

# Tetraphenylethene-diyne hybrid nanoparticles from Glaser-type dispersion polymerization

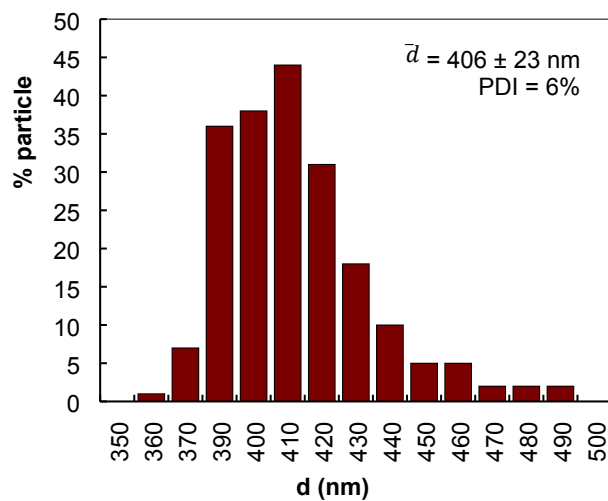
*Audrey Picard-Lafond, Maxime Daigle and Jean-François Morin\**

Département de chimie and Centre de Recherche sur les Matériaux Avancés (CERMA),  
Université Laval, 1045 Avenue de la Médecine, Pavillon Alexandre-Vachon, Québec,  
QC, Canada, G1V 0A6

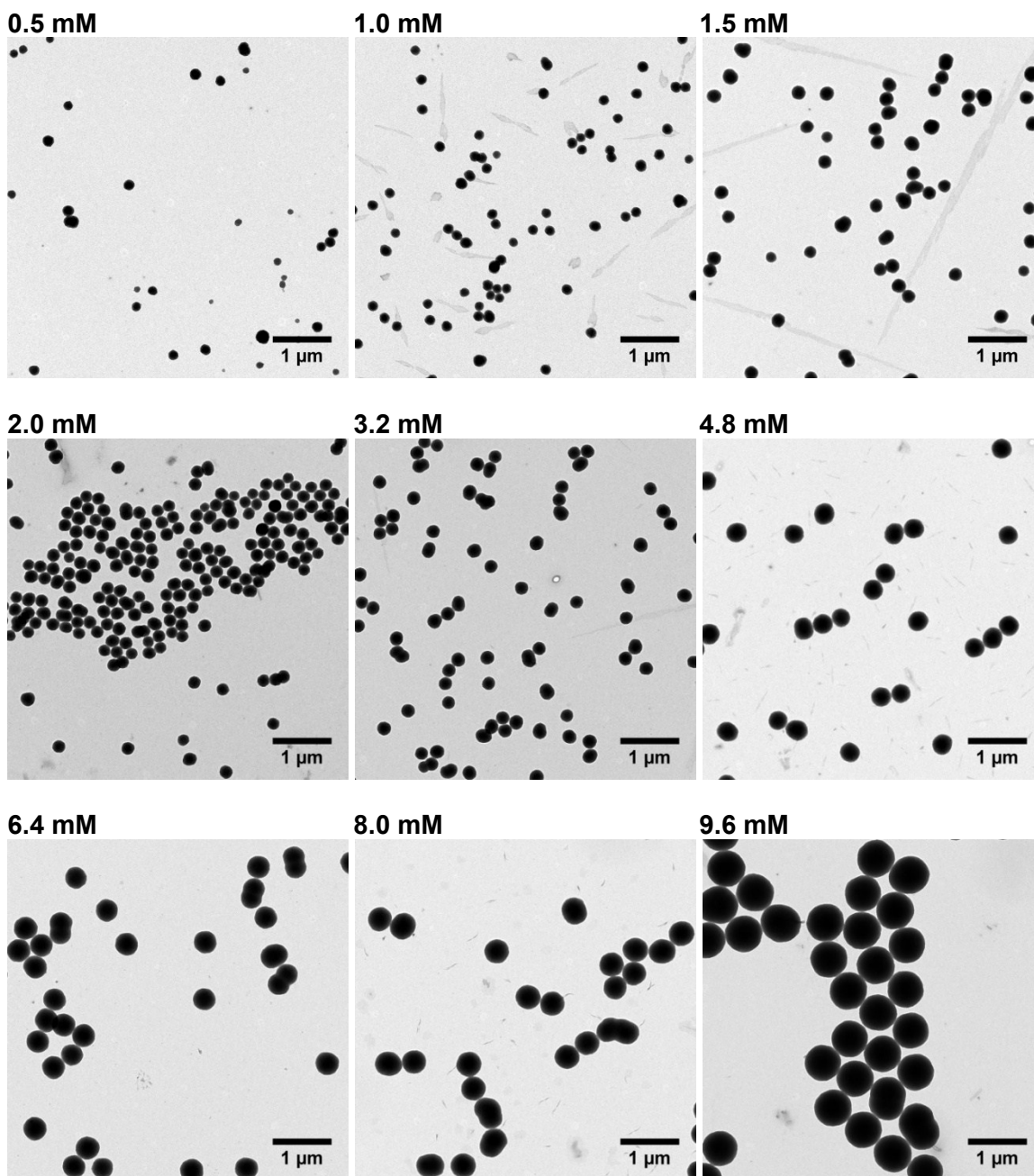
[Jean-francois.morin@chm.ulaval.ca](mailto:Jean-francois.morin@chm.ulaval.ca)

