



## Noxopharm 2024 AGM Corporate Presentation

**Sydney, 19 November 2024:** Innovative biotech company **Noxopharm Limited (ASX:NOX)** is pleased to release its 2024 AGM Corporate Presentation.

Highlights:

- Ongoing strategic transformation
- Two proprietary technology platforms with multiple assets
- Numerous encouraging preclinical results
- External interest from industry in several Sofra assets
- Upcoming HERACLES clinical trial
- Sofra and its role in cancer
- Market opportunities

**-ENDS-**

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### About Noxopharm

Noxopharm Limited (ASX:NOX) is an innovative Australian biotech company discovering and developing novel treatments for cancer and inflammation, including a pioneering technology to enhance mRNA vaccines.

The company utilises specialist in-house capabilities and strategic partnerships with leading researchers to build a growing pipeline of new proprietary drugs based on two technology platforms – Chroma™ (oncology) and Sofra™ (inflammation, autoimmunity, and mRNA vaccine enhancement).

Noxopharm also has a major shareholding in US registered, Australia based Nyrada Inc (ASX:NYR), a drug discovery and development company specialising in novel small molecule therapies.

To learn more, please visit: [noxopharm.com](http://noxopharm.com)

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*Dr Gisela Mautner, CEO and Managing Director of Noxopharm, has approved the release of this document to the market on behalf of the Board of Directors.*

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### Forward Looking Statements

This announcement may contain forward-looking statements. You can identify these statements by the fact they use words such as “aim”, “anticipate”, “assume”, “believe”, “continue”, “could”,



“estimate”, “expect”, “intend”, “may”, “plan”, “predict”, “project”, “plan”, “should”, “target”, “will” or “would” or the negative of such terms or other similar expressions. Forward-looking statements are based on estimates, projections and assumptions made by Noxopharm about circumstances and events that have not yet taken place. Although Noxopharm believes the forward-looking statements to be reasonable, they are not certain. Forward-looking statements involve known and unknown risks, uncertainties and other factors that are in some cases beyond the Company’s control (including but not limited to the COVID-19 pandemic) that could cause the actual results, performance or achievements to differ materially from those expressed or implied by the forward-looking statement.

# **NOXOPHARM LIMITED**

**Delivering Science. Transforming Lives.**

**AGM 2024**

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SOF-SKN, SOF-VAC, CRO-67, CRO-70 and CRO-71 are currently are not approved for use in Australia or any other country.



Noxopharm

Dr Gisela Mautner, CEO & MD  
AGM Presentation

19 November 2024

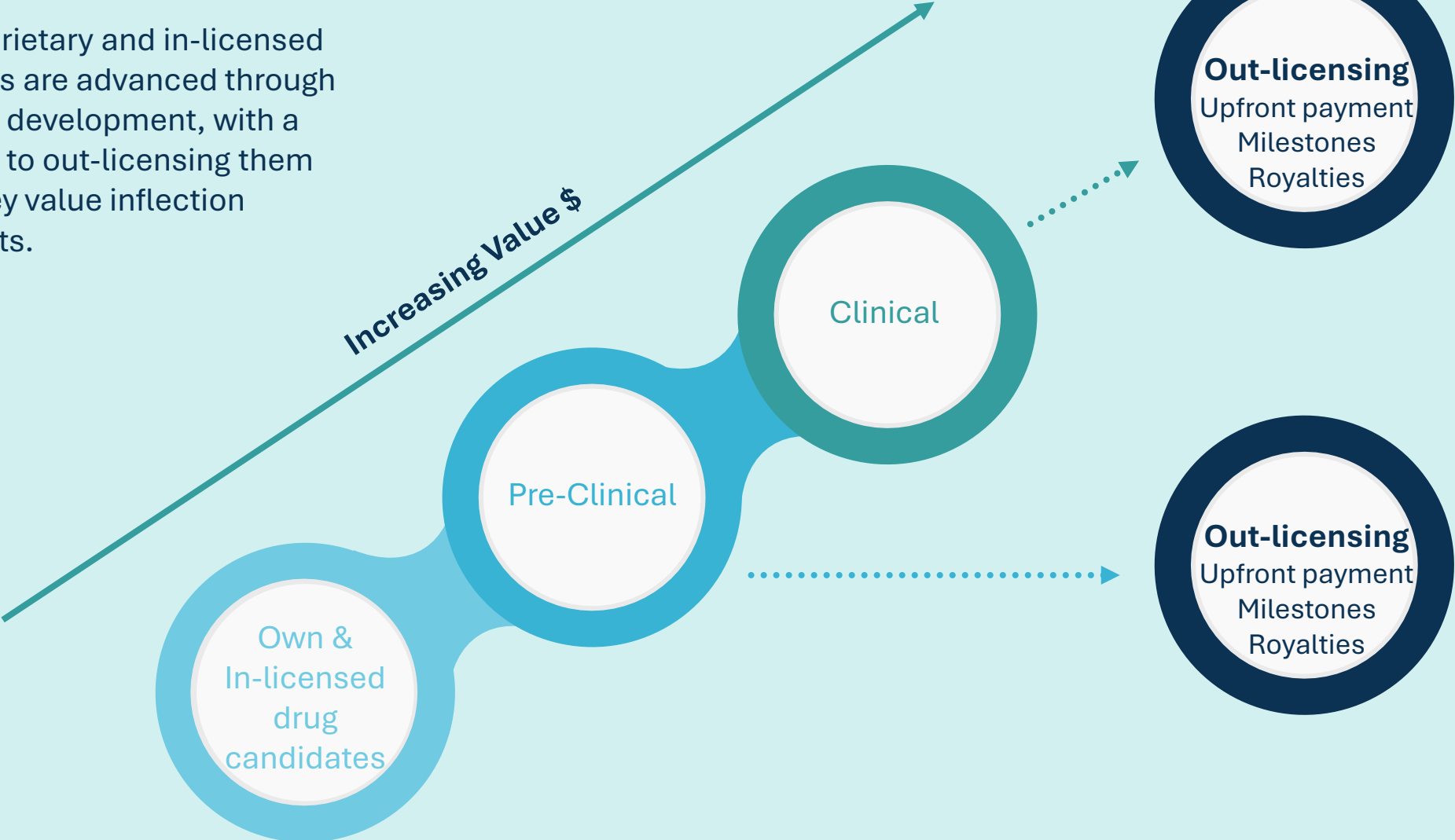
# Transforming Noxopharm

- Two proprietary technology platforms
- Multiple high-potential assets
- Growing external interest in Sofra™ platform
- Clinical trial starting in 2025
- Encouraging results from Chroma™ platform
- World-class partners
- Robust IP portfolio
- Highly experienced management team
- Significant market opportunities



# The Noxopharm Business Model

Proprietary and in-licensed drugs are advanced through drug development, with a view to out-licensing them at key value inflection points.



