

Supporting Information

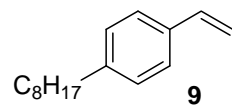
Synthesis of (*S*)-FTY720 vinylphosphonate analogues and evaluation of their potential as sphingosine kinase 1 inhibitors and activators

Zheng Liu^a, Neil MacRitchie^b, Susan Pyne^b, Nigel J. Pyne^b, and Robert Bittman^{a, *}

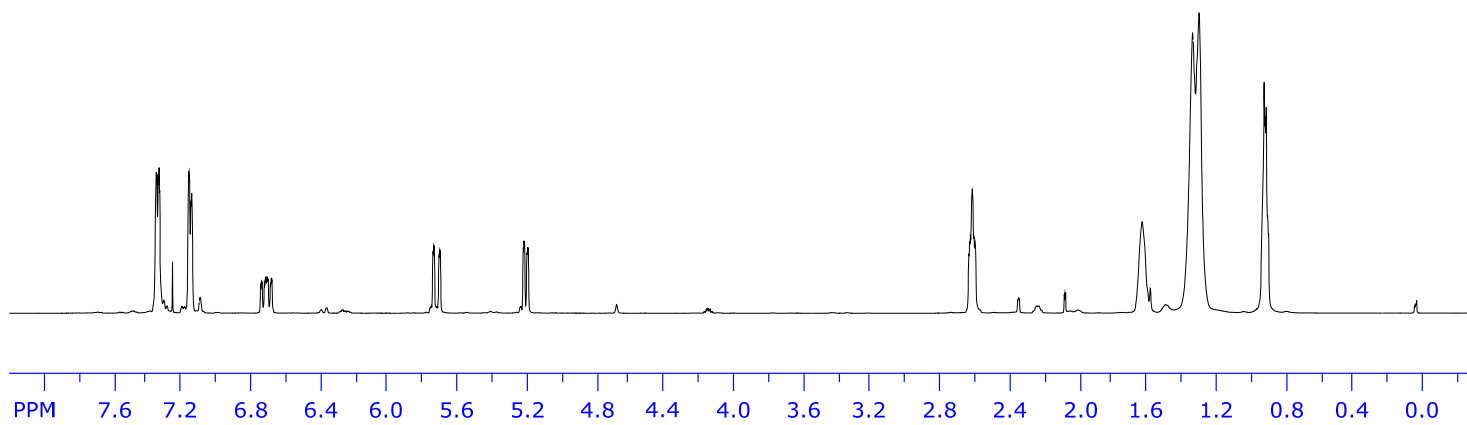
^a*Department of Chemistry and Biochemistry, Queens College, The City University of New York, Flushing, New York 11367-1597*

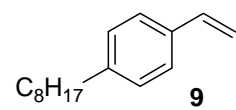
^b*Cell Biology Group, Strathclyde Institute of Pharmacy and Biomedical Science, University of Strathclyde, Glasgow, United Kingdom G4 0RE*

* Corresponding author. Tel.: (+1)718-997-3279; fax: (+1)718-997-3349; e-mail: robert.bittman@qc.cuny.edu

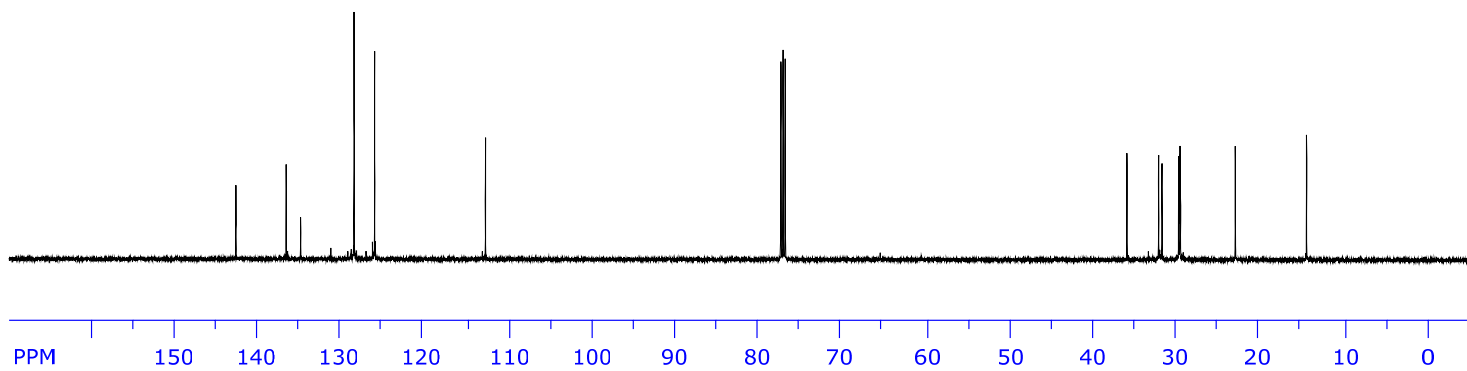


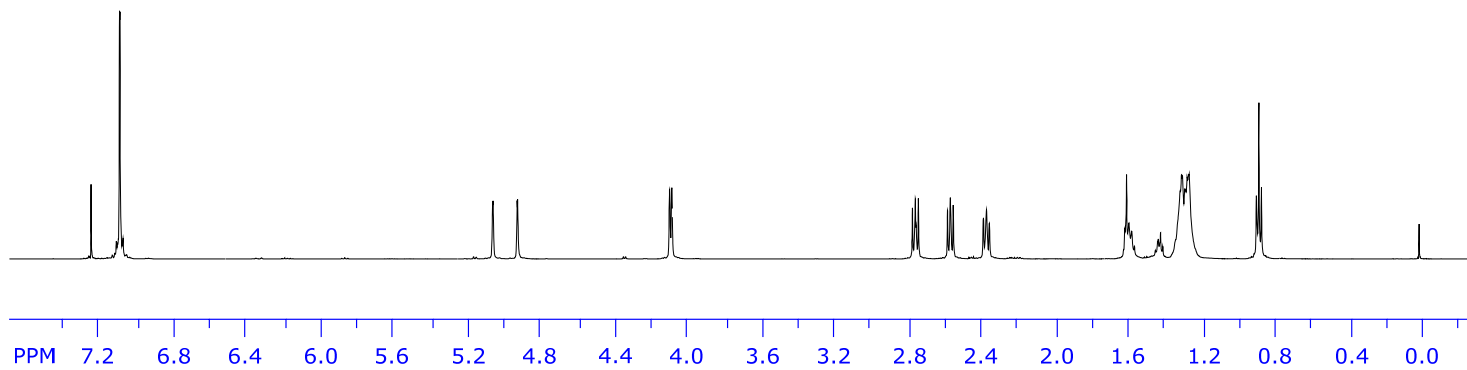
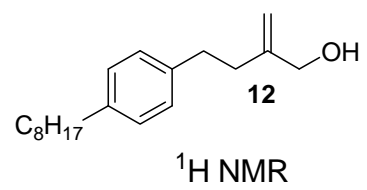
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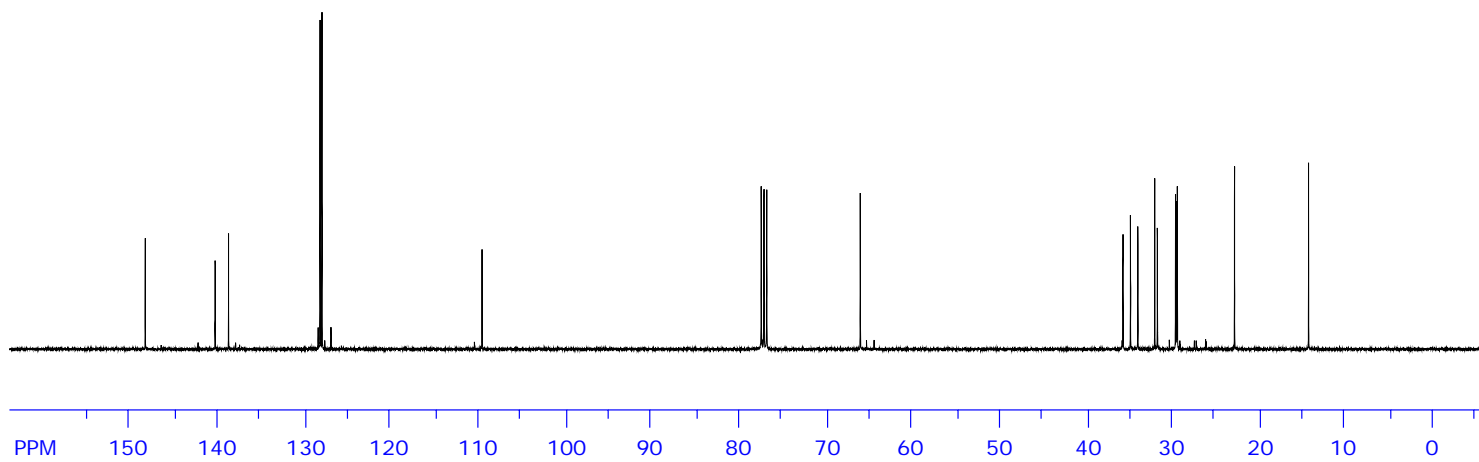
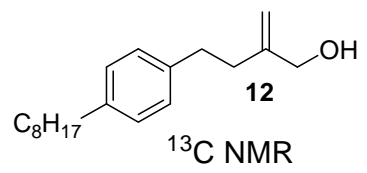


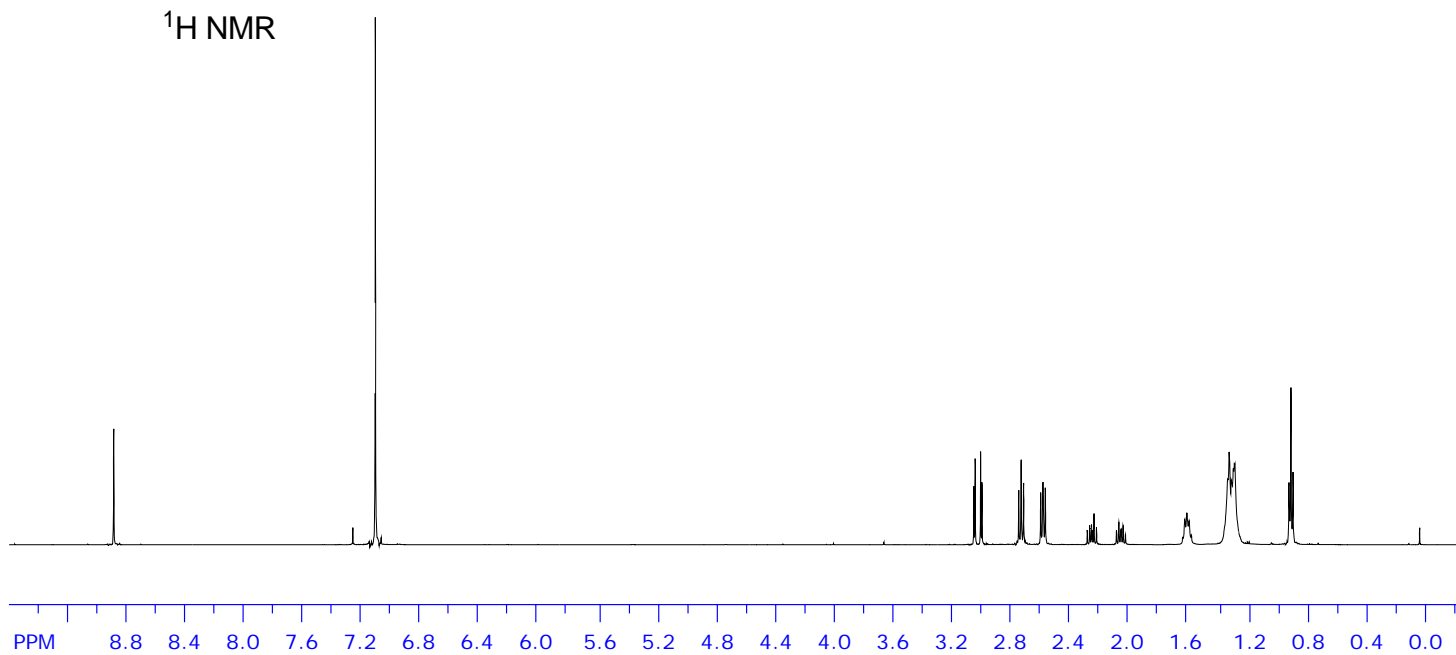
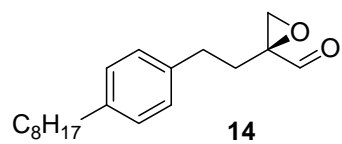


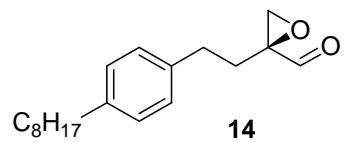
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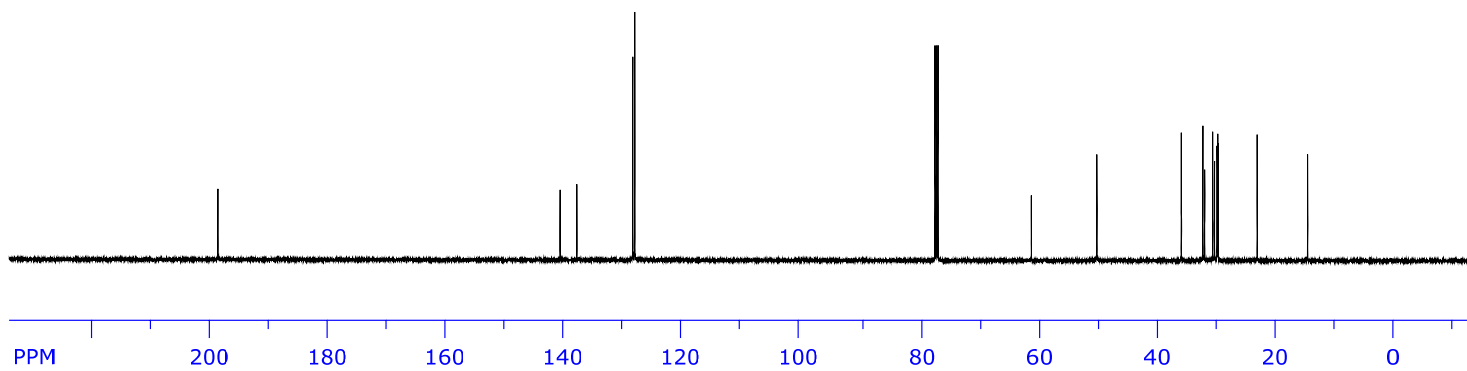


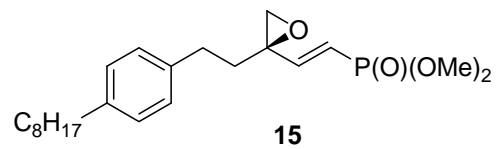




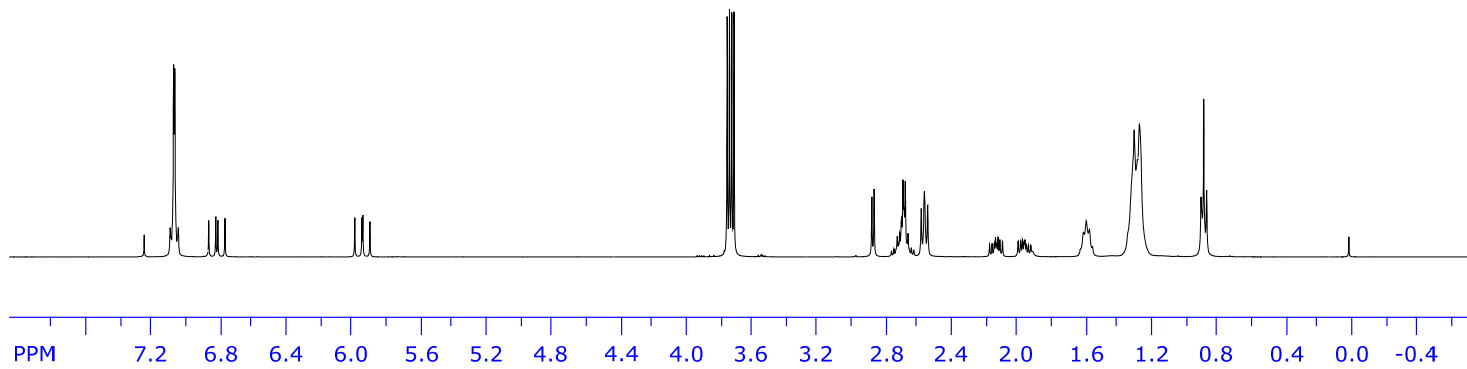


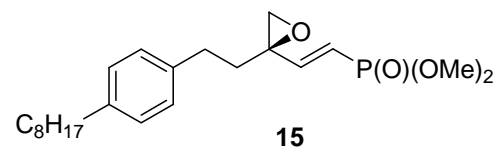
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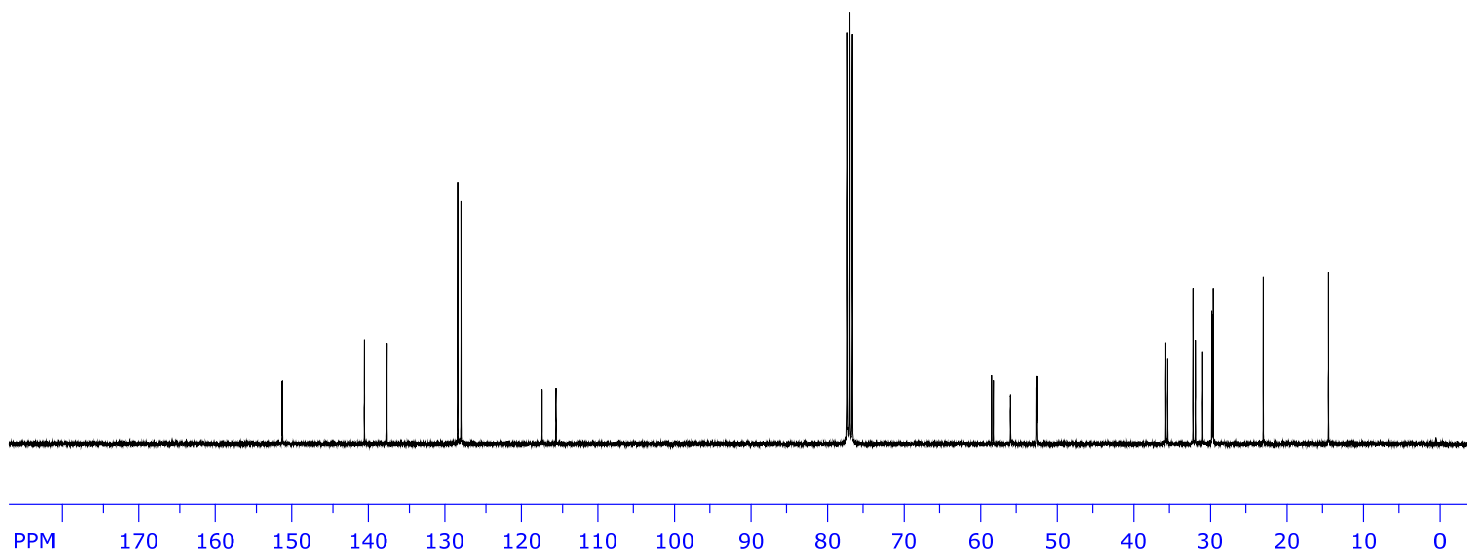


