

NTHRYS

OPC PVT LTD

CATALOGUE 06 • NBGP

Gene Prediction & Genome Annotation

A complete industrial catalogue of hands-on training modules in gene prediction and genome annotation — from gene architecture and coordinate conventions to prokaryotic and eukaryotic gene calling, evidence-driven and comparative annotation, non-coding and repeat annotation, functional assignment, quality control, organelle and viral special cases, INSDC submission and reproducible pipelines. Every module is issued against its own controlled protocol, contact-hour allocation and published fee.

59 PROTOCOL-BACKED MODULES • 10 CATEGORY STREAMS
1618 CONTACT HOURS • 2026 EDITION

59

MODULES

10

STREAMS

1618

HOURS

59

PROTOCOLS

Program Categories at a Glance

This catalogue lists every gene-prediction and annotation method our training programs are equipped to operate and teach, organised into 10 technology streams. Each module carries a unique product code, a controlled protocol document, an individually assessed contact-hour allocation and its own published fee. No two protocols are priced alike — duration and fee follow the pipeline depth, compute load and assessment weight of that specific module.

STREAM	CATEGORY	FOCUS DESCRIPTION	MODULES	HOURS	DAYS	BUNDLE (INR)
NBGP-FD	Gene Structure & Annotation Foundations	Architecture, coordinates & annotation formats	6	134	24	40,400
NBGP-PK	Prokaryotic Gene Prediction & Annotation	ORF calling, RBS, ncRNA & complete pipelines	6	162	29	49,900
NBGP-AB	Ab Initio Eukaryotic Gene Prediction	Sensors, HMM gene models & predictor training	6	188	34	58,600
NBGP-EV	Evidence-Based & Comparative Annotation	RNA-seq, homology, liftover & consensus models	6	190	34	59,500
NBGP-NC	Non-Coding & Repeat Annotation	ncRNA, covariance models, repeats & masking	6	172	30	53,700
NBGP-FU	Functional Annotation of Gene Sets	Homology transfer, GO, pathways & naming	6	152	28	46,800
NBGP-QC	Annotation Quality Control & Validation	Metrics, version tracking, curation & correction	6	160	29	49,600
NBGP-OG	Organelle, Viral & Special-Case Annotation	Mitochondria, plastids, viruses & odd codes	5	130	23	40,200
NBGP-SB	Submission, Standards & Deposition	INSDC requirements, validation & versioning	6	150	27	46,500
NBGP-AU	Automation, Pipelines & Reporting	Reproducible pipelines, feature stores & delivery	6	180	32	56,300
Complete NBGP catalogue			59	1618	290	383,400

HOW TO READ A MODULE CODE

NBGP – FD – 01

NBGP
Nthrys Bioinformatics catalogue — Gene Prediction & Genome Annotation

FD
Category stream code

01
Module number within the stream

HOW TO READ A PROTOCOL REFERENCE

PRT/NBGP/FD/01

PRT
Controlled protocol held in the training SOP register

NBGP/FD/01
Maps one-to-one to the module code alongside

Bundle figures are the discounted price for enrolling in every module of that stream together. Individual module hours and fees are printed on each category page. All fees exclude applicable GST.

Every Module Is a Controlled Protocol

There is no flat course fee in this catalogue. Each module is written up as its own protocol document, timed against the work it actually contains, and priced on that basis — contact hours, algorithmic and compute load, number of tools operated and the depth of the assessment task.

CONTENTS OF EVERY PRT DOCUMENT

01

Scope & competency statement

What the trainee will be able to do on completion, mapped to the module code.

02

Resource inventory

Tools, versions, reference databases and datasets recorded before start.

03

Stepwise procedure

Numbered operations with decision points, parameters and expected intermediates.

04

Worked reference exercise

A supplied query and subject set with the correct output for self-verification.

05

Acceptance criteria

The result a trainee must reproduce for the protocol to be signed as complete.

06

Failure modes & troubleshooting

Known error states, misleading hits and how each is resolved.

07

Assessment task & marking

The independent task, its weighting and the pass threshold.

08

Completion record

Trainer sign-off, date, hours logged and certificate serial entry.

