Novel Top Coating Materials of Chemically Anchored Cytomimetic Thin films for Stent

김광명, 김현균, 변영로*
광주과학기술원 신소재공학과
(yrbyun@kjist.ac.kr*)

We have developed a new in-situ photopolymerization system which occurred at the interface of an acrylated phospholipid monolayer (1-palmitoyl-2-[12-(acryloyloxy)-dodecanoyl]-sn-glycero-3-phosphocholine) and an acrylated polymer substrate (acrylated poly (octadecyl acrylate-co-hydroxybutyl acrylate) using visible irradiation. The physicochemical properties of phospholipid thin films were confirmed using atomic force microscopy (AFM), scanning electron micrograph (SEM), water contact angles studies, and X-ray photoelectron spectroscopy (XPS). For the local drug delivery system for a potential antimitotic agent, echinomycin release, in vitro, was substantially sustained from the polymerized phospholipid monolayer, due to the densely packed phospholipid molecules. Moreover, the polymerized phospholipid surfaces containing echinomycin substantially decreased smooth mussel cell proliferation, compared to the polymerized phospholipid surface without the drug. Finally, the blood compatibility of chemically anchored phospholipid thin films was evaluated using protein absorption and platelet adhesion, in vitro.