NanoSyrinx

Delivering the Future of Intracellular Medicine

nanosyrinx.com

NanoSyrinx today

NanoSyrinx

Company Leadership

Tom Farrell
CEO

Joe Healey
Founder

James Lapworth
CBO

Marie McAvoy
CSO

Chris Poole
CFO

Independent Board Members

Edwin Moses
Non-exec Chair

Jane Dancer
NED

Tony Johnson, MD
NED

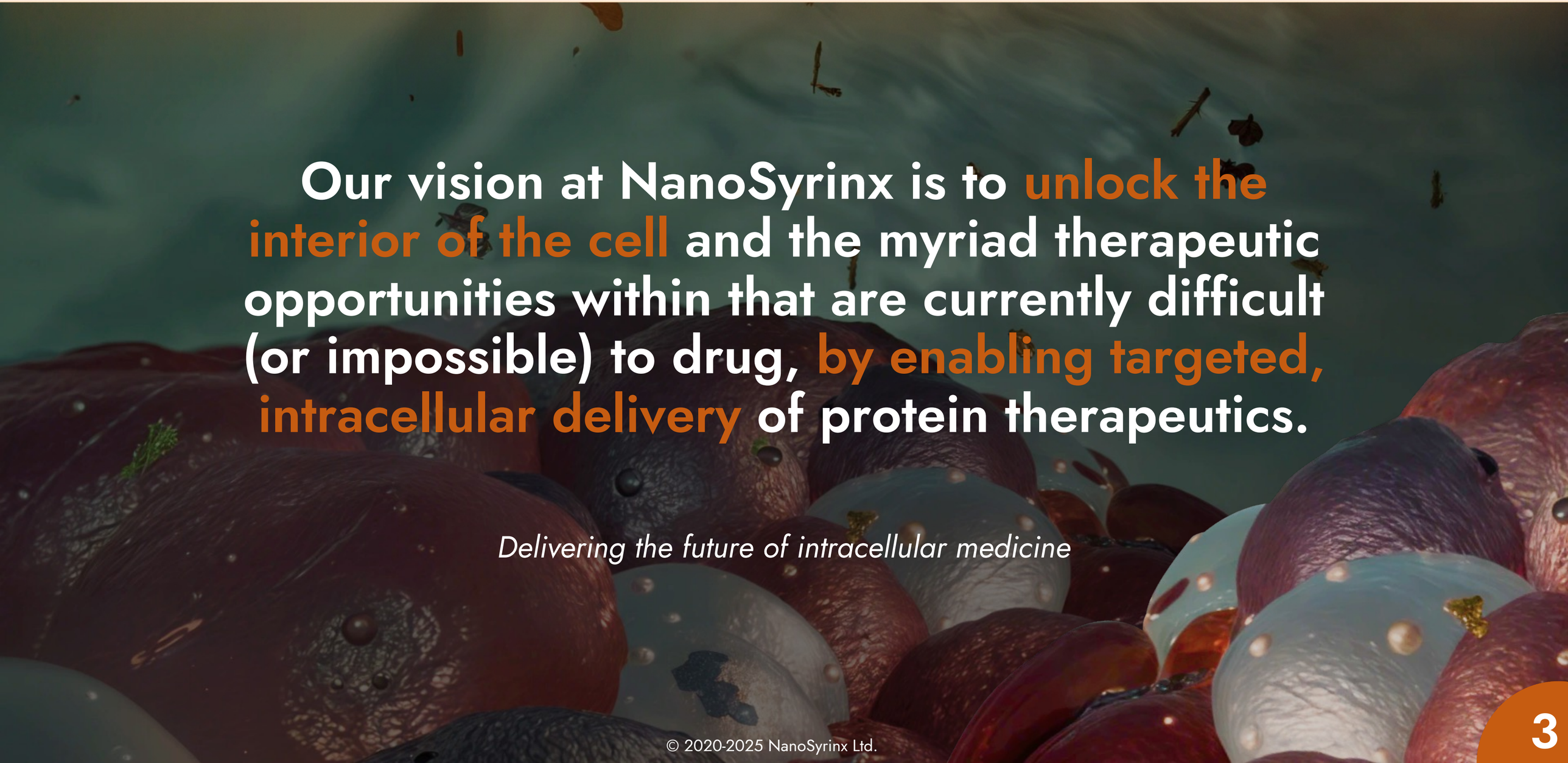
Discovery stage spin out from the Waterfield Lab at **Warwick Medical School**

>£18M in equity financing raised to date

Based in Warwickshire, UK, with a headcount of 19

BGF · M. VENTURES · octopus ventures · Lilly · meltwind · UK INNOVATION & SCIENCE SEED FUND · Pioneer · IQ CAPITAL

Our Vision



Our vision at NanoSyrinx is to unlock the interior of the cell and the myriad therapeutic opportunities within that are currently difficult (or impossible) to drug, by enabling targeted, intracellular delivery of protein therapeutics.

