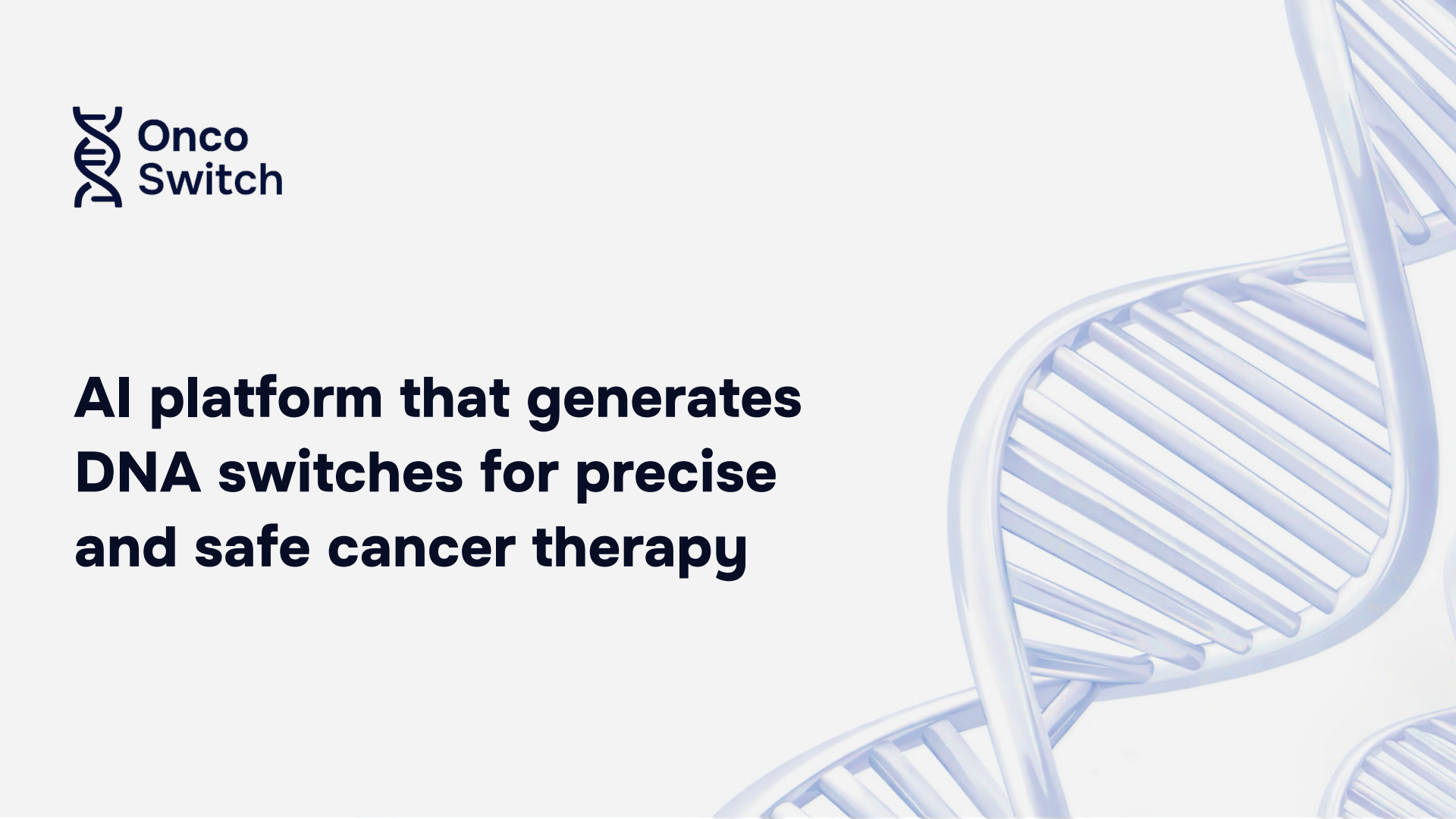
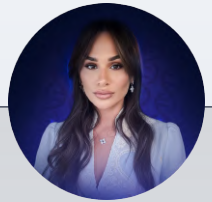
Onco Switch

