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PCR without heat: Enhancement of DNA function

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Abstract

Described herein are methods and devices for amplifying nucleic acids. The methods generally involve exposing the nucleic acid to a mini-current magnetic field while performing the steps of PCR. Different fundamentals of science and technology were integrated based on the autonomy of DNA, in order to enhance the functions of the nucleic acid. The methods provide numerous advantages over current PCR techniques such as reduced reaction 5 times, no heating requirements, and reduced amounts of reagents (*e.g.*, optional use polymerases and primers). Additionally, the methods described herein require significantly shorter reaction times (*e.g.*, less than one hour) compared to conventional PCR techniques (minimum 2 hours). Finally, as shown in the examples below, the 10 methods described herein amplify significantly more DNA compared to conventional PCR techniques. In summary, the methods and devices described herein provide a more efficient and cost-effective way to perform PCR when compared to current PCR techniques.