

Effect of Heterocyclic-based Head group Modifications on the Structure-Activity Relationship of Tocopherol-based Lipids for Non-viral Gene Delivery

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Supporting information

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(1) Toc-Br

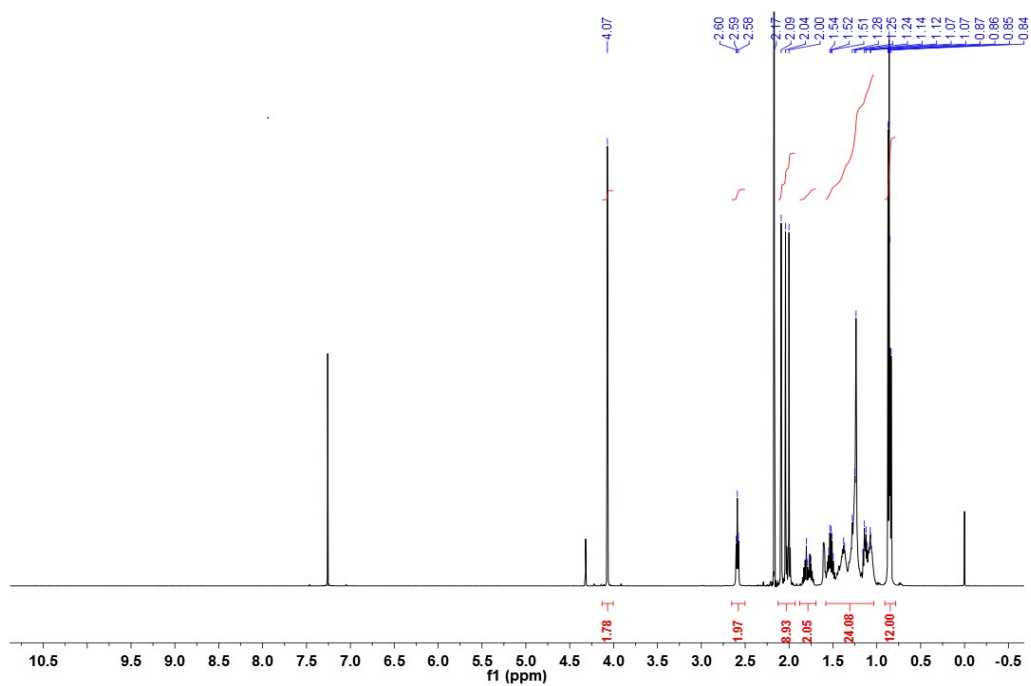


Fig. S1: ¹H-NMR Spectrum of Toc-Br

(2) Toc-Tme

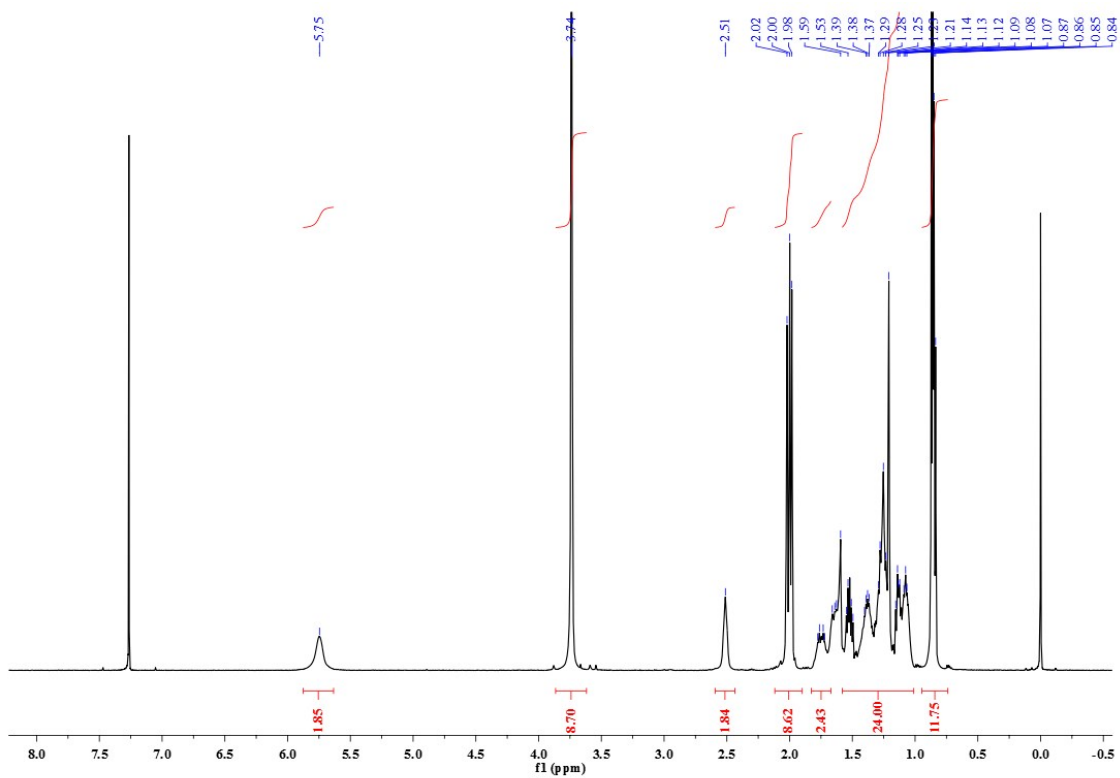


