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(54) Title: METHODS AND KITS FOR AMPLIFICATION OF DOUBLE STRANDED DNA

(57) Abstract: Disclosed herein are devices and methods for amplifying double stranded DNA molecules. Methods for amplifying apoptotic cell-free DNA molecules can include performing end-repair and dA tailing of the cfDNA molecules, attachment of single-stranded hairpin adaptors to both ends of the end-repaired cfDNA molecules to produce adaptor-tagged, single- stranded, covalently closed DNA molecules, and amplification of the adaptor-tagged, single- stranded, covalently closed DNA molecules by a combination of rolling circle amplification and multiple displacement amplification using a PrimPol enzyme, a DNA polymerase with strand displacement activity and free nucleotides.



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