



NanoSyrinx

a novel platform technology
for **targeted intracellular**
drug delivery



The opportunity for the UK to be a
leader in synbio for human health

NanoSyrinx today

NanoSyrinx by the numbers:

2020

Year first funded

£7M

Equity & grant financing

12

FTEs

NanoSyrinx is thrilled to be backed by





Why me?

- Co-Founder/CEO of Warwick Uni synbio spin-out
- Previously:
 - BSc Aberystwyth
 - MSc and PhD @ Warwick Med/Chemistry
 - PhD in molecular microbiology/synbio
 - Research Fellow at Warwick Medical School
- Particularly interested in the use of synthetic and molecular biology
- "Engineer trapped in a biologists body"
- 'Unusual' as a biotech/founder in the Midlands

The **un-druggable** cell

< 20% Human proteins 'drugged'
(mostly cell surface)

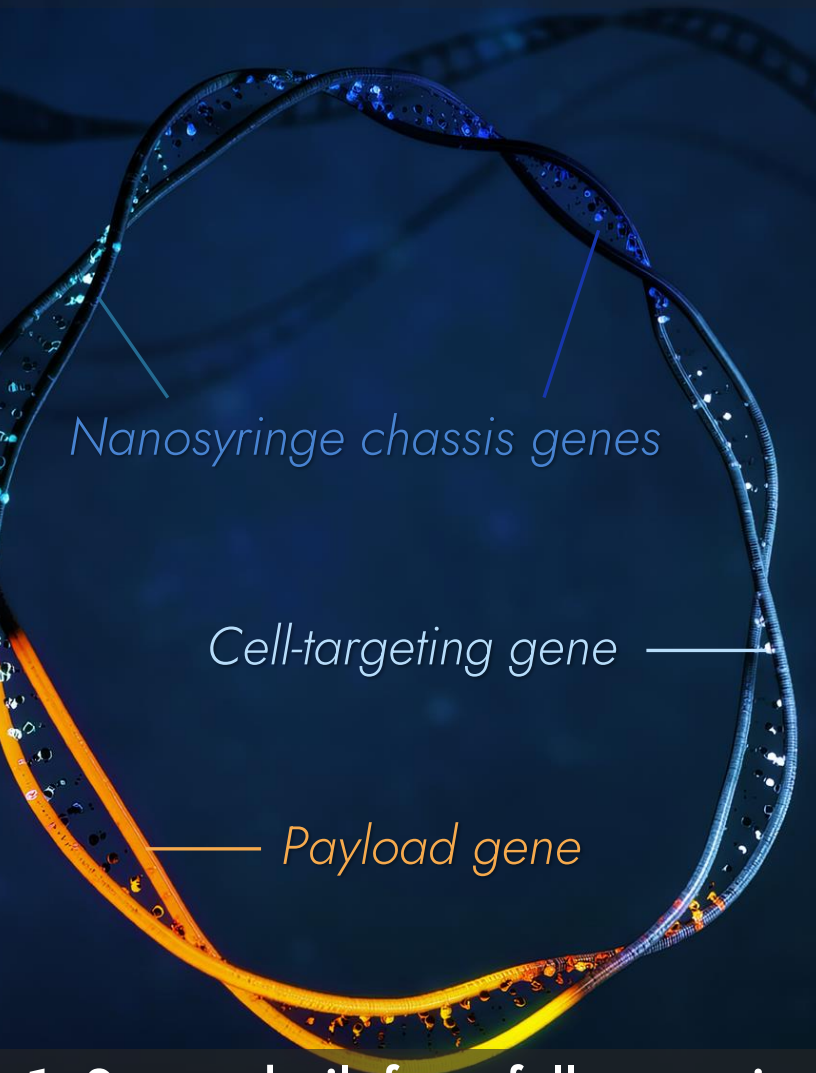


“Delivering [biologics] into cells is the Holy Grail...”

