

NTHRYS

OPC PVT LTD

SECTION · ISO

Nucleic Acid Isolation & Purification

Hands-on wet-lab training in recovering high-quality nucleic acids — genomic DNA, plasmid and RNA isolation, cell-free and specialised nucleic acids, purification and cleanup, and quantification with integrity and purity assessment.

06

CATEGORIES

30

PROTOCOLS

ISO

SECTION ID

2026

EDITION

Categories & Protocols

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

ISO-GD	Genomic DNA Extraction gDNA from blood, tissue, plants, microbes & HMW DNA	05
ISO-PL	Plasmid DNA Isolation Mini/midi/maxi-prep, endotoxin-free & large constructs	05
ISO-RX	RNA Extraction & Purification Total RNA, mRNA, small RNA & RNase-free handling	05
ISO-SP	Specialised & Cell-Free Nucleic Acids cfDNA, exosomal RNA, viral & single-cell capture	05
ISO-PU	Purification, Cleanup & Concentration Precipitation, bead, column & gel-based cleanup	05
ISO-QT	Quantification & Quality Assessment Spectro, fluorometric & integrity / purity QC	05
TOTAL	All training protocols in section ISO	30

CODE FORMAT

ISO • **RX** • **01**

ISO section

RX category

01 protocol

01

■ CATEGORY · ISO-GD

Genomic DNA Extraction

gDNA from blood, tissue, plants, microbes & HMW DNA

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ISO-GD-01

gDNA from Blood & Cells

Lysis & recovery from cells/blood.

ISO-GD-02

gDNA from Tissue

Solid-tissue digestion & extraction.

ISO-GD-03

gDNA from Plants

CTAB & polysaccharide removal.

ISO-GD-04

gDNA from Bacteria & Fungi

Cell-wall lysis & recovery.

ISO-GD-05

High-Molecular-Weight DNA

Long-fragment, shear-free prep.

02

■ CATEGORY · ISO-PL

Plasmid DNA Isolation

Mini/midi/maxi-prep, endotoxin-free & large constructs

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ISO-PL-01

Alkaline-Lysis Miniprep

Small-scale plasmid recovery.

ISO-PL-02

Midi / Maxi-Prep

Scaled high-yield plasmid prep.

ISO-PL-03

Endotoxin-Free Plasmid Prep

Transfection-grade purity.

ISO-PL-04

Column-Based Purification

Silica-membrane plasmid cleanup.

ISO-PL-05

BAC / Large-Construct Isolation

Low-copy large-vector recovery.



■ CATEGORY · ISO-RX

RNA Extraction & Purification

Total RNA, mRNA, small RNA & RNase-free handling



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ISO-RX-01

Total RNA Extraction

Guanidinium & column methods.

ISO-RX-02

mRNA / poly(A) Enrichment

Oligo-dT mRNA selection.

ISO-RX-03

Small RNA & miRNA Isolation

Short-RNA-retaining recovery.

ISO-RX-04

**RNase-Free Handling &
DNase**

Contamination & DNA removal.

ISO-RX-05

**RNA from FFPE / Difficult
Samples**

Degraded-template recovery.

04

■ CATEGORY · ISO-SP

Specialised & Cell-Free Nucleic Acids

cfDNA, exosomal RNA, viral & single-cell capture

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ISO-SP-01

**Cell-Free DNA (cfDNA)
Isolation**

Plasma circulating-DNA capture.

ISO-SP-02

Circulating / Exosomal RNA

Vesicle-associated RNA recovery.

ISO-SP-03

Viral Nucleic Acid Extraction

DNA/RNA virus recovery.

ISO-SP-04

Mitochondrial DNA Isolation

Organelle-enriched extraction.

ISO-SP-05

**Single-Cell Nucleic Acid
Capture**

Low-input single-cell prep.



■ CATEGORY · ISO-PU

Purification, Cleanup & Concentration

Precipitation, bead, column & gel-based cleanup



CODE	TRAINING PROTOCOL	DESCRIPTION
ISO-PU-01	Phenol-Chloroform Extraction	Organic protein removal.
ISO-PU-02	Ethanol / Isopropanol Precipitation	Concentration & desalting.
ISO-PU-03	Magnetic-Bead Cleanup (SPRI)	Tunable bead-based cleanup.
ISO-PU-04	Silica-Column Purification	Spin-column nucleic-acid cleanup.
ISO-PU-05	Gel Extraction & Size Selection	Fragment recovery from gels.



■ CATEGORY · ISO-QT

Quantification & Quality Assessment

Spectro, fluorometric & integrity / purity QC



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ISO-QT-01

**Spectrophotometric
Quantification**

A260 yield & 260/280 ratio.

ISO-QT-02

Fluorometric Quantification

Dye-based selective quantitation.

ISO-QT-03

**Capillary Integrity (RIN /
DIN)**

Electrophoretic integrity score.

ISO-QT-04

Agarose-Gel Integrity Check

Visual integrity & sizing.

ISO-QT-05

**Purity & Contaminant
Assessment**

Protein, salt & carryover checks.

From sample to pure nucleic acid

Every protocol in Section ISO is delivered as hands-on bench training — from genomic DNA, plasmid and RNA isolation through cleanup, concentration and quantification. Clean, intact, well-quantified nucleic acid is the foundation of every downstream molecular technique.

30 protocols

6 categories

ISO section

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