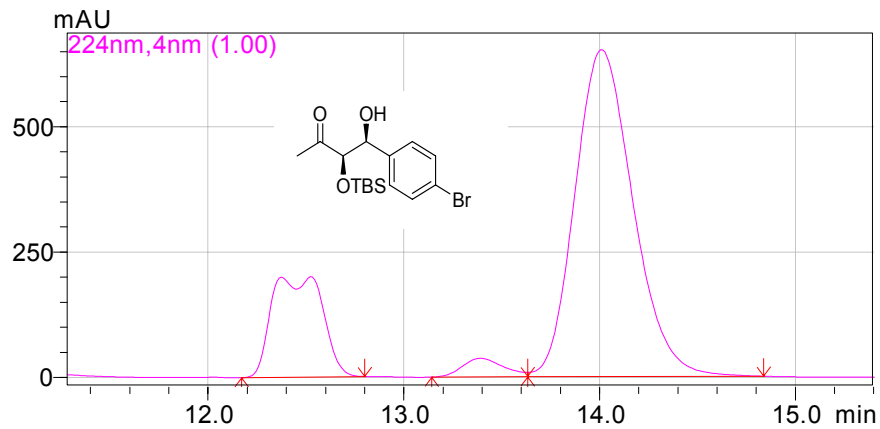
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT21.208 | 21.208    | 45.1515 |
| 2    | RT22.151 | 22.151    | 47.8955 |
| 3    | RT25.000 | 25.000    | 3.2591  |
| 4    | RT27.094 | 27.094    | 3.6939  |



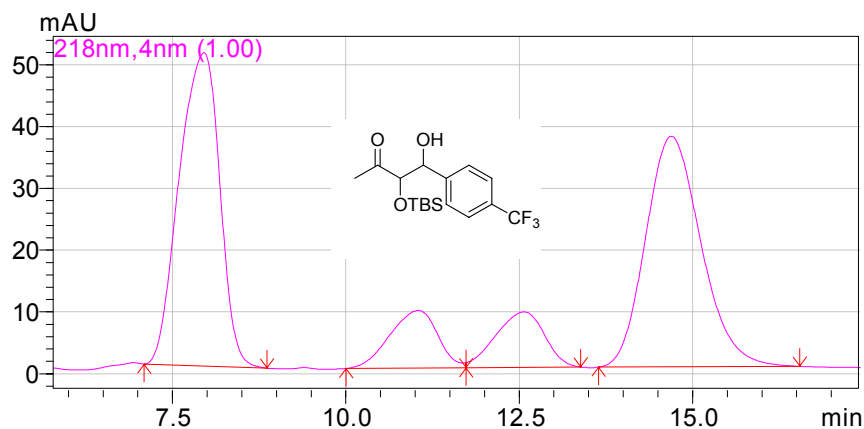
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT20.437 | 20.437    | 0.9285  |
| 2    | RT21.328 | 21.328    | 92.4193 |
| 3    | RT24.240 | 24.240    | 3.1067  |
| 4    | RT26.360 | 26.360    | 3.5455  |



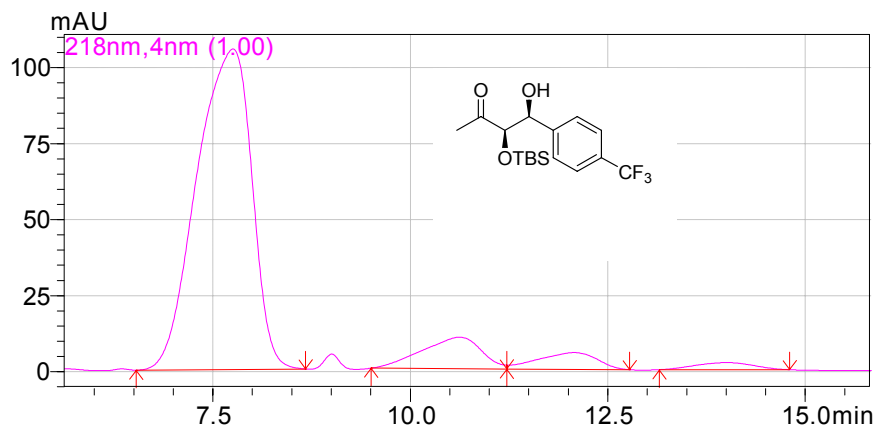
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT12.476 | 12.476    | 14.8530 |
| 2    | RT13.323 | 13.323    | 42.3449 |
| 3    | RT13.966 | 13.966    | 42.8021 |