AI platform that generates DNA switches for precise and safe cancer therapy



The people building the platform



Malika Gallyamova
CEO

MSc AI and Computer Science (University of Birmingham)

Strategy and company leadership

Experience managing teams and complex processes

LinkedIn

Vitalii Volkov
CTO

MSc AI and Computer Science (University of Birmingham, with distinction)

MD (Pirogov Russian State Medical University, with distinction)

Senior Bioinformatician

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Nadav Ahituv
CSO

Professor in Bioengineering & Therapeutic Sciences

Director, UCSF Institute for Human Genetics

Expertise in functional genomics & gene therapy

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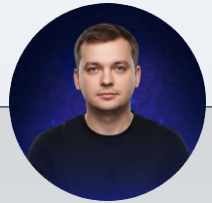


Dmitry Mikhailov
Scientific Advisor

Supervising Professor, Khalifa University

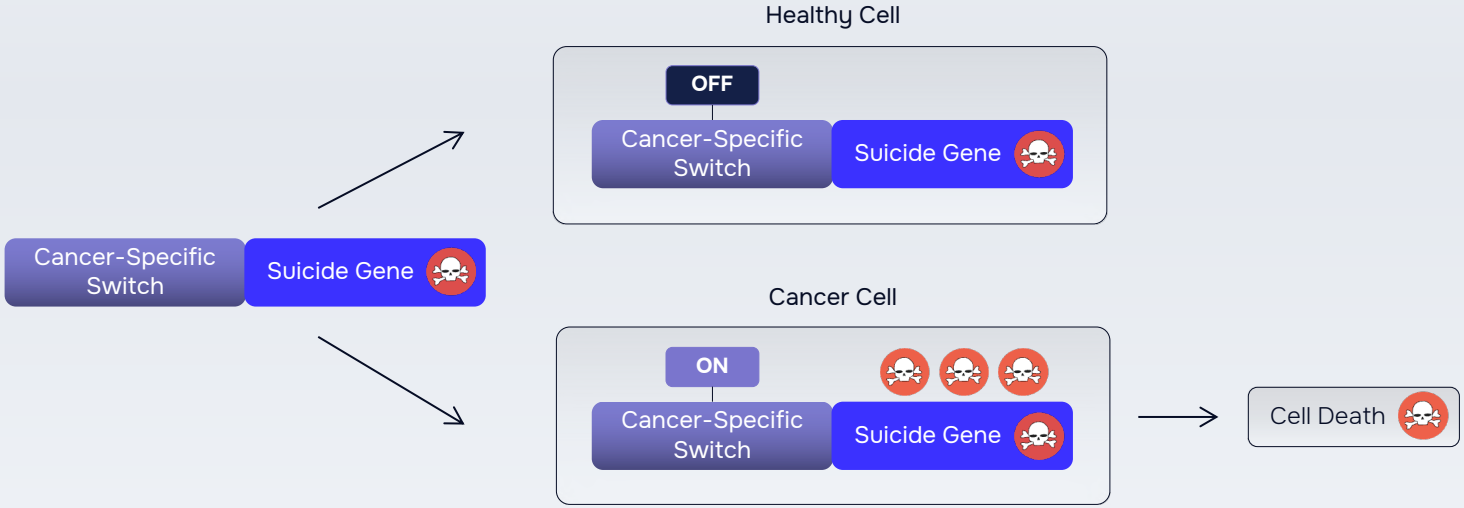
Head of Research, Abu Dhabi Maritime Academy

AI Research Expert at the United Nations

LinkedIn

Switches that only turn genes in cancer cells

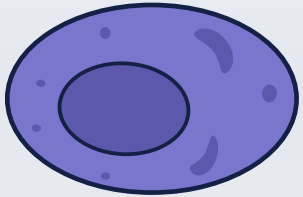
A DNA switch is a programmable DNA sequence that controls gene expression based on the cell environment—turning on therapy only in tumors and not in healthy cells.