Fig. S2: ¹H-NMR Spectrum of Toc-Tme

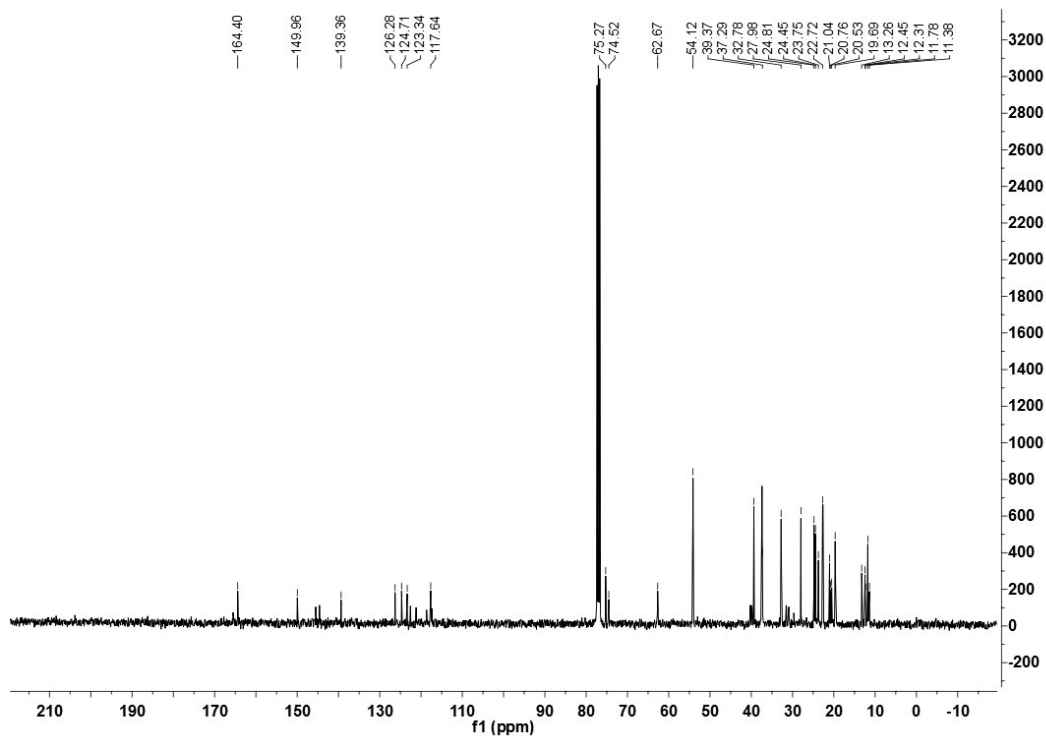


Fig. S3: ^{13}C -NMR Spectrum of **Toc-Tme**

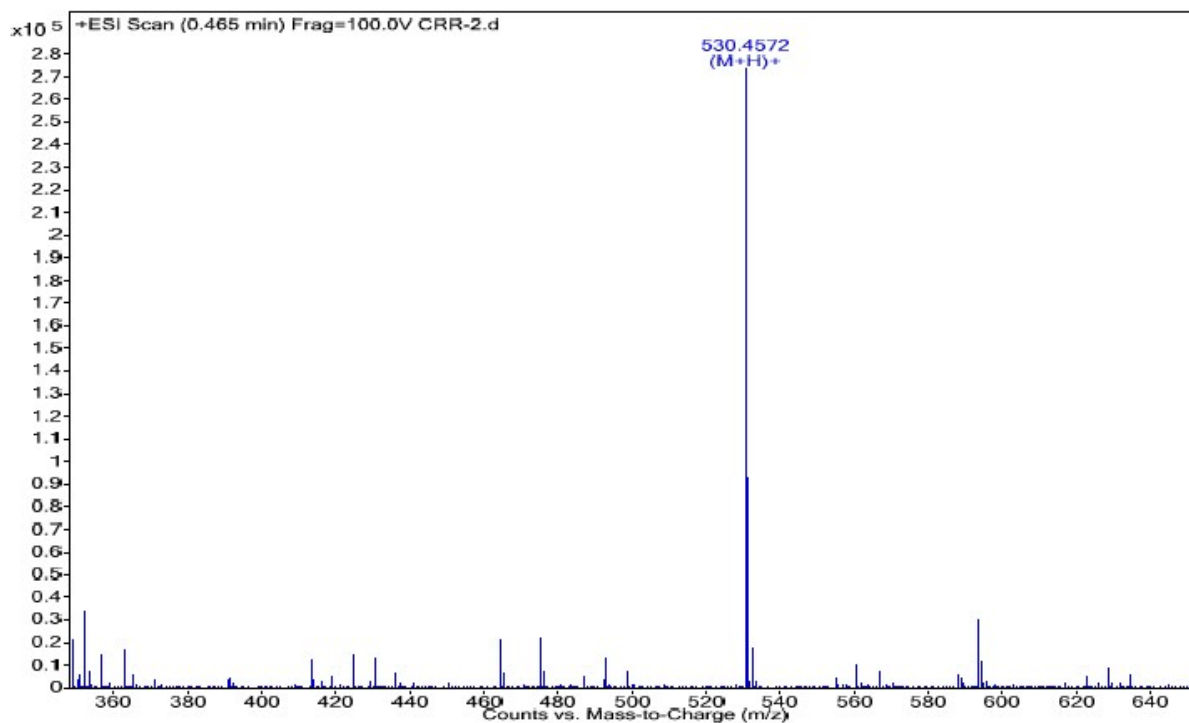


Fig. S4: ESI-MS (HRMS) Spectrum of **Toc-Tme**

(3) Toc-Pyr

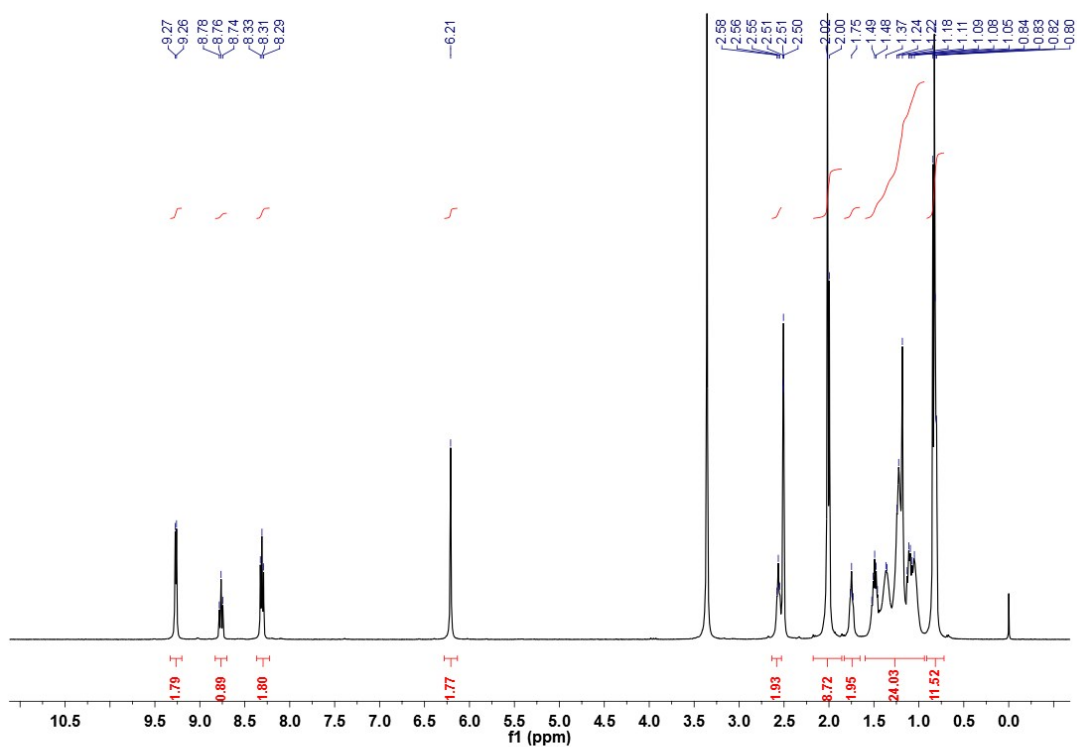


Fig. S5: ¹H-NMR Spectrum of Toc-Pyr

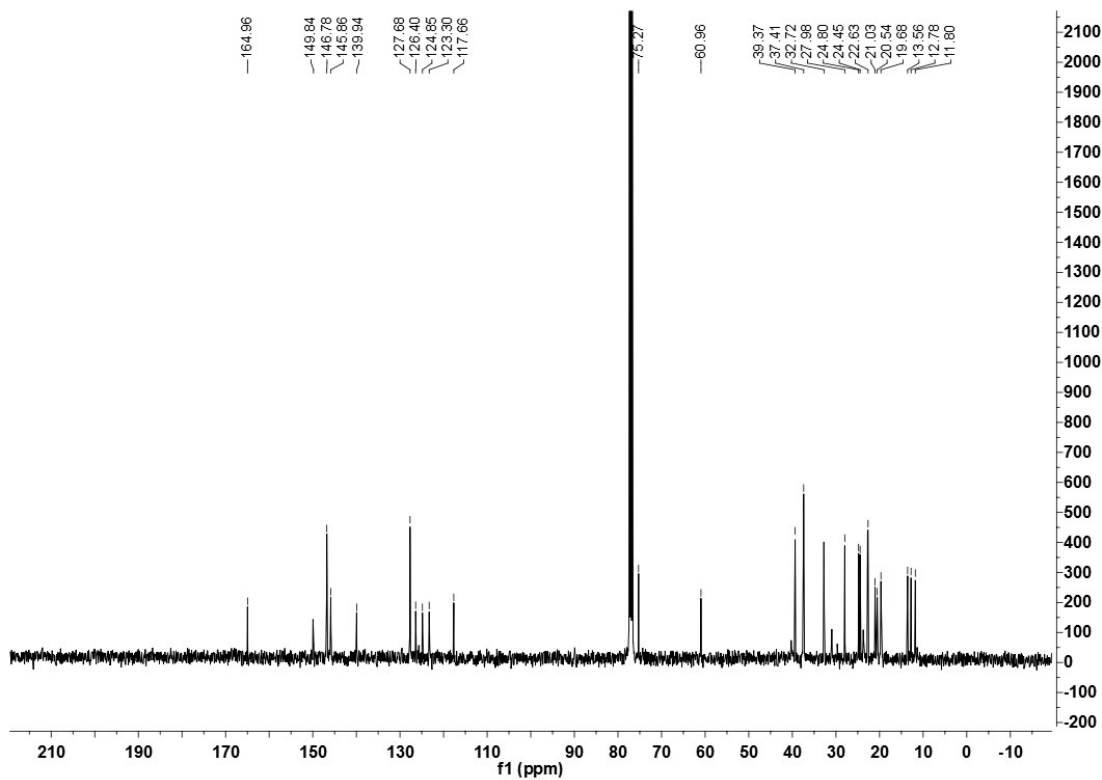


Fig. S6: ¹³C-NMR Spectrum of Toc-Pyr

