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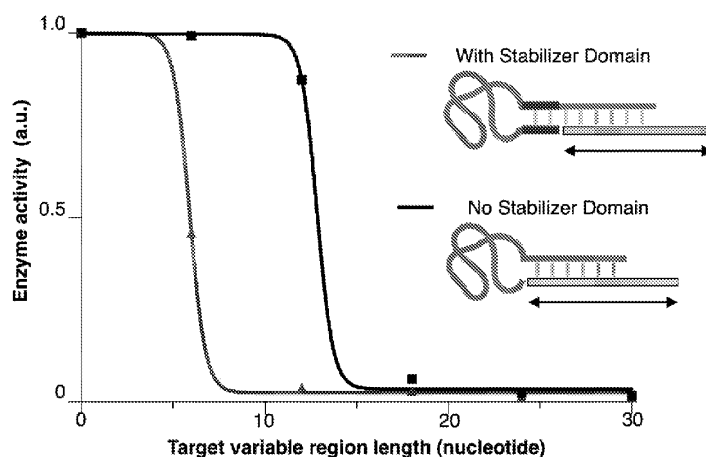
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(54) Title: NUCLEIC ACID NANOSTRUCTURES WITH TUNABLE FUNCTIONAL STABILITY

Figure 2



(57) Abstract: The present invention relates to catalytic, nucleic acid nanostructures that enable versatile detection of RNAs, their use, and devices comprising same. The nanostructure comprises a DNA polymerase enzyme, a DNA aptamer and an inverter oligonucleotide, wherein the DNA aptamer comprising (i) a conserved sequence region for binding to the DNA polymerase enzyme, wherein the binding inactivates the polymerase activity, (ii) a variable sequence region for binding to the inverter oligonucleotide, and (iii) a duplex stabilizer region that lies between the conserved sequence region and the variable sequence region. The present invention also relates to the use of the nanostructure in a method of detection of nucleic acid for diagnosing a disease in a subject.

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