

Abstract Submitted
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Biocompatible, Tactic PMMA Blend Fibers: Exploring Stereocomplex Formation SUYING WEI, TANUSREE SARKER, JAISHRI SHARMA, YANG LU, ASHWININ KUCKNOOR, LAUREN WASHBURN, EVAN WUJCIK, Lamar University — Poly(methyl methacrylate), PMMA stereocomplex is among the most interesting synthetic helix that has demonstrated great potential in applications where controlled molecular environment helps facilitate the desired structure/functions. For example, stereocomplex thin film surface better supported the enzymatic activities than its individual counterpart. Molecular dynamics simulation indicated that local rigidity and functionalities of stereoregular polymers contributed to the varied surface tension. Electrospun fibers demonstrated stereocomplex formation from the tactic PMMA blend gel. Inspired by the promising studies in the literature, we prepared electrospun fibers of i- and s-PMMA blends at various ratios from different solvents and subsequently investigated their physicochemical and biological properties. Surface morphology and wettability were characterized by scanning electron microscopy and contact angle measurement respectively. The relative thermal stability was disclosed by thermal gravimetric analysis, while differential scanning calorimetry was used to study the phase behaviors of the blend fibers, and indication of stereocomplex formation was observed for one specific ratio which showed an extra melting peak. Furthermore, the biocompatibility and effects on cell adhesion and growth behavior were explored using a model mammalian HeLa cell line.

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