

NTHRYS

OPC PVT LTD

SECTION • PAT

Pathogen Detection & Molecular Microbiology

Hands-on wet-lab training in detecting and characterising pathogens — pathogen sample preparation and extraction, viral detection and characterisation, bacterial detection and identification, antimicrobial-resistance detection, fungal and parasitic detection, and surveillance and outbreak analysis.

06

CATEGORIES

30

PROTOCOLS

PAT

SECTION ID

2026

EDITION

Categories & Protocols

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

PAT-EX	Pathogen Sample Prep & Extraction Clinical processing & pathogen nucleic-acid recovery	05
PAT-VI	Viral Detection & Characterisation RT-PCR detection, viral load & genotyping	05
PAT-BA	Bacterial Detection & Identification Species-specific PCR, 16S ID & multiplex panels	05
PAT-AMR	Antimicrobial Resistance Detection Resistance-gene PCR, ESBL/carbapenemase & panels	05
PAT-FP	Fungal, Parasitic & Other Pathogens ITS fungal, parasite, mycobacterial & syndromic	05
PAT-SV	Surveillance, Typing & Outbreak Analysis Epidemiology typing, WGS surveillance & tracing	05
TOTAL	All training protocols in section PAT	30

CODE FORMAT

PAT • **VI** • **01**

PAT section

VI category

01 protocol

01

■ CATEGORY · PAT-EX

Pathogen Sample Prep & Extraction

Clinical processing & pathogen nucleic-acid recovery

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

PAT-EX-01

Clinical Sample Processing

Swab, fluid & tissue handling.

PAT-EX-02

Viral Nucleic Acid Extraction

DNA/RNA virus recovery.

PAT-EX-03

Bacterial DNA Extraction

Cell-wall lysis & recovery.

PAT-EX-04

Fungal / Parasite Extraction

Tough-organism extraction.

PAT-EX-05

Inhibitor Removal & Concentration

Clean, concentrated template.

02

CATEGORY • PAT-VI

Viral Detection & Characterisation

RT-PCR detection, viral load & genotyping

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

PAT-VI-01

RT-PCR Viral Detection

RNA-virus detection.

PAT-VI-02

Viral Load Quantification

Copy-number measurement.

PAT-VI-03

Viral Genotyping

Subtype / clade typing.

PAT-VI-04

Viral Whole-Genome
Sequencing

Full-genome characterisation.

PAT-VI-05

Variant Surveillance

Emerging-variant tracking.



■ CATEGORY · PAT-BA

Bacterial Detection & Identification

Species-specific PCR, 16S ID & multiplex panels



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

PAT-BA-01

Species-Specific PCR

Targeted bacterial detection.

PAT-BA-02

16S-Based Bacterial ID

Sequence-based identification.

PAT-BA-03

Multiplex Pathogen Panels

Co-detection of pathogens.

PAT-BA-04

Culture-Independent
Detection

Direct-from-sample detection.

PAT-BA-05

Toxin / Virulence-Gene
Detection

Pathogenicity-marker assays.

04

■ CATEGORY · PAT-AMR

Antimicrobial Resistance Detection

Resistance-gene PCR, ESBL/carbapenemase & panels

05
PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

PAT-AMR-01

Resistance-Gene PCR

Targeted AMR-gene detection.

PAT-AMR-02

Phenotypic Susceptibility Correlation

Genotype-phenotype linkage.

PAT-AMR-03

Carbapenemase / ESBL Detection

Key resistance-mechanism assays.

PAT-AMR-04

AMR Gene Panels

Multiplex resistance profiling.

PAT-AMR-05

Resistance WGS Surveillance

Genome-level AMR tracking.



■ CATEGORY · PAT-FP

Fungal, Parasitic & Other Pathogens

ITS fungal, parasite, mycobacterial & syndromic



CODE	TRAINING PROTOCOL	DESCRIPTION
PAT-FP-01	Fungal Molecular Detection (ITS)	ITS-based fungal ID.
PAT-FP-02	Parasite Molecular Detection	Parasitic-DNA detection.
PAT-FP-03	Mycobacterial Detection	TB / NTM molecular assays.
PAT-FP-04	Atypical / Fastidious Organisms	Hard-to-culture detection.
PAT-FP-05	Multiplex Syndromic Panels	Syndrome-based testing.



■ CATEGORY · PAT-SV

Surveillance, Typing & Outbreak Analysis

Epidemiology typing, WGS surveillance & tracing



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

PAT-SV-01

**Molecular Epidemiology
Typing**

Strain-level typing.

PAT-SV-02

Outbreak Cluster Analysis

Linking related cases.

PAT-SV-03

WGS-Based Surveillance

Genome-resolution monitoring.

PAT-SV-04

**Phylogenetic Strain
Tracking**

Transmission-chain inference.

PAT-SV-05

**Wastewater / Environmental
Surveillance**

Population-level monitoring.

Detect & track pathogens

Every protocol in Section PAT is delivered as hands-on bench training — from clinical sample processing and viral RT-PCR through AMR-gene detection, syndromic panels and WGS surveillance. Fast, specific molecular detection is the front line of infection diagnosis and outbreak response.

30 protocols

6 categories

PAT section

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