

Supplementary Information for

The assignment of configuration for α -hydroxy acid esters using CEC strategy

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Kinetic Experiments of **1** with (*R*)-L-PiEt₂-Sc(III) and (*S*)-L-PiEt₂-Sc(III).

Analysis of the conversion of both the (*R*)-L-PiEt₂-Sc(III) and (*S*)-L-PiEt₂-Sc(III) catalytic reactions showed the appropriate trend where **1** with (*R*)-L-PiEt₂-Sc(III) showed a significant increase in rate compared to reacting with (*S*)-L-PiEt₂-Sc(III) (Figure S1). From the data in Figure S2, the k_{obs} rate for (*R*)-L-PiEt₂-Sc(III) catalyst was $9.5 \times 10^{-4} \text{ s}^{-1}$ and the corresponding rate for the (*S*)-L-PiEt₂-Sc(III) catalyst was $5.4 \times 10^{-5} \text{ s}^{-1}$. The (*R*)-L-PiEt₂-Sc(III) was faster than (*S*)-L-PiEt₂-Sc(III) by a factor of 17.6.

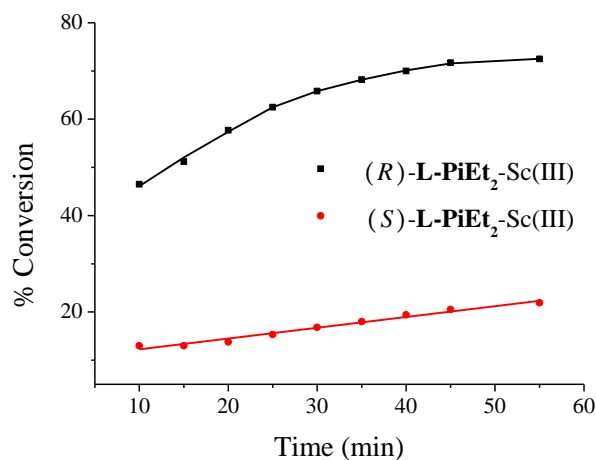
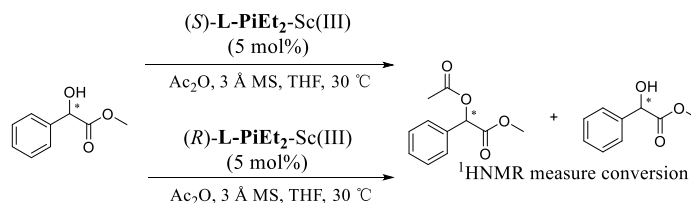


Figure S1. Comparison of % conversion on kinetic studies of **1** with both (*R*)-L-PiEt₂-Sc(III) and (*S*)-L-PiEt₂-Sc(III).

