Onco Switch

FOR GENE THERAPY DEVELOPERS

The control layer for tumor-selective gene therapy.

AI-programmable DNA regulatory switches enabling tumor-selective gene therapy activation.

From $0.5M

structured to your indication — library or custom design

Months

2-3 months per cycle — vs 1.5-3 years empirical

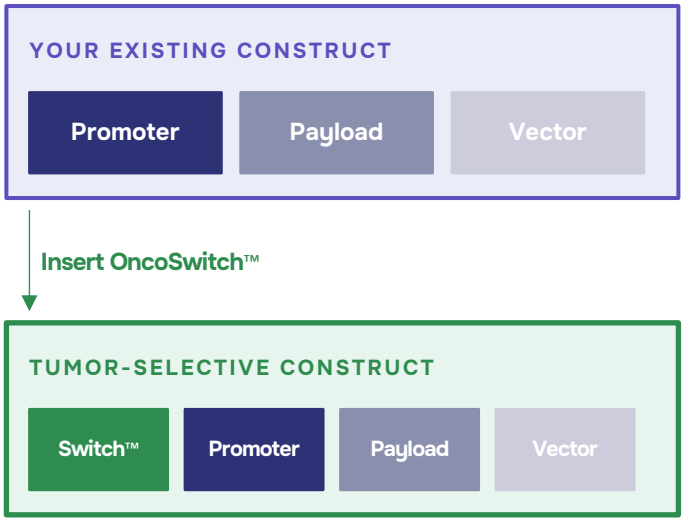
Drop-in

plugs into existing AAV, LNP, CAR-T constructs

Pre-IND partner program · oncoswitch.ai

Drop in. No redesign required.

Sits upstream of your promoter — defines which cells transcribe the payload.



One small sequence, zero rewiring

A ~100–200 bp sequence slots in upstream of your therapeutic gene – no other changes needed.

Compatible with all major formats

AAV · Lentivirus · Plasmid · CAR-T · TCR constructs – any vector that expresses a gene.

Your construct stays yours

We deliver the switch under a field-of-use license. Your therapeutic design and IP remain fully intact.

What is OncoSwitch?

A programmable DNA switch that sits between the therapeutic payload and the tumor – deciding where therapy activates.

THE CHALLENGE TODAY

Expensive R&D

CGT programs spend millions on internal genomics to find the right promoter – most still fail.

Long development timelines

Empirical promoter selection takes years. Each cycle usually tests one sequence at a time.

Off-target toxicity

Even well-designed programs fail in Phase 1 because therapy activates in healthy cells.

HOW WE FIX IT

UPSTREAM

Enabling targeted therapeutics

We deliver validated candidates that transcribe the therapy to cell targets and calibrate to your IND timeline.

PROGRAMMABLE

Designed, not empirical

AI + MPRA shortens 1.5 – 3 years of trial-and-error promoter selection into 2 – 3 months

PRECISE

Activates only in target cell tissue

Eliminates the #1 cause of Phase 1 failure: off-target toxicity

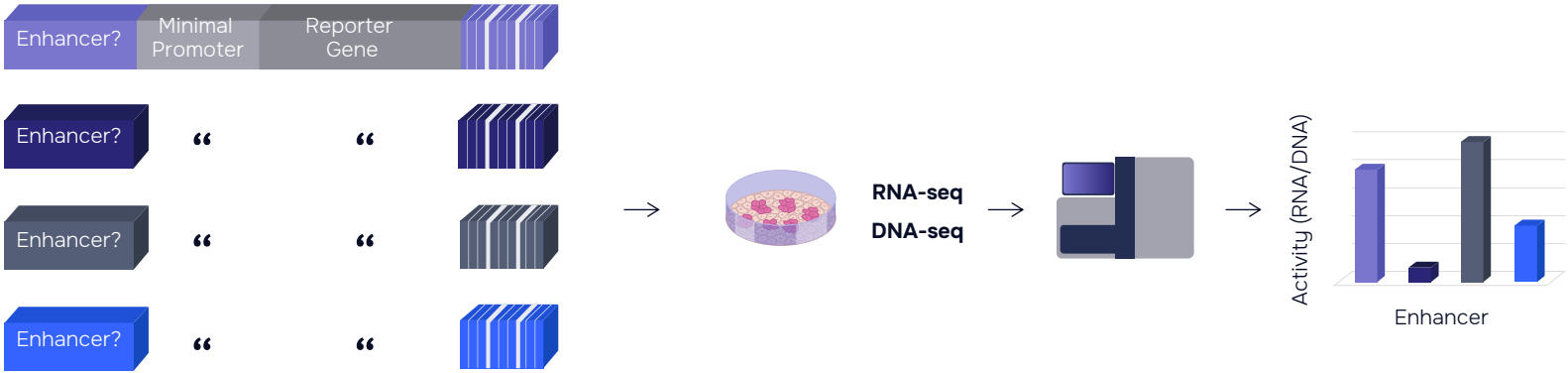
OncoSwitch exists to enable Cell and Gene Therapy programs to deliver life-saving therapies to patients faster, cheaper, and more precisely

Our Core Platform Model – AI + MPRA

The high-throughput method, in combination with our proprietary AI model, that makes our platform possible — test thousands of DNA switches in parallel, not sequentially.