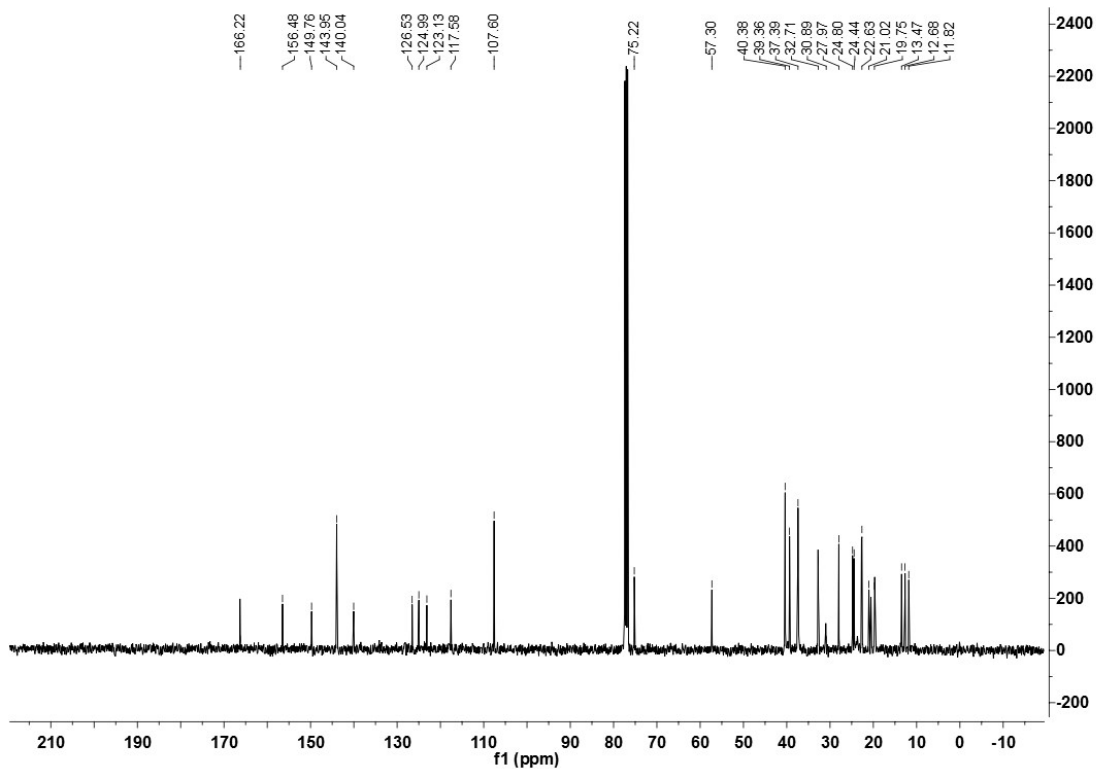


Fig. S9: ^{13}C -NMR Spectrum of Toc-Dm

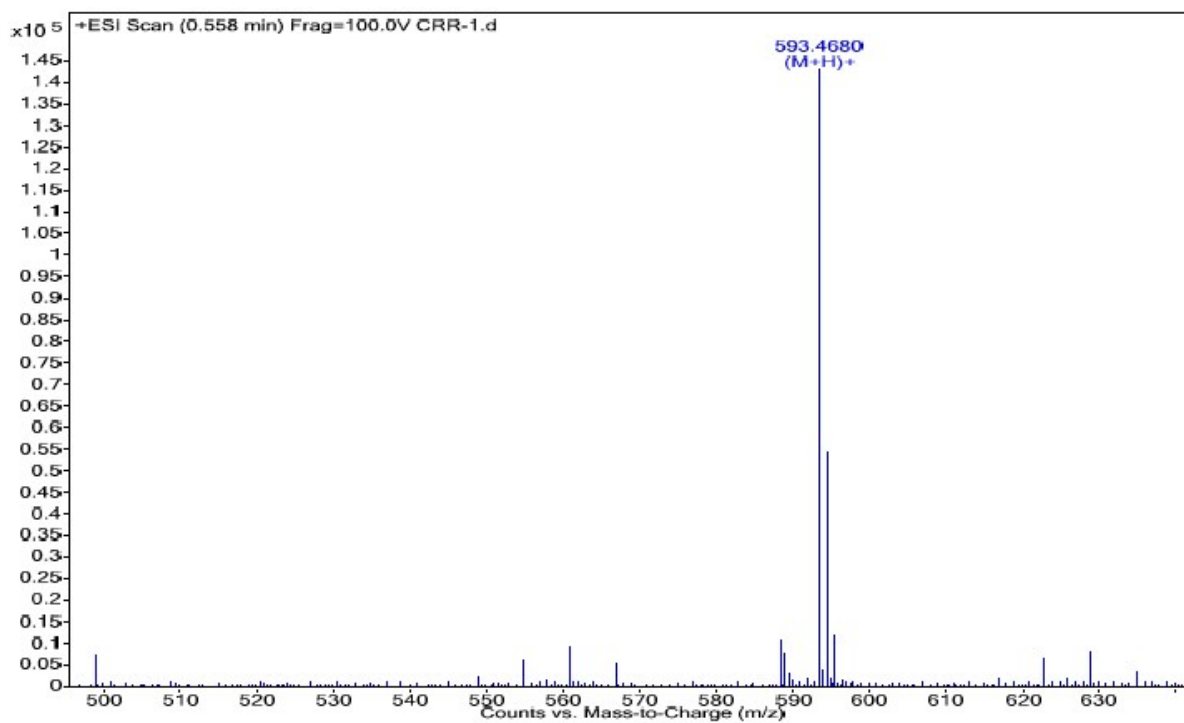


Fig. S10: ESI-MS (HRMS) Spectrum of Toc-Dm

(5) Toc-Db

1507-1042
P1507-1042 M3

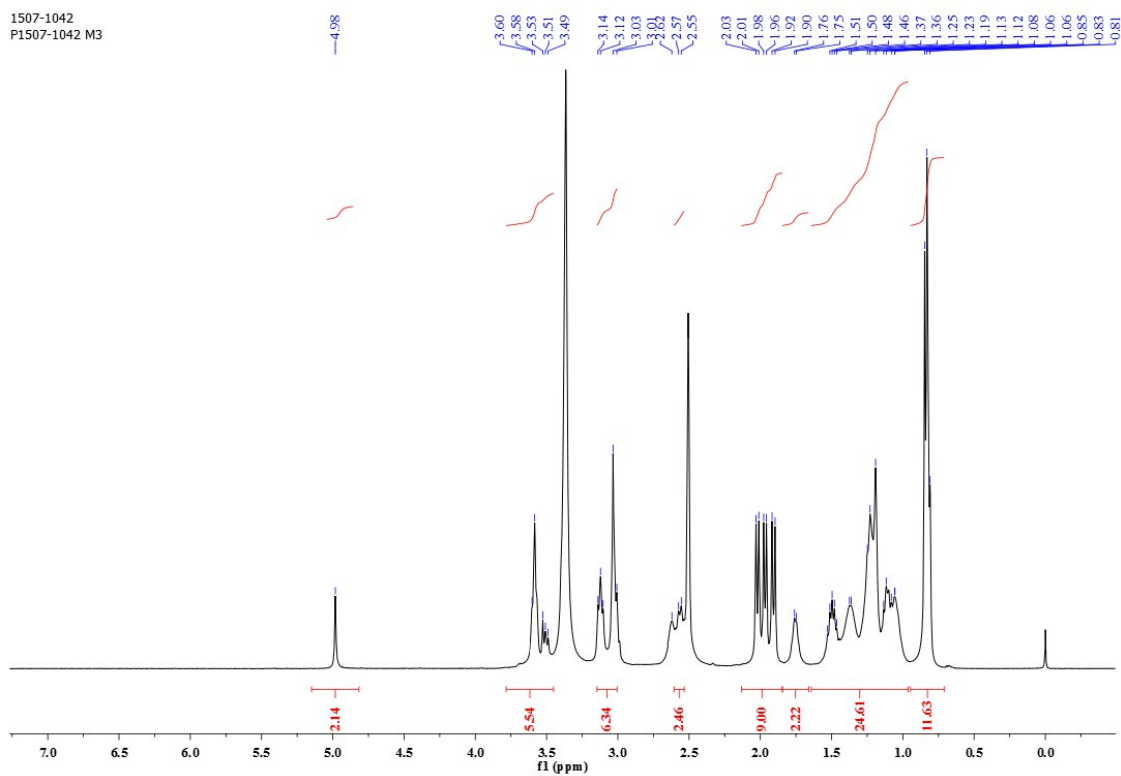


Fig. S11: ¹H-NMR Spectrum of Toc-Db

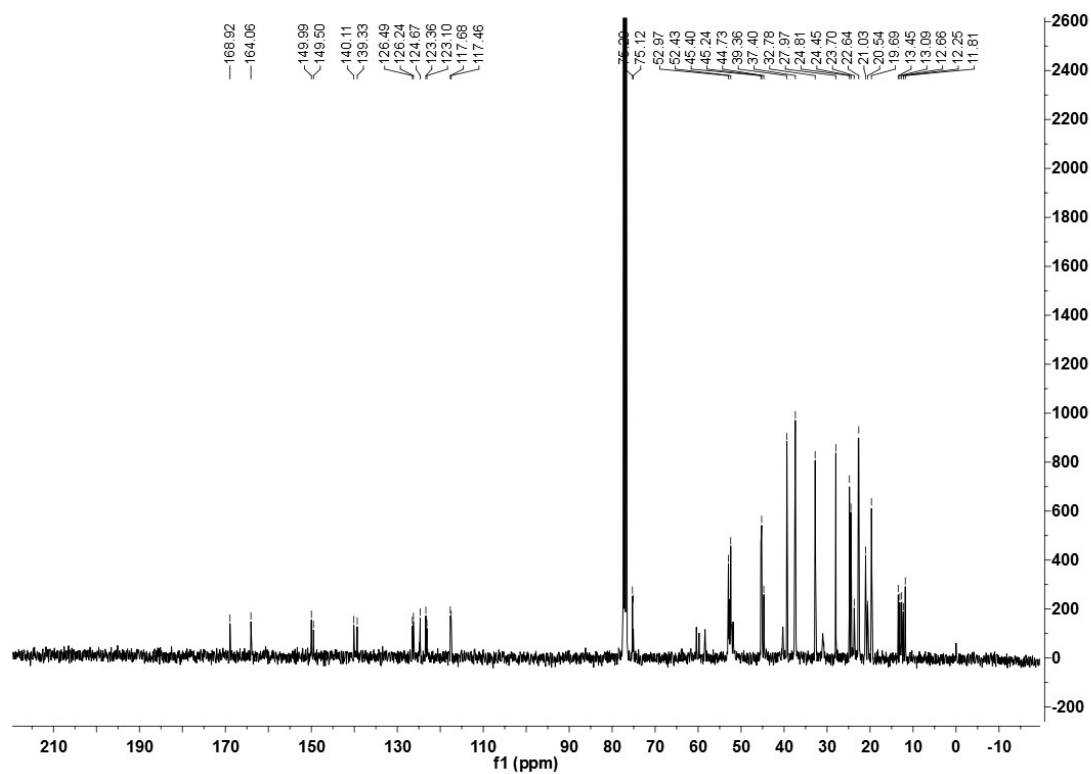


Fig. S12: ¹³C-NMR Spectrum of Toc-Db

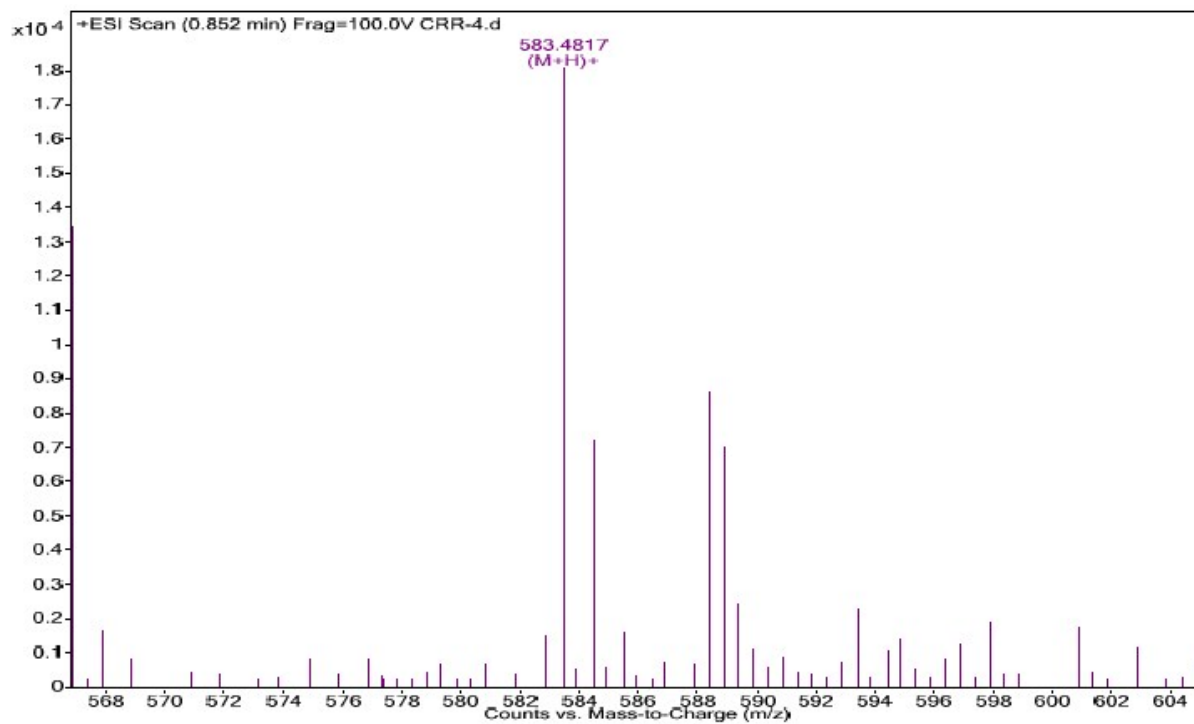