# Financial Summary (ASX:NOX)

Funding from sophisticated investors announced September 2024

## Capital Structure\*

Share price	\$0.105
Shares on issue	292M
Market Capitalisation	\$30.7M
Net capital raised <sup>1</sup>	\$63.8M
Govt grants/rebates received <sup>2</sup>	\$32.0M

## Cash Position\*\*

Current Cash Holdings	\$1.6M
R&D rebate received for 2023/24	\$2.4M

\* As at 14 Nov 2024

\*\* As at 14 Nov 2024

<sup>1</sup> Includes IPO monies raised

<sup>2</sup> Since IPO



# Two Separate Development Programs

## Innovative Technology Platforms



**Chroma™**



**Sofra™**



Noxopharm

Chroma™

**Cancer**

**Inflammation**

**CHROMA™ TECH  
PLATFORM**

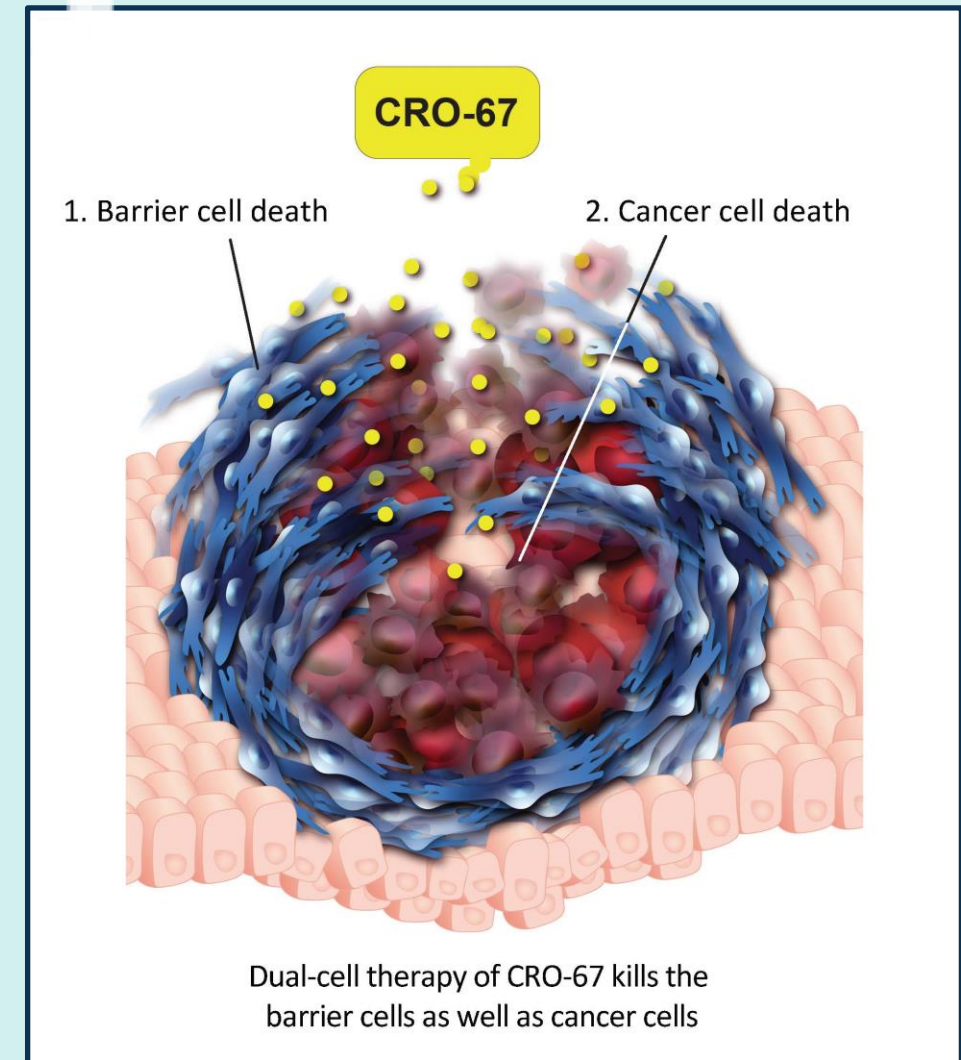
Pancreatic Cancer

Brain Cancer

Leukaemia

# Pancreatic Cancer Dual-Cell Therapy

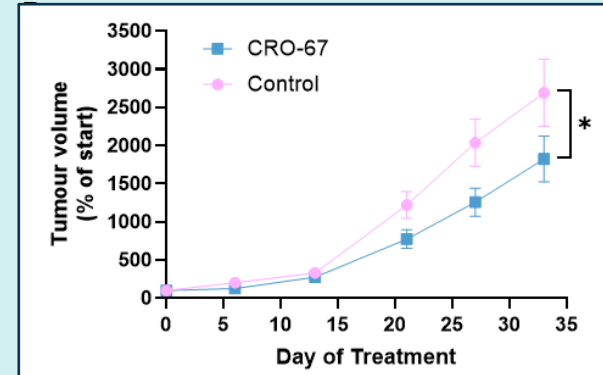
- Preclinical research in unique pancreatic cancer UNSW model
- CRO-67 tested in patient-derived explants
- CRO-67 attacks both pancreatic tumour cells and barrier cells surrounding the tumour
- Reducing the barrier exposes tumour to immune cells and to further anti-cancer treatments
- Orphan Drug Designation (ODD) Granted by US Food and Drug Administration in October 2023
- ODD comes with various benefits that include:
  - Tax credits for qualified clinical trials
  - Exemption from user fees (e.g. FDA application fees)
  - Potential seven years of market exclusivity after approval



