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Smart Healthcare Materials and Devices for New Paradigm Precision Medicine

演者: Prof. Sei Kwang Hahn

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講演概要

Since the US President Obama announced the Precision Medicine Initiative in 2015, it has dramatically changed the landscape of medical science and engineering to revolutionize how to improve healthcare and treat intractable diseases. On top of that, with the recent progress of nanobiotechnology, various healthcare devices have been developed for diagnostic, therapeutic, and theranostic applications. In this presentation, I will talk about the basic concept and some examples of state-of-the-art diagnostic and therapeutic precision medicines. First, I will present emerging multifunctional materials, next-generation implantable and wearable healthcare devices. Second, I will showcase nanomedicines focusing on our nanobots for the treatment of bladder cancer and inflammatory bowel disease. Third, I will present our gene drug delivery systems for siRNA, mRNA and gene editing cancer therapies. Finally, I will highlight our optogenetic devices and systems for precision medicine. With that, I will discuss the future research direction for new paradigm precision medicine via neuro-immune cross-talks in combination with smart healthcare systems for personalized medicine.

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