The effect of HDMSO/Amine Multilayer Polymeric Thin Films on Magnesium Alloys

최승우, 김병훈*
조선대학교
(kim5055@chosun.ac.kr*)

Magnesium (Mg) and its alloy can be used as an implant due to its lightweight and good biocompatibility. Unfortunately, Mg has extremely poor corrosion resistance, particularly in the presence of choline ion; this limited its used as metallic biomaterials for permanent implants. The enhancement of the corrosion resistance of magnesium can be achieved by using different modification methods such as alloying, and various surface modifications. The chemical and physical properties of the HMDSO/amine multilayers were characterized by contact angle measurements, Fourier transform infrared spectroscopy and atomic force microscopy. MC3T3-E1 cell were cultured on each sample and the cell attachment and proliferation were examined using MTT and ALP assay. The cell viability tests revealed significantly enhanced viability on the multilayer-coated Mg alloy surfaces than on another surfaces. These results that the polymeric multilayers coated on Mg alloy may be potentially applied for clinical use. (Corresponding Author:kim5055@chosun.ac.kr, National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (No. 2012-0001791))