



Supporting Information

# Asymmetric total syntheses of both enantiomers of plym-uthipyranone B and its unnatural analogues: evaluation of *anti*-MRSA activity and its chiral discrimination

Mizuki Moriyama<sup>1</sup>, Xiaoxi Liu<sup>2</sup>, Yuki Enoki<sup>2</sup>, Kazuaki Matsumoto<sup>2</sup> and Yoo Tanabe<sup>1,\*</sup>

<sup>1</sup> Department of Chemistry, School of Science and Technology, Kwansei Gakuin University, 2-1 Gakuen, Sanda, Hyogo 669-1337, Japan; ixu18409@kwansei.ac.jp (M.M.)

<sup>2</sup> Division of Pharmacodynamics, Keio University Faculty of Pharmacy, 1-5-30 Shibakoen, Minato-ku, Tokyo 105-8512, Japan; aganeiliu@gmail.com (X.L.); enoki-yk@pha.keio.ac.jp (Y.E.); matsumoto-kz@pha.keio.ac.jp (K.M.)

\* Correspondence: tanabe@kwansei.ac.jp; Tel. +81-795-565-8394

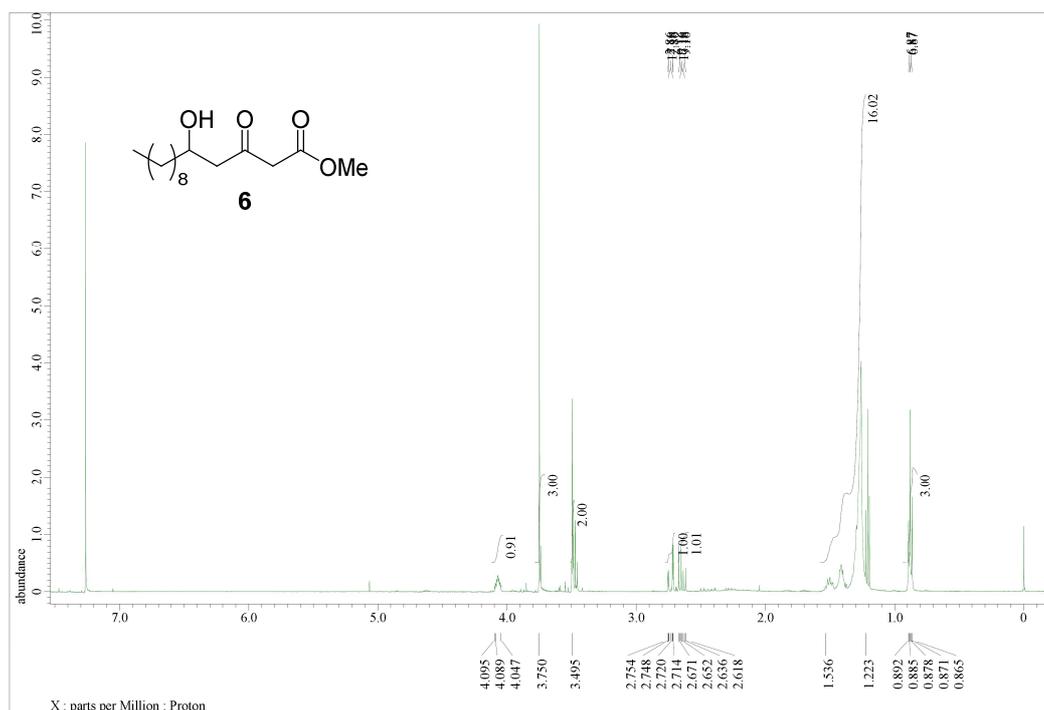


Figure S1. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 6.

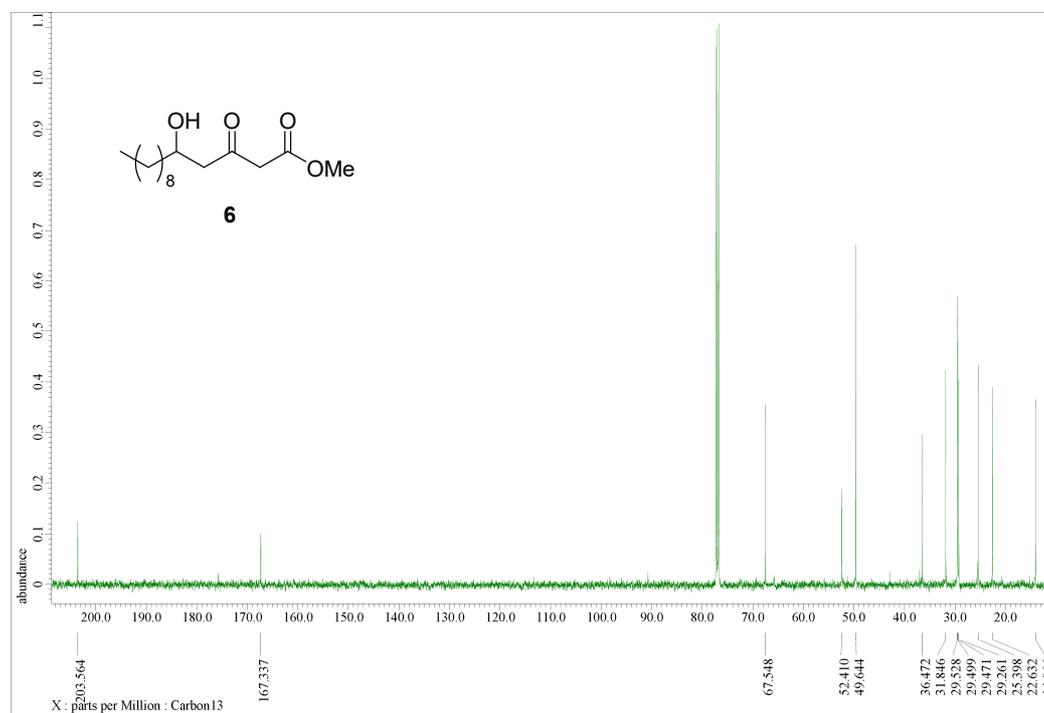


Figure S2. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 6.

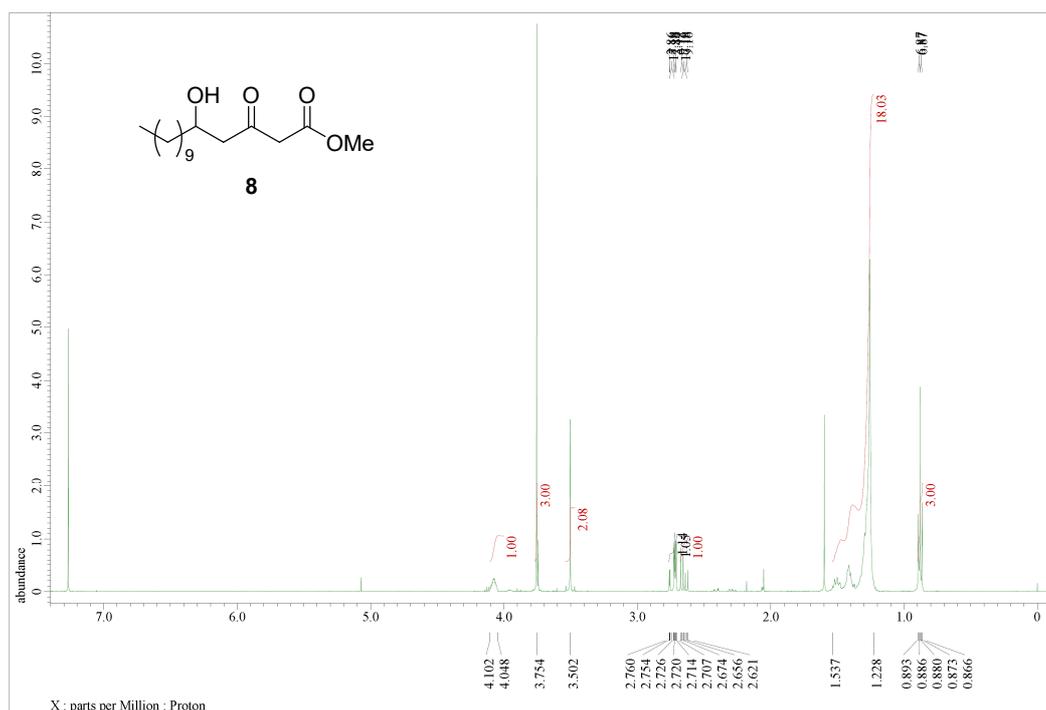


Figure S3. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 8.