MODULE DURATION RANGE

18 – 40 hours

Allocated per protocol, not per tier. A scoring-concepts module runs 18 hours; profile-profile remote homology detection runs 40.

MODULE FEE RANGE

INR 6,300 – 14,800

Set individually against each protocol. Iterative profile search, genome-scale alignment and pipeline construction carry the highest compute and supervision load.

1618

290

59

TOTAL HOURS

TOTAL DAYS

PROTOCOLS

ENROLMENT OPTION	SCOPE	HOURS	FEE (INR)	SAVING
Single Module	Any one module code, priced as printed on its category page	18 – 40	6,300 – 14,800	—
Stream Bundle	Every module within one category stream	130 – 190	40,200 – 59,500	15%
Core Annotation Track	Streams FD, PK, AB, EV, NC — 30 modules	846	240,500	22%
Professional Track	Streams FD through OG — 47 modules	1288	337,700	28%
Complete NBP Catalogue	All 10 streams — 59 modules, 59 protocols	1618	383,400	35%

WHAT THE MODULE FEE INCLUDES

— Workstation access — dedicated Linux workstation for the logged hours of the module

— Issued protocol — the controlled PRT document, retained by the candidate

— Reference datasets — query sets, subject databases and verified reference outputs

— Certification — serially numbered certificate quoting module code, protocol reference and hours

— Post-training support — 60 days of query support by email

ENROLMENT & PAYMENT TERMS

— Registration — INR 1,000 per candidate, adjusted against the module fee

— Taxes — GST applicable at prevailing rates over and above listed fees

— Live-online mode — 80% of the listed on-campus fee for eligible modules

— Concessions — 10% for groups of three or more; 15% against a valid institutional identity card

— Scheduling — rolling monthly intakes; custom dates for institutional groups

— Validity — fees quoted for the 2026 edition, confirmed at the time of enrolment

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03 / 14

01

CATEGORY • NBGP-FD

Gene Structure & Annotation Foundations

Architecture, coordinates & annotation formats

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-FD-01	Prokaryotic & Eukaryotic Gene Architecture Operons, introns, UTRs & structural differences.	PRT/NBGP/FD/01	18 HOURS	03 DAYS	6,300
NBGP-FD-02	Reading Frames, ORFs & Genetic Codes Frame handling, code tables & start/stop logic.	PRT/NBGP/FD/02	20 HOURS	04 DAYS	7,000
NBGP-FD-03	Splice Sites, UTRs & Transcript Structure Donor/acceptor consensus & transcript boundaries.	PRT/NBGP/FD/03	24 HOURS	04 DAYS	8,500
NBGP-FD-04	Levels of Annotation & Evidence Hierarchy Structural, functional & evidence-tier annotation.	PRT/NBGP/FD/04	22 HOURS	04 DAYS	7,800
NBGP-FD-05	Coordinates, Strands & Interval Conventions 0- versus 1-based systems & off-by-one control.	PRT/NBGP/FD/05	24 HOURS	04 DAYS	8,600
NBGP-FD-06	Annotation Formats: GFF3, GTF, BED & EMBL Specification detail, parent-child links & validation.	PRT/NBGP/FD/06	26 HOURS	05 DAYS	9,300

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 134 HOURS • 24 DAYS

~~47,500~~ 40,400 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

02

CATEGORY • NBGP-PK

Prokaryotic Gene Prediction & Annotation

ORF calling, RBS, ncRNA & complete pipelines

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-PK-01	ORF Finding & Start Codon Selection Start site refinement & alternative initiation.	PRT/NBGP/PK/01	24 HOURS	04 DAYS	8,500
NBGP-PK-02	Ab Initio Prokaryotic Gene Calling Model training, GC bias handling & caller operation.	PRT/NBGP/PK/02	28 HOURS	05 DAYS	10,000
NBGP-PK-03	Ribosome Binding Sites & Promoter Identification Shine-Dalgarno motifs & promoter prediction.	PRT/NBGP/PK/03	26 HOURS	05 DAYS	9,400
NBGP-PK-04	Bacterial Non-Coding RNA Annotation tRNA, rRNA & small RNA calling in bacteria.	PRT/NBGP/PK/04	26 HOURS	05 DAYS	9,500
NBGP-PK-05	Complete Prokaryotic Annotation Pipelines End-to-end genome annotation & output curation.	PRT/NBGP/PK/05	34 HOURS	06 DAYS	12,600
NBGP-PK-06	Pseudogenes, Frameshifts & Fragmented Genes Detection, flagging & reporting conventions.	PRT/NBGP/PK/06	24 HOURS	04 DAYS	8,700

