

NTHRYS

OPC PVT LTD

SECTION • SEQ

DNA Sequencing & Genomics

Hands-on wet-lab training across the sequencing workflow — Sanger sequencing, NGS library preparation, whole-genome and targeted sequencing, metagenomics and microbiome profiling, long-read and single-cell sequencing, and run setup with quality control.

06

CATEGORIES

30

PROTOCOLS

SEQ

SECTION ID

2026

EDITION

Categories & Protocols

Section **SEQ** spans 6 category streams and 30 bench protocols. Every protocol carries a unique code for enrolment, tracking and certification.

SEQ-SA	Sanger Sequencing Cycle sequencing, cleanup & chromatogram analysis	05
SEQ-LP	NGS Library Preparation Fragmentation, adapters, indexing & library QC	05
SEQ-WG	Whole-Genome & Targeted Sequencing WGS, exome, amplicon & capture enrichment	05
SEQ-MG	Metagenomics & Microbiome 16S, shotgun, ITS & metatranscriptomic profiling	05
SEQ-LR	Long-Read & Single-Cell Sequencing Nanopore, PacBio & single-cell workflows	05
SEQ-RU	Run Setup, QC & Primary Analysis Sequencer operation, run QC & base-calling	05
TOTAL	All training protocols in section SEQ	30

CODE FORMAT

SEQ • **LP** • **01**

SEQ section

LP category

01 protocol

01

■ CATEGORY · SEQ-SA

Sanger Sequencing

Cycle sequencing, cleanup & chromatogram analysis

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEQ-SA-01

Cycle Sequencing Reaction

Chain-termination set-up.

SEQ-SA-02

Dye-Terminator Chemistry

Fluorescent ddNTP labelling.

SEQ-SA-03

Sequencing Cleanup

Removing unincorporated dyes.

SEQ-SA-04

Capillary Read & Base-Calling

Electrophoretic read-out.

SEQ-SA-05

Chromatogram Analysis & Editing

Trace inspection & calling.

02

■ CATEGORY · SEQ-LP

NGS Library Preparation

Fragmentation, adapters, indexing & library QC

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEQ-LP-01

DNA Fragmentation

Mechanical / enzymatic shearing.

SEQ-LP-02

**End-Repair & Adapter
Ligation**

Adapter attachment.

SEQ-LP-03

Indexing & Barcoding

Sample multiplex tagging.

SEQ-LP-04

PCR Enrichment & Cleanup

Library amplification.

SEQ-LP-05

Library QC & Quantification

Size, yield & molarity check.



■ CATEGORY · SEQ-WG

Whole-Genome & Targeted Sequencing

WGS, exome, amplicon & capture enrichment



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEQ-WG-01

Whole-Genome Sequencing

Full-genome library & run.

SEQ-WG-02

Whole-Exome Sequencing

Coding-region capture.

SEQ-WG-03

Amplicon / Targeted Panels

Defined-region sequencing.

SEQ-WG-04

Hybrid-Capture Enrichment

Probe-based target capture.

SEQ-WG-05

Bacterial / Microbial WGS

Isolate genome sequencing.

04

■ CATEGORY · SEQ-MG

Metagenomics & Microbiome

16S, shotgun, ITS & metatranscriptomic profiling

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEQ-MG-01

**16S rRNA Amplicon
Sequencing**

Bacterial community profiling.

SEQ-MG-02

Shotgun Metagenomics

Whole-community sequencing.

SEQ-MG-03

ITS / Fungal Profiling

Fungal community analysis.

SEQ-MG-04

Metatranscriptomics

Community expression profiling.

SEQ-MG-05

Microbiome Library Prep

Low-biomass library handling.



■ CATEGORY · SEQ-LR

Long-Read & Single-Cell Sequencing

Nanopore, PacBio & single-cell workflows



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEQ-LR-01

Nanopore Sequencing

Real-time long-read sequencing.

SEQ-LR-02

PacBio (HiFi) Sequencing

High-accuracy long reads.

SEQ-LR-03

Single-Cell Library Prep

Per-cell barcoded libraries.

SEQ-LR-04

scRNA-seq Workflow

Single-cell transcriptomes.

SEQ-LR-05

Long-Read Library Preparation

HMW-DNA library handling.



■ CATEGORY · SEQ-RU

Run Setup, QC & Primary Analysis

Sequencer operation, run QC & base-calling



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEQ-RU-01

Sequencer Operation & Run Setup

Instrument run configuration.

SEQ-RU-02

Flow-Cell / Cartridge Loading

Sample & reagent loading.

SEQ-RU-03

Run QC & Quality Metrics

Cluster, Q30 & yield checks.

SEQ-RU-04

Demultiplexing & Base-Calling

Read assignment & calling.

SEQ-RU-05

Read-Quality Assessment

FastQC & trimming checks.

Read genomes base by base

Every protocol in Section SEQ is delivered as hands-on bench training — from Sanger chemistry and NGS library prep through whole-genome, metagenomic and long-read sequencing and run QC. Clean library prep and disciplined run setup are what turn a sample into a trustworthy sequence.

30 protocols

6 categories

SEQ section

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