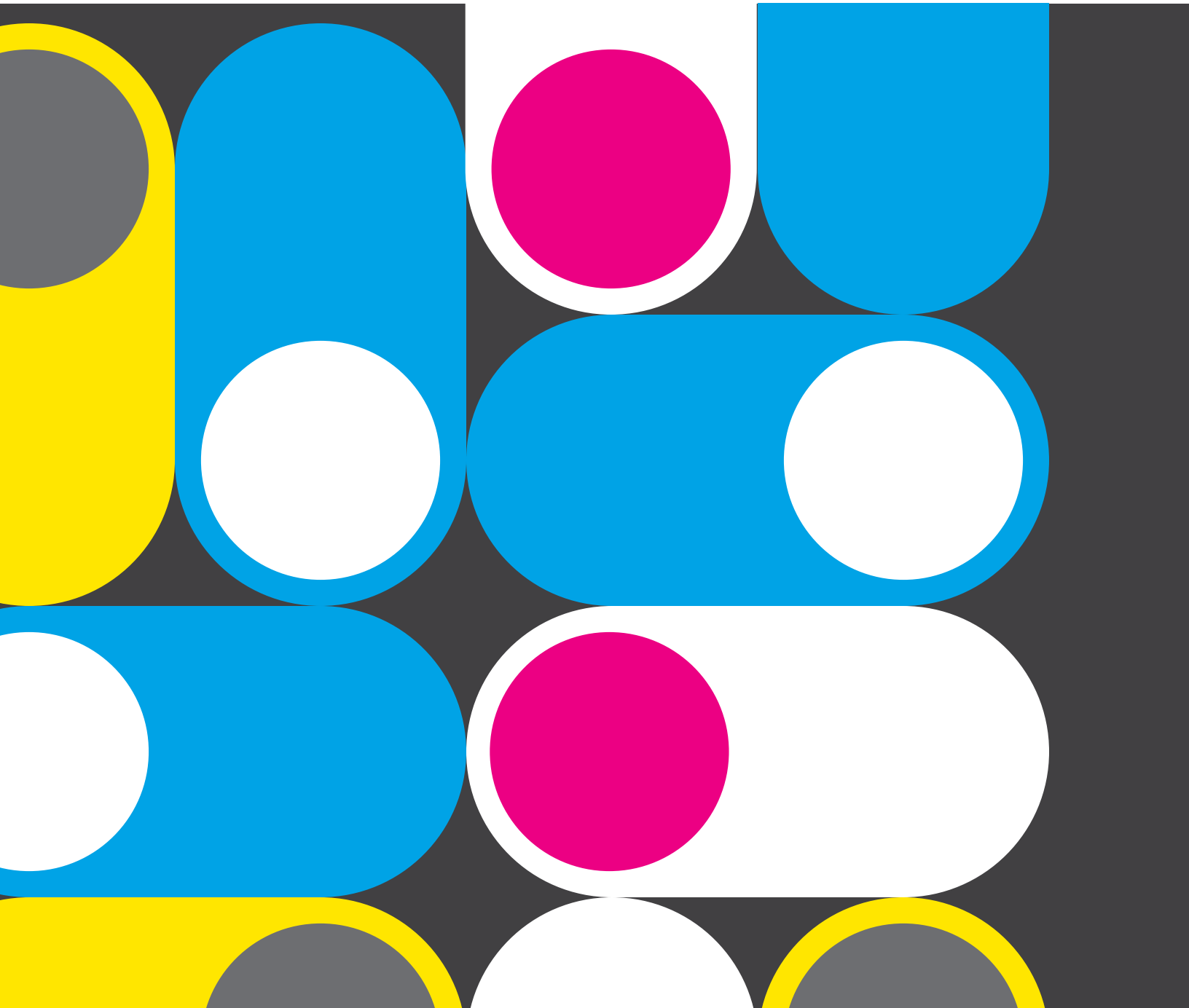
bioengineering solutions

Gene synthesis & GeneGPS®
Expression vectors & VectorGPS®
Protein expression & Analytics
Protein engineering & ProteinGPS®
Cell line development with Leap-In Transposase®
GMP Cell banking

ATUM

Your CRDO partner



Your CRDO Partner

ATUM is a fully integrated CRDO (Contract Research Development Organization) biotechnology industry leader who over the last two decades has served our clients by delivering the highest quality Gene Design & Gene Synthesis, Protein Production, Protein Engineering, Cell Line development, using our own proprietary Leap-In Transposase and Master Cell Banking.

