Supporting information for

**Poly(4-Vinylpyridine)-**\textit{block}-**poly(N-acyrloylpiperidine)** Diblock Copolymers: Synthesis, Self-Assembly and Interaction

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Results and discussion

Figure S1: $^1$H-NMR spectra of P4VP-40k, PAPI-32k and P4PA129k-31. Deuterated chloroform (CDCl$_3$) was used as solvent (7.26 ppm). The composition of the block copolymer was calculated by using two of P4VP’s aromatic protons (d) and using the full integral of PAPI (e – i) after correction of this region (1.0 – 4.0 ppm) for P4VP (a, b).

Figure S2: GPC chromatograms of P4PA129k-31 and its precursor P4VP-40k. Refractive index (a) and light scattering signal (b).
Figure S3: DSC thermograms of P4VP-40k, PAPI-32k and P4PA129k-31 recorded at 10 °C·min⁻¹ (2nd heating cycle).

Figure S4: TGA data of homo- and copolymers. P4-co-PA55, PAPI-32k and P4VP-55k held at 200 °C for an hour (a). P4PA57k-47 heated to 900 °C at 10 °C·min⁻¹ (b).
**Figure S5:** TEM image of P4PA80k-10 at lower magnification. P4VP appears dark due to staining with iodine.

**Figure S6:** TEM image of P4PA131k-22 at lower magnification. P4VP appears dark due to staining with iodine.
Figure S7: TEM image of P4PA61k-23 at lower magnification. P4VP appears dark due to staining with iodine.

Figure S8: TEM image of P4PA129k-31 at lower magnification. P4VP appears dark due to staining with iodine.
**Figure S9:** TEM image of P4PA57k-47 at lower magnification. P4VP appears dark due to staining with iodine.

**Figure S10:** TEM image of P4PA78k-70 at lower magnification. P4VP appears dark due to staining with iodine.
**Figure S11:** TEM image of P4PA48k-83 at lower magnification. P4VP appears dark due to staining with iodine.

**Figure S12:** First heating scans of thermally aged P4-co-PA68 (a) and P4-co-PA75 (b) blends. P4VP-9k-based blends were annealed at 125°C, while P4VP-16k and P4VP-59k blends at 131°C.