About KISSR

It is a public institution (based in Sulaimani city-Iraq) affiliated to the Ministry of Higher Education of the Kurdistan Region of Iraq (KRI).

Vision

Becoming a reliable Centre of Excellence for strategic studies to address national and global challenges.

Mission

1- Delivering cutting-edge research and strategic studies to find knowledge-based solutions to local, national, and global challenges and needs.

2- Fostering interdisciplinary research to tackle complex problems and drive innovation.

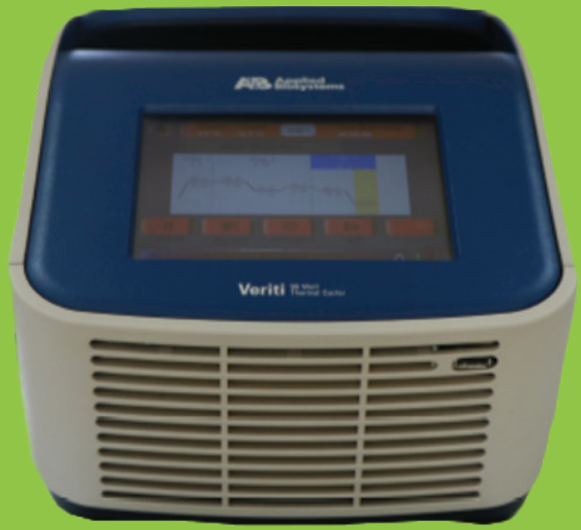
3- Producing reliable data and knowledge that can inform decision-making and empower communities, especially marginalized and underserved communities.

4- Building extensive networks and research collaborations, locally and internationally.

5- Developing high-quality research capacity building and consultation.

Field and Application

PCR is useful for a variety of applications, including medical sciences (disease diagnosis, genetic testing, forensic analysis), food safety (foodborne bathogen detection, GMO detection), environmental monitoring (water quality monitoring, soil pollution monitoring, air quality monitoring), evolutionary biology (genetic variation analysis, phylogenetic studies, population genetics, ancient DNA studies).



PCR

Conventional Polymerase Chain Reaction

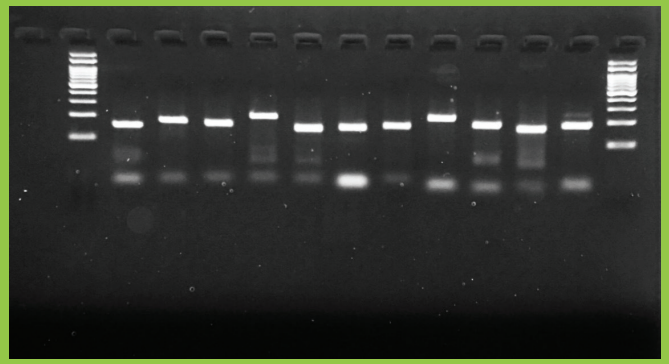
Description

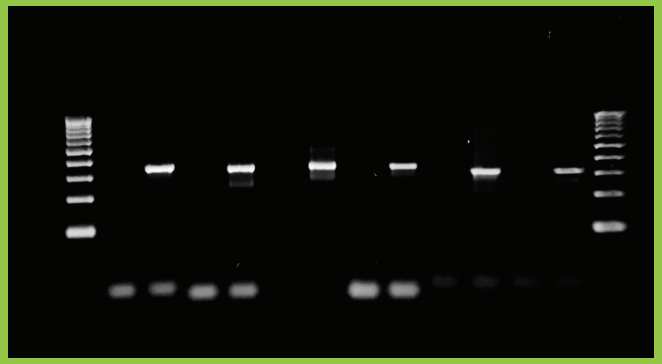
PCR technique is a powerful and widely used technology in medicine and molecular biology research to generate millions of copies of a specific segment of Deoxyribonucleic Acid (DNA).

PCR consists of three primery phases: denaturation, annealing, and extension. Many types of PCR process with slight modefications can be used such as Reverse-Transcriptase PCR (RT-PCR), Nested PCR, Multiplex-PCR and Real-Time PCR.

Explanation of Result

The target DNA or RNA is identified by PCR, depending on the organism. Agarose gel electrophoresis and capillary electrophoresis are the most common methods used to analyze PCR products. If the test detects the target, the results will be positive. If there is uncertainty, the results will be inconclusive. If the target is not detected, the results will be negative.





Result Explanation

Agarose gel electrophoresisis performed to analyze the PCR products amplified from specific regions of human genomic DNA.

DNA ladder, 100 base pair (bp), is used to estimate the size and concentration of the PCR products, containing 10 DNA fragments ranging from 10 bp to 1 kb.

Sample Type

Extracted DNA from different sources such as human (whole blood, body fluids, bone, hair, tissue, cultered cells, saliva, buccal swabs), plant (leaves, seeds, roots, flowers and reproductive tissue) and microorganisms (bacteria, virus, fungi, protozoa, archea), and environmental samples (soil and water).

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