

*Electronic Supplementary Information*

**Lithocholic acid derivatives as potent modulators of the nuclear receptor ROR $\gamma$ t**

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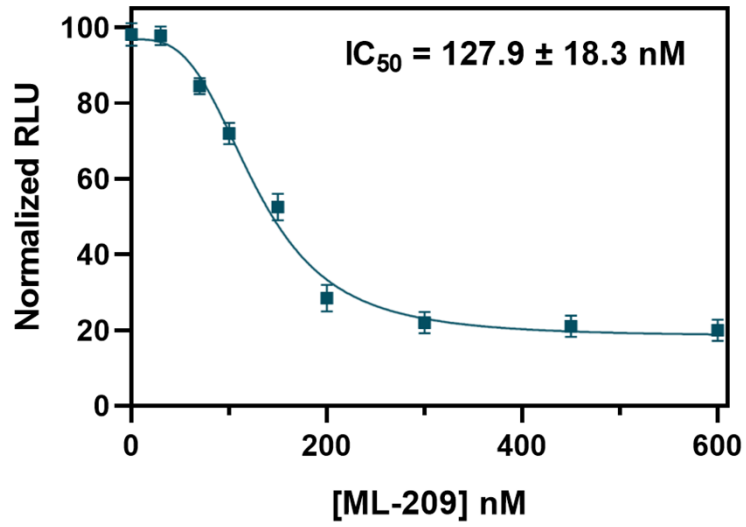
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<sup>b</sup> *Department of Medicinal Chemistry, Faculty of Pharmacy, Mansoura University, Mansoura 35516, Egypt.*

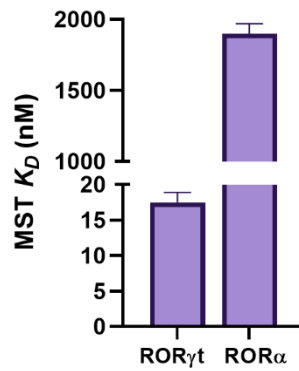
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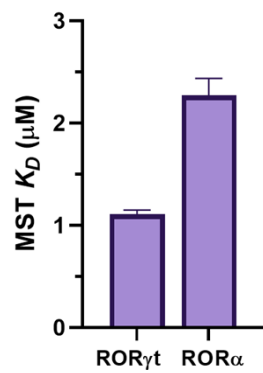
Dose-response curve of ML-209 in the ROR $\gamma$ t reporter luciferase assay	S2
MST binding analysis of the binding of <b>A2</b> to ROR $\gamma$ t and ROR $\alpha$	S2
MST binding analysis of the binding of 3-oxoLCA to ROR $\gamma$ t and ROR $\alpha$	S3
Representative NMR and HPLC data for the synthesized compounds	S3



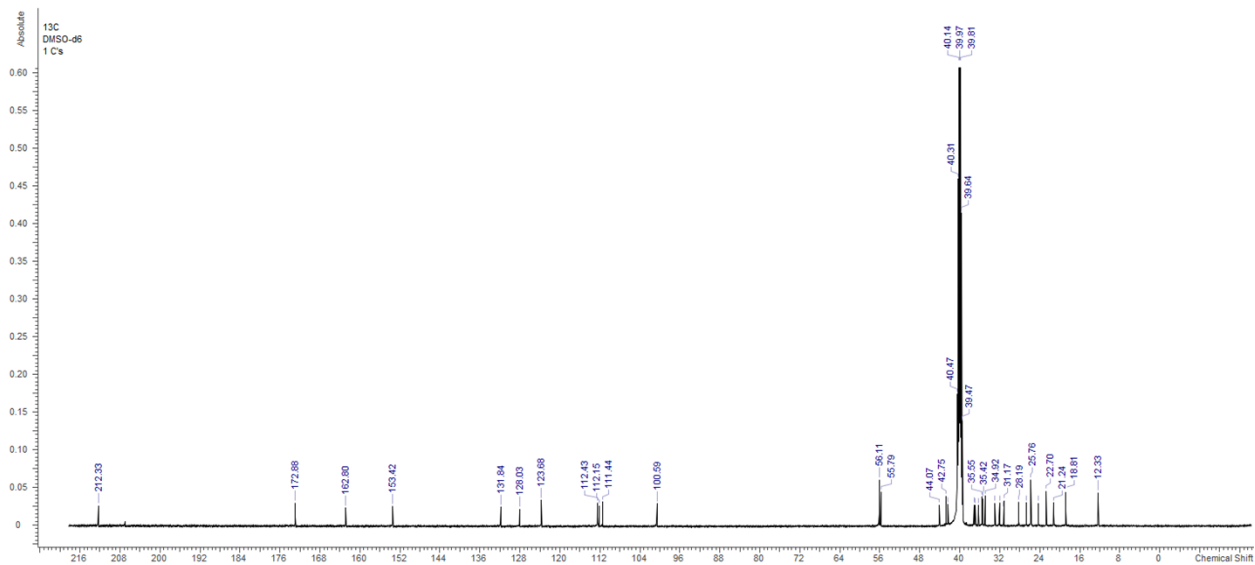
**Figure S1.** Dose-response curve of ML-209 in the ROR $\gamma$ t reporter luciferase assay. Error bars represent standard deviation (n=3).