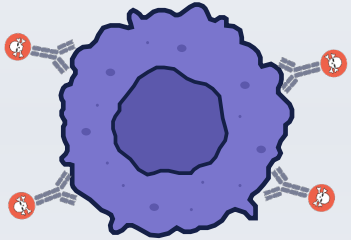
Immunotherapy shows a lot of promise but lacks precision

Capital is flowing into cancer immunotherapy.
The next frontier is programmable tumor specificity.

Today: immunotherapy = effector



normal cell



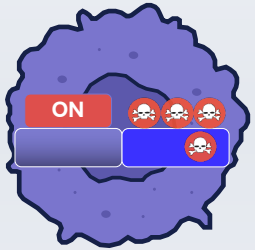
cancer cell being attacked

Immunotherapy is the main investment focus in oncology, but:

1) Off-target toxicity remains a major risk
2) Solid tumors are harder to target
3) Therapy design remains slow and empirical

DNA switch therapy = controller

normal cell (unaffected)



cancer cell

We design tumor-specific DNA switches that:

1) Turn therapies ON only in cancer cells and stay OFF in healthy cells
2) Add logical control (AND / OR / NOT) to gene expression
3) Can be inserted into existing immunotherapies

Immunotherapy fights cancer. DNA switch decides where it fights.

The bottleneck in modern gene therapy

Current limitations, structural gaps and why current approaches fail.

Problems

1) Expensive development:

pharma teams spend millions to develop gene therapy drugs

2) Slow development:

building the right DNA sequences can take months (or longer)

3) Tumours change:

static designs quickly become outdated

4) Low accuracy:

therapies can still affect healthy tissue

How we solve them

1) Lower cost:

AI design + automation reduce R&D expense by at least 5x

2) Faster cycles:

thousands of sequences tested in parallel over weeks

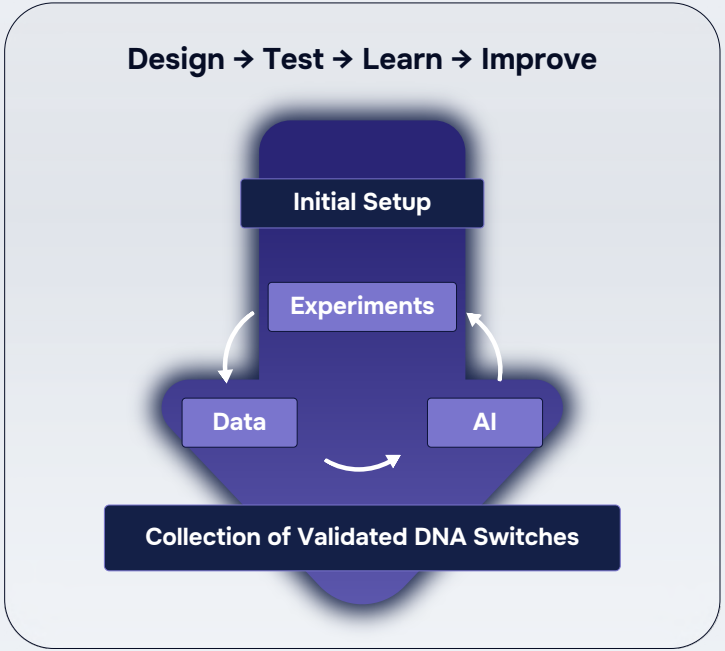
3) Adaptive switches:

the model learns from results and improves

4) Programmable activity:

switches turn therapy on only in target cells

The platform engine behind DNA switches



What the platform generates

Partner-ready DNA switch sequences + a clear performance package.

A growing set of validated “building blocks” that can be reused.

Why the loop compounds

Every experiment adds data.

More data → better designs → fewer failed cycles → faster outcomes.