Ahituv Lab Validated in top journals

nature · nature biotech · nature genetics · nature methods · nature prot · Science



01 Design
Library of candidate DNA switch sequences synthesized with unique barcodes.

02 Test
Library transfected into target cancer cell lines alongside normal cell controls.

03 Learn + Improve
AI model analyzes activity scores, identifies regulatory patterns, and informs the next design cycle. Each run makes the next faster and better.

MPRA is not experimental — it's the published, peer-reviewed method our CSO helped pioneer. AI turns each experiment into a compounding data asset.

MPRA Massively Parallel Reporter Assays

Works with your modality. Activates only where it should.

CAR-T & Cell Therapy (Primary Use Case)

Tumor-selective activation

Restricts CAR-T gene expression to the tumor microenvironment – healthy tissue unaffected.

Antigen upregulation

Drive additional antigen expression on tumor cells, boosting CAR-T engagement.

Cytokine & co-stimulatory control

Inducible cytokine expression confined to tumor – amplifies efficacy without systemic risk.

Tumor-specific safety switch

An autonomous fail-safe that triggers only within tumor tissue – not in healthy bystander cells.

STACKS WITH DOWNSTREAM CONTROL SYSTEMS

Viral Gene Therapy (AAV / Lentivirus)

Switch sits upstream of your therapeutic cargo – same vector, same production process.

Vulnerability Gene Strategies

Deliver prodrug-converting or sensitising genes that activate exclusively in malignant cells.

CRISPR-Cas Systems

Restrict Cas expression to tumor tissue – enabling safer in vivo editing programs.

Suicide Gene Therapy

Tumor-exclusive expression of a cytotoxic gene, without systemic toxicity concerns.

From brief to validated candidates in months, not years.

2–3
months
per MPRA cycle

1–4
cycles
depending on complexity

Traditional approach: 1.5–3 years

- ✗ Empirical trial-and-error – one sequence at a time
- ✗ High internal lab burden with frequent dead ends
- ✗ Validated candidates often emerge too late for IND timelines

HOW EARLY ENGAGEMENT ACCELERATES YOUR PROGRAM

Cycle 1	Cycle 2	Cycle 3–4	IND-Ready
Initial library design & test	Refinement & optimisation	Lead sequence selection	Validated switch delivered
2-3 months	**+2–3 months**	**+varies**	

Earlier engagement = fewer cycles needed. Bring us your indication at any stage – we'll calibrate the program to your timeline.

Two paths in, one license out

A. New Indication

$1.5M–$2M · 3–4 MPRA cycles · 2-3 months / cycle

EXISTING LIBRARY

B. Library Indication

$0.5M–$1M · 1–2 MPRA cycles · 2-3 months / cycle

Program License

Milestones and royalties structured to your clinical program

- Validated sequence ready for IND
- Exclusive field-of-use per indication
- Milestone payments at clinical stages
- Royalties on commercial sales

