Onco
Switch

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

The people building the platform

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MSc AI and Computer Science
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Expert in networking &
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Director, UCSF Institute for
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Expertise in functional genomics
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Dmitry Mikhailov
Scientific Advisor
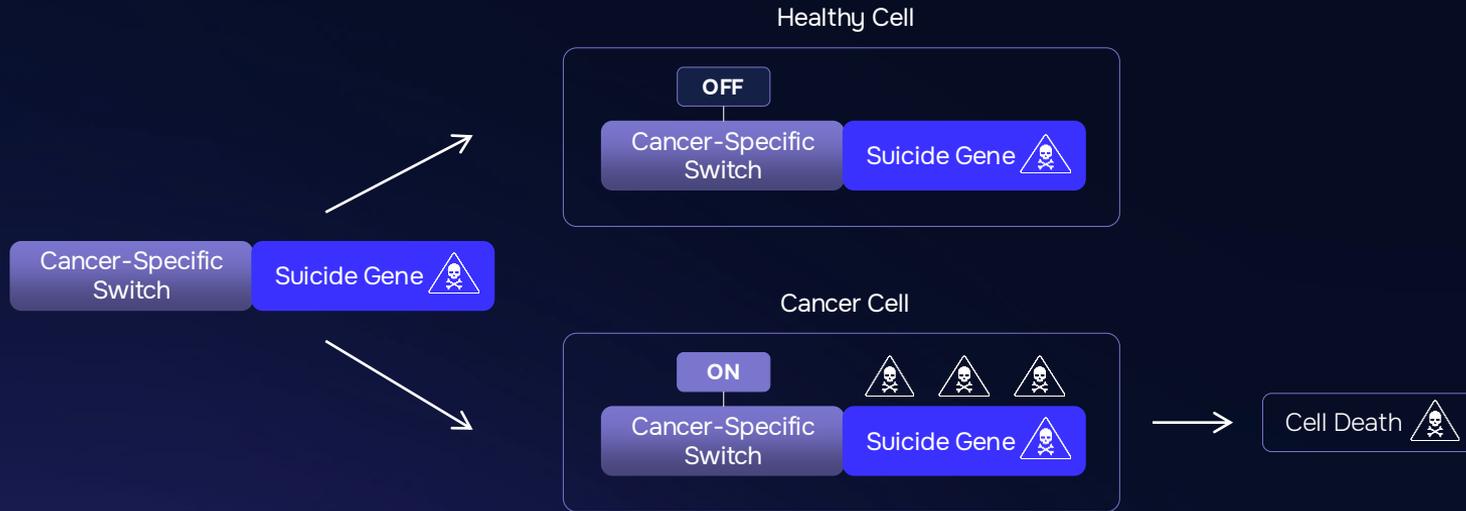
Supervising Professor, Khalifa
University

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.

Healthy Cell

OFF

Cancer-Specific Switch | Suicide Gene ☠️

Cancer Cell

ON

Cancer-Specific Switch | Suicide Gene ☠️

Cell Death ☠️

Cancer-Specific Switch | Suicide Gene ☠️

AI + high-throughput genomics for cancer-specific switches

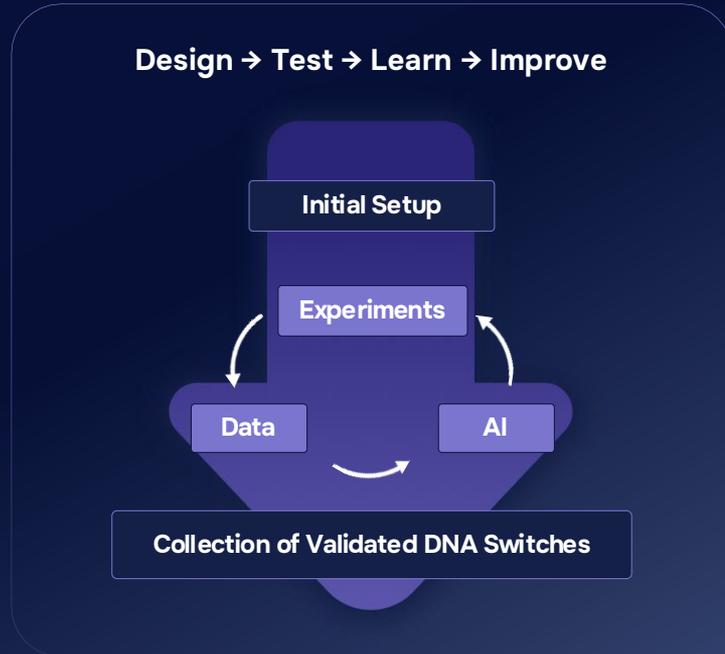**What's broken today — and what we change**

Problems

- **Expensive development:** pharma teams spend millions to develop gene therapy drugs
- **Slow development:** building the right DNA sequences can take months (or longer)
- **Tumors change:** static designs become outdated
- **Low accuracy:** therapies can still affect healthy tissue