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 162 HOURS • 29 DAYS

~~58,700~~ 49,900 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

03

CATEGORY • NBGP-AB

Ab Initio Eukaryotic Gene Prediction

Sensors, HMM gene models & predictor training

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-AB-01	Signal & Content Sensors in Gene Finders Splice, start and coding-potential sensors.	PRT/NBGP/AB/01	28 HOURS	05 DAYS	10,000
NBGP-AB-02	HMM-Based Eukaryotic Gene Models State architecture, duration models & decoding.	PRT/NBGP/AB/02	32 HOURS	06 DAYS	11,700
NBGP-AB-03	Training a Gene Finder on a New Species Training set curation, iteration & validation.	PRT/NBGP/AB/03	40 HOURS	07 DAYS	14,800
NBGP-AB-04	Parameter Estimation & Species-Specific Models Intron length, GC content & codon usage tuning.	PRT/NBGP/AB/04	34 HOURS	06 DAYS	12,600
NBGP-AB-05	Alternative Splicing in Ab Initio Prediction Isoform handling & the limits of ab initio calls.	PRT/NBGP/AB/05	28 HOURS	05 DAYS	10,300
NBGP-AB-06	Benchmarking Predictor Accuracy Sensitivity and specificity at base, exon & gene level.	PRT/NBGP/AB/06	26 HOURS	05 DAYS	9,500

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 188 HOURS • 34 DAYS

~~68,900~~ 58,600 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

04

CATEGORY • NBGP-EV

Evidence-Based & Comparative Annotation

RNA-seq, homology, liftover & consensus models

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-EV-01	RNA-Seq Evidence & Transcript Assembly Alignment, assembly & transcript evidence tracks.	PRT/NBGP/EV/01	36 HOURS	06 DAYS	13,300
NBGP-EV-02	Protein Homology Evidence & Spliced Alignment Cross-species protein evidence & frame-aware hits.	PRT/NBGP/EV/02	32 HOURS	06 DAYS	11,800
NBGP-EV-03	Full-Length Transcript & cDNA Evidence Long-read transcript evidence & UTR definition.	PRT/NBGP/EV/03	26 HOURS	05 DAYS	9,500
NBGP-EV-04	Comparative & Liftover Annotation Projecting annotation across assemblies & species.	PRT/NBGP/EV/04	30 HOURS	05 DAYS	11,000
NBGP-EV-05	Evidence Combination & Consensus Gene Models Combiner operation, weights & model selection.	PRT/NBGP/EV/05	38 HOURS	07 DAYS	14,100
NBGP-EV-06	Weighting Evidence & Resolving Model Conflicts Conflict rules, priority & documented decisions.	PRT/NBGP/EV/06	28 HOURS	05 DAYS	10,300

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 190 HOURS • 34 DAYS

~~70,000~~ 59,500 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

05

CATEGORY • NBGP-NC

Non-Coding & Repeat Annotation

ncRNA, covariance models, repeats & masking

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-NC-01	tRNA, rRNA & Housekeeping ncRNA Annotation Structure-aware calling & copy-number reporting.	PRT/NBGP/NC/01	24 HOURS	04 DAYS	8,700
NBGP-NC-02	miRNA, lncRNA & Small RNA Annotation Class definition, evidence & naming conventions.	PRT/NBGP/NC/02	30 HOURS	05 DAYS	11,000
NBGP-NC-03	Covariance Models & Family Scanning Structure-based family models & scan thresholds.	PRT/NBGP/NC/03	32 HOURS	06 DAYS	11,800
NBGP-NC-04	Repeat Library Construction & De Novo Discovery Building species-specific repeat libraries.	PRT/NBGP/NC/04	34 HOURS	06 DAYS	12,600
NBGP-NC-05	Transposable Element Classification Element classes, hierarchy & annotation output.	PRT/NBGP/NC/05	30 HOURS	05 DAYS	11,100
NBGP-NC-06	Masking Strategy & Effect on Gene Calls Soft/hard masking decisions & downstream impact.	PRT/NBGP/NC/06	22 HOURS	04 DAYS	8,000