“Delivering functional proteins to the interiors of cells would open up an entirely new range of targets for drug development...”

“Intracellular delivery is a strategic priority for us. We have already tried a number of solutions, including some quite ‘out there’ ideas, but nothing really works.”

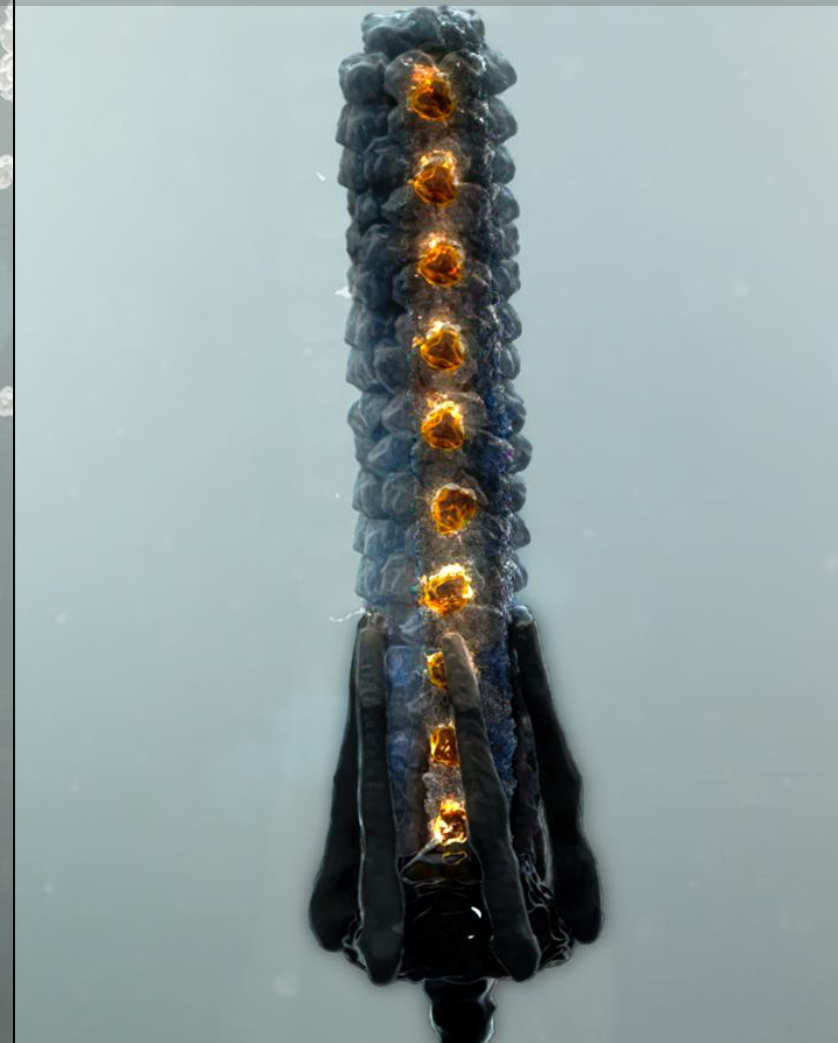
A synthetic biology-inspired, **fully customisable, genetic platform**