What long-term asset we’re building

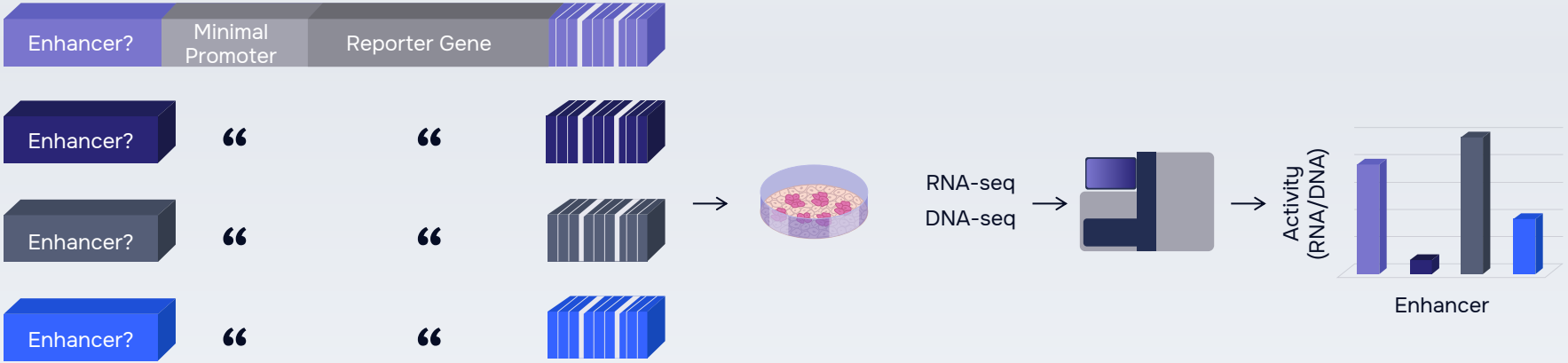
A validated switch library + a proprietary dataset on what drives selectivity.

That dataset becomes a data advantage competitors can’t copy quickly.

Massively parallel reporter assays (MPRAs)