Fig. S12: ESI-MS (HRMS) Spectrum of **Toc-Db**

(6) Toc-Pip

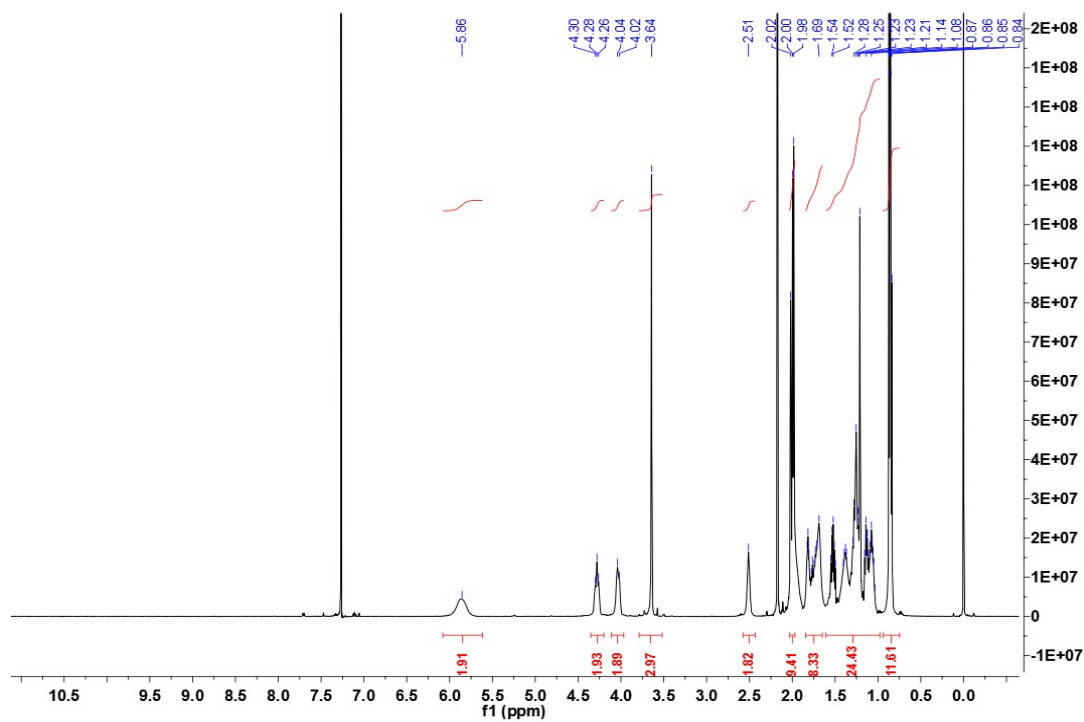


Fig. S13: ¹H-NMR Spectrum of **Toc-Pip**

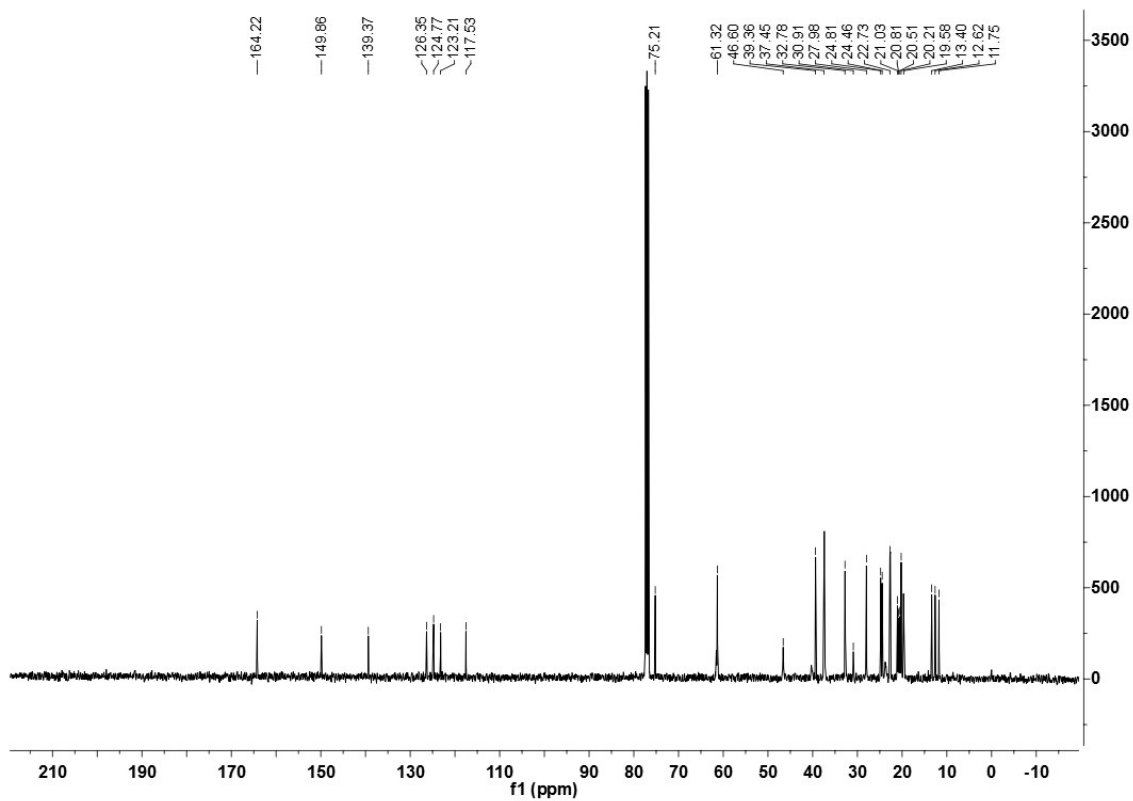


Fig. S14: ^{13}C -NMR Spectrum of Toc-Pip

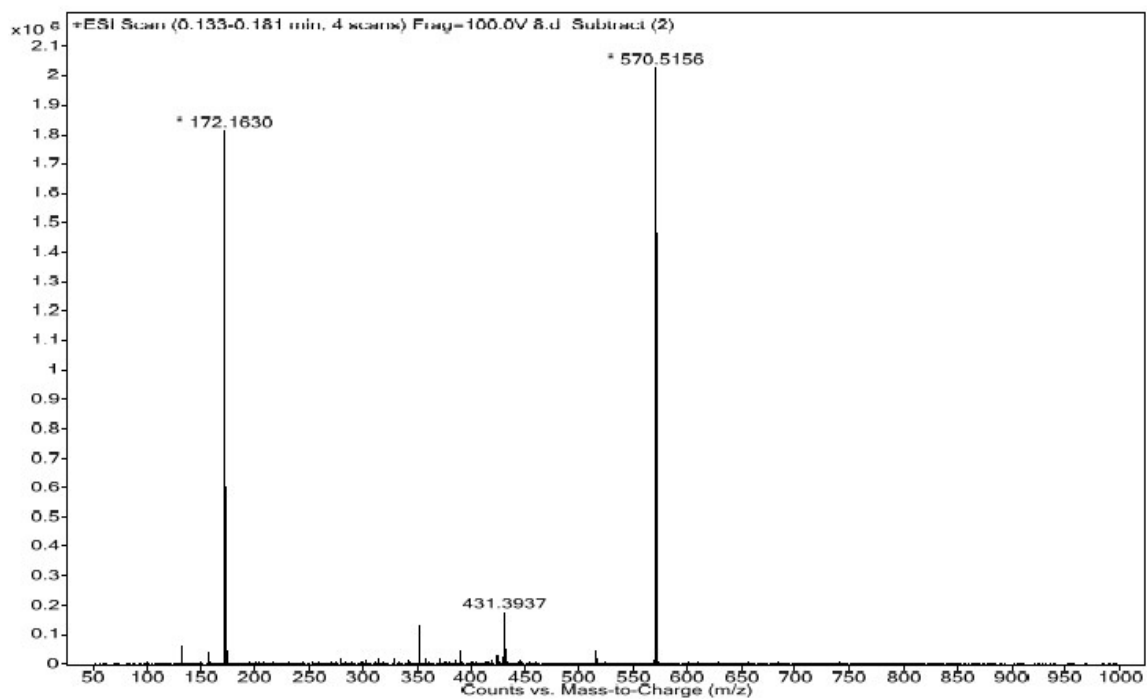


Fig. S15: ESI-MS (HRMS) Spectrum of Toc-Pip

(7) Toc-Mor

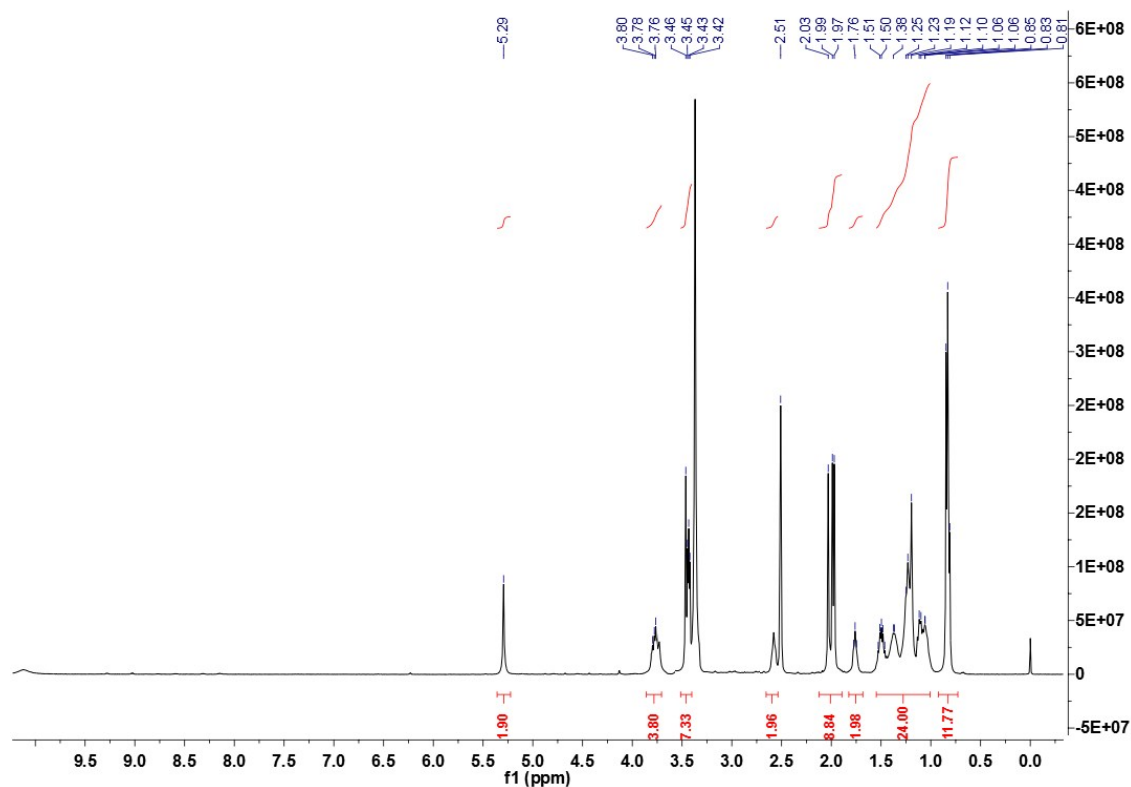


Fig. S16: ¹H-NMR Spectrum of Toc-Mor