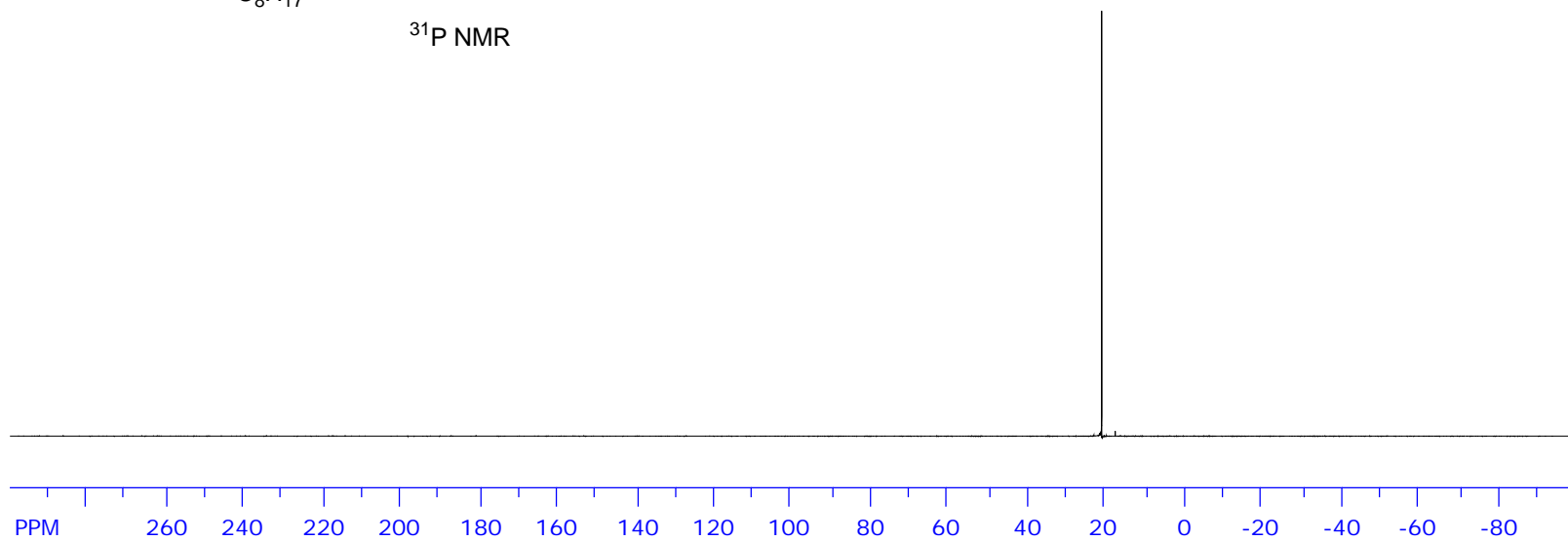
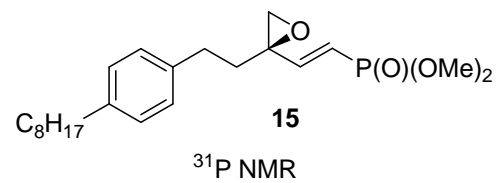
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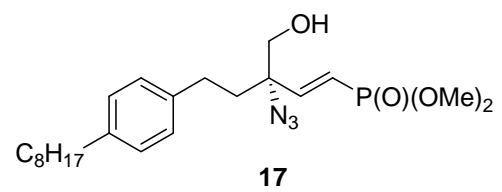




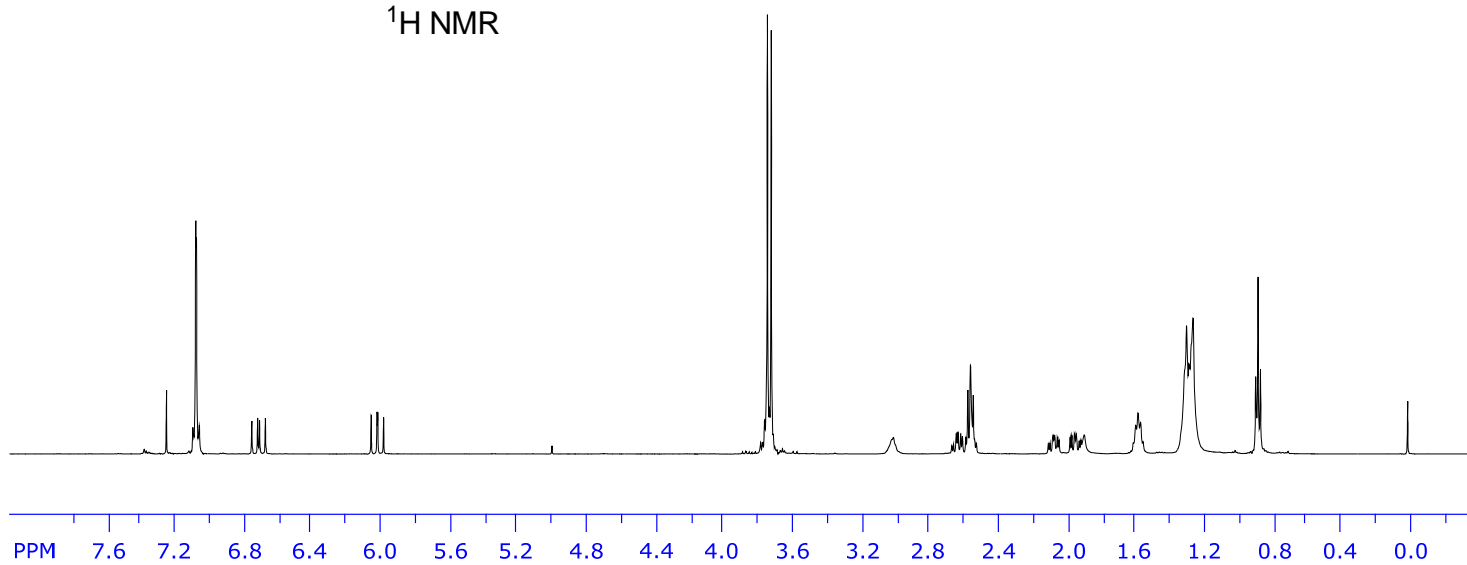
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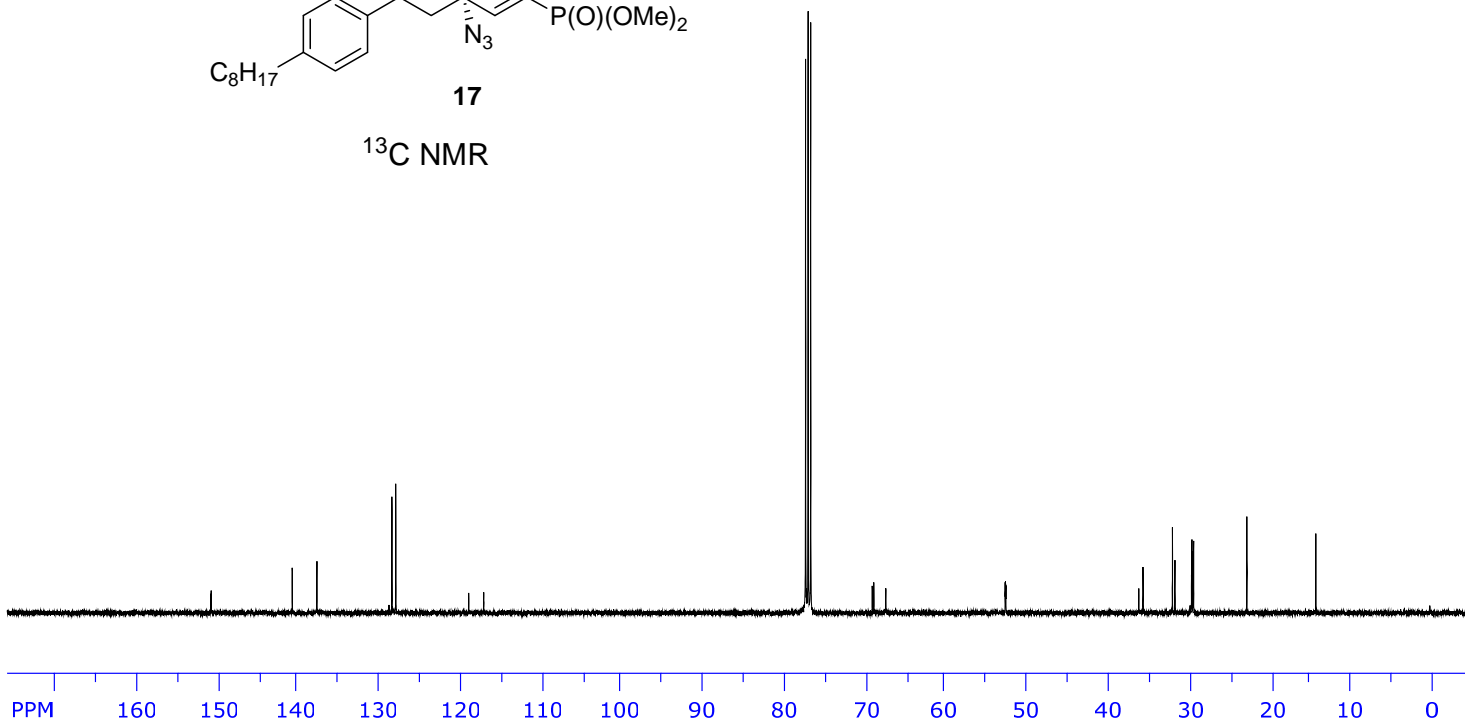
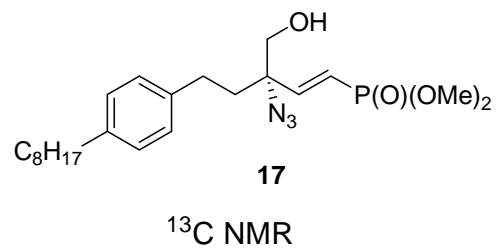


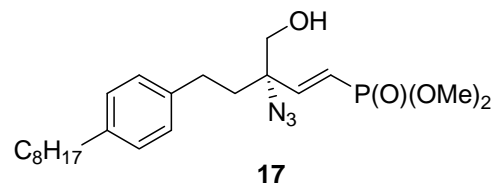




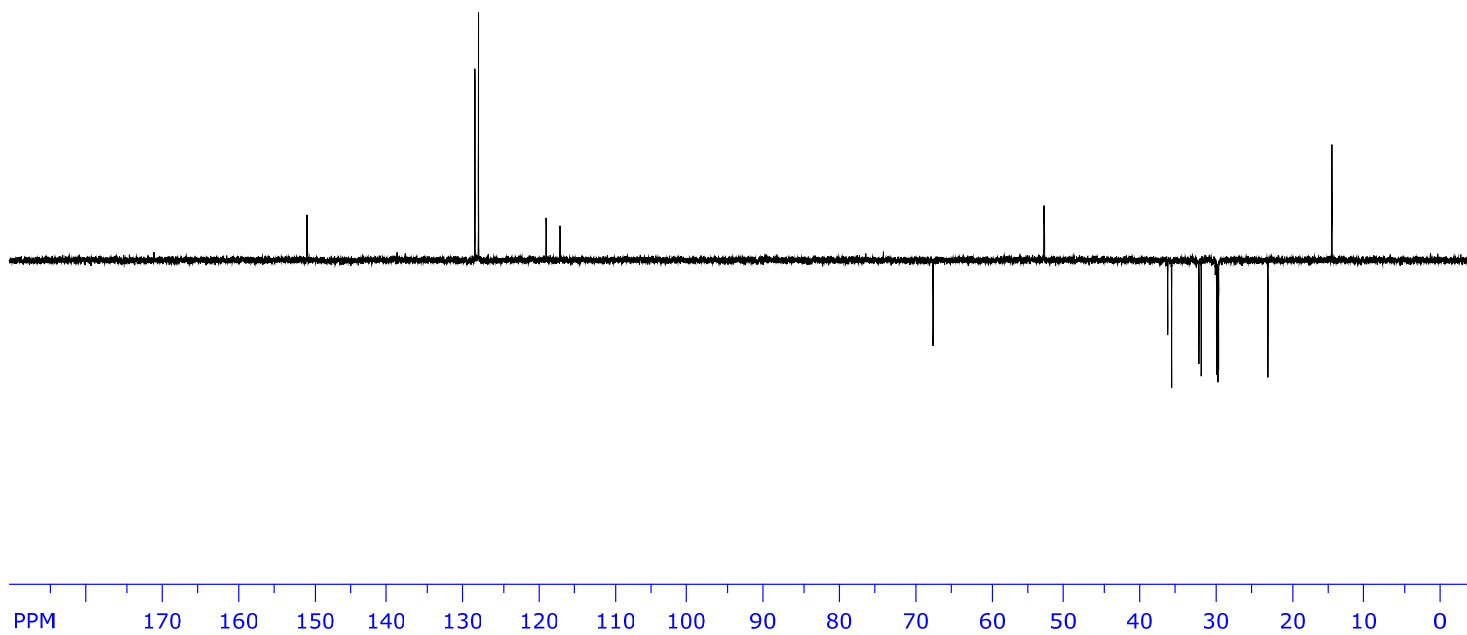
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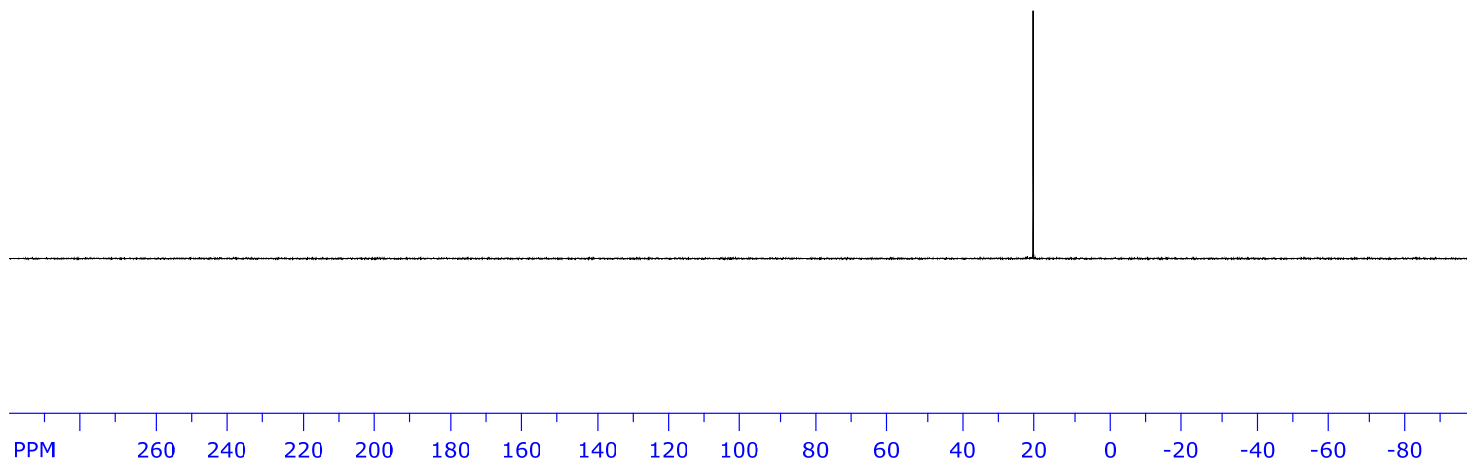
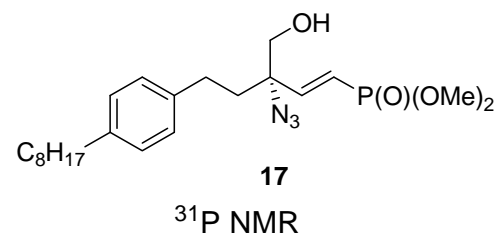


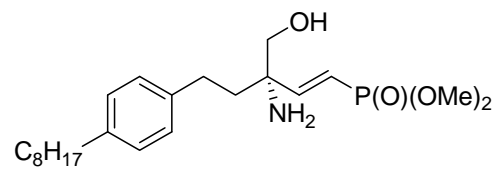




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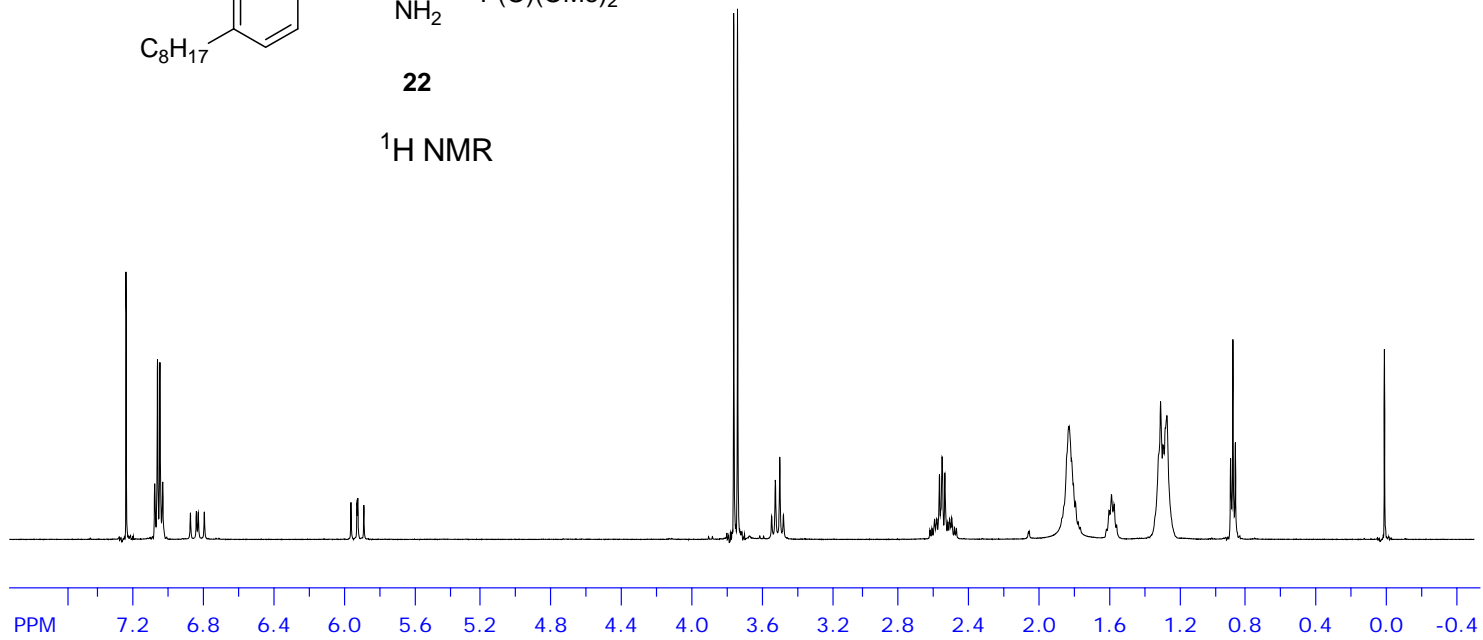


