

NTHRYS

OPC PVT LTD

SECTION • ANM

Animal & Transgenic Molecular Biology

Hands-on wet-lab training in animal and transgenic molecular biology — animal nucleic-acid and sample preparation, transgenesis and microinjection, ES-cell and knockout technology, animal genome editing, model-organism molecular techniques, and phenotyping and functional analysis.

06

CATEGORIES

30

PROTOCOLS

ANM

SECTION ID

2026

EDITION

Categories & Protocols

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

ANM-NA	Animal Nucleic Acid & Sample Prep Tissue DNA/RNA, genotyping prep & embryo samples	05
ANM-TG	Transgenesis & Microinjection Pronuclear injection, embryo handling & founders	05
ANM-ES	ES Cell & Knockout Technology ES culture, targeting vectors & chimeras	05
ANM-GE	Animal Genome Editing Zygote CRISPR, knock-in & Cre-loxP systems	05
ANM-MO	Model Organism Molecular Techniques Zebrafish, Drosophila, C. elegans & Xenopus	05
ANM-PH	Phenotyping & Functional Analysis Genotyping, expression & colony management	05
TOTAL	All training protocols in section ANM	30

CODE FORMAT

ANM • **TG** • **01**

ANM section

TG category

01 protocol

01

■ CATEGORY · ANM-NA

Animal Nucleic Acid & Sample Prep

Tissue DNA/RNA, genotyping prep & embryo samples

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ANM-NA-01

DNA Extraction from Animal Tissue

Genomic DNA recovery.

ANM-NA-02

RNA Extraction from Animal Tissue

Tissue RNA isolation.

ANM-NA-03

Tail / Ear-Clip Genotyping Prep

Rapid genotyping lysates.

ANM-NA-04

Blood & Serum Nucleic Acids

Circulating-nucleic-acid prep.

ANM-NA-05

Sperm / Embryo Nucleic Acids

Germ-line & embryo DNA.

02

■ CATEGORY · ANM-TG

Transgenesis & Microinjection

Pronuclear injection, embryo handling & founders

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ANM-TG-01

Pronuclear Microinjection

Transgene zygote injection.

ANM-TG-02

Transgene Construct Preparation

Injection-grade DNA prep.

ANM-TG-03

Embryo Collection & Handling

Zygote recovery & culture.

ANM-TG-04

Embryo Transfer

Implantation into recipients.

ANM-TG-05

Founder Identification

Transgenic-founder screening.



■ CATEGORY · ANM-ES

ES Cell & Knockout Technology

ES culture, targeting vectors & chimeras



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ANM-ES-01

ES Cell Culture & Maintenance

Pluripotent-cell handling.

ANM-ES-02

Gene-Targeting Vector Design

Homology-arm construct design.

ANM-ES-03

ES Cell Electroporation & Selection

Targeted-clone recovery.

ANM-ES-04

Chimera Generation

Blastocyst injection / aggregation.

ANM-ES-05

Germline Transmission

Heritable-allele establishment.

04

■ CATEGORY · ANM-GE

Animal Genome Editing

Zygote CRISPR, knock-in & Cre-loxP systems

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ANM-GE-01

**CRISPR Zygote
Microinjection**

One-step embryo editing.

ANM-GE-02

Knock-In Mouse Generation

Precise allele insertion.

ANM-GE-03

**Conditional (Cre-loxP)
Systems**

Tissue / time-specific edits.

ANM-GE-04

**Electroporation-Based
Editing**

Zygote electroporation.

ANM-GE-05

**Editing Verification &
Genotyping**

Allele confirmation.



■ CATEGORY · ANM-MO

Model Organism Molecular Techniques

Zebrafish, Drosophila, C. elegans & Xenopus



CODE

TRAINING PROTOCOL

DESCRIPTION

ANM-MO-01

Zebrafish Microinjection

Embryo injection & editing.

ANM-MO-02

Drosophila Transgenesis

Fly transformation methods.

ANM-MO-03

C. elegans Transformation

Worm microinjection.

ANM-MO-04

Xenopus Microinjection

Oocyte / embryo injection.

ANM-MO-05

Model-Specific Genotyping

Organism-tailored genotyping.



■ CATEGORY · ANM-PH

Phenotyping & Functional Analysis

Genotyping, expression & colony management



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

ANM-PH-01

Transgene / Knockout Genotyping

Routine colony genotyping.

ANM-PH-02

Expression Analysis in Tissues

Tissue-level expression.

ANM-PH-03

Reporter / Lineage Analysis

Reporter-tracked lineages.

ANM-PH-04

Conditional Knockout Validation

Tissue-specific deletion checks.

ANM-PH-05

Colony Management & Breeding

Strain maintenance & crosses.

Build & analyse animal models

Every protocol in Section ANM is delivered as hands-on bench training — from tissue genotyping and pronuclear microinjection through ES-cell targeting, zygote CRISPR and model-organism transgenesis. Animal models connect molecular changes to whole-organism biology.

30 protocols

6 categories

ANM section

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