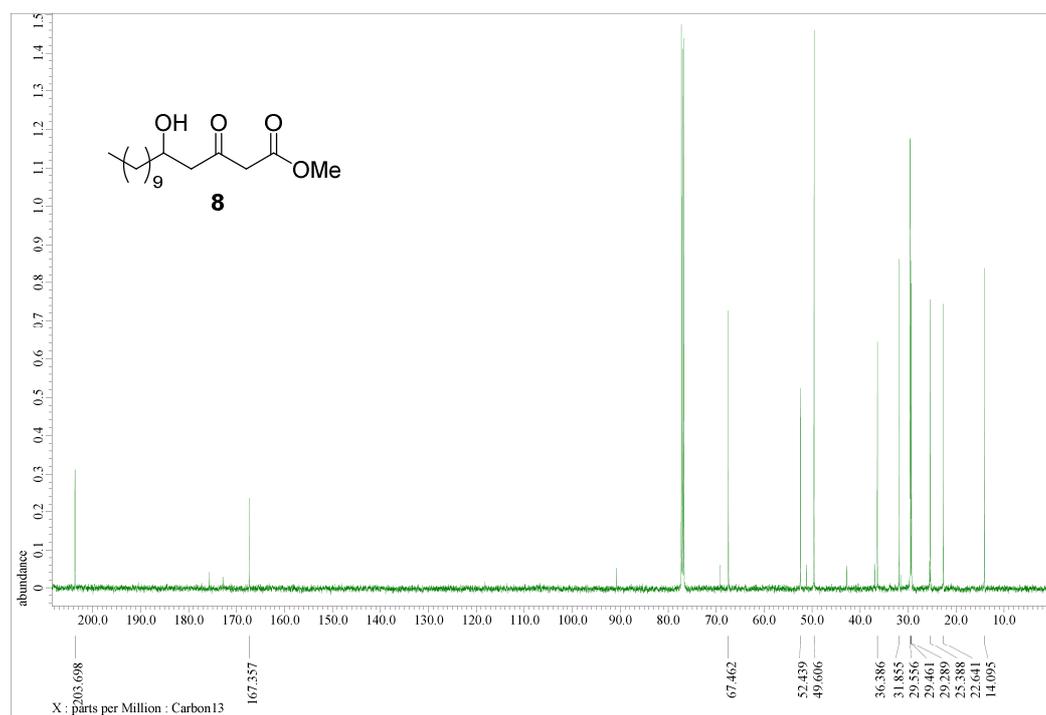


Figure S4. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 8.

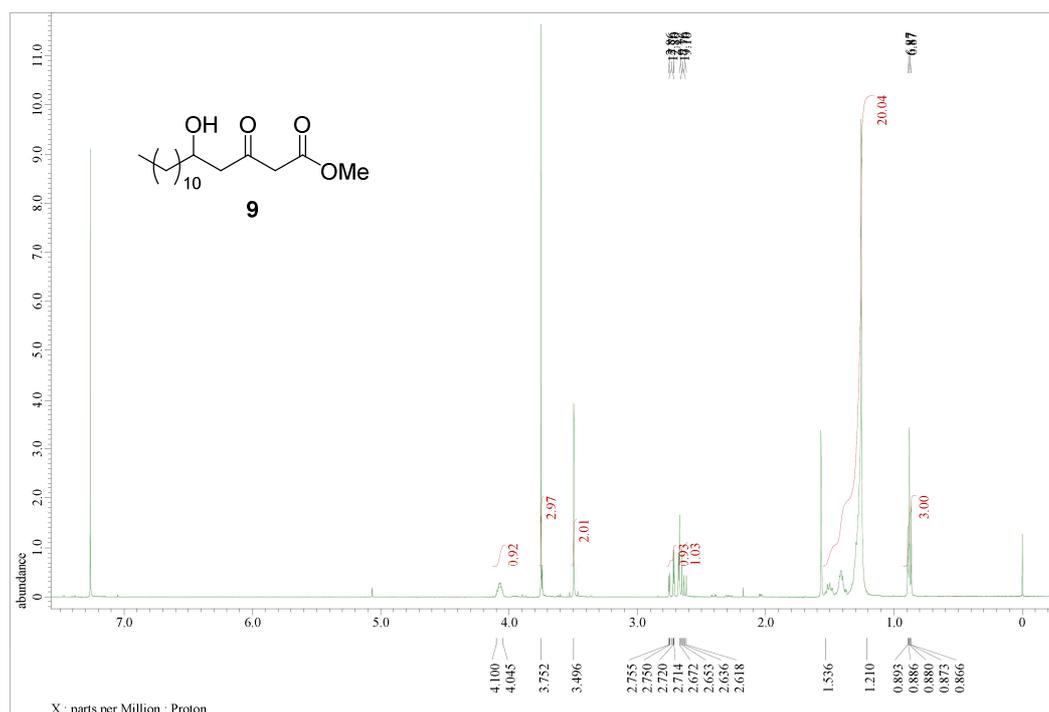


Figure S5. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 9.

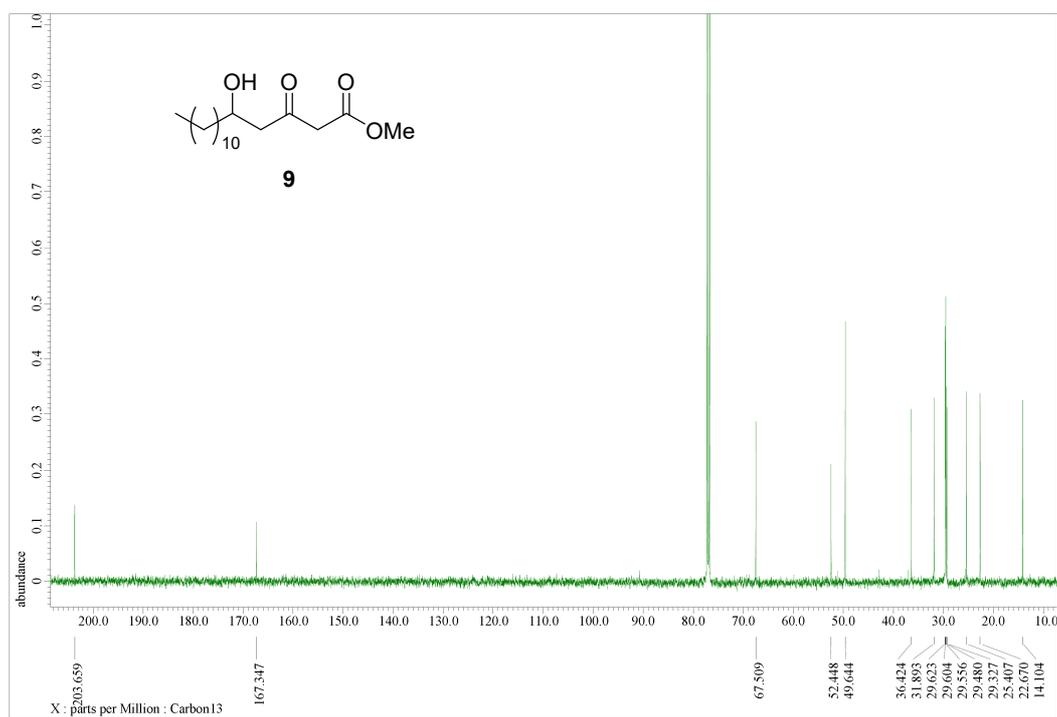


Figure S6. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 9.

