Fluorescence assay for RNase H utilizing target-triggered DNA polymerase activity

정유진, 이창열, 박기수[1], 박현규†
KAIST; [1]건국대학교
(hgpark@kaist.ac.kr†)

We herein developed a novel and sensitive method to analyze RNase H activity utilizing DNA polymerase activity, triggered by the RNase H catalyzed hydrolysis of RNA strand in DNA:RNA hybrid. In this study, the key component, a detection probe, was rationally designed by combining a DNA polymerase-specific aptamer and a RNase H substrate. RNase H degrades the RNase H substrate and releases it from the detection probe [1]. Thus, the polymerase activity is recovered and initiates primer extension reaction coupled with a TaqMan probe [2]. Based on this method, we successfully determined the RNase H activity. Since this method consisted of separated target recognition step and signal transduction step, this new strategy could be further applied to the development of universal enzyme activity assays by rationally designing of detection probes.

References

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