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**Title: A fluorescence biosensor for VEGF detection based on DNA  
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## **Abstract**

Vascular endothelial growth factor (VEGF) is an important biomarker in cancer angiogenesis. Here, we develop a aptasensor method for VEGF detection based on DNA assembly structure switching and isothermal amplification. The design employs a DNA assembly made of a isothermal amplification template, a aptamer, a primer and a protector chain. The DNA assembly is unable to undergo isothermal amplification in the absence of target. The presence of the target, however, triggers a structure switching event that causes hybridization of primer with template to facilitate isothermal amplification. Whereafter, toehold-mediated DNA strand displacement reaction between the generated (single-stranded DNA) ssDNA and fluorescent/quencher labeled probe are performed. Then, the increase in fluorescence provides an analytical signal. This strategy opens up a sensitive, selective and simple sensing platform for detection of VEGF. The system was also implemented to analyze the VEGF in human serum samples with satisfactory results.

**Keywords:** Vascular endothelial growth factor (VEGF); Aptamer;  
Fluorescence biosensor; Isothermal amplification

## **1. Introduction**

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