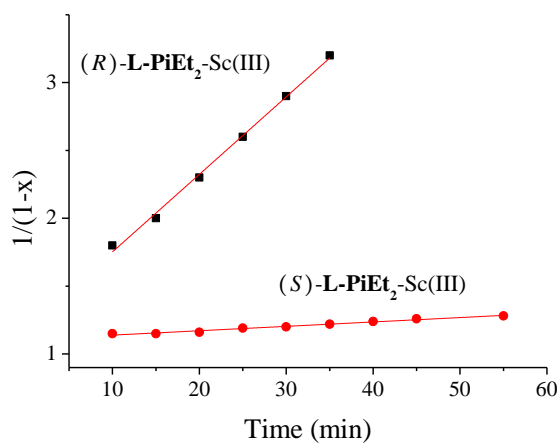
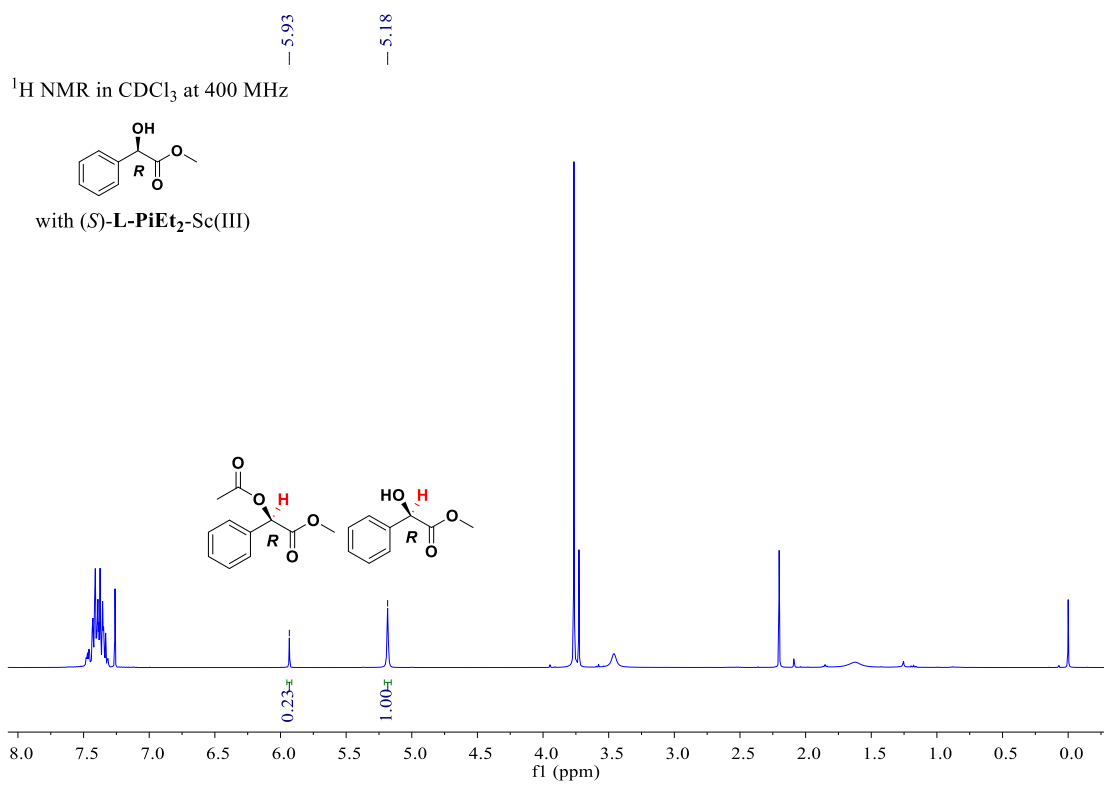
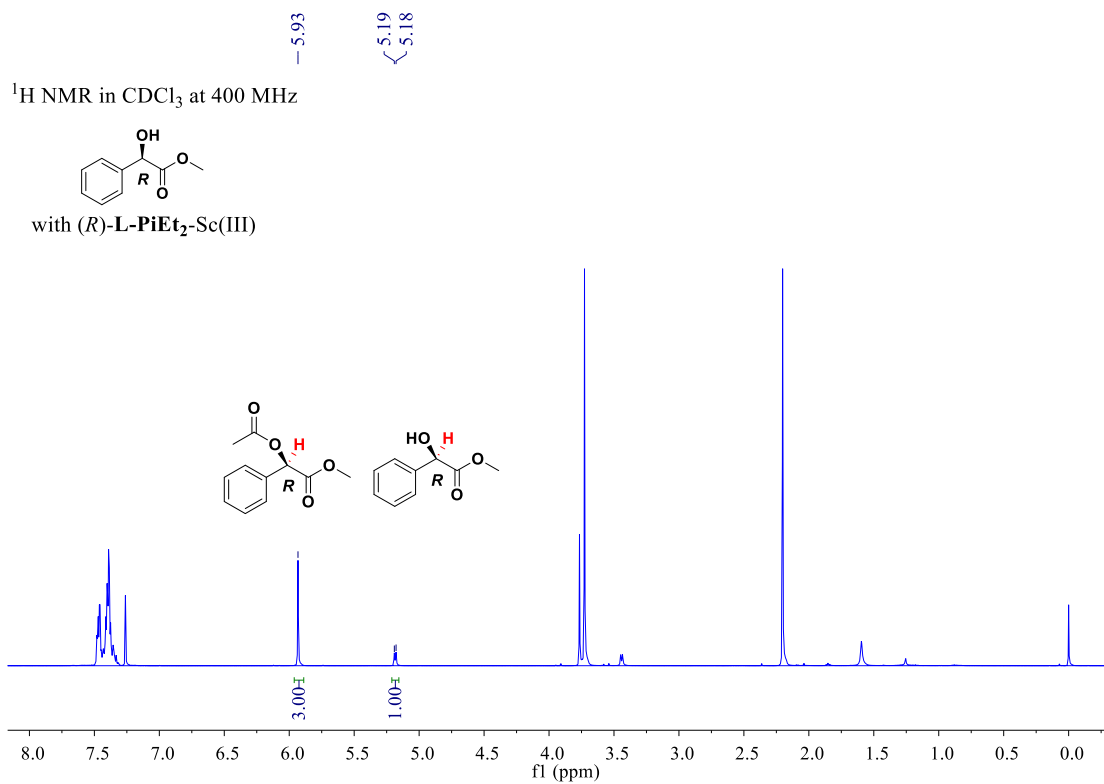
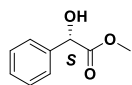


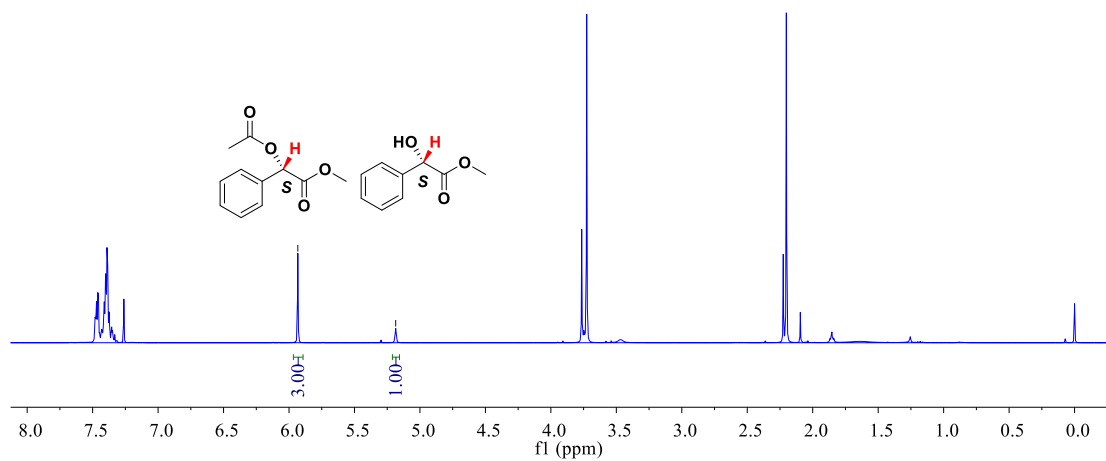
Figure S2. The conversion was monitored directly by ¹H NMR spectroscopy, and the conversion, x , was plotted as $1/(1-x)$ versus time to determine a rate constant for each catalyst enantiomer.



