Transcription-Mediated Amplification

Second level of specificity:
An isothermal amplification utilizing specific oligonucleotides further increases specificity and assay sensitivity.

Transcription-Mediated Amplification (TMA) is an isothermal molecular amplification process utilizing two enzymes, reverse transcriptase (RT) and RNA polymerase. Rapid amplification results in a billion-fold exponential increase of the target RNA, maximizing assay sensitivity. The use of target-specific oligonucleotides (oligos) creates a second level of specificity.

Benefits of Transcription-Mediated Amplification

- Can be used with DNA and RNA
- Isothermal reaction allows a short amplification time
- Exponential amplification of only desired pathogen targets
- Target-specific oligos provide a second level of specificity
- Faster time to results
- Robust amplification provides increased sensitivity
- Enhances assay accuracy with an extra layer of confidence in your results

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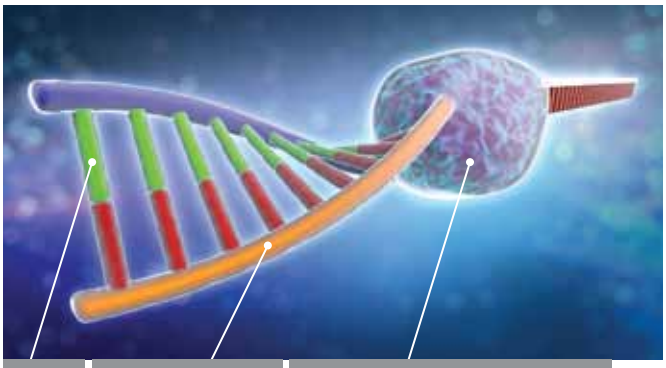
Specific Oligos Bind to the Target, and RT Enzyme Creates a Complementary DNA (cDNA) Sequence



Primer | *Target Nucleic Acid* | *Reverse Transcriptase (RT) Enzyme*

Description:

- First a target-specific oligo binds to the target sequence
- The RT enzyme utilizes free-floating nucleotides to synthesize a cDNA strand

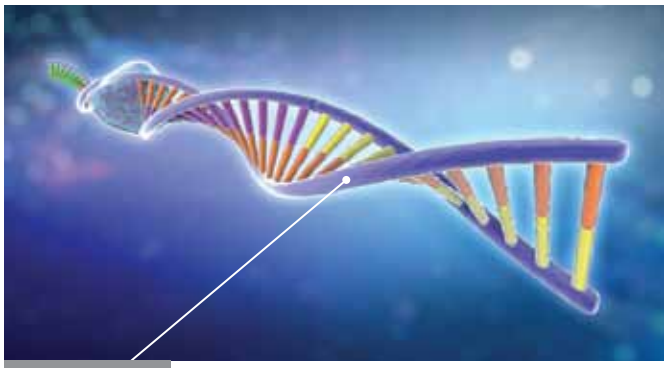
Amplification

RNA Polymerase | *RNA Amplicon*

Description:

- The second enzyme, RNA polymerase, then binds to the double-stranded promoter sequence
- The RNA polymerase transcribes new RNA copies (amplicon) identical to the original RNA target
- The entire cycle repeats itself using the RNA amplicon as template
- One billion-fold amplification achieved

Double-Stranded Promoter Sequence Created



dsDNA Complex

Description:

- After the cDNA/RNA hybrid is created, the RNase H activity of the RT enzyme degrades the original RNA template, leaving single-stranded cDNA
- The promoter oligo contains a promoter for RNA polymerase
- The promoter oligo binds to the cDNA
- RT enzyme then creates a double-stranded promoter sequence

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