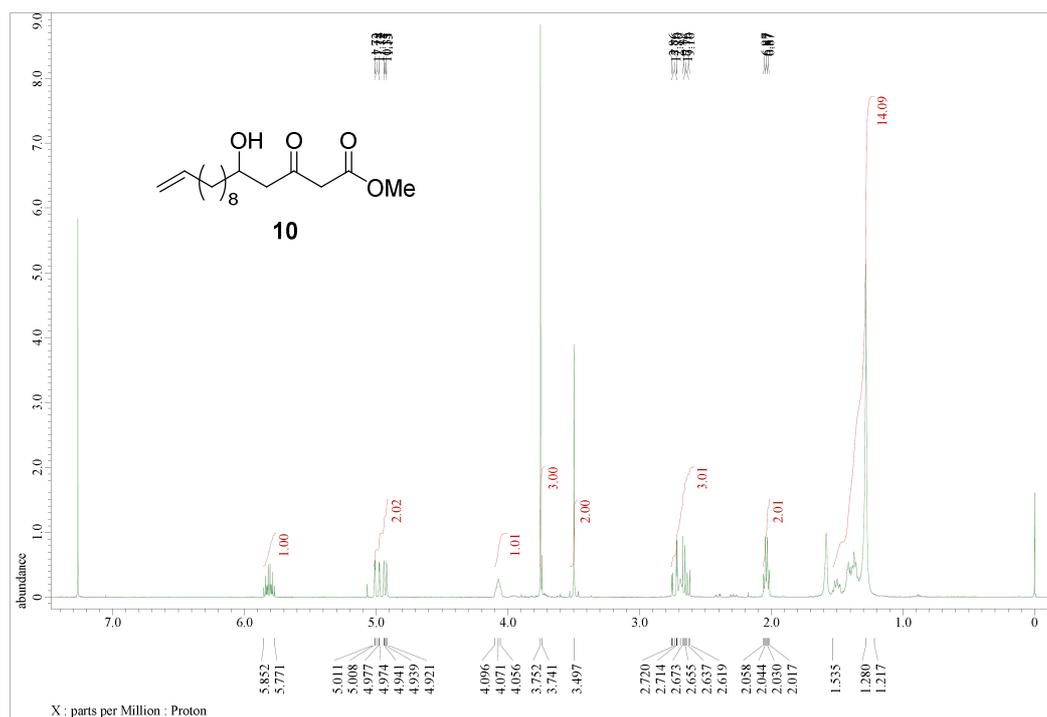


Figure S7. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 10.

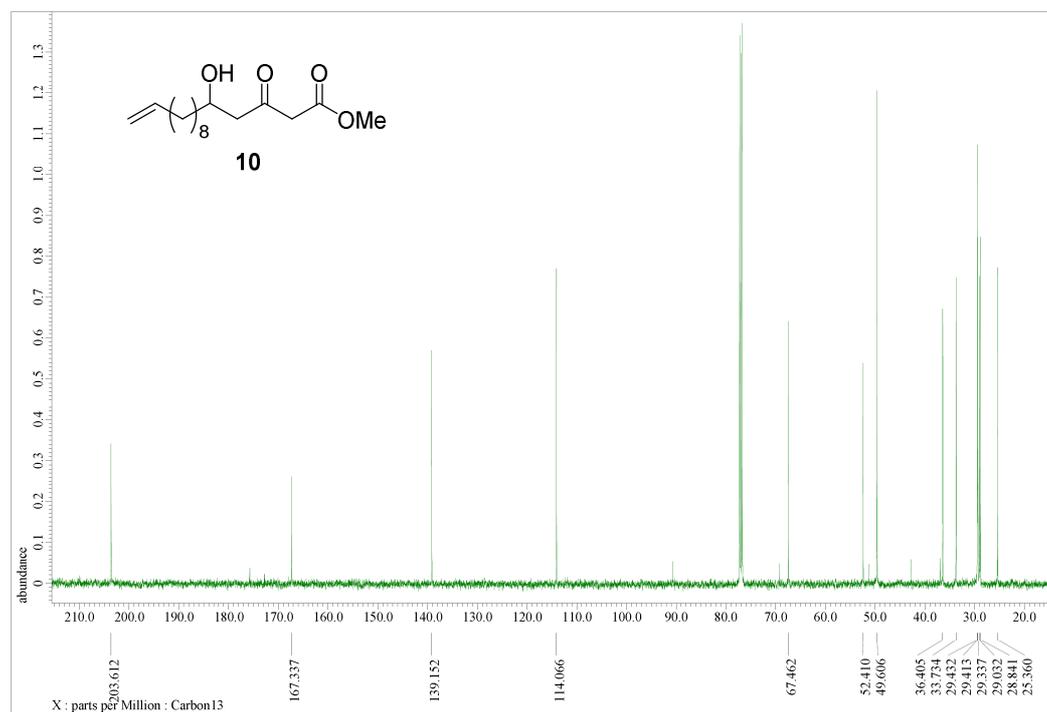


Figure S8. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 10.

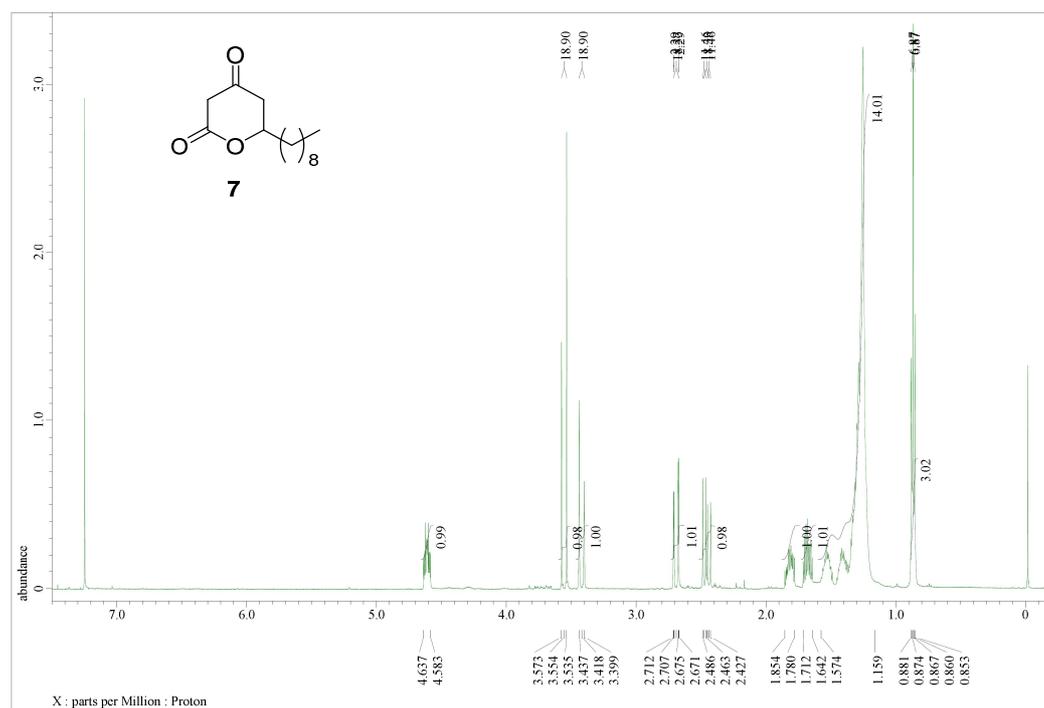


Figure S9. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 7.

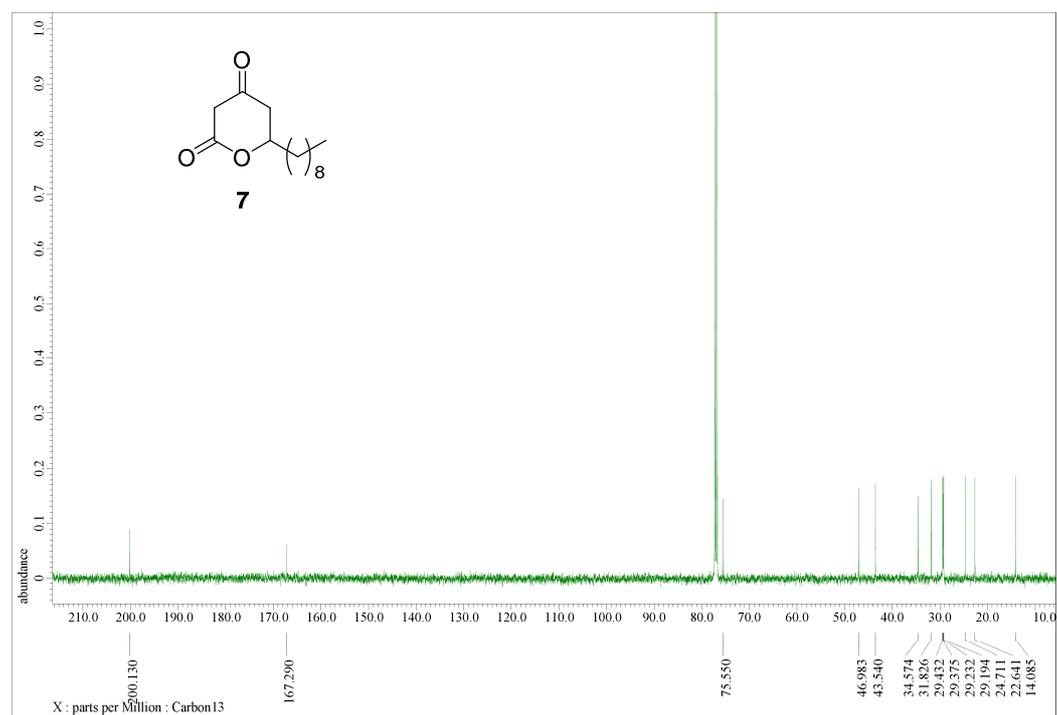


Figure S10. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 7.

