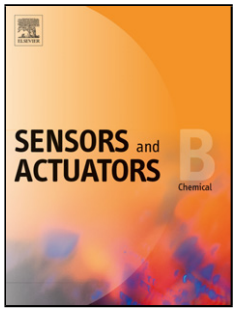

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Three-way DNA junction structure combined with enzyme-powered cascade amplification for ultrasensitive electrochemiluminescence detection of microRNA via smart DNA walker

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Highlights

- Three-way junction structure was applied to highly selective detection of miRNA.
- A novel free-running DNA walker was used to the amplified ECL detection of miRNA.
- The cascade amplification strategy was applied for ultrasensitive miRNA detection.
- A highly sensitive miRNA-21 detection with low limit of 1.5 fM was achieved.

Abstract

In this work, a target-triggered three-way junction (3-WJ) structure was combined with enzyme-powered cascade amplification strategy for ultrasensitive electrochemiluminescence (ECL) detection of microRNA via free-running DNA walker. In the presence of target microRNA-21 (miRNA-21), a three-way junction structure was formed to trigger enzyme-aided