

NTHRYS

OPC PVT LTD

SECTION • SEP

Electrophoresis & Nucleic Acid Separation

Hands-on wet-lab training in separating and visualising nucleic acids — agarose and polyacrylamide gel electrophoresis, capillary electrophoresis, specialised pulsed-field and gradient formats, gel imaging and documentation, and fragment recovery.

06

CATEGORIES

30

PROTOCOLS

SEP

SECTION ID

2026

EDITION

Categories & Protocols

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

SEP-AG	Agarose Gel Electrophoresis Casting, resolution, sizing, staining & RNA gels	05
SEP-PA	Polyacrylamide Gel Electrophoresis Native, denaturing & high-resolution PAGE	05
SEP-CE	Capillary Electrophoresis Sizing, Sanger reads, STR analysis & calibration	05
SEP-SP	Specialised Electrophoresis Pulsed-field, 2D, gradient & field-inversion gels	05
SEP-DR	Detection, Documentation & Imaging UV imaging, densitometry & analysis software	05
SEP-RT	Fragment Recovery & Troubleshooting Band recovery, electroelution & run optimisation	05
TOTAL	All training protocols in section SEP	30

CODE FORMAT

SEP • **PA** • **01**

SEP section

PA category

01 protocol

01

■ CATEGORY · SEP-AG

Agarose Gel Electrophoresis

Casting, resolution, sizing, staining & RNA gels

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEP-AG-01

Agarose Gel Casting & Running

Standard DNA gel workflow.

SEP-AG-02

Concentration & Resolution Tuning

Matching percentage to fragment size.

SEP-AG-03

DNA Ladder & Size Estimation

Reference-marker fragment sizing.

SEP-AG-04

Staining & Visualisation

EtBr, SYBR & safe-dye detection.

SEP-AG-05

Denaturing RNA Agarose Gels

Formaldehyde RNA separation.

02

■ CATEGORY · SEP-PA

Polyacrylamide Gel Electrophoresis

Native, denaturing & high-resolution PAGE

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEP-PA-01

Native PAGE

Non-denaturing fragment separation.

SEP-PA-02

Denaturing (Urea) PAGE

Single-base resolution gels.

SEP-PA-03

High-Resolution Fragment Separation

Small-fragment discrimination.

SEP-PA-04

Gel Casting & Polymerisation

APS/TEMED pouring technique.

SEP-PA-05

Silver / Fluorescent Staining

Sensitive band detection.



■ CATEGORY · SEP-CE

Capillary Electrophoresis

Sizing, Sanger reads, STR analysis & calibration



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEP-CE-01

Capillary Setup & Operation

Instrument run preparation.

SEP-CE-02

Fragment Sizing & Analysis

Automated size determination.

SEP-CE-03

Sanger Read Separation

Sequencing-trace resolution.

SEP-CE-04

Microsatellite / STR Sizing

Allele-length determination.

SEP-CE-05

Migration & Quality Calibration

Sizing-standard alignment.

04

■ CATEGORY · SEP-SP

Specialised Electrophoresis

Pulsed-field, 2D, gradient & field-inversion gels

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEP-SP-01

Pulsed-Field Gel (PFGE)

Large-DNA separation.

SEP-SP-02

**Two-Dimensional
Electrophoresis**

Orthogonal-axis separation.

SEP-SP-03

Gradient Gels

Continuous-resolution gels.

SEP-SP-04

**Field-Inversion
Electrophoresis**

Switched-field separation.

SEP-SP-05

TGGE / DGGE

Denaturing-gradient profiling.



■ CATEGORY · SEP-DR

Detection, Documentation & Imaging

UV imaging, densitometry & analysis software



CODE	TRAINING PROTOCOL	DESCRIPTION
SEP-DR-01	UV Transillumination & Imaging	Band visualisation & capture.
SEP-DR-02	Densitometry & Quantification	Band-intensity measurement.
SEP-DR-03	Fluorescence Gel Scanning	Multichannel fluorescent imaging.
SEP-DR-04	Gel Documentation Systems	Capture & archival workflow.
SEP-DR-05	Image Analysis & Sizing Software	Lane & band quantitation.



■ CATEGORY · SEP-RT

Fragment Recovery & Troubleshooting

Band recovery, electroelution & run optimisation



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

SEP-RT-01

Gel Excision & Band Recovery

Targeted fragment isolation.

SEP-RT-02

Electroelution

Out-of-gel DNA recovery.

SEP-RT-03

Size Selection from Gels

Cutting defined size ranges.

SEP-RT-04

Smearing & Resolution Troubleshooting

Diagnosing poor runs.

SEP-RT-05

Buffer Systems & Run Optimisation

TAE/TBE choice & voltage.

Resolve every fragment cleanly

Every protocol in Section SEP is delivered as hands-on bench training — from casting and running agarose and PAGE gels through capillary and pulsed-field separation, imaging and band recovery. Clean separation is how you read, size and recover the molecules you have amplified or cut.

30 protocols

6 categories

SEP section

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