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 172 HOURS • 30 DAYS

~~69,200~~ 53,700 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

06

CATEGORY • NBGP-FU

Functional Annotation of Gene Sets

Homology transfer, GO, pathways & naming

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-FU-01	Homology-Based Functional Assignment Best-hit rules, thresholds & transfer caution.	PRT/NBGP/FU/01	26 HOURS	05 DAYS	9,400
NBGP-FU-02	Domain & Signature-Based Annotation Transfer Signature scans as functional evidence.	PRT/NBGP/FU/02	28 HOURS	05 DAYS	10,100
NBGP-FU-03	GO Term Assignment & Evidence Codes Automated assignment & evidence code discipline.	PRT/NBGP/FU/03	26 HOURS	05 DAYS	9,500
NBGP-FU-04	Pathway & Enzyme Number Assignment EC assignment, pathway mapping & gap analysis.	PRT/NBGP/FU/04	28 HOURS	05 DAYS	10,200
NBGP-FU-05	Product Naming Standards & Nomenclature Naming rules, forbidden terms & consistency.	PRT/NBGP/FU/05	20 HOURS	04 DAYS	7,200
NBGP-FU-06	Curating Hypothetical & Uncharacterised Proteins Triage, weak-evidence handling & reporting.	PRT/NBGP/FU/06	24 HOURS	04 DAYS	8,700

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 152 HOURS • 28 DAYS

~~55,100~~ 46,800 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

07

CATEGORY • NBGP-QC

Annotation Quality Control & Validation

Metrics, version tracking, curation & correction

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-QC-01	Structural Annotation QC Metrics Gene length, exon count & distribution sanity checks.	PRT/NBGP/QC/01	26 HOURS	05 DAYS	9,400
NBGP-QC-02	Comparing Annotation Versions & Tracking Change Version diffing, stable IDs & change logs.	PRT/NBGP/QC/02	24 HOURS	04 DAYS	8,700
NBGP-QC-03	Detecting Fused, Split & Missing Genes Diagnostic signals & corrective curation.	PRT/NBGP/QC/03	30 HOURS	05 DAYS	11,000
NBGP-QC-04	Completeness Assessment of Annotation Single-copy ortholog completeness & interpretation.	PRT/NBGP/QC/04	26 HOURS	05 DAYS	9,500
NBGP-QC-05	Manual Curation in Genome Browsers Browser-based editing, evidence review & sign-off.	PRT/NBGP/QC/05	32 HOURS	06 DAYS	11,700
NBGP-QC-06	Error Propagation & Correction Workflows Tracing propagated errors & issuing corrections.	PRT/NBGP/QC/06	22 HOURS	04 DAYS	8,000

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 160 HOURS • 29 DAYS

~~58,300~~ 49,600 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

08

CATEGORY • NBGP-OG

Organelle, Viral & Special-Case Annotation

Mitochondria, plastids, viruses & odd codes

5

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-OG-01	Mitochondrial Genome Annotation Gene set, code tables & circular coordinate handling.	PRT/NBGP/OG/01	28 HOURS	05 DAYS	10,100
NBGP-OG-02	Chloroplast & Plastid Genome Annotation Inverted repeats, gene set & standard conventions.	PRT/NBGP/OG/02	26 HOURS	05 DAYS	9,500
NBGP-OG-03	Viral Genome & Polyprotein Annotation Mature peptides, overlapping ORFs & conventions.	PRT/NBGP/OG/03	30 HOURS	05 DAYS	11,000
NBGP-OG-04	Non-Standard Genetic Codes & Selenoproteins Alternative codes & recoded residue annotation.	PRT/NBGP/OG/04	24 HOURS	04 DAYS	8,700
NBGP-OG-05	Programmed Frameshifts & Unusual Gene Features Ribosomal slippage, RNA editing & annotation.	PRT/NBGP/OG/05	22 HOURS	04 DAYS	8,000