With a state-of-the-art machine learning platform, we take you from sequence to MCB with a click of the button. ATUM provides a continual commitment to innovation where our services are built on bioengineered solutions to bring speed to market, supporting you from pre-clinical through IND.

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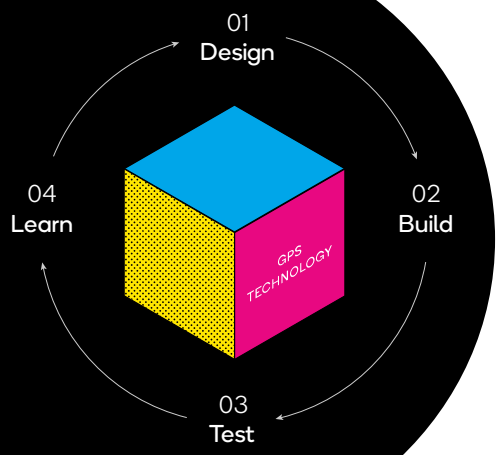
ATUM

A Fully Integrated Ecosystem

Every path to discovery is different. We focus on your goals and work with you to achieve them. Whether you need genes, proteins, antibodies or cell lines, ATUM delivers solutions to advance your research and speed to market.

ATUM's GPS platform - the key to your success

- Gene optimization with GeneGPS®
- Vector optimization with VectorGPS®
- Protein optimization with ProteinGPS®



From virtual sequence to MCB, your partner in development

Learn more

SCAN ME

Gene synthesis with GeneGPS® & VectorGPS®

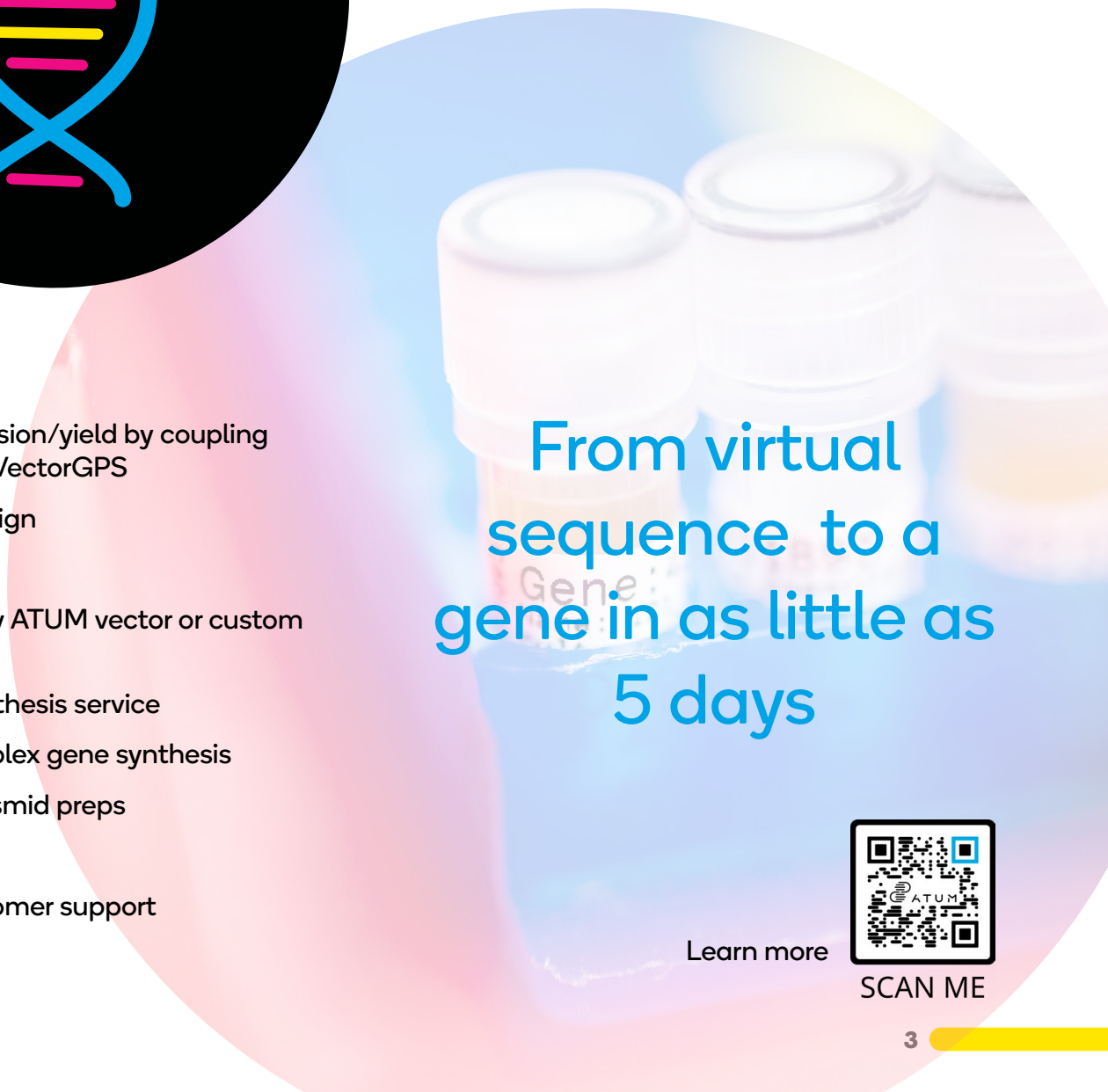
Using our proprietary GeneGPS® and VectorGPS® platforms we design constructs optimized to express in your system, whether that's a single gene in *E. coli*, a metabolic pathway in yeast or a complex bispecific antibody in mammalian cells.