Delivering the future of intracellular medicine

The "undruggable cell" problem

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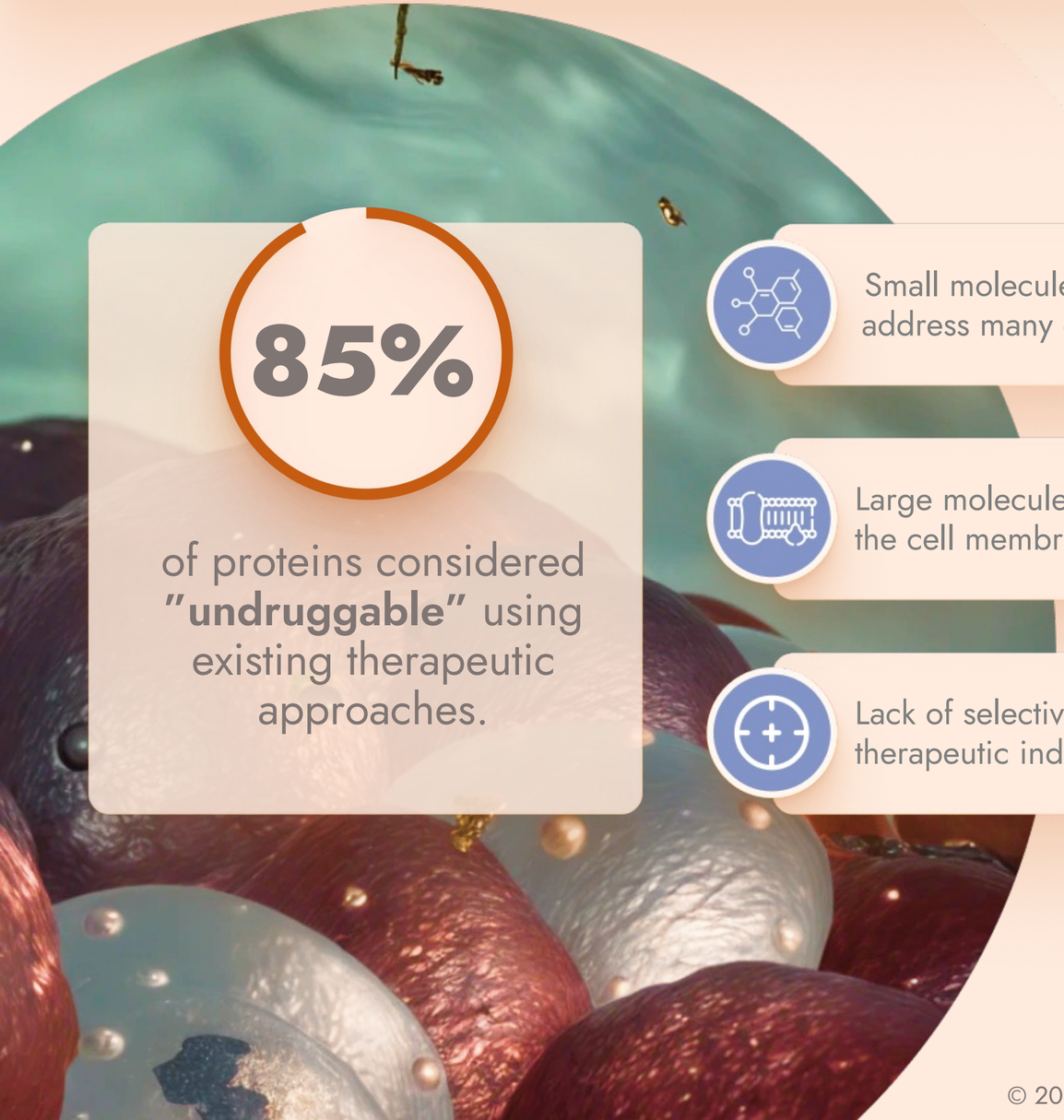

85%

of proteins considered **"undruggable"** using existing therapeutic approaches.

- Small molecules are unable to address many classes of target
- Large molecules fail to traverse the cell membrane
- Lack of selectivity limits therapeutic index & risks toxicity

The solution

Targeted intracellular drug delivery is an **unsolved problem**, and our Nanosyringe platform offers the solution.

How Nature Solved **Biologic Delivery**

Inspired by Nature, Engineered for Medicine

Nanosyringes are **naturally-occurring** protein delivery systems evolved in bacteria to target specific cells making them **ideal for delivering complex therapeutics**.

Through synthetic biology, we can harness and refine these systems to deliver complex therapeutic molecules **directly to the cytosol in a targeted manner**—something traditional drug delivery methods struggle to achieve.