1. System built from fully genetic construct.

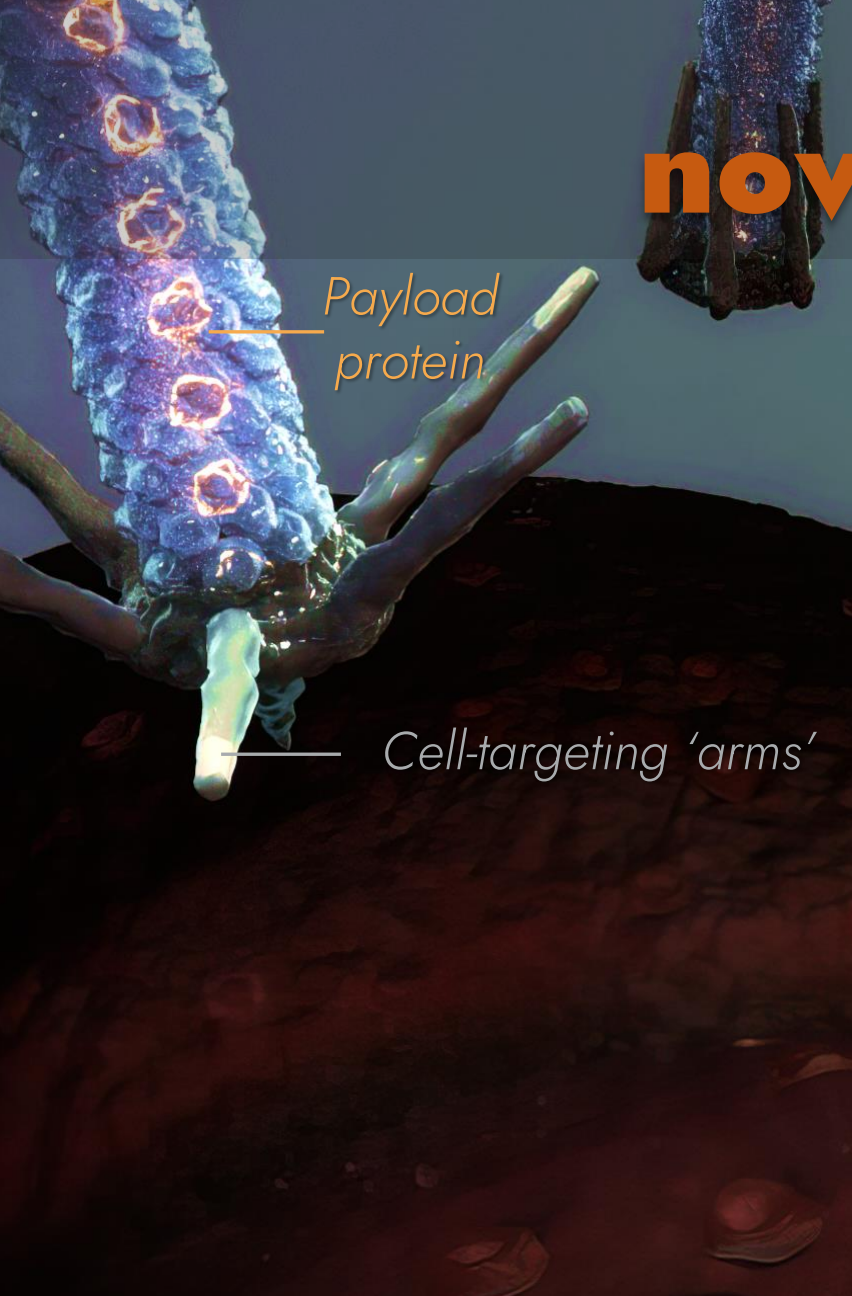


2. 'Single step' loading and assembly in *E. coli*



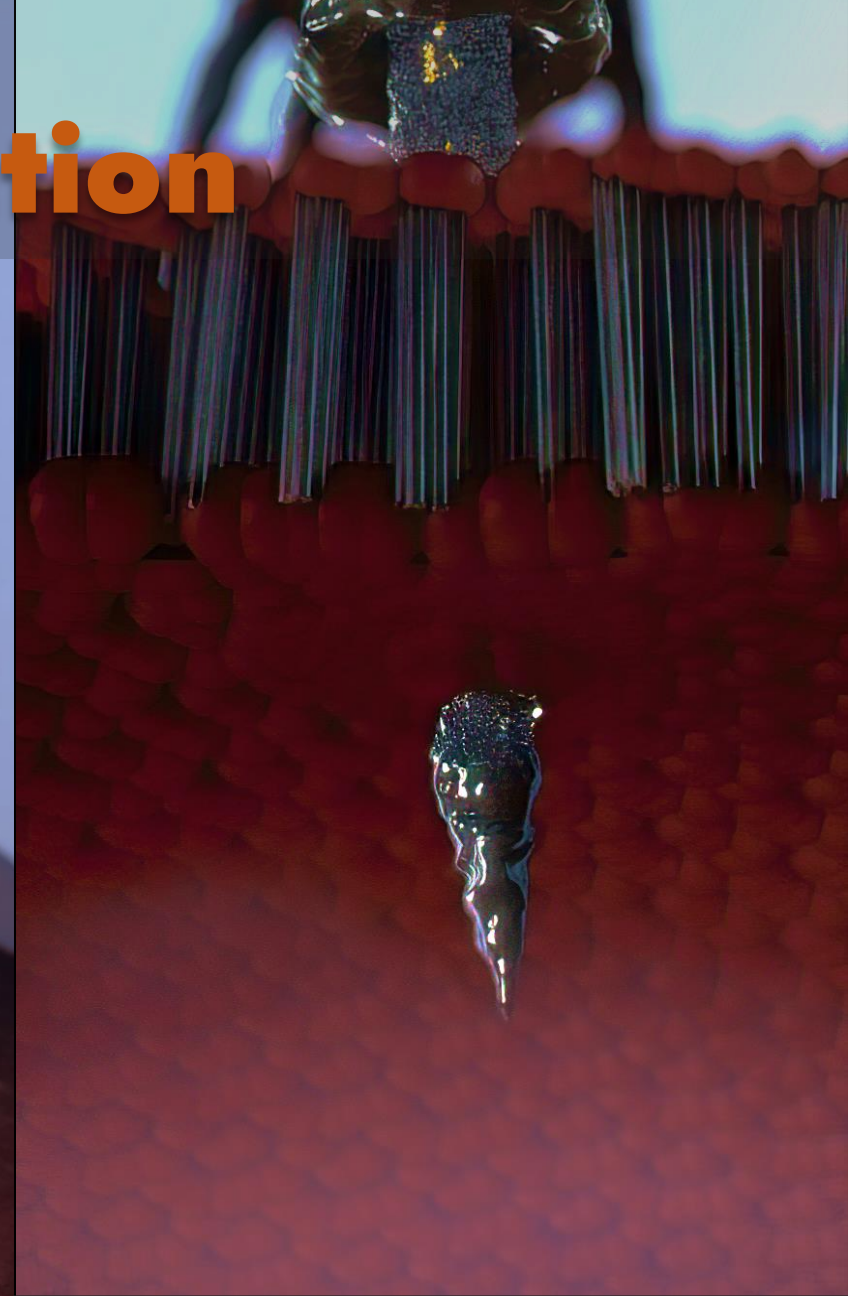
3. Nanosyringe complexes purified, loaded, ready for use

A completely novel mode of action



Payload
protein

Cell-targeting 'arms'

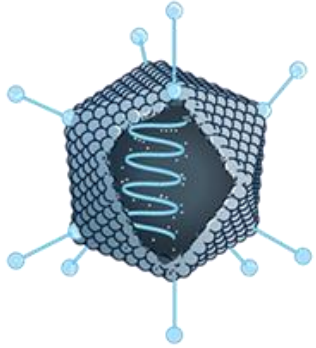


1. Loaded nanosyringes produced by our bacterial expression system

2. Cell-targeting 'arms' selectively bind nanosyringe to cell surface

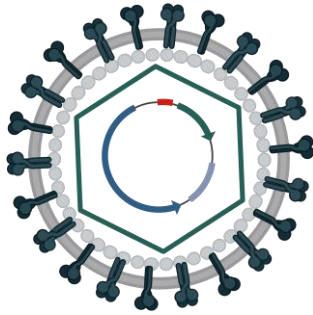
3. Nanosyringes actively pierce the membrane to deliver the 'API'

Why **SynBio**?