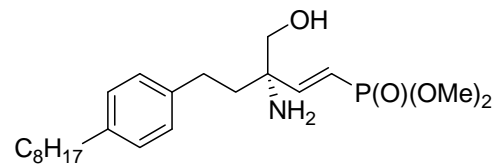




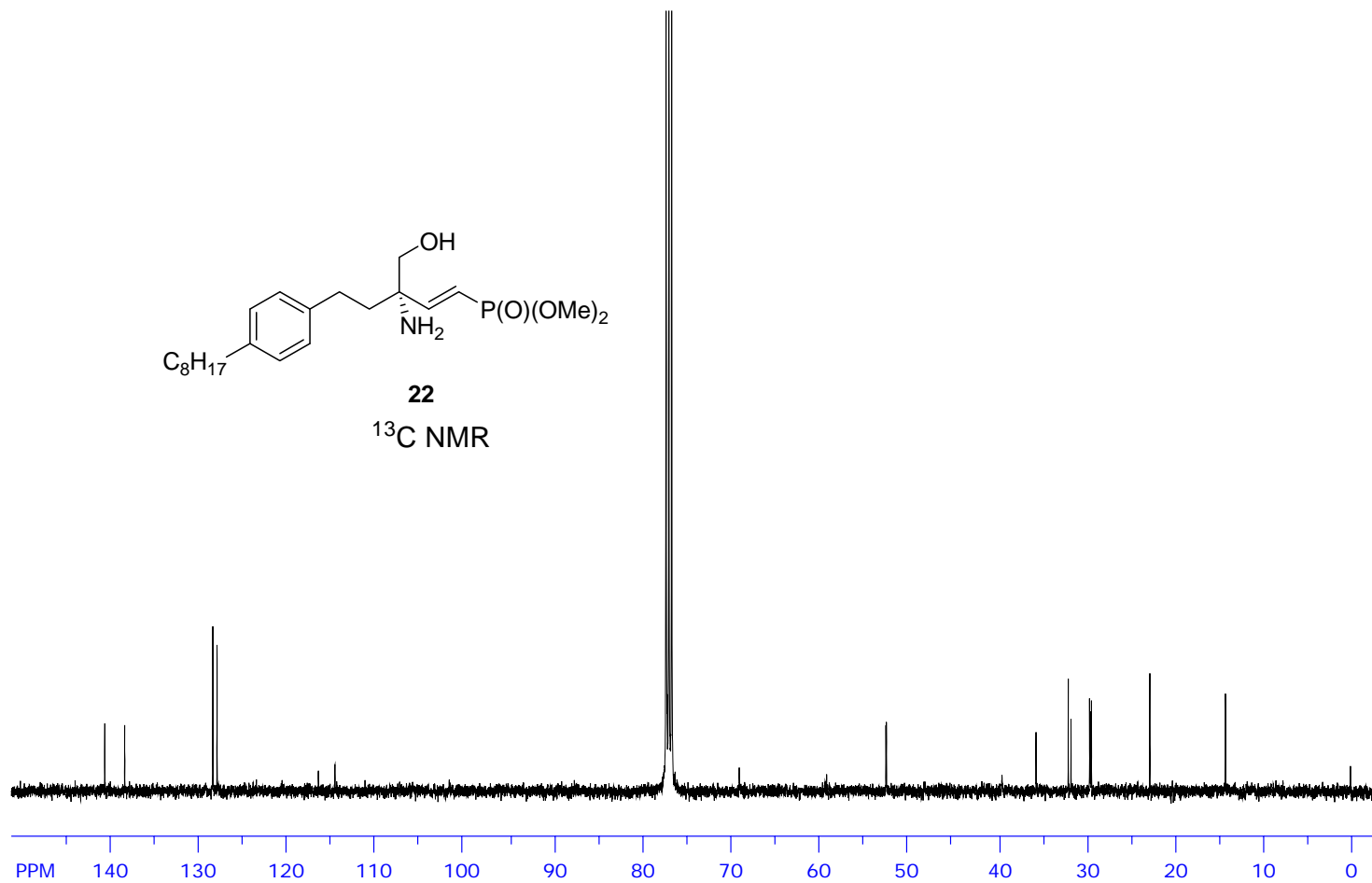
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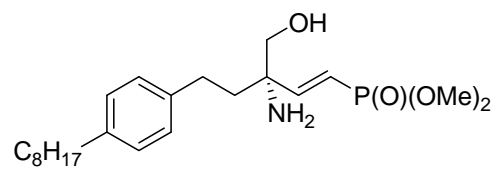
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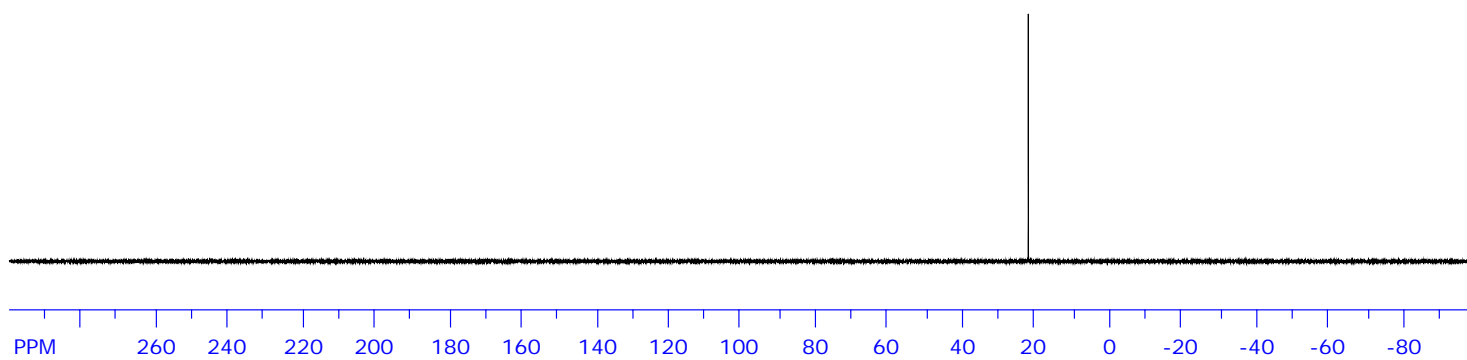
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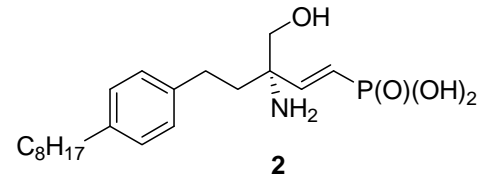




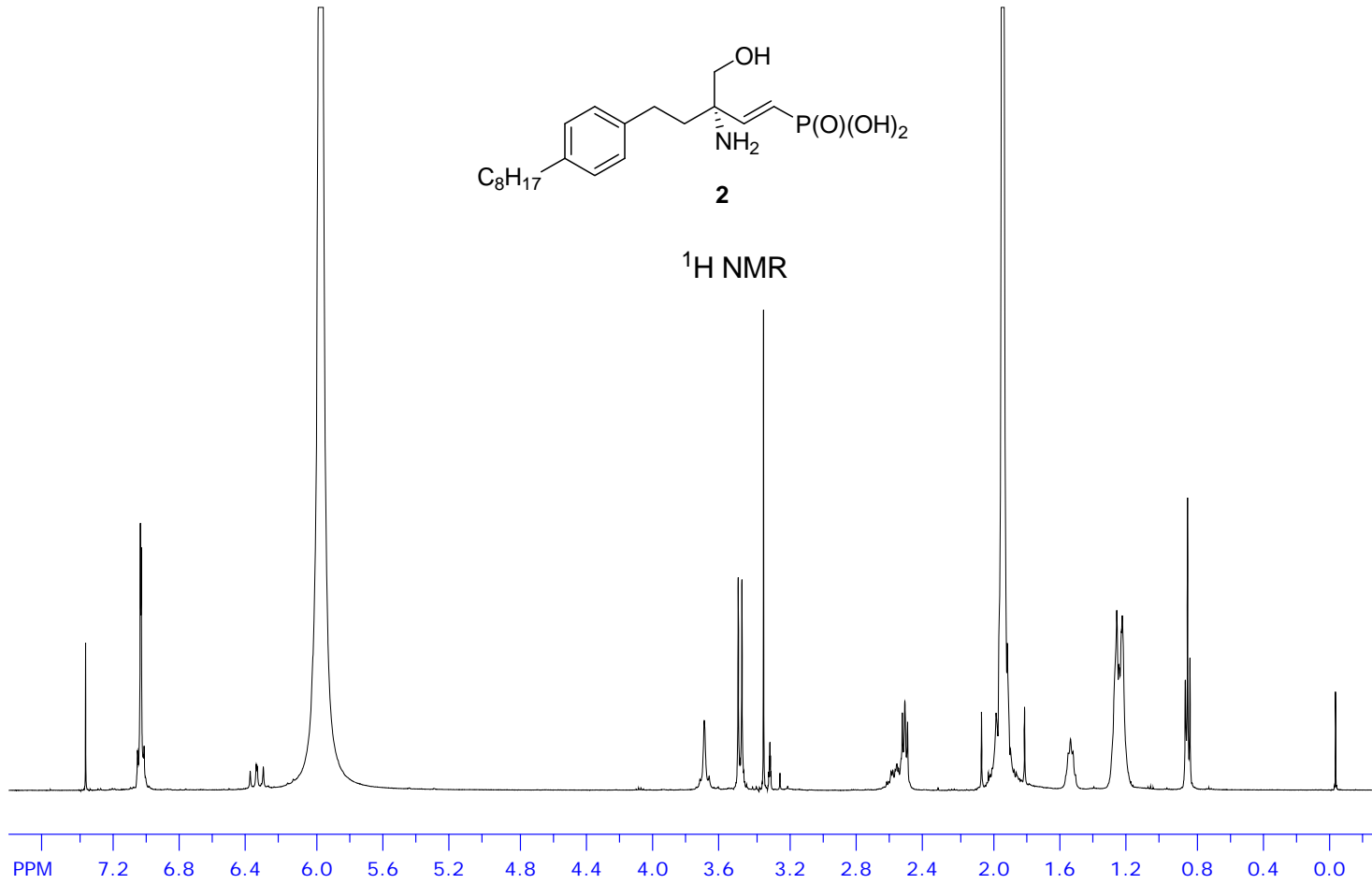
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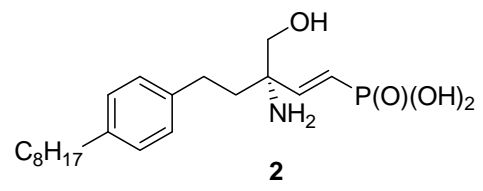
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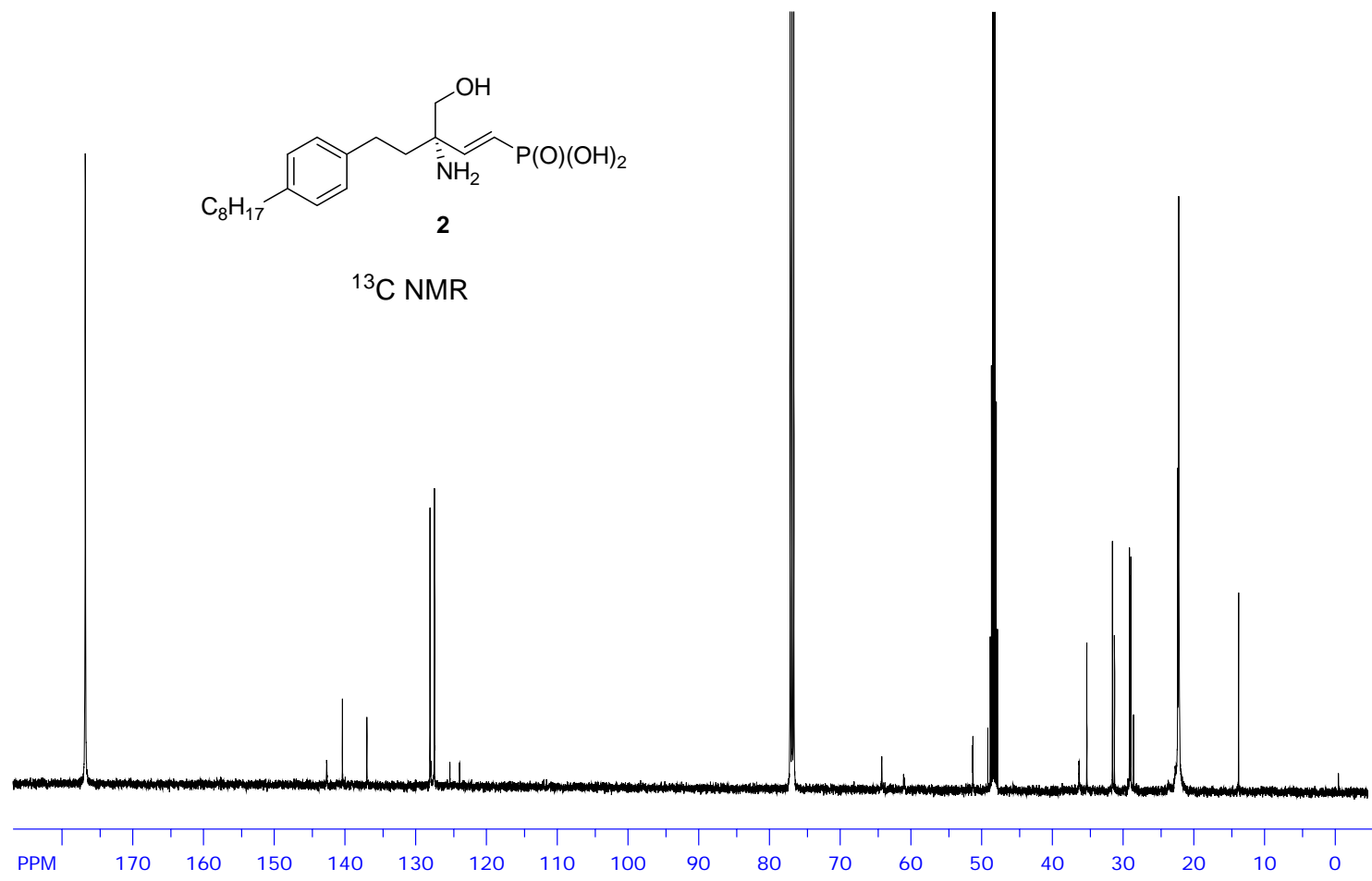


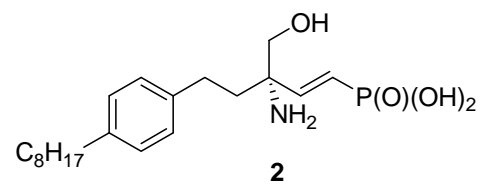
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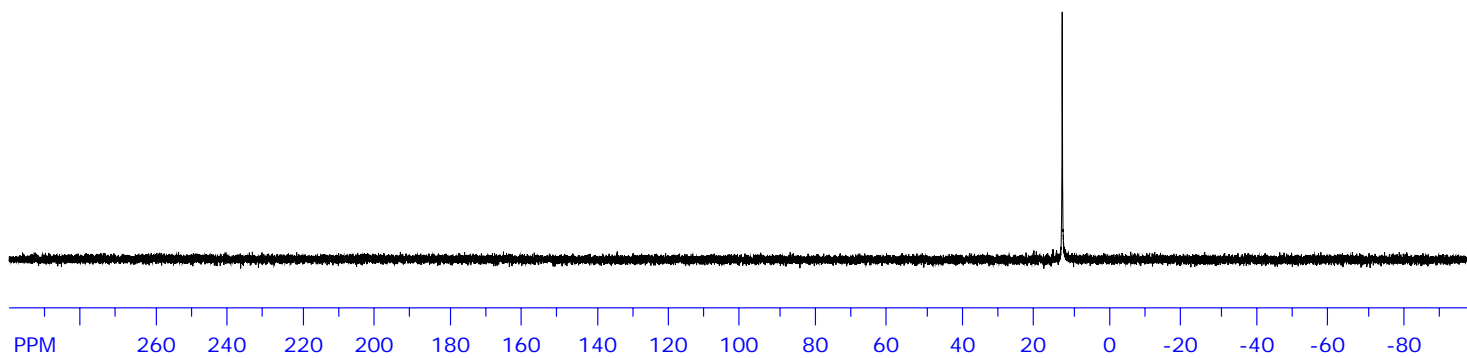


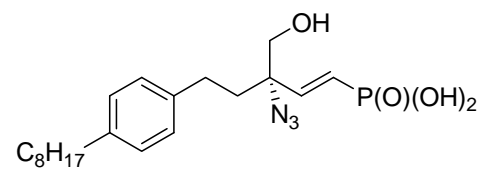
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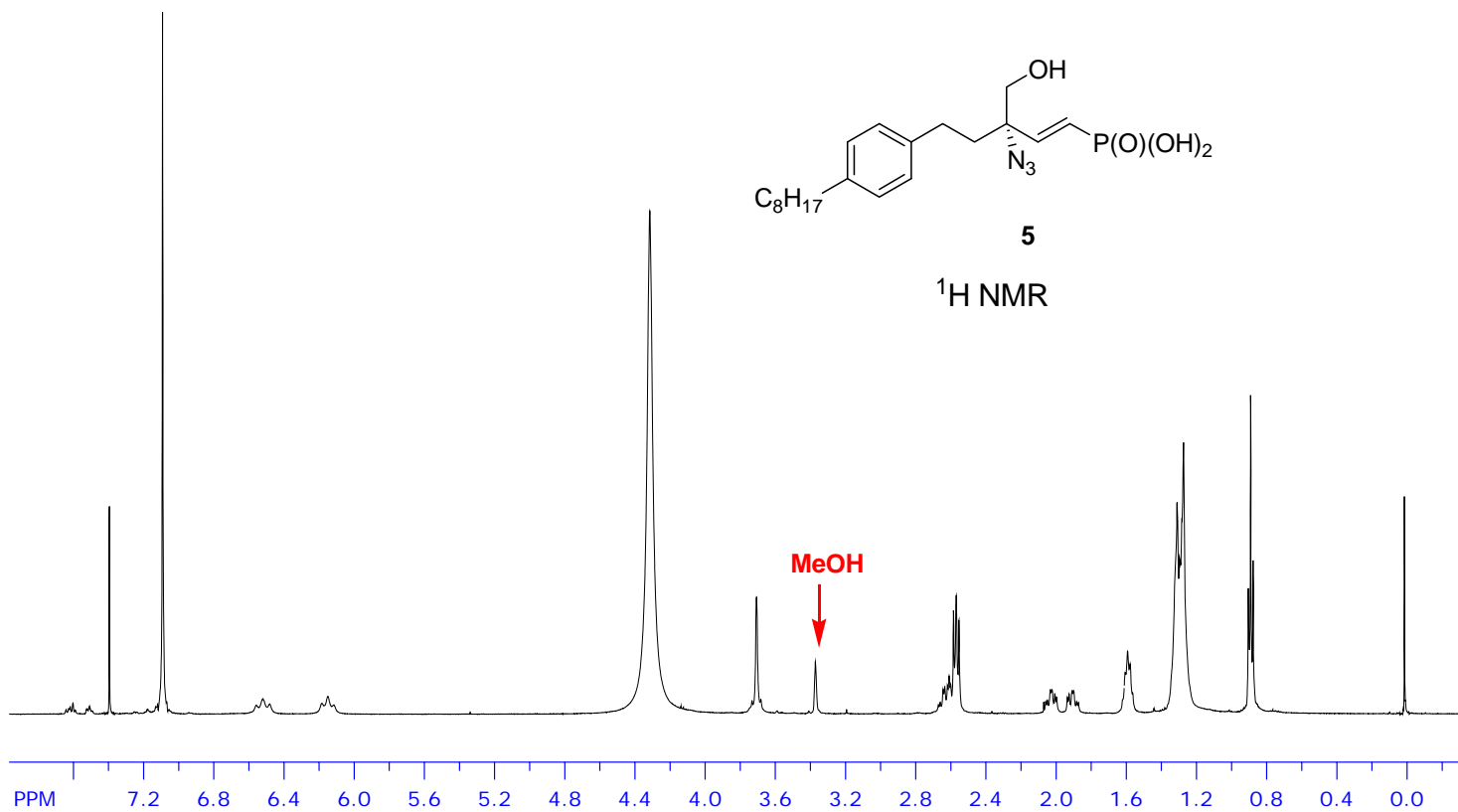
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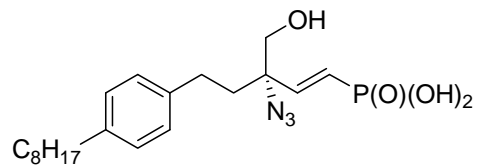




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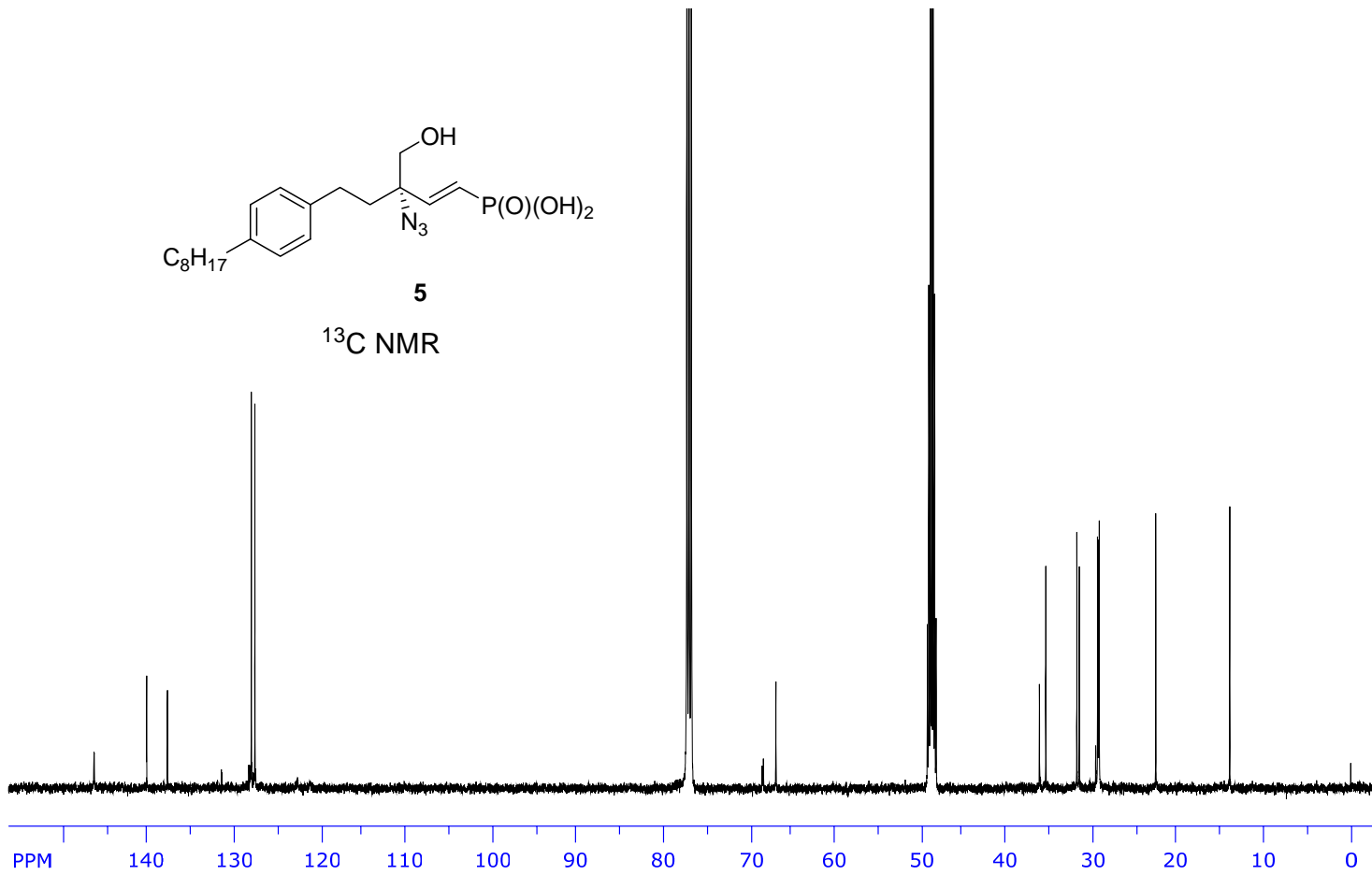
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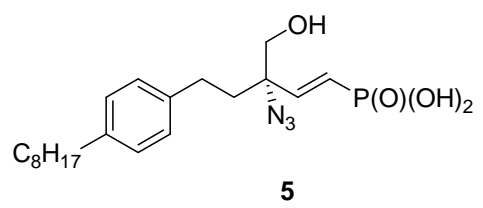