Ahituv Lab MPRA Publications in top journals

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



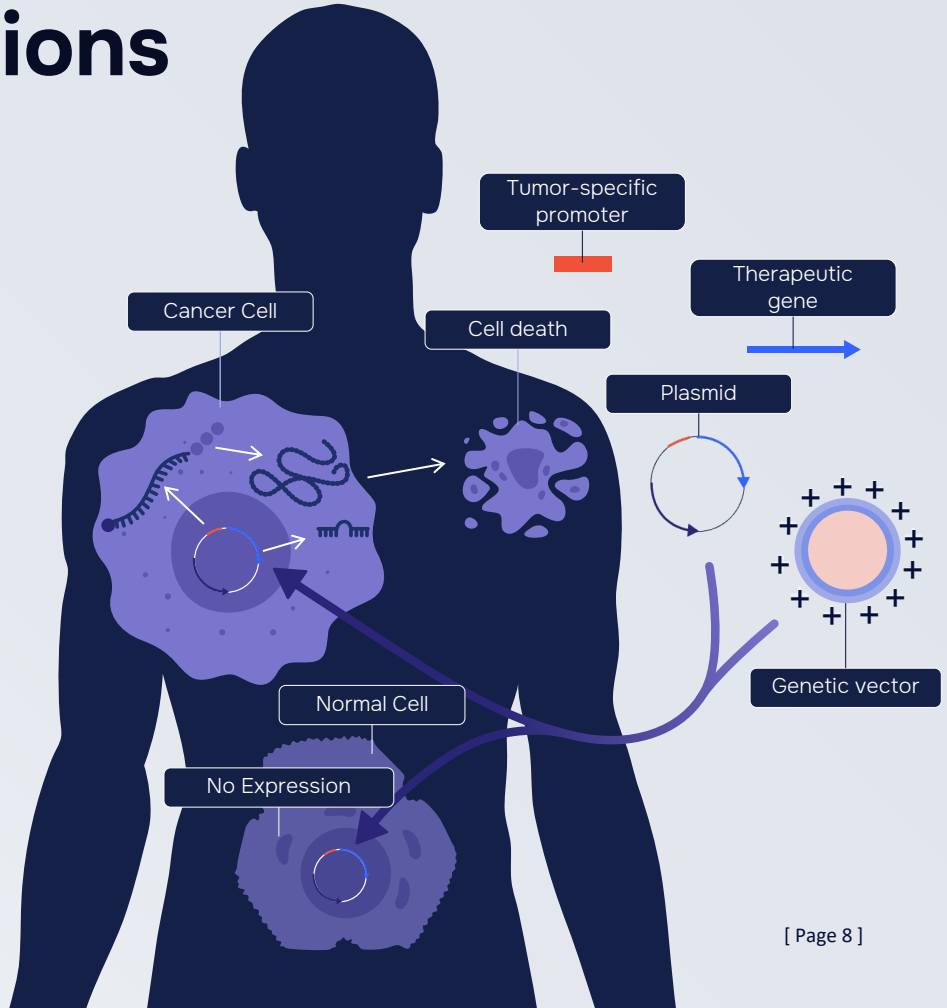
Therapeutic applications

Initial applications (where control matters most)

1. CAR-T / TCR therapies
2. Inducible cytokine expression
3. Tumor-specific safety switches
4. Suicide gene
5. Vulnerability gene
6. CRISPR-Cas control

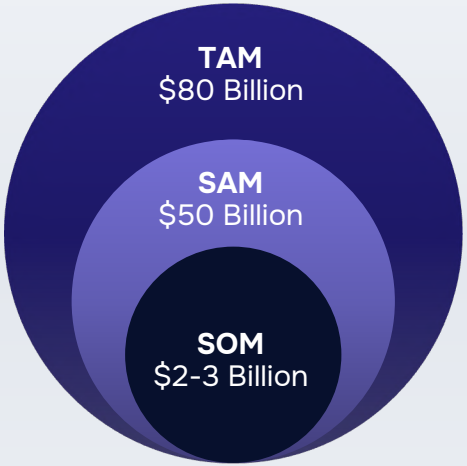
Expansion

Gene therapy, synthetic biology, platform licensing, broader biotech



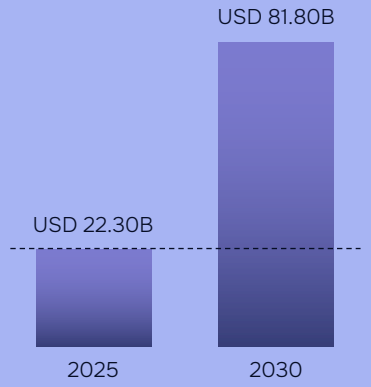
Market potential

We are not competing for the $80 Billion market.
We are enabling it.



In the U.S., the oncology cell & gene therapy market is projected at $80B by 2030, with 20-30% of that spent on obtaining tighter tumor-specific control.

Cell and Gene Therapy Market
Market size in USD Billion
CAGR 25.67%



https://www.mordorintelligence.com/industry-reports/cell-and-gene-therapy-market?utm_source

Study Period	2019 -2030
Market Size (2025)	$ 22.30 Billion
Market Size (2030)	$ 81.80 Billion
CAGR (2025-2030)	25.67%
Fastest Growing Market	North America
Largest Market	Asia Pacific

Major Players

Pfizer, Kite A GILEAD Company, bluebirdbio, Bristol Myers Squibb, NOVARTIS

*Disclaimer: Major Players sorted in no particular order

The field is ready for control

Why this becomes urgent (and possible) today

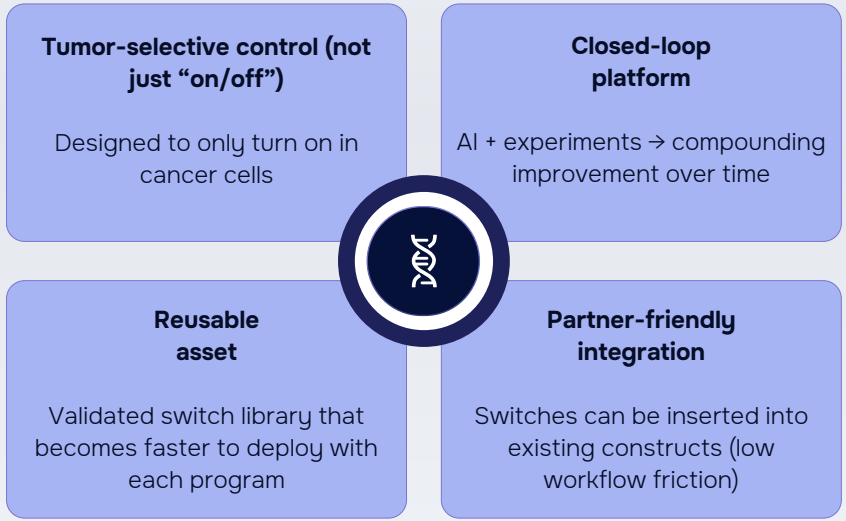
- **Cell & gene therapy is scaling,** and safety/control is becoming a bigger bottleneck
- **More programs are moving into solid tumors,** where precision matters more
- **High-throughput testing is now standard,** so we can validate many options quickly
- **AI works better with real biological data,** and OncoSwitch can generate enough of it’
- **Partners want enabling tech,** not another full-stack therapeutic company