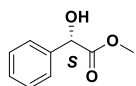
^1H NMR in CDCl_3 at 400 MHz



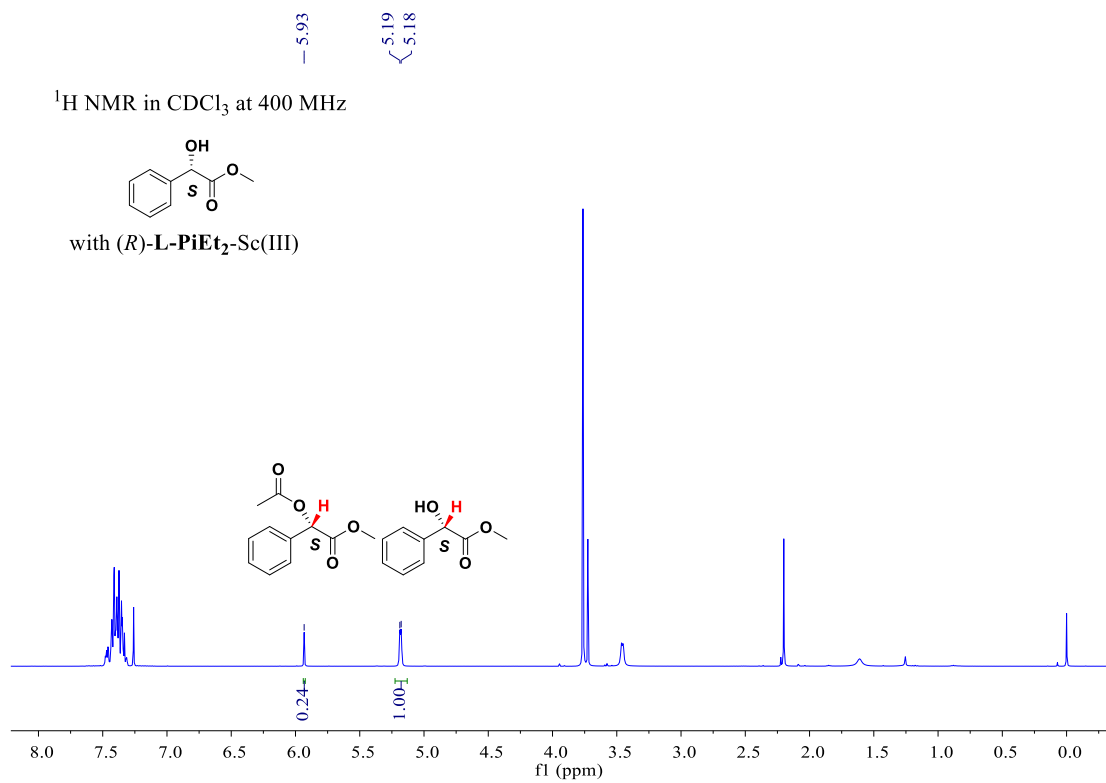
with (*S*)-**L-PiEt₂-Sc(III)**

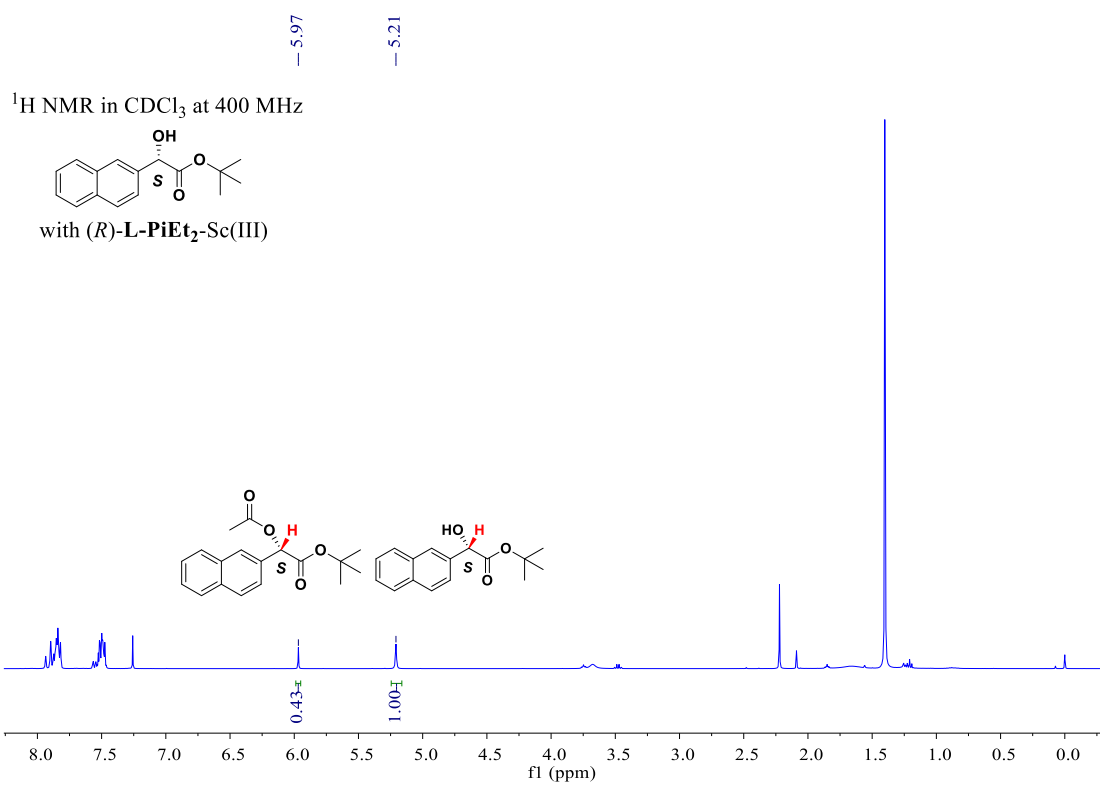
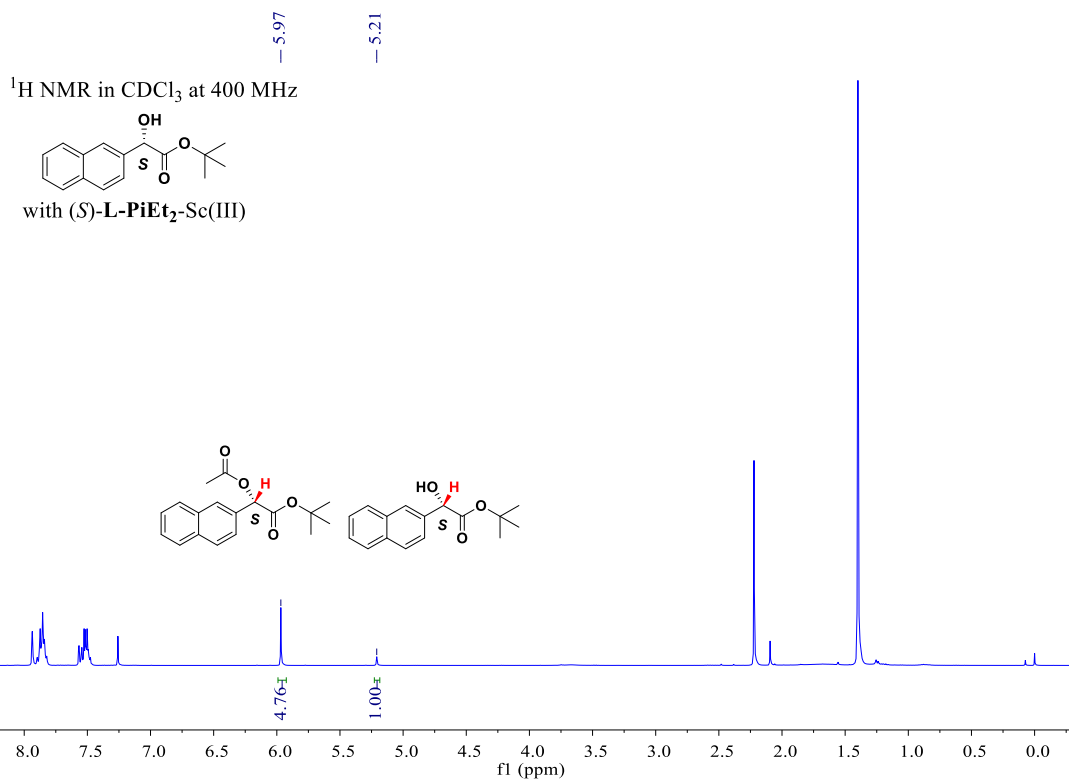


