Supporting information

Synthesis of cationic poly(3-acrylamidopropyl trimethylammonium chloride) by SARA ATRP in ecofriendly solvent mixtures

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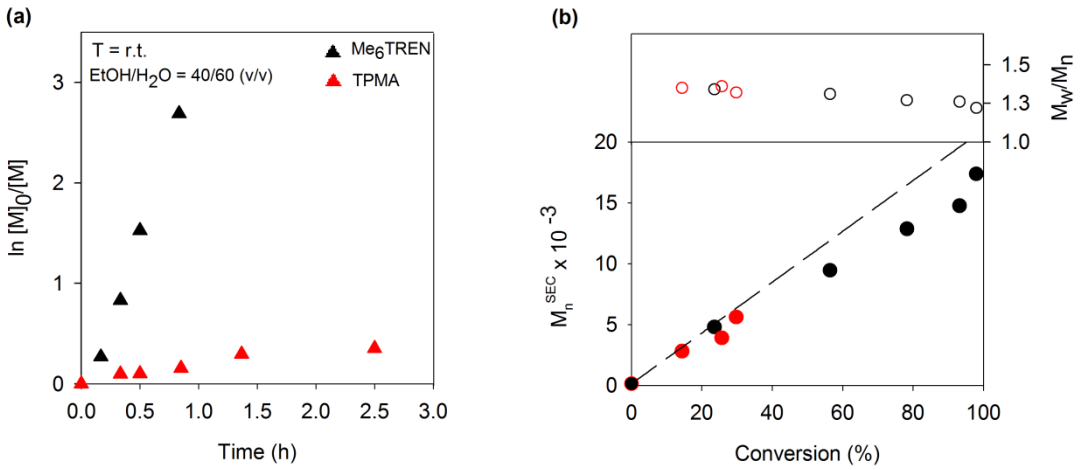

Figure FS1. (a) Kinetic plots of $\ln[M]_0/[M]$ *vs.* time and (b) plot of number–average molecular weights (M_n^{SEC}) and *Đ* (M_w/M_n) *vs.* monomer conversion (the dashed line represents theoretical molecular weight at a given conversion) for the SARA ATRP of AMPTMA initiated by ECP, using Me_6TREN or TPMA as ligand. Conditions: $[AMPTMA]_0/[ECP]_0/[CuCl_2]_0/[ligand]_0/Cu(0)$ wire = 100/1/0.5/1.0/Cu(0) wire; $[AMPTMA]_0$ = 1.45 M; Cu(0) wire: *l* = 10 cm; *d* = 1 mm; $V_{solvent}$ = 5 mL.

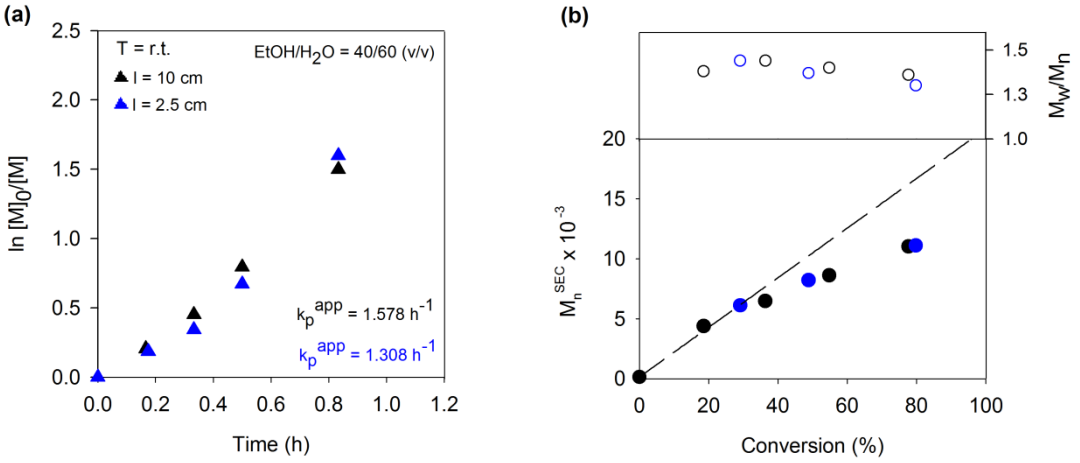

Figure FS2. (a) Kinetic plots of $\ln[M]_0/[M]$ *vs.* time and (b) plot of number–average molecular weights (M_n^{SEC}) and *Đ* (M_w/M_n) *vs.* monomer conversion (the dashed line represents theoretical molecular weight at a given conversion) for the SARA ATRP of AMPTMA using different lengths of Cu(0) wire. Conditions: $[AMPTMA]_0/[ECP]_0/[CuCl_2]_0/[Me_6TREN]_0/Cu(0)$ wire = 100/1/0.3/0.6/Cu(0) wire $[AMPTMA]_0$ = 1.45 M; Cu(0) wire: *d* = 1 mm; $V_{solvent}$ = 5 mL.