Our competitive advantages

Unlike circuit-based approaches, we engineer tumor-selective regulatory grammar via iterative MPRA + AI.

Competitors	What they do
Senti Biosciences	Engineered gene circuits / logic control in cell therapies
Obsidian Therapeutics	Controllable cell therapy “switch” systems
Trogenix Ltd	Oncology platform (solid tumors)

Why OncoSwitch stands out



Business Model:
From Pilot to Platform Licensing

Our Clients

Teams building cell & gene therapies.

Typical customers:

Cell therapy developers (CAR-T, TCR)

Gene therapy teams that need tighter control

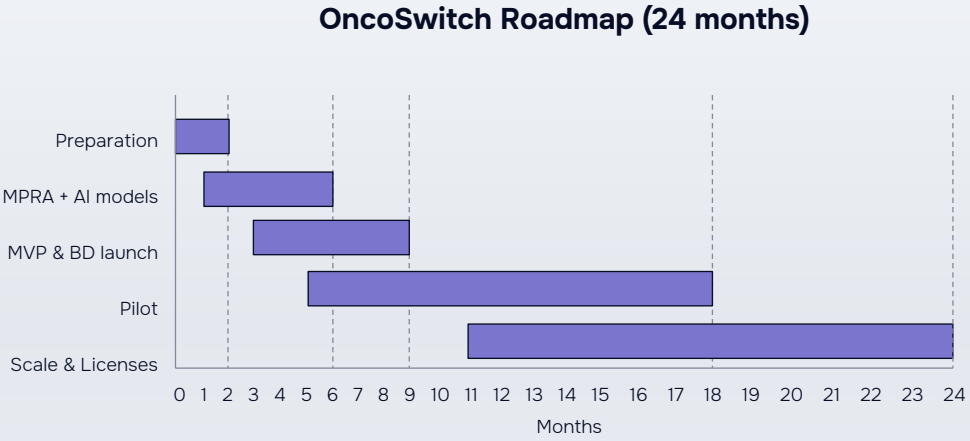
Pharma groups running multiple oncology programs

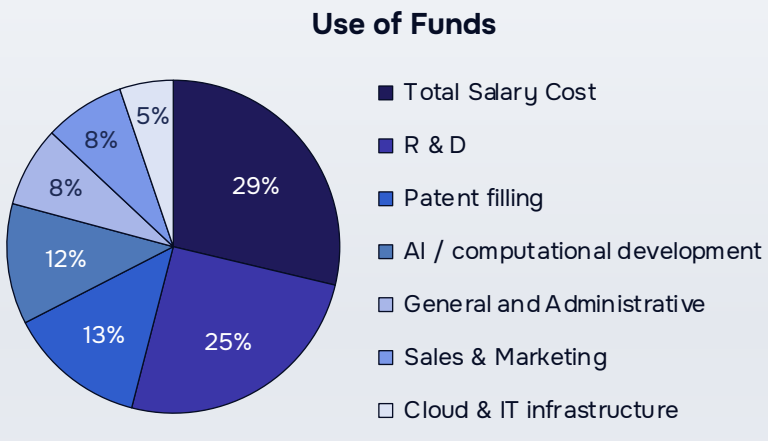
Revenue line	Simple meaning	Typical timing
Platform validation	Paid pilot / test project	Year 1–2
Collaboration	Co-development of therapeutic assets	Year 2–5
Licensing	Partner uses modules more broadly	Year 3–5+

Royalty structure: 2–5% on commercialized programs — scalable, recurring upside layered on top of licensing.

