Supporting Information for

Colorimetric Assays for Acetylcholinesterase Activity and Inhibitor Screening Based on the Disassembly-Assembly of a Water-Soluble Polythiophene Derivative

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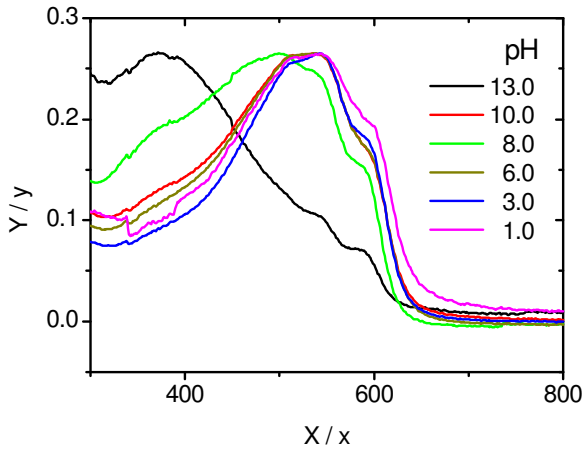

FIGURE S1. Absorption spectra of PT–COO^- (0.05 mM) in aqueous solution with pH value of 1, 3, 6, 8, 10, and 13, respectively. The pH value was adjusted by HCl or NaOH except for phosphate buffer for pH = 8. The absorbance maximum was normalized for comparison. (It is known that pK_{a2} value of *N*-methyliminodiacetic acid is 9.6, thus, the pK_{a2} value of PT–COO^- was estimated to be around 9–10 due to the similarity between *N*-methyliminodiacetic acid and the side chains of PT–COO^-. In phosphate buffer (pH 8.0) some terminal groups of PT–COO^- side chains are existed as –COOH, and the intermolecular hydrogen binding between carboxylic acid moieties may be the primary driving force for the formation of PT–COO^- aggregates. Whereas at higher pH value (pH 13.0), negatively charged polymer side chains became dominant and the electrostatic repulsion between these negatively charged side chains led to the dissociation of the PT–COO^- aggregates.)

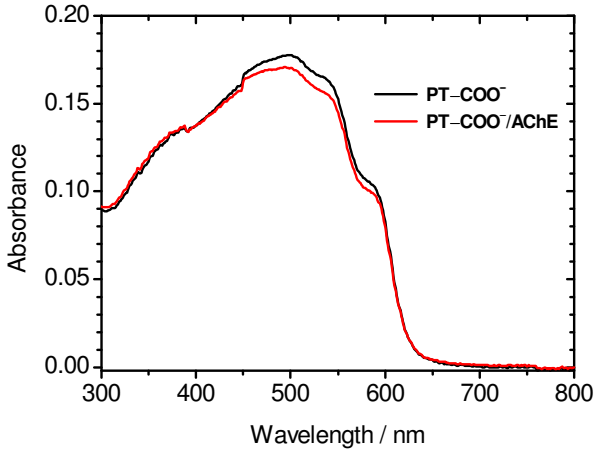

FIGURE S2. Absorption of PT–COO^- (0.05 mM) in 10 mM phosphate buffer (76.9 mM NaCl, pH 8.0) in the absence and the presence of AChE (1.5 U/mL).

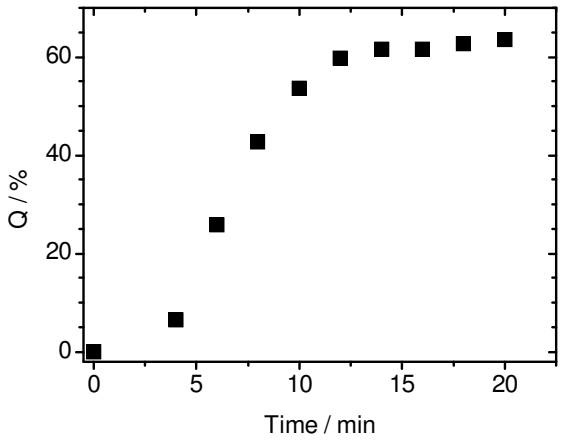

Figure S3. Fluorescence quenching of PT–COO^-/myristoylcholine (0.05 mM) in phosphate buffer (10 mM; NaCl, 76.9 mM; pH 8.0) in the presence of AChE (1.5 U/mL) incubated at 37 ^oC for different periods. The fluorescence quenching $Q = [(I_0 - I) / I_0] \times 100\%$; I_0 is the fluorescence intensity (519 nm) at the initial time ($t = 0$); I is the fluorescence intensity (519 nm) at different time. λ_{ex} = 375 nm

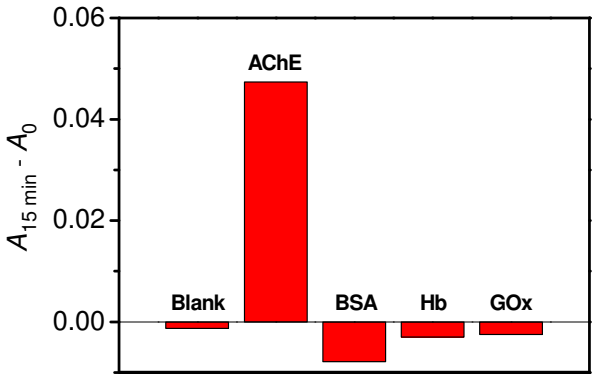

Figure S4. Variation of the absorbance at 500 nm for PT–COO^-/myristoylcholine (0.05 mM) in phosphate buffer (10 mM; NaCl, 76.9 mM; pH 8.0) in the presence of AChE (1.5 U/mL), hemoglobin (Hb), glucose oxidase (GOx), and bovine serum albumin (BSA) incubated at 37 ^oC for 15 min. The concentrations of control enzymes and protein were 8 nM.