Gene expression optimization with GeneGPS

- Maximal expression/yield
- GeneGPS, a patented gene design algorithm outperforms alternative methods
- Fast, efficient and robust for any sequence

Gene synthesis

- Maximal expression/yield by coupling GeneGPS with VectorGPS
- Flexibility of design
- Gene variants
- Cloning into any ATUM vector or custom cloning
- RUSH gene synthesis service
- Large and complex gene synthesis
- Large scale plasmid preps
- Fast turnaround
- Ph.D. level customer support



From virtual sequence to a gene in as little as 5 days

Learn more

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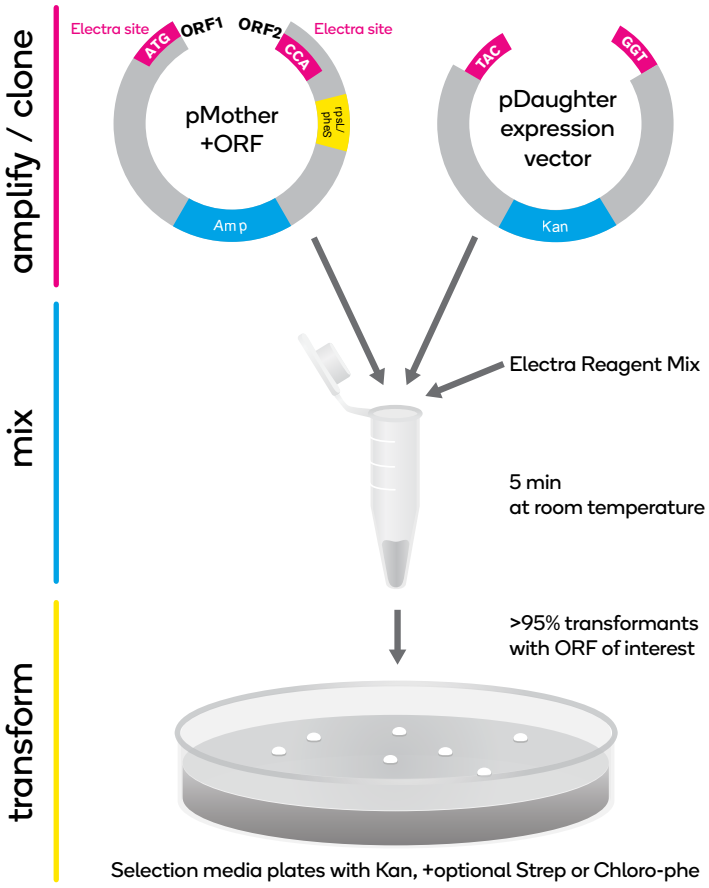
Vectors

Vector elements can improve protein solubility, reduce aggregation, direct proteins to the correct compartment, mediate genetic stability and contribute to host cell health, as well as increase expression yield.