^1H NMR in CDCl_3 at 400 MHz

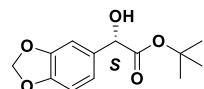


with (*R*)-**L-PiEt₂-Sc(III)**

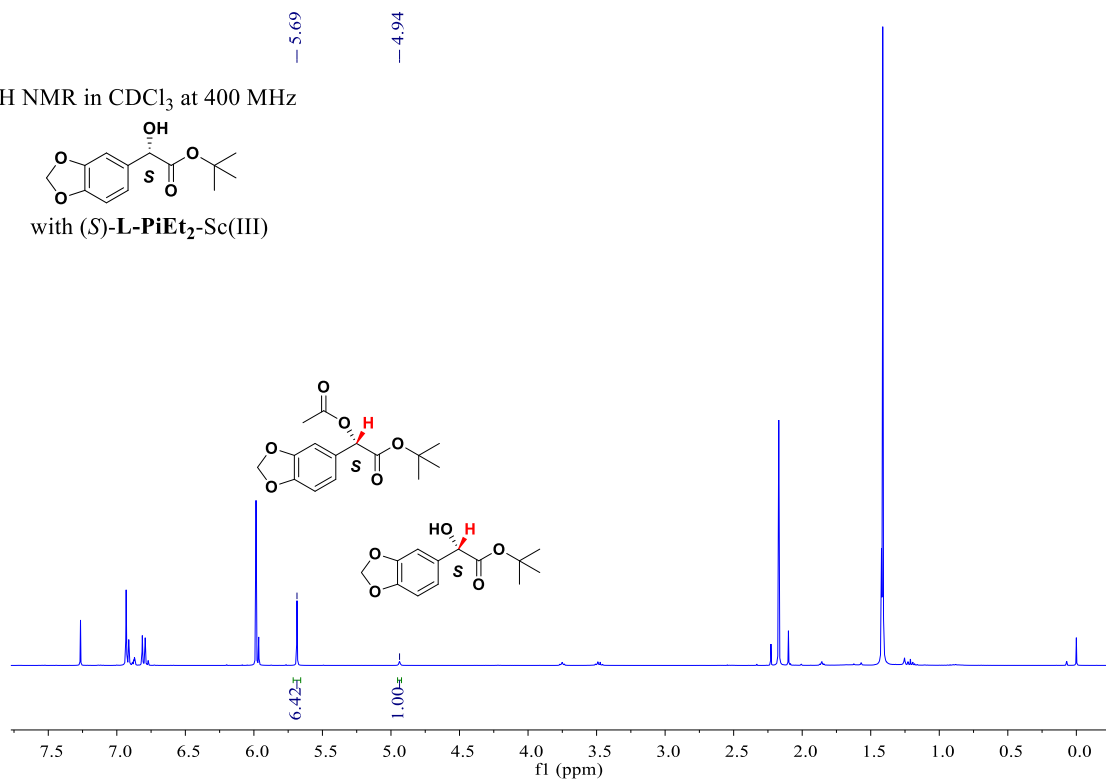




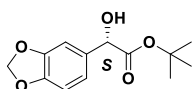