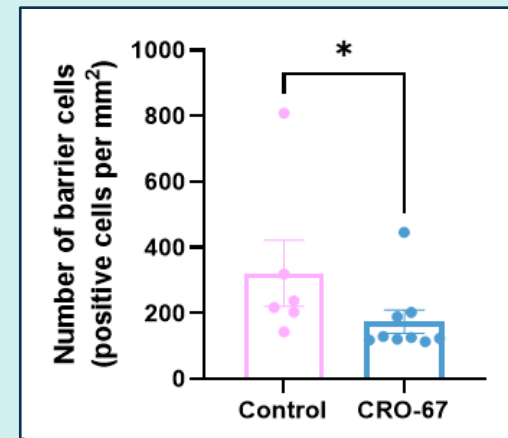
# Significant *in vivo* Results August 2024

- New results from highly sophisticated study testing CRO-67 in complex model
- Human pancreatic cancer cells as well as barrier cells were transplanted into the pancreas of mice
- The study had three major results:
  - Significant decrease in tumour volume growth rate
  - Significant decrease in barrier cells
  - Significant reduction in cancer spread
- Asterisks represent a p-value of less than 0.05, indicating statistically significant results
- Detailed results available [here](#)

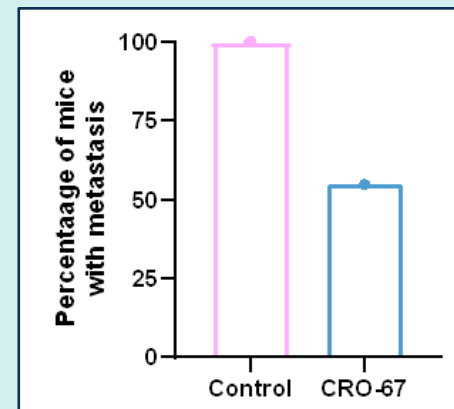
Significant Decrease in Tumour Volume Growth



Significant Decrease in Barrier



Significant Reduction in Cancer



**Cancer**

**Inflammation**

**CHROMA™ TECH  
PLATFORM**

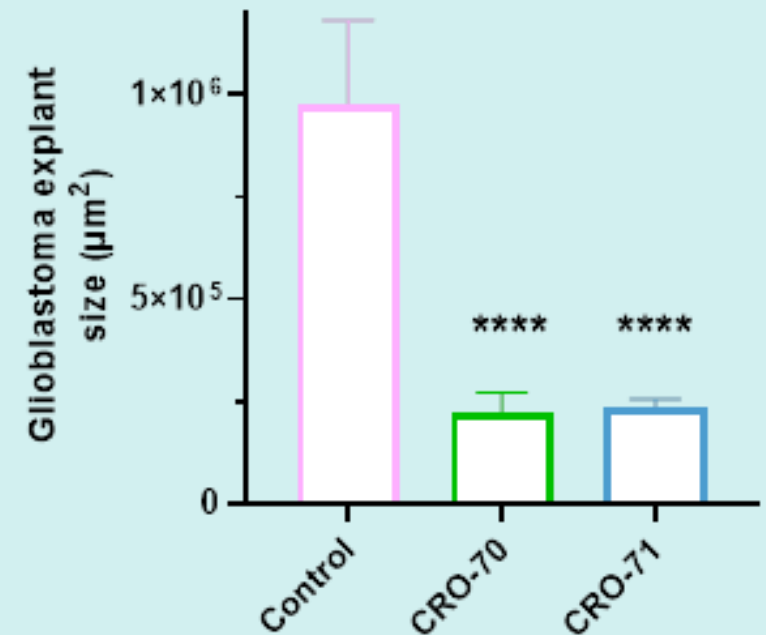
Pancreatic Cancer

Brain Cancer

Leukaemia

# Glioblastoma

- Noxopharm and the University of South Australia (UniSA) have identified two novel first-in-class drugs with anticancer activity – CRO-70 and CRO-71.
- Drugs tested on an extensive biobank of patient-derived tumour explant organoids (GBOs); a state-of-the-art glioblastoma explant model established by UniSA.
- GBOs are generated from tumours surgically excised from actual brain cancer patients, thereby maintaining the three-dimensional architecture and complex microenvironment composition of human brain tumours and providing a realistic environment for drug testing.
- The figure shows that CRO-70 and CRO-71 significantly reduced the growth of the glioblastoma explants by an average of 75.94% and 75.87% respectively versus the untreated controls.
- The four asterisks represent a p-value of less than 0.0001, indicating highly statistically significant results.
- Preliminary analysis of CRO-70 and CRO-71 also demonstrated these drugs could cross the blood-brain barrier – an important protective filter for the brain that most drugs do not manage to cross.





**Cancer**

**Inflammation**

**CHROMA™ TECH  
PLATFORM**

Pancreatic Cancer

Brain Cancer

Leukaemia



# Leukaemia

- Novel drug identified that specifically targets a gene mutation found in Acute Myeloid Leukaemia (AML) that arises during current standard-of-care treatment.
- Mutation causes the cancer to become resistant to standard-of-care drugs.
- Early findings show the novel Chroma drug candidate can overcome this common problem of drug resistance, which can happen any time during or after the treatment.
- Drug resistance is relevant in AML because cancer often returns aggressively after initial treatment.
- AML is a type of blood cancer that represents around 40% of all new adult-onset leukaemias in Australia and was the leading cause of leukaemia-related deaths in 2020.
- It has a median overall survival rate of around 25% five years after diagnosis, and an incidence rate of approximately 20 people per 100,000 in those over 65 in Australia.
- Noxopharm to review Chroma next steps.