OncoSwitch's solution

- **Lower cost:** AI design + automation reduce R&D expense by at least 5x
- **Faster cycles:** thousands of sequences tested in parallel over weeks
- **Adaptive switches:** the model learns from results and improves designs
- **Programmable activity:** switches turn on only in target cells

The platform engine behind DNA switches

Design → Test → Learn → Improve

Initial Setup

Experiments

Data

AI

Collection of Validated DNA Switches

What the platform generates

- Partner-ready DNA switch sequences + a clear performance package
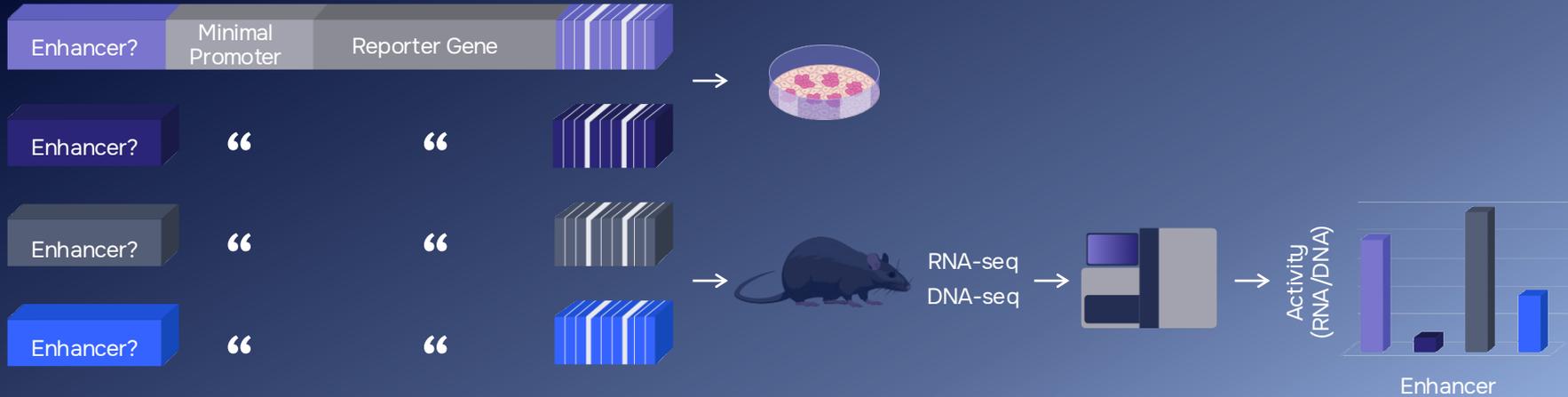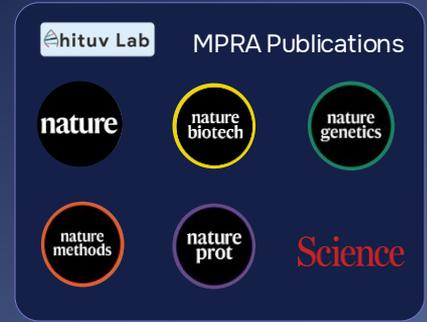- A growing set of validated "building blocks" that can be reused

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)

Use case

Initial applications (where control matters most)

- CAR-T / TCR therapies
- Inducible cytokine expression
- Tumor-specific safety switches
- Suicide gene
- Vulnerability gene
- CRISPR-Cas control

Expansion

- Gene therapy, synthetic biology, platform licensing, broader biotech

Tumor-specific promoter

Therapeutic gene

Cancer Cell

Cell death

Plasmid

Normal Cell

Genetic vector

No Expression

Market potential

TAM
$80 Billion

SAM
$50 Billion

SOM
$2-3 Billion

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%

USD 81.80B

USD 22.30B

2025   2030

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   bluebirdbio
A GILEAD Company

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
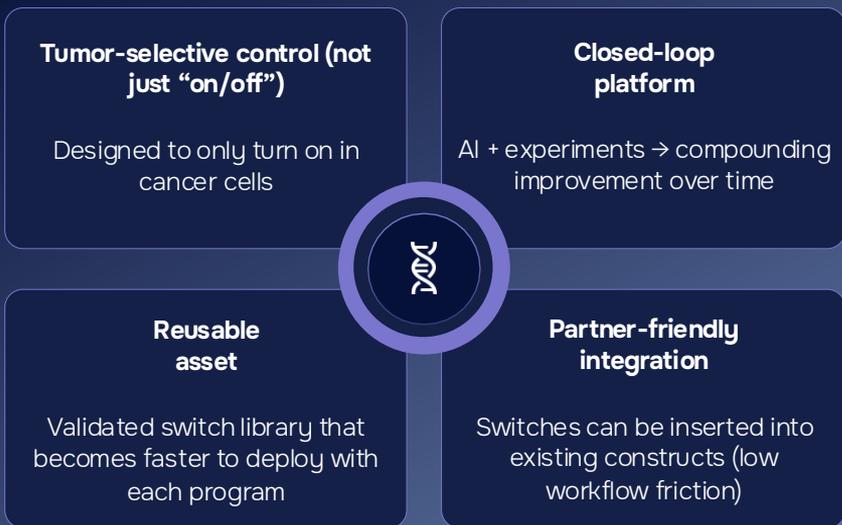
Our competitive advantages

We don't just analyse genes — we design and validate genetic control modules that partners can plug into therapies.

