Controlling the Block Copolymer Patterns via Combining Graphoepitaxy and Surface Guidance

방준하*
고려대학교 화공생명공학과
(joona@korea.ac.kr*)

Using directed assembly of block copolymer on the pre-patterned surfaces guarantee uniform array or controlled non-regular array. In this system, the chemically patterned surface can induce well resisted array over arbitrary large areas. However, this method requires expensive and complicated e-beam lithography. Alternatively, another method is the graphoepitaxy. In this case, the self-assembly of block copolymer is guided by the topographical wall of lithographically pre-patterned substrates. But, it has limitation on the pitch size of wall to obtain the highly ordered patterns. In this work, we demonstrate a new type of fabrication method to achieve highly controlled and uniform block copolymer patterns. Our approach is to combine the graphoepitaxy and hexagonally surface guiding patterns from crosslinkable block copolymers. When the lamellar forming block copolymers were prepared on hexagonal patterns, aligned stripe was obtained and the alignment was significantly improved comparing to the case when no hexagonal surface patterns were used.