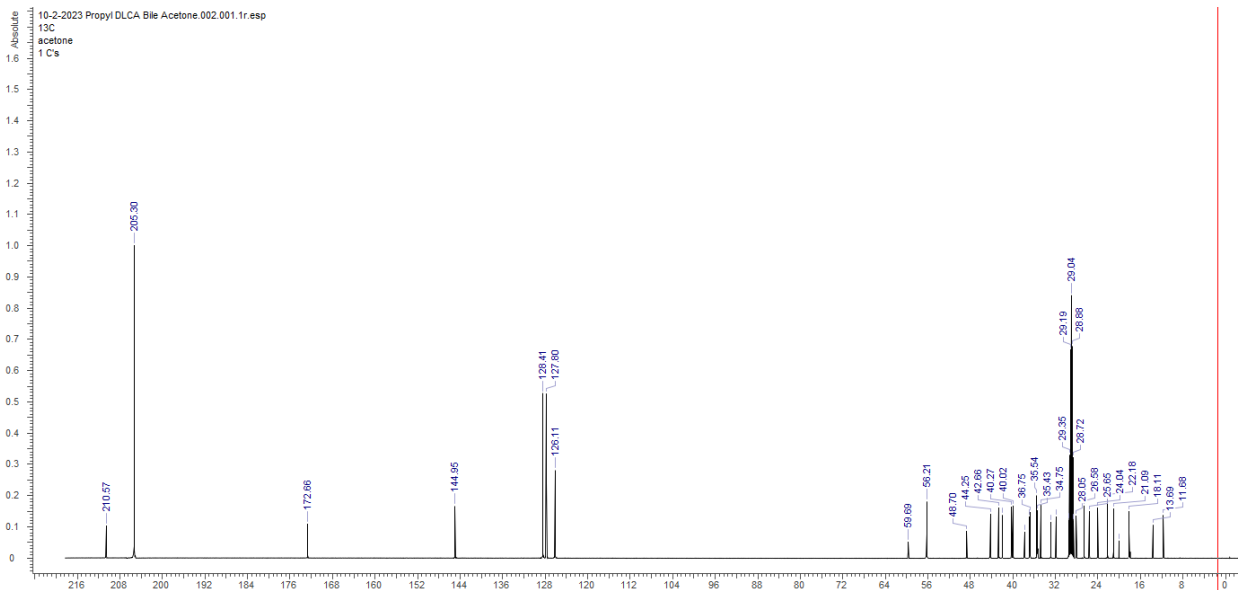
**Figure S2.** MST binding analysis of the binding of A2 to ROR $\gamma$ t and ROR $\alpha$ . The binding affinity (K<sub>D</sub>) is represented in nM. Error bars represent standard deviation (n = 3).



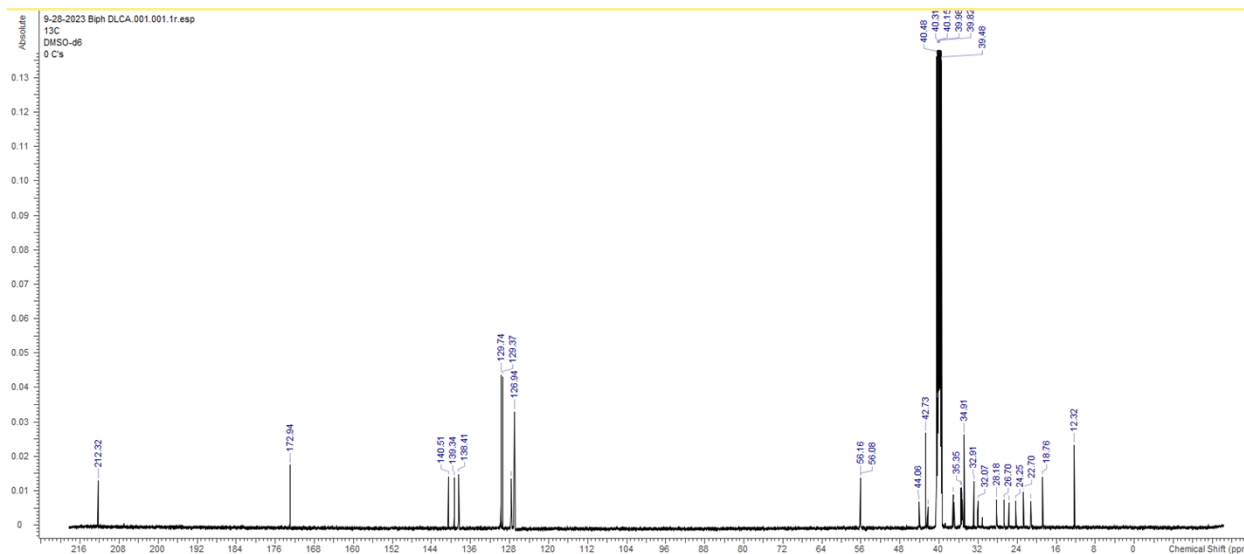
**Figure S3.** MST binding analysis of the binding of 3-oxoLCA to ROR $\gamma$ t and ROR $\alpha$ . The binding affinity ( $K_D$ ) is represented in  $\mu\text{M}$ . Error bars represent standard deviation ( $n = 3$ ).



