Electronic Supplementary Material (ESI) for Polymer Chemistry
This journal is © The Royal Society of Chemistry 2012

Supporting Information for

Functional Block Copolymer Nanoparticles: Toward the Next Generation of Delivery Vehicles

Maxwell J. Robb, Luke A. Connal, Bongjae F. Lee, Nathaniel A. Lynd and Craig J. Hawker*

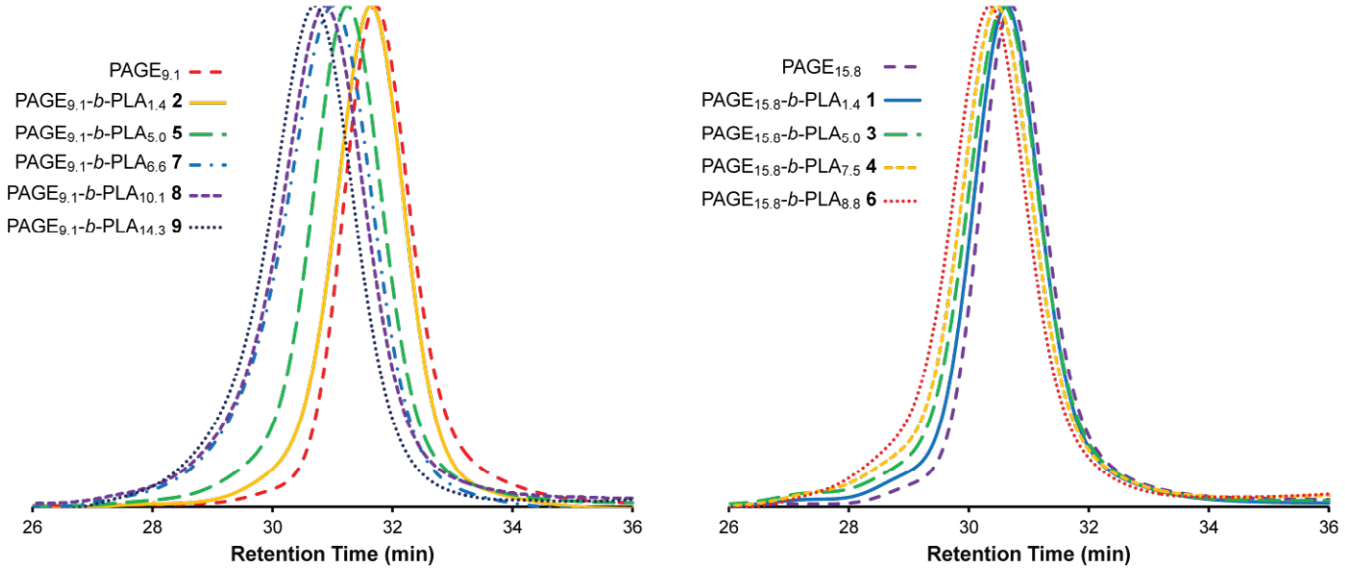

Figure S1. GPC traces for the PAGE-*b*-PLA library **1-9** synthesized by the $Sn(Oct)_2$ catalyzed ring opening polymerization of lactide at 130 °C from a (left) 9.1 kg/mol and a (right) 15.8 kg/mol poly(allyl glycidyl ether) (PAGE) macroinitiator.

