Linear and branched polymer prodrugs of the watersoluble nucleoside reverse-transcriptase inhibitor emtricitabine as structural materials for long-acting implants

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Supplementary Information



Figure S1. ¹H NMR (CDCl₃, 400 MHz) of hexamethylene bischloroformate.



Figure S2. ¹³C NMR (CDCl₃, 100 MHz) of hexamethylene bis(chloroformate).



Figure S3. ¹H NMR (CDCl₃, 400 MHz) of trimethylol propane tris(chloroformate).



Figure S4. ¹³*C NMR (CDCl*₃, 100 MHz) of trimethylol propane tris(chloroformate).



Figure S5. ESI spectrum of the monosubstituted carbonate FTC model compound **4** (positive ion mode).



Figure S6. ESI spectrum of the monosubstituted carbamate FTC model compound **3** (positive ion mode).



Figure S7. ESI spectrum of the diisubstituted carbonate/carbamate FTC model compound 5 (positive ion mode)..



Figure S8. FTIR spectrum of monosubstituted carbonate FTC model compound 4.



Figure S9. FTIR spectrum of monosubstituted carbamate FTC model compound **3**.



Figure S10. FTIR spectrum of disubstituted carbamate/carbonate FTC model compound 5.



Figure S11. ¹H NMR (CDCl₃, 400 MHz) of monosubstituted carbonate FTC model compound **4**.



Figure S12. ¹³C NMR (CDCl₃, 100 MHz) of monosubstituted carbonate FTC model compound **4**.



Figure S13. HSQC (CDCl₃, 400 MHz) of monosubstituted carbonate FTC model compound **4**.



Figure S14. ¹H NMR (CDCl₃, 400 MHz) of monosubstituted carbamate FTC model compound **3**.



Figure S15. ¹³C NMR (CDCl₃, 100 MHz) of monosubstituted carbamate FTC model compound **3**.



Figure S16. HSQC (CDCl₃, 400 MHz) of monosubstituted carbamate FTC model compound **3**.



Figure S17. ¹H NMR (CDCl₃, 400 MHz) of disubstituted carbamate/carbonate FTC model compound **5**.





Figure S19. HSQC (CDCl₃, 400 MHz) of disubstituted carbamate/carbonate FTC model compound **5**.

Carothers equation modified:

$$p_c = \frac{2}{f_{av}}$$

Equation S1



Figure S20. ¹H NMR (CDCl₃, 400 MHz) of linear polymer poly(**hexyl**-FTC).



Figure S22. ¹H NMR (CDCl₃, 400 MHz) of branched polymer poly(**hexyl**-FTC-**TMP**).





Figure S23. ¹³C NMR (CDCl₃, 100 MHz) of branched polymer poly(hexyl-FTC-TMP).



Figure S24. Overlaid DSC thermograms of linear poly(**hexyl**-FTC) (green), branched polymer, poly(**hexyl**-FTC-**TMP**) (blue), and cross-linked polymer poly(FTC-**TMP**) (pink).



Figure S25. FTC standard concentration curve for HPLC release studies