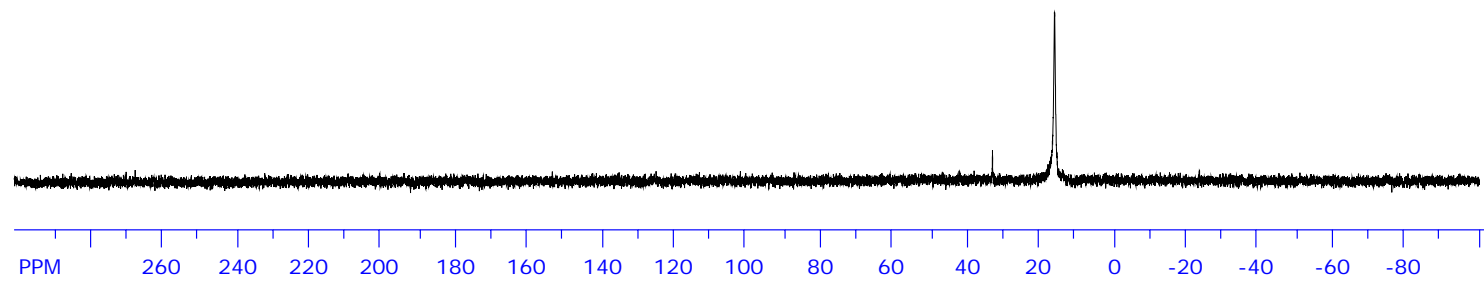
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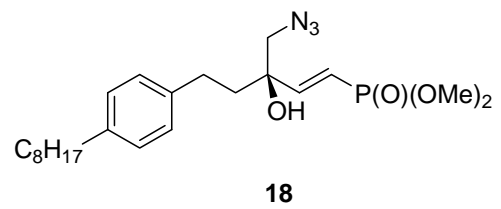
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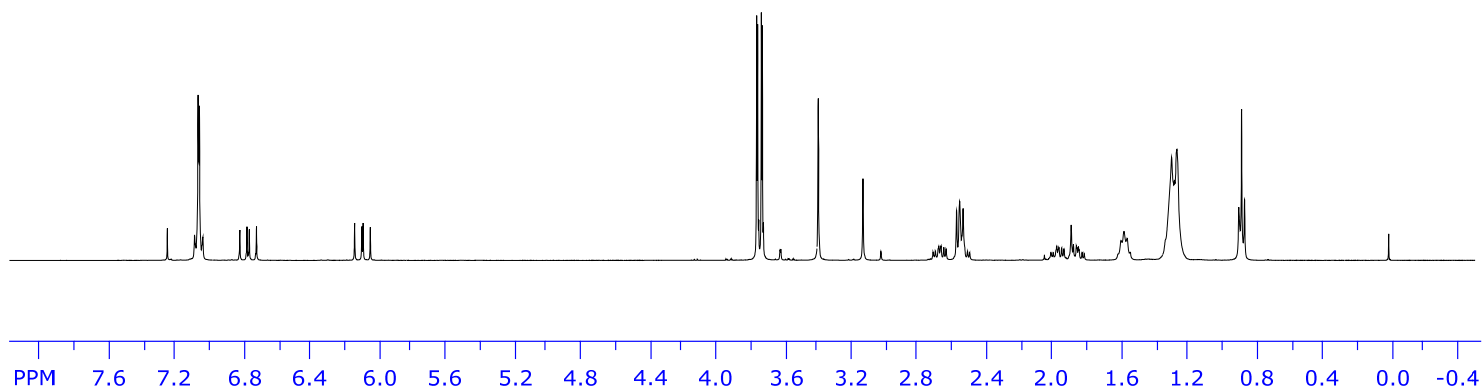


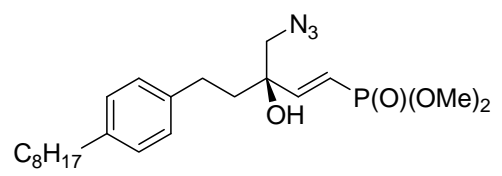
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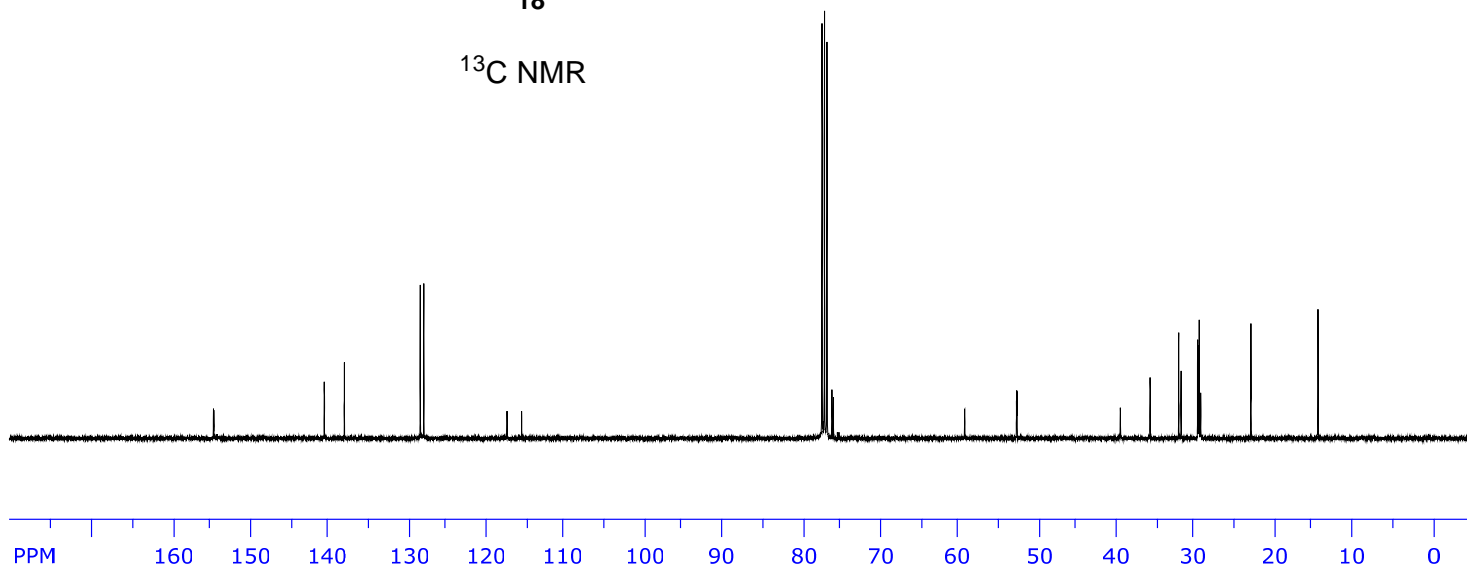
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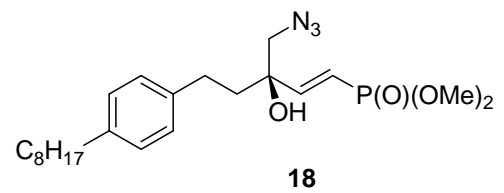




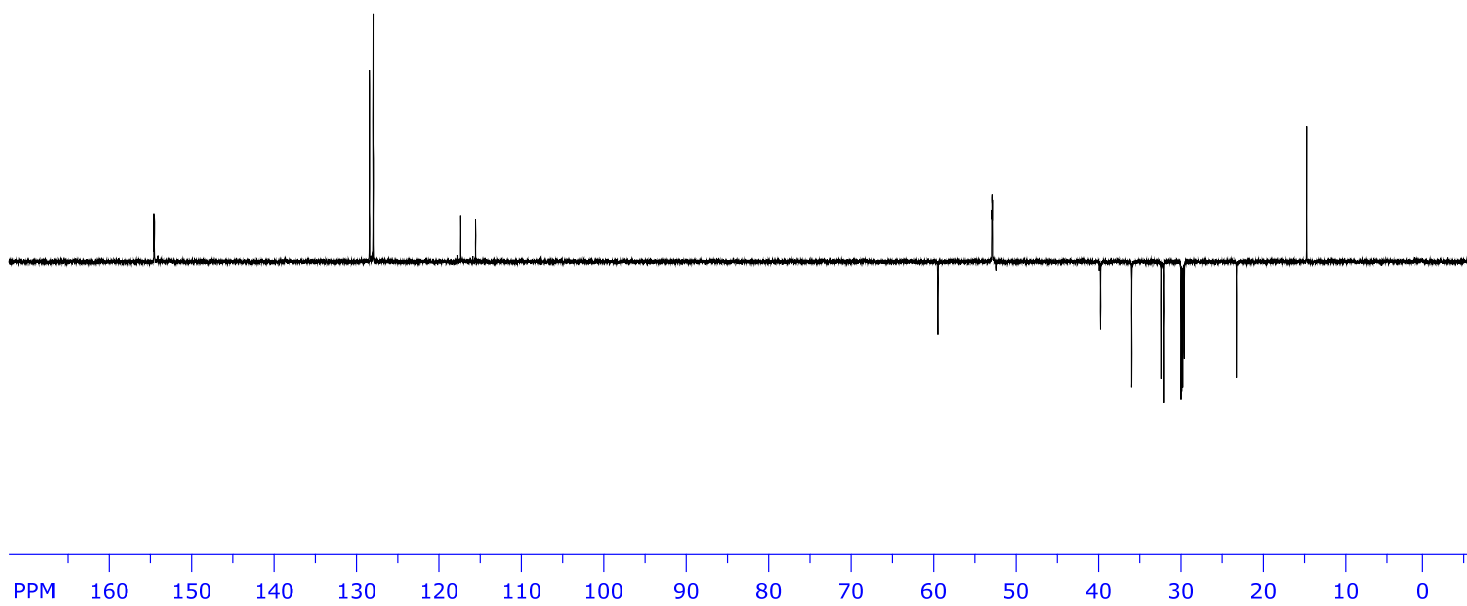
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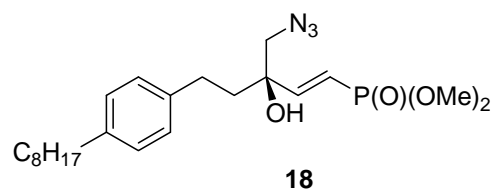
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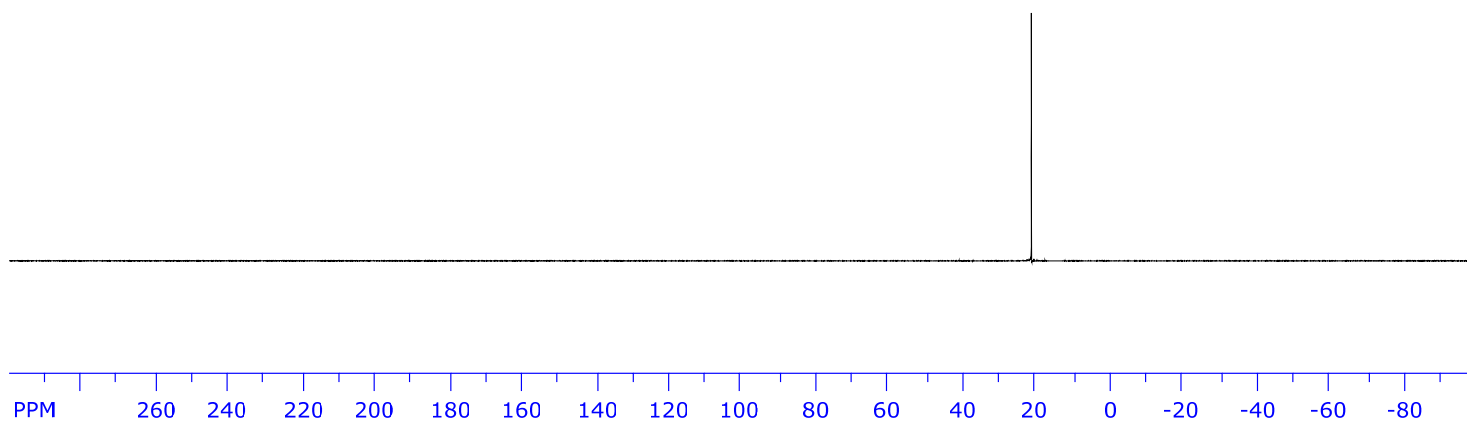


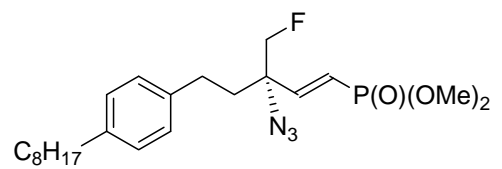
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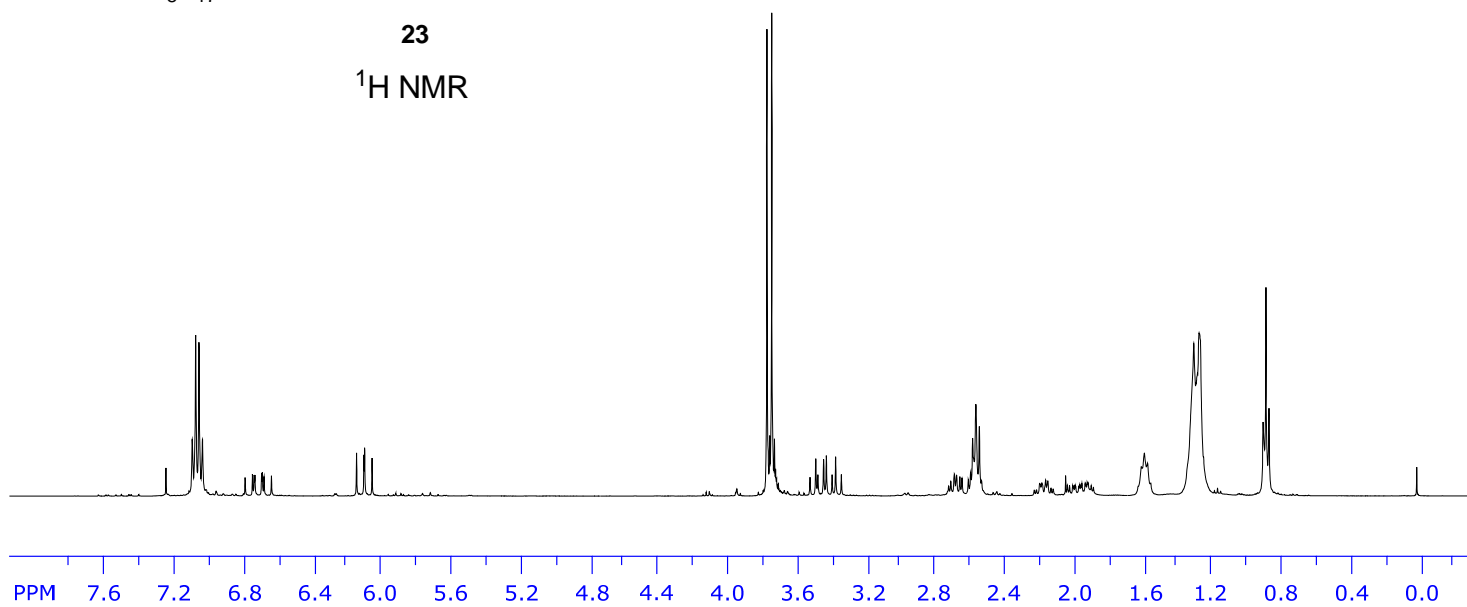


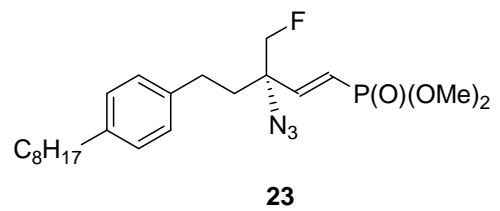
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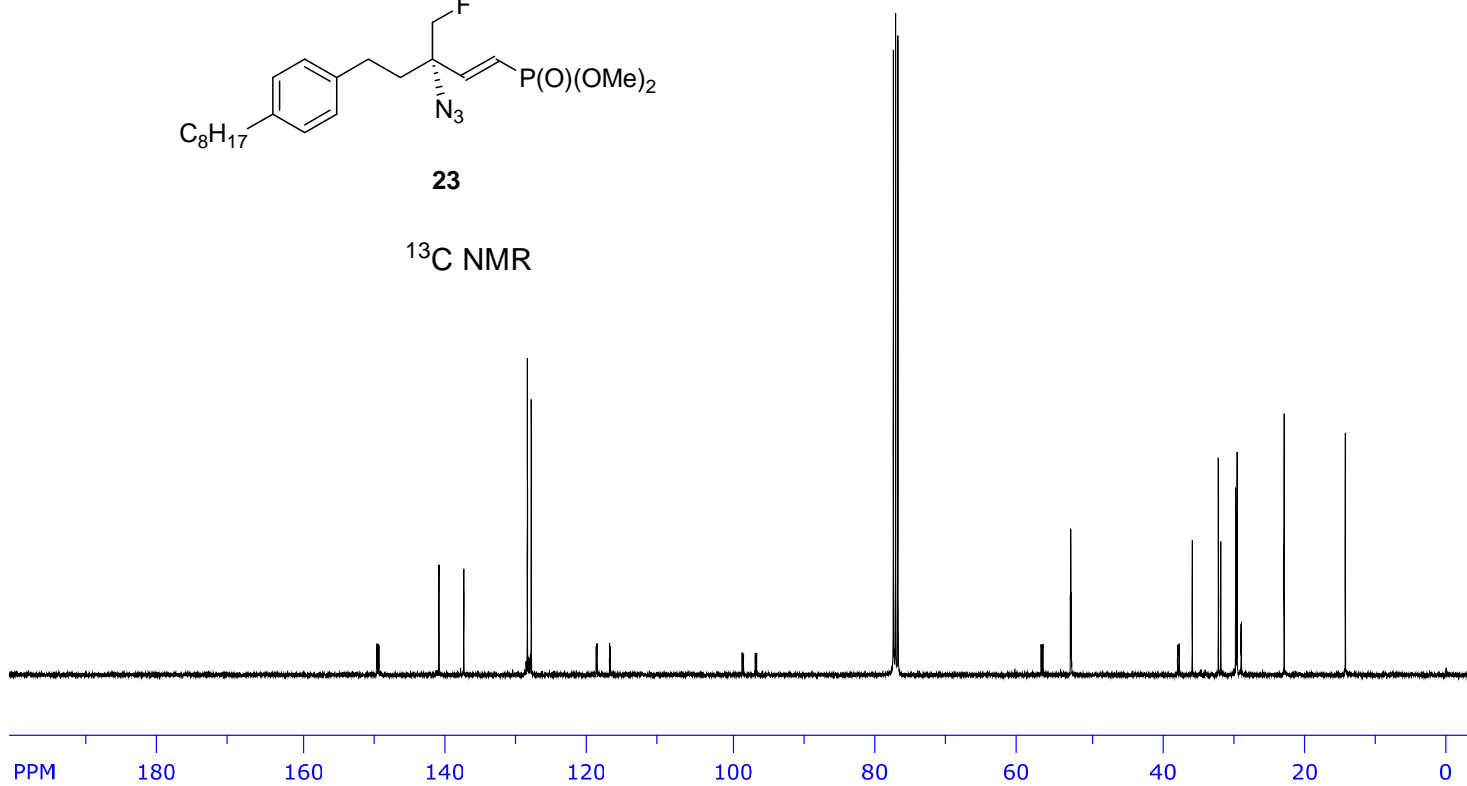