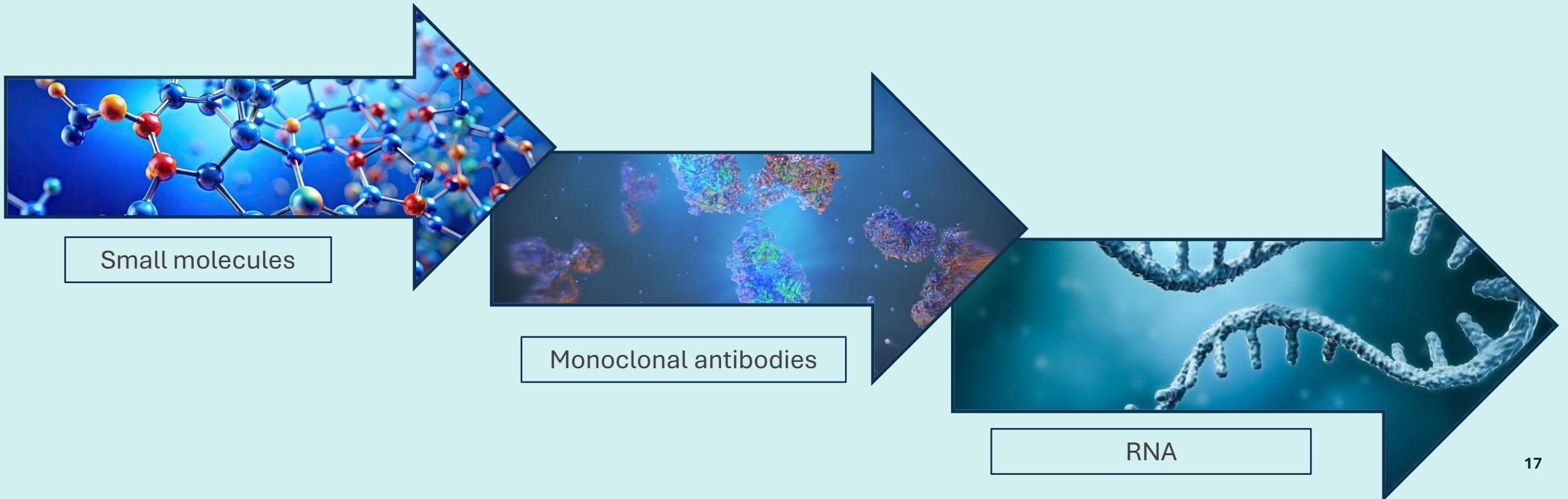


Noxopharm

Sofra™

# RNA Revolution

- RNA technology represents a revolution in medicine.
- The third wave of drug history is starting: from small molecules to monoclonal antibodies to RNA.



# Noxopharm and the RNA Revolution

- The COVID vaccines were just the beginning.
- RNA technology will see new medicines and vaccines launched in unprecedented numbers over the coming years.
- Noxopharm is one of very few Australian companies in the RNA space.
- We have proprietary technology to
  1. Create our own new drugs and
  2. Support pharmaceutical and biotech companies succeed as the RNA race heats up.

# Scientific Breakthrough

- The 2023 Nobel Prize for Medicine was awarded to Katalin Karikó and Drew Weissman.
- They paved the way for mRNA COVID vaccines by discovering how mRNA interacts with our immune system.
- They used nucleoside base modifications to reduce inflammation by replacing one base called ‘uridine’ with a modified base called ‘pseudouridine’ in the mRNA vaccine.
- Noxopharm’s technology approaches the same problem from another angle – ultra-short oligonucleotides reduce inflammation by blocking the inflammatory receptors that become activated by the mRNA vaccine.



# Licensing Deals – COVID-19 Vaccines

- Cellscript licensed modified uridine technology from the University of Pennsylvania after it was discovered there by Karikó and Weissman.
- Cellscript later licensed it to the BioNTech/Pfizer team and Moderna.
- The exact amount Cellscript made from licensing modified uridine to BioNTech/Pfizer and Moderna is not publicly disclosed.
- But the University of Pennsylvania has made at least US\$750 million from this arrangement.<sup>1</sup>
- BioNTech/Pfizer and Moderna are estimated to have paid Cellscript at least US\$2.5 billion over several years, driven by the global COVID pandemic.<sup>2</sup>
- Even before COVID, Moderna was paying Cellscript over US\$20 million per year to in-license its technology.<sup>3</sup>

1 – <https://www.thedp.com/article/2022/06/penn-royalties-mrna-covid-vaccines>

2 – <https://www.pennlive.com/nation-world/2022/06/research-leading-to-covid-19-vaccines-reaps-close-to-1b-in-royalties-for-penn.html>

3 – <https://investors.modernatx.com/news/news-details/2019/Moderna-Reports-First-Quarter-2019-Financial-Results-and-Provides-Business-Updates/default.aspx>



# Growing Markets for RNA Medicines

- RNA medicines will represent a very sizeable market in the coming years.
- The mRNA market alone was already US\$40 billion in 2022.
- It is expected to grow to US\$137 billion by 2032 at a compound annual growth rate of 13%.
- COVID-19 vaccines will soon represent a smaller market share compared to the immense growth of new RNA medicines and other vaccines.



# Further Nobel Prize recognition

- The 2024 Nobel Prize for Medicine was awarded to Victor Ambros and Gary Ruvkun for the discovery of microRNA and its role in post-transcriptional gene regulation.
- Groundbreaking discovery revealed a completely new principle of gene regulation that turned out to be essential for multicellular organisms, including humans.
- *“MicroRNAs are important for our understanding of embryological development, normal cell physiology, and diseases such as cancer.”*
  - Olle Kämpe, vice-chair of Nobel committee.

The Nobel Assembly at the Karolinska Institutet  
has today decided to award  
the 2024 Nobel Prize in Physiology or Medicine  
jointly to  
Victor Ambros and Gary Ruvkun  
**for the discovery of microRNA and its role in post-transcriptional gene regulation**





## Sofra

- Noxopharm has in-licensed a technology from Hudson Institute of Medical Research to create the Sofra technology platform.
- This technology platform is based upon short nucleic acid sequences, the building blocks of DNA or RNA, known as oligonucleotides.
- These oligonucleotides provide a novel treatment approach, acting on specific cells to modulate inflammation at its source.
- They have a wide variety of potential applications in the treatment of diseases related to inflammation.
- From its large Sofra library, Noxopharm has developed two lead assets:
  - SOF-VAC<sup>TM</sup> – a vaccine enhancer which limits the inflammatory side effects associated with mRNA vaccines and therapeutics.
  - SOF-SKN<sup>TM</sup> – a drug candidate for autoimmune diseases affecting the skin.