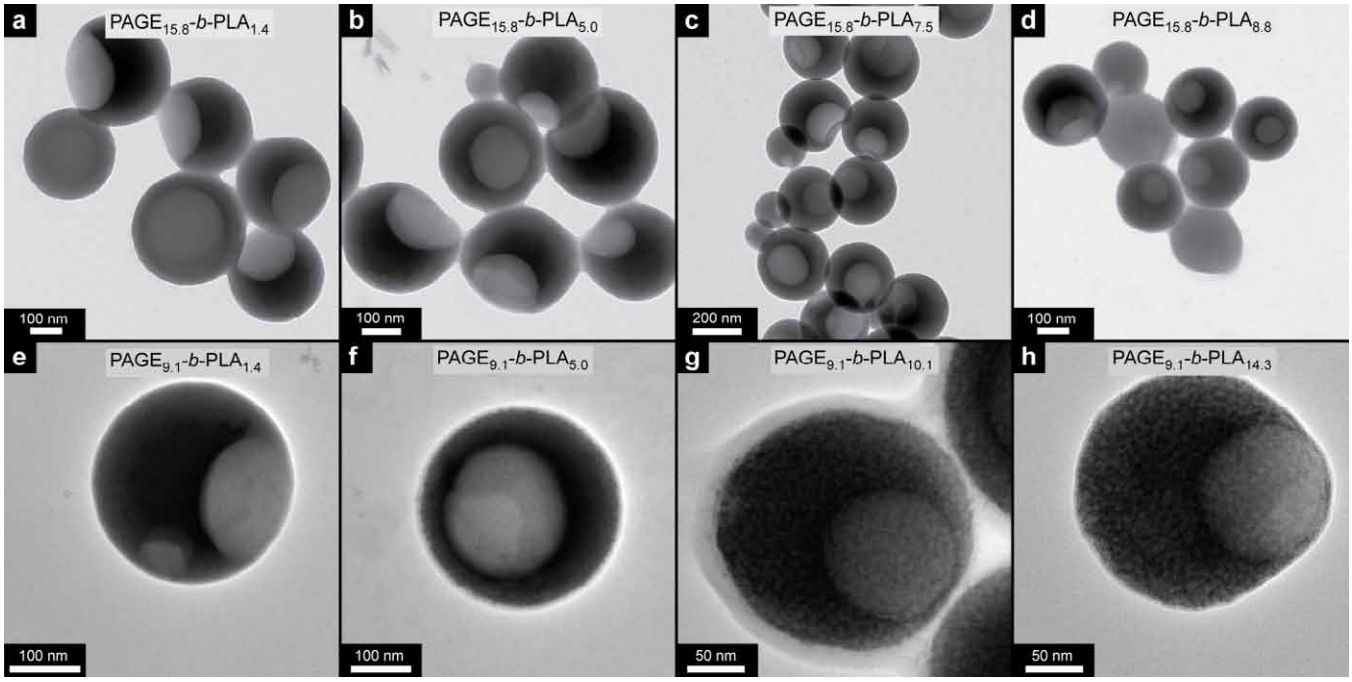

Figure S2. TEM images of PAGE-*b*-PLA BCP nanoparticles. (a-f) No internal phase separation was observed for polymers with $0.07 \leq f_{PLA} \leq 0.37$. Nanoparticles with internal phase structure were observed for BCPs with (g) $f_{PLA} = 0.47$ and (h) $f_{PLA} = 0.55$. Dark regions correspond to PAGE domains stained with OsO_4.

This journal is © The Royal Society of Chemistry 2012

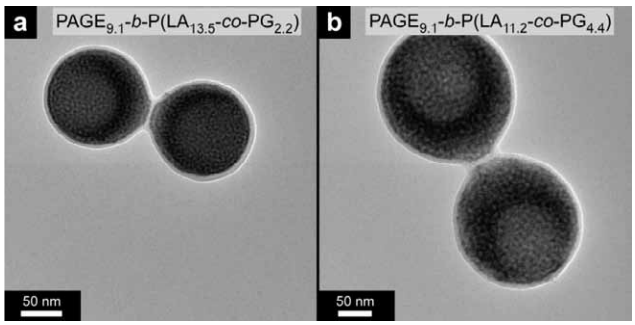

Figure S3. TEM images of BCP nanoparticles prepared from alkyne-functional BCPs (a) **11** and (b) **12**. Dark regions correspond to PAGE domains stained with OsO_4.

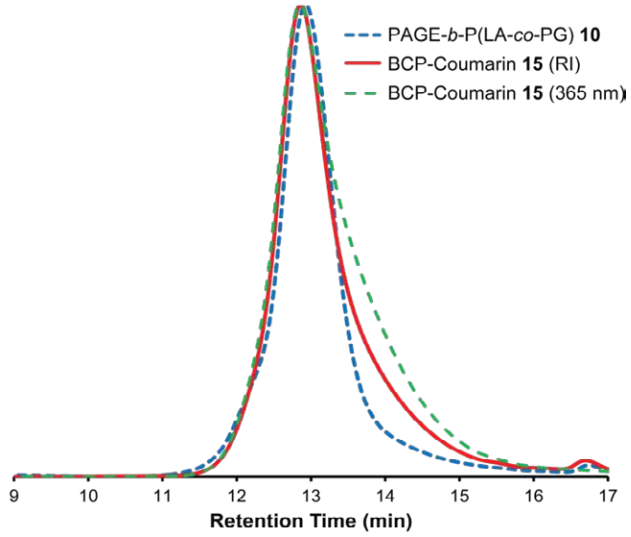

Figure S4. GPC traces of the alkyne-BCP **10** and the coumarin-functionalized BCP **15** containing an ester linkage to the dye recorded using a refractive index detector and a UV-visible detector monitoring at 365 nm.