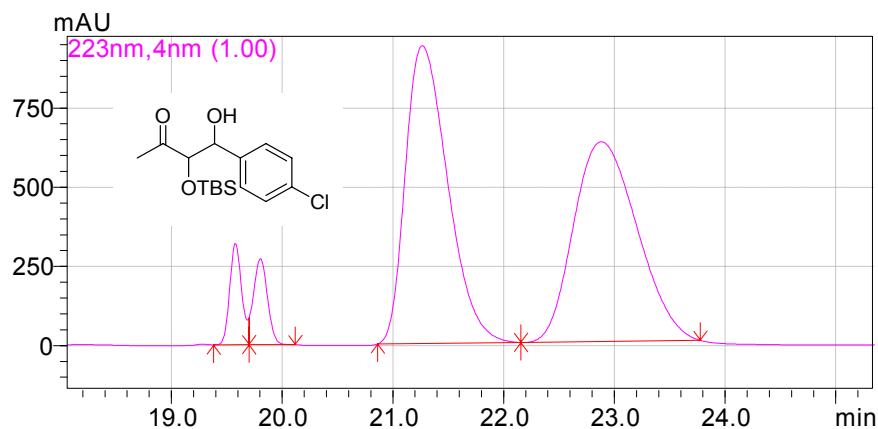
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT12.520 | 12.520    | 20.7252 |
| 2    | RT13.385 | 13.385    | 3.1170  |
| 3    | RT14.004 | 14.004    | 76.1577 |



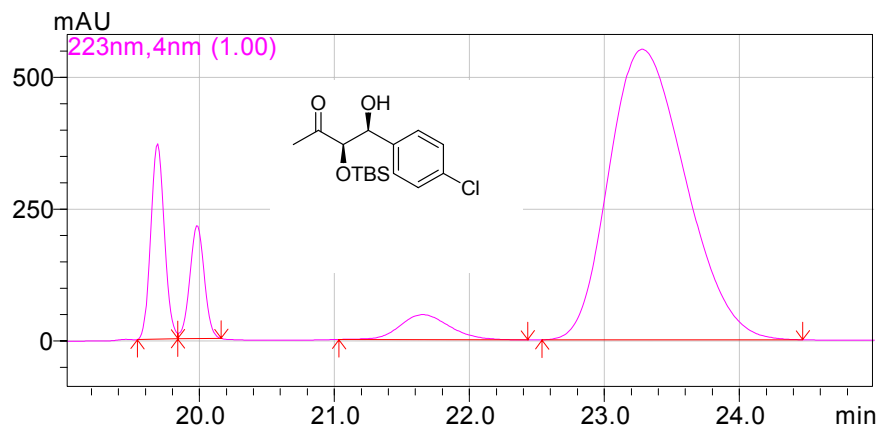
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT7.947  | 7.947     | 41.0591 |
| 2    | RT11.043 | 11.043    | 8.8968  |
| 3    | RT12.563 | 12.563    | 8.7406  |
| 4    | RT14.686 | 14.686    | 41.3035 |



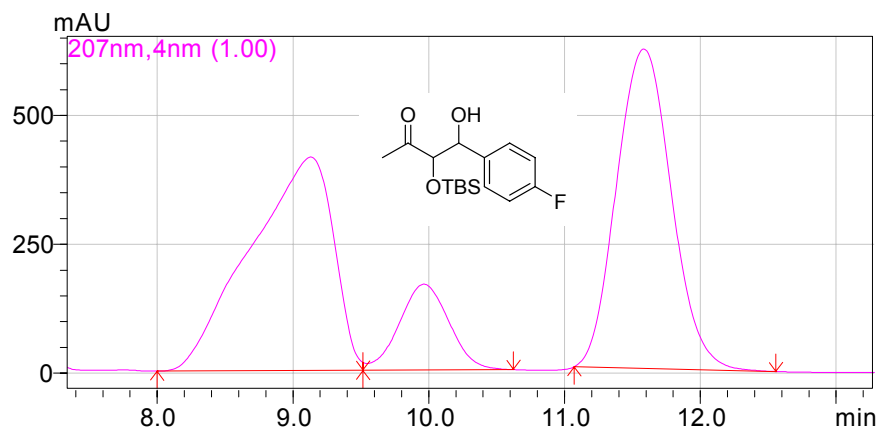
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT7.749  | 7.749     | 84.3458 |
| 2    | RT10.618 | 10.618    | 8.9350  |
| 3    | RT12.061 | 12.061    | 4.7339  |
| 4    | RT13.997 | 13.997    | 1.9854  |