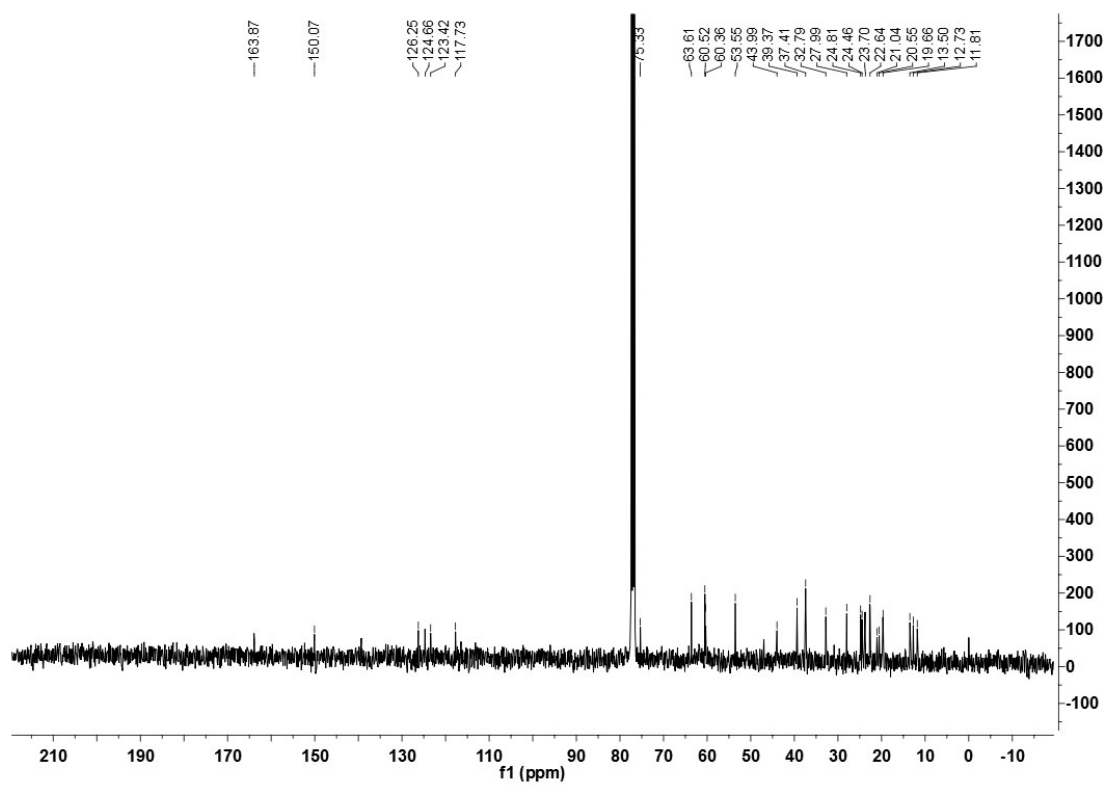


Fig. S17: ¹³C-NMR Spectrum of Toc-Mor

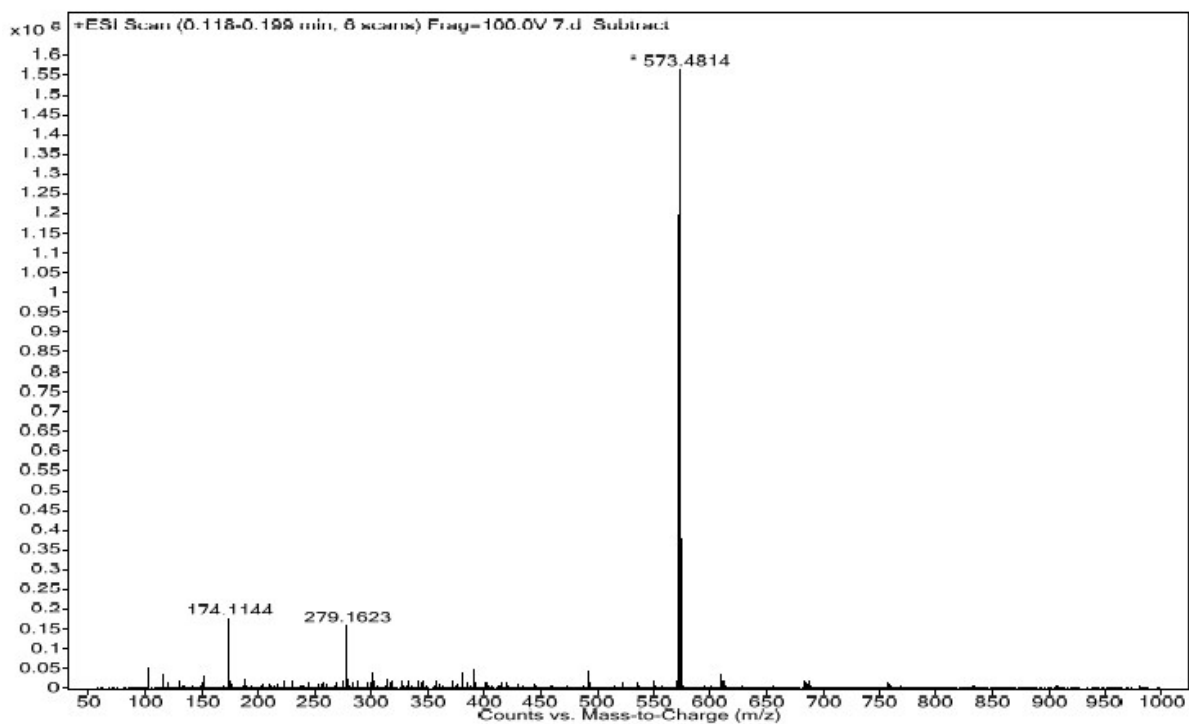


Fig. S18: ESI-MS (HRMS) Spectrum of Toc-Mor

(8) Toc-Im

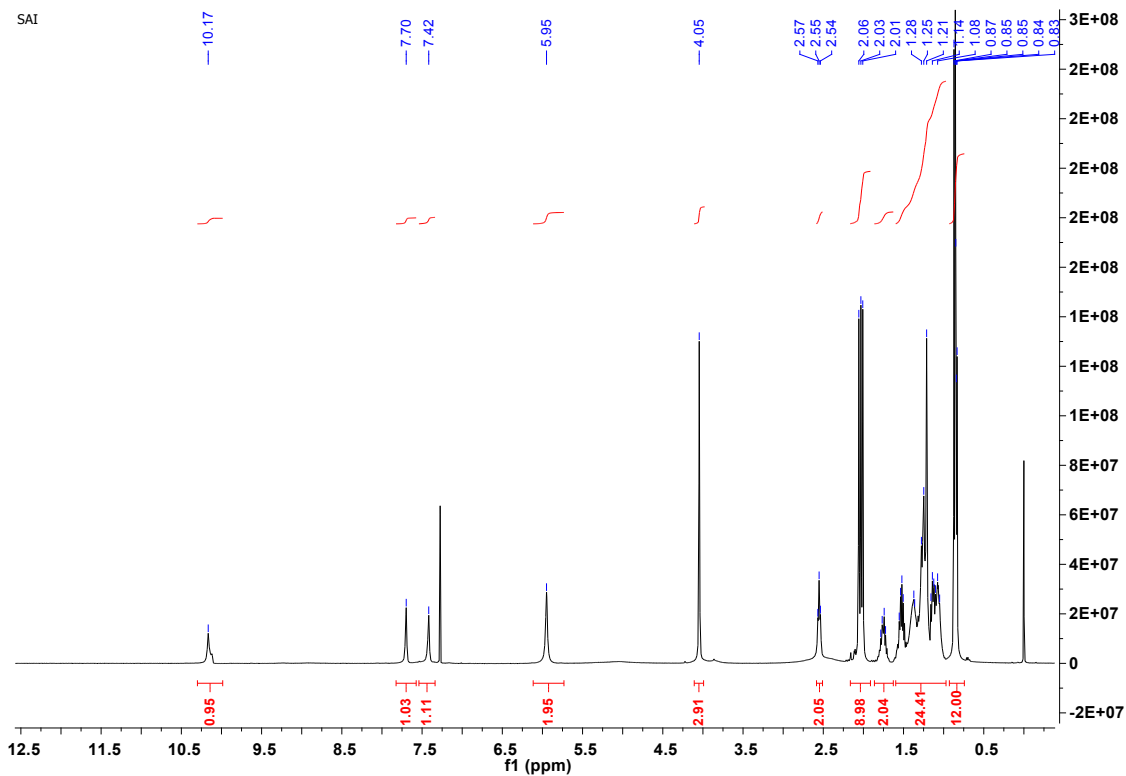


Fig. S19: $^1\text{H-NMR}$ Spectrum of Toc-Im

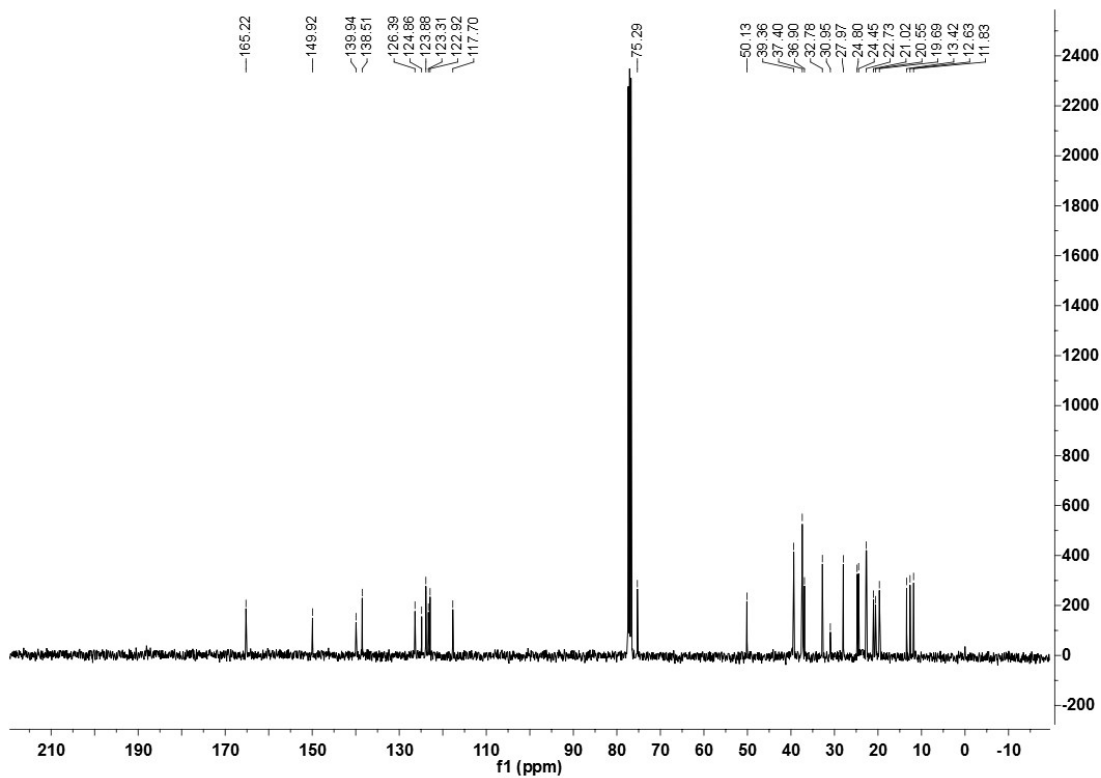


Fig. S20: ^{13}C -NMR Spectrum of Toc-Im

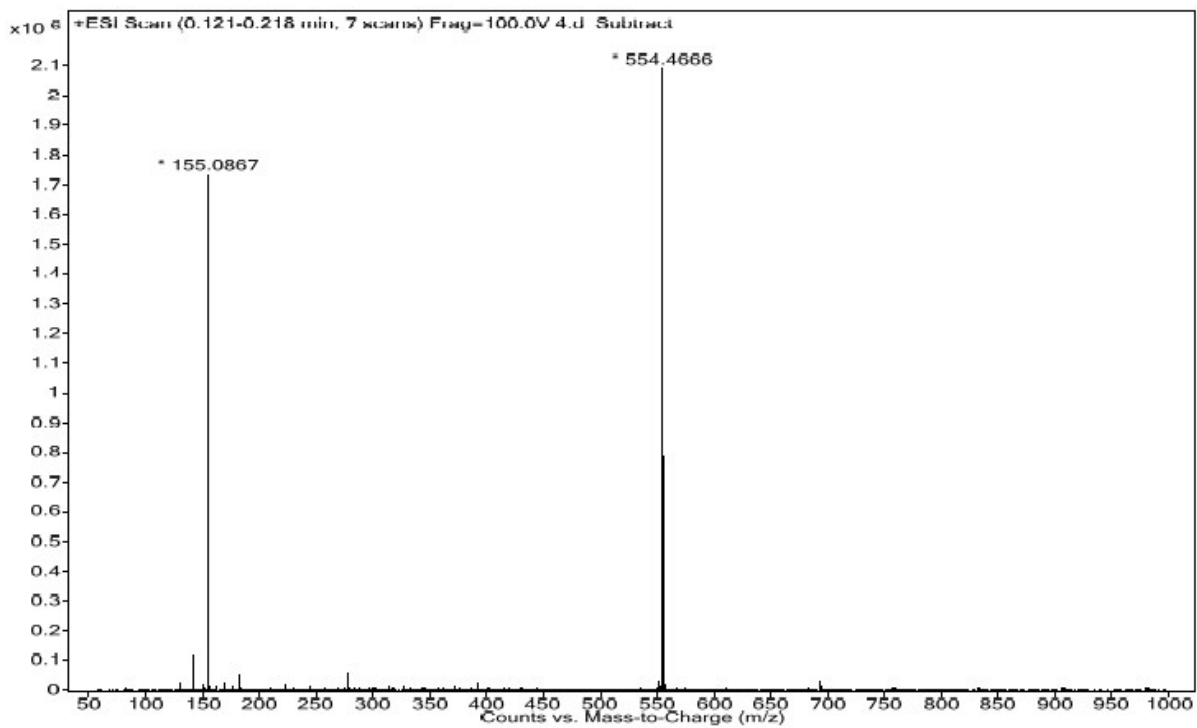