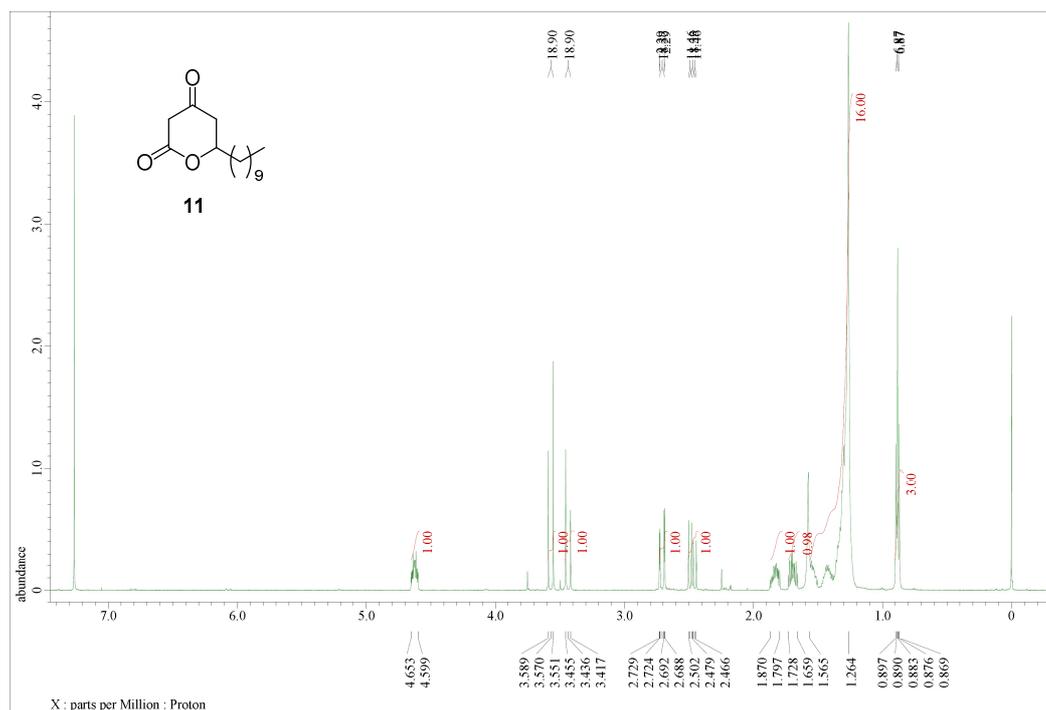


Figure S11. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 11.

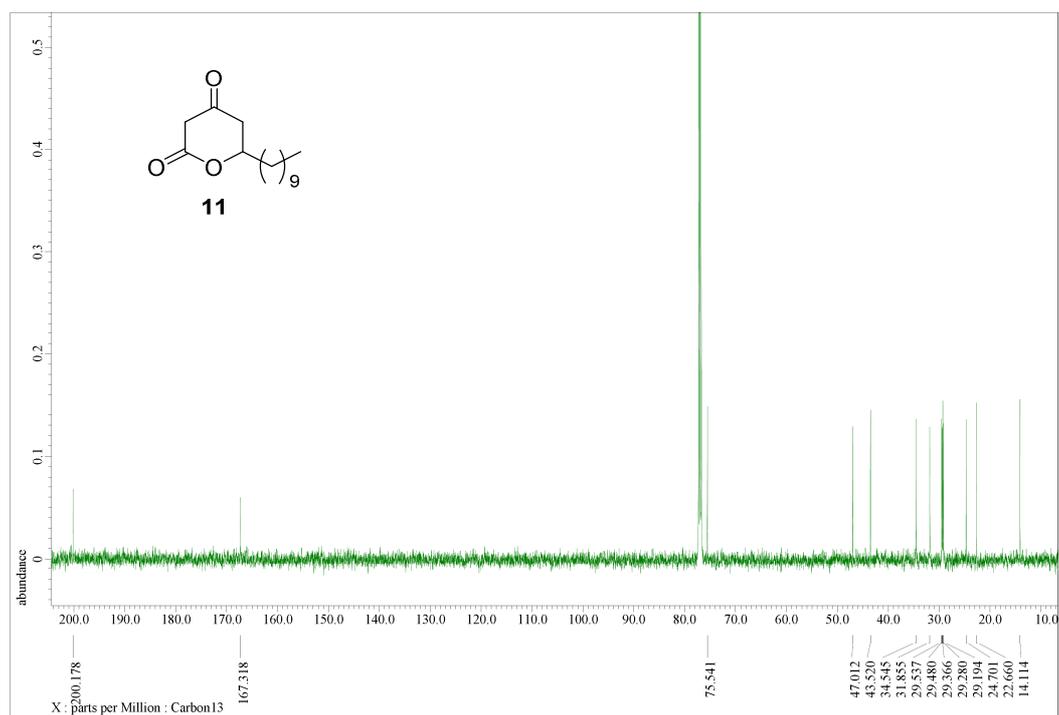


Figure S12. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 11.



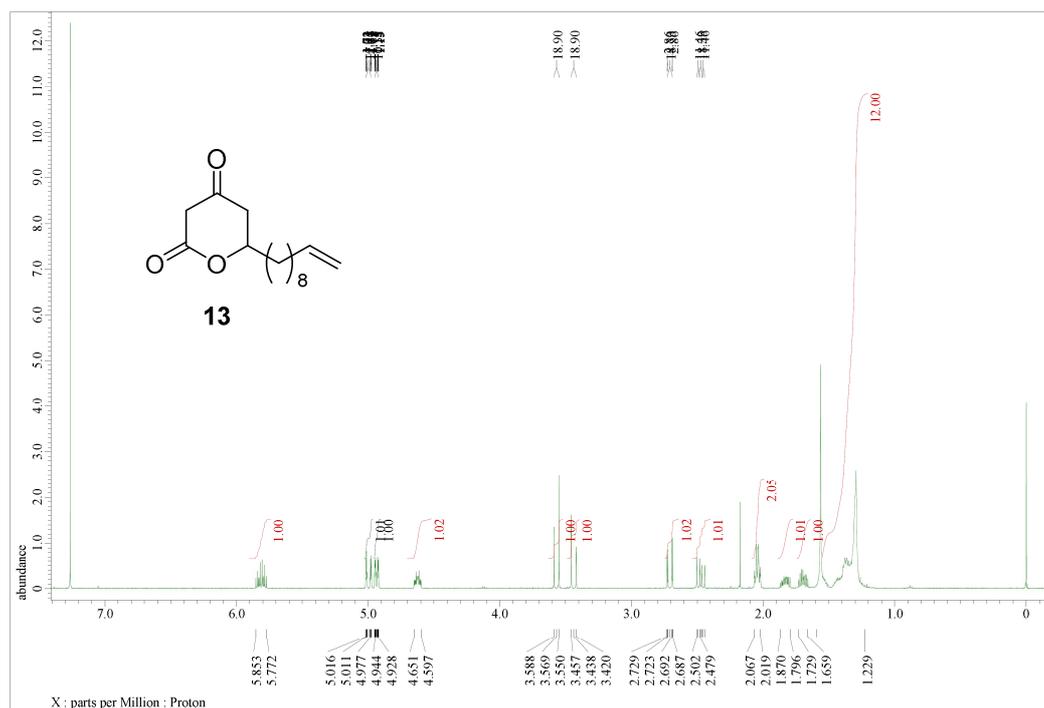


Figure S15. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 13.

