

NTHRYS

OPC PVT LTD

SECTION • AMP

PCR & Nucleic Acid Amplification

Hands-on wet-lab training across the full amplification toolkit — conventional end-point PCR, quantitative real-time PCR, reverse-transcription PCR, digital and high-sensitivity PCR, specialised and multiplex formats, and isothermal amplification.

06

CATEGORIES

30

PROTOCOLS

AMP

SECTION ID

2026

EDITION

Categories & Protocols

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

AMP-PC	Conventional PCR End-point, gradient, touchdown, hot-start & colony PCR	05
AMP-QP	Quantitative Real-Time PCR (qPCR) SYBR, probe-based, standard-curve & melt analysis	05
AMP-RT	Reverse-Transcription PCR One/two-step RT, cDNA synthesis & RT-qPCR	05
AMP-DP	Digital & High-Sensitivity PCR ddPCR, chip dPCR, rare-allele & CNV detection	05
AMP-SP	Specialised & Multiplex Amplification Multiplex, nested, long-range & difficult templates	05
AMP-IA	Isothermal Amplification LAMP, RPA, NASBA, RCA & helicase-dependent methods	05
TOTAL	All training protocols in section AMP	30

CODE FORMAT

AMP · **QP** · **01**

AMP section

QP category

01 protocol

01

■ CATEGORY · AMP-PC

Conventional PCR

End-point, gradient, touchdown, hot-start & colony PCR

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

AMP-PC-01

Standard End-Point PCR

Core thermal-cycling workflow.

AMP-PC-02

Gradient & Annealing
Optimisation

Finding optimal annealing temp.

AMP-PC-03

Touchdown PCR

Specificity-enhancing ramp protocol.

AMP-PC-04

Hot-Start PCR

Reduced non-specific priming.

AMP-PC-05

Colony PCR

Direct screening from colonies.

02

■ CATEGORY · AMP-QP

Quantitative Real-Time PCR (qPCR)

SYBR, probe-based, standard-curve & melt analysis

05
PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

AMP-QP-01

SYBR-Green qPCR

Intercalating-dye quantification.

AMP-QP-02

Probe-Based (TaqMan) qPCR

Hydrolysis-probe detection.

AMP-QP-03

Standard-Curve & Absolute Quant

Copy-number quantification.

AMP-QP-04

Relative Quantification ($\Delta\Delta C_t$)

Normalised expression ratios.

AMP-QP-05

Melt-Curve Analysis

Product specificity verification.



■ CATEGORY · AMP-RT

Reverse-Transcription PCR

One/two-step RT, cDNA synthesis & RT-qPCR



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

AMP-RT-01

One-Step RT-PCR

Combined RT & amplification.

AMP-RT-02

Two-Step RT-PCR

Separate cDNA then PCR.

AMP-RT-03

cDNA Synthesis & Priming

Random, oligo-dT & gene-specific.

AMP-RT-04

RT-qPCR Workflow

Quantitative expression assay.

AMP-RT-05

Strand-Specific RT

Directional cDNA generation.

04

■ CATEGORY · AMP-DP

Digital & High-Sensitivity PCR

ddPCR, chip dPCR, rare-allele & CNV detection

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

AMP-DP-01

Droplet Digital PCR (ddPCR)

Partition-based absolute quant.

AMP-DP-02

Chip / Chamber Digital PCR

Microfluidic partitioning.

AMP-DP-03

Absolute Quantification by dPCR

Standard-free quantitation.

AMP-DP-04

Rare-Allele & Low-Frequency Detection

Sensitive variant detection.

AMP-DP-05

Copy-Number Variation Analysis

Precise CNV measurement.



■ CATEGORY · AMP-SP

Specialised & Multiplex Amplification

Multiplex, nested, long-range & difficult templates



CODE

TRAINING PROTOCOL

DESCRIPTION

AMP-SP-01

Multiplex PCR

Multiple targets in one reaction.

AMP-SP-02

Nested PCR

Two-round specificity boost.

AMP-SP-03

Long-Range PCR

Kilobase-scale amplification.

AMP-SP-04

Inverse & Asymmetric PCR

Flanking & single-strand products.

AMP-SP-05

High-GC / Difficult-Template PCR

Additives & enhancers.



■ CATEGORY · AMP-IA

Isothermal Amplification

LAMP, RPA, NASBA, RCA & helicase-dependent methods



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

AMP-IA-01

**Loop-Mediated
Amplification (LAMP)**

Single-temperature amplification.

AMP-IA-02

**Recombinase Polymerase
Amp (RPA)**

Rapid low-temperature assay.

AMP-IA-03

NASBA / TMA

Isothermal RNA amplification.

AMP-IA-04

**Rolling-Circle Amplification
(RCA)**

Circular-template amplification.

AMP-IA-05

**Helicase-Dependent
Amplification**

Enzyme-driven strand separation.

Amplify any target sequence

Every protocol in Section AMP is delivered as hands-on bench training — from primer-driven end-point PCR through real-time quantification, digital PCR and isothermal methods. Amplification is the engine room of the molecular lab, and reproducible reactions start with disciplined technique.

30 protocols

6 categories

AMP section

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