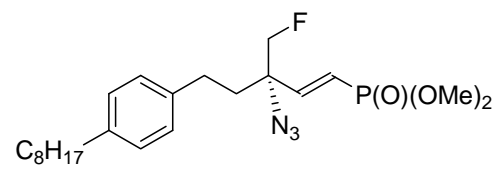
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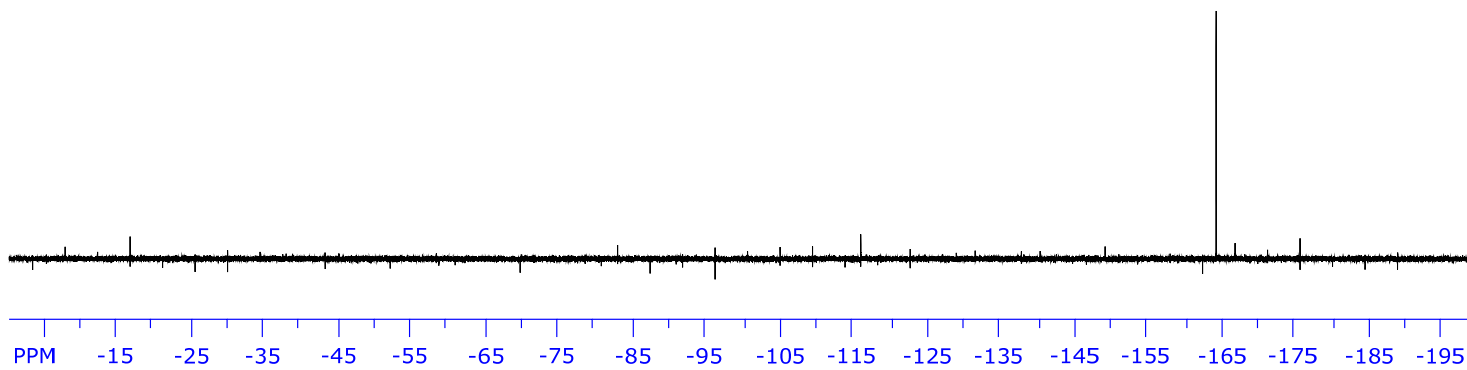
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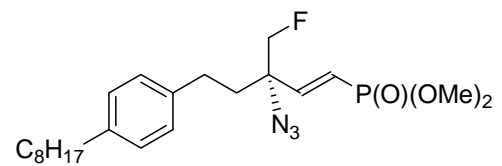




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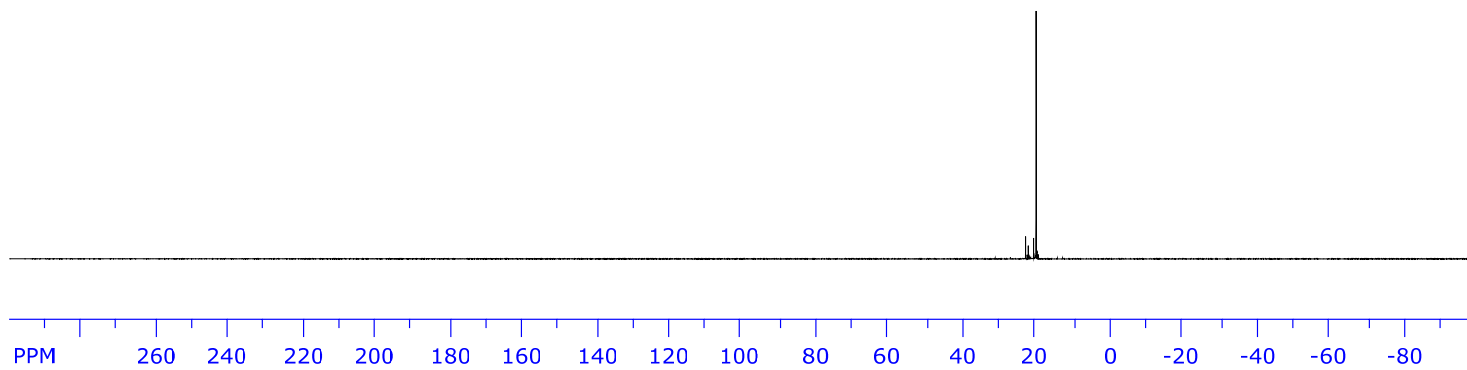
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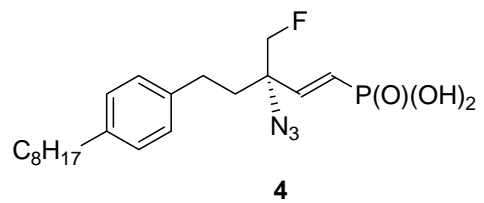




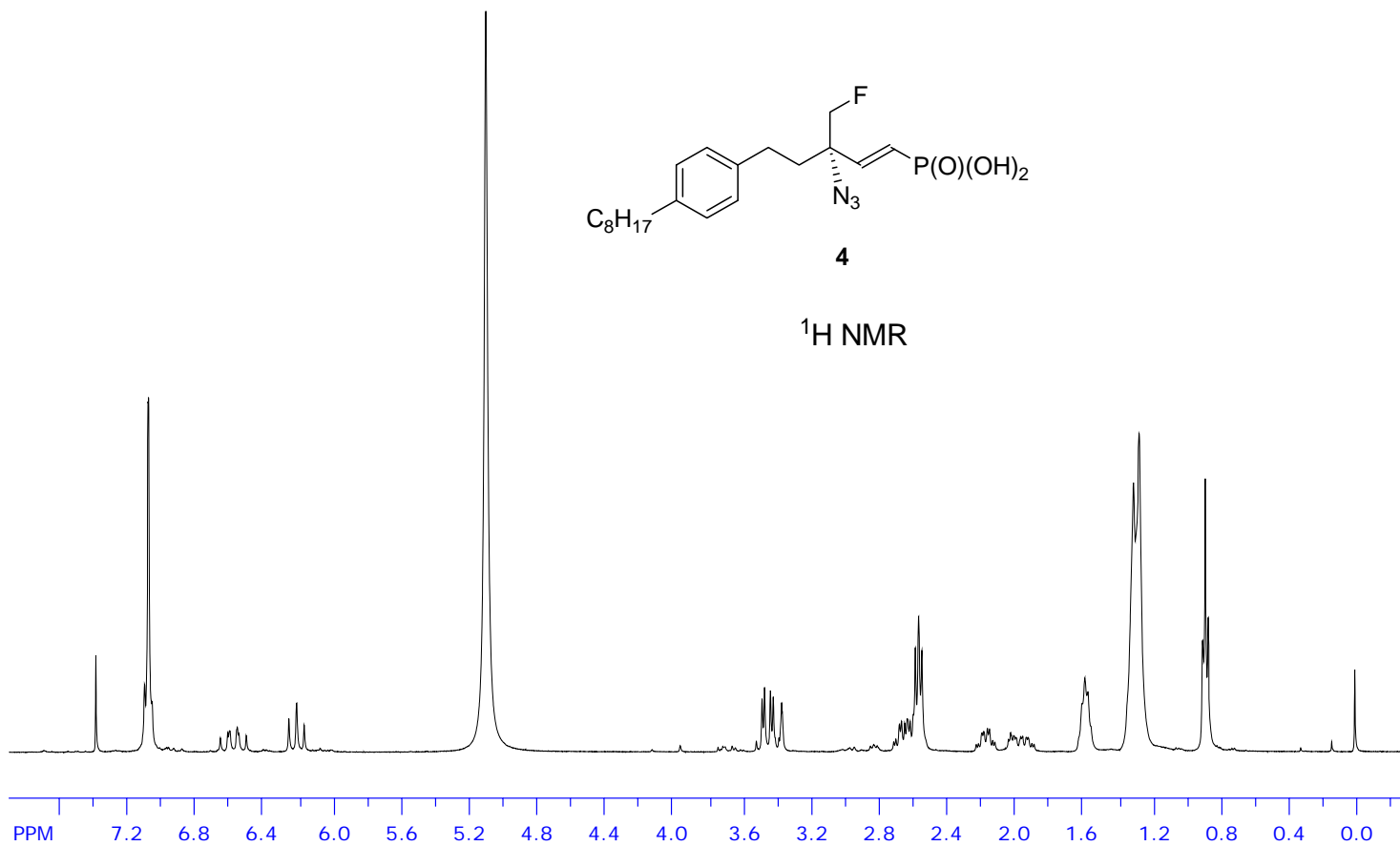
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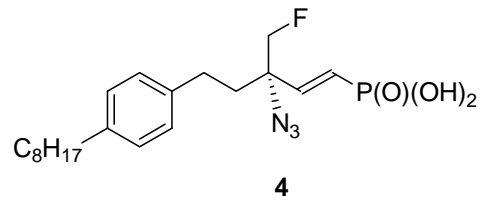
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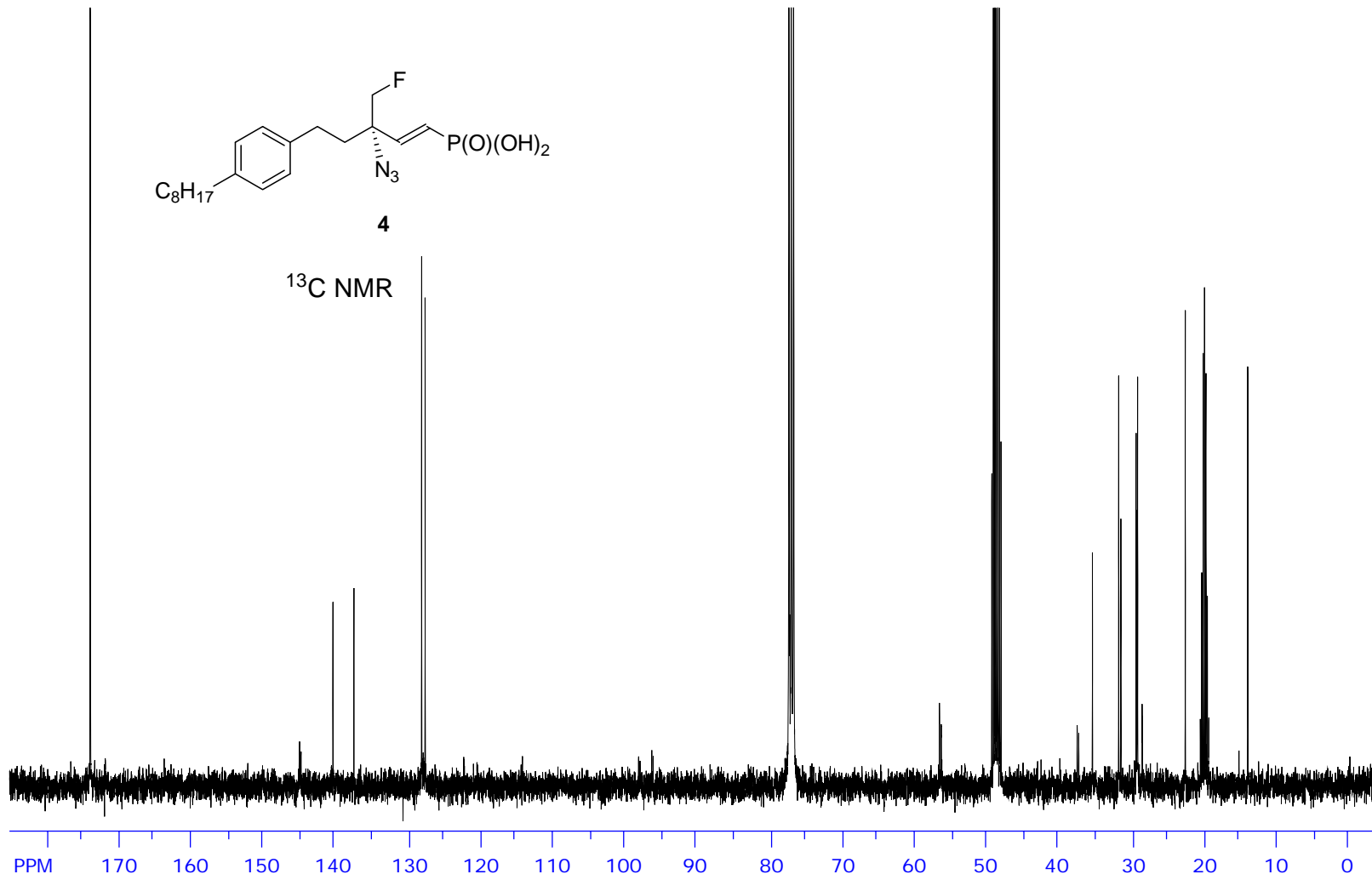


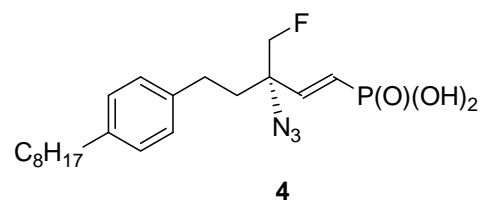
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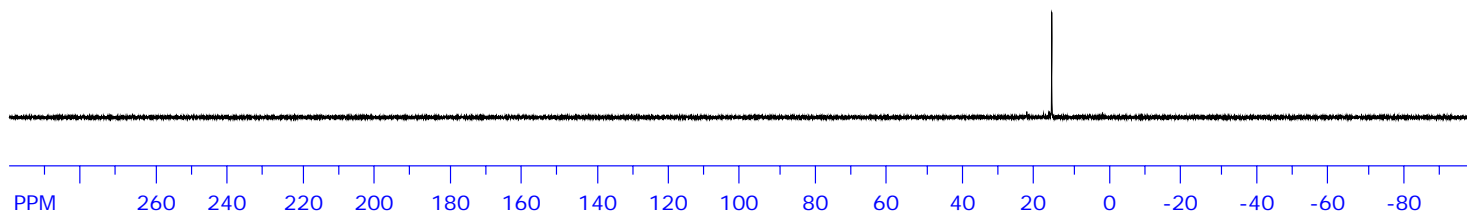


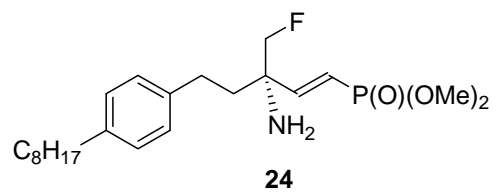
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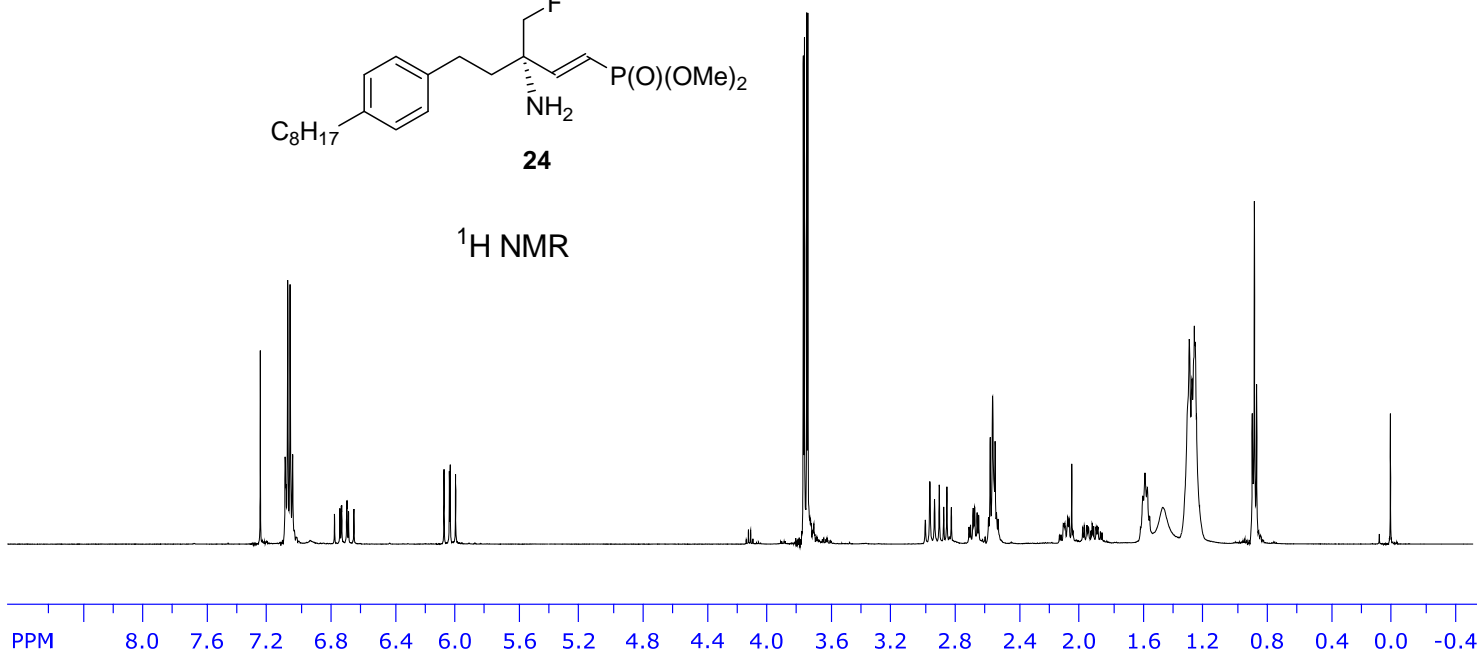


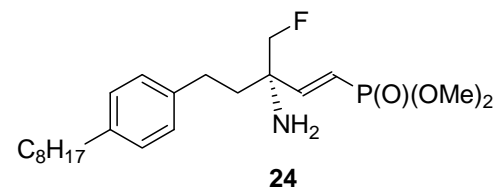
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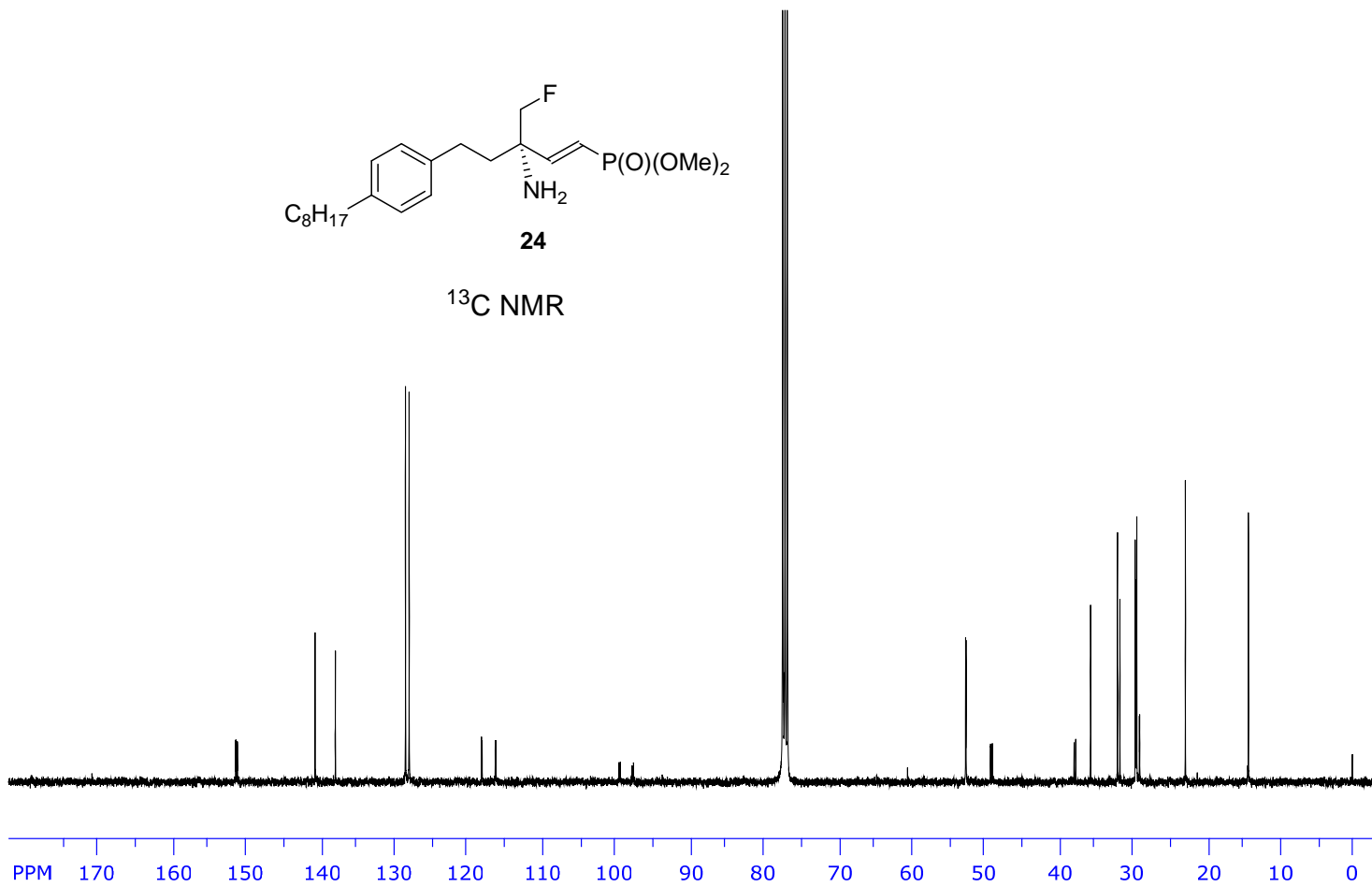