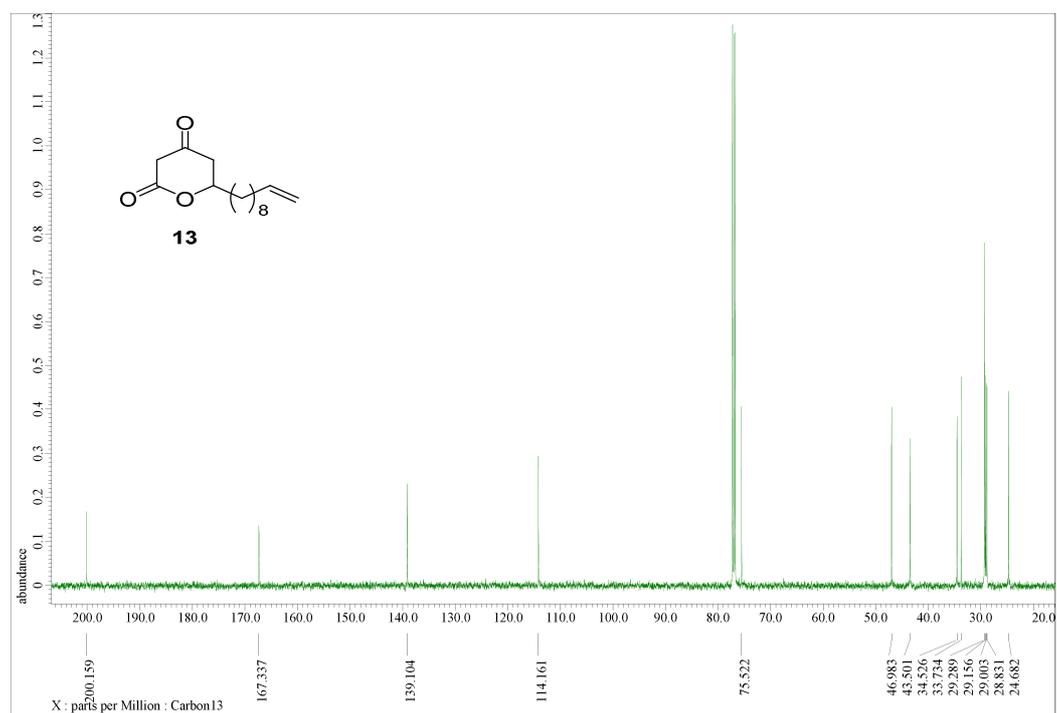
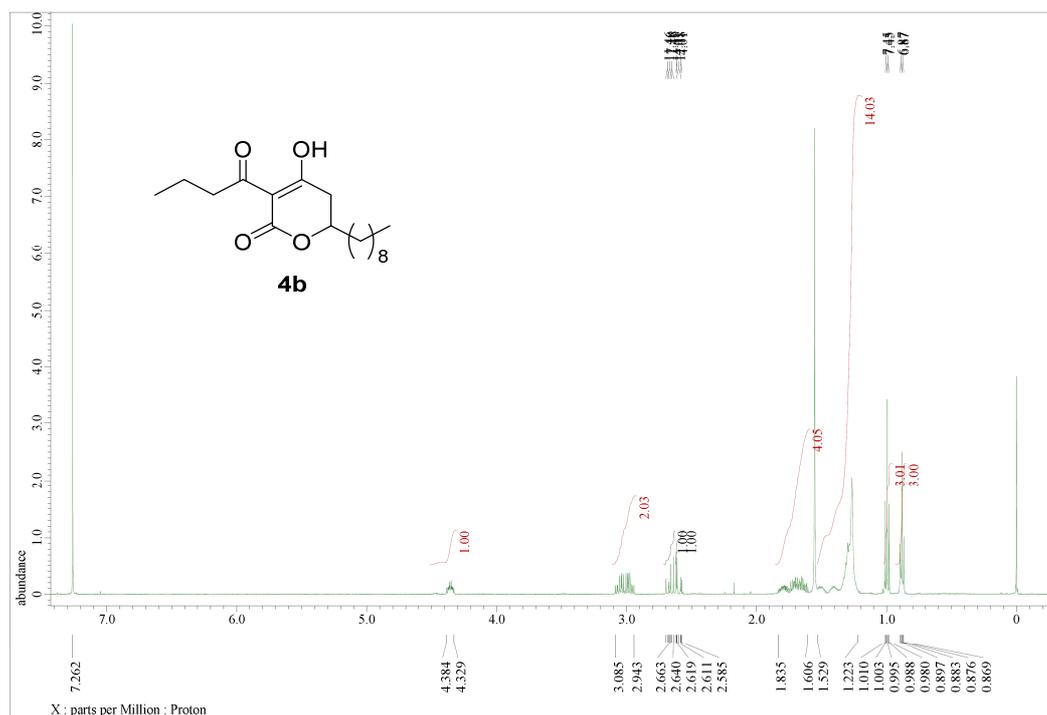
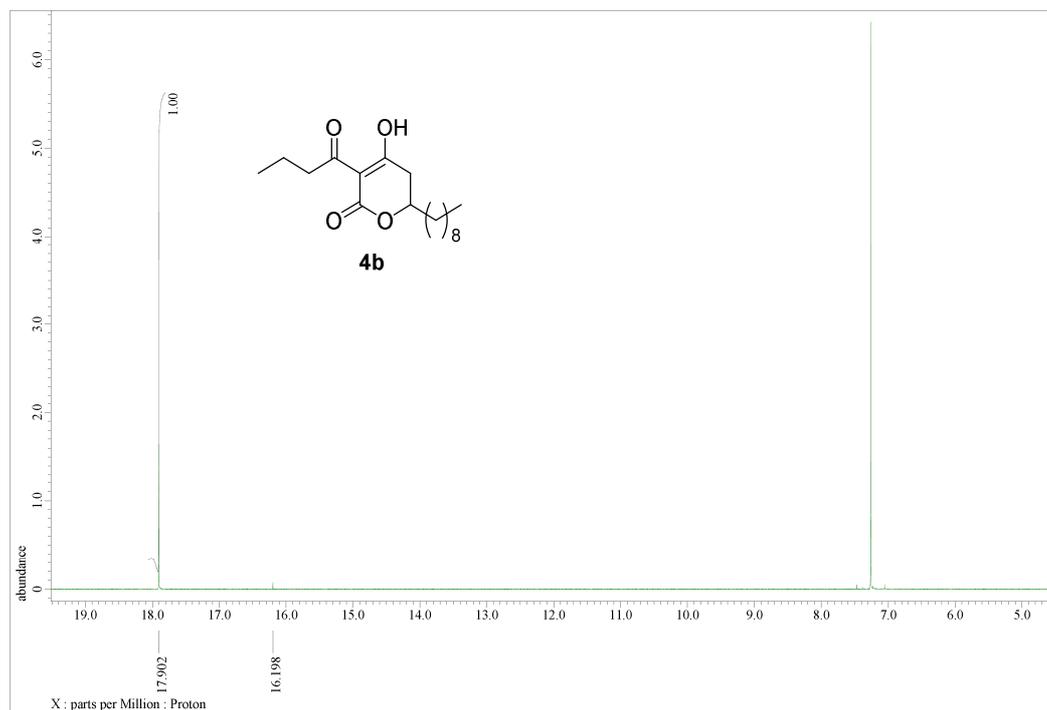


Figure S16. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 13.



