Supporting Information

A facile fluorescence method for endonuclease detection using exonuclease III-aided signal amplification of molecular beacon

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Table S1  The oligonucleotides used in this work.

<table>
<thead>
<tr>
<th>Oligonucleotides</th>
<th>Oligonucleotide Sequences (5’ to 3’)</th>
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<tbody>
<tr>
<td>Hairpin substrate 1</td>
<td>TACGACGATCTGA&lt;sub&gt;G&lt;/sub&gt;ATCTTGAGAAT&lt;sub&gt;T&lt;/sub&gt;CTTTTGA&lt;sub&gt;G&lt;/sub&gt;AT&lt;sub&gt;T&lt;/sub&gt;TCCTAGACATCGTCGTAGCTTTTT</td>
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<tr>
<td>Hairpin substrate 2</td>
<td>TACGACGATCTGA&lt;sub&gt;G&lt;/sub&gt;ATCTTGAGAAT&lt;sub&gt;T&lt;/sub&gt;CTTTTGA&lt;sub&gt;G&lt;/sub&gt;AT&lt;sub&gt;T&lt;/sub&gt;TCCTAGACATCGTCGTAGCTTTTT</td>
</tr>
<tr>
<td>MB</td>
<td>(DABCYL)-CATCG&lt;sub&gt;A&lt;/sub&gt;CTACG&lt;sub&gt;G&lt;/sub&gt;ATGTCTGA&lt;sub&gt;G&lt;/sub&gt;-(FAM)</td>
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Fig. S1  Signal-to-noise ($F/F_0$) with different amounts of Exo III. $F_0$ and $F$ are the fluorescence intensity in the absence and presence of 100 U mL<sup>−1</sup> EcoRI, respectively. [Hairpin substrate 1] = 100 nM, [MB] = 200 nM.

Fig. S2  Signal-to-noise ($F/F_0$) with different concentrations of Hairpin substrate 1. $F_0$ and $F$ are the fluorescence intensity in the absence and presence of 100 U mL<sup>−1</sup> EcoRI, respectively. [MB] = 200 nM, [Exo III] = 2.0 U mL<sup>−1</sup>.
**Fig. S3**  Signal-to-noise \((F/F_0)\) with different concentrations of MB. \(F_0\) and \(F\) are the fluorescence intensity in the absence and presence of 100 U mL\(^{-1}\) EcoRI, respectively. \([\text{Hairpin substrate 1]}\) = 100 nM, \([\text{Exo III}]\) = 2.0 U mL\(^{-1}\).

**Fig. S4**  Signal-to-noise \((F/F_0)\) versus incubation time at 37 °C. \(F_0\) and \(F\) are the fluorescence intensity in the absence and presence of 100 U mL\(^{-1}\) EcoRI, respectively. \([\text{Hairpin substrate 1]}\) = 100 nM, \([\text{MB}]\) = 200 nM, \([\text{EcoRI}]\) = 100 U mL\(^{-1}\), \([\text{Exo III}]\) = 2.0 U mL\(^{-1}\).
Fig. S5  (A) Fluorescence enhancement and (B) signal-to-noise ($F/F_0$) of this sensing method at different incubation temperature. $F_0$ and $F$ are the fluorescence intensity in the absence and presence of 100 U mL$^{-1}$ EcoRI, respectively. [Hairpin substrate 1] = 100 nM, [MB] = 200 nM, [EcoRI] = 100 U mL$^{-1}$, [Exo III] = 2.0 U mL$^{-1}$. 