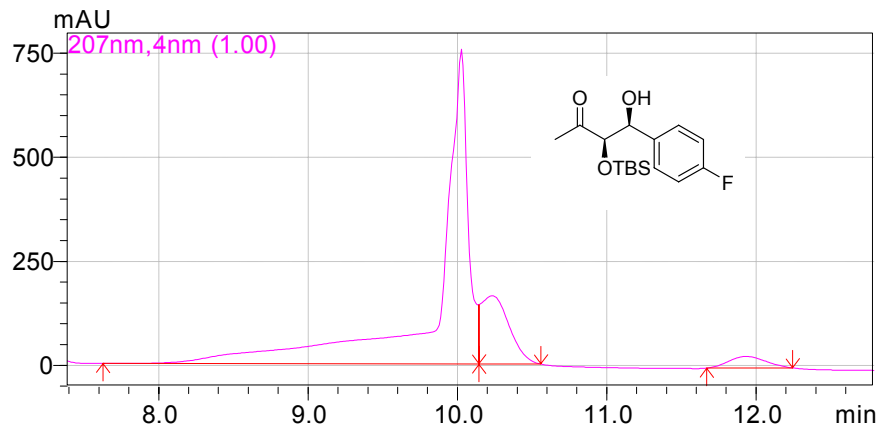
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT19.572 | 19.572    | 4.4845  |
| 2    | RT19.798 | 19.798    | 4.2673  |
| 3    | RT21.260 | 21.260    | 45.4395 |
| 4    | RT22.877 | 22.877    | 45.8088 |



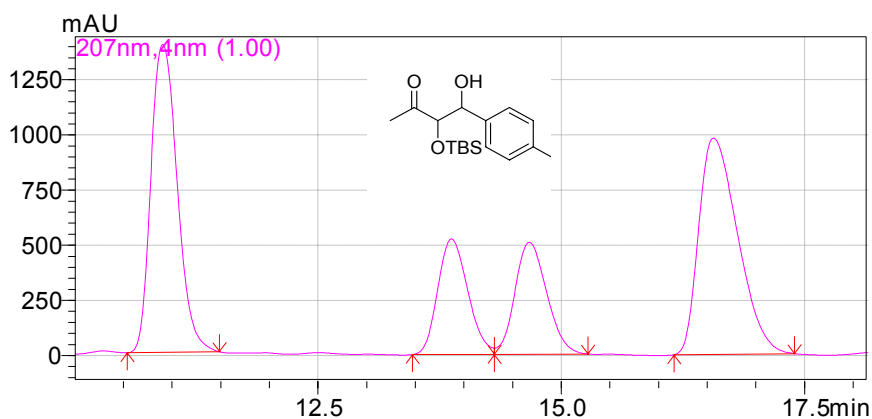
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT19.683 | 19.683    | 9.5807  |
| 2    | RT19.978 | 19.978    | 5.9301  |
| 3    | RT21.648 | 21.648    | 4.4763  |
| 4    | RT23.275 | 23.275    | 80.0130 |



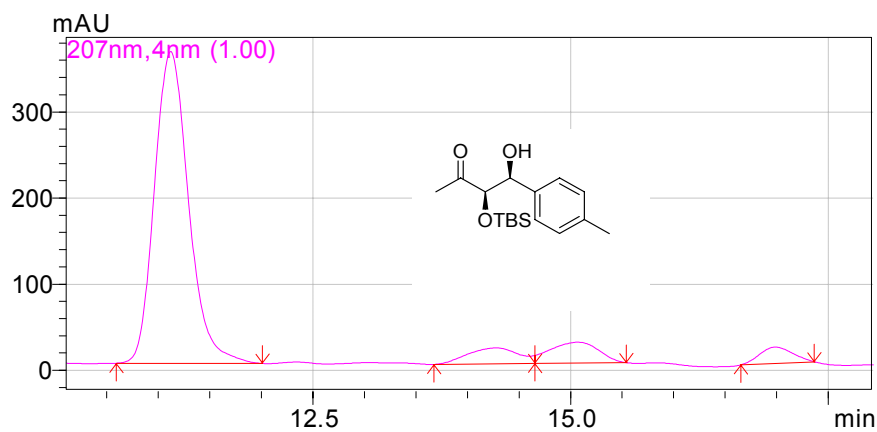
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT9.125  | 9.126     | 44.8960 |
| 2    | RT9.959  | 9.958     | 10.7918 |
| 3    | RT11.582 | 11.578    | 44.3122 |