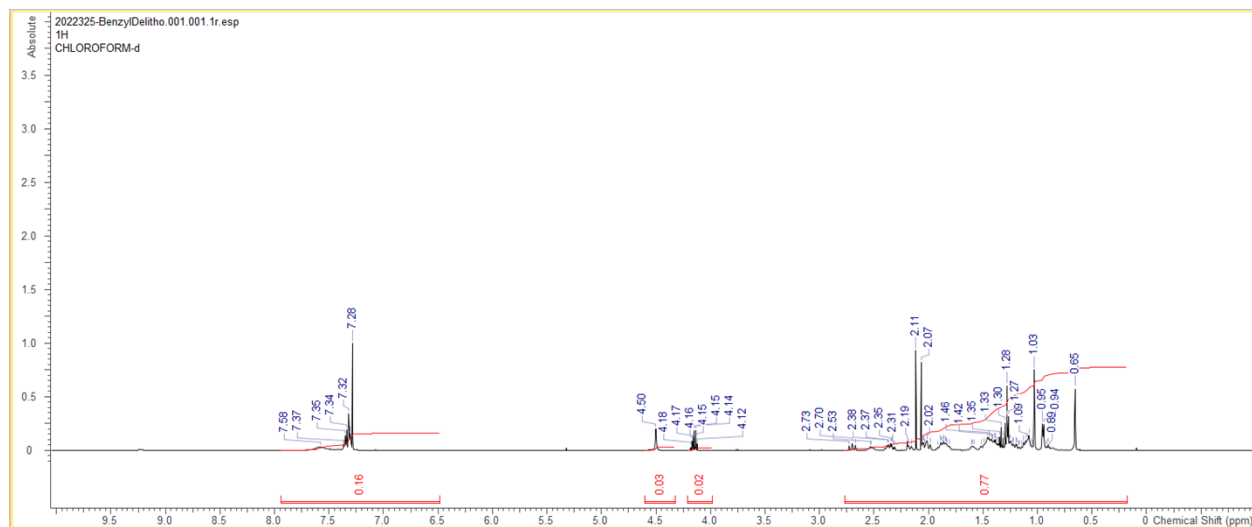
$^{13}\text{C}$  NMR spectrum of compound **A2**.



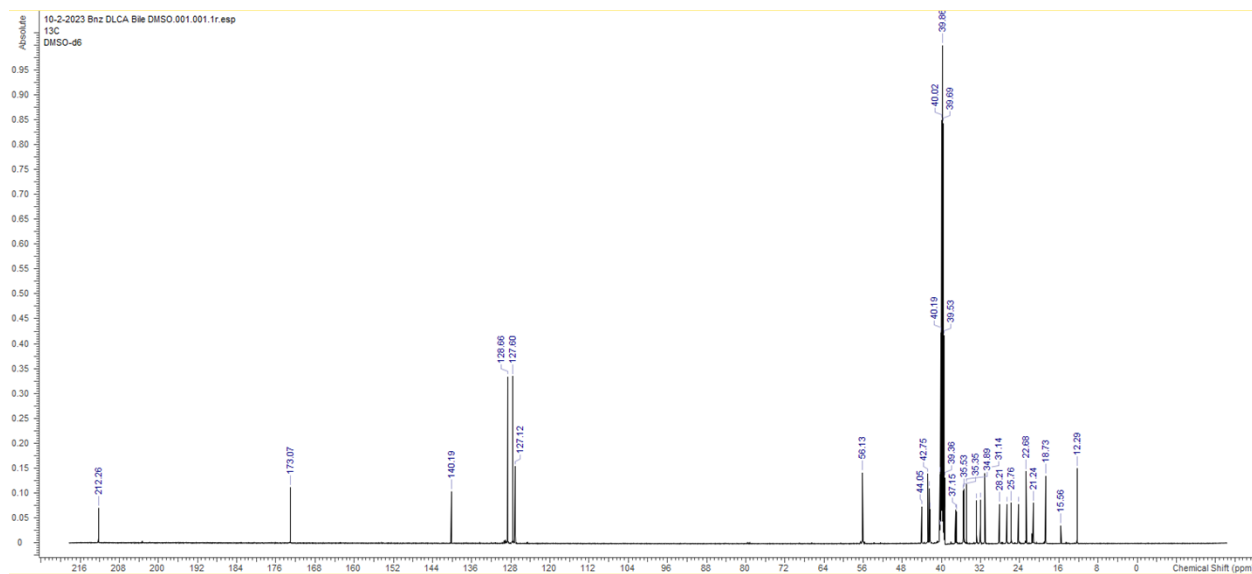
<sup>13</sup>C NMR spectrum of compound **A3**.