## Stimulate Inflammatory Response

Infectious  
Inflammatory Diseases

Cancer

### SOFRA™ TECH PLATFORM

Oligonucleotides targeting inflammatory sensors

#### Neurodegenerative Diseases

- Parkinson's
- Alzheimer's
- Huntington's
- Multiple Sclerosis

#### Cardiovascular Diseases

- Hypertension
- Atherosclerosis
- Stroke

#### Pulmonary Diseases

- Asthma
- COPD
- Bronchitis
- Hay fever

#### Metabolic Disorders

- Type 2 diabetes
- Fatty liver disease

## Reduce Inflammation

mRNA

- Vaccines
- Other therapeutics

#### Autoimmune Diseases

- Lupus
- Psoriasis
- Type 1 diabetes
- Rheumatoid arthritis
- Inflammatory bowel disease
- Multiple Sclerosis

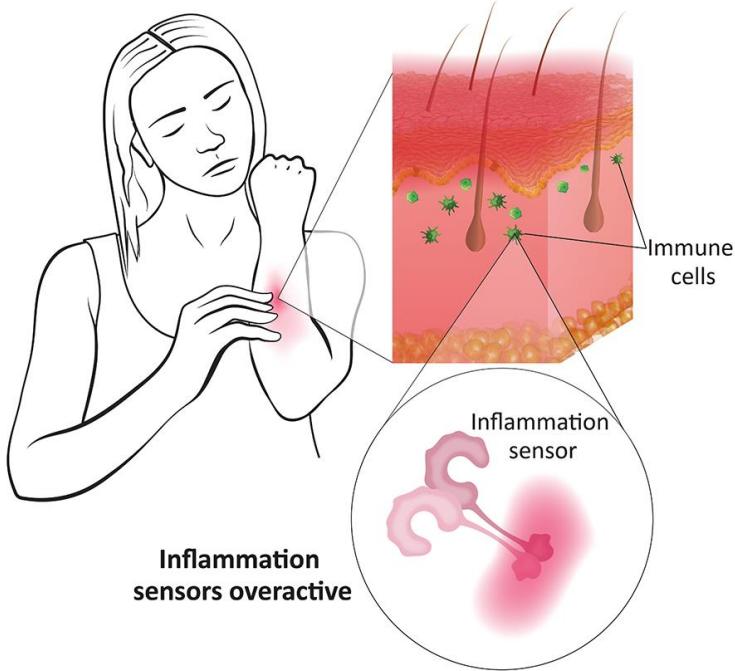
#### Genetic Inflammatory Diseases

# SOF-SKN™ – Overview

- Skin diseases are distressing to patients, especially when they visibly affect the face and limbs.
- Current treatments are insufficient – corticosteroids are commonly used but have severe side effects.
- To help patients and capitalise on a major market opportunity, we are developing an oligonucleotide-based skin medication known as SOF-SKN.
- The oligonucleotides act to reduce inflammation at its source.
- SOF-SKN has potential applications in autoimmune diseases like lupus and psoriasis.
- Around 5 million people worldwide have some form of lupus – 90% are women.
- SOF-SKN is just the first step in leveraging the enormous breadth of the Sofra platform to tackle the much larger autoimmune disease market.
- Noxopharm is progressing SOF-SKN first-in-human trial in 2025.

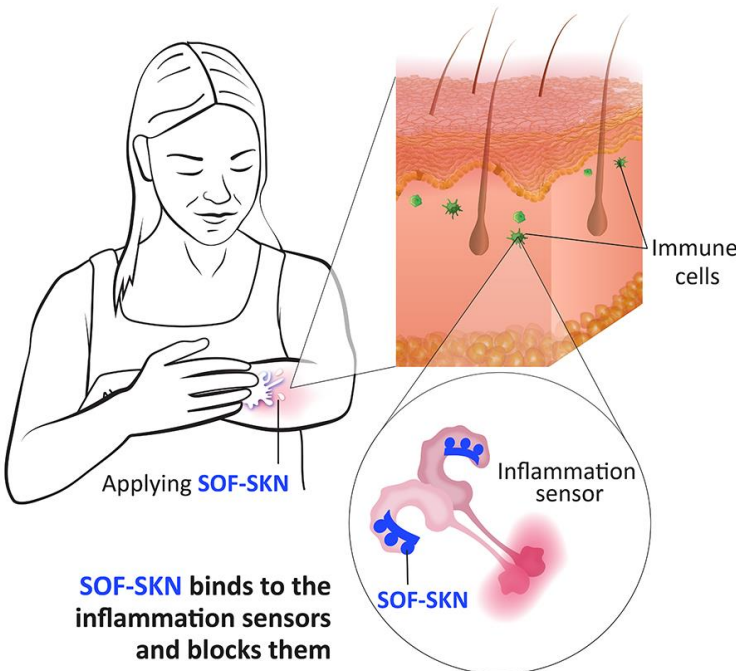
# SOF-SKN Mechanism of Action

## Lupus results in inflamed skin



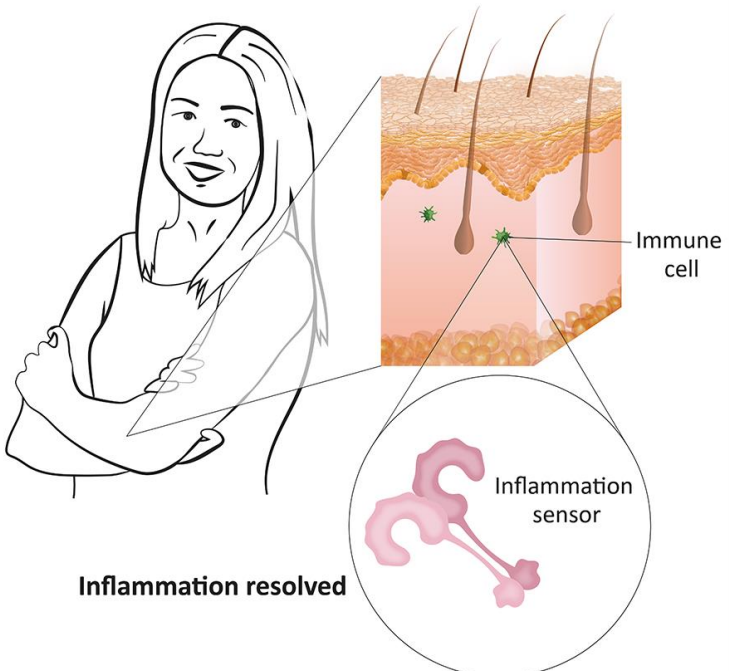
In the skin, different types of immune cells contain inflammation sensors. In inflamed skin, these sensors are overactivated.

## SOF-SKN promotes healing



When **SOF-SKN** is applied, the inflammation sensors are blocked and the skin begins to improve.