Fig. S21: ESI-MS (HRMS) Spectrum of Toc-Im

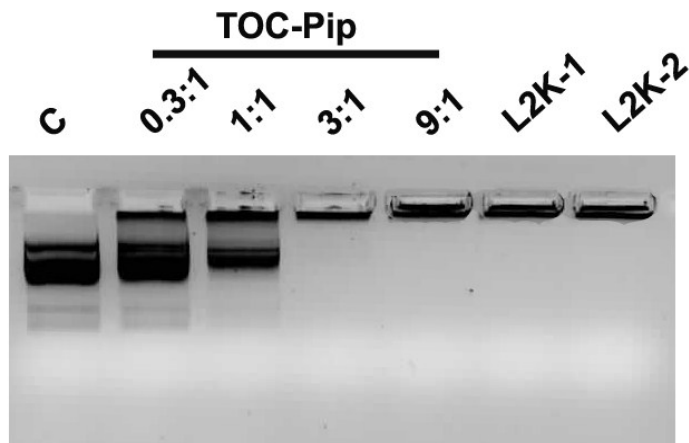


Fig. S22: Agarose gel binding assay using Toc-Pip with four different charge ratios (0.3:1, 1:1, 3:1 and 9:1) and Lipofectamine-2000 (L2K) as the control for comparison. L2K with two different concentrations (L2K-1: 0.8 μ l) and (L2K-2: 1.4 μ l optimal concentration) according to the manufacturer's protocol. 