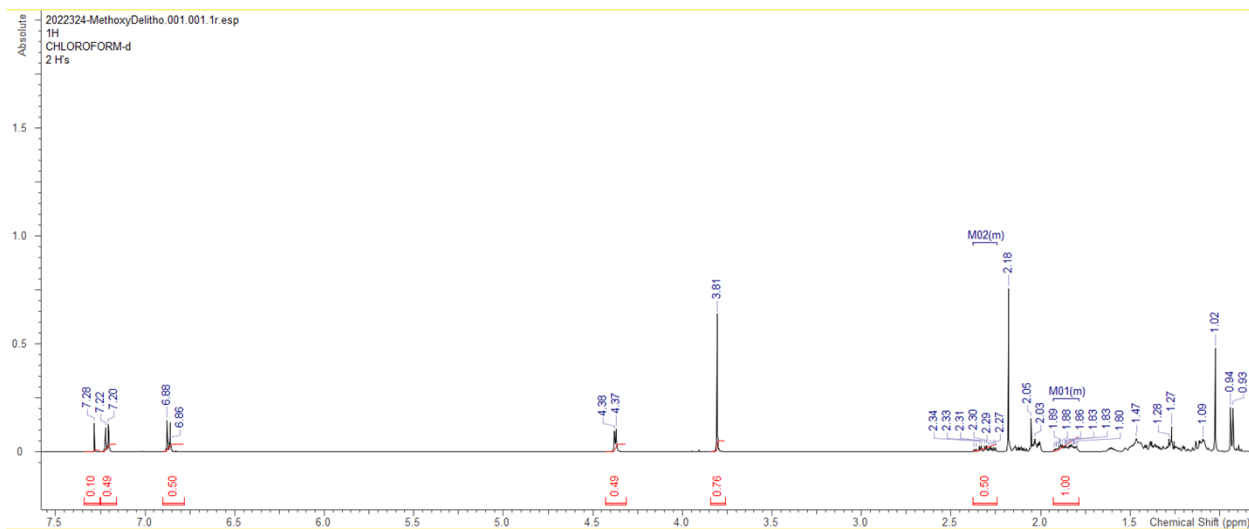
<sup>13</sup>C NMR spectrum of compound **A4**.



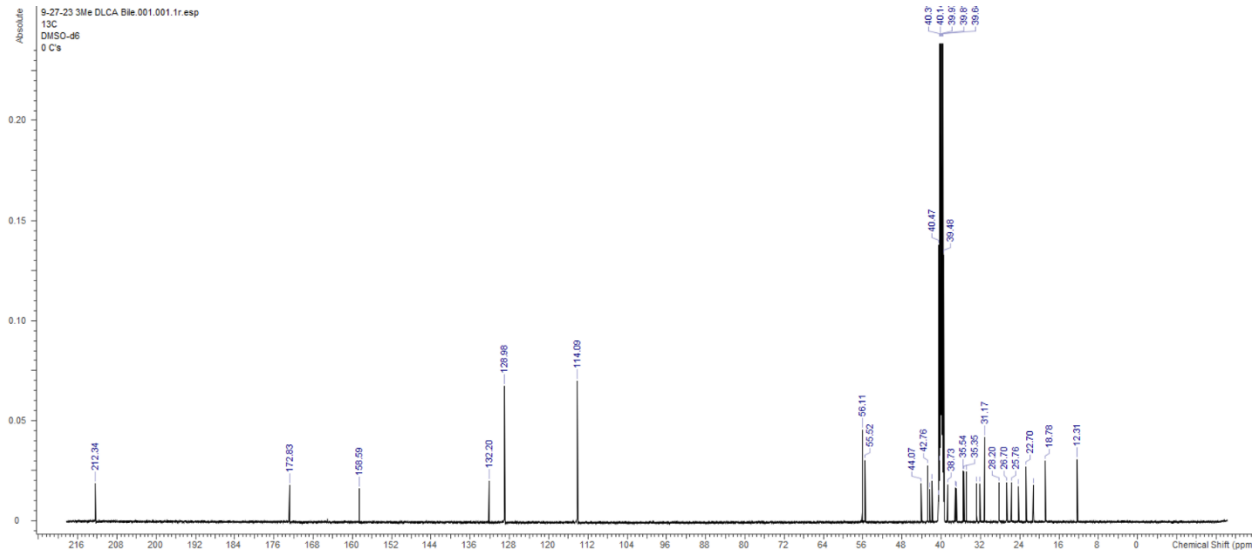
<sup>1</sup>H NMR spectrum of compound A5.