Simple, scarless cloning with the Electra Vector System®



Vector Design with VectorGPS®

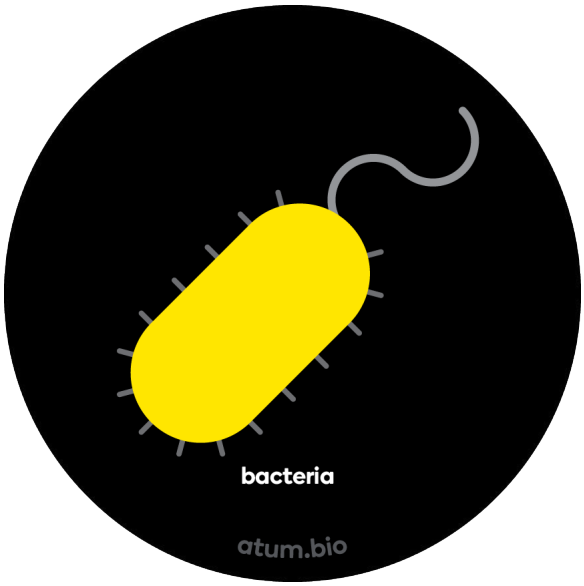
- Ready-to-use expression vectors in a wide range of hosts
- Choice of Bacterial, Yeast, and Mammalian vectors
- Vectors that outperform other commercially available vectors
- Choose from our extensive Vectorology® collection of vector elements
- Design custom vectors for novel hosts and applications

Learn more

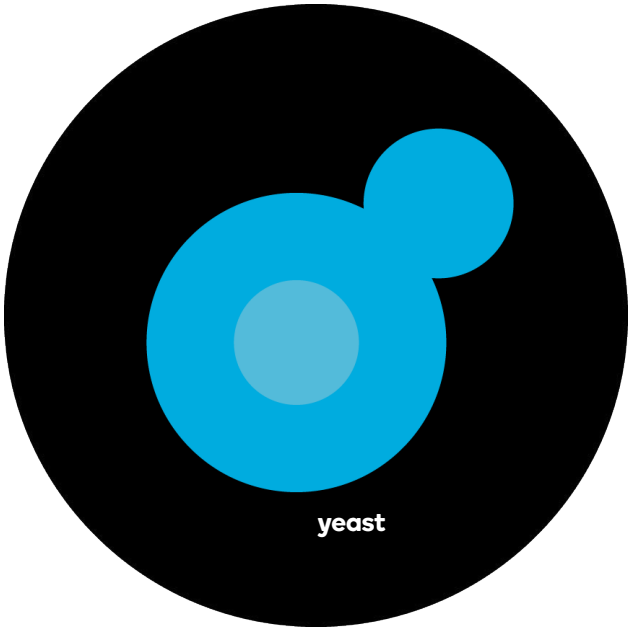
SCAN ME

Bacterial Expression Vectors

- Ready-to-use vectors
- Rhamnose, IPTG (T5 and T7) and PhoA-based inducible vectors
- Expression from different promoters T5, T7, rham and phoA
- Choice of RBSs, solubility tags, affinity tags, secretion signals, selection markers, high or low copy ori
- Choice of fluorescent or chromogenic reporters – ProteinPaintbox®
- Expression test to identify optimal vector(s)
- Protein expression services
- *E.coli* expression strains



Learn more SCAN ME SCAN ME



Yeast Expression Vectors

- Expression in *Pichia pastoris* and *Saccharomyces cerevisiae*
- Ready-to-use vectors
- Inducible or constitutive expression
- Targeted genomic integration or self-replicating 2μm or CEN ori
- Secreted or cytoplasmic expression
- Choice of fluorescent or chromogenic reporters – ProteinPaintbox®
- Choice of secretion signals, promoters and selection markers
- Expression test to identify optimal vector(s)
- Protein expression services
- *Pichia* expression strains