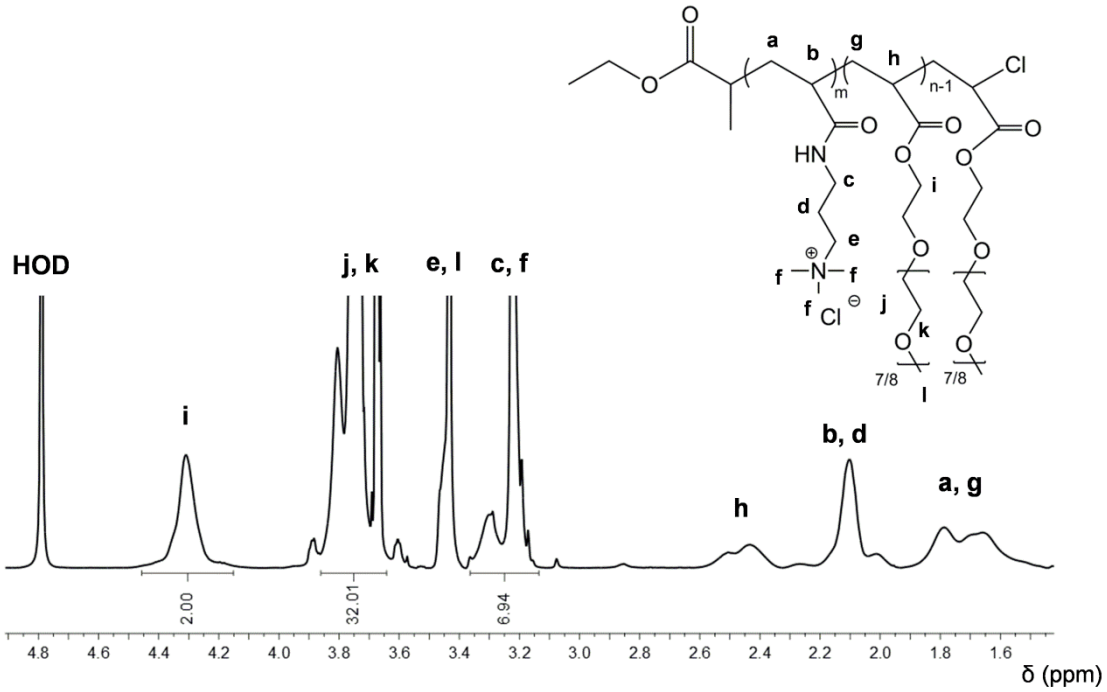

Figure FS3. 500 MHz ^{1}H NMR spectrum of the PAMPTMA$_{24}$-*b*-POEOA$_{39}$, in D_2O, obtained by "one-pot" SARA ATRP at room temperature. Reaction conditions: first block - $[AMPTMA]_0/[ECP]_0/[CuCl_2]_0/[Me_6TREN]_0$/Cu(0) wire = 25/1/0.5/1.0; Cu(0) wire: l = 5 cm; d = 1 mm; $[AMPTMA]_0$ = 1.45 M; conversion = 97 %; $V_{solvent}$ = 1.25 mL; T = 25 ºC; second block - $[OEOA_{480}]_0$ = 0.4 M; $[OEOA]_0/[ECP]_0$ = 50; conversion = 90 %.

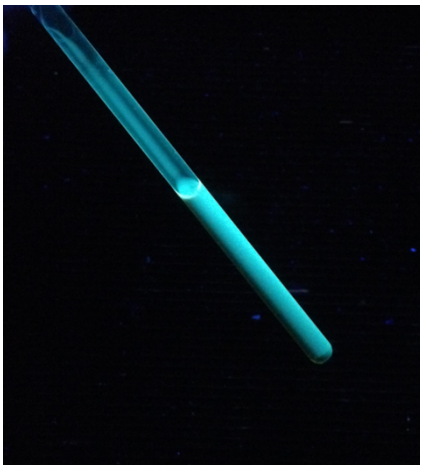

Figure FS4. UV light (λ = 366 nm) irradiated NMR tube containing a solution of fluorescent coumarin-functionalized PAMPTMA in CD3OD, obtained by a "click" reaction.