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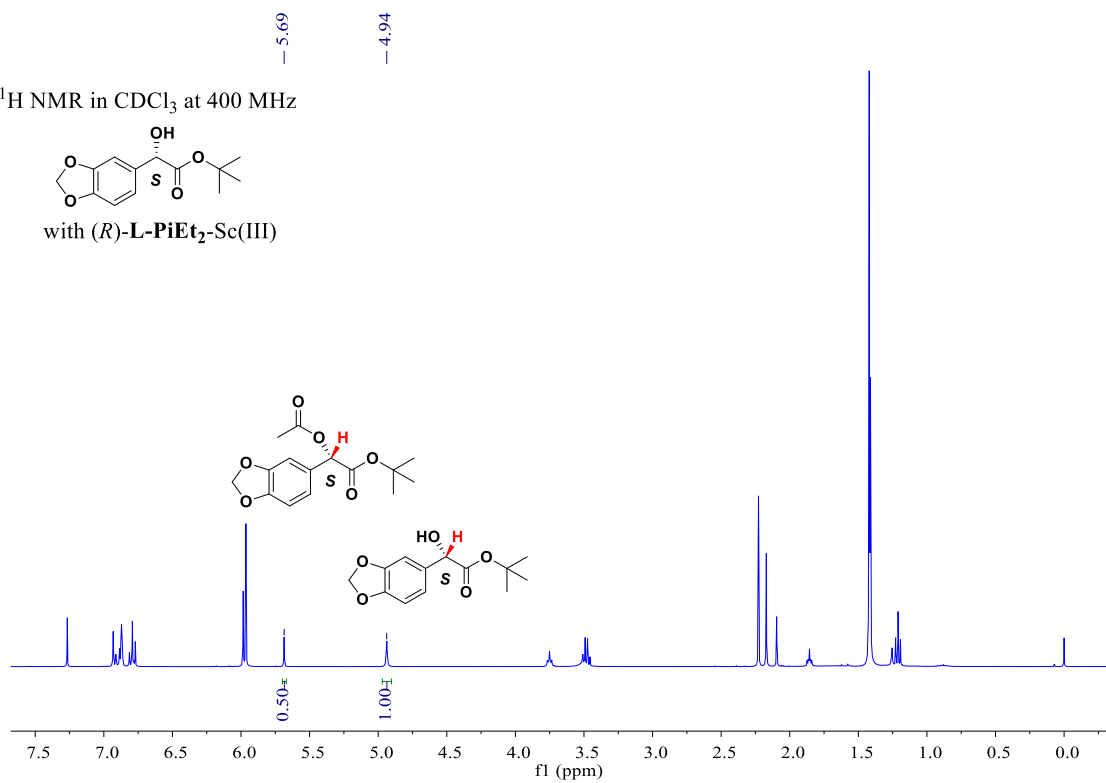
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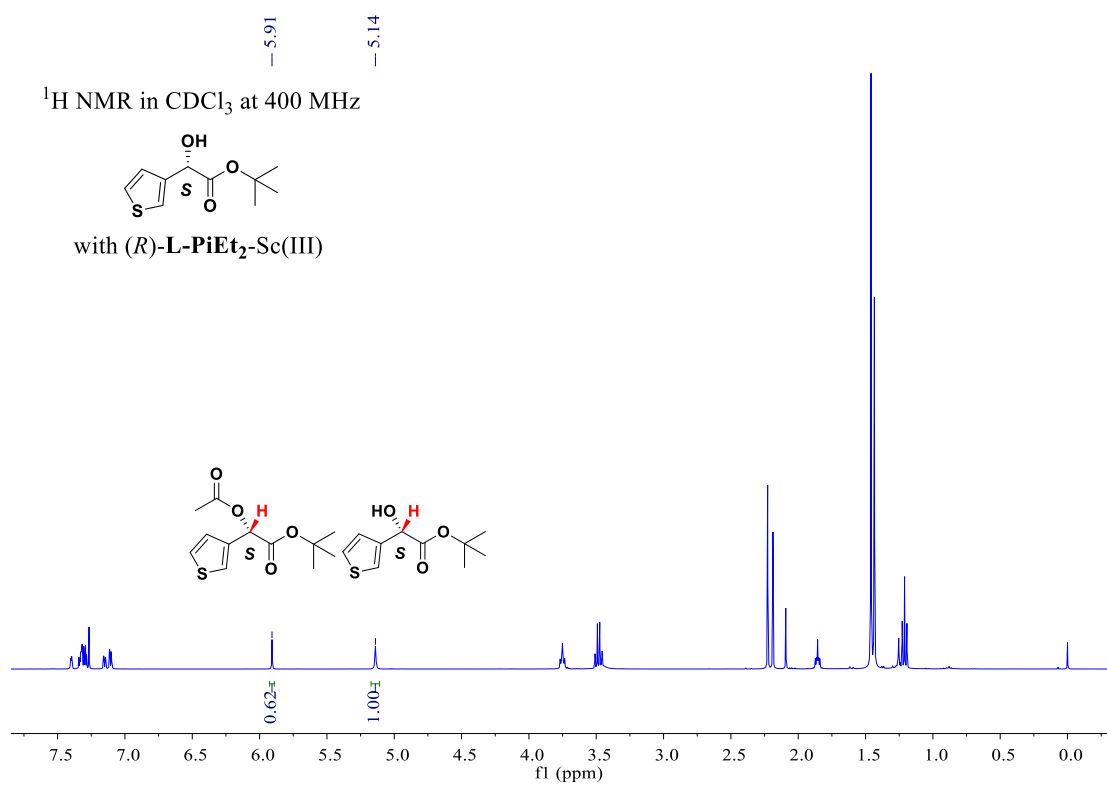
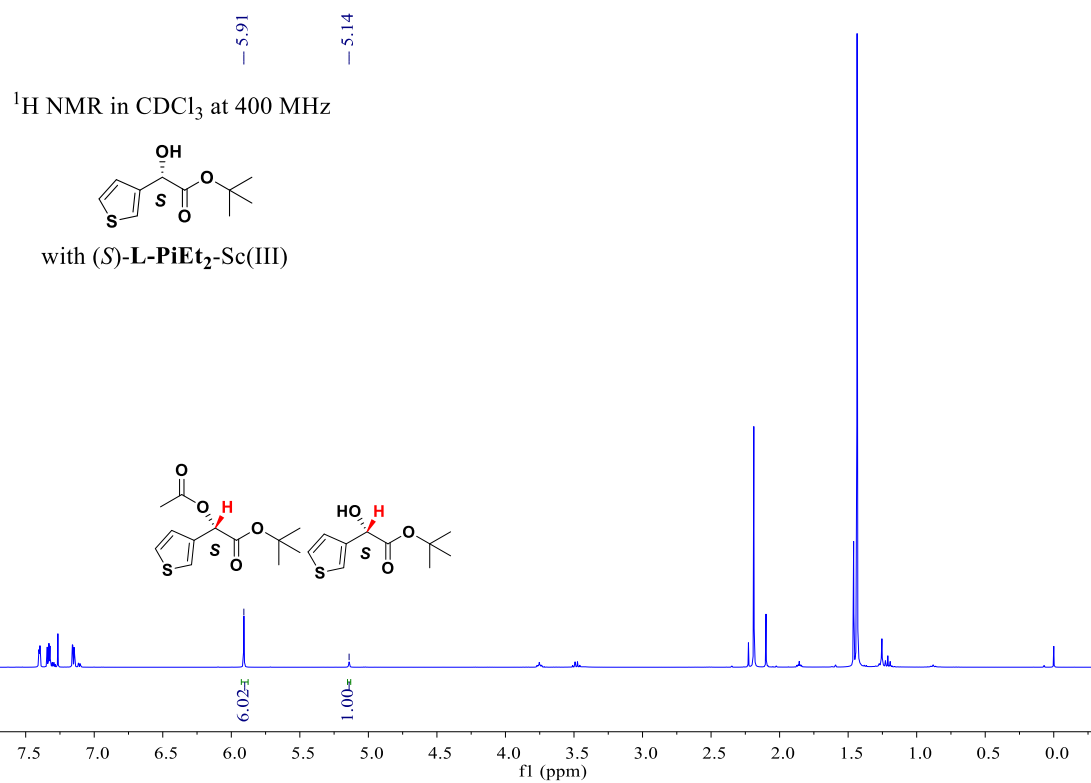


