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Crystallization induced block copolymer assembly at curved liquid-liquid interface HAO QI, TIAN ZHOU, HAO ZHOU, CHRISTOPHER LI, Drexel University, SOFT MATERIALS LAB TEAM — In a selected solvent, amphiphilic block copolymers can self-assemble into various micelle structures which find widespread applications in nanomedicine. Herein we report a directed assembly of poly (l-lactide acid)-b-poly (ethylene glycol) (PLLA-b-PEG) at curved oil/water interfaces. Oil droplets were dispersed in water phase upon sonication with amphiphilic PLLA-b-PEG as the surfactant. Subsequent crystallization of PLLA segments resulted in the formation of lamellasomes consisting of crystalline PLLA shell and densely-grafted (approx.1chain/nm2) PEG layer. The structure, morphology, and mechanical properties of these unique polymer ensembles were investigated using transmission electron microscopy and atomic force microscopy. Detailed formation mechanism will be discussed in detail.

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