## Skin recovers



Inflammation is resolved and the skin returns to normal.

**Disclaimer:** This illustration provides a simplified depiction of the postulated mode of action of SOF-SKN. The images are intended for illustrative purposes only. This product has not been approved for use in Australia or any other country.

# The HERACLES Clinical Trial

- First-in-human trial for SOF-SKN aims to provide initial data from healthy volunteers.
- Ultimate goal to target the skin disease caused by cutaneous lupus erythematosus (CLE).
- HERACLES (for ‘Harnessing Endogenous Regulators Against CLE Study’), will take place in Australia to capitalise on Australian expertise in lupus research and early phase clinical trials.
- Several doses will be tested.
- The trial has been designed to be easily implemented and is expected to proceed rapidly.
- Noxopharm expects ethics submission and subsequent approval towards the end of H1 2025.
- The first safety readouts are expected four to six weeks after dosing has finished, while a comprehensive data analysis should be completed shortly thereafter.

## Stimulate Inflammatory Response

Infectious  
Inflammatory Diseases

Cancer

### SOFRA™ TECH PLATFORM

Oligonucleotides targeting inflammatory sensors

## Reduce Inflammation

mRNA

- Vaccines
- Other therapeutics

#### Neurodegenerative Diseases

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- Alzheimer's
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- Multiple Sclerosis

#### Pulmonary Diseases

- Asthma
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- Bronchitis
- Hay fever

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- Lupus
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#### Cardiovascular Diseases

- Hypertension
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- Stroke

#### Metabolic Disorders

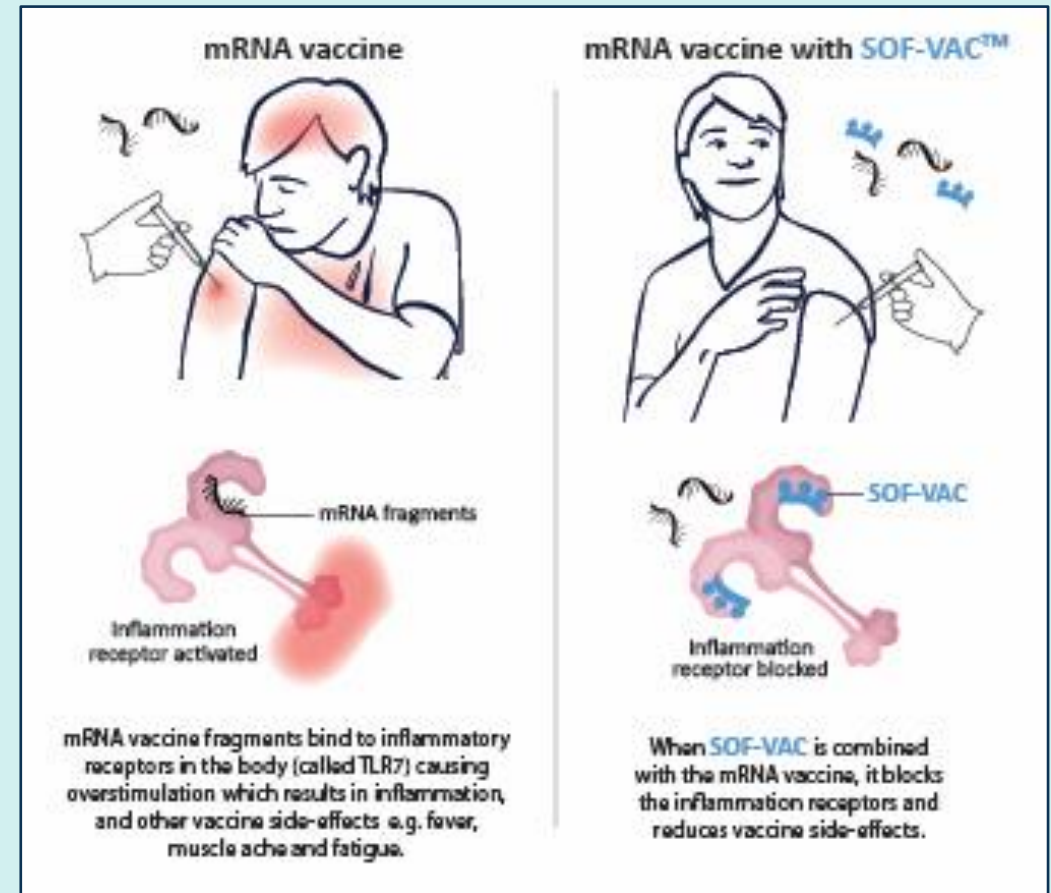
- Type 2 diabetes
- Fatty liver disease

#### Genetic Inflammatory Diseases



# SOF-VAC™ – Mechanism of Action

- SOF-VAC has been specifically developed to reduce mRNA vaccine reactogenicity.
- SOF-VAC is designed to be co-delivered with mRNA to selectively block TLR7/8.
- By blocking these inflammation receptors, SOF-VAC reduces vaccine side effects.



# SOF-VAC™ – Benefits

The ability of SOF-VAC to reduce the inflammatory side effects of mRNA vaccines or drugs has several potential benefits, such as:

- Enabling mRNA vaccines to be given with higher doses – creating longer-lasting protection and a decrease in the frequency of booster shots required.
- Supporting the combination of mRNA vaccines (or other types of RNA vaccines) for different diseases into one syringe.
- Supporting future mRNA (or other RNA) drugs that require high and repeated doses to help treat a large number of diseases.



## Stimulate Inflammatory Response

Infectious  
Inflammatory Diseases

Cancer

### SOFRA™ TECH PLATFORM

Oligonucleotides targeting inflammatory sensors

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mRNA

- Vaccines
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#### Genetic Inflammatory Diseases

# Sofra and Cancer

Noxopharm has developed drug candidates that can increase the potency of TLR8 inflammation sensors.