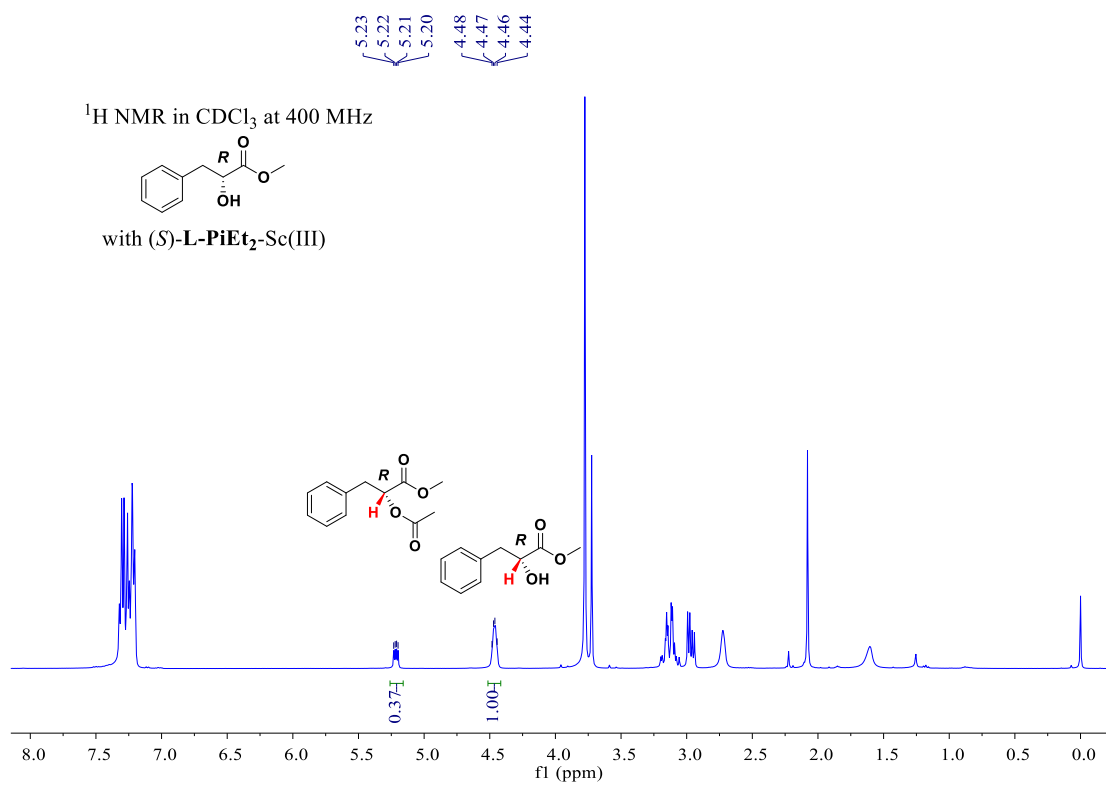
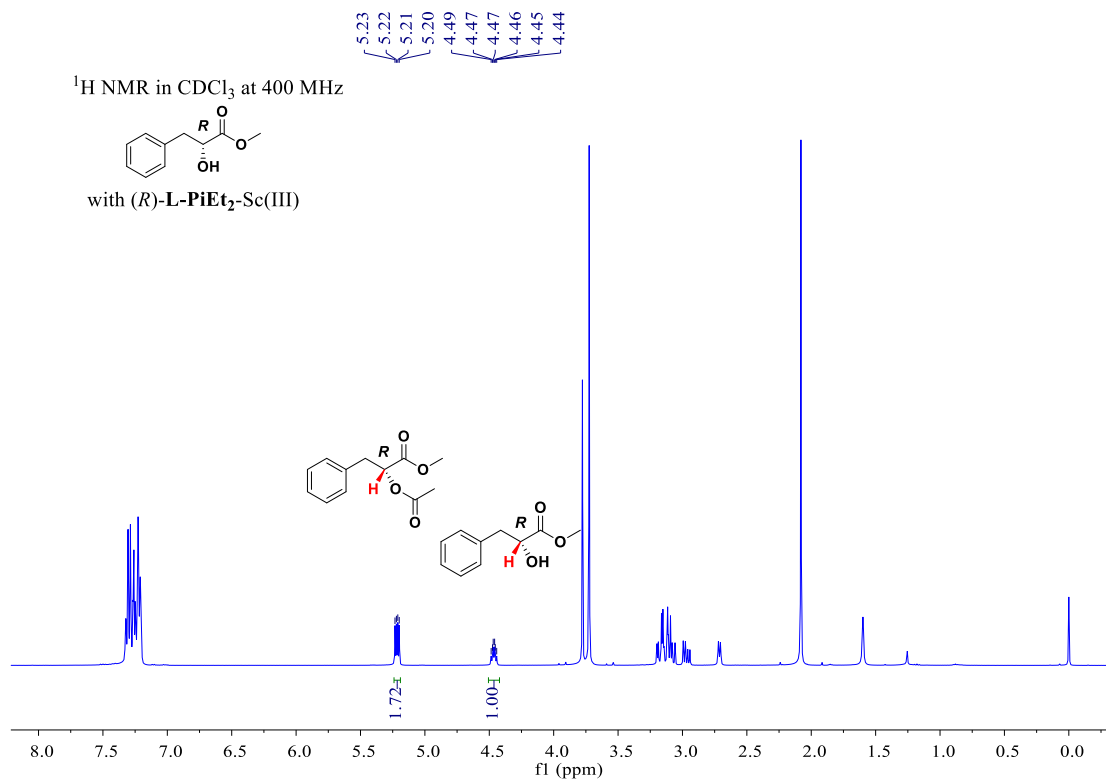
^1H NMR in CDCl_3 at 400 MHz

