Prime Scholars Library

Advances in Life Science and Biotechnology

Vol. 10(1), pp.07, March, 2022

Commentary

Available online at
https://primescholarslibrary.org/

Polymerase chain reaction

Huihong Lu*

Department of Biotechnology, Zunyi Medical University, Zunyi, Guizhou, China.

Received: 04-Mar-2022, Manuscript No. ALSB-22-56162; **Editor assigned**: 07-Mar-2022, Pre QC No. ALSB -22-56162 (PQ); **Reviewed**: 21-Mar-2022, QC No. ALSB -22-56162; **Revised**: 28-Mar-2022, Manuscript No. ALSB -22-56162 (R); **Published**: 05-Apr-2022, DOI: 10.51268/2736-1837.22.10.64.

DESCRIPTION

Polymerase Chain Reaction (PCR) is a common molecular biology technique that allows researchers to make multiple copies of a particular region of DNA. PCR is efficient and fast, and can amplify DNA or RNA sequences from a variety of sources. Once the DNA is fully amplified, the resulting product can be sequenced, analyzed by gel electrophoresis, or cloned into a plasmid for experimental purposes. PCR cloning differs from traditional cloning in that the DNA fragment of interest, and even the vector, can be amplified by the Polymerase Chain Reaction (PCR) and ligated without the use of restriction enzymes. PCR cloning is a rapid method for cloning genes and is often used in projects that require higher throughput than traditional cloning methods can handle. It is possible to clone DNA fragments that are not available in large quantities. Usually, a PCR reaction is performed to amplify the sequence of interest and then bind to the vector through blunting single base overhang ligation prior to transformation. DNA polymerase was commonly used in early PCR cloning to amplify genes. The PCR product in which the adenine residue is added to the 3'end of the PCR product with a single base, independent of the template, by the normal action of the polymerase. These "tail" products are then ligated to a complementary T-tail vector using T4 DNA ligase and subsequently transformed. For some neuroinfiltrating viruses, CSF PCR is highly sensitive and specific, making it ideal as a diagnostic study to identify specific viral ethology. The sensitivity of CSF HSV-PCR is 98% and the specificity is 94%. The sensitivity of PCR to detect HSV encephalitis depends on the time of the study. In CEP, three patients who tested negative for CSF-HSV PCR within 72 hours of onset of symptoms had positive test results 4-7 days later.

In contrast, studies that detected HSV DNA in CSF using nested PCR amplified 100% (18/18) of patients tested within 72 hours of the onset of neurological symptoms. CSF-HSV PCR sensitivity decreases as a function of the duration of antiviral therapy. Maximum 98% of studies remained positive in patients treated within 7 days, followed by continued treatment after 8-14 days and 21-15 days of antiviral treatment, reducing sensitivity to 47%. These results reflect a gradual decrease in CSF viral load that occurs as a function of the duration of acyclovir therapy. Using quantitative PCR, patients treated with acyclovir showed negative PCR results 19±6 days (range 9-28 days) after the start of acyclovir therapy. Neither the initial CSF-HSV viral load nor its maximum is predictive. However, in one study, patients with very high copy counts (>100,000 HSV DNA copies per milliliter) may have lower awareness, CT lesions, and poorer outcomes compared to patients with less than 100,000 DNA copies/ml. It turned out to be highly sexual.

CONCLUSION

Polymerase chain reaction is a technique for making many copies of a particular region inside the DNA (in side, not in an organism). PCR relies on a thermo stable DNA polymerase and requires DNA primers specifically designed for the DNA region of interest. In PCR, the reaction undergoes a series of temperature changes repeatedly, which can result in multiple copies of the target region. PCR has many research and practical applications. It is routinely used in DNA cloning, medical diagnostics, and forensic analysis of DNA.