STREAM BUNDLE • 5 MODULES • 5 PROTOCOLS • 130 HOURS • 23 DAYS

~~47,300~~ 40,200 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

09

CATEGORY • NBGP-SB

Submission, Standards & Deposition

INSDC requirements, validation & versioning

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-SB-01	INSDC Annotation Requirements & Structured Comments Required qualifiers & assembly metadata.	PRT/NBGP/SB/01	24 HOURS	04 DAYS	8,700
NBGP-SB-02	Preparing Submission Files & Feature Tables Feature table construction & conversion tools.	PRT/NBGP/SB/02	30 HOURS	05 DAYS	11,000
NBGP-SB-03	Locus Tags, Gene Naming & Registry Conventions Prefix registration & consistent tagging.	PRT/NBGP/SB/03	20 HOURS	04 DAYS	7,200
NBGP-SB-04	Validation Errors & Their Resolution Common validator failures & systematic fixes.	PRT/NBGP/SB/04	26 HOURS	05 DAYS	9,500
NBGP-SB-05	Assembly and Annotation Submission Packages Assembling a complete, accepted submission set.	PRT/NBGP/SB/05	32 HOURS	06 DAYS	11,800
NBGP-SB-06	Post-Submission Updates & Versioning Annotation updates, replacement & version history.	PRT/NBGP/SB/06	18 HOURS	03 DAYS	6,500

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 150 HOURS • 27 DAYS

~~54,700~~ 46,500 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

10

CATEGORY • NBGP-AU

Automation, Pipelines & Reporting

Reproducible pipelines, feature stores & delivery

6

MODULES

CODE	TRAINING MODULE	PROTOCOL REF	DURATION		FEE (INR)
NBGP-AU-01	Building a Reproducible Annotation Pipeline Workflow construction, checkpoints & re-runs.	PRT/NBGP/AU/01	40 HOURS	07 DAYS	14,800
NBGP-AU-02	Containerised Annotation Workflows Images, environments & portable execution.	PRT/NBGP/AU/02	30 HOURS	05 DAYS	11,100
NBGP-AU-03	Programmatic GFF3 Parsing & Transformation Robust parsing, feature graphs & conversion.	PRT/NBGP/AU/03	28 HOURS	05 DAYS	10,200
NBGP-AU-04	Annotation Databases & Feature Stores Schema design, loading & queryable annotation.	PRT/NBGP/AU/04	32 HOURS	06 DAYS	11,900
NBGP-AU-05	Genome Browser Track Generation & Hosting Track files, indexing & hub deployment.	PRT/NBGP/AU/05	26 HOURS	05 DAYS	9,500
NBGP-AU-06	Annotation Reports & Delivery Packages Summary statistics, files & client handover.	PRT/NBGP/AU/06	24 HOURS	04 DAYS	8,700

STREAM BUNDLE • 6 MODULES • 6 PROTOCOLS • 180 HOURS • 32 DAYS

~~66,200~~ 56,300 INR

Each module is enrolled and certified independently against its own protocol reference, or taken together as the discounted stream bundle. Duration is the logged contact-hour allocation for that protocol; days are computed at six contact hours per working day. Fees exclude applicable GST.

Build a Career in Genome Annotation

Every module in this catalogue is delivered as hands-on training on live genome assemblies and working annotation installations, against a controlled protocol issued at the start and signed off at the end — covering gene architecture and interval conventions, prokaryotic and eukaryotic gene calling, gene-finder training, RNA-seq and homology evidence integration, non-coding and repeat annotation, functional assignment and nomenclature, structural quality control and manual curation, organelle and viral special cases, INSDC submission and validation, and the containerised pipelines that make an annotation reproducible. Mix and match modules to design a track that fits your goals.

59TRAINING
MODULES

59CONTROLLED
PROTOCOLS

10CATEGORY
STREAMS

1618CONTACT
HOURS

06OF THE NTHRYS
BIOINFORMATICS SERIES**NTHRYS OPC PVT LTD**

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CATALOGUE

NBGP • 2026 Edition