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(54) Title: ENZYMATIC SYNTHESIS OF POLYNUCLEOTIDE

(57) Abstract: Provided is a method and a kit for synthesizing and retrieving a polynucleotide enzymatically, including an initiator containing having a free 3'-hydroxyl group; a polymerase for incorporating nucleotide monomers to the initiator to form a nucleic acid strand from the free 3'-hydroxyl group, wherein the nucleic acid strand includes a guiding nucleotide to be recognized by an endonuclease; and the endonuclease cleaving the nucleic acid strand to release a predetermine polynucleotide and newly form a free 3'-hydroxyl group at 3' end of the remaining nucleic acid strand which serve as a reusable initiator. Also provided is a kit for synthesizing and retrieving a polynucleotide using the method.



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