SUPPORTING INFORMATION

Synthesis of α, ω -End *Hetero*-functionalized Polyisoprene via Neodymium-mediated Coordinative Chain Transfer Polymerization

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	$0 \times Bd_{PhN}$	$1 \times Bd_{PhN}$	$2 \times Bd_{PhN}$	$3 \times Bd_{PhN}$	$4 \times Bd_{PhN}$	$5 \times Bd_{PhN}$
entry 1	10.25%	76.83%	12.92%	-	-	-
entry 2	-	60.48%	39.52%	-	-	-
entry 3	-	52.64%	43.26%	-	4.10%	-
entry 4	-	50.38%	44.96%	-	-	4.66%
entry 5	-	-	-	8.03%	67.63%	24.34%

Table S1. Quantitative analysis of the Bd_{PhN}-functionalized PIps.



Figure S1. ¹H NMR spectra of Bd_{PhN}.



Chemical shift (ppm)





Figure S3. ¹H NMR spectra of Bd_{PhO}.

Figure S4. DSC spectrum of Table 1.

Figure S5. TGA spectrum of Table 1.

Figure S6. ¹H NMR Integration spectrum of the α -Bd_{PhN} functionalized PIp obtained from Table 1 Run 5.

Figure S7. MALDI-TOF spectrum of the α -Bd_{PhN} functionalized PIp obtained from Table 1, run 1.

Figure S8. MALDI-TOF spectrum of the α -Bd_{PhN} functionalized PIp obtained from Table 1, run 2.

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Figure S9. MALDI-TOF spectrum of the α -Bd_{PhN} functionalized PIp obtained from Table 1, run 3.

Figure S10. MALDI-TOF spectrum of the α -Bd_{PhN} functionalized PIp obtained from Table 1, run 5.

Figure S11. GPC curves of the α -end functionalized PIps obtained from Table 2.

Figure S12.¹H-¹H COSY spectra of α -Bd_{PhS} functionalized PIp obtained from Table 2, run 2.

Figure S13. ¹H-¹H COSY spectra of α -Bd_{PhO} functionalized PIp obtained from Table 2, run 1.

Figure 14. MALDI-TOF spectrum of the α -Bd_{PhS} functionalized PIp obtained from Table 2, run 2.

Figure S15. ¹H NMR Integration spectrum of the α -Bd_{PhO} functionalized PIp obtained from Table 2 Run 1.

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Figure S16. ¹H NMR Integration spectra of the α -Bd_{PhS} functionalized PIp obtained from Table 2 Run 2.

Figure S17. ¹H NMR Integration spectra of the α -Bd_{PhN}, ω -Bd_{PhS} *hetero*- functionalized PIp.obtained from Table 4 Run 2.

Figure S18. ¹H NMR Integration spectra of the α -Bd_{PhN}, ω -NCS_{PhMe} *hetero*- functionalized PIp.obtained from Table 4 Run 3.

Figure S19. MALDI-TOF spectrum of the α -Bd_{PhN}, ω -OH *hetero*- functionalized PIp obtained from Table 4, run 4.