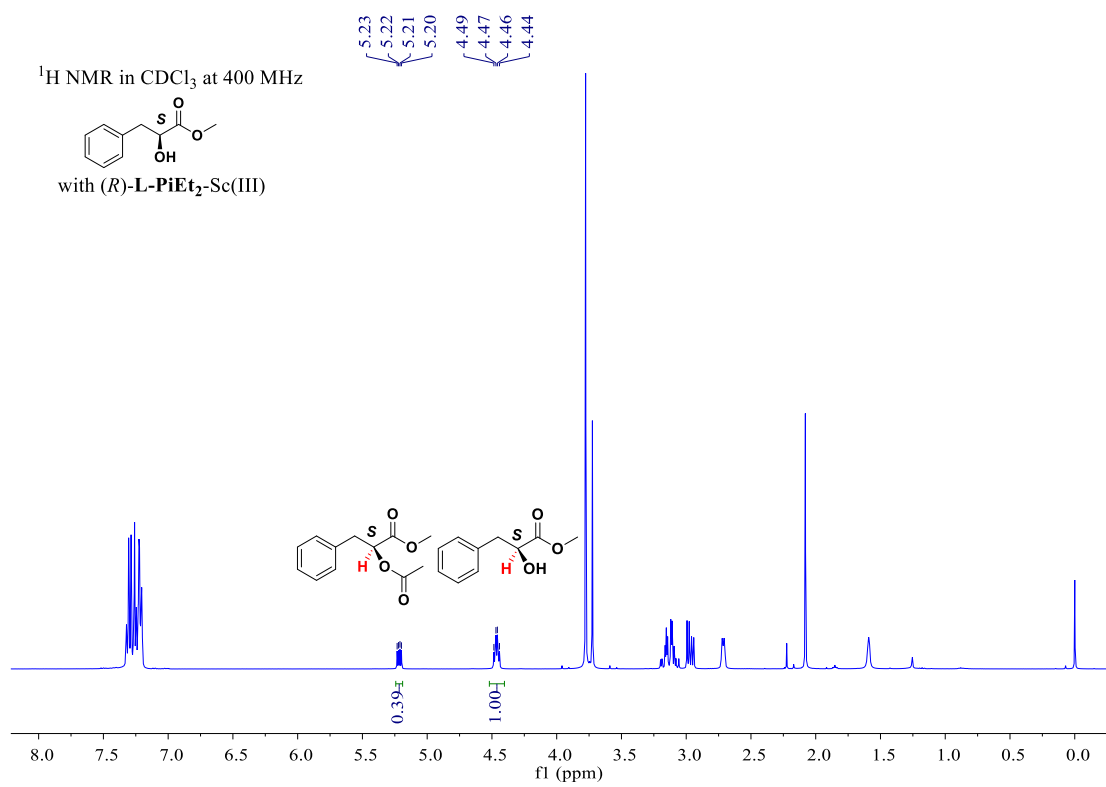
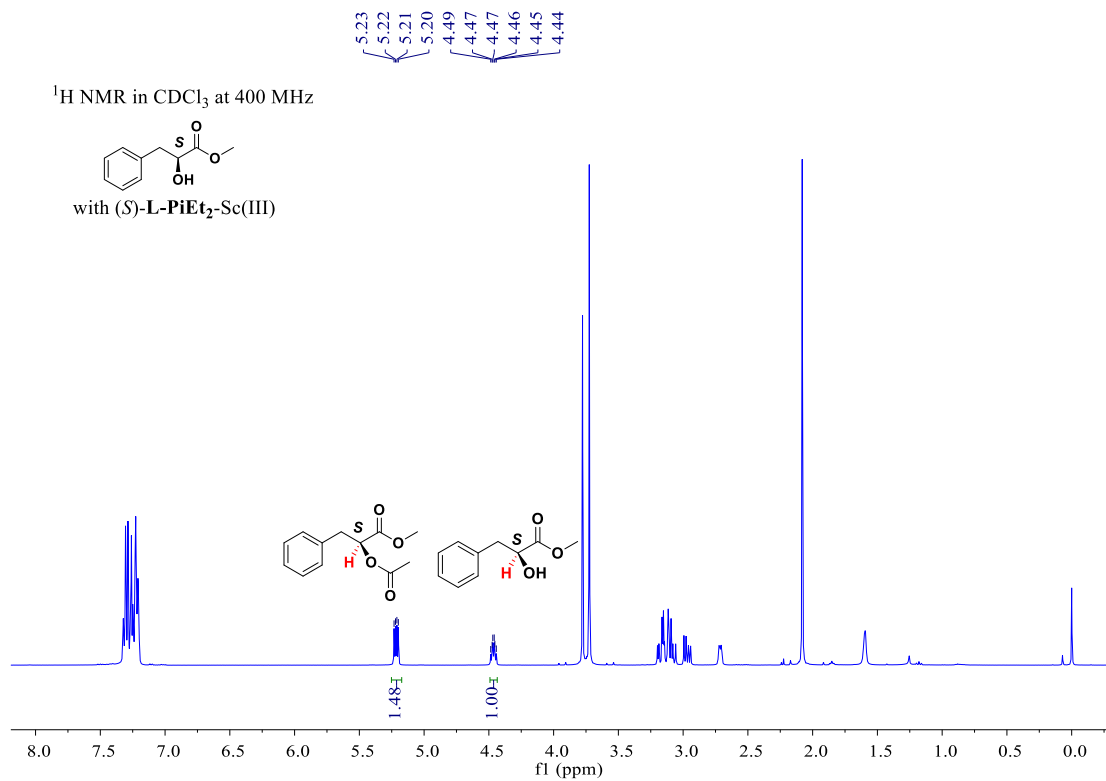


