Supporting information

Interplay between two radical species in the formation of periodic patterns during a polymerization reaction

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1. Diffusion length of the monomer (Mon)

The concentration profile from a limited diffusion source was calculated by the following equation:

$$C(x,t) = \frac{C_0}{\sqrt{\pi D t}} exp \frac{-x^2}{4Dt},$$

where C_0 and D are the initial concentration and diffusion coefficient, respectively. From a linear relationship between M_w and D of the polymer,[1] D for MEA (M_w = 130) was determined to be 7.5 × 10^{-10} m^2/s by extrapolation. Using D = 7.5 × 10^{-10} m^2/s and C_0 = 1.5 M, the concentration of Mon in the agarose gel was calculated (Figure S1). The precipitated regions were approximately consistent with the diffusion length of Mon in the gel.

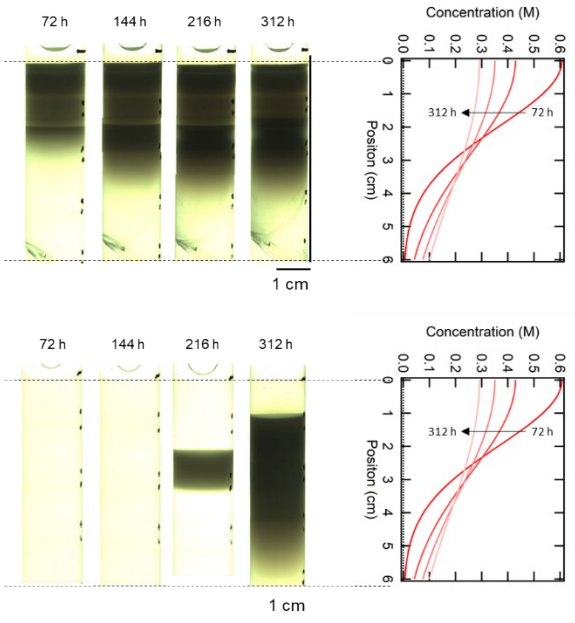

Figure S1. Comparison of the precipitated region and the calculated diffusion length of the monomers.

2. Characterization of precipitates formed without In

NMR and infrared (IR) spectra shown in Figure S2 indicate the formation of polymeric compounds in the agarose gel without In. Compared with the NMR spectrum of the monomer (MEA, Figure S1

(a)), signals for the vinyl group (δ = 5.8–6.4) disappeared in the NMR spectrum of the precipitates. Furthermore, the IR spectrum of the precipitates exhibited CH_2 and C=O bonds corresponding to PMEA, and indicated the disappearance of the C=C bond.

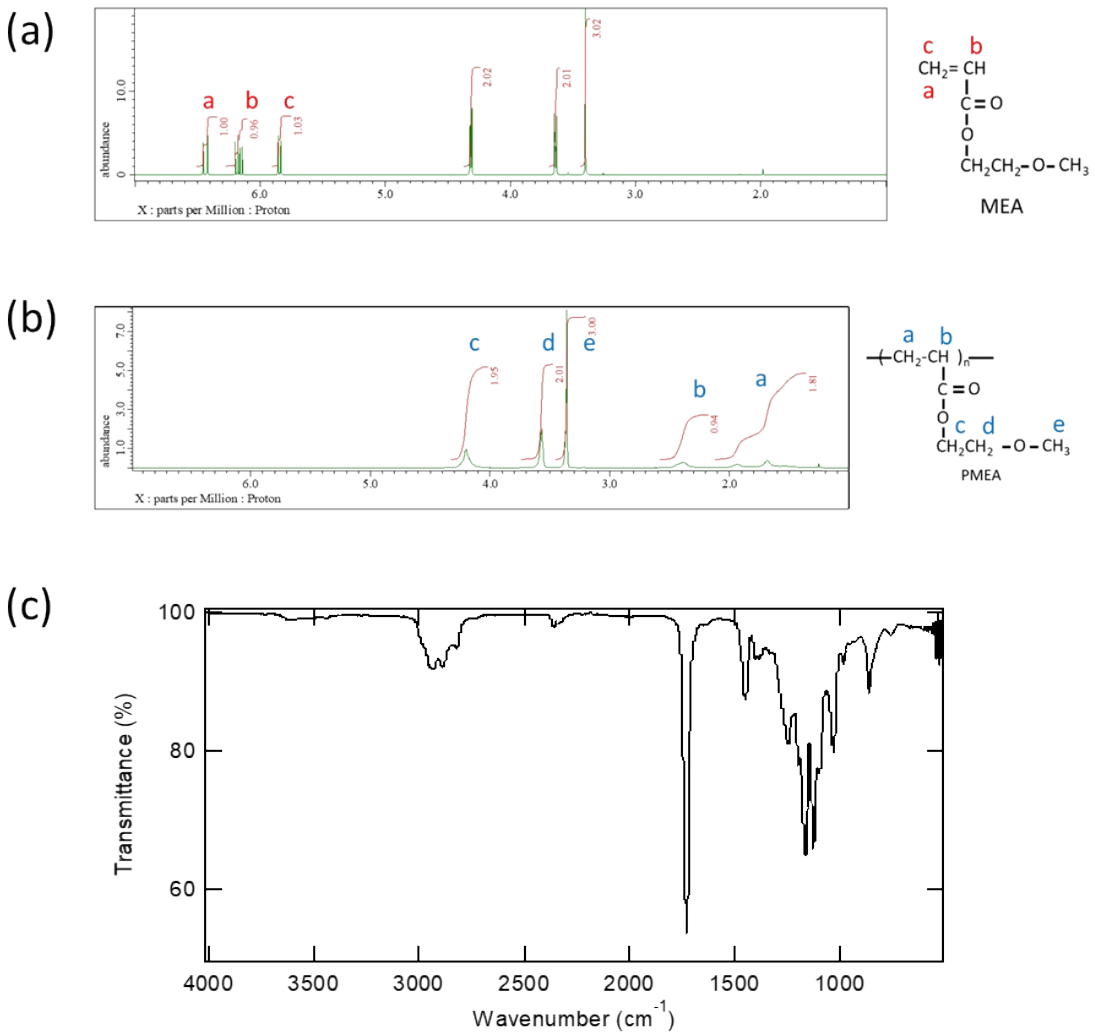

Figure S2. NMR spectra of (a) MEA and (b) precipitates formed in the absence of In. (c) IR spectrum of precipitates formed without In.

References:

1. L. Weng et al., *Macromol.*, **2005**, 38, 5236.