- TLR8 plays an important role in the innate immune system
- Sofra could therefore be used in immuno-oncology, to help stimulate the immune system in the fight against cancer
- Decision to fast-track research program for 2025
- Drug discovery process to identify a lead candidate
- Exploration of experimental models
- Builds Sofra pipeline for the future
- IP protection filed for this concept

# Robust Sofra IP

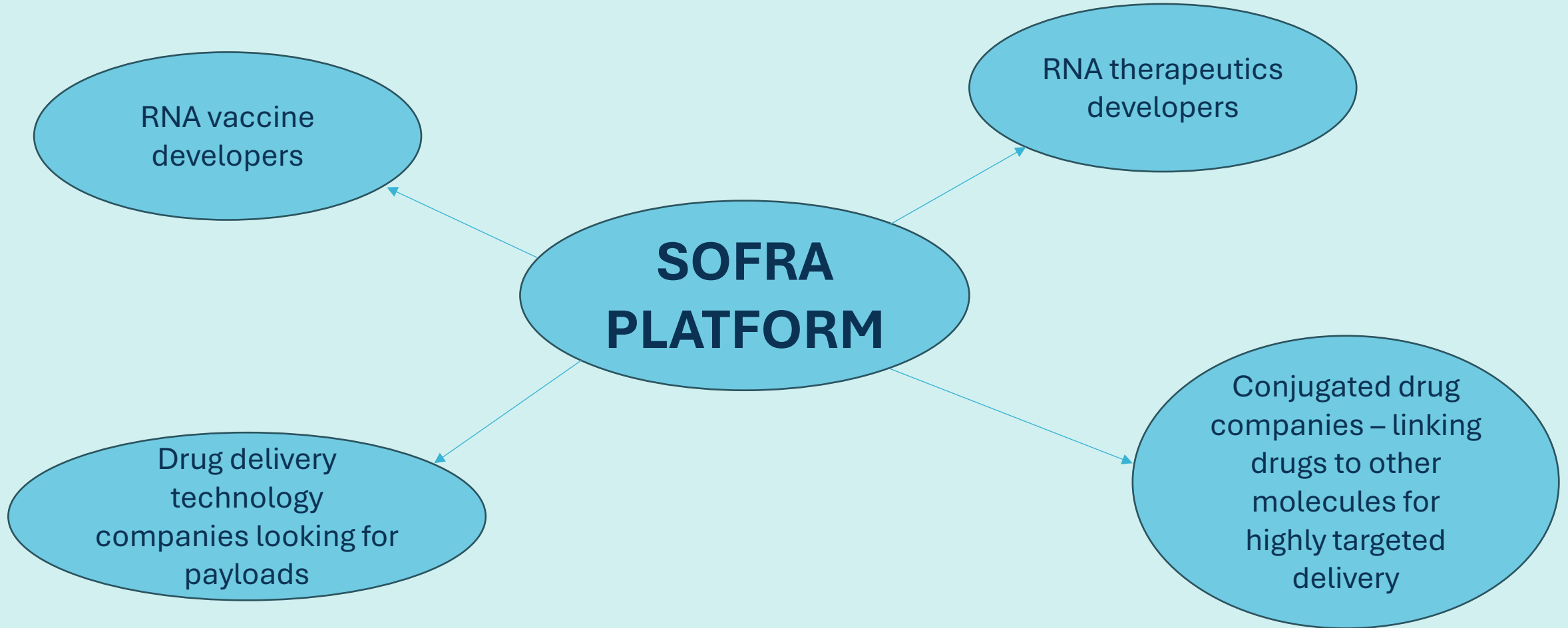
- Noxopharm is building a robust patent portfolio that protects its valuable intellectual property across strategic global markets.
- Hundreds of assets covered with potential to treat a wide variety of diseases.
- PCT applications filed in all major jurisdictions.
- Pending composition of matter patent applications in various stages of maturation.
- Composition of matter provides strongest level of protection versus other patents that hold secondary (method of use, formulation) or tertiary value.
- Noxopharm is growing its patent portfolio to cover primary, secondary and tertiary aspects, building significant exclusivity around its assets.



# Sofra Commercialisation

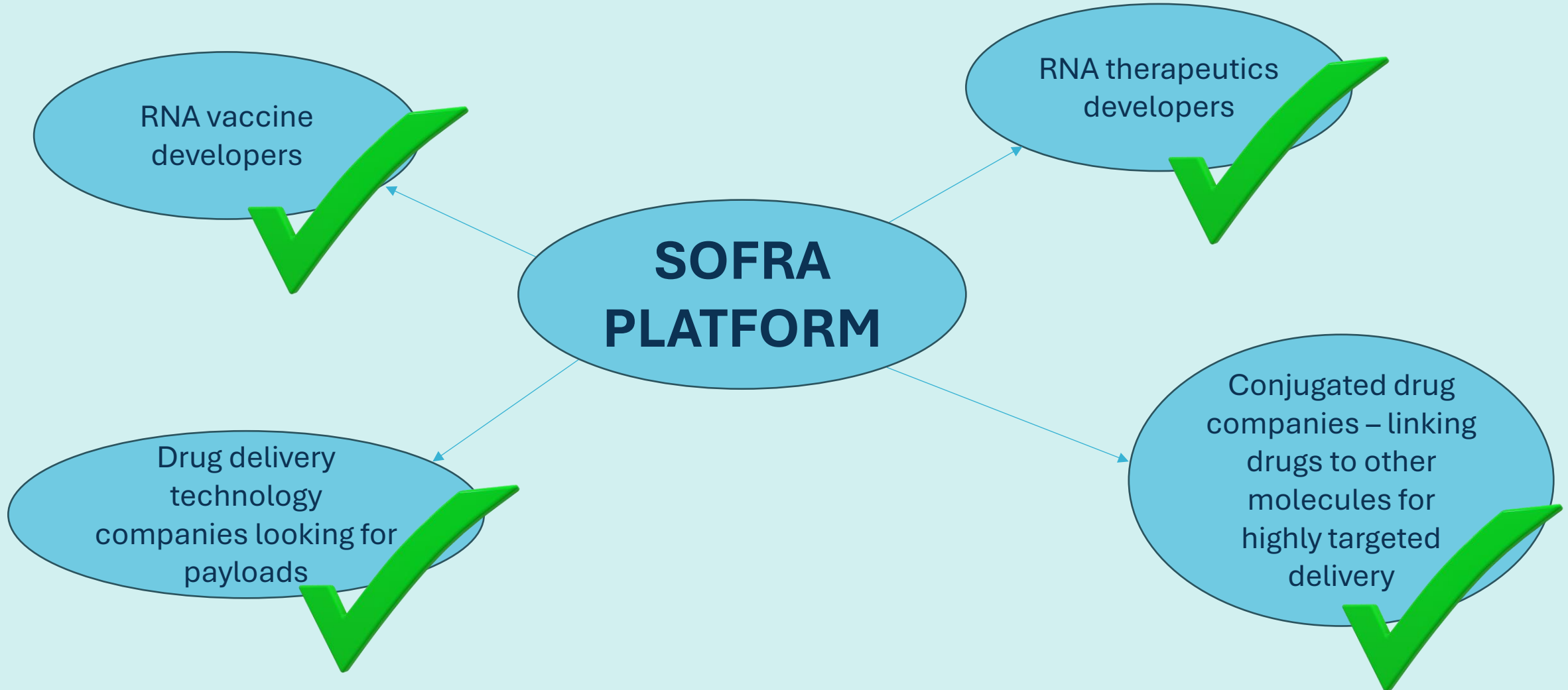
- Range of mid-size to multibillion-dollar companies now evaluating Sofra assets.
- Company names have to remain confidential in highly competitive market.
- Several Material Transfer Agreements (MTAs) signed over past few months.
- An MTA governs the transfer of materials between two parties, defining the terms of the arrangements, materials being shared and type of experiments performed.
- An MTA is an essential step along the path to commercialisation.
- Each company is investing its own time and resources to perform the studies.
- A variety of use cases are being explored.
- Noxopharm is working to secure further MTAs.