with (*R*)-**L**- PiEt_2 -Sc(III)

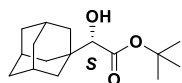




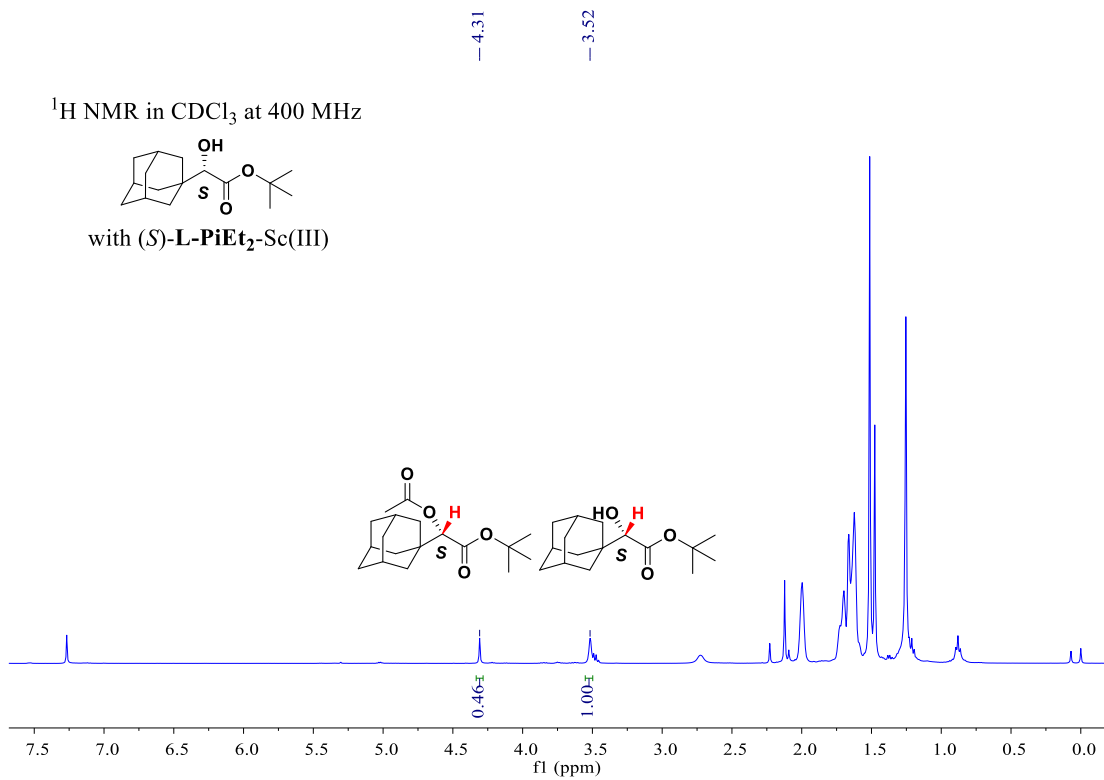




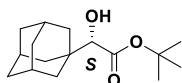
^1H NMR in CDCl_3 at 400 MHz



with (S)-L-PiEt₂-Sc(III)



^1H NMR in CDCl_3 at 400 MHz



with (R)-L-PiEt₂-Sc(III)

