

NTHRYS

OPC PVT LTD

SECTION • EPI

Epigenetics & Chromatin Biology

Hands-on wet-lab training in the regulatory layer above the sequence — DNA methylation analysis, chromatin immunoprecipitation, histone and modification analysis, chromatin accessibility and conformation, functional epigenetics and editing, and specialised epigenomic methods.

06

CATEGORIES

30

PROTOCOLS

EPI

SECTION ID

2026

EDITION

Categories & Protocols

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

EPI-ME	DNA Methylation Analysis Bisulfite conversion, sequencing, MSP & arrays	05
EPI-CH	Chromatin Immunoprecipitation (ChIP) Crosslinking, IP, ChIP-qPCR & ChIP-seq	05
EPI-HI	Histone & Modification Analysis Histone extraction, PTM detection & mapping	05
EPI-AC	Chromatin Accessibility & Conformation ATAC-seq, MNase-seq & Hi-C / 3C methods	05
EPI-FN	Functional Epigenetics & Editing Epigenetic editing & modifier-enzyme assays	05
EPI-AN	Specialised Methods & Analysis MeDIP, WGBS, single-cell & peak calling	05
TOTAL	All training protocols in section EPI	30

CODE FORMAT

EPI • **CH** • **01**

EPI section

CH category

01 protocol

01

■ CATEGORY · EPI-ME

DNA Methylation Analysis

Bisulfite conversion, sequencing, MSP & arrays

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EPI-ME-01

Bisulfite Conversion

Cytosine deamination chemistry.

EPI-ME-02

Bisulfite Sequencing

Base-resolution methylation.

EPI-ME-03

Methylation-Specific PCR
(MSP)

Locus methylation detection.

EPI-ME-04

Methylation Arrays

Genome-wide methylation panels.

EPI-ME-05

Pyrosequencing for
Methylation

Quantitative CpG analysis.

02

CATEGORY • EPI-CH

Chromatin Immunoprecipitation (ChIP)

Crosslinking, IP, ChIP-qPCR & ChIP-seq

05
PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EPI-CH-01

Chromatin Crosslinking & Shearing

Fixation & fragmentation.

EPI-CH-02

ChIP Antibody Selection & IP

Target enrichment.

EPI-CH-03

ChIP-qPCR

Locus-level occupancy.

EPI-CH-04

ChIP-seq Library Prep

Genome-wide binding maps.

EPI-CH-05

ChIP Controls & Validation

Input & specificity checks.



■ CATEGORY · EPI-HI

Histone & Modification Analysis

Histone extraction, PTM detection & mapping



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EPI-HI-01

Histone Extraction

Acid-extraction of histones.

EPI-HI-02

Histone PTM Detection

Modification-specific blotting.

EPI-HI-03

Histone-Modification ChIP

Mark-specific occupancy.

EPI-HI-04

Mass-Spec Histone Profiling

Quantitative PTM mapping.

EPI-HI-05

Modification Mapping

Genome-wide mark localisation.

04

■ CATEGORY · EPI-AC

Chromatin Accessibility & Conformation

ATAC-seq, MNase-seq & Hi-C / 3C methods

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EPI-AC-01

ATAC-seq

Open-chromatin transposition.

EPI-AC-02

DNase-seq / FAIRE-seq

Accessibility profiling.

EPI-AC-03

MNase-seq (Nucleosome Mapping)

Nucleosome positioning.

EPI-AC-04

Hi-C / 3C Conformation

3D genome contact mapping.

EPI-AC-05

Open-Chromatin Profiling

Regulatory-region detection.



■ CATEGORY · EPI-FN

Functional Epigenetics & Editing

Epigenetic editing & modifier-enzyme assays



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EPI-FN-01

Epigenetic Editing (dCas9-Effector)

Targeted mark deposition.

EPI-FN-02

DNA Methyltransferase Assays

DNMT activity measurement.

EPI-FN-03

Histone-Modifier Enzyme Assays

Writer / eraser activity.

EPI-FN-04

Reporter-Based Epigenetic Readout

Silencing / activation reporters.

EPI-FN-05

Reprogramming & Erasure Assays

Mark-resetting analysis.



■ CATEGORY · EPI-AN

Specialised Methods & Analysis

MeDIP, WGBS, single-cell & peak calling



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EPI-AN-01

Methylated DNA IP (MeDIP)

Affinity methylation enrichment.

EPI-AN-02

Whole-Genome Bisulfite Sequencing

Genome-wide methylome.

EPI-AN-03

Single-Cell Epigenomics

Per-cell chromatin profiling.

EPI-AN-04

Data Normalisation & Peak Calling

Signal & enrichment analysis.

EPI-AN-05

Integration & Interpretation

Multi-omic epigenetic context.

Read the layer above the sequence

Every protocol in Section EPI is delivered as hands-on bench training — from bisulfite methylation analysis and ChIP through histone profiling, ATAC-seq and epigenetic editing. Epigenetics explains why identical genomes behave so differently from one cell to the next.

30 protocols

6 categories

EPI section

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