This journal is © The Royal Society of Chemistry 2012

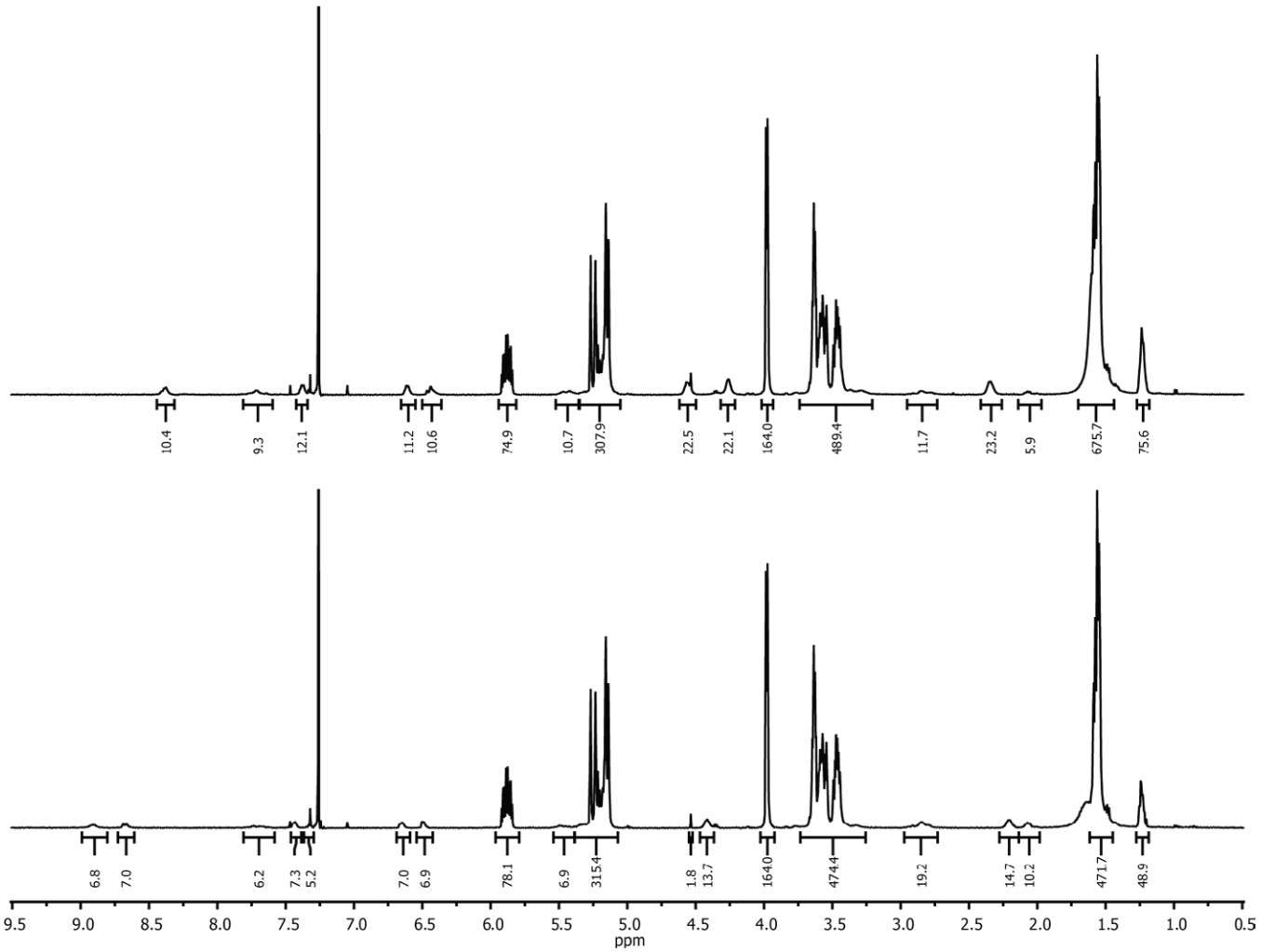

Figure S5. ^{1}H NMR spectra of the coumarin-functionalized BCPs (top) **15** and (bottom) **16** in $CDCl_3$ at 500 MHz.