A synthetic biology-inspired, fully customisable, genetic platform

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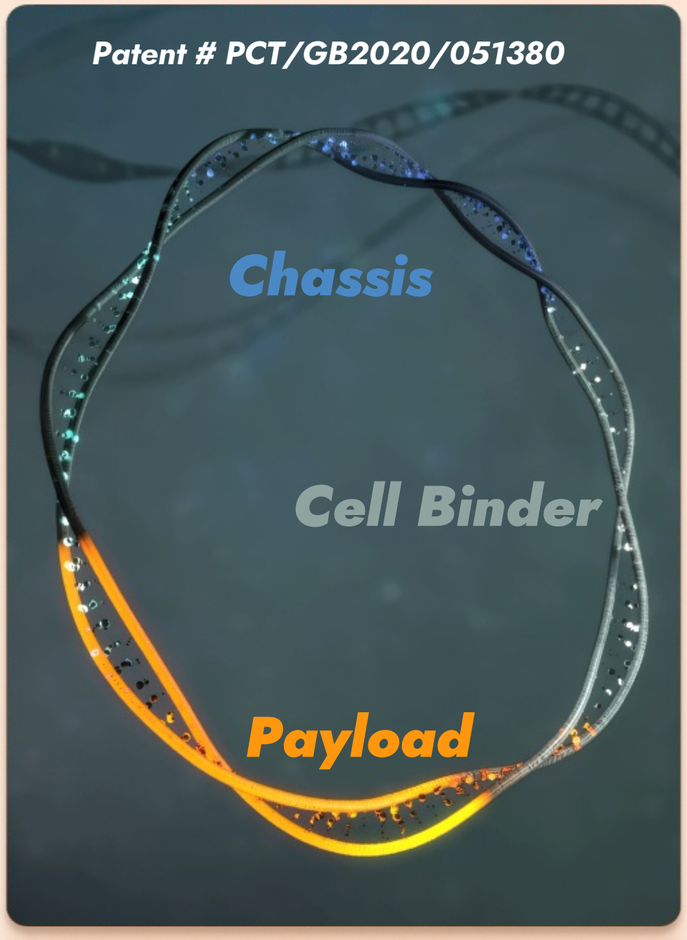

