

Abstract Submitted  
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**Development of functionalized nanodiamond fluorescence detection platform: Analysis the specific promoter regulated by p53** DIANSYUE WU, HSUEH-LIANG CHU, Department of Biological Science and Technology, National Chiao Tung University, HUNG CHUANG, Department of Chemistry, National Tsing Hua University, YU-NING LU, LI-PING HO, Department of Biological Science and Technology, National Chiao Tung University, HSING-YUAN LI, Division of Pediatrics, Taoyuan Veterans Hospital, MING-HUA HSU, Nuclear Science and Technology Development Center, National Tsing Hua University, CHIA-CHING CHANG, Department of Biological Science and Technology, National Chiao Tung University — Nanodiamond (ND) is one of the biocompatible nanomaterials with large tunable surface for chemical modification. It possesses unique mechanical, spectroscopy, and thermal properties. It is an excellent molecular vehicle to deliver specific molecules in biological system. The green fluorescent protein (GFP) is a protein that emits strong green fluorescence when it is excited by ultra-violet to blue light. It makes GFP a good indicator. By combining ND-GFP, a visible biocompatible delivery system will be developed. p53 is a tumor suppressor protein encoded by the TP53 gene. P53 plays an important role in apoptosis, genomic stability, and inhibition of angiogenesis by interacting with specific DNA sequence of promoter of related genes. In this study, a p53 functionalized ND-GFP will be developed. This complex can recognize the specific DNA sequence of promoter and the intermolecular interactions can be monitored directly by fluorescence and Raman spectroscopy both in vivo and in vitro.

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