

NS-006 <Invited Talk>

Synthesis and Characterization of DNA-Templated Nanostructures: Toward Molecular Electronics

이정규

경북대학교 화학과

Molecular electronics has been the subject of intense research for many years because of the fundamental interest in molecular charge transport and potential applications, such as (bio)nanosensors and molecular memory devices. Molecular electronics requires a method for making reliable electrical contacts to single-molecules. To date, several approaches have been reported: scanning-probe microscopy, mechanical break junctions, nano patterning, and direct deposition of electrode on a self-assembled monolayers. However, most methods are laborious and difficult for large-scale application and more importantly, cannot control the number of molecules in the junction. Recently, DNA has been used as a template for metallic nanostructures (e.g., Ag, Pd, and Au nanowires) through DNA metallization process. Furthermore, oligodeoxynucleotides have been tethered to organic molecules by using conventional organic reactions. Collectively, these techniques should provide an efficient route toward reliable and reproducible molecular electronic devices with large-scale fabrication. Therefore, I will present a paradigm for the fabrication of molecular electronic devices by using micrometer-sized DNA-single organic molecule and DNA triblock structures.

Keywords: DNA-templated Nanofabrication

NS-007 <Invited Talk>

Nanotechnology Meet Immunology: Nanomaterials for Enhanced Immunity

임용택

Graduate School and Department of Analytical Science and Technology, Chungnam National University,
Yuseong, Daejeon, 305-706, Korea

The design and chemical synthesis of multifunctional nanomaterials have been providing potential applications in biomedical fields such as molecular imaging and drug delivery. Recently, bio-derived and/or synthetic nanostructured materials capable of modulating the immune system have been also issues of interest in immunology-related nanomedicine fields. In this talk, the recent research results on the development of nanostructured materials for enhanced immunity would be presented. I will introduce the chemical strategy for the combination of nanostructured materials and bioactive compounds to improve both anti-cancer immunity and vaccine delivery efficiency.

Keywords: Nanotechnology, Nanomaterials, Immunity, Cancer Therapy, Infectious Disease