Onco Switch

INVESTOR BRIEFING · July 2026

The programmable control layer for cell and gene therapies

Most cell and gene therapies fail because they cannot distinguish cancer cells from healthy tissue.

We are building programmable DNA switches that make therapies active only where they should.

Seed round underway · $8M target · oncoswitch.ai

Current problem:
the industry burns billions on trials that fail for the wrong reasons

Expensive R&D programs

$1–4M price tag per dose - costs of inefficient pipelines land on patients.

Precision remains the bottleneck

Up to 20–30% of patients face severe treatment-related toxicity

Drugs never reach patients

Only 1 in 16 Phase 1 oncology candidates reach approval (97% fail).

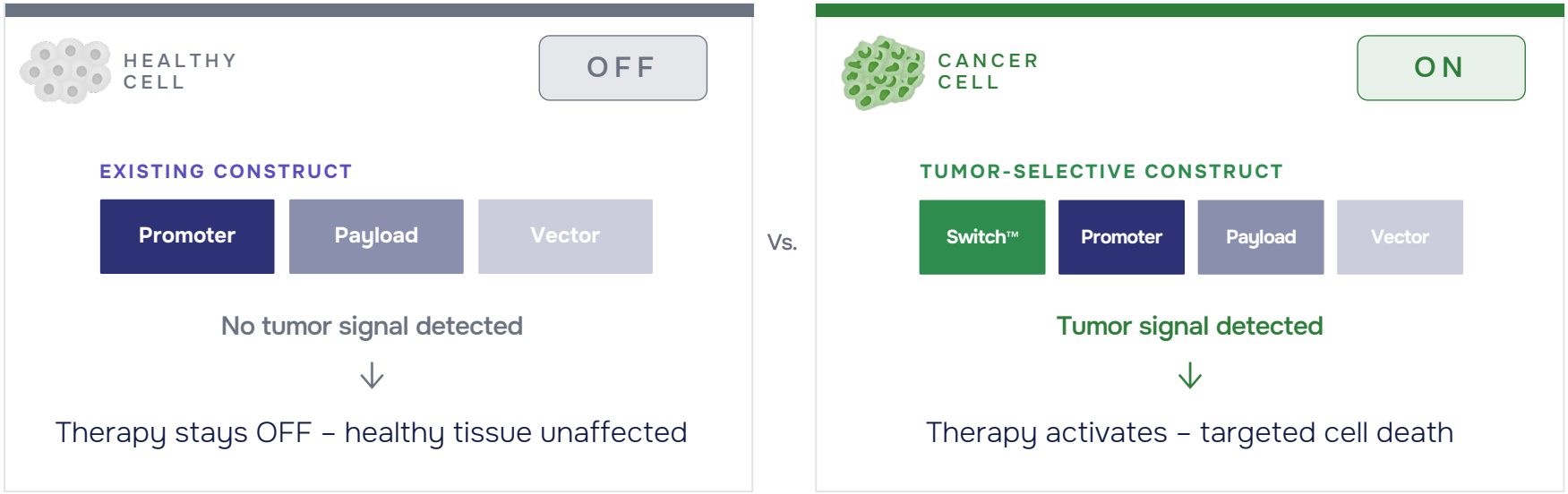
Better targeting means higher hit rates, lower R&D burn, and therapies patients can actually afford.

Sources: Wong, Siah & Lo (2019), Biostatistics · Waring et al. (2015), Nat Rev Drug Discovery · ICER Gene Therapy Pricing Analysis

Onco Switch

The solution: a therapy that is active only in target cells

We do not change the therapy. **We determine where it activates.**

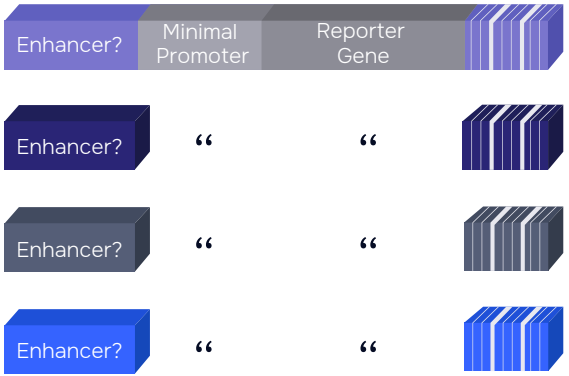


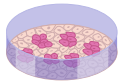
Modality-agnostic · short 50–200 bp logic gates · drop into existing constructs

