Supporting Information

Hierarchical Multi-Level Block Copolymer Patterns by Multiple Self-Assembly

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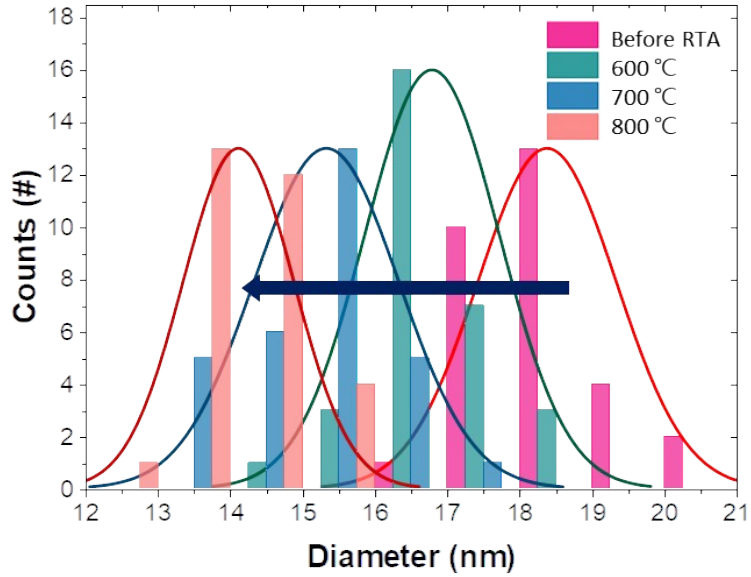
Figure S1. Size distribution of SiO$_x$ dot patterns at various RTA temperatures. Graph for size distribution of self-assembled SiO$_x$ dot (SD51) patterns. The pattern size decreases in proportion to the RTA temperature.
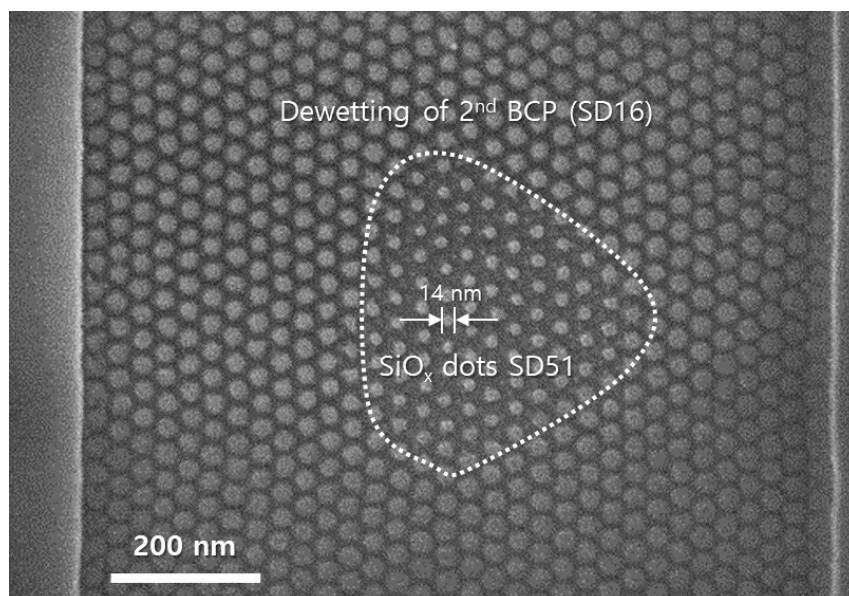
Figure S2. Dewetting of the self-assembled second BCP (SD16) on a SiO$_x$ dot pattern. A self-assembled SiO$_x$ dot pattern was used as a template to form a big-dot pattern of which the dewetting area indicates that the templated SiO$_x$ dots are converted into the big-size dot pattern through a second self-assembly of cylinder-forming SD16 BCP under a high vapor pressure of toluene.
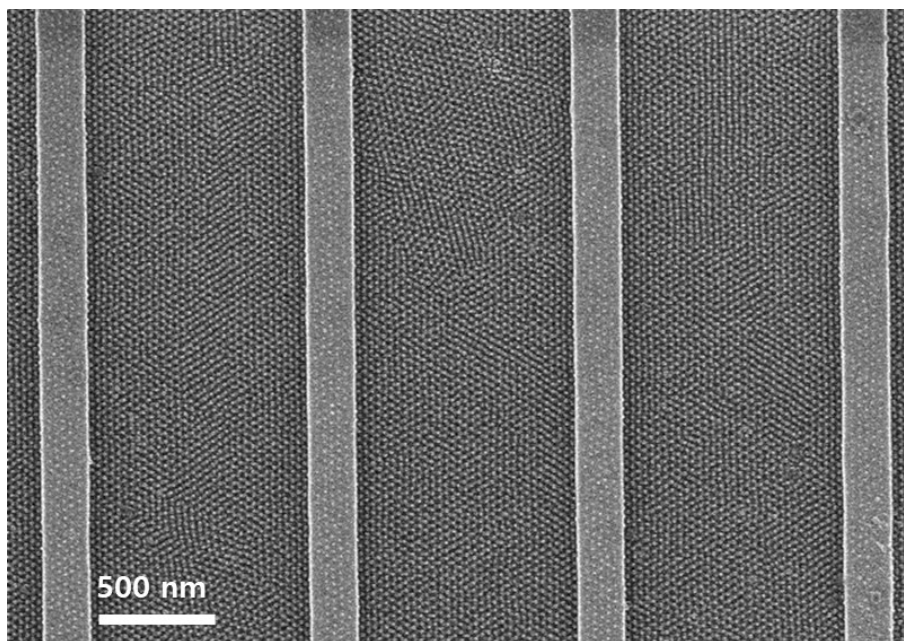
Figure S3. Self-assembled double-dot SiO$_x$ pattern in a topographic Si template over a large area. The self-assembled SD51 at 2.2 wt% annealed in pure toluene shows a multi-layer dot (double-dot) SiO$_x$ pattern.