

## Course Highlights

- Day 1 - Quality management component - SOP, GLP, ethics, working in an ISO certified environment and report writing. Preparing of SOP for own experiment
- Day 2 - Buffer preparation (stocks and pipetting) for DNA isolation from blood (CPGR) and swabs
- Day 3 - DNA and RNA Quality assessment - Nanodrop, qubit and gels
- Day 4 & 5 - PCR - primer design and experiment
- Day 6 - QPCR & Trouble shooting
- Day 7 – Lectures on Introduction to Genomics, Array technology & NGS
- Day 8 - Introduction to Bioinformatics - includes tutorials
- Day 9 & 10 - Basic proteomics - isolation, QC, SDS page, digest

## GENOMICS WET LAB:

### Day 1

- Lecture: Quality management and introduction to CPGR
- Laboratory safety lecture.
- Brief CPGR tour
- Lecture: DNA extraction protocols, quality assessment and PCR
- Discussion of case study; how to use on-line databases to obtain information
- Exercise: Prepare DNA extraction SOP
- Lecture: Review SOPs
- Carry out buffer calculations, in preparation for Day 2

### Day 2

- Lab: Prepare buffers and consumables for DNA extraction
- Lab: Prepare and catalog samples for DNA extraction
- Lab: Carry out DNA extractions
- Lab: DNA extractions continued
- Record any deviations from SOP •

### Day 3

- Lab: Prepare DNA gels, qubit and nanodrop
- Lab: Load and run gels; storage of samples
- Demo: isolation of DNA from Blood
- Lecture: Review results, discuss trouble shooting
- Lab: repeat/re-run any QC if necessary
- Record DNA extraction results Lecture

### Day 4

- PCR Primer design and quality analysis
- Lab: Design own primers
- Lecture: Setting up a PCR reaction, including calculations
- Lab: PCR mastermix calculations
- Lab: Set up PCR; run overnight
- Record any deviations from SOP

### Day 5

Lab: Prepare gel

Review own prime designs

Load and run PCR gel

Lecture: Review results; discuss trouble shooting

Exercise: Write Week 1 report

Complete report, for submission on Monday morning at 8:30am

### Day 6

Lecture: Types of qPCR

Lecture: qPCR experimental design

Exercise: Design a qPCR project based on case study

Exercise: Analysis of qPCR data and trouble shooting

Round table discussion: MIQE requirements



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BIO-TECH  
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