AAV | LNP | CAR-T | Lentivirus

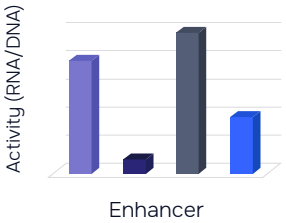
Our core platform model – AI + MPRA*

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





RNA-seq
DNA-seq



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
Each experimental cycle feeds the AI model

*MPRA Massively Parallel Reporter Assays

Where existing approaches fall short:
every generation only contributed a piece of the solution

01

Traditional Promoter Discovery

Literature promoters · one-time screens

Long sequences, low tunability.

02

AI-Predicted Regulatory Elements

Generate Bio · Coefficient Bio

Computational — limited validation.

03

Synthetic Gene Circuits

Senti Bio · cell-state logic

Multi-component; high manufacturing burden.

04

Drug-Inducible Switches

Obsidian Tx · small-molecule control

Requires an external drug; limited intrinsic specificity.

05

OncoSwitch

AI + MPRA closed loop

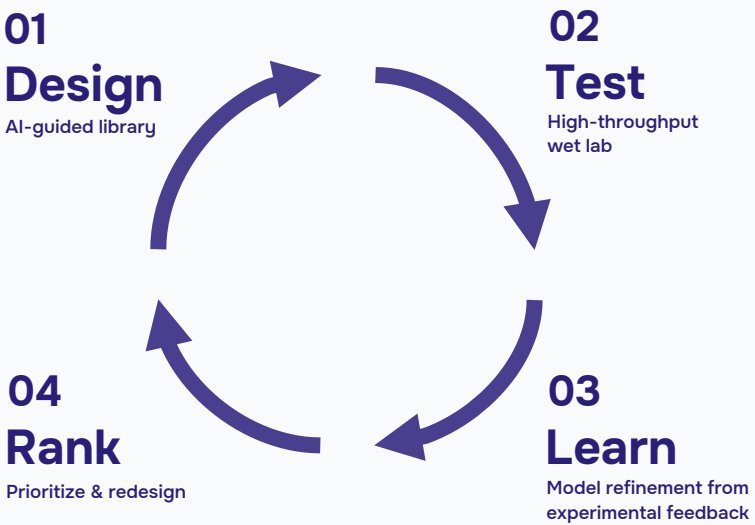
Learns from biology. Tumor-selective by design. Improves every cycle.

OncoSwitch combines all four into a self-improving biological platform:

Traditional promoters provided specificity · AI introduced programmability · Gene circuits introduced logic · Drug switches introduced control

Why OncoSwitch is different:
the model learns from real biological data

CLOSED-LOOP ENGINE



VS FOUNDATION MODELS

Feature	General models	OncoSwitch
Therapeutic optimization	✗	✓
Safety by design	✗	✓
Closed-loop learning	✗	✓
Confidence-aware predictions	✗	✓
Self-improving data moat	✗	✓

Every experiment makes the platform smarter. Every cycle makes the moat stronger.

Early data: our prototype shows strong tumor selectivity

No large-scale dataset exists for tumor-selective gene regulation. We generate the data ourselves.