1 System built from a fully genetic construct.

2 ‘Single step’ loading and assembly in E. coli

3 Nanosyringe complexes purified, loaded, ready for use

...with a completely novel **mode of action**

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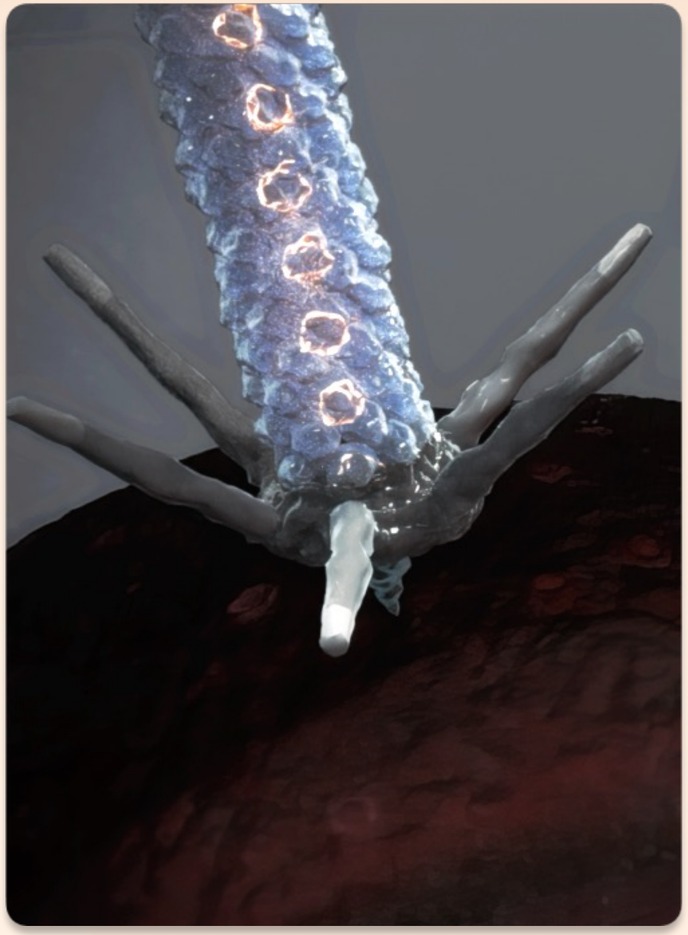
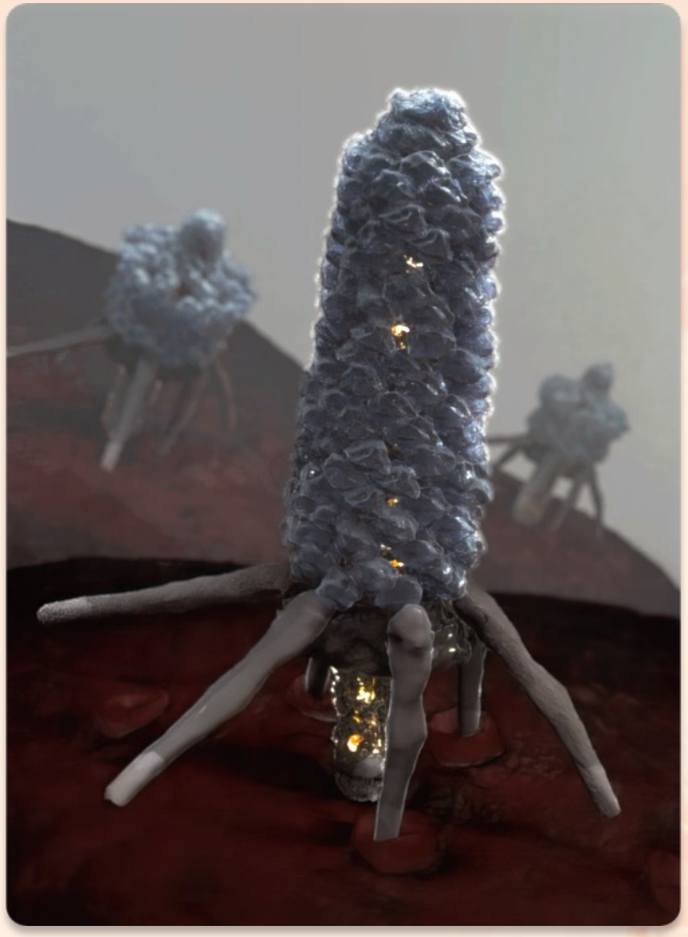
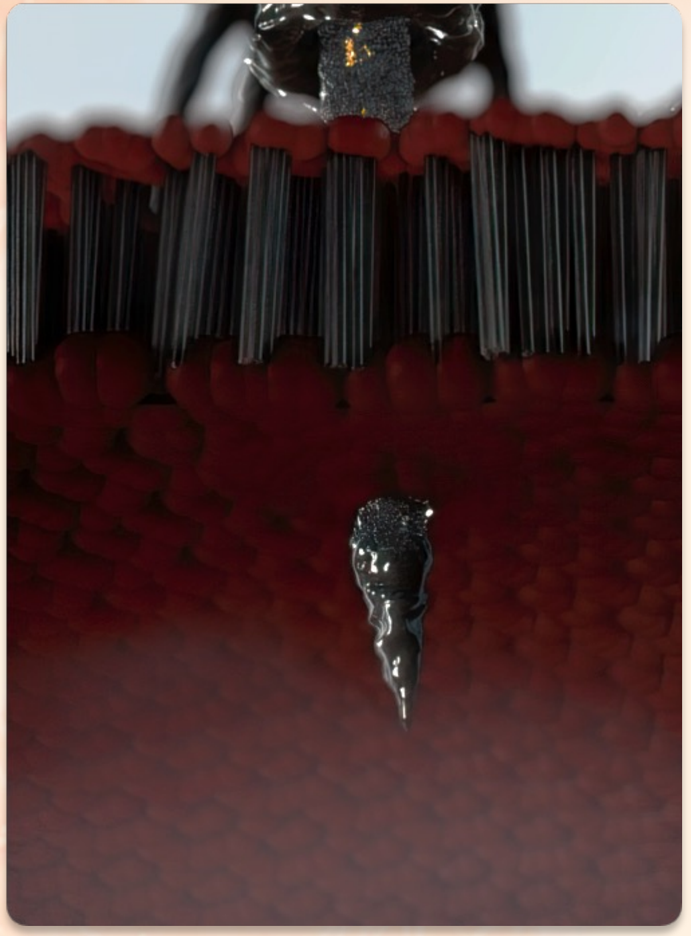


