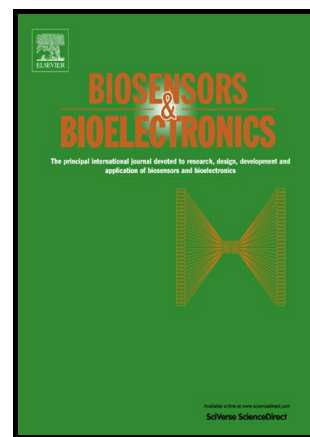


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**A recyclable biointerface based on cross-linked branched DNA nanostructures for ultrasensitive nucleic acid detection**

Feng Li<sup>1,1</sup>, Yuhang Dong<sup>1,1</sup>, Zhikun Zhang<sup>1,1</sup>, Man Lv<sup>1,1</sup>, Zhi Wang<sup>1</sup>, Xinhua Ruan<sup>2</sup>,

Dayong Yang<sup>\*1</sup>

<sup>1</sup> Key Laboratory of Systems Bioengineering (Ministry of Education), School of Chemical Engineering and Technology; Collaborative Innovation Center of Chemical Science and Engineering (Tianjin), Tianjin University, Tianjin, 300350, China

<sup>2</sup> The Department of Cardiac Surgery, Tianjin Union Medicine Centre, Tianjin 300121, China

dayong.yang@tju.edu.cn

dayong.yang@foxmail.com

**Abstract:** The detection of specific nucleic acids is becoming increasingly important in the discovery of genetic diseases and clinical molecular diagnostics. Here we report a DNA nanostructure-based platform which enables a recyclable biointerface for ultra-sensitive detection of nucleic acid. We created a chemically cross-linked branched DNA nanostructure (CCLB-DNA) as the probe DNA to engineer the biointerfaces, thereby increasing probe distance, exposing more DNA probes from the interface into the solution phase, and thus enhancing the signal dramatically. In addition, DNA functionalized Fe<sub>3</sub>O<sub>4</sub> nanoparticles were utilized for further signal amplification. The detection limit could go as low as 500 fM. Moreover, CCLB-DNA

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<sup>1</sup> These authors contributed equally to this work.

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