# Sofra – Potential Partner Types



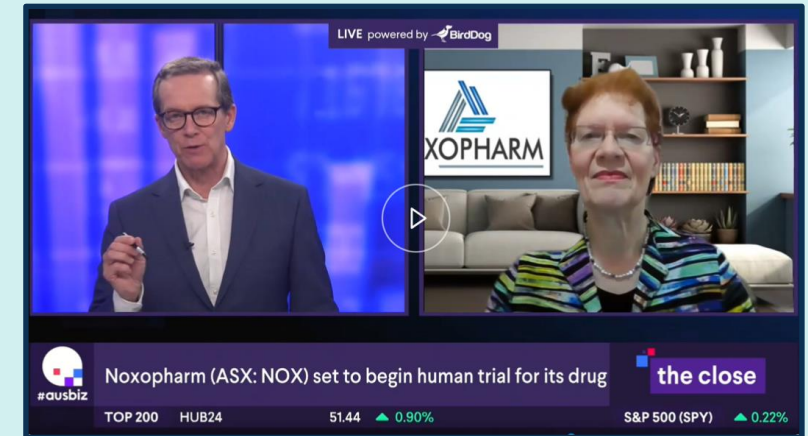


# Sofra – Potential Partners – **Signed MTAs**




# Noxopharm – Next Steps

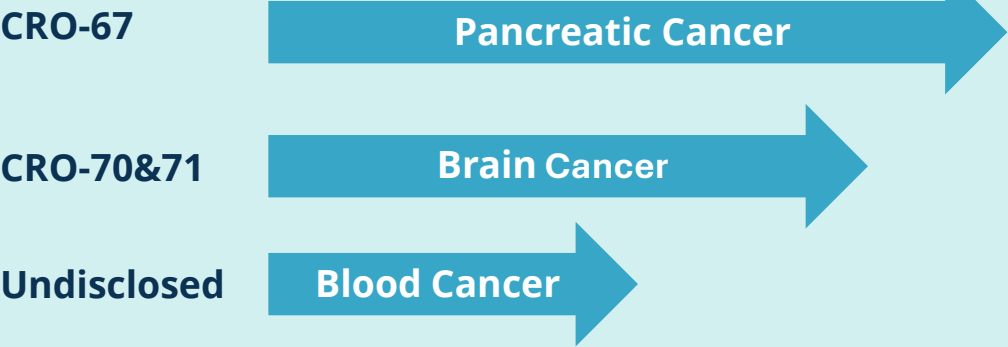
- Continue preparations for HERACLES clinical trial
  - Select contract research organisation and Phase 1 unit
  - Finalise preclinical studies
- Support ongoing MTAs, target additional ones
- Further strengthen relationship with Hudson Institute of Medical Research
- Promote awareness locally and globally
- Grow intellectual property patent portfolio
- Expand company asset library
- Target scientific publications



# Pipeline

**Chroma**



**Collaborators**

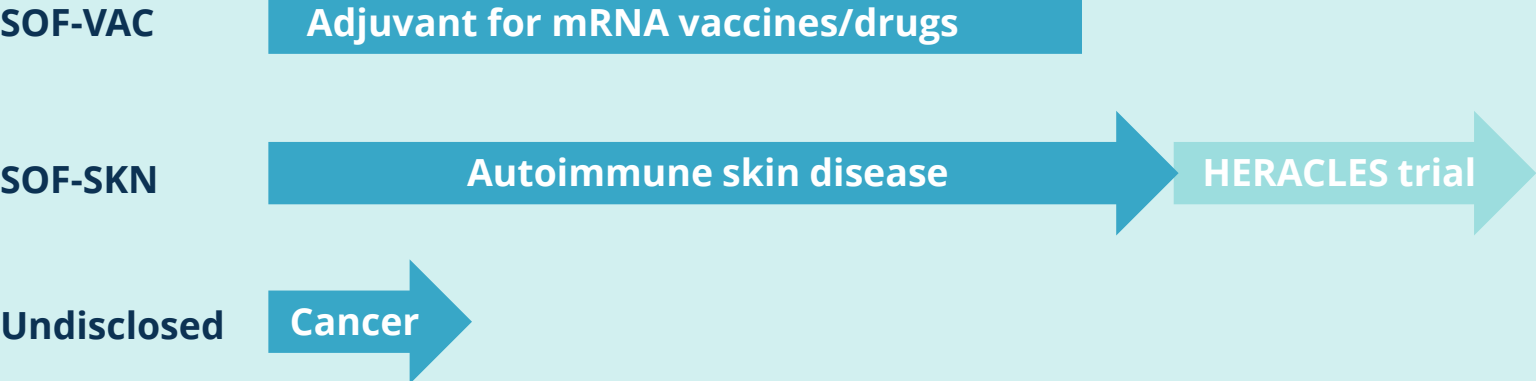
UNSW Sydney

Uni SA

Uni SA



**Sofra**



Hudson Institute of Medical Research

Hudson Institute of Medical Research

Hudson Institute of Medical Research





Noxopharm

Questions