4 Purified Nanosyringes administered in relevant setting



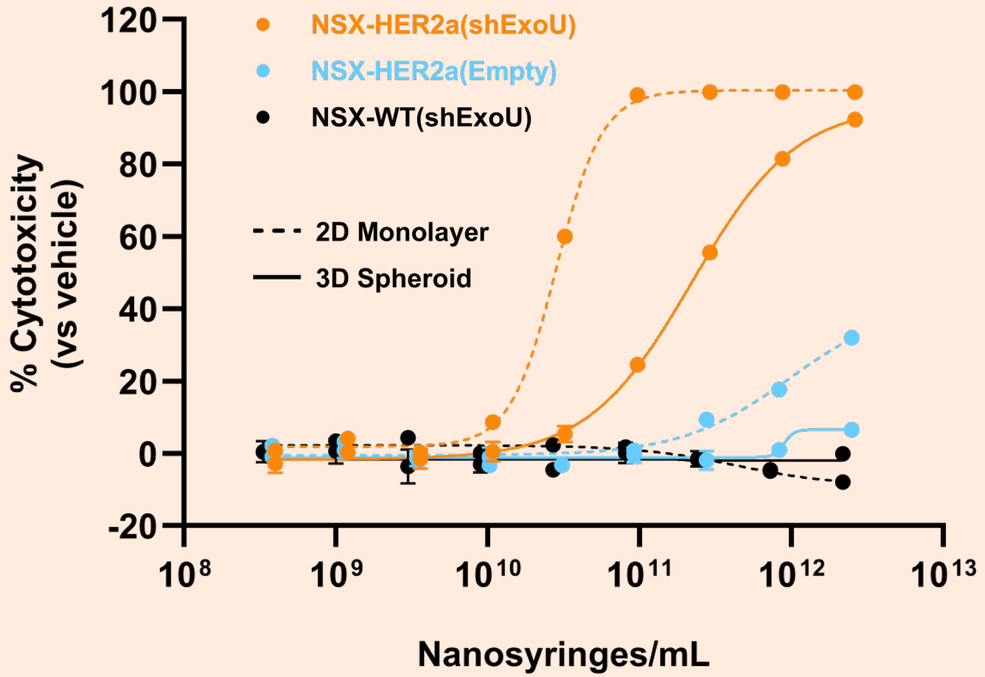
5 Cell-targeting ‘arms’ selectively bind Nanosyringe to cell surface

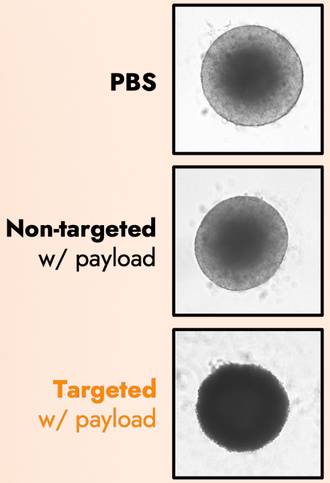


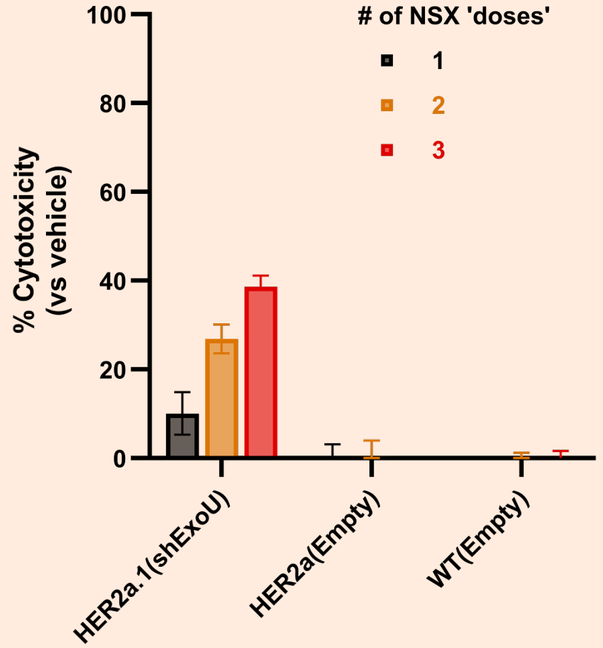
6 Nanosyringes actively pierce the membrane deliver the ‘API’

In vitro validation with an oncology PoC

Demonstrated therapeutic proof-of-concept with a ***potent*** (nM), ***fast-acting*** (~24h), and ***highly targeted*** ***Nanosyringe*** delivering an intracellular (protein) cytotoxin supported by strong 2D and 3D *in vitro* data