Why OncoSwitch stands out

Company	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)

Tumor-selective control (not just "on/off")

Designed to only turn on in cancer cells

Closed-loop platform

AI + experiments → compounding improvement over time

Reusable asset

Validated switch library that becomes faster to deploy with each program

Partner-friendly integration

Switches can be inserted into existing constructs (low workflow friction)

Revenue streams

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+

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

OncoSwitch Roadmap (24 months)
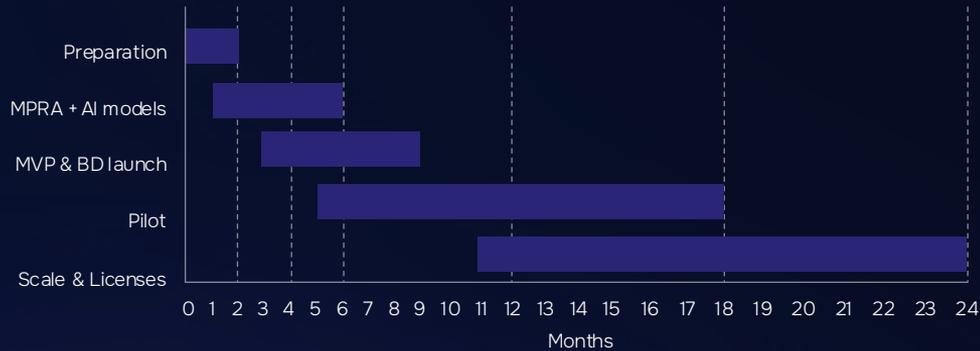
Use of Funds
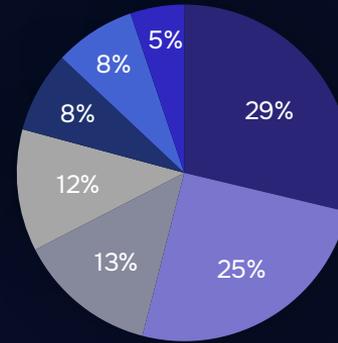
- Total Salary Cost
- R & D
- Patent filling
- AI / computational development
- General and Administrative
- Sales & Marketing
- Cloud & IT infrastructure

Pie chart values: 5%, 8%, 8%, 12%, 13%, 25%, 29%

| **Preparation**	**MPRA + AI**	**MVP & BD**	**Pilot**	**Scale & Licenses**	**End-of-Seed**
Term, Platform, Libraries	MPRA cycles, AI baseline, Closed loop	MVP switches, Assays, BD outreach	Production library, Validation, Pharma pilots	IP, Licensing, Series A prep	10 MPRA cycles, validated DNA switches, 2 registered patents, initial recurring revenue, Series A ready
$0.27M	$1.35M	$1.25M	$3.20M	$1.43M	**Total $8M**

Financial outlook

Revenue and EBITDA ('000)

Number of Projects
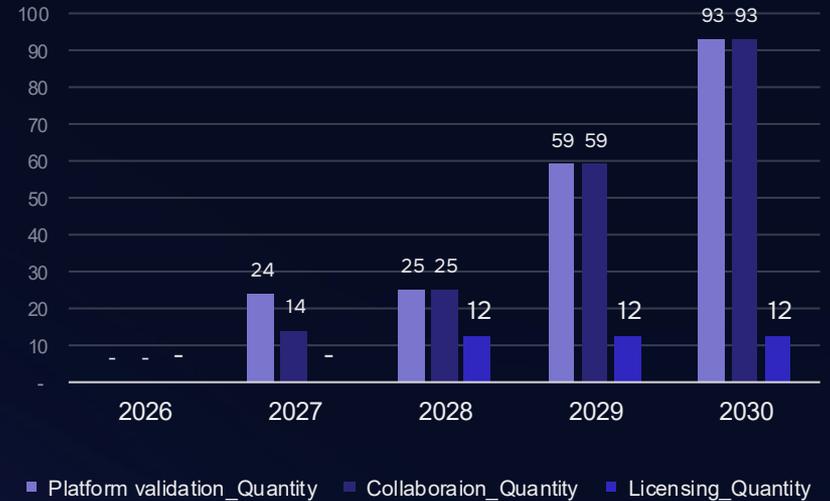
Contact info

Turning gene therapy into programmable medicine.

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

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