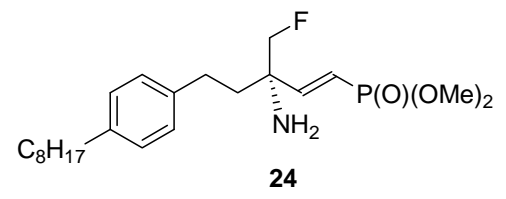
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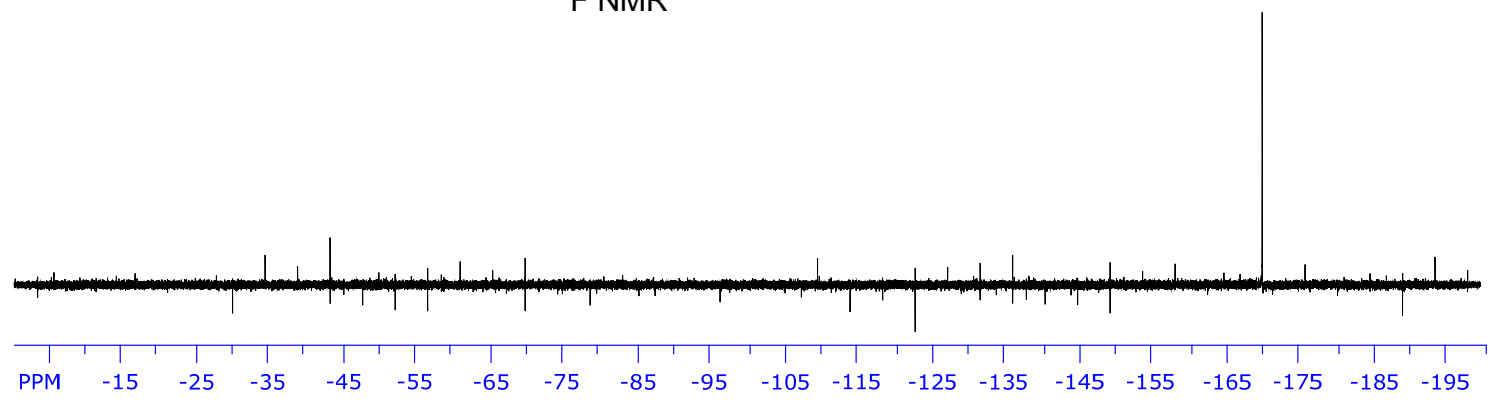


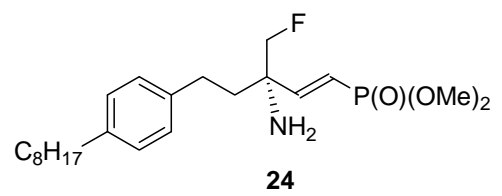
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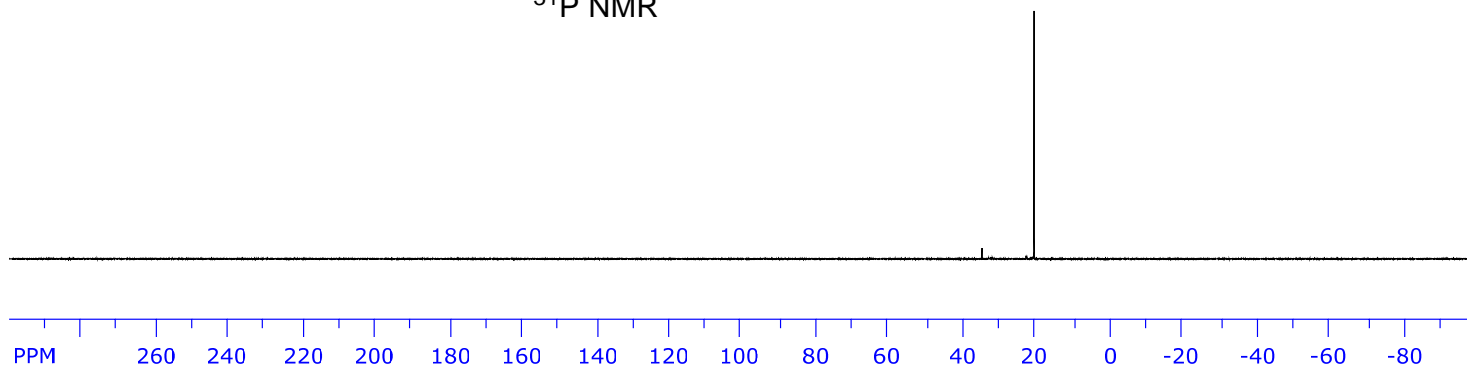


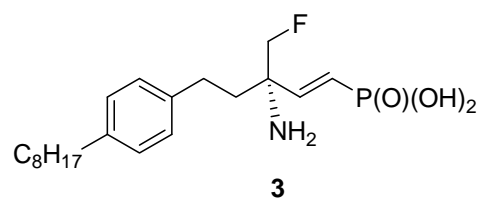
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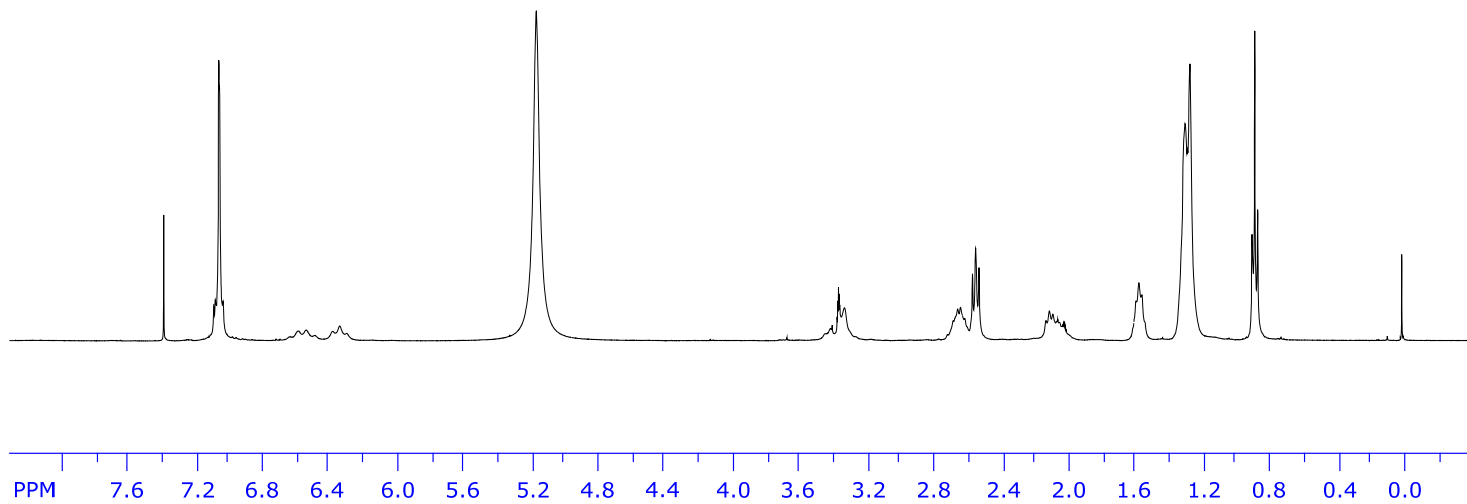


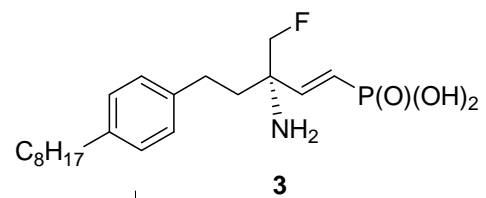
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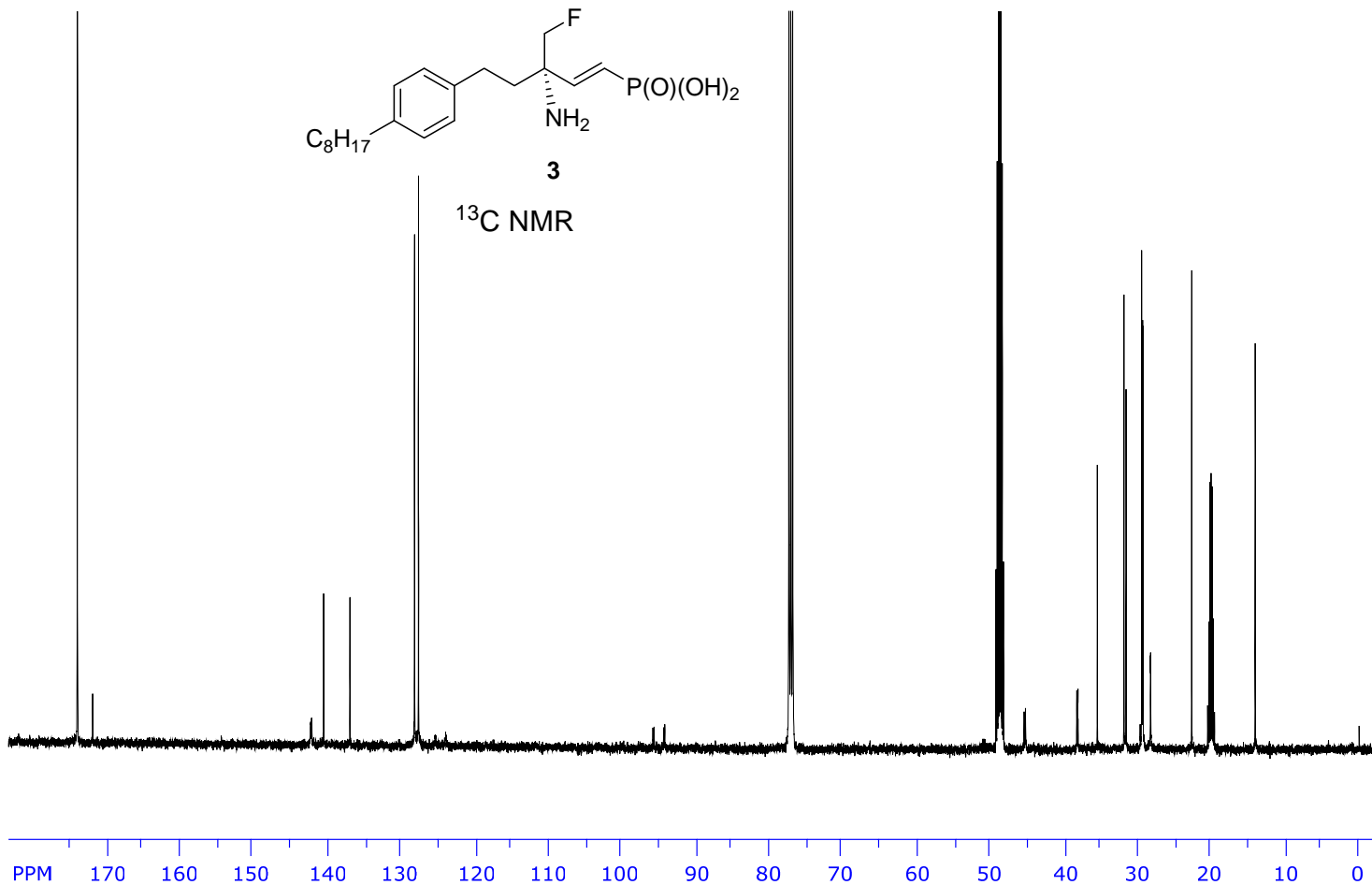


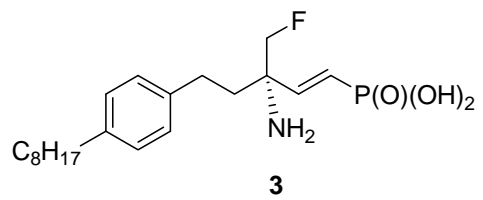
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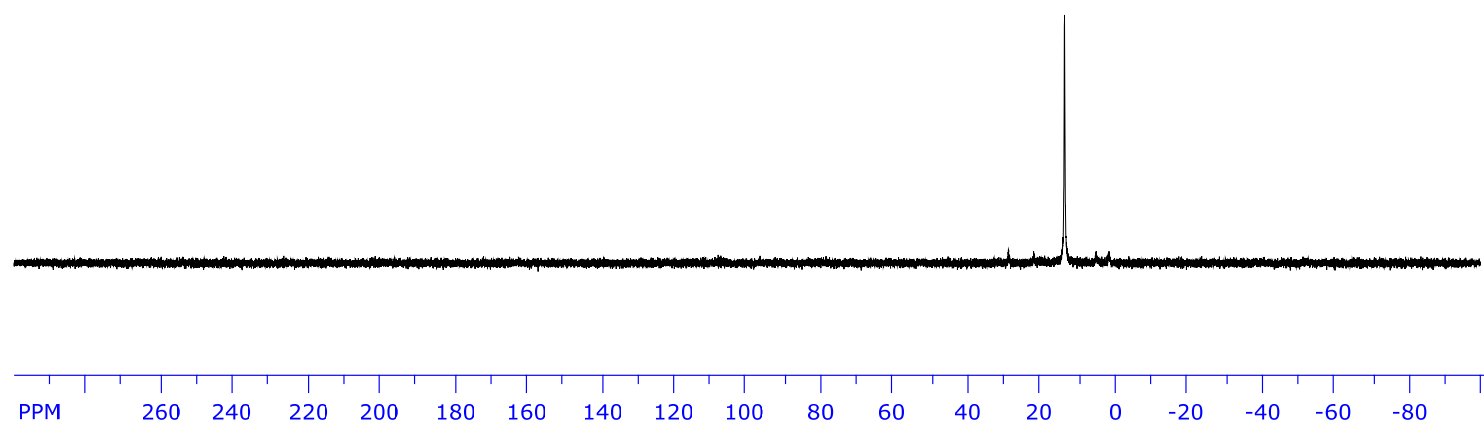


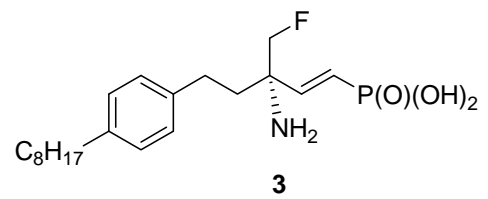
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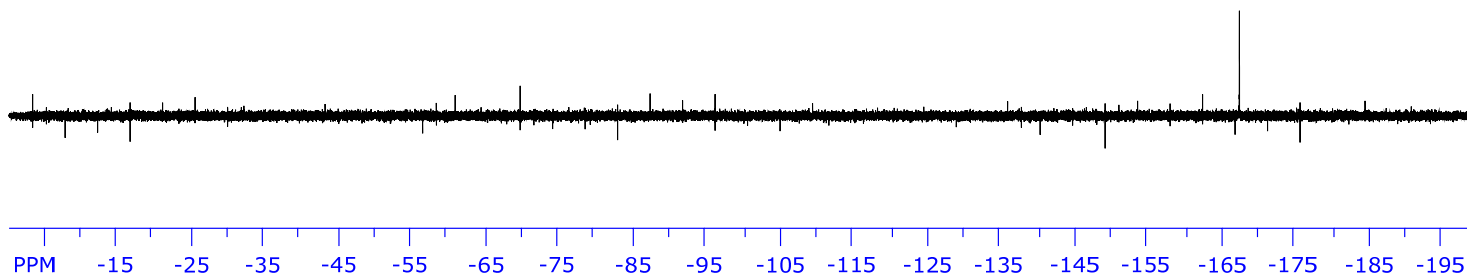


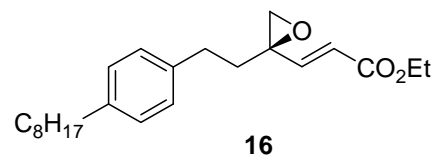
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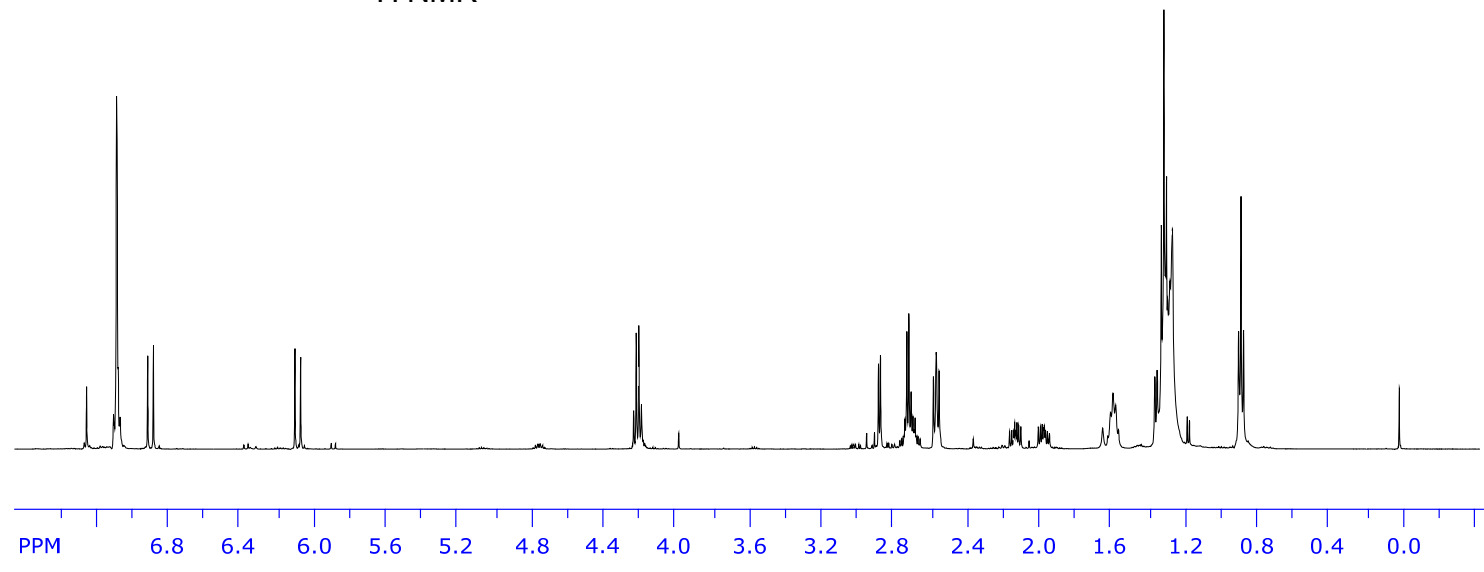