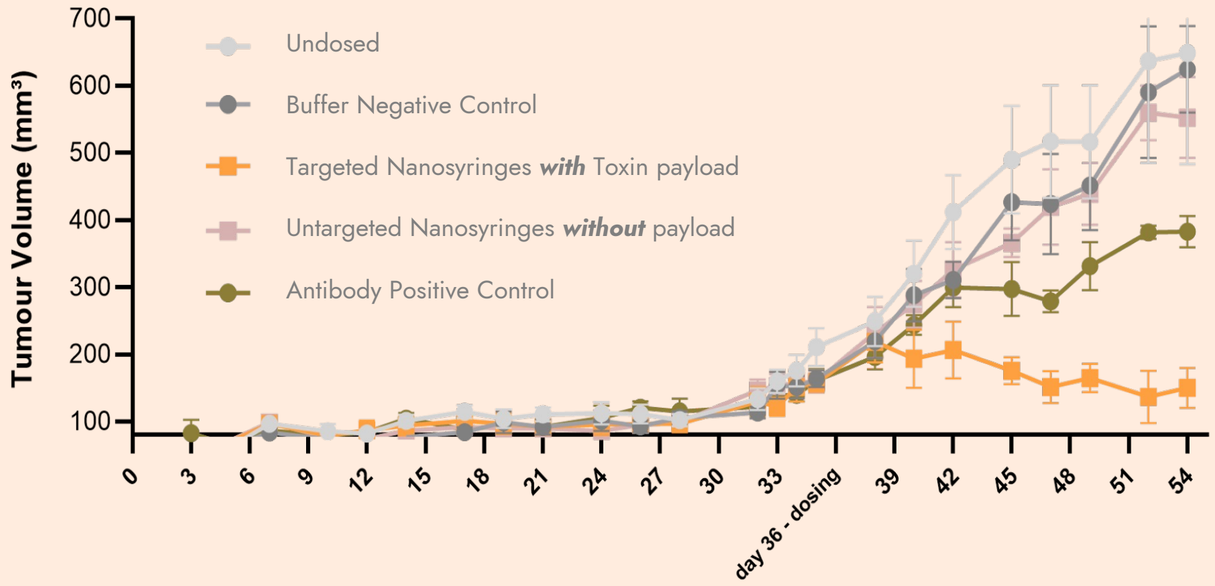


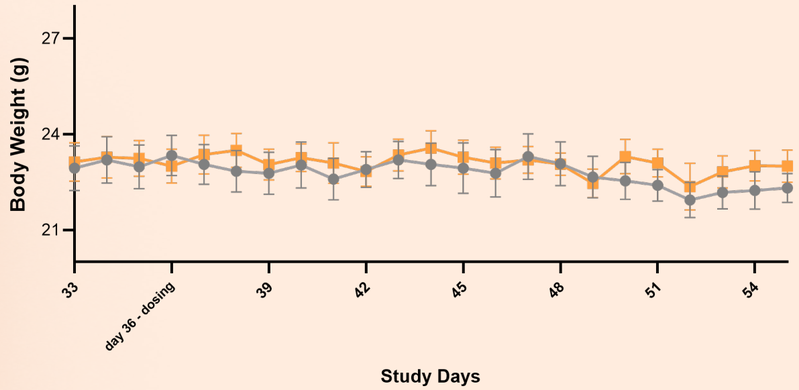
Sub-lethal doses of toxin-loaded Nanosyringes (2.5x10⁹ Nanosyringes/ml) applied daily demonstrate an accumulated cytotoxic effect in spheroid models

Nanosyringe potential and current development:

In vivo validation with an oncology PoC

The same molecule exhibits ***excellent tolerability*** and ***significant efficacy*** in a rodent xenograft model, with no impact on animal body weight/behaviour, and observed ***tumour regression.***

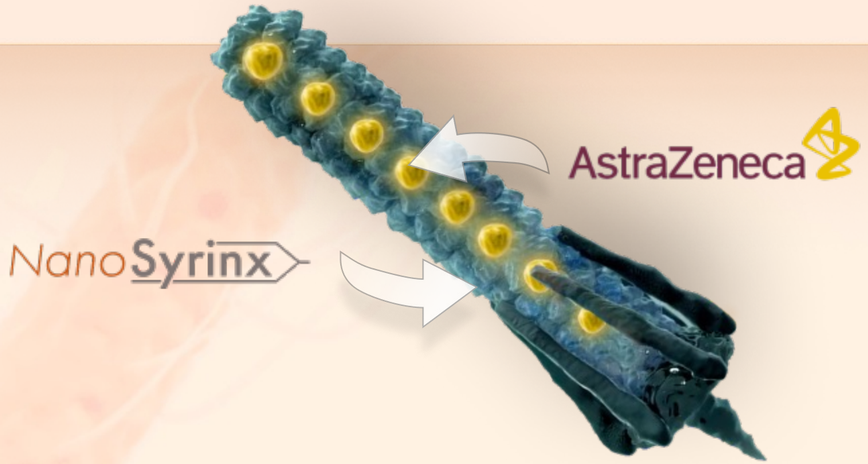




Animals maintained bodyweight throughout dosing and exhibited no adverse clinical signs

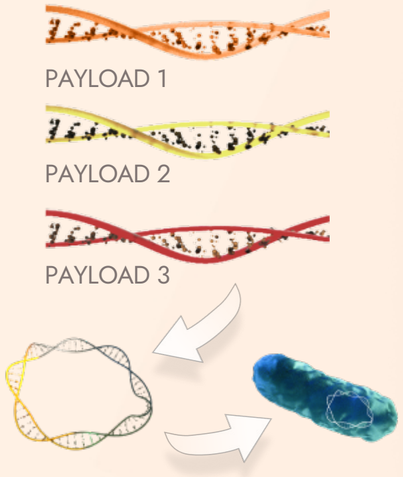
Delivering partner payloads against “undruggable” targets

We have successfully delivered a proof-of-concept collaboration with AstraZeneca demonstrating that we can incorporate and deliver their payloads.

