



Bringing Scientific and Technical Resources to the African Continent(NITA/TRN/875)

qPCR AND RT-PCR OPERATION, TROUBLE SHOOTING, SERVICE & MAINTENANCE TRAINING

23rd - 27th October 2023

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

Day1 23/10/2023	08.30 – 9.00	Registration
	09.00 – 10.00	<ul style="list-style-type: none"> ➤ Basic PCR & real time PCR theory ➤ Applications & possibilities of qPCR vs traditional endpoint PCR
	10.00 – 10.30	Health Break (Tea/ Snacks)
	10.30 – 13.00	<ul style="list-style-type: none"> ➤ Review of different of availability detection technologies (SYBR) Green ITaqman, Molecular Beacons
	13.00 - 14.00	Health Break (Lunch)
	14.00 - 16.30	<ul style="list-style-type: none"> ➤ Review of different instrument platforms and their typical uses.Experiments demonstrating basic quantificationstrategy
Day2 24/10/2023	09.00 – 10.00	<ul style="list-style-type: none"> ➤ Optimization of PCR
	10.00 – 10.30	Health Break (Tea/Snacks)
	10.30 – 13.00	<ul style="list-style-type: none"> ➤ Primer design

	13.00 – 14.00	Health Break (Lunch)
	14.00- 16.30	➤ The primer-dimer problem and how to minimize it • Probe design of Taqman and molecular Beacons. Experimental design
Day3 25/10/2023	09.00 - 10.00	➤ Basic data analysis
	10.00 – 10.30	Health Break (Tea/Snacks)
	10.30 – 13.00	➤ Relative Quantification & Normalization ➤ Introduction to quantification of qPCR results ➤ Quantification strategies, their applications and limitations
	13.00 – 14.00	Health Break (Lunch)
	14.00- 16.30	➤ Example calculations using different relative quantification methods ➤ Strategies for normalization of qPCR data
Day4 26/10/2023		➤ In situ calibration for compensation of PCR inhibition in test samples
	10.00 – 10.30	Health Break (Tea/Snacks)
	10.30 – 13.00	➤ Reverse Transcription & Sample preparation ➤ Basics and principles of reverse transcription (RT)
	13.00 – 14.00	Health Break (Lunch)
	13.00 – 16.00	➤ RT priming methods ➤ Which enzymes are preferred for different applications?
Day5 27/10/2023	09.00 – 10.00	➤ Sample preparation (extraction of RNA and DNA)
	10.00 – 10.30	Health Break (Tea/Snacks)
	10.00 – 13.00	➤ Multiplexing and SNP analysis
	13.00 – 14.00	Health Break (Lunch)
	14.00- 15.00	➤ Closing Ceremony and Issue of Certification
23rd to 27th October 2023 Registration deadline 11th October, 2023	VENUE: KISUMU	COST KENYA SHILLINGS 81,200.00 OR \$ 812.00 Registration to be send to c.oyugi@chromafrica.co.ke and info@chromafrica.co.ke

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