Mammalian Expression Vectors

- Transient or Stable expression
- Expression in HEK and CHO cells (miCHO™ GS, CHO-K1, CHO-S, ExpiCHO & HDBIOP3)
- Stable expression using the Leap-In platform
- Superior integration efficiency with Leap-In stable vectors
- Expression from different promoters
- Choice of fluorescent reporter, translationally coupled reporter and localization signal fusions
- Lentiviral vectors
- Cas9 vectors for gene editing and tools for gRNA design
- miCHO™ GS and miFuc™ cell lines available
- Cell Line development services for stable expression
- Protein expression services for both transiently and stably expressed proteins

High productivity with the Leap-In Transposase® platform

Learn more

SCAN ME

Protein Expression Services

Basic Research | Drug Discovery | Preclinical | Manufacturing & Regulatory

Transient Expression
HEK293, ExpiCHO, BirA, *E.coli*, *Pichia*, etc.

Stable Pools
CHOK1 & miCHO™ GS, miFuc™

Stable Clone Expression, RCB/MCB
miCHO™ GS, miFuc™, CHO-S & Horizon GS

Protein Expression Services

- From 96-well plates to multiple liter scales
- From a few micrograms to 100 grams of purified protein
- Bacterial, Yeast, and Mammalian hosts
- Vectors that outperform other commercially available vectors
- Transient expression from mammalian, *E.coli* and *Pichia/S.cer* hosts.
- Stable pool expression from mammalian hosts
- High-Throughput Screening
- Scale up - Fermenters and bioreactors for bacterial and Yeast expression (coming soon Q3,2023)
- Fast turnaround

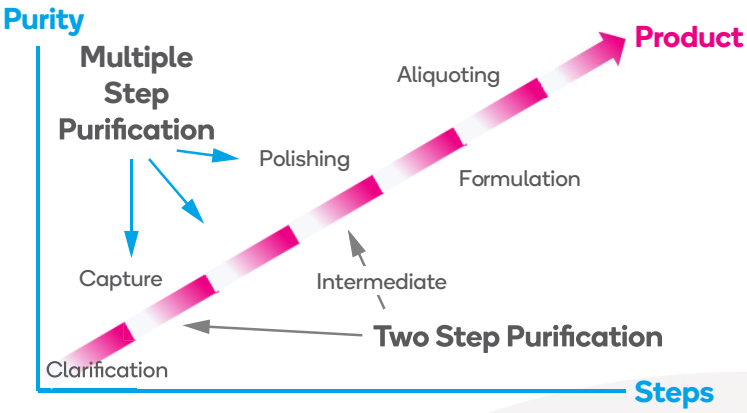
Our integrated protein services ensure that your protein is made according to your precise specifications.

From virtual sequence to protein in as little as 3 weeks

Learn more

SCAN ME

Downstream Process Development Services



Process Characterization
Column Scouting
Harvest Studies
Concentration Studies
VIN Studies
Formulation Studies

Protein Purification services

Techniques: Affinity, IEX, HIC, MM, SEC

Affinity Resins: Mabselect family, CH1, Capto L, etc

Tag Resins: His, Ctag, MBP, GST, Sumo, Strep etc.

Cleavage: TEV

Polish Step(s): CEX, AEX, HIC, MM, SEC

Buffer exchange: UF/DF, DS

Process and Product Characterization to support Development & Tech transfer

Contact us today at atum.bio

Analytics & Developability Services

We offer state-of-the-art analytical services to characterize the identity, purity, quantity and quality of your protein. We can design a customized analytical package appropriate for your molecule and subsequent applications including IND filing and GLP toxicology studies.

Developability Analytics

in silico predictions

- Molecular weight
- Isoelectric point
- N-Glycans
- Hydrophobicity
- Sequence liabilities (free cysteines, deamidation, acid lability, isomerization)
- Epitope analysis
- Germline match

Discovery stage

- Identity & Purity
  - SEC-HPLC
  - µCE-SDS
- Aggregation propensity
  - AC-SINS
  - PIPS assay
- Thermostability
  - Tm
- Polyspecificity
  - BVP-ELISA
- Epitope binning

Stability

- pH stress
- Thermal stress
- Free-thaw stress
- Agitation stress
- Formulation

Read-out:

- SEC-HPLC
- µCE-SDS

- Additional analytics include cell-based activity assays, FcγRI interaction assay for ADCC, FcRn interaction for mAb recycling, binding kinetics, formulation and concentration