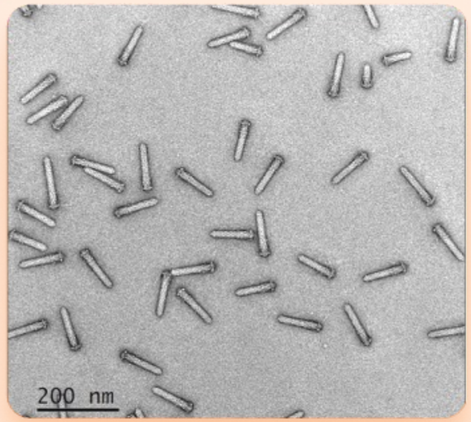


Example workflow:

1 Clone partner payload into proprietary genetic platform

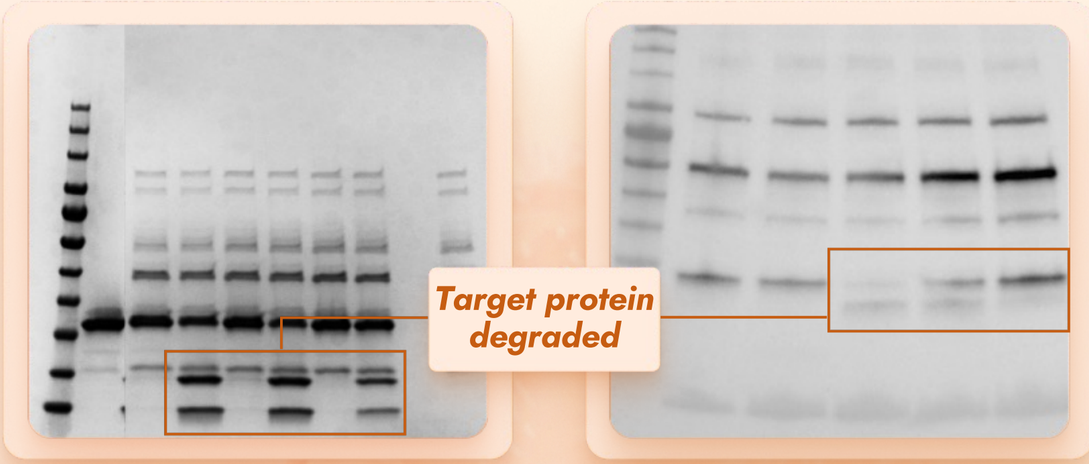


2 Confirm expression/ loading/assembly



3 Confirm packaged payload is functional

4 Confirm delivery of active payload in cells



Delivery of a **functional enzyme degrader of an “undruggable” intracellular oncology target** produces a measurable knockdown in protein abundance (and downstream signalling).

A versatile delivery platform beyond Oncology

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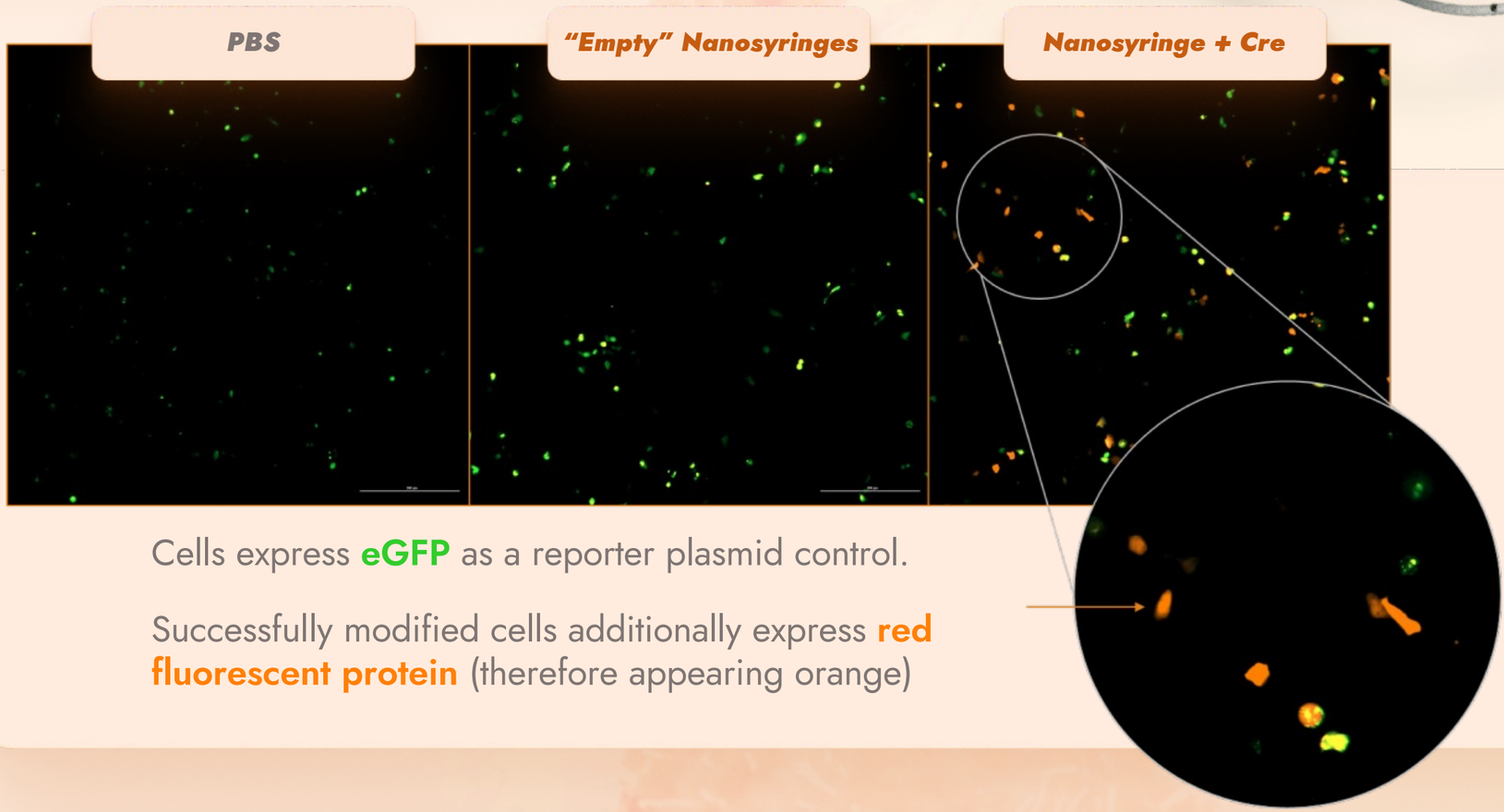
Unprecedented access to the cell interior