## Table of contents

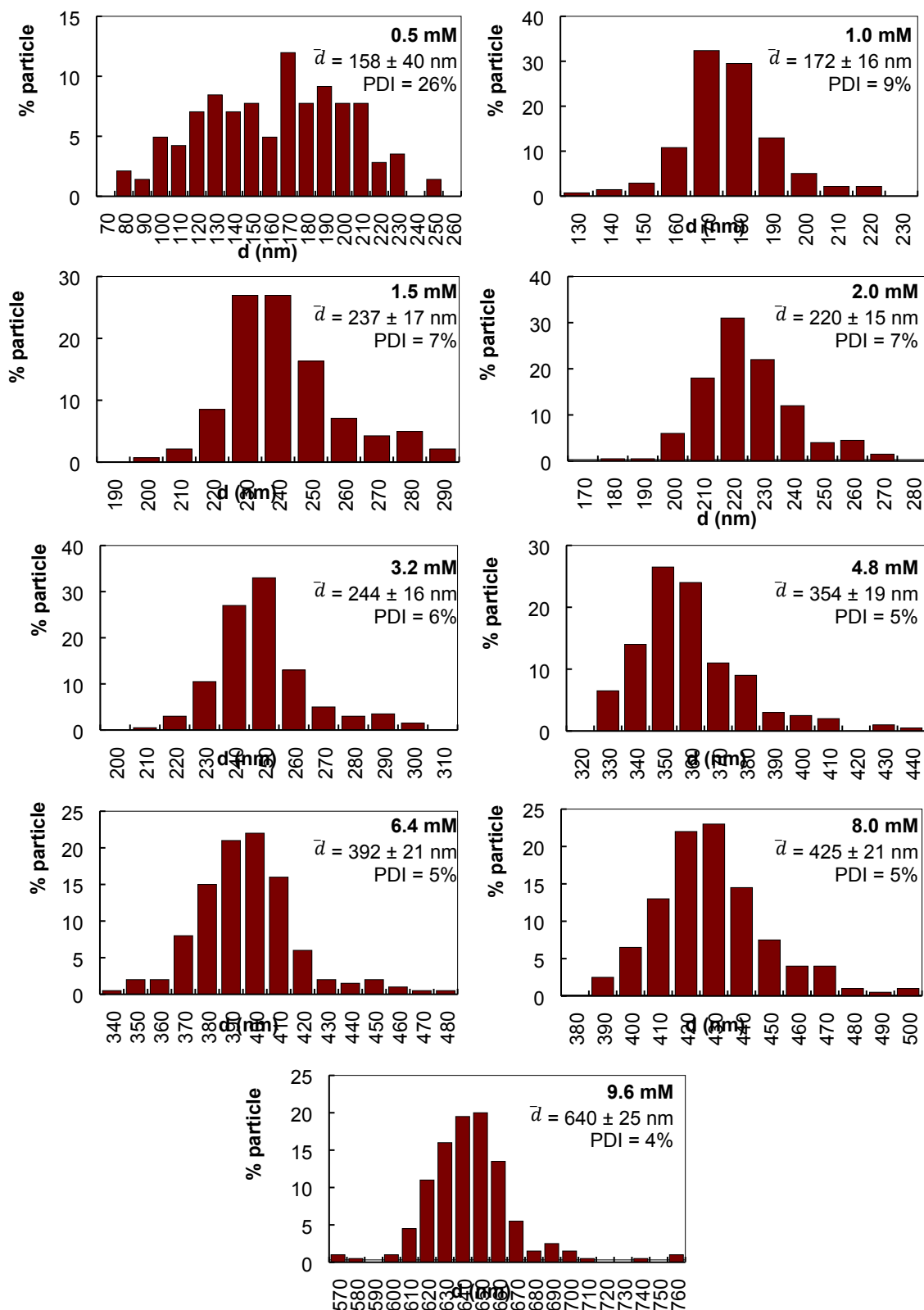
Size distribution and histograms (Figures S1, S2, S3, S5)	S2-S6
XPS data of P1 (Figure S4)	S5
Additional spectra data for P1 and P1' (Figure S6)	S7
DRX data of P1 and P1' (Figure S7)	S7
TEM images and spectral data from the thermal treatment of P1 (Figures S8, S9)	S8
FT-IR spectra of 1, P1 and P1' (Figure S10)	S9