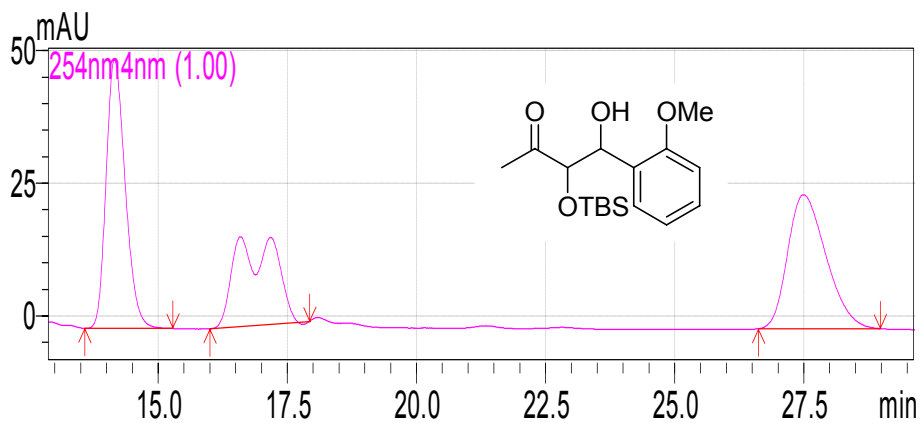
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT10.021 | 10.021    | 80.5295 |
| 2    | RT10.228 | 10.228    | 15.8376 |
| 3    | RT11.927 | 11.927    | 3.6330  |



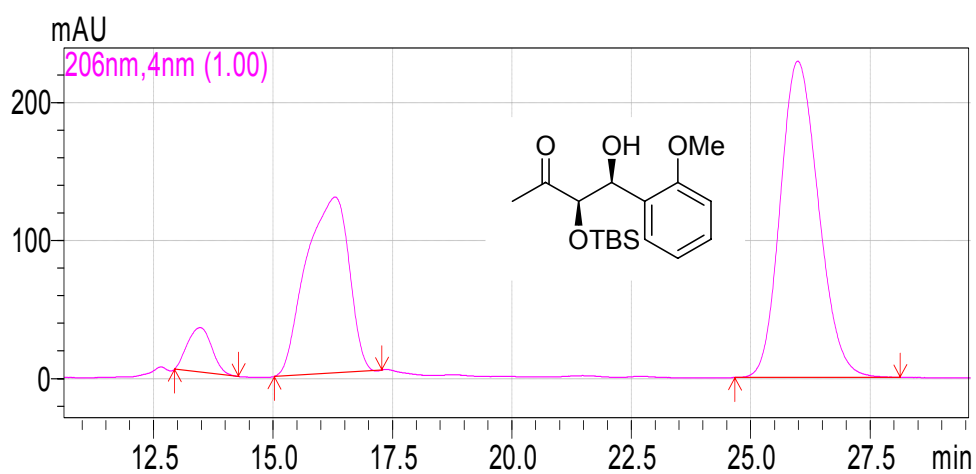
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT10.899 | 10.899    | 34.4592 |
| 2    | RT13.866 | 13.866    | 14.7458 |
| 3    | RT14.665 | 14.665    | 15.0996 |
| 4    | RT16.560 | 16.560    | 35.6954 |



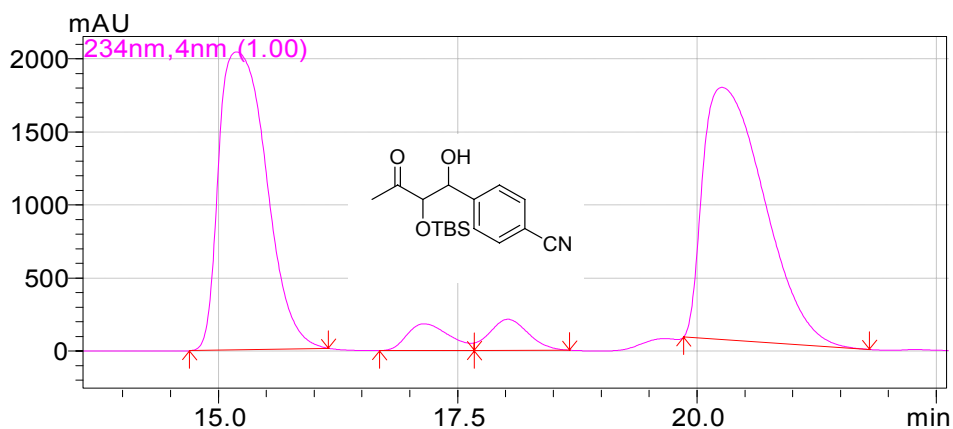
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT11.116 | 11.116    | 81.6695 |
| 2    | RT14.266 | 14.266    | 6.3819  |
| 3    | RT15.059 | 15.059    | 7.7915  |
| 4    | RT16.981 | 16.981    | 4.1570  |