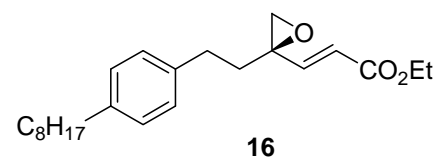
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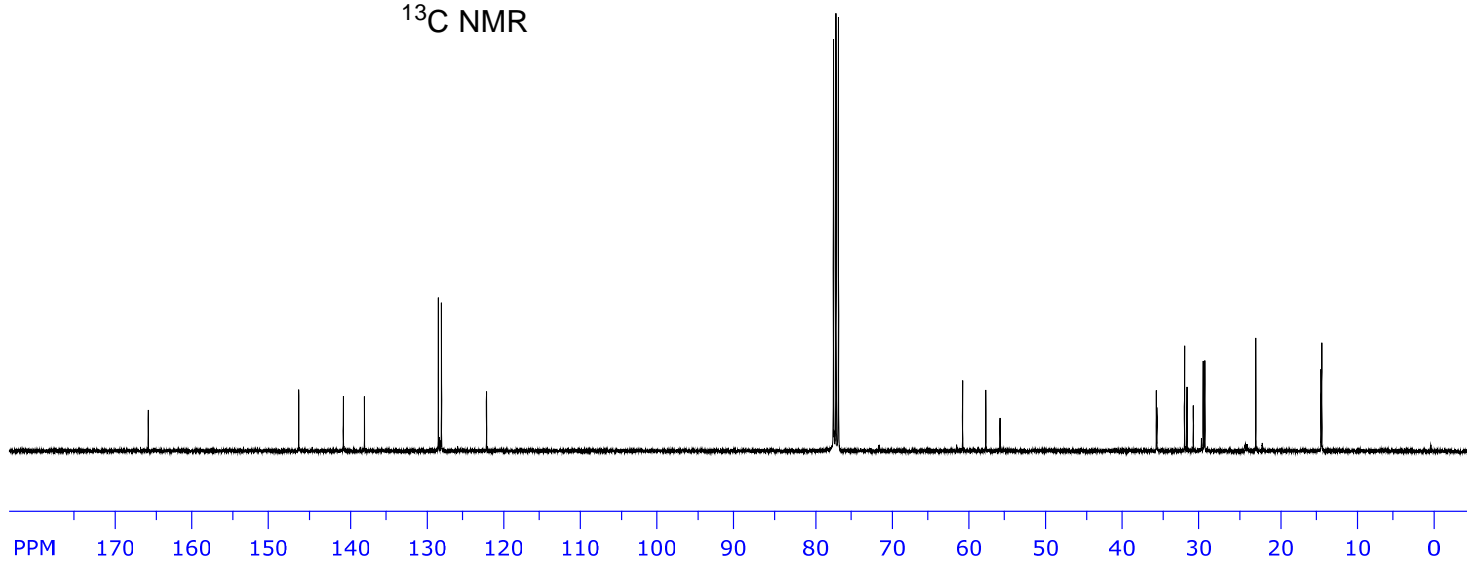


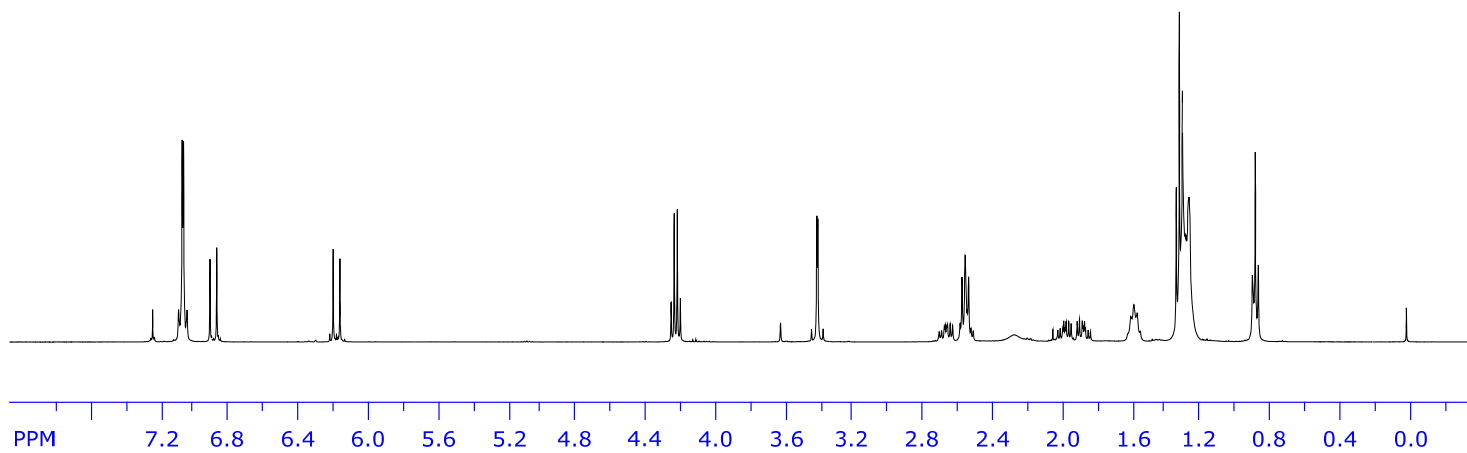
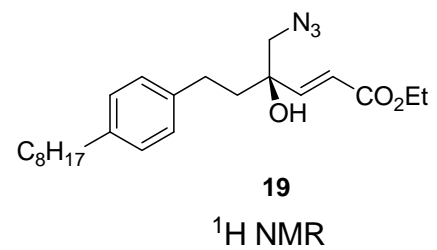
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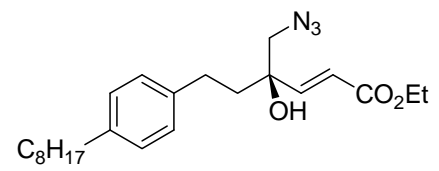




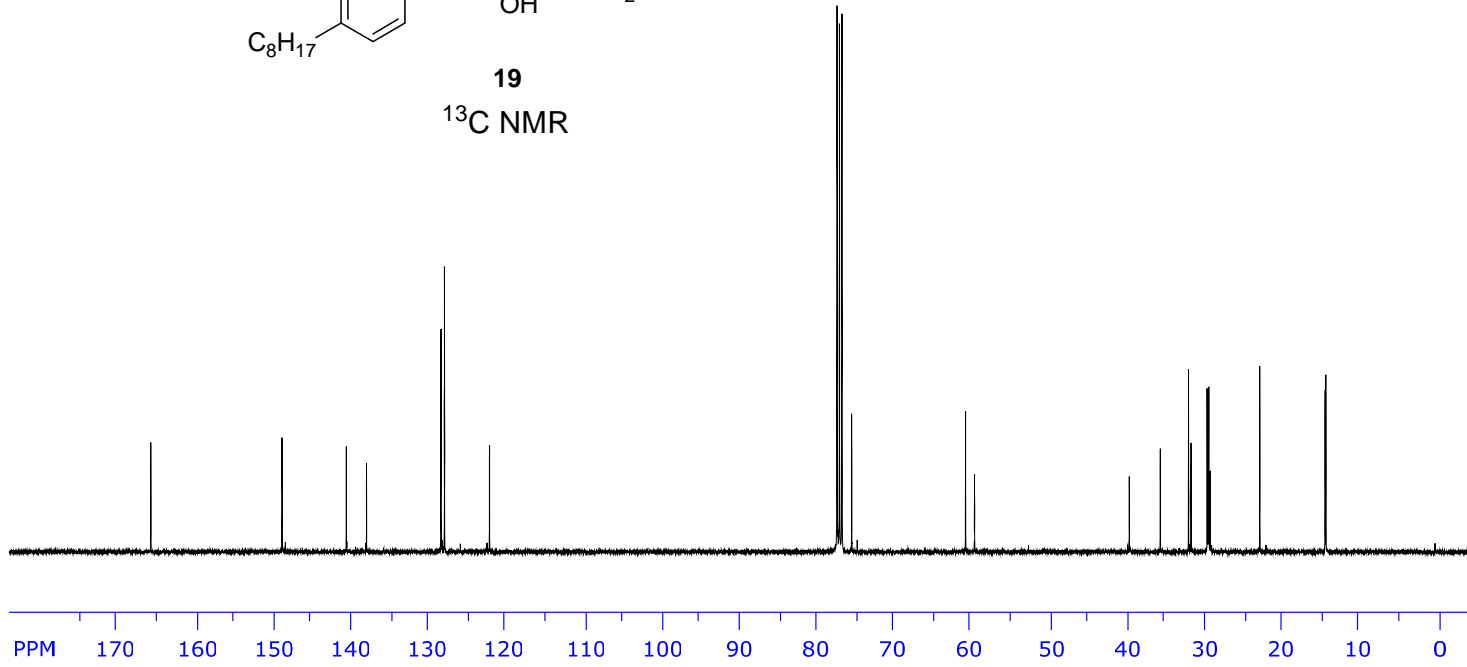
^{13}C NMR

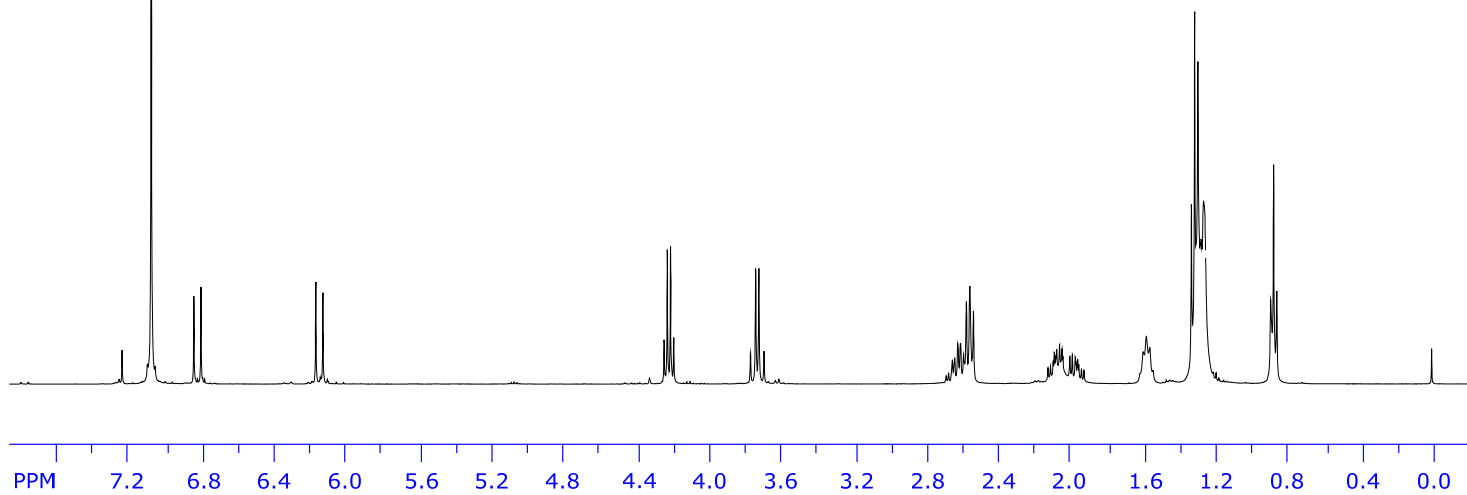
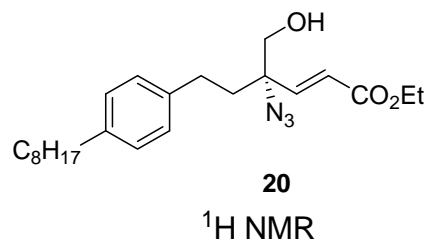


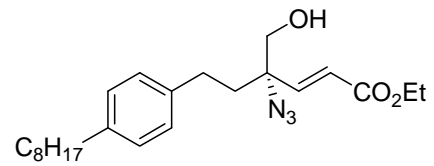




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¹³C NMR

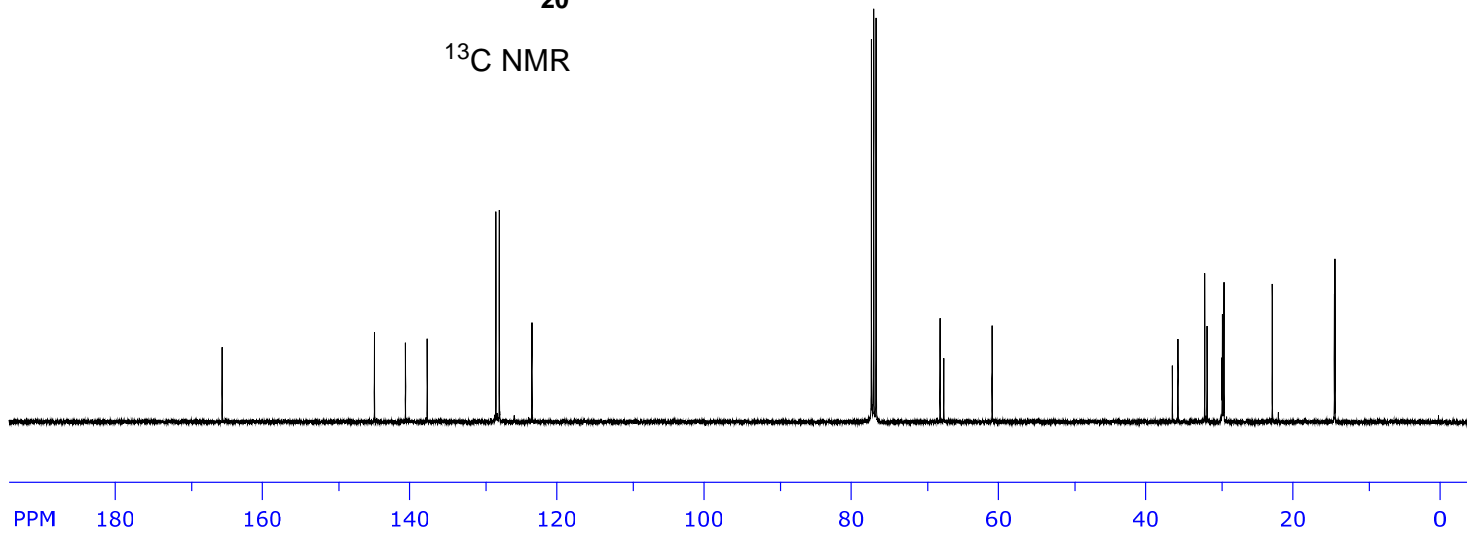


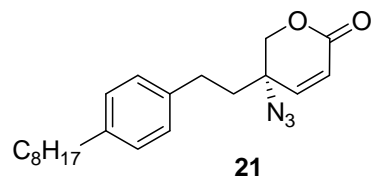




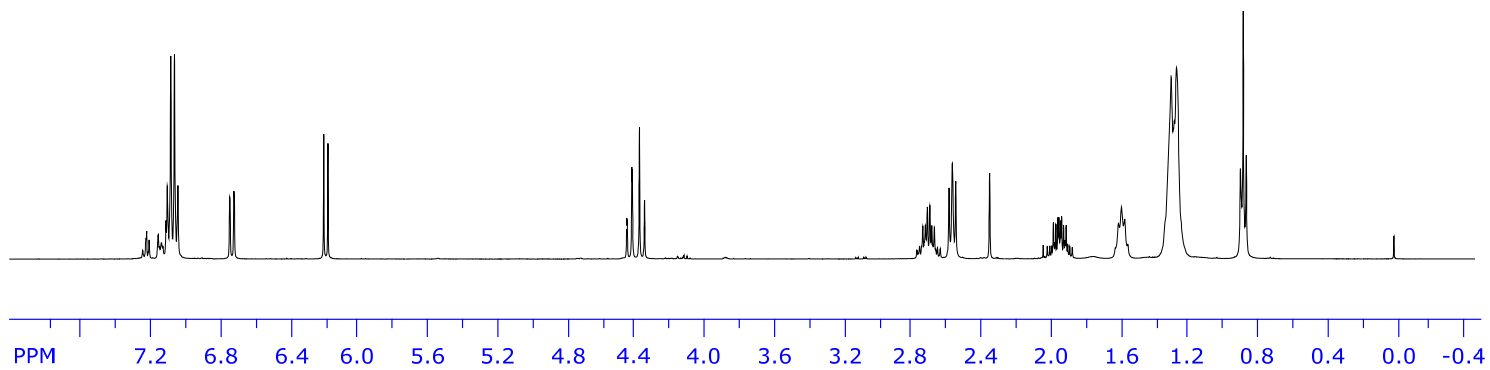
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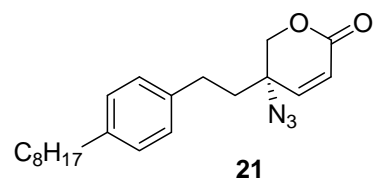
¹³C NMR