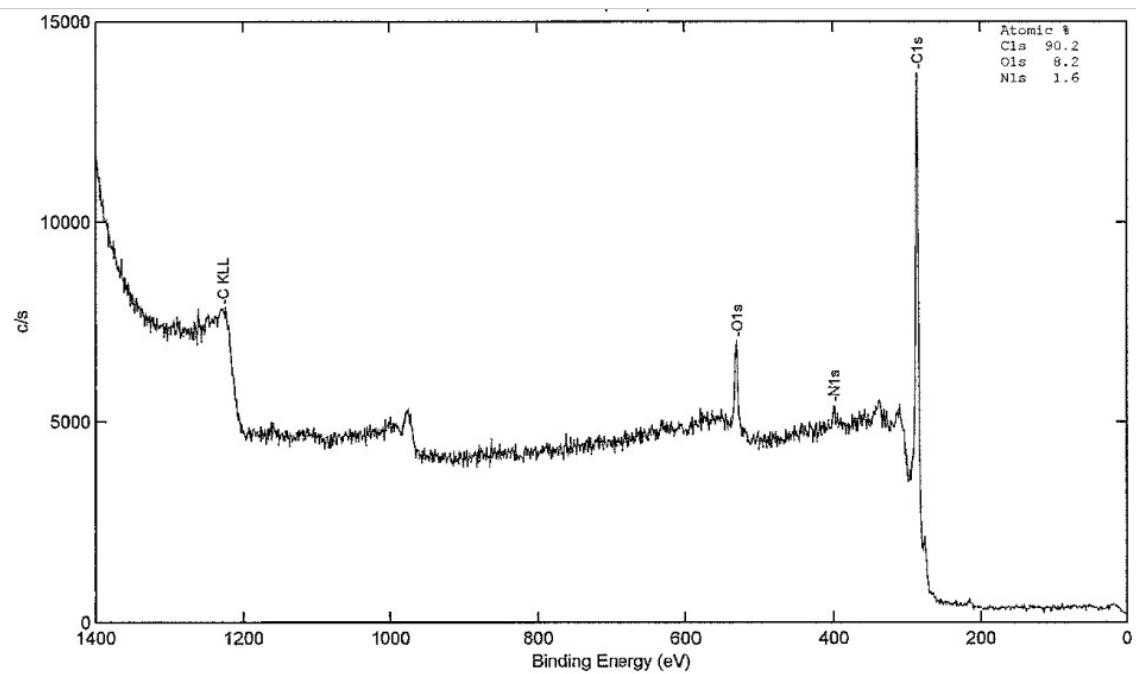
**Figure S1.** Size distribution histogram from TEM images analysis for the scale up synthesis of **P1** at 6.4 mM. Distribution was completed with analysis of more than 200 particles.