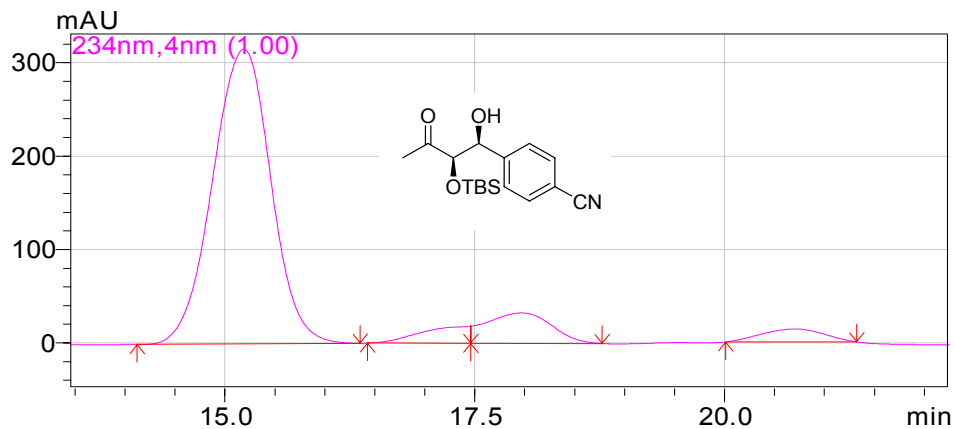
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT14.149 | 14.149    | 36.9823 |
| 2    | RT16.586 | 16.586    | 26.0470 |
| 3    | RT27.486 | 27.486    | 36.9707 |



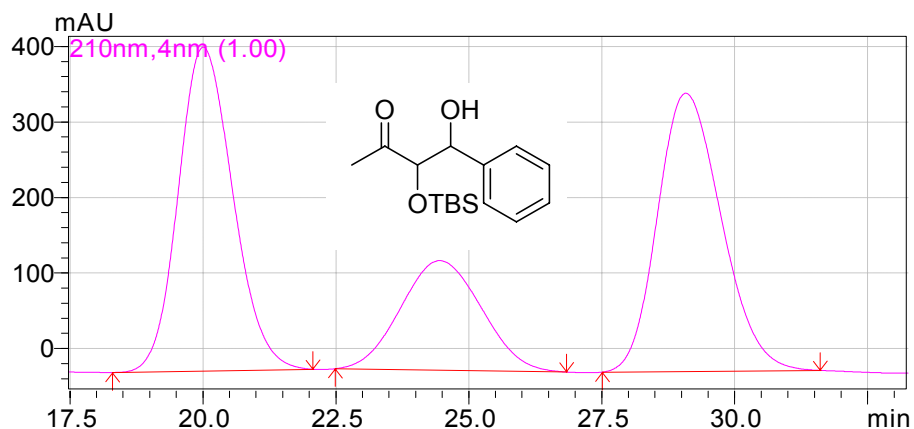
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT13.462 | 13.462    | 5.2323  |
| 2    | RT16.291 | 16.291    | 36.3897 |
| 3    | RT25.982 | 25.982    | 58.3781 |



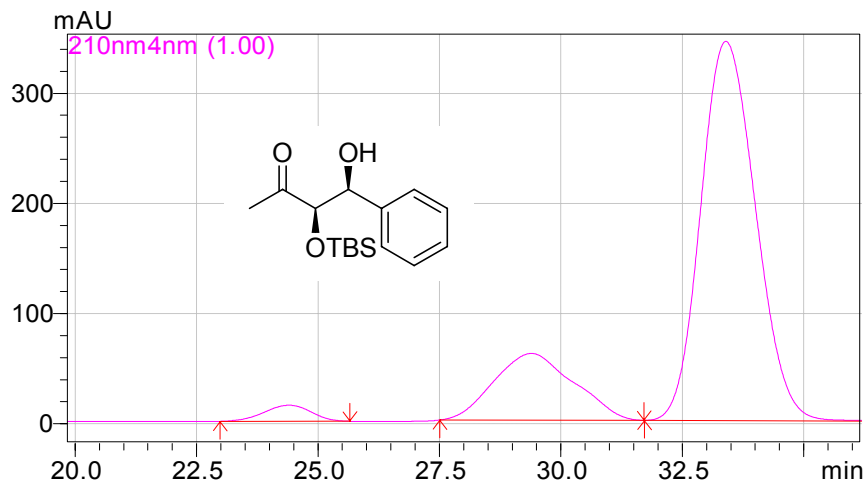
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT15.185 | 15.183    | 44.2356 |
| 2    | RT17.150 | 17.144    | 3.5784  |
| 3    | RT18.021 | 18.018    | 3.7358  |
| 4    | RT20.257 | 20.256    | 48.4501 |