Nanosyringes are able to **selectively deliver payloads capable of reaching intracellular compartments** (e.g nucleus) and modifying DNA opening up the potential for non-viral genetic engineering and similar approaches.

With further examples of DNA editing approaches appearing in the literature including Cas9 and Zn-finger containing proteins.



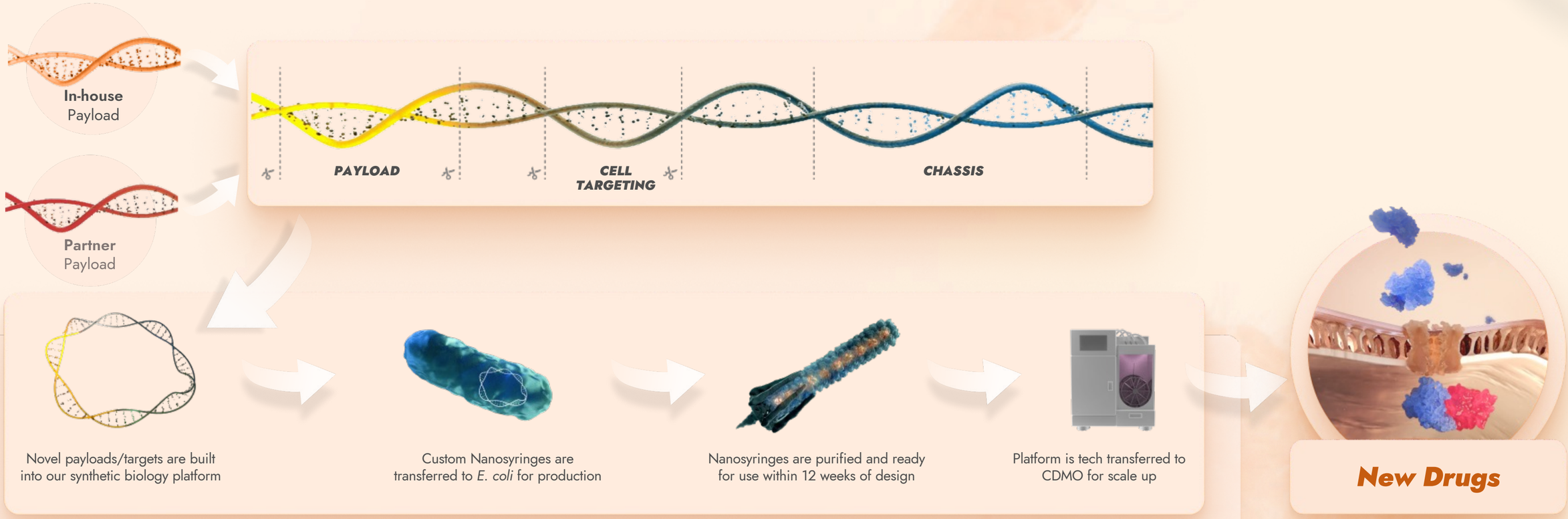
Cells express **eGFP** as a reporter plasmid control.

Successfully modified cells additionally express **red fluorescent protein** (therefore appearing orange)

NanoSyrinx Platform & Business Model

Hybrid Approach:

We develop in-house programs for undruggable targets and engage in collaborative co-development and discovery with pharma/biotech to solve their biologic delivery challenges



NanoSyrinx platform applied to targets

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Want to learn more?

nanosyrinx.com

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