This journal is © The Royal Society of Chemistry 2012

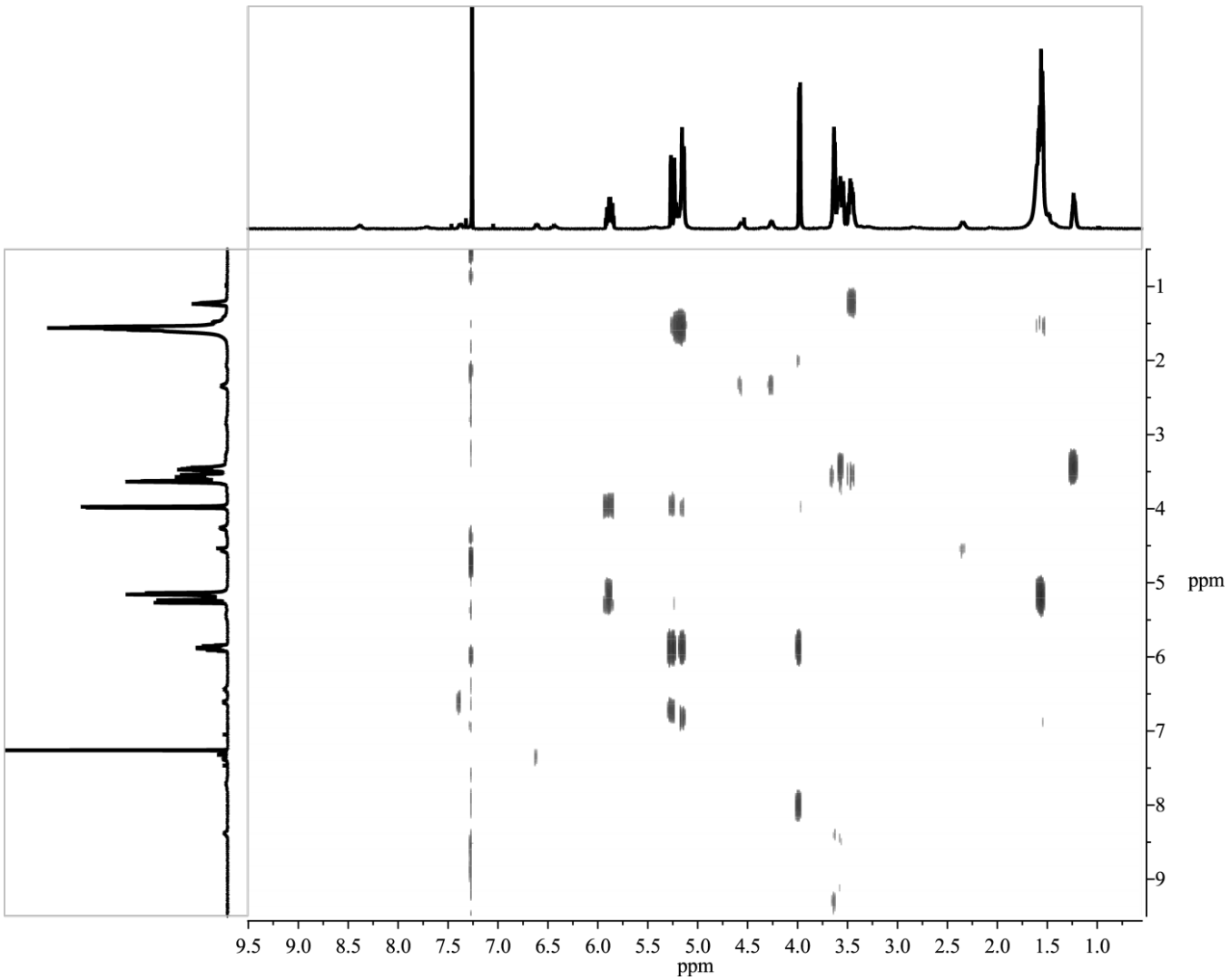

Figure S6. 2D COSY ^{1}H NMR spectrum of the coumarin$_{ester}$-functionalized BCP **15** in $CDCl_3$ at 500 MHz.