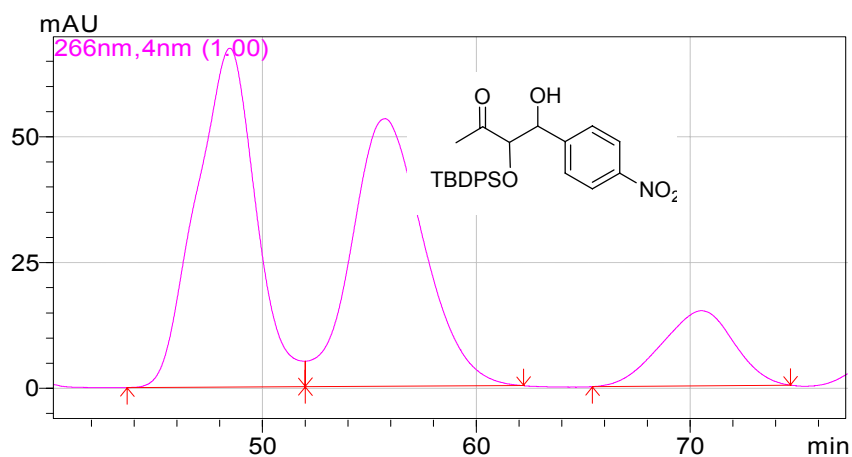
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT15.183 | 15.183    | 82.5934 |
| 2    | RT17.451 | 17.451    | 4.0181  |
| 3    | RT17.964 | 17.964    | 9.5253  |
| 4    | RT20.696 | 20.696    | 3.8632  |



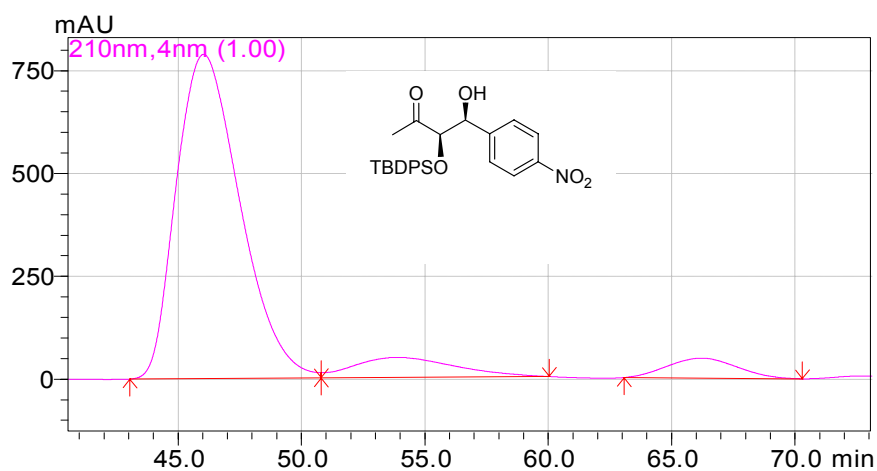
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT19.999 | 19.999    | 39.9519 |
| 2    | RT24.449 | 24.449    | 19.9536 |
| 3    | RT29.074 | 29.074    | 40.0945 |



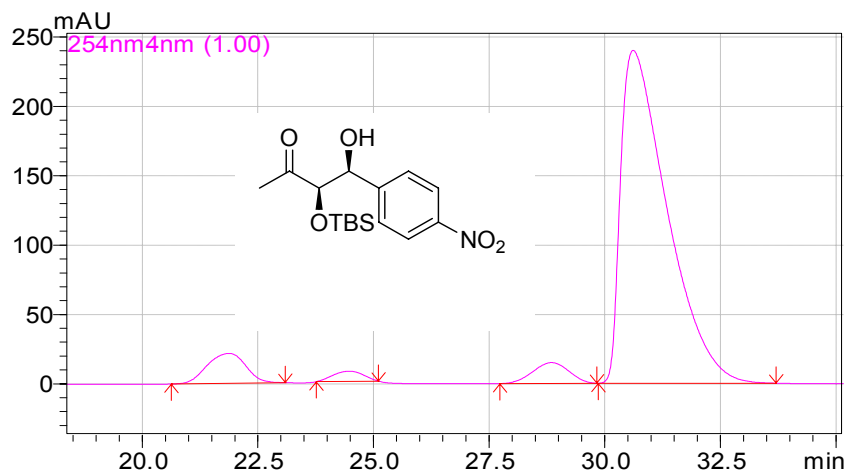
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT24.399 | 24.399    | 2.8150  |
| 2    | RT29.389 | 29.389    | 19.7909 |
| 3    | RT33.388 | 33.388    | 77.3941 |



