Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary information for

On-Surface Polymerization Reactions of Dibrominated Hexaphenylbenzene Influenced by Densely Packed Self-assembly

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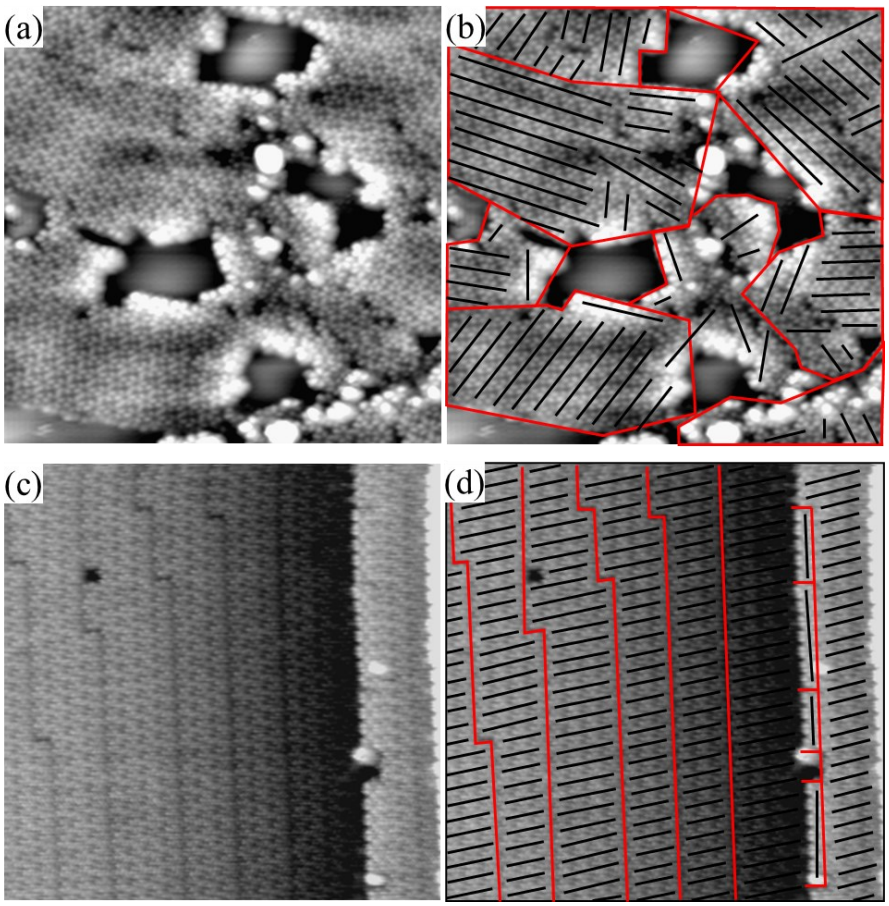

Figure S1. Substrate temperature dependence of the self-assembled structure of HPB polymer chains. (a,b) STM image (30 nm × 30 nm, V_s = -3.0 V, and I_t = 20 pA) taken after deposition of Br_2-HPB onto hot Au(111) held at around 200 ℃. The HPB polymer chains form small domains, and the orientation of HPB polymer chains are randomly distributed for the different domains. (c,d) STM image (30 nm × 30 nm, V_s = -3.0 V, and I_t = 20 pA) taken after deposition of Br_2-HPB onto room-temperature Au(111) and subsequent annealing at 200℃ for 20 h. The HPB polymer chains are self-assembled into the long-range ordered straight rows. The orientations of each HPB polymer chain and the domain boundaries between straight rows are indicated by black and red lines, respectively. For (a-d), intact Br_2-HPB precursors has no longer been observed.

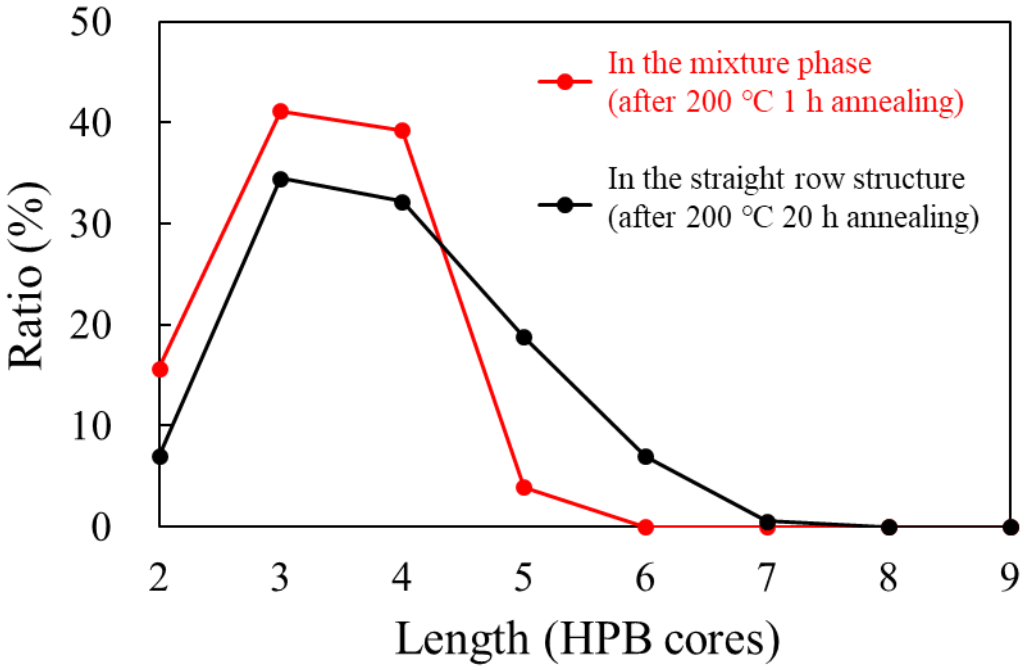

Figure S2. Length distributions of HPB polymer chains in (a) the mixture phase after 200 ℃ 1 h annealing and (b) the self-assembled straight rows after 200 ℃ 20 h annealing. Although the ratio of longer chains (more than 5 HPB cores) increased slightly by further annealing, the most observed length (3-4 HPB cores) is identical, indicating minimal influence of annealing time on chain length.