400 ng of plasmid pCMV β -gal DNA/well was used. Gel depicts retention of lipoplexes prepared with Toc-Pip at 3:1 in the well.

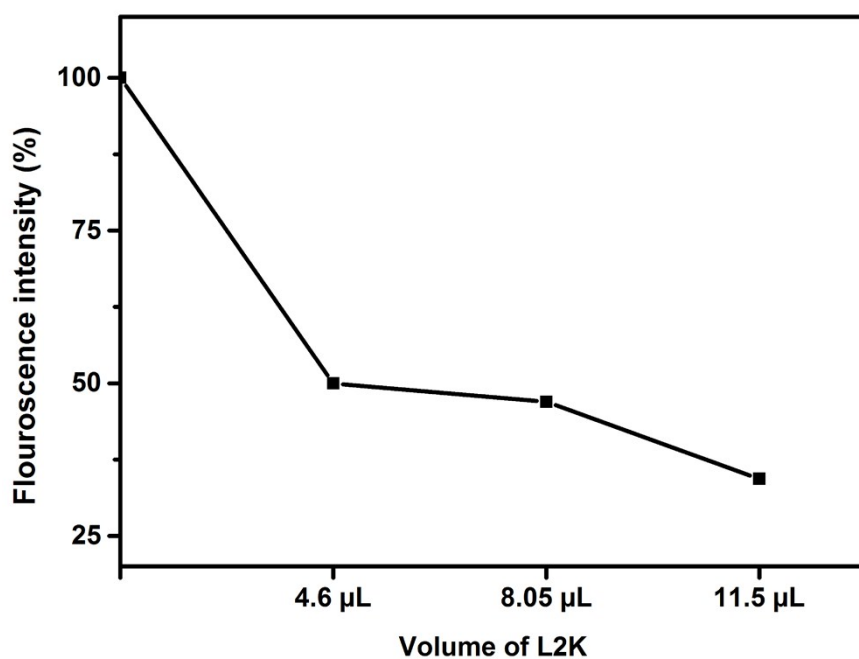


Fig. S23: Ethidium bromide displacement assay using Lipofectamine-2000 (L2K) at three different conditions 4.6 μ L, 8.05 μ L (optimal concentration), 11.5 μ L. The amount of plasmid DNA per titration is 2.3 μ g and L2K was used according to the manufacturer's protocol.