Safety data ready for regulators

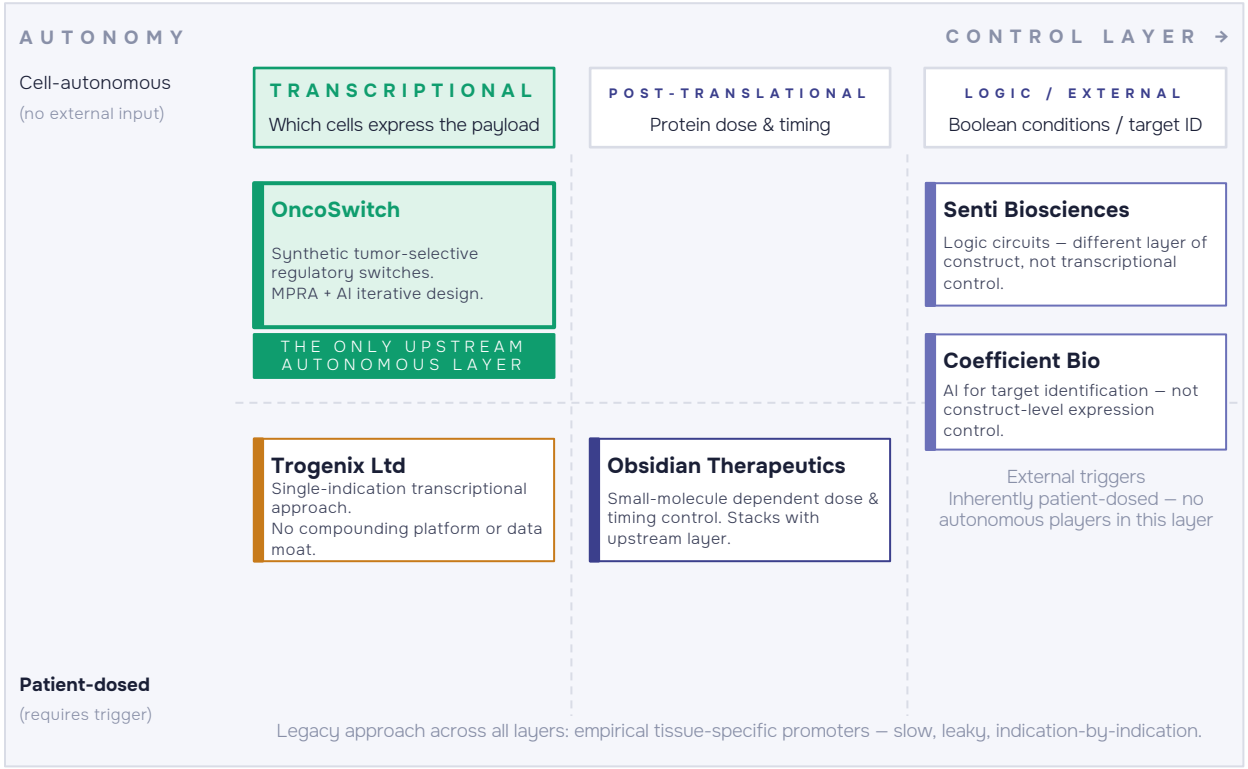
Faster IND filing

Tumor-selective dosing strategy

Validated sequence in your IND package

The control layer landscape

Different platforms control different layers of gene therapy expression. OncoSwitch is the only autonomous, upstream transcriptional layer.



WHY THIS MATTERS

Different layers, different problems

Most CGT programs need transcriptional control first — that's our layer. Other platforms control downstream of expression.

Stack, don't substitute

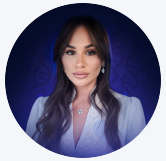
Our switch can sit upstream of any downstream control system — small-molecule inducible, logic gating, or external triggers.

Compounding moat

AI + MPRA library grows with every indication. Marginal cost of next switch falls; competitor head-start widens.

Layer position, not feature checklist — the only platform owning autonomous transcriptional control.

The team building the platform



Malika Gallyamova
CEO, Founder

- Company strategy, fundraising, and team leadership.
- Built and managed businesses in fast-moving, operationally complex environments, working across teams and execution end-to-end.
- MSc AI & Computer Science, Univ. of Birmingham (with distinction).

LinkedIn

Nadav Ahituv
CSO, Founder

- Director of Genomics, UCSF – World's leading lab for MPRA (core technology in OncoSwitch model)
- Scientific Advisor, Encoded Therapeutics — regulatory element platform (high-growth, active).
- Founder & SAB, Regel Therapeutics. Advisor, Omabit. Funding secured from BioMarin.
- SAB: ARID1B, Cri du Chat, CHD2, AUTS2 & MED13L research foundations.

LinkedIn

Vitalii Volkov
CTO, Founder

- Core technology concept acquired by government organization — substantial deal (Hemotech AI)
- Senior Bioinformatician — complex process leadership
- MSc AI & Computer Science, Univ. of Birmingham
- MD, Pirogov Russian State Medical University (with distinction).

LinkedIn

Ofer Yizhar-Barnea
COO

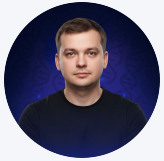
- Co-founder, Geneyx (2018) — NGS platform serving 100s of labs, 100Ks of cases globally. Active.
- CEO & Co-founder, Neomer Diagnostics — UCSF spin-out; raised ~$750K pre-seed; POC across 1,000+ plasma samples in lung & ovarian cancer detection.
- Design Partner & Advisor, Nest Catalyst (2024) — life science entrepreneurship program.

LinkedIn

Dexter Sugiono
Head of BD

- 13+ years at Roche and AstraZeneca – Director NPP Oncology – Focused on Early Asset launch strategy in Int'l Markets (i.e. 40+ countries across APAC, MEA, LatAm, Eurasia)
- Assessed 10+ in-license BD opportunities; Buy-side on $500M+ GLP-1 transactions.
- AZ New Modalities — CAR-T & radioconjugate opportunity sizing. Previously Roche (medical planning). MBA CEIBS · BS UCLA · INSEAD & Oxford.

LinkedIn



Dmitry Mikhailov
AI Scientific Advisor

- Founder, Engiscent PTE Ltd. (Singapore, 2017) — applied research & technology-driven innovation holding company.
- Portfolio: World Chess (LSE-listed), Reperion (cybersecurity, Saudi Aramco), DeepTech Engineering (AI geospatial, Aramco vendor).
- Acoustery — AI respiratory diagnostics; top 3 most impactful medical startups in UAE, Arabian Business Awards 2023.

LinkedIn

Start the conversation.

Turning gene therapy into programmable medicine — one switch at a time.

Bring us your indication. We’ll show you what’s possible.

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