**Figure S17.**  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of the Compound 4b.



**Figure S18.**  $^{13}\text{C}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of the Compound 4b.

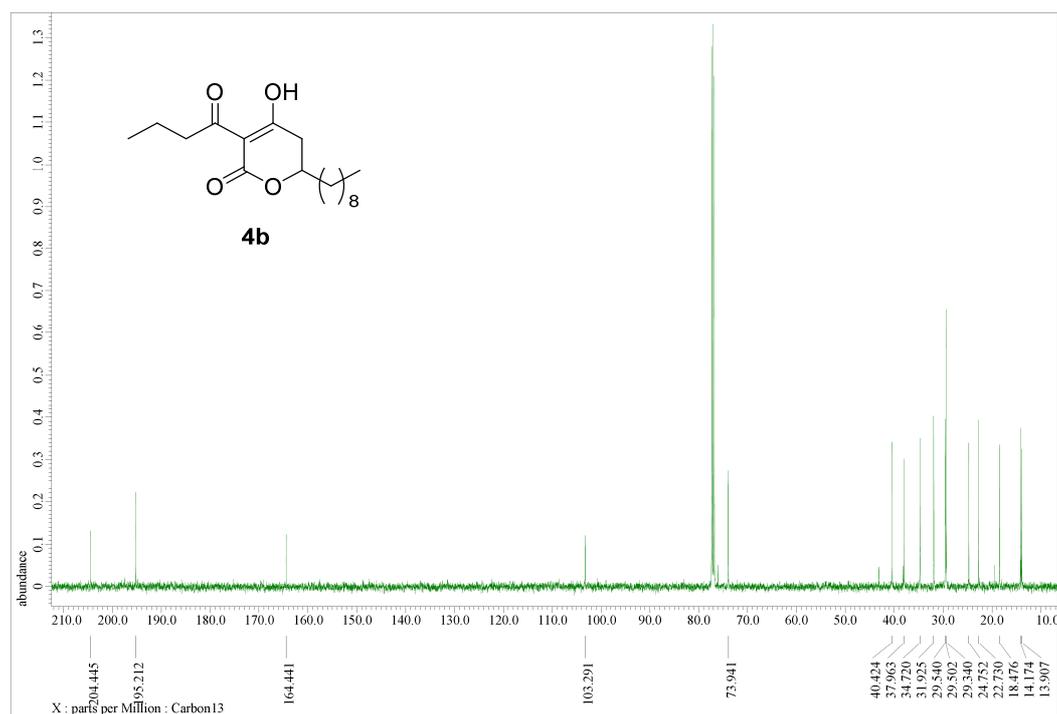


Figure S19. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4b.

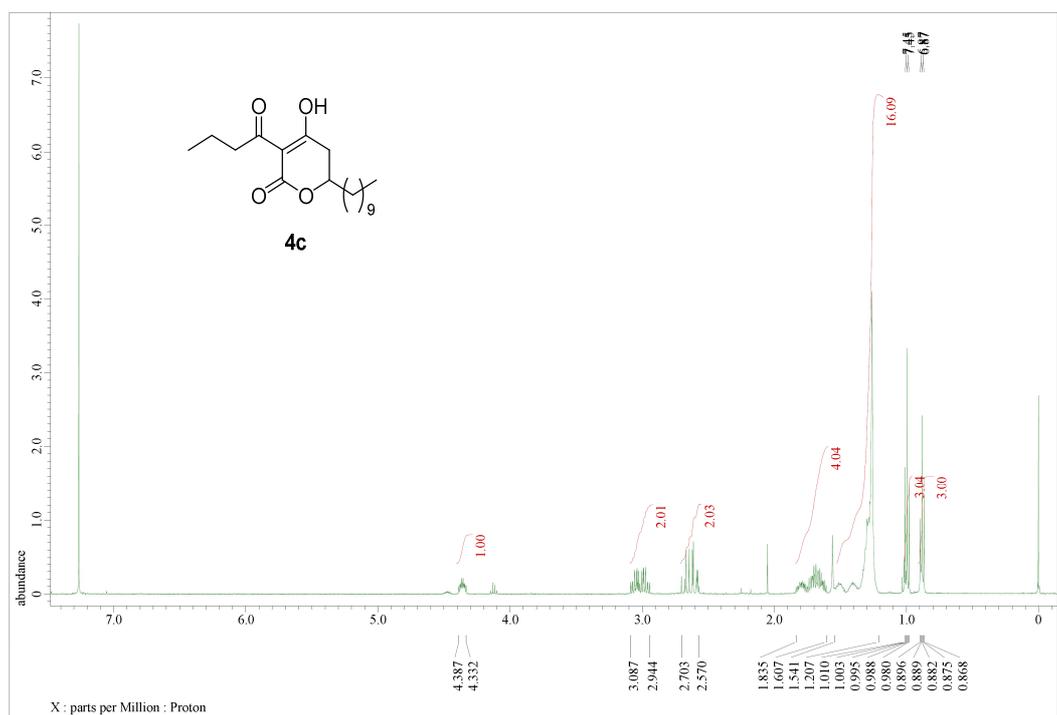


Figure S20. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4c.

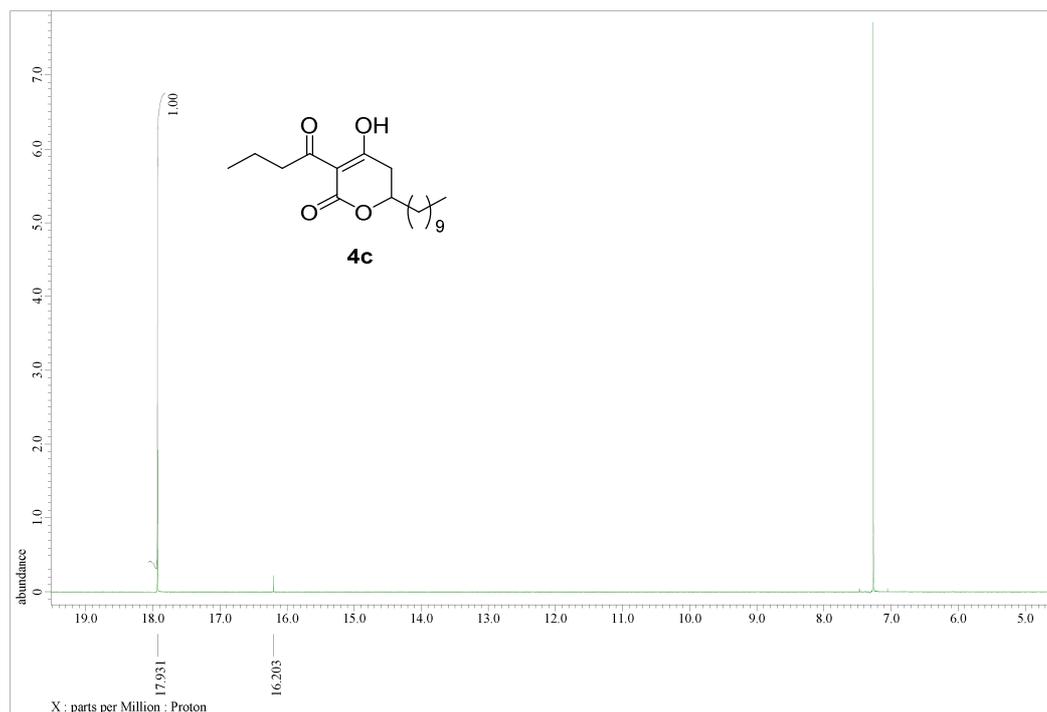


Figure S21. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4c.

