

Supporting Information

Metallic-Nanostructure-Enhanced Optical Trapping of Flexible Polymer Chains in Aqueous Solution as Revealed by Confocal Fluorescence Microspectroscopy

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1. Synthesis of poly(DEDPQx-co-NIPAM)

The fluorescent probe monomer (1-(4'-(acrylamidophenyl))-7-diethylamino-3-phenyl-1*H*-pyrazolo[3,4-*b*]quinoxaline (DEDPQx) and a model compound PQx-NHCOMe were synthesized and purified by referring to the 1*H*-pyrazolo[3,4-*b*] quinoxaline derivatives [*Chem. Commun.*, 1404-10405 (2002)]. *N*-isopropylacrylamide (5 mM), fluorescent monomer DEDPQx (5 μ M), and initiator AIBN (50 μ M) were dissolved in 1,4-dioxane (10 mL). The solution was degassed by nitrogen bubbling for 30 min in an ice bath. The polymerization was carried out at 60°C for 8 hours. After that the reaction mixture was cooled to room temperature and poured into hexane (200 mL). The resulting precipitate was purified by reprecipitation using 1,4-dioxane and hexane. The compositions of the copolymers were determined from the absorbance of methanol solutions (4 mg/5 mL), and compared to a model compound PQx-NHCOMe ($\epsilon = 7250\text{M}^{-1}\text{cm}^{-1}$ at 436 nm). Average ratio of the NIPAM units to quinoxaline unit in the copolymer is 538.

2. The movie from which Figure 4 was available on the web site.

File name: Fig4-a (irradiation intensity = 1.0 kW/cm²), Fig4-b (irradiation intensity = 3.0 kW/cm²), and Fig4-c (irradiation intensity = 5.0 kW/cm²).