

금나노선의 질병 진단 및 치료에의 응용(Disease diagnostics and therapeutics using gold nanowire)

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As nanobiotechnology advances rapidly, various types of nanomaterials have been developed and applied to medical applications. These materials hold great promise for addressing the demand for building effective diagnostic and therapeutic strategies. In this talk, I introduce diverse biomedical applications using gold nanowire. One example is a novel and highly effective method for the detection of single nucleotide polymorphisms in disease relevant genes. As another example, we reported an ultrasensitive and multiple pathogen detection assay using a patterned gold nanowire sensor with target recycling reaction. I also introduce therapeutic applications using Au NW-based nanoinjector; the electro-triggered, spatioselective, quantitative gene delivery into a single cell nucleus, and the stimulating and monitoring of site-specific dopamine exocytosis of a single cell. Nanomaterials-based biotechnology techniques can be adapted for use in the clinic as powerful tools for diverse biomedical applications.