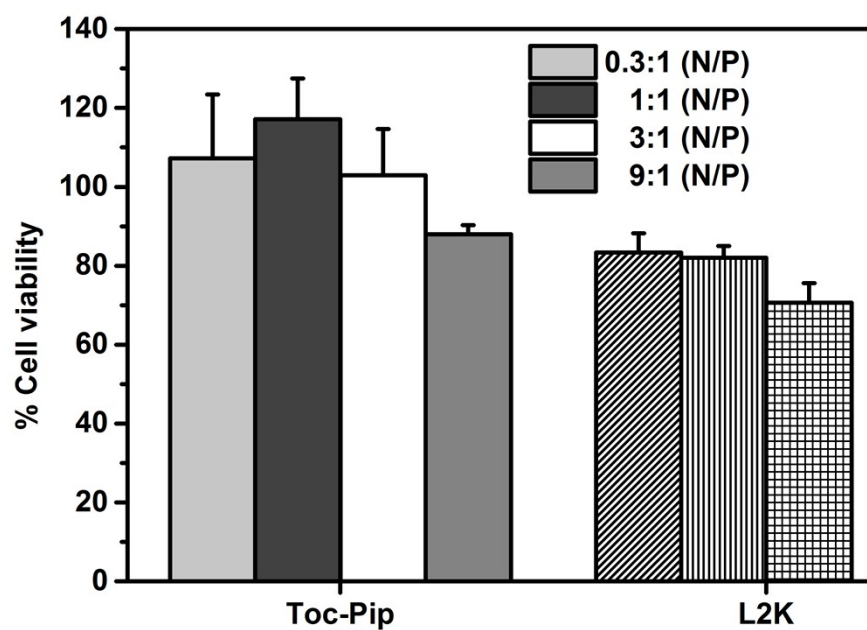


Fig. S24: Graph depicts comparative analysis of cell viability (%) of Lipid: DNA complex using MTT assay in Neuro-2a cell line: Lipoplexes were prepared with Toc-Pip formulated with DOPE and L2K was used as the positive control and assayed according to the protocol mentioned in methods. Diagonal lines (1.8 μL), vertical lines (3.15 μL), checks (4.5 μL).