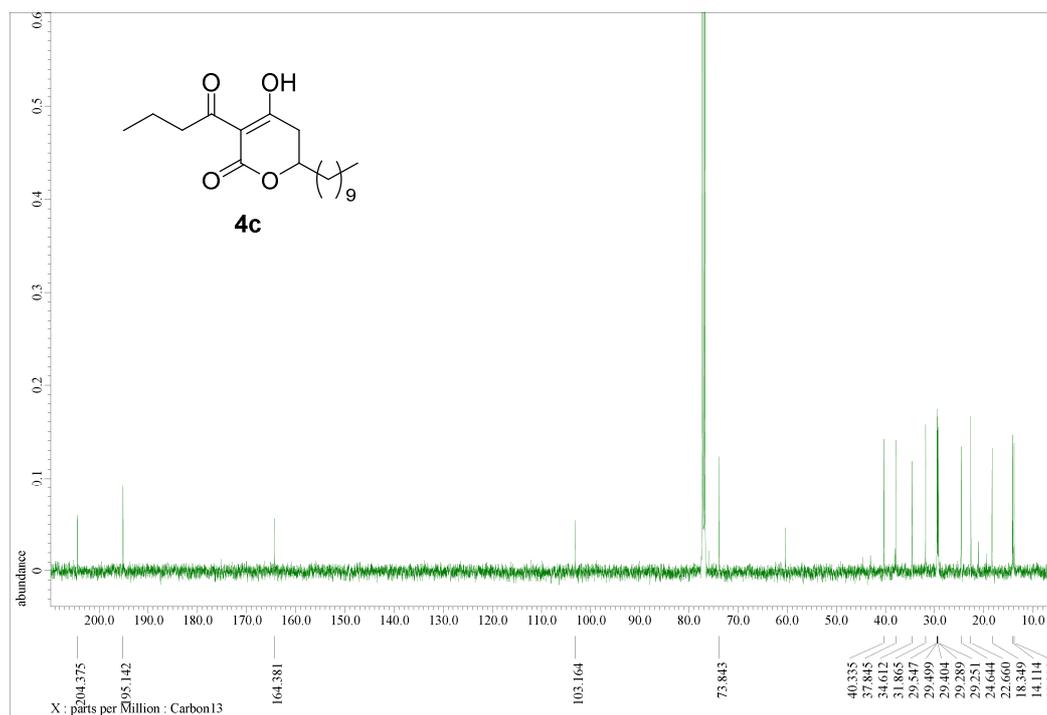
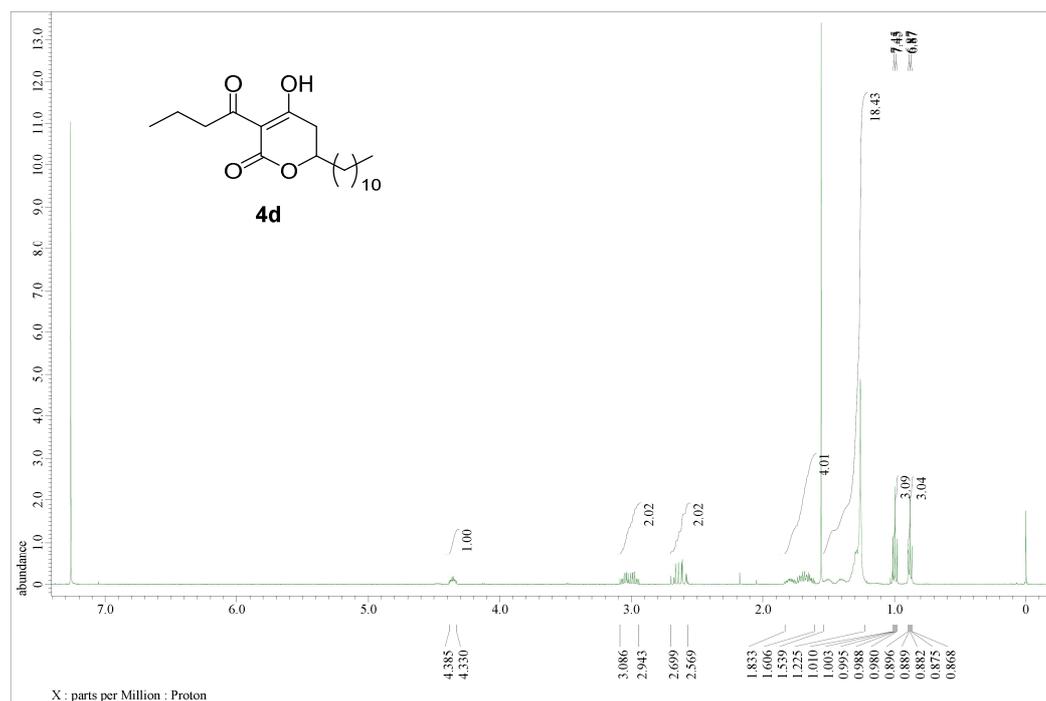
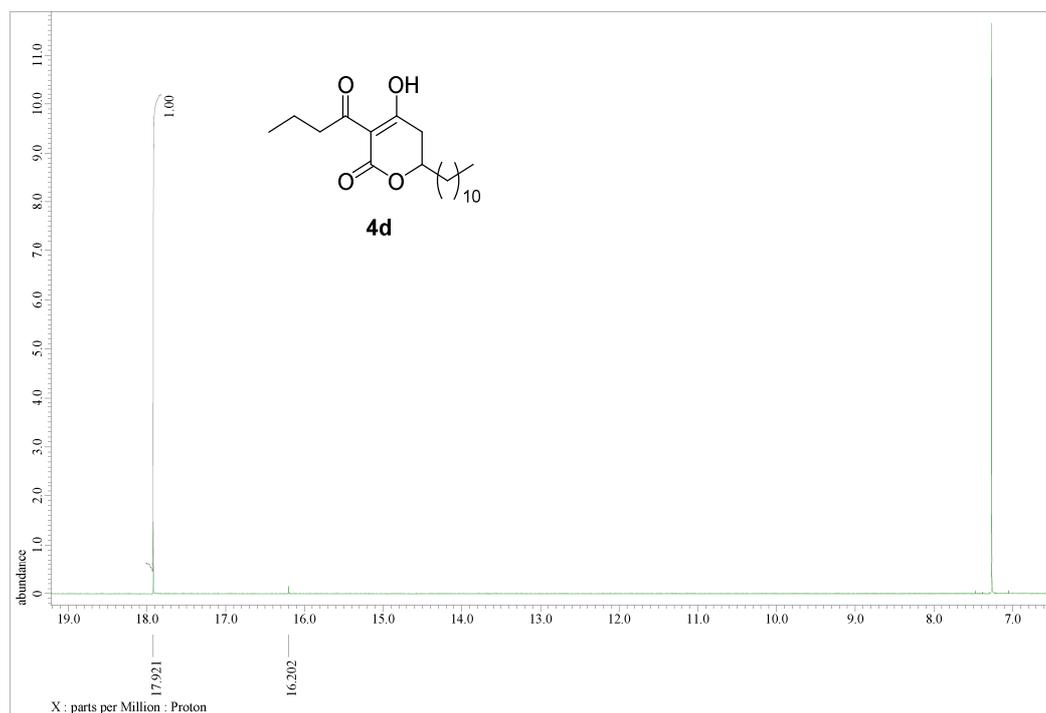


Figure S22. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4c.



**Figure S23.**  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of the Compound 4d.



**Figure S24.**  $^{13}\text{C}$  NMR (500 MHz,  $\text{CDCl}_3$ ) Spectrum of the Compound 4d.

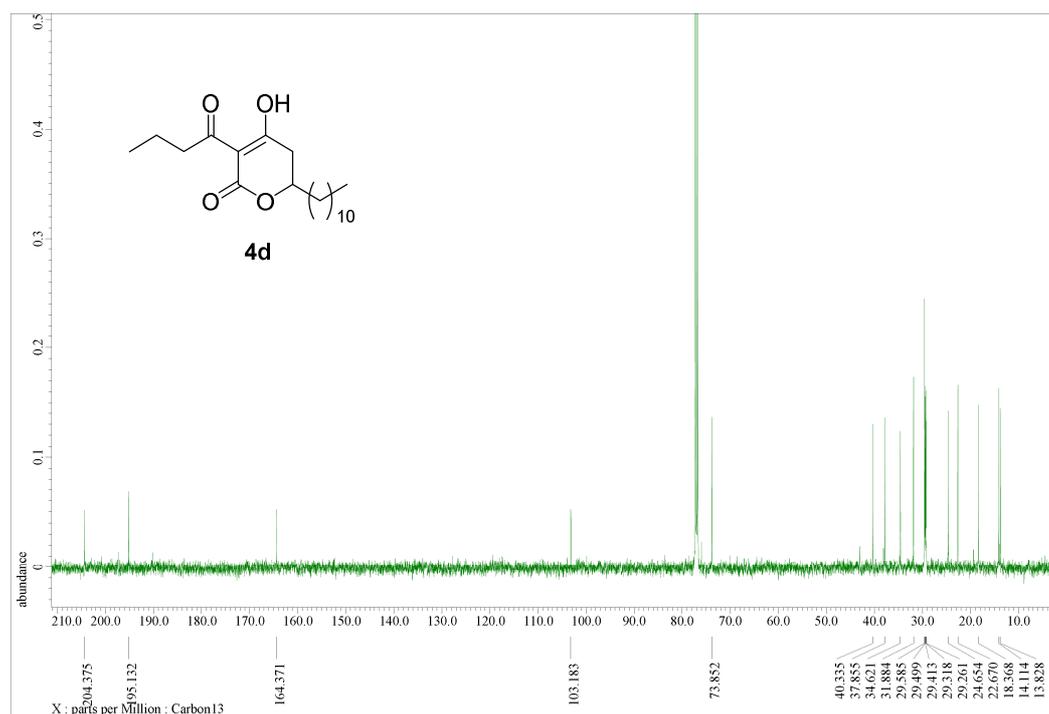


Figure S25. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4d.