Customizable Developability packages

State-of-the-art Analytics for proteins, antibodies and complex molecules, e.g. bispecifics & multispecifics

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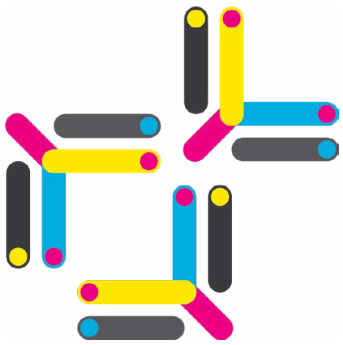
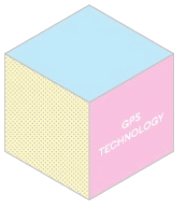
Protein Engineering with ProteinGPS®

ATUM's ProteinGPS® is an engineering platform that optimizes proteins for real world applications using systematic variance and Machine Learning for maximal efficiency.



Antibody Engineering with AntibodyGPS

- Maximal expression/yield
- Improve functionality and developability simultaneously
- Simultaneously optimize different critical antibody attributes such as affinity, aggregation, stability and expression
- Developability analytics
- Accelerate project timelines with our integrated services and efficient workflow
- Save time and cost



Antibody Humanization with HumanizationGPS

- Maximal expression/yield
- Flexibility of design

Learn more

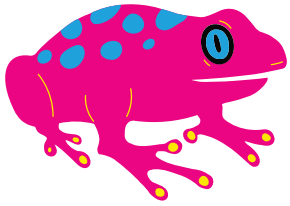
SCAN ME

Cell Line Development with Leap-In Transposase®, miFuc™ & miCHO™

ATUM's Leap-In technology delivers high productivity pools and cell lines, resulting in consistent product quality. The Leap-In technology is also licensable for your in-house use.

- Maximize yield with the Leap-In Transposase® platform
- Highly productive stable pools where pool titers reflect final clonal line titers
- Control subunit ratios
- Proprietary de-fucosylated miFuc™ and miCHO™ cell lines
- Derisk your workflow early.
- Save months off your CMC timeline by getting a head start on your analytical development, process development, and GLP toxicology.
- Developability analytics and Process development available.
- Save time and cost

From virtual sequence to RCB in as little as 12 weeks



Licensing Leap-In Transposase®
Contact us today at atum.bio

Learn more

SCAN ME

GMP Cell Banking and MCB

ATUM's cGMP-compliant Cell Banking Facility provides full assurance of uninterrupted operation, and quality of manufactured master and working cell banks (MCB and WCB). ATUM offers cell banking from CHO cell lines developed in-house or elsewhere, along with molecular, viability and growth potential testing of cell banks in storage stability programs.

- Speed to IND – ATUM's end-to-end process from DNA design to MCB release provides the materials, traceability and analytics to fully support your IND filing.
- Speed to manufacturing - ATUM's integrated process enables you to compress your timelines and get to manufacturing faster without taking risky shortcuts.

Learn more

SCAN ME

Technology licensing

Bring the advantages of ATUM's proprietary technologies to your in-house cell line development. The technology portfolio includes not only the Leap-In transposon/transposase itself but also complementing tools such as vector optimization, unique vector elements, codon optimization, miFuc and miCHO cell lines.

Licensing technologies

Leap-In Transposase®
miFuc™
miCHO™
miHEK™
Inducible promoter system

We offer three convenient tiers of licensing to meet your research and commercialization needs.

Evaluation
Test and optimize the Leap-In technology in your labs. Convert to a full research license after 6 months or terminate if the Leap-In technology is not for you. Benefit from a quick low-cost opportunity to take the Leap-In system out for a spin.

Research
With a simple annual license fee, get access to existing and new transposon and transposase technology as it is continuously developed at ATUM. This licensing tier is great for all your research use only (RUO) applications.

Commercialization
ATUM offers a licensing tier for commercial production of your protein pharmaceutical or similar. Payment is simple - payable on cell lines that enable commercialization of your therapeutic, diagnostic or product - pay annually, as a single lump sum, or attached to clinical milestones. No royalty payments.

Contact us today at atum.bio

ATUM

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research. create. break through.