We start with paid pilots, expand into multi-program collaborations, and scale through licensing as partners reuse switches across programs.

Roadmap and use of funds





Preparation
Team, Platform, Libraries

$0.27M

MPRA + AI
MPRA cycles, AI baseline, Closed loop

$1.35M

MVP & BD
MVP switches, Assays, BD outreach

$1.25M

Pilot
Production library, Validation, Pharma pilots

$3.20M

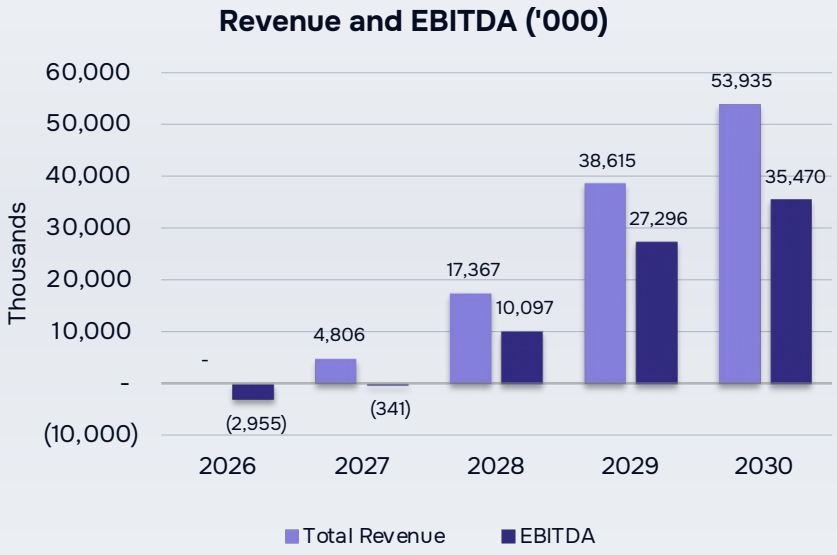
Scale & Licenses
IP, Licensing, Series A prep

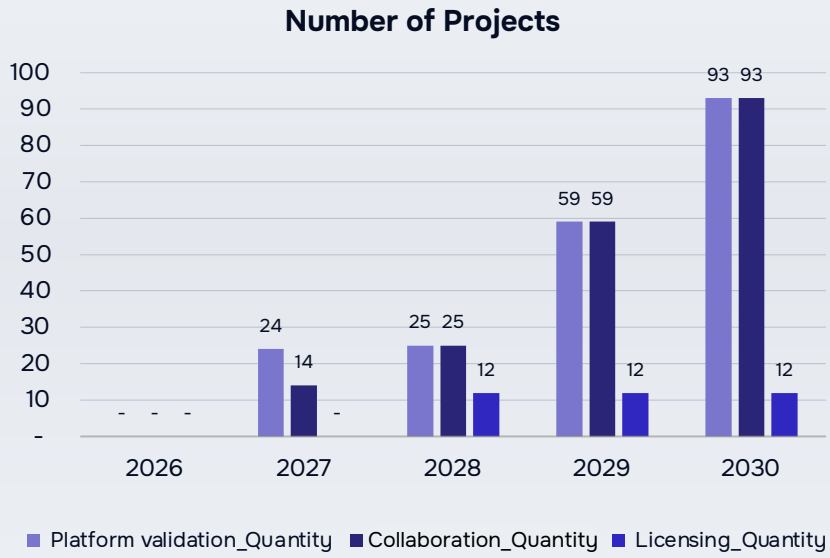
$1.43M

End-of-Seed
10 MPRA cycles, validated DNA switches, 2 registered patents, initial recurring revenue, Series A ready

Total $8M

Financial outlook





Contact info

Turning gene therapy into programmable medicine.

AI platform that generates genetic switches for precise and safe cancer therapy.

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