100%

Precision in top-ranked candidates

r = 0.88

Selectivity prediction Pearson correlation

1,750

Sequences validated on held-out test set

12×

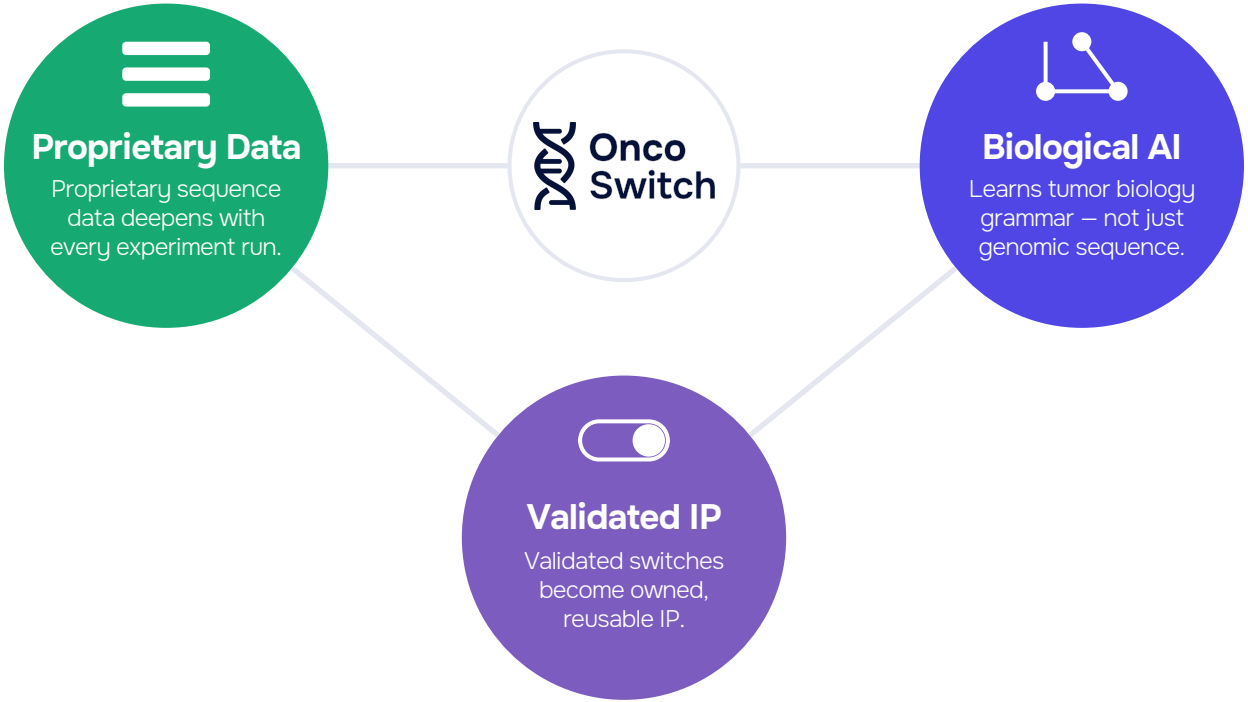
Selectivity in MPRA studies

PREDICTED ACTIVITY LANDSCAPE · HepG2 vs K562 (test set)

Top-20 model-ranked candidates (gold diamonds) cluster in the therapeutic window. All 20 confirmed positive-window hits.

Every cycle widens the gap:

OncoSwitch is not just generating data; it's building a compounding learning engine that is hard to replicate.



Each validation cycle strengthens three moats simultaneously: proprietary data, predictive AI, and therapeutic IP.

Traction: strong early signals across science, technology and commercial demand

1

Team

Team built to execute

- ✓ World-class expertise across biology, AI & Commercialization
- ✓ Core leadership team assembled

2

AI Validation

AI model demonstrates predictive power

- ✓ 100% top-ranked candidates confirmed
- ✓ r = 0.88 prediction-to-experiment correlation

3

Platform Built

Closed-loop AI × MPRA infrastructure established

- ✓ Closed-loop AI + high-throughput lab system operational
- ✓ Proprietary biological data generation established

4

Commercial Validation

Market pull established

- ✓ Active discussions with cell & gene therapy companies
- ✓ 2 signed LOIs

Platform today. Therapeutics tomorrow:
de-risking therapeutics through platform revenue

PHASE 1

Build the control layer

Reliable tumor-selective signal
(10-25x tumor/normal separation)

PHASE 2

Become the standard for targeted therapies

Validated and reproducible switch
(top-hits validated in vivo)

PHASE 3

Build proprietary therapeutics

Top-switches validated in therapeutic constucts

Establishing a high-margin platform licensing model:
Platform partnerships generate near-term revenue while continuously expanding our future therapeutic opportunities.