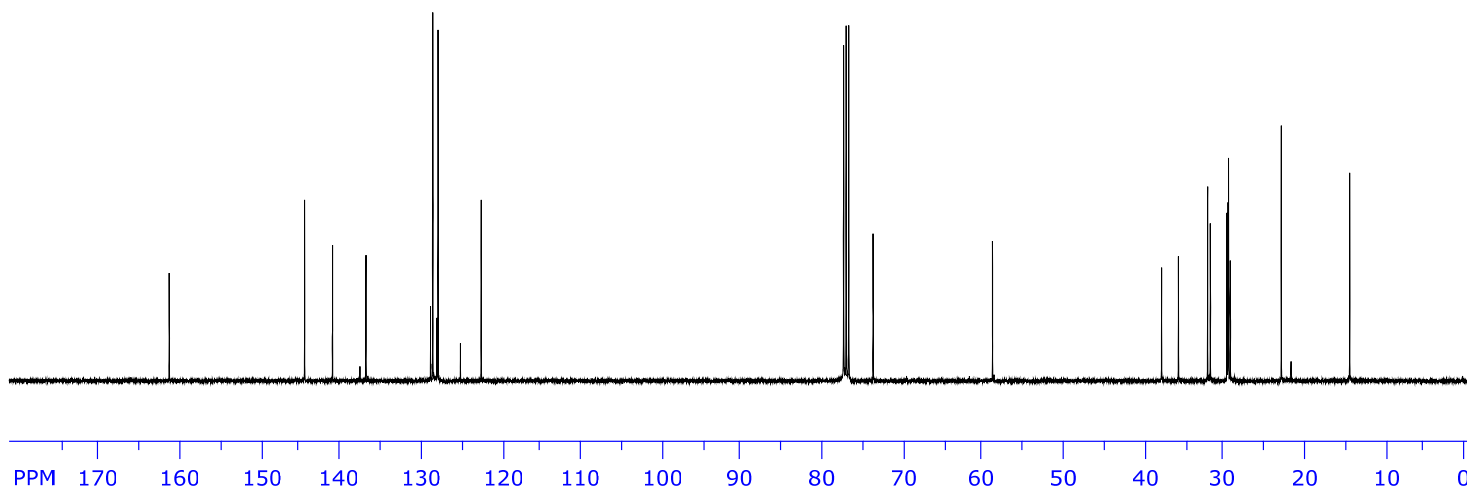


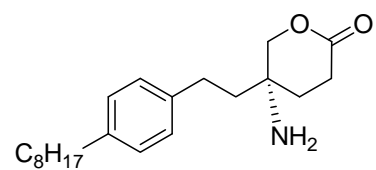
¹H NMR



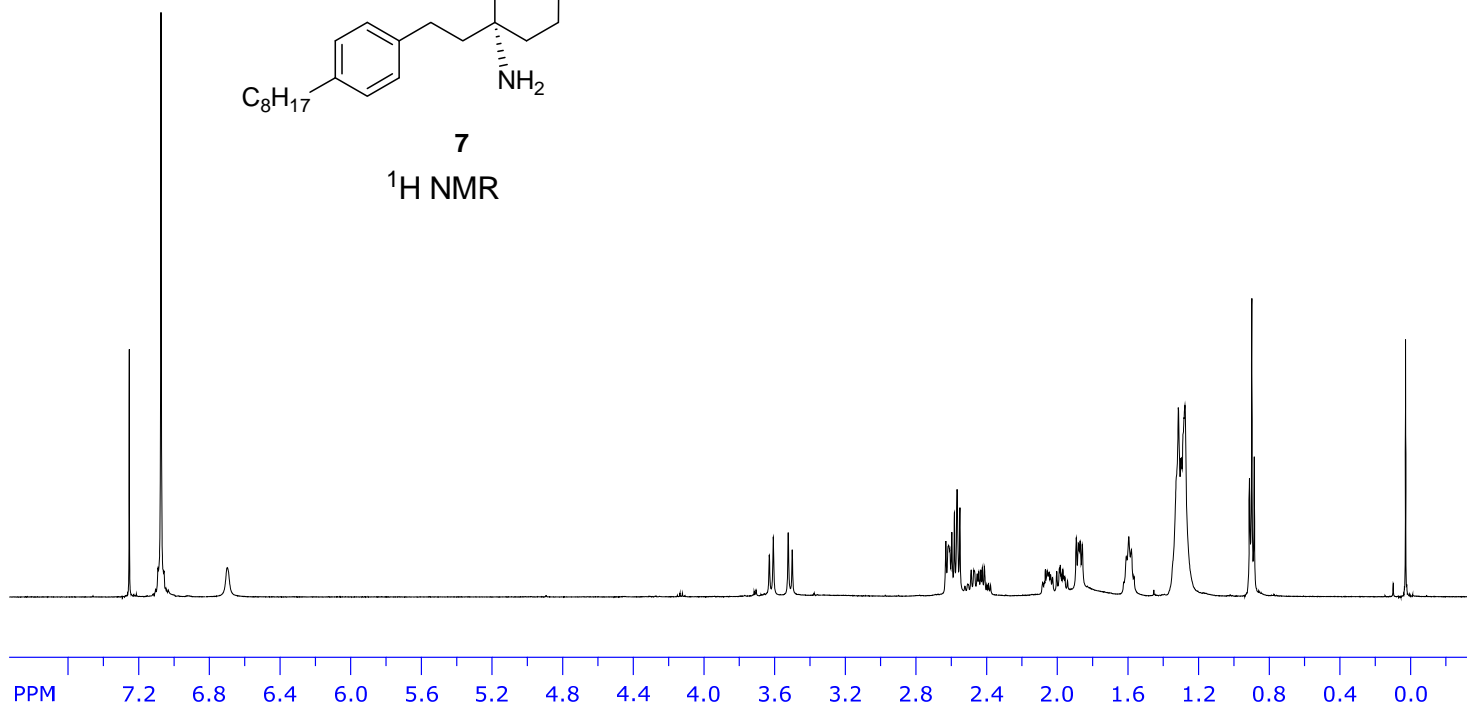


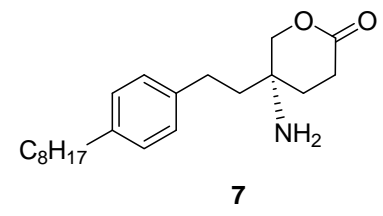
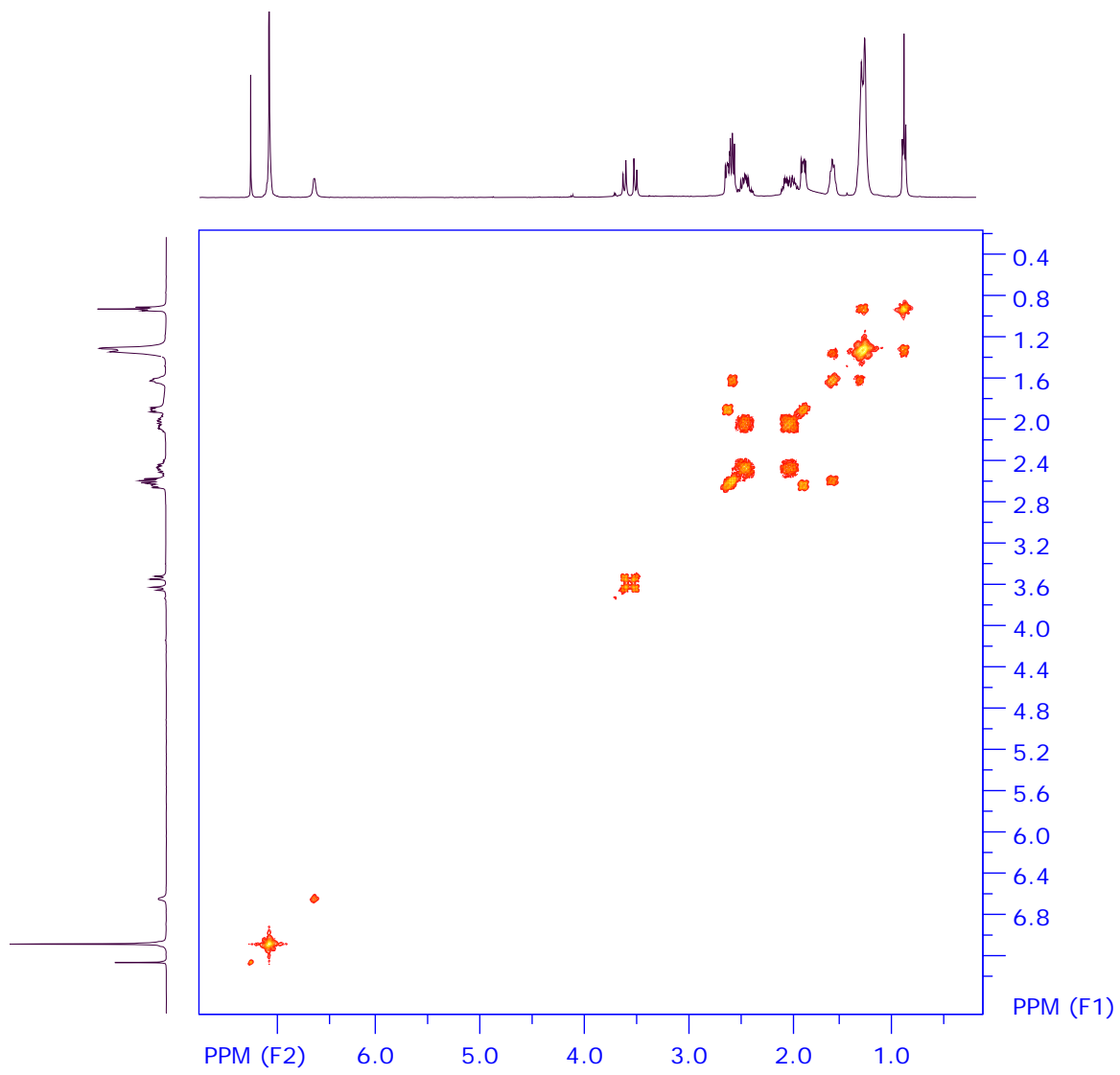
¹³C NMR



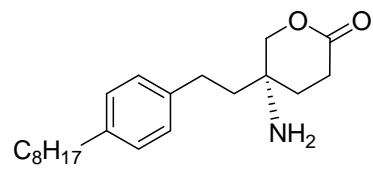


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¹H NMR



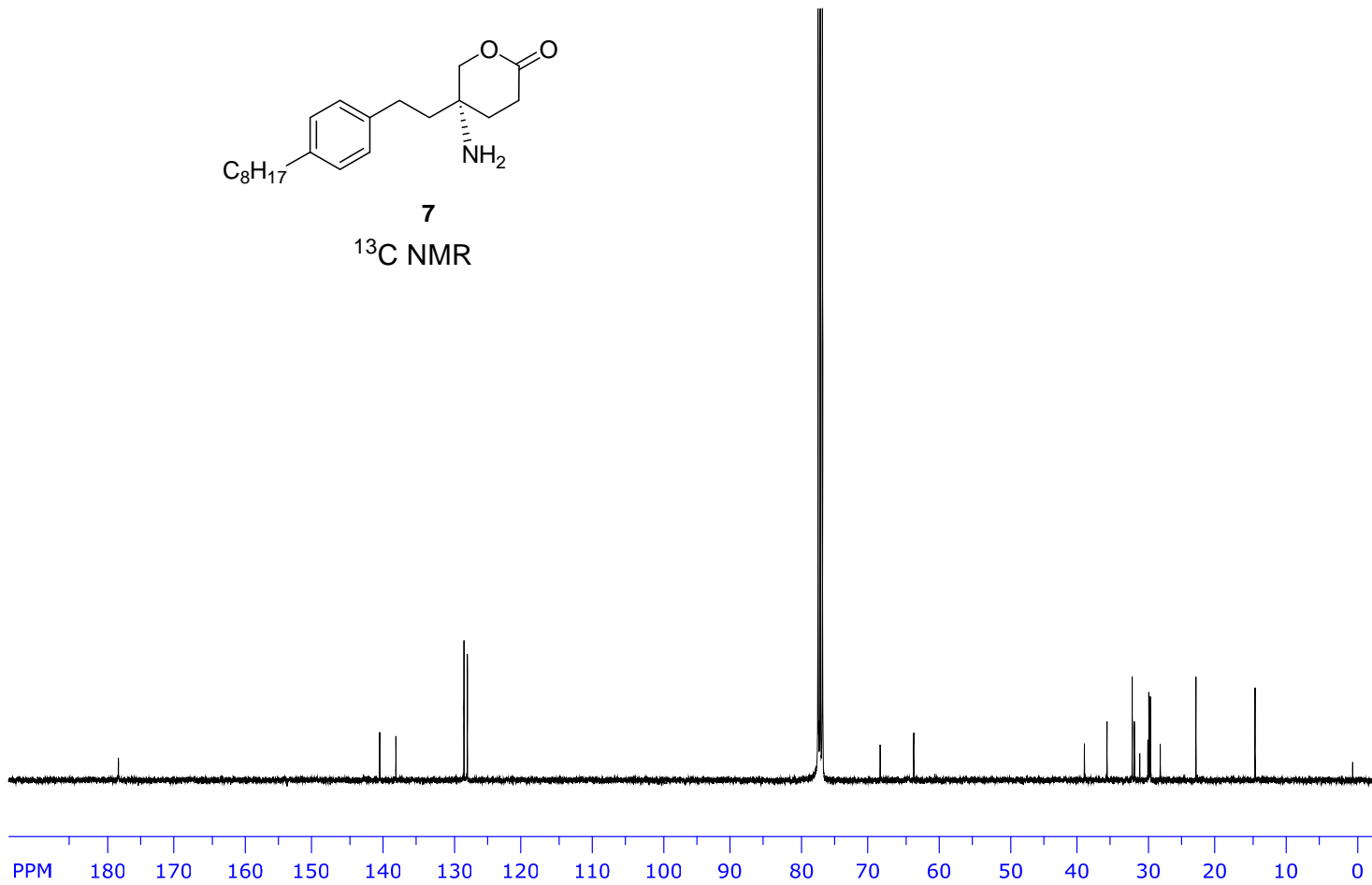


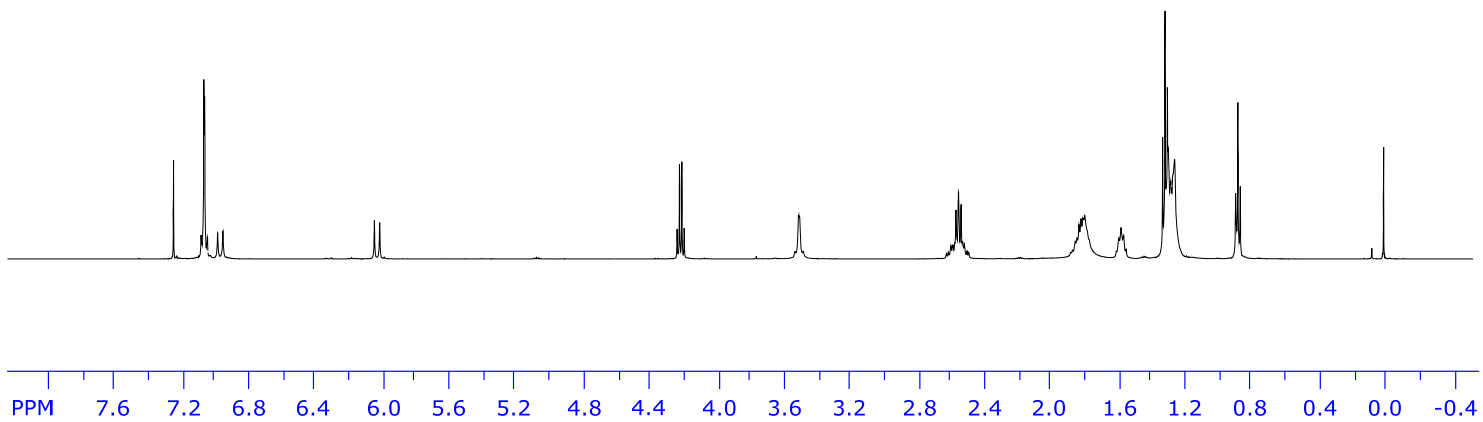
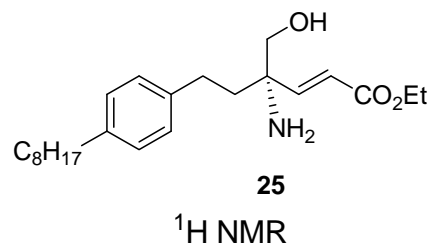
¹H-¹H COSY

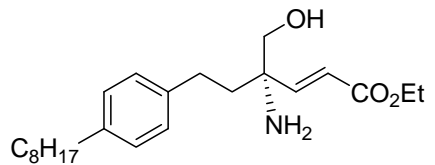


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¹³C NMR

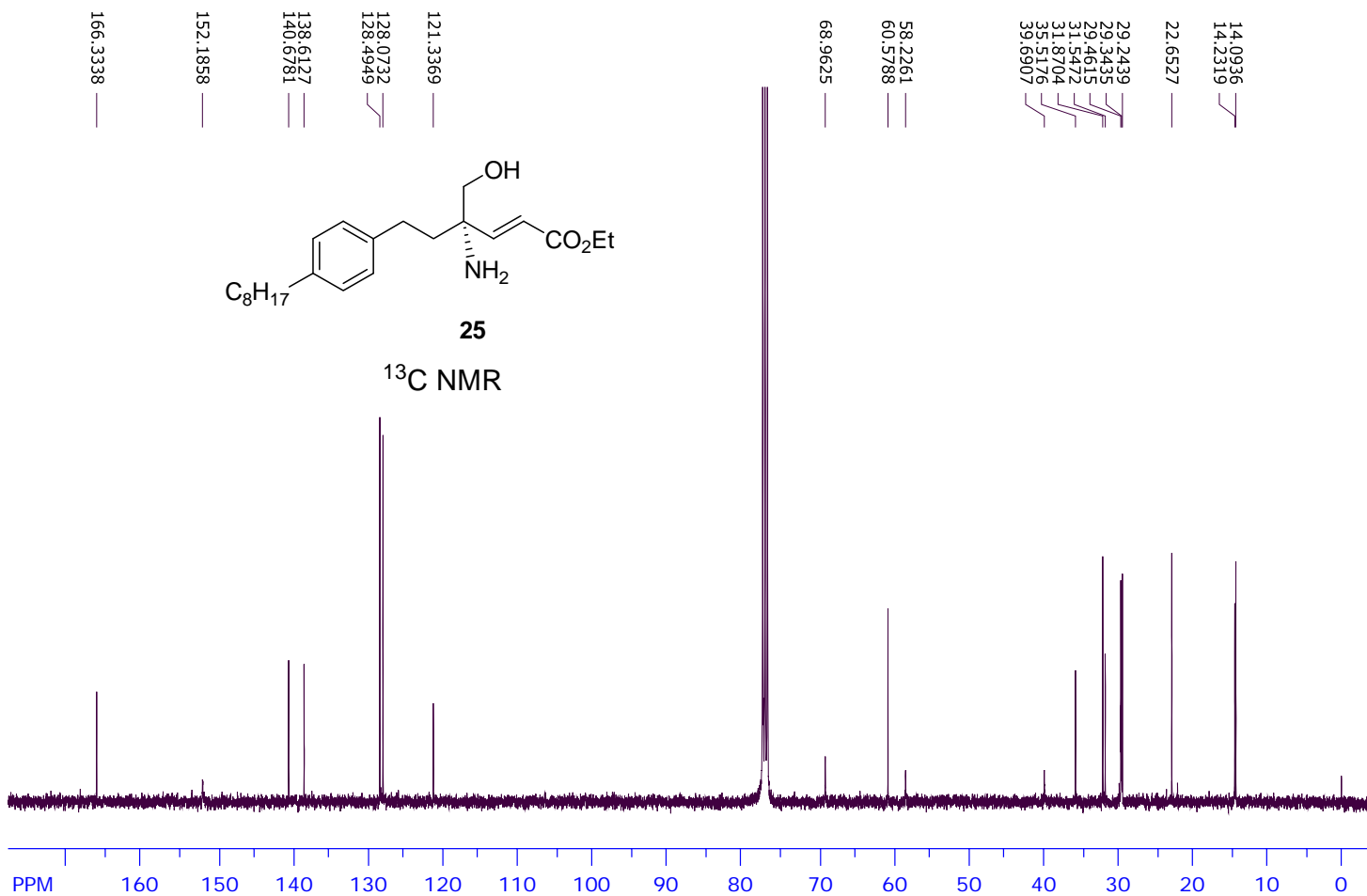


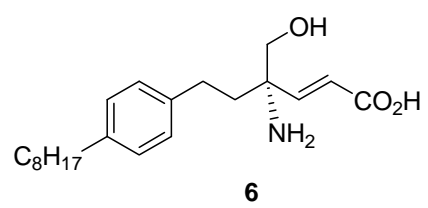




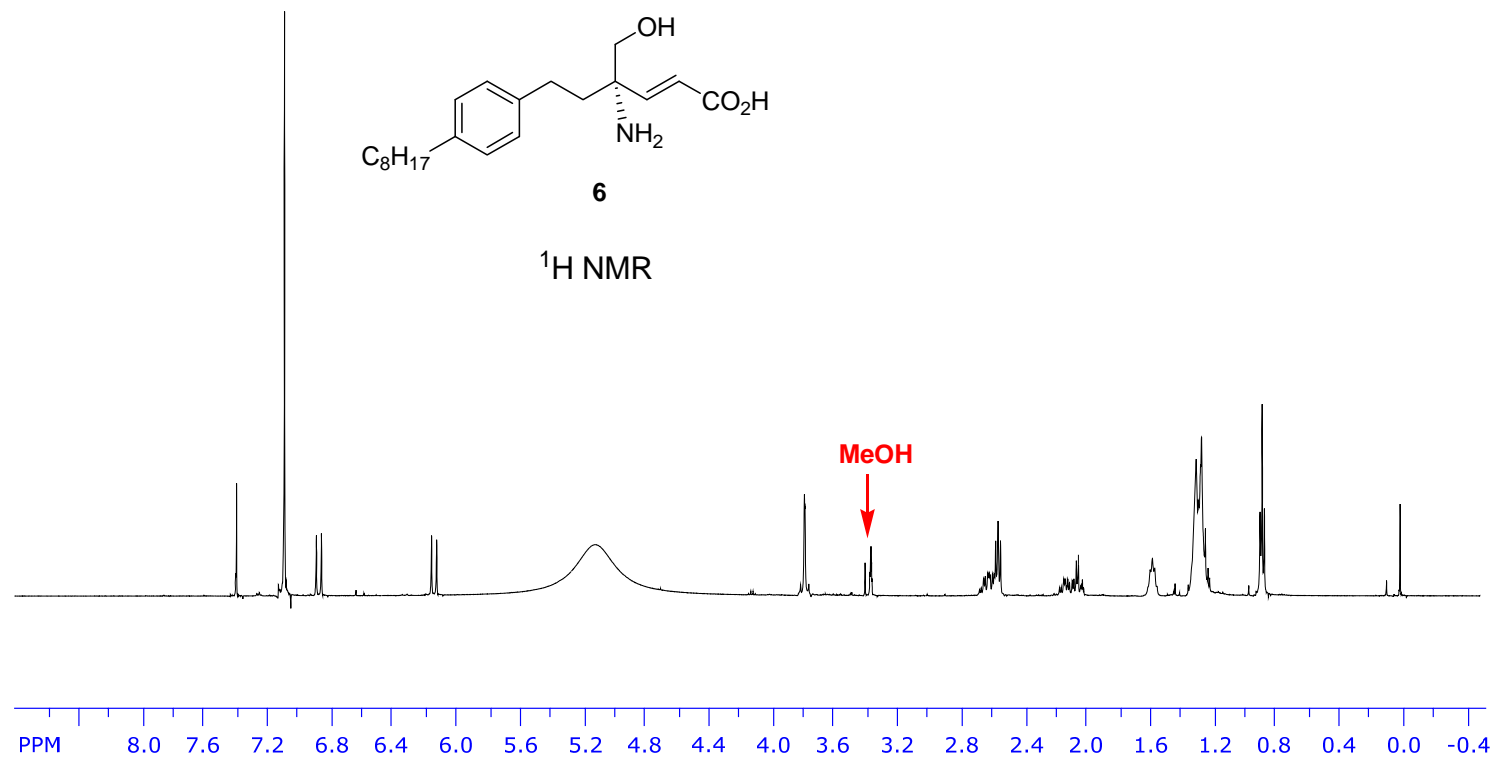
25

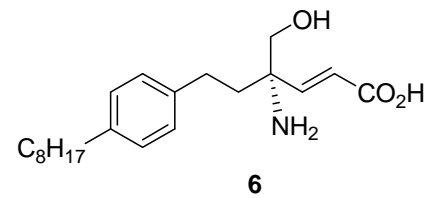
¹³C NMR





¹H NMR





¹³C NMR

