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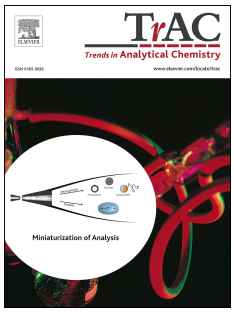

Recombinase Polymerase Amplification: Basics, applications and recent advances

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Recombinase Polymerase Amplification: Basics, applications and recent advances

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Abstract

Recombinase polymerase amplification (RPA) is a highly sensitive and selective isothermal amplification technique, operating at 37-42ºC, with minimal sample preparation and capable of amplifying as low as 1-10 DNA target copies in less than 20 minutes. It has been used to amplify diverse targets, including RNA, miRNA, ssDNA and dsDNA from a wide variety of organisms and samples. An ever increasing number of publications detailing the use of RPA are appearing and amplification has been carried out in solution phase, solid phase as well as in a bridge amplification format. Furthermore, RPA has been successfully integrated with different detection strategies, from end-point lateral flow strips to real-time fluorescent detection amongst others. This review focuses on the different methodologies and advances related to RPA technology, as well as highlighting some of the advantages and drawbacks of the technique.

Highlights

RPA principles, advantages and limitations.
Comparison of diverse RPA methods: target, label, amplification and detection strategies.
Expected future trends.

Keywords

Recombinase polymerase amplification, isothermal amplification, solid-phase amplification, multiplexing.

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