Business model: how OncoSwitch creates value

The platform creates near-term revenue while building long-term therapeutic value.

REVENUE STREAMS

Paid pilots

Validation SOWs — paid upfront on every engagement.

01

Platform licensing

Field-of-use licenses per modality — IP stays with OncoSwitch.

02

Milestones

Triggered by partner decisions — not clinical outcomes.

03

Royalties

On commercialized therapies using our switches.

04

CUSTOMERS

- Cell therapy companies
- Gene therapy companies
- Synthetic biology companies
- Pharma innovation groups

Note: FDA interactions not required for platform model

Pilot design: what OncoSwitch builds and partners get

Proprietary closed-loop cycles applied to partner's construct — each stage benchmarked, each output concrete.

WHAT WE DO

01 Design
AI-guided switch library

02 Test
High-throughput wet lab

03 Learn
Model refines from real biology

PILOT

deliver

WHAT YOU RECEIVE

Typically delivered in 1–4 cycles
Validation criteria defined jointly

Validated switch candidates
Top tumor-selective sequences

Activity & specificity data
Quantitative MPRA measurements

Biological insights
The grammar driving selectivity

Recommendations & next steps
Prioritized leads, clear path forward

Milestones locked before day one. Your scientists in every review. Built around your therapeutic format

Future pipeline: the platform discovers potential therapeutic opportunities

PROGRAM	INDICATION	SWITCH	CARGO	STAGE
OSW-001	Hepatocellular Carcinoma (Liver)	Tumor-selective switch	Suicide gene / therapeutic payload TBD	Discovery 100% OWNED
OSW-002	Glioblastoma (Brain)	Tumor-selective switch	TBD	Planned
OSW-003	Solid Tumors (TBD)	Logic switch	Partner-defined	Future

Illustrative future programs generated by the platform · Not a clinical pipeline · Direction of the company, not development claims.

Team: why we are built to win

MPRA, AI, regulatory genomics, BD and commercial leadership under one roof.

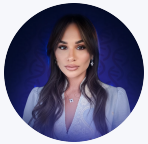
Nadav Ahituv, PhD

CSO, Founder

UCSF Director of Genomics — inventor of the MPRA methodology underpinning this platform.

UCSF · Ahituv Lab · nature · Science

LinkedIn



Malika Gallyamova

CEO, Founder

Company strategy, fundraising, and operational execution across fast-growing biotech ventures.

University of Birmingham · ual: university of the arts london · Digital Sekta Agency

LinkedIn

Vitalii Volkov

CTO, Founder

Senior bioinformatician and co-architect of the AI/MPRA closed-loop engine.

University of Birmingham · HemoTech.AI

LinkedIn

Ofer Yizhar-Barnea, PhD

VP of Biology

Biology operations lead with two prior founder exits/spinouts in genomics and diagnostics.

UCSF · Technion Israel Institute of Technology · GENEYX · 64x Bio

LinkedIn

Dexter Sugiono

Head of BD

11+ years at AstraZeneca in oncology new-product planning across 40+ markets.

AstraZeneca · Roche · Ucla · CEIBS

LinkedIn

Dmitry Mikhailov, PhD

Chief AI Officer

Professor of AI at Khalifa University and NUS; UN AI-governance expert since 2022.

Khalifa University · saudi aramco · NUS

LinkedIn

Financing:
building the foundation for programmable therapeutics

$1.5M funds Year 1 validation; full $8M funds the 24-month platform buildout.

TRANCHE 1

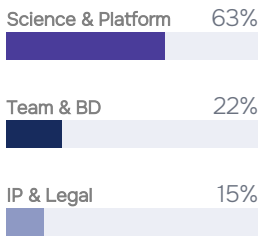
Validation and platform proof

$1.5M SAFE | $22M Post-money cap

MILESTONES

- ✓ First asset-ready switch candidate
- ✓ Closed-loop AI platform demonstrated
- ✓ Proprietary biological dataset established
- ✓ First commercial partnership executed
- ✓ Comprehensive patent strategy executed

USE OF FUNDS



TRANCHE 2

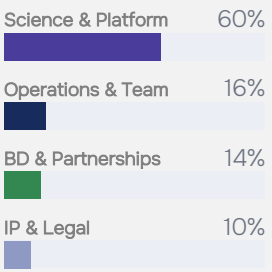
Platform expansion and therapeutic creation

$6.5M

MILESTONES

- ✓ Platform validated across 3+ indications
- ✓ Recurring licensing revenue established
- ✓ 10+ validated switches in proprietary library
- ✓ OSW-001 therapeutic candidate nominated
- ✓ Continuous IP coverage

USE OF FUNDS



Every milestone reduces risk, expands the platform, and increases the value of future therapeutic assets.