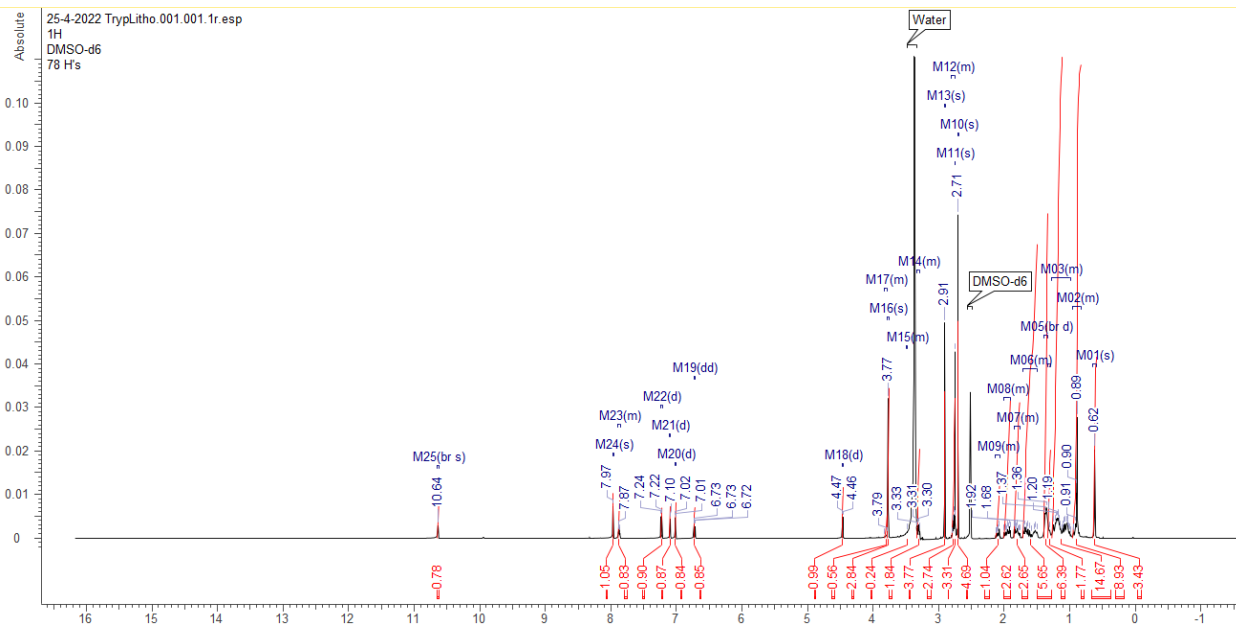
<sup>13</sup>C NMR spectrum of compound A5.



