Use

Inverse PCR is used in chromosome walking.

Random PCR

In this method, a synthetic DNA strand containing two or three internal primers is designed and amplified in the first PCR. *Synthetic DNA with two or more internal primers* is called ***nested primer***.

In the second PCR, the synthetic DNA binds on the DNA strand to be amplified and then polymerization proceeds.

If one or two internal primers failed to anneal with the target DNA strand, polymerization does not take place. So the sought-after DNA clone is selectively amplified in this method.

Use

Random PCR is used to propagate a specific DNA strand in a pool of DNA fragments without amplifying the other strands. It is used in RAPD analysis.

RT-PCR

RT-PCR refers to *reverse transcription followed by polymerase chain reaction.* It is used to make cDNA clones from mRNA. Here, reverse transcriptase and a primer are added to the conventional PCR reaction mixture.

The reverse transcriptase synthesizes cDNA strand to form a RNA-DNA hybrid. It is followed by PCR. After heat denaturation of the RNA-DNA hybrid, the second DNA strand is synthesized on the ***cDNA strand*** by ***Taq polymerase***. As a result, cDNA clones are formed.

If the mRNA is primed with oligo (d)T primer, cDNAs are made from different kinds of mRNAs in the reaction mixture. Such cDNA clones are used to make ***cDNA library***.

If the primer is nested one, it selectively forms ***cDNAs*** from a particular mRNA and amplifies the cDNA clones. This will help for rapid screening.

Rapid Amplification of cDNA Ends (RACE)

In this PCR, some sequence at 3′ end or 5′ end of the mRNA is made into cDNA and the latter is made to synthesize the second strand.

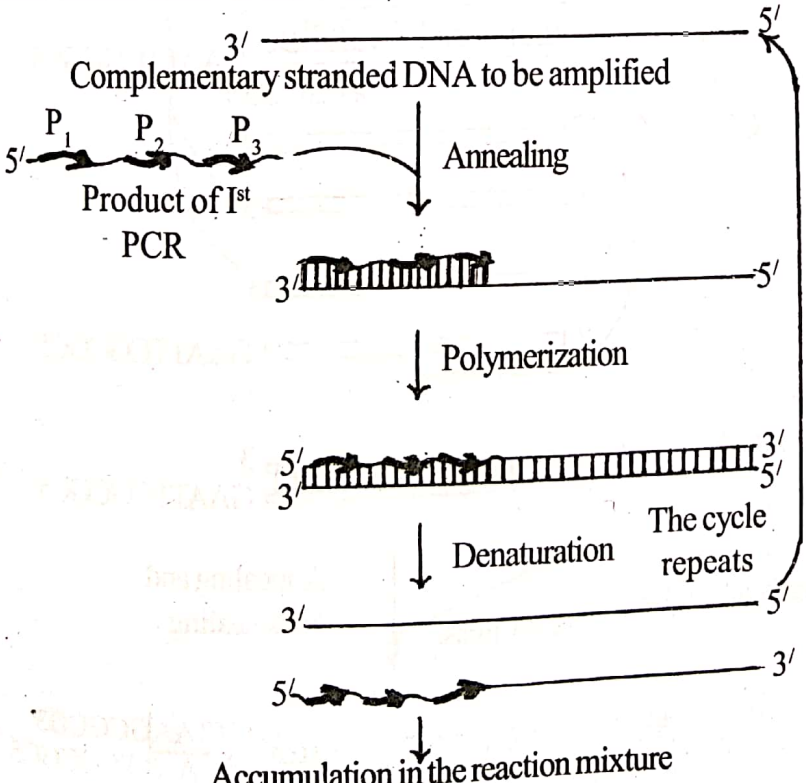

Fig.22.7: Diagrammatic representation of random PCR.