Contact info

Turning gene therapy into programmable medicine.

OncoSwitch is building the genetic control layer for cancer therapy — validated DNA switches today, proprietary tumor-selective therapeutics tomorrow.

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Appendix

MPRA in combination with AI can predict cell type specific DNA switches

nature

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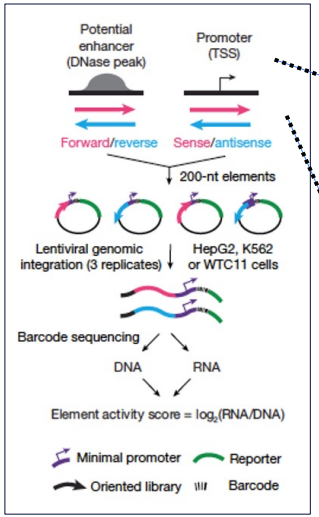
Article | Open access | Published: 15 January 2025

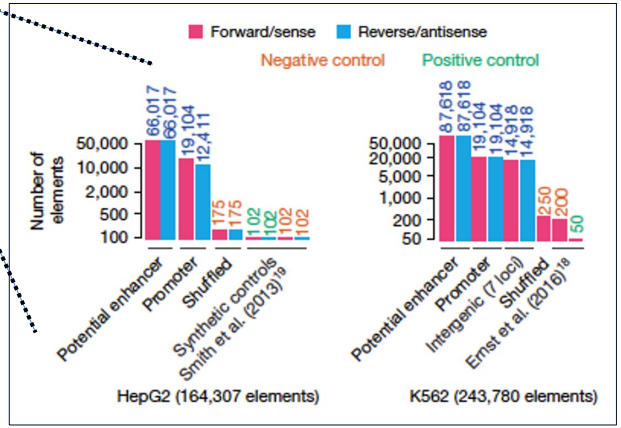
Massively parallel characterization of transcriptional regulatory elements

Vikram Agarwal ✉, Fumitaka Inoue, Max Schubach, Dmitry Penzar, Beth K. Martin, Pyaree Mohan Dash, Pia Keukeleire, Zicong Zhang, Ajuni Sohota, Jingjing Zhao, Ilias Georgakopoulos-Soares, William S. Noble, Galip Gürkan Yardımcı, Ivan V. Kulakovskiy, Martin Kircher, Jay Shendure ✉ & Nadav Ahituv ✉

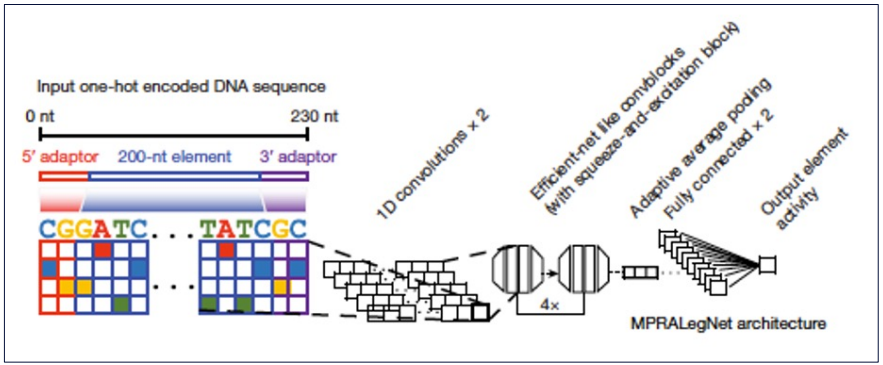
Nature **639**, 411–420 (2025) | Cite this article