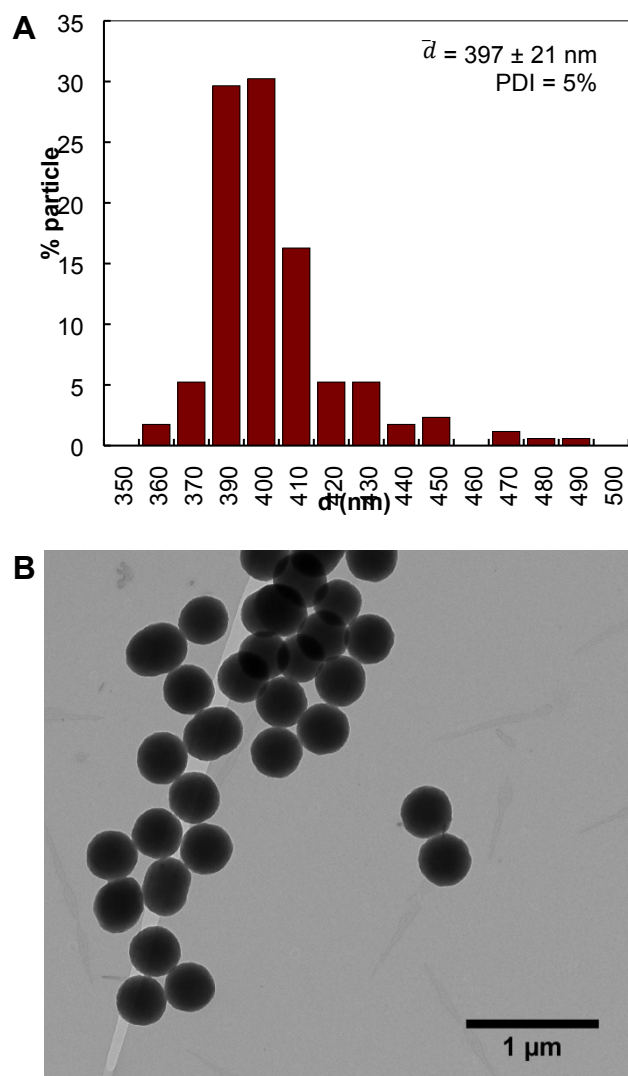
**Figure S2.** TEM images of **P1** obtained from different concentrations of **1**. The scale bar represents 1 μm in all images shown.



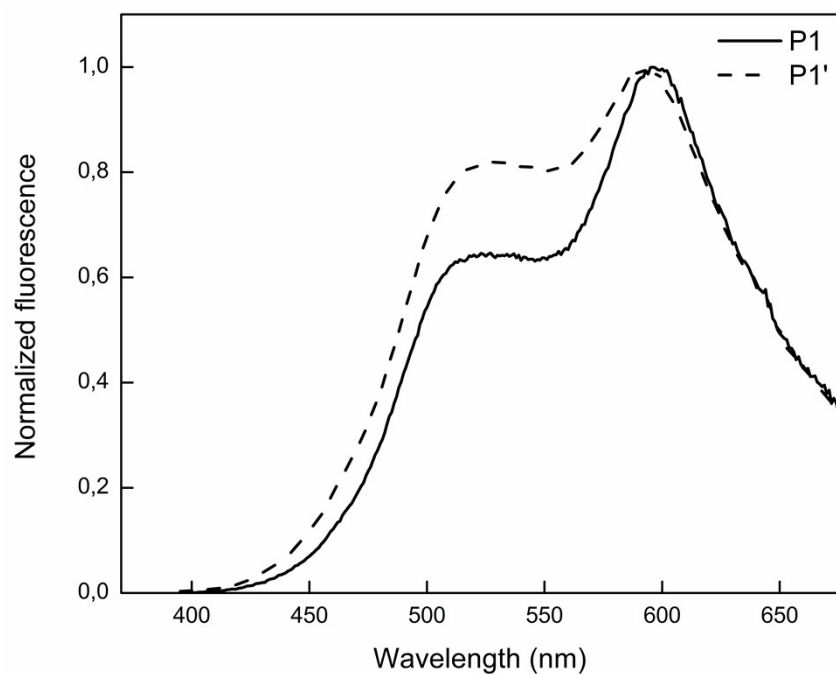
**Figure S3.** Size distribution histograms of P1 obtained from TEM image analysis for the tested concentrations. More than 200 particles were analyzed per sample.