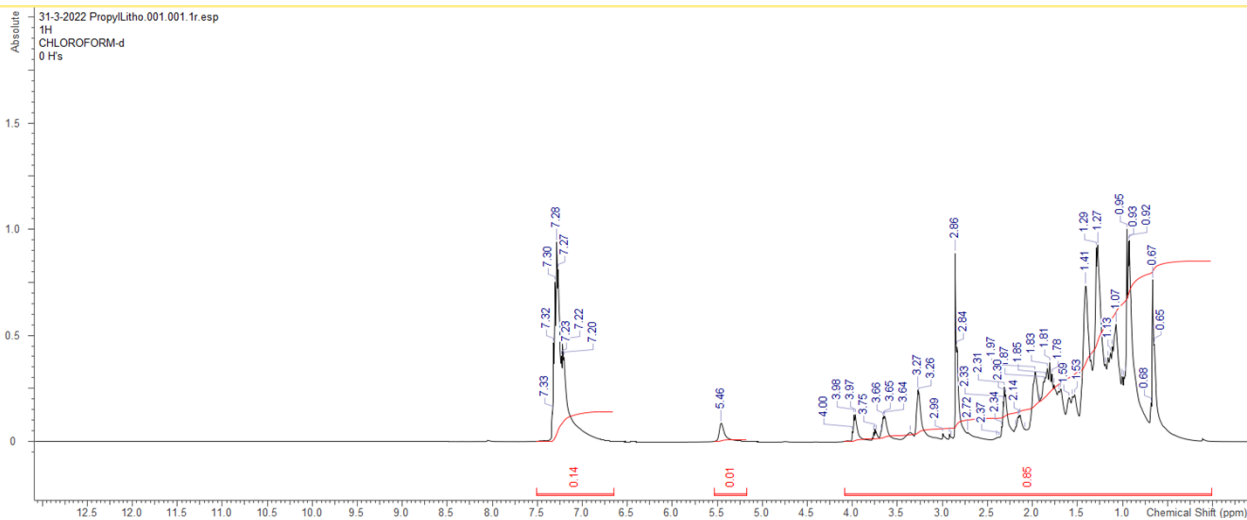
<sup>1</sup>H NMR spectrum of compound A6.



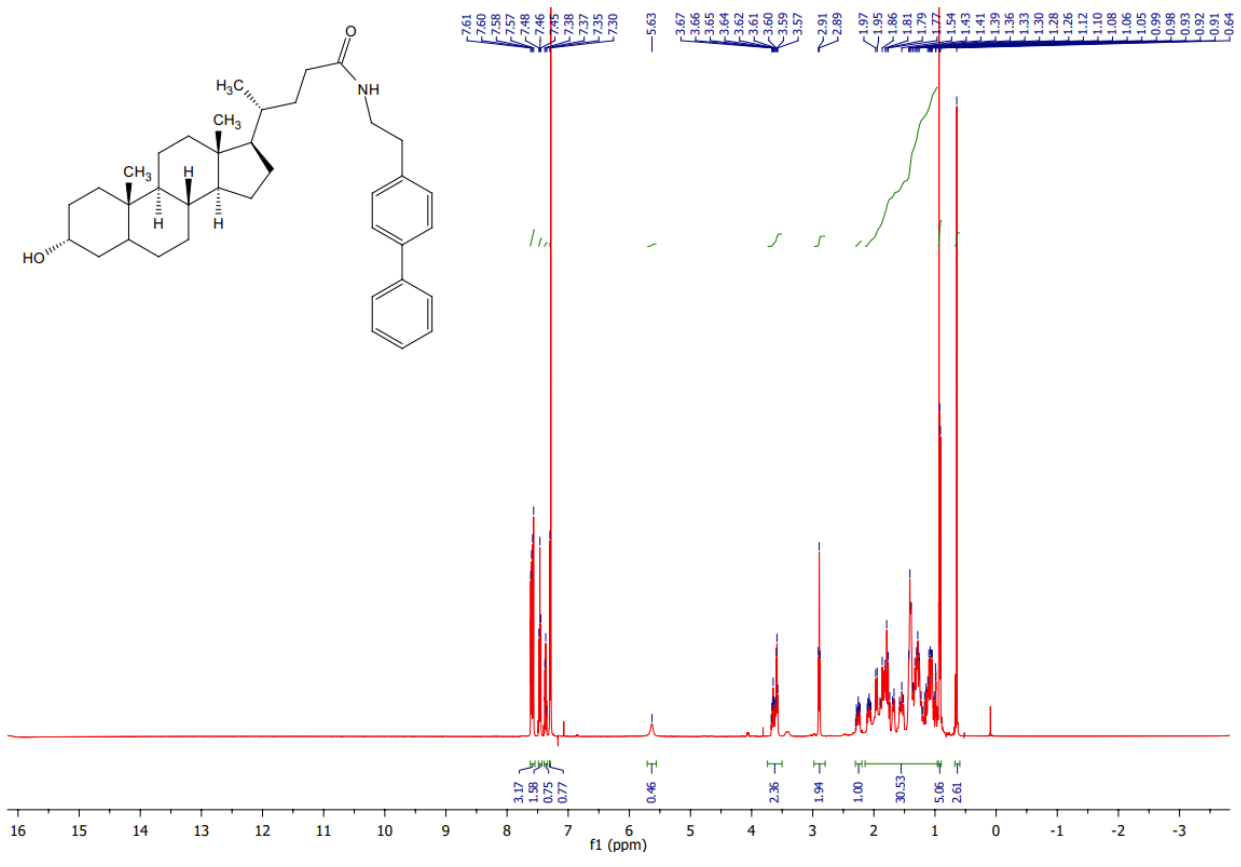
<sup>13</sup>C NMR spectrum of compound A6.



