

Poly(pyrrole-co-aniline) nanoparticles with biocompatible amphiphilic polymer for the treatment of influenza A viral infection by controlling reactive oxygen species

김지혜, 김현욱, 임종우, 윤다연, 천해진, 박근선, 이훈재,  
나운성<sup>1</sup>, 염민주<sup>1</sup>, 함승주<sup>†</sup>, 송대섭<sup>1</sup>  
연세대학교; <sup>1</sup>고려대학교  
(haam@yonsei.ac.kr<sup>†</sup>)

Current commercial antiviral agents have tolerance and serious side effects. To develop risk free antiviral agents, the correlation between viral infection and reactive oxygen species (ROS) has been studied. This report shows that conducting polymers can therapy influenza A virus-infected MDCK cells by controlling intracellular ROS levels. We infected the MDCK cells with influenza A viruses (IV), H1N1, H3N2, and H9N2 and treated the infected cells with particles composed of conducting polymers: poly pyrrole, poly aniline and poly(aniline-co-pyrrole) (PASome). The results show that viral infection induces intracellular ROS levels increased and the particles reduce the ROS levels by deoxidizing ROS. MEK/ERK/Nur77 signal expression was inhibited, and the cell viability was increased significantly. Consequently, these results demonstrate that PASome showed the best control efficiency.