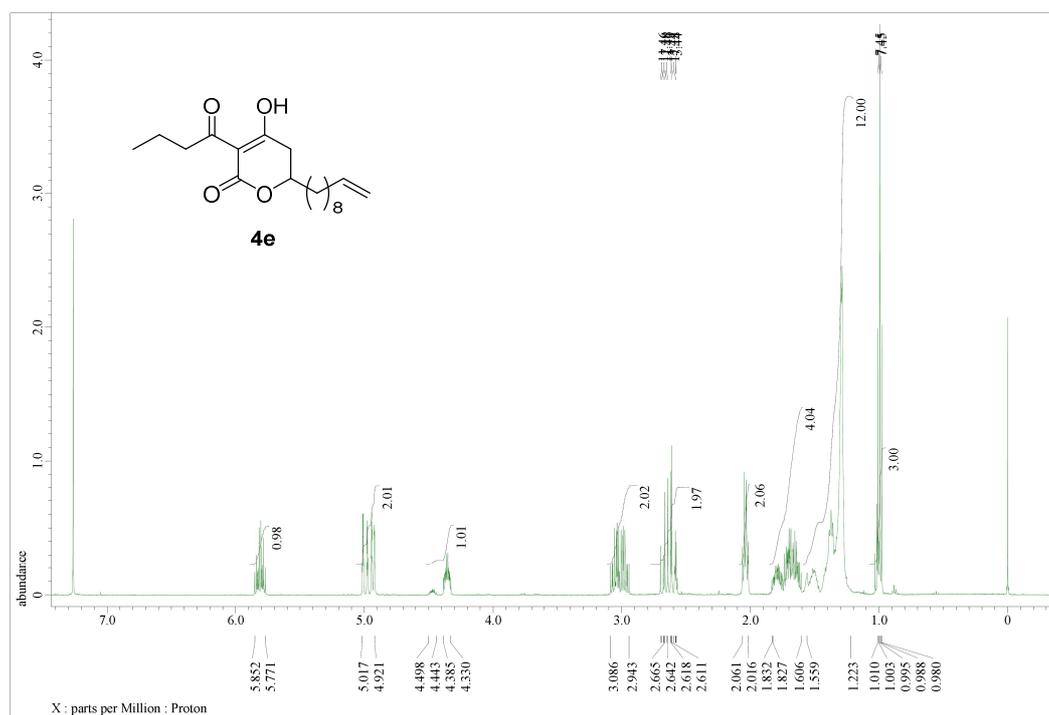


Figure S26. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4e.

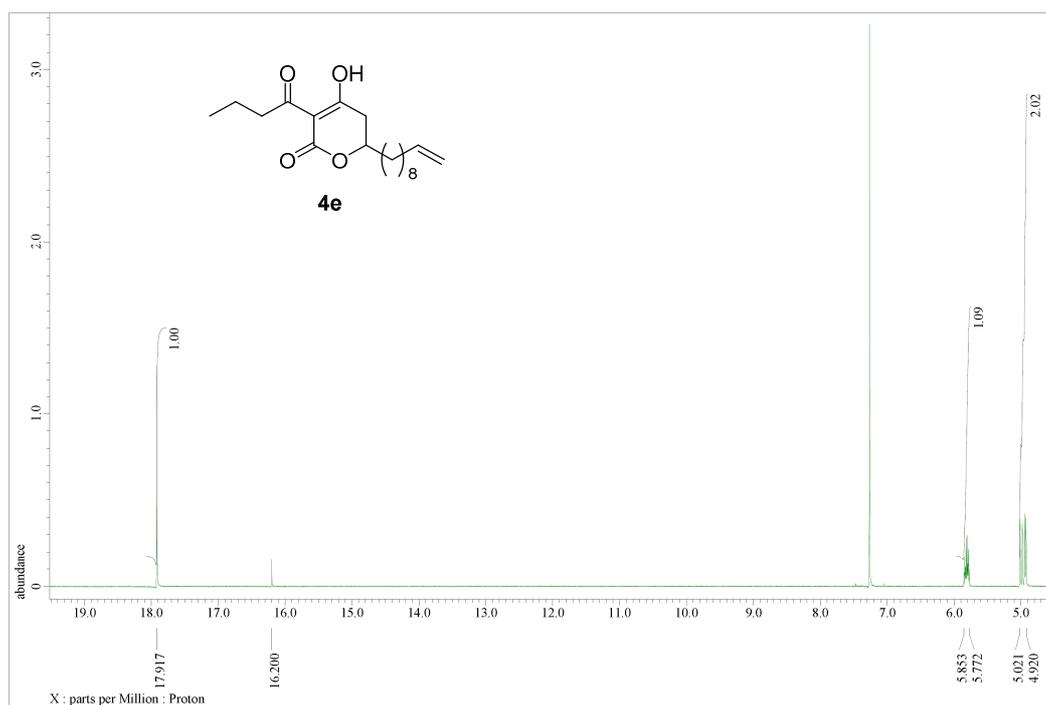


Figure S27. <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4e.

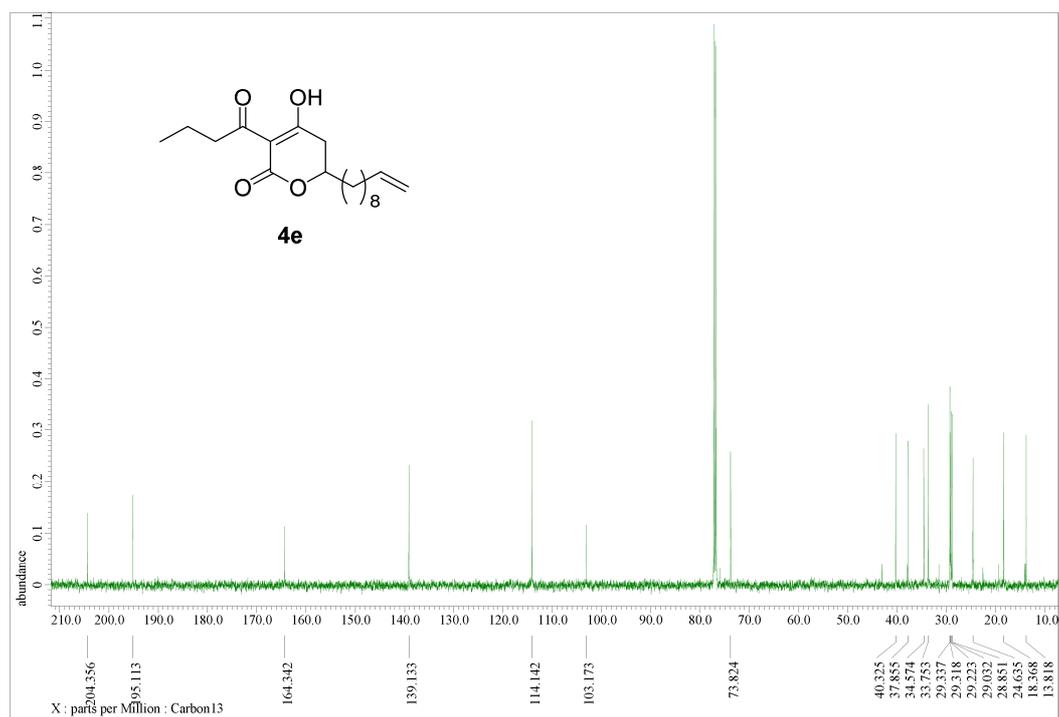


Figure S28. <sup>13</sup>C NMR (125 MHz, CDCl<sub>3</sub>) Spectrum of the Compound 4e.

