

NTHRYS
OPC PVT LTD

SECTION • EXH

Expression Host Systems

Hands-on wet-lab training in recombinant expression across host platforms — bacterial, yeast, insect-cell / baculovirus and mammalian expression, cell-free and specialised systems, and expression optimisation and scale-up.

06

CATEGORIES

30

PROTOCOLS

EXH

SECTION ID

2026

EDITION

Categories & Protocols

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

EXH-EC	Bacterial (E. coli) Expression Strain choice, induction & soluble-expression tuning	05
EXH-YE	Yeast Expression Systems S. cerevisiae, Pichia, secretion & glycosylation	05
EXH-IN	Insect Cell / Baculovirus Expression Baculovirus construction & Sf9 / High-Five culture	05
EXH-MA	Mammalian Expression Systems HEK293, CHO, suspension & stable-line expression	05
EXH-CF	Cell-Free & Specialised Systems E. coli, wheat-germ & PURE cell-free synthesis	05
EXH-OP	Expression Optimisation & Scale-Up Induction, media, chaperones & fermenter scale-up	05
TOTAL	All training protocols in section EXH	30

CODE FORMAT

EXH • **MA** • **01**

EXH section

MA category

01 protocol

01

■ CATEGORY · EXH-EC

Bacterial (E. coli) Expression

Strain choice, induction & soluble-expression tuning

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EXH-EC-01

E. coli Strain Selection

BL21, Rosetta & specialty strains.

EXH-EC-02

IPTG-Induced Expression

lac/T7 promoter induction.

EXH-EC-03

**Inclusion Body
Management**

Recovery & refolding strategy.

EXH-EC-04

**Soluble Expression
Optimisation**

Maximising soluble yield.

EXH-EC-05

Auto-Induction Systems

Self-inducing media expression.

02

CATEGORY • EXH-YE

Yeast Expression Systems

S. cerevisiae, Pichia, secretion & glycosylation

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EXH-YE-01

S. cerevisiae Expression

Baker's-yeast expression.

EXH-YE-02

Pichia pastoris Expression

High-density methylotroph host.

EXH-YE-03

Methanol-Induced
Expression

AOX1-driven induction.

EXH-YE-04

Secretion Signal
Optimisation α -factor secretion tuning.

EXH-YE-05

Glycosylation
Considerations

Managing yeast glycans.



■ CATEGORY · EXH-IN

Insect Cell / Baculovirus Expression

Baculovirus construction & Sf9 / High-Five culture



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EXH-IN-01

Baculovirus Construction

Bacmid / transfer-vector build.

EXH-IN-02

Sf9 / Sf21 Cell Culture

Host insect-cell maintenance.

EXH-IN-03

High-Five Cell Expression

High-yield secretion host.

EXH-IN-04

Baculovirus Amplification

Viral-stock titre build-up.

EXH-IN-05

Protein Expression & Harvest

Infection & recovery timing.

04

■ CATEGORY · EXH-MA

Mammalian Expression Systems

HEK293, CHO, suspension & stable-line expression

05

PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EXH-MA-01

HEK293 Transient Expression

Rapid mammalian production.

EXH-MA-02

CHO Stable Expression

Industrial stable-line host.

EXH-MA-03

Suspension-Culture Scale-Up

Shake-flask / bioreactor growth.

EXH-MA-04

Serum-Free Expression

Defined-media production.

EXH-MA-05

Stable Cell Line Selection

Clone isolation & selection.



■ CATEGORY · EXH-CF

Cell-Free & Specialised Systems

E. coli, wheat-germ & PURE cell-free synthesis



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EXH-CF-01

E. coli Cell-Free Expression

Lysate-based synthesis.

EXH-CF-02

Wheat-Germ Cell-Free Expression

Eukaryotic cell-free system.

EXH-CF-03

PURE System Expression

Reconstituted minimal system.

EXH-CF-04

Coupled Transcription-Translation

One-pot TX-TL reactions.

EXH-CF-05

Membrane-Protein Cell-Free Synthesis

Detergent / nanodisc expression.



■ CATEGORY · EXH-OP

Expression Optimisation & Scale-Up

Induction, media, chaperones & fermenter scale-up



PROTOCOLS

CODE

TRAINING PROTOCOL

DESCRIPTION

EXH-OP-01

Induction & Temperature Optimisation

Time, temp & inducer tuning.

EXH-OP-02

Media & Feed Optimisation

Nutrient & feeding strategy.

EXH-OP-03

Codon & Chaperone Co-Expression

Folding & translation support.

EXH-OP-04

Small-Scale Expression Screening

Condition-matrix screening.

EXH-OP-05

Bioreactor / Fermenter Scale-Up

Controlled large-scale growth.

Choose the right expression host

Every protocol in Section EXH is delivered as hands-on training across expression platforms — from E. coli and yeast through baculovirus, mammalian and cell-free systems, with optimisation and scale-up. The host you choose shapes folding, modification, yield and downstream purification.

30 protocols

6 categories

EXH section

NTHRYS OPC PVT LTD

+91-8977624748 · smo@nthrys.com · www.nthrys.com