

Sensitive Gold Electrode Biosensors Fabricated on Plastic Substrate

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日時：平成30年4月19日(木) 16:00~17:00

**場所：東京医科歯科大学 生体材料工学研究所
22号館1階 第2会議室**

Abstract: Considerable research effort has been focused on sensitive and selective detection of bio-molecules related to variant genetic diseases, among which electrochemical methods are especially popular for its simplicity and low cost. Recently, we developed a novel plastic-gold electrode (PGE) containing unique nano-scale structure surface which were found having higher capacity of DNA immobilization compared with gold electrodes fabricated by standard sputtering based photolithography. PGEs have superior electrochemical properties equivalently to those employing gold nanoparticles for signal amplification. Based on the advantageous electrochemical properties of PGEs, sensitive detection of bio-molecules such as microRNAs, genomic DNA as well as glucose has been developed and PGEs have been proven simple and low-cost biosensor, having great potential for wide-spread application, such as point-of-care-testing (POCT).

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