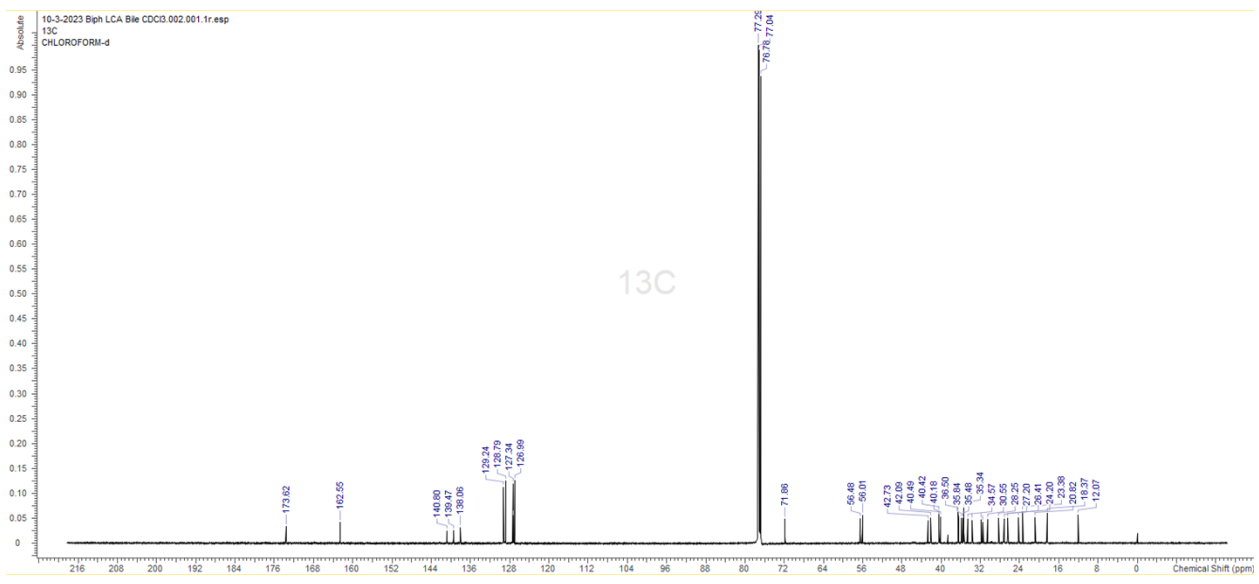
<sup>1</sup>H NMR spectrum of compound **B2**.



<sup>1</sup>H NMR spectrum of compound **B3**.



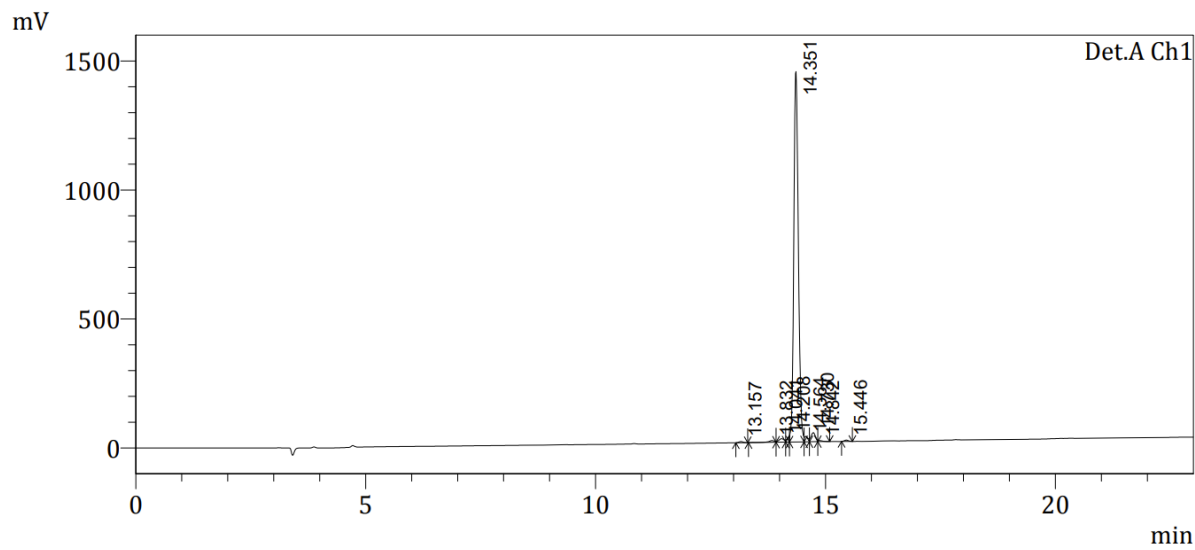
<sup>1</sup>H NMR spectrum of compound B4.



