

Simple, Label-free and Selective Detection of TDT (Terminal Deoxynucleotidyl Transferase)
by using DNA intercalation dye

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Terminal Deoxynucleotidyl Transferase(TDT) is an enzyme that catalyzes the addition of nucleotides to the 3' terminus of DNA. Contrary to DNA polymerase, it does not need a template for polymerization. Also, TDT has the biological and physiological importance because it is a biomarker of leukemia, and has been utilized for the insertion of labelled nucleotides. Previously reported detection methods rely on gel electrophoresis, biochemical assay, and immunoassay, nevertheless necessity of radiolabelling or fluorescent labelling of the nucleotides and multistep separation³ makes the method expensive, complicated and time-consuming. We have developed a simple, label-free, selective and sensitive method to detect the enzyme, Terminal deoxynucleotidyl transferase(TDT) rapidly by using Syber green II. TDT elongates the primer, which can be sensitively detected by using syber green II, which intercalates with single stranded DNA. TDT was detected with very low LOD of 0.015 units. We also found that syber green II binds more tightly with poly G sequence and gives higher fluorescence.