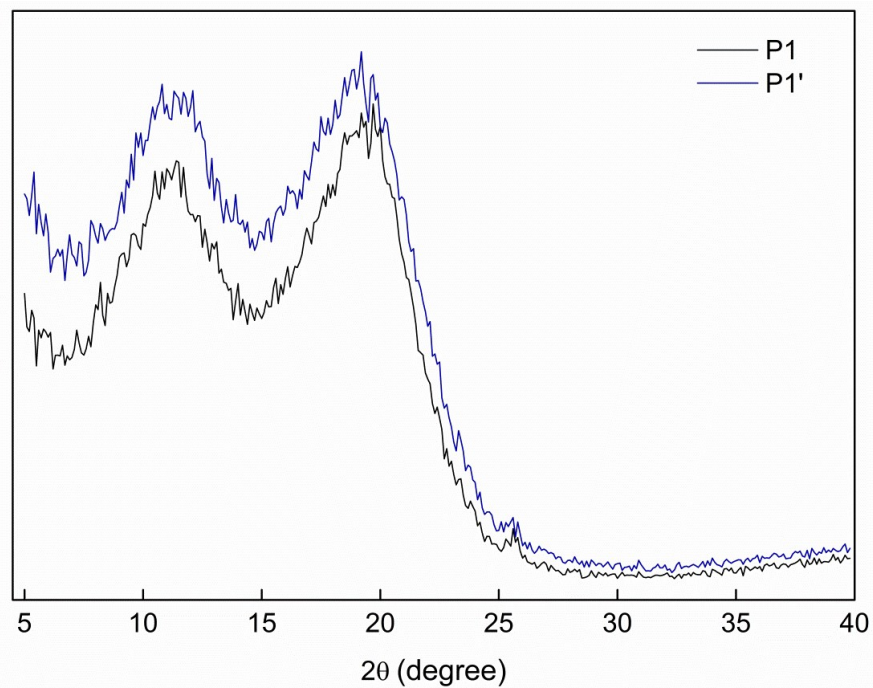
**Figure S4.** XPS spectrum of **P1**.



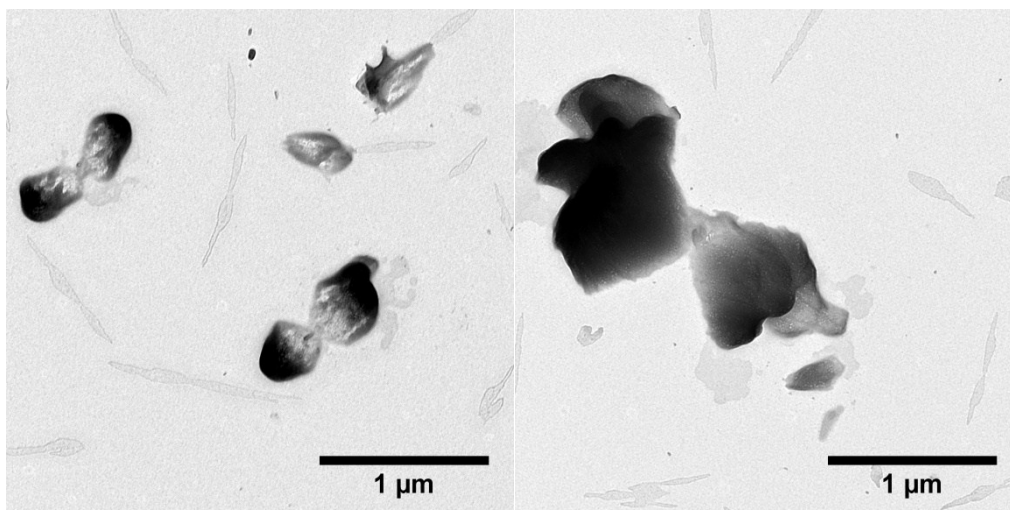
**Figure S5.** (A) Size distribution histogram and (B) TEM image of **P1'**, obtained from the UV irradiation of **P1** under 300 nm light. The scale bar represents 1  $\mu\text{m}$  and the histogram was built from the analysis of over 200 particles.



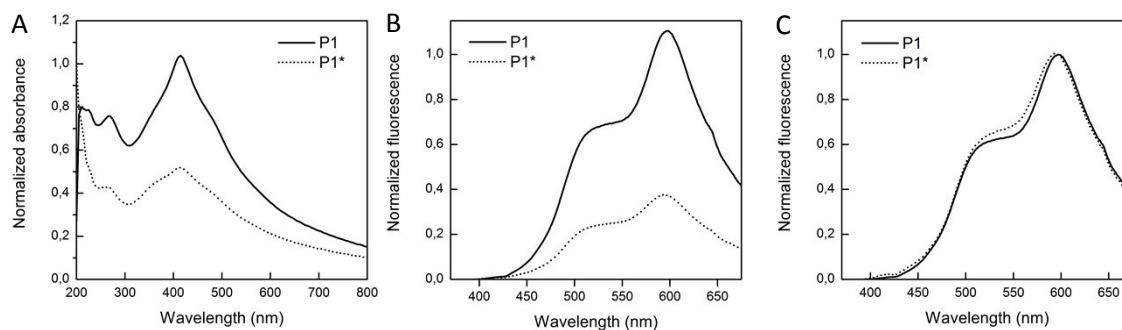
**Figure S6.** Fluorescence spectra of **P1** and **P1'** normalized at the 600 nm band to show the change in contribution of the bands upon irradiation. The spectra are taken as dispersions in 1-PrOH at an excitation wavelength of 380 nm.



