

## Highly Sensitive Detection for NADH Based on Carbon Nanotube Field Effect Transistor

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Reduced form of Nicotinamide Adenine Dinucleotide (NADH) is an important coenzyme found in cells, which plays key biochemical roles in metabolic redox reactions, cell signaling, transcriptional regulation, longevity and age-associated diseases. The analysis of NADH remains important for cell biology, pharmacology and pathology. Herein we aim to develop a simple and sensitive detection approach for NADH based on a unique nanomaterial carbon nanotube (CNT), which is used as channel of field effect transistor (FET). Through the modification of 1-methoxy PMS, an electron shuttle system will be formed inside CNTs, whose electrical property will be changed with the injection of NADH. Therefore we can get different electrical signal by semiconductor characterization system upon the addition of NADH at different concentrations. This study suggests the application of this chemical sensor could serve as a potential analysis system for NADH with a series of merit in highly sensitive, real time, easy handling, small sampling volume needed, automated, user friendly, less cost and easily applicable for field analysis.