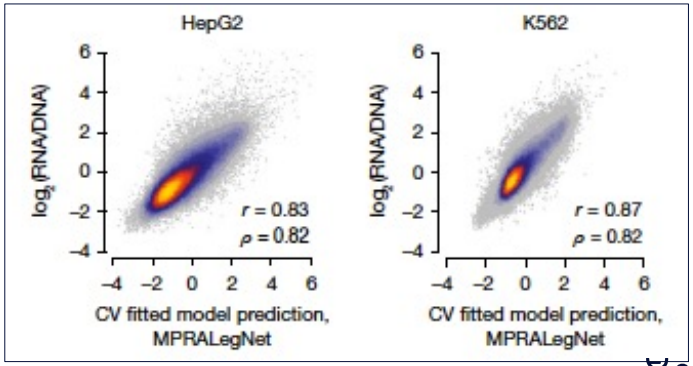


Tested 164,307 & 243,780 DNA switches in liver & leukemia cancer cell lines, respectively.



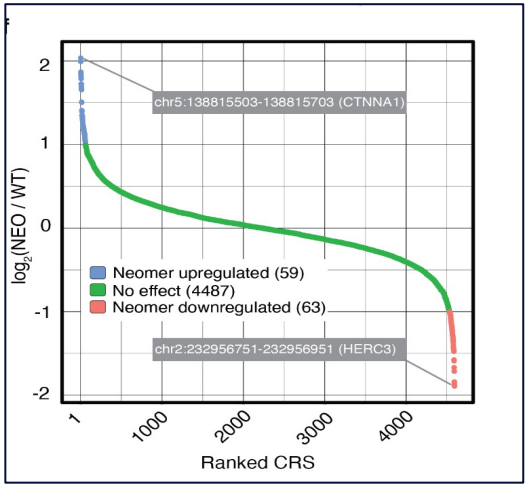
Developed machine learning tools that accurately predict DNA switch activity in these cells





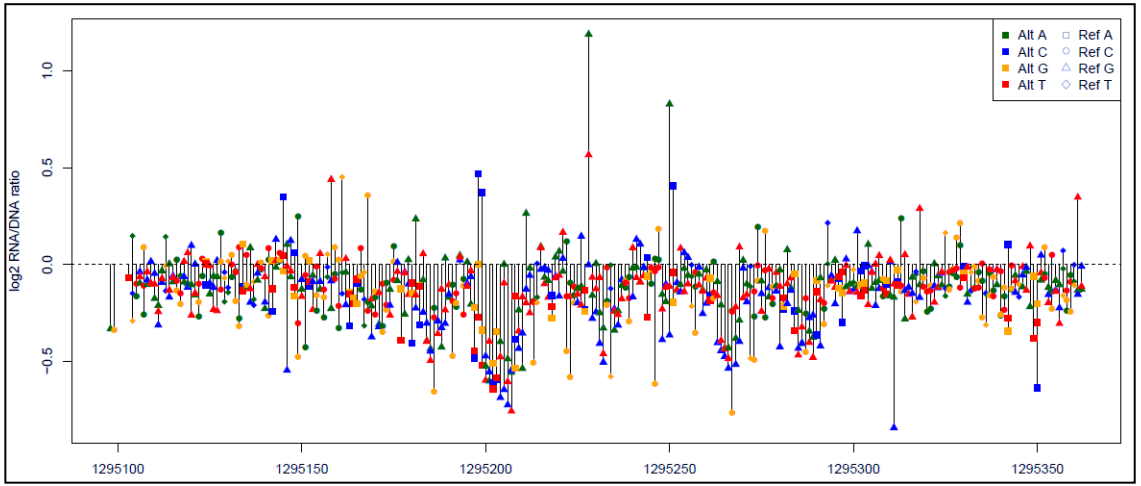
MPRA identifies cancer specific DNA switches

Tested 9,000 DNA switches associated with prostate cancer



Georgakopoulos-Soares, Communications Medicine, 2025

Tested 1,000 mutations in the TERT promoter to identify activating mutations in glioblastoma



Kircher, Nature Communications, 2019