Supporting Information

Flexible aliphatic-bridged bisphenol-based polybenzoxazines

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NMR Characterization

$^1$H-NMR and $^{13}$C-NMR measurements were performed in deuterated chloroform (CDCl$_3$) and deuterated acetone ((CD$_3$)$_2$CO) to determine purity of the synthesized molecules using a Varian Mercury Plus 300 MHz NMR spectrometer operating at a frequency of 300 MHz with tetramethylsilane as an internal standard. The number of transients for $^1$H and $^{13}$C are 32 and 256, respectively, and a relaxation time of 5 s was used for the integrated intensity determination of $^1$H NMR spectra.

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Figures S1 – S8: $^1$H-NMR and $^{13}$C-NMR of the aliphatic-bridged dibenzaldehyde compounds.

Figures S9 – S16: $^1$H-NMR and $^{13}$C-NMR of the aliphatic-bridged diformate compounds.

Figures S17 – S24: $^1$H-NMR and $^{13}$C-NMR of the aliphatic-bridged diphenol compounds.

Figures S25 – S32: $^1$H-NMR and $^{13}$C-NMR of the aliphatic-bridged bisbenzoxazine monomers.
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Figure S1. $^1$H NMR of 4,4'-((butane-1,4-diylbis(oxy))dibenzaldehyde (3a).

Figure S2. $^{13}$C NMR of 4,4'-((butane-1,4-diylbis(oxy))dibenzaldehyde (3a).
Figure S3. $^1$H NMR of 4,4'-(hexane-1,6-diylbis(oxy))dibenzaldehyde (3b).

Figure S4. $^{13}$C NMR of 4,4'-(hexane-1,6-diylbis(oxy))dibenzaldehyde (3b).
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Figure S5. $^1$H NMR of 4'-(octane-1,8-diylbis(oxy))dibenzaldehyde (3c).

Figure S6. $^{13}$C NMR of 4'-(octane-1,8-diylbis(oxy))dibenzaldehyde (3c).

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**Figure S7.** $^1$H NMR of 4,4'-(decane-1,10-diylbis(oxy))dibenzoaldehyde (3d).

**Figure S8.** $^{13}$C NMR of 4,4'-(decane-1,10-diylbis(oxy))dibenzoaldehyde (3d).
Figure S9. $^1$H NMR of (Butane-1,4-diylbis(oxy))bis(4,1-phenylene) diformate (4a).

Figure S10. $^{13}$C NMR of (Butane-1,4-diylbis(oxy))bis(4,1-phenylene) diformate (4a).
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Figure S11. $^1$H NMR of (Hexane-1,6-diylbis(oxy))bis(4,1-phenylene) diformate (4b).

Figure S12. $^{13}$C NMR of (Hexane-1,6-diylbis(oxy))bis(4,1-phenylene) diformate (4b).

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Figure S18. $^{13}$C NMR of 4,4'-butane-1,4-diylbis(oxy)diphenol (5a).
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Figure S19. $^1$H NMR of 4,4'-((hexane-1,6-diylbis(oxy))diphenol (5b).

Figure S20. $^{13}$C NMR of 4,4'-((hexane-1,6-diylbis(oxy))diphenol (5b).

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Figure S21. $^1$H NMR of 4,4'-(octane-1,8-diylbis(oxy))diphenol (5c).

Figure S22. $^{13}$C NMR of 4,4'-(octane-1,8-diylbis(oxy))diphenol (5c).
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Figure S23. $^1$H NMR of 4,4'$\text{-}(\text{decane-1,10-diylbis(oxy)})$diphenol (5d).

Figure S24. $^{13}$C NMR of 4,4'$\text{-}(\text{decane-1,10-diylbis(oxy)})$diphenol (5d).

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Figure S28. $^{13}$C NMR of 1,6-bis((3-butyl-3,4-dihydro-2H-benzo[e][1,3]oxazin-6-yl)oxy)hexane (6b).
Figure S29. $^1$H NMR of 1,8-bis((3-butyl-3,4-dihydro-2H-benzo[e][1,3]oxazin-6-yl)oxy)octane (6c).

Figure S30. $^{13}$C NMR of 1,8-bis((3-butyl-3,4-dihydro-2H-benzo[e][1,3]oxazin-6-yl)oxy)octane (6c).
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**Figure S31.** $^1$H NMR of 1,10-bis((3-butyl-3,4-dihydro-2H-benzo[e][1,3]oxazin-6-yl)oxy)decane (6d).

**Figure S32.** $^{13}$C NMR of 1,10-bis((3-butyl-3,4-dihydro-2H-benzo[e][1,3]oxazin-6-yl)oxy)decane (6d).