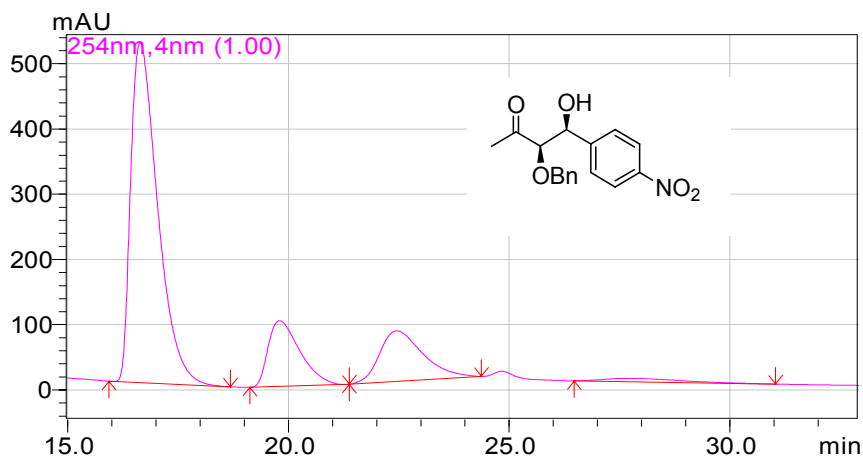
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT48.479 | 48.479    | 44.9466 |
| 2    | RT55.718 | 55.718    | 42.9199 |
| 3    | RT70.492 | 70.492    | 12.1335 |



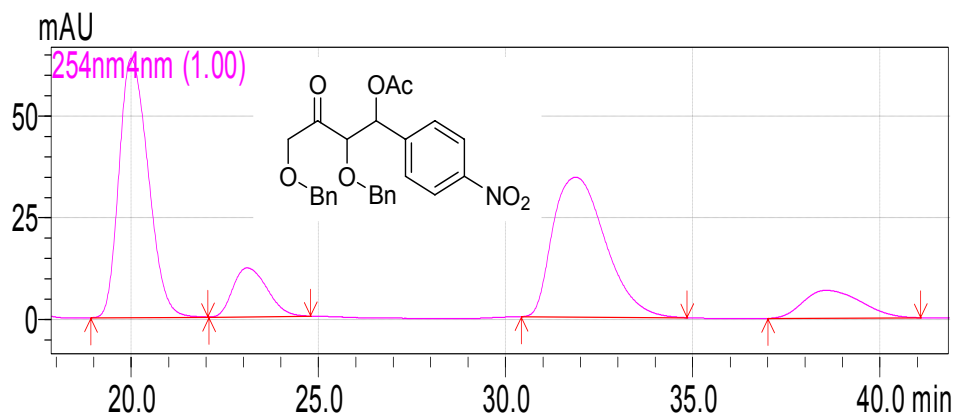
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT46.039 | 46.039    | 85.8244 |
| 2    | RT53.942 | 53.942    | 8.4283  |
| 3    | RT66.184 | 66.184    | 5.7473  |



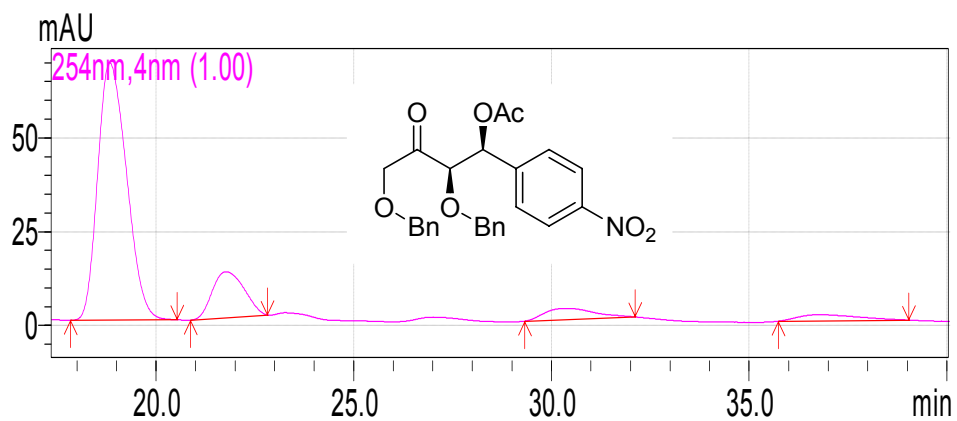
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT21.862 | 21.862    | 6.5440  |
| 2    | RT24.462 | 24.462    | 1.7573  |
| 3    | RT28.845 | 28.845    | 4.2531  |
| 4    | RT30.610 | 30.610    | 87.4456 |



