

Mussel-derived dopamine-based hydrogel coating on the surface of artificial bladder

김태현, 김세민<sup>1</sup>, 함정우<sup>1</sup>, 고원건<sup>1,†</sup>  
연세대학교; <sup>1</sup>연세대

Bladder cancer is one of the most common cancers that Koreans get. If bladder cancer has already progressed a lot, it is inevitable to remove the bladder. Although there is no problem just by kicking a pocket after the bladder is removed, artificial bladder is expected to be needed as people's lives improve. In this study, we used silicone known as possessing useful properties for biomaterial. However, if the silicon based artificial bladder is not pre-treated on the surface, calcification may occur due to urine. Therefore, developing robust and long lasting-surface modification techniques for artificial bladders will be an important factor in preventing calcification occurring in bladders. Hence we modified silicone surface with dopamine conjugated hyaluronic acid (DA-HA). The mussel inspired dopamine's amine group conjugated with HA which has anti calcification property. To coating hydrophobic silicon-based materials with hydrophilic hydrogels (HA), dopamines' catechol group was reacted on top of the silicon material. The DA-HA modified silicone showed that it reduced calcification comparing to bare\_silicon, which means stable for artificial bladder's material.