Bringing Scientific & Technical Resources to the African Continent

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PCR(qPCR & RT-PCR) THEORY,OPERATION AND TROUBLE SHOOTING

22nd -26thAPRIL 2024

Course overview

This 5-day training is designed to provide a solid understanding of specific topics through presentation and laboratory work.Participants will gain significant experience in the performance of laboratory techniques taught in this PCR training. Through integrated learning methods, utilizing hands-on training to reinforce lecture material, participants will be able to apply information learned in the into applications in their own laboratories.

During this training participants will learn the process of amplification by learning theory and techniques for PCR.Following this training, participants will be able to perform PCR reaction in their own laboratories, troubleshoot experiments, design primers and determine reaction conditions. We will cover critical requirements for amplification, thermostable DNA polymerases, reverse transcriptase reactions, cloning of PCR products, primer design and mutagenic PCR.

Suitability

This course is suitable for researchers, scientists, laboratory analysts, graduate students and postgraduate students who have a background in cell/molecular biology,biochemistry,biotechnology and those who are interested in learning more about PCR operation

DAY 1 (09.00-10.00)	● Registration and Orientation
10.00-10.30	***Tea Break***
11.00-12.30	● Basic PCR & real time PCR theory ● Applications & possibilities of qPCR vs traditional endpoint PCR
12.30-14.00	***Lunch Break***
14.00 -16.30	● Review of different of availability detection technologies (SYBR) Green I Taqman, Molecular Beacons
DAY 2 (9.00-10.30)	● Review of different instrument platforms and their typical uses. ● Experiments demonstrating basic quantitation strategy
10.30-11.00	***Tea Break***
11.00-12.30	● Optimization of PCR
12.30-14.00	***Lunch Break***

14.00-16.30	• Primer design
DAY 3 (9.00-10.30)	• The primer-dimer problem and how to minimize it . Probe design of Taqman and molecular Beacons.Experimental design
10.30-11.00	***Tea Break***
11.00-12.30	• Relative Quantification & Normalization • Introduction to quantification of qPCR results • Quantification strategies, their applications and limitations
12.30-14.00	***Lunch Break***
14.00-15.30	• Example calculations using different relative quantification methods • Strategies for normalization of qPCR data
DAY 4 (9.00-10.30)	• In situ calibration for compensation of PCR inhibition in test samples
10.30-11.00	***Tea Break***
11.00-12.30	• Reverse Transcription & Sample preparation • Basics and principles of reverse transcription (RT)
12.30-14.00	***Lunch Break***
14.00-15.30	• RT priming methods • Which enzymes are preferred for different applications?
DAY 5 (9.00-10.30)	• Sample preparation (extraction of RNA and DNA)
10.30-11.00	***Tea Break***
11.00-12.30	• Multiplexing and SNP analysis
Lunch Break	***12.30-14.00***
14.00 – 15.00	• Closing ceremony and issuance of certificates

Dates: 22nd -26th April,2024 Deadline 12th April,2024	**Cost Kes. 92,800.00 or USD 928.00**	**KISUMU**