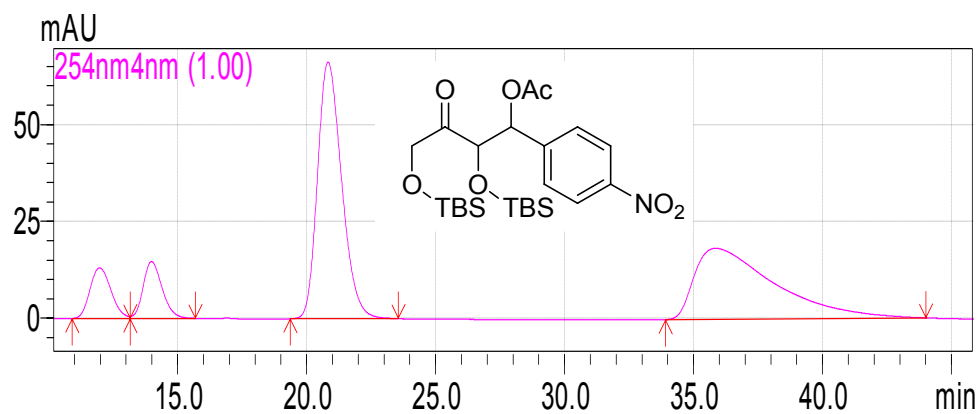
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT16.639 | 16.639    | 66.8998 |
| 2    | RT19.796 | 19.796    | 15.1993 |
| 3    | RT22.450 | 22.450    | 16.0573 |
| 4    | RT27.668 | 27.668    | 1.8435  |



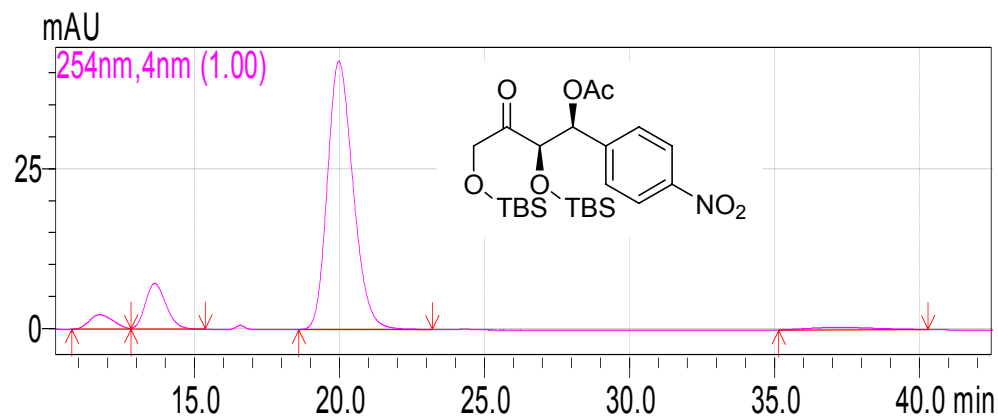
| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT19.995 | 19.995    | 41.5099 |
| 2    | RT23.090 | 23.090    | 9.1902  |
| 3    | RT31.868 | 31.868    | 40.4415 |
| 4    | RT38.561 | 38.561    | 8.8584  |



| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT18.823 | 18.823    | 75.6544 |
| 2    | RT21.763 | 21.763    | 14.9253 |
| 3    | RT30.395 | 30.395    | 5.6871  |
| 4    | RT36.778 | 36.778    | 3.7332  |



| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT11.971 | 11.971    | 7.5587  |
| 2    | RT13.982 | 13.982    | 7.6894  |
| 3    | RT20.825 | 20.825    | 44.2207 |
| 4    | RT35.865 | 35.865    | 40.5312 |



| Peak | Name     | Ret. Time | Area %  |
|------|----------|-----------|---------|
| 1    | RT11.707 | 11.707    | 4.2054  |
| 2    | RT13.628 | 13.628    | 11.3763 |
| 3    | RT19.974 | 19.974    | 82.3702 |
| 4    | RT37.127 | 37.127    | 2.0480  |