This journal is © The Royal Society of Chemistry 2012

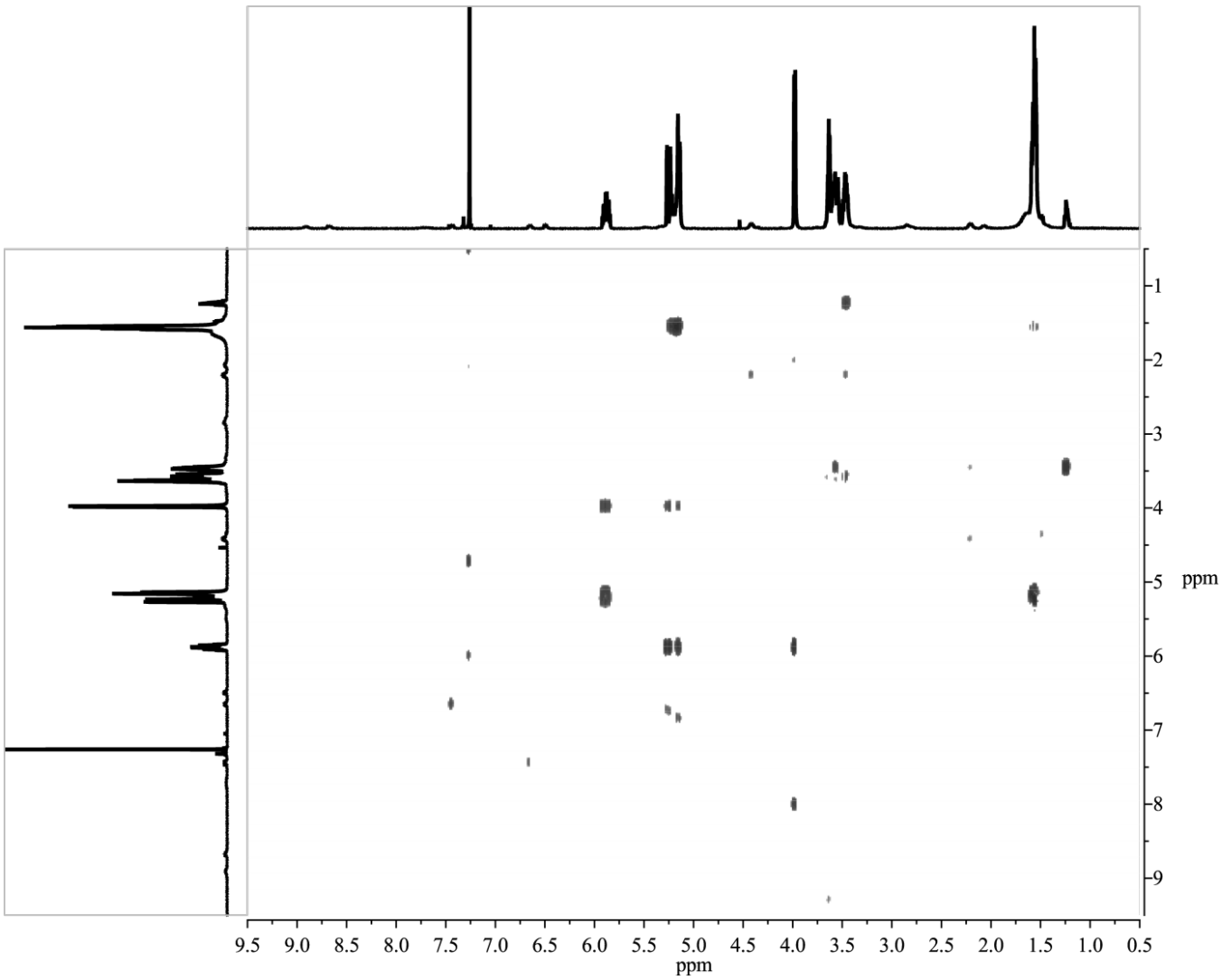

Figure S7. 2D COSY ^{1}H NMR spectrum of the coumarin$_{amide}$-functionalized BCP **16** in $CDCl_3$ at 500 MHz.

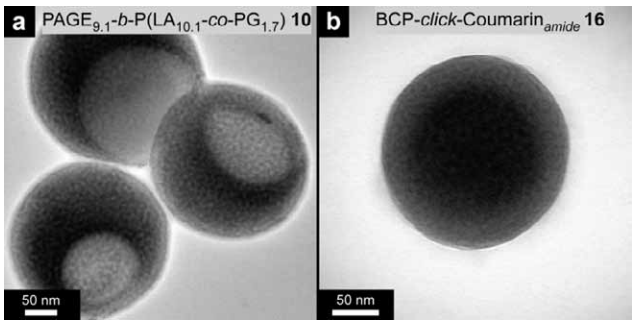

Figure S8. TEM images of BCP nanoparticles prepared from (a) alkyne-functional BCP **10** and (b) coumarin$_{amide}$-functionalized BCP **16**. Internal nanophase-separation is retained for the dye-functionalized material.