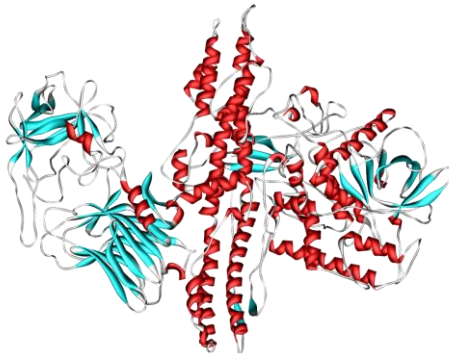


ADENOVIRUS

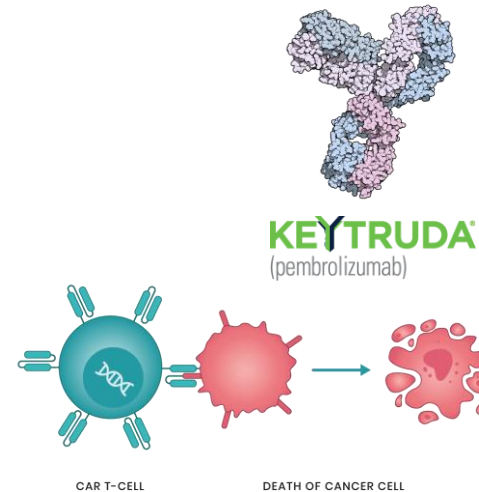
Repurposed viruses for
gene therapy



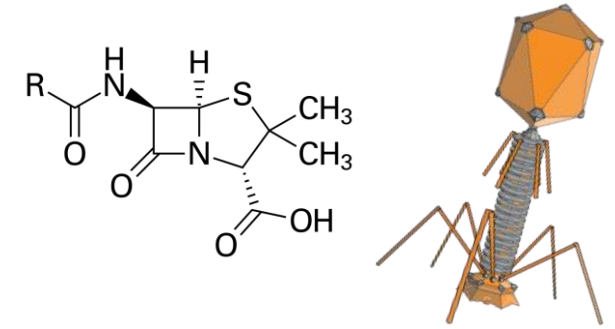
Repurposed toxins/
virulence factors for
therapeutics



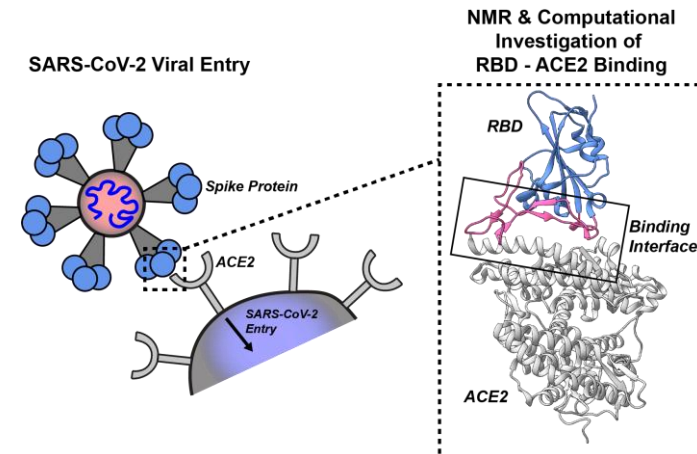
I am fascinated by
solutions from **Nature**



Bacterial viruses and natural
products to defeat AMR



Leveraging the power of
the immune system



'top of mind' SynBio themes



- "Valley of Death" is alive and well
- Access to UK growth capital



- SynBio is a scientific confluence
 - Investment percolates in to many areas
- Risk of 'homelessness' within UKRI?



- Preach caution around retrenchment
 - R&D tax credits ☹️
 - NS&I bill ☹️
 - SEIS/EIS expansion 😊

It's going to happen; how do we ensure it happens **here?**