<sup>13</sup>C NMR spectrum of compound B4.

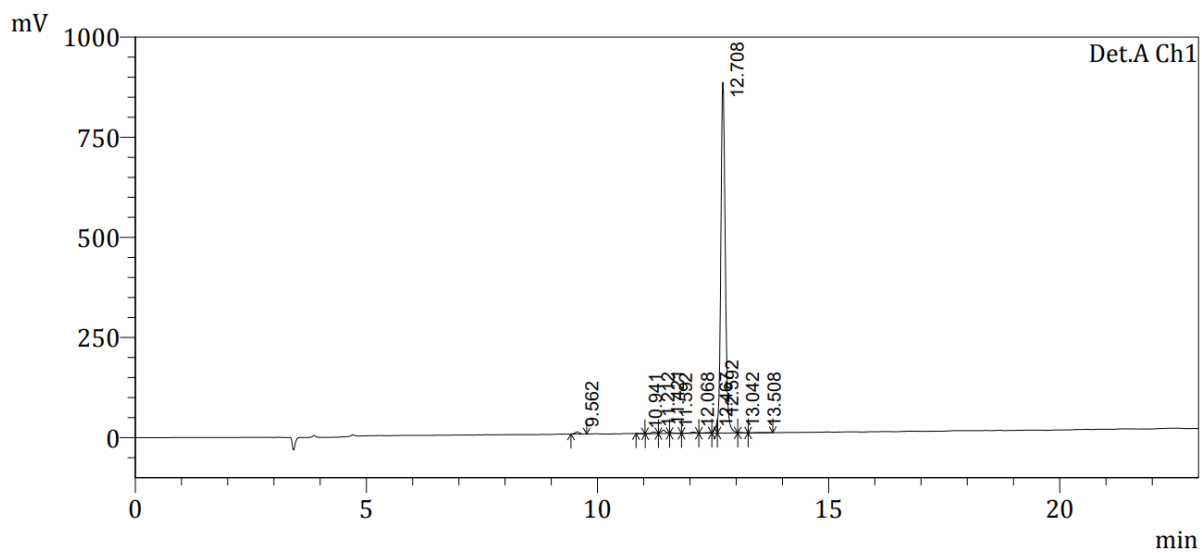






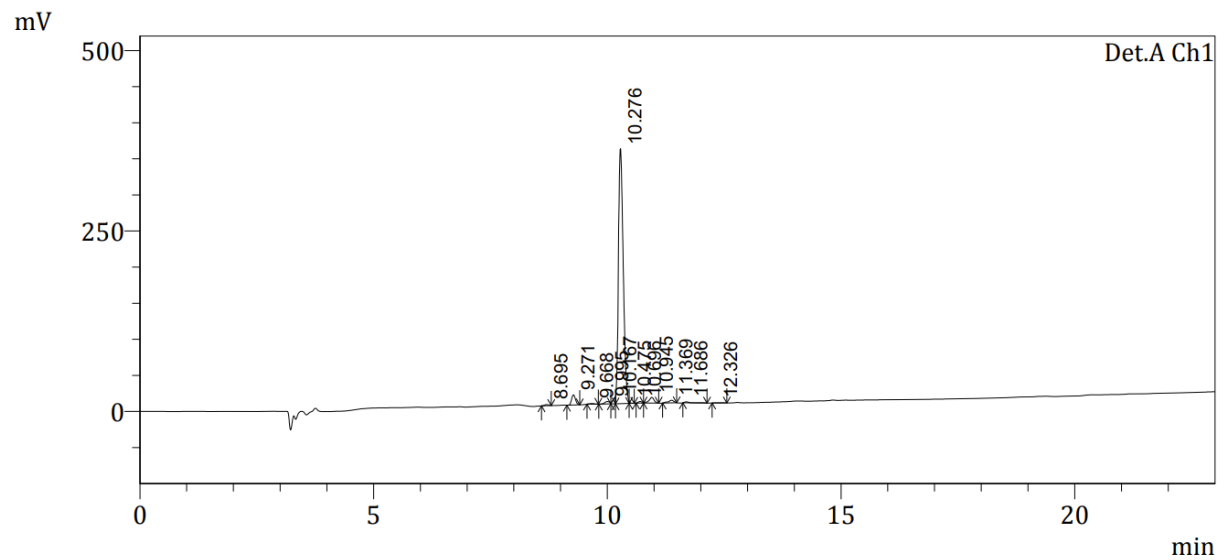
1 Det.A Ch1/220nm

HPLC trace for compound **A2**.



1 Det.A Ch1/220nm

HPLC trace for compound **A3**.



1 Det.A Ch1/220nm  
HPLC trace for compound **A4**.