**Figure S7.** XRD spectrum of **P1** and **P1'**

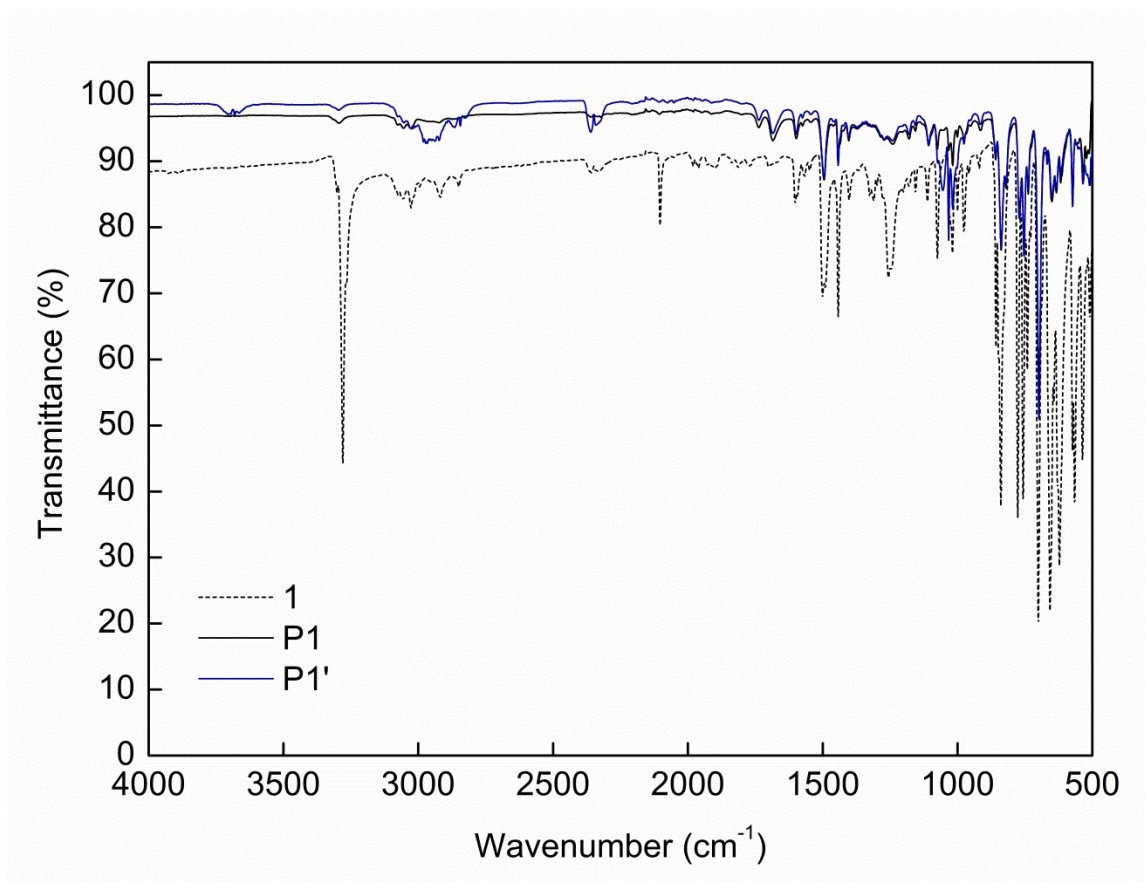


**Figure S8.** TEM images of collapsed **P1** particles after refluxing in 1-PrOH for 5h.



**Figure S9.** (A) Absorption and (B) fluorescence spectra of **P1** before and after (**P1\***) refluxing in 1-PrOH for 5h. (C) Fluorescence spectrum normalized at the 600 nm band to show negligible change in the bands' proportion upon the thermal treatment. The spectra are taken as dispersions in 1-PrOH at an excitation wavelength of 380 nm.





**Figure S10.** FT-IR spectra of **1**, **P1** and **P1'**, showing disappearance of C-H stretching of terminal alkynes (3280 cm<sup>-1</sup>) and terminal C≡C stretching (2102 cm<sup>-1</sup>) upon polymerization of **1** into **P1** particles. **P1** and **P1'** show only minor differences in their spectra.