

Nyrada  
inc

# Investor Presentation

**November 2024**

**Improving Lives, Offering Hope**

**ASX:NYR**

Authorised by Mr. John Moore, Non-Executive  
Chair, on behalf of the Board.



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# About Nyrada

- › Drug discovery and development company specialising in rational design of novel small molecule therapeutics.

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- › Nyrada's lead drug candidate NYR-BI03:
  - › demonstrated strong preclinical efficacy protecting the brain from secondary injury following stroke.
  - › demonstrated strong preclinical efficacy in protecting the heart following acute myocardial ischemia-reperfusion injury.
  - › preclinical TBI efficacy study with Walter Reed Army Institute of Research and UNSW in progress.
  - › Phase Ia Clinical Trial to commence end CY2024.

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- › Undertaking exploratory works for other indications and opportunities.

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- › Commercially focused business model and expert team.

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# A Solid Foundation

- › Third generation TRPC ion channel blocker, using rational drug design.
- › Underlying target proven in mouse knock-out model.
- › Novel mechanism of action.
- › Unmet clinical need. No FDA approved drugs.
- › Significant target markets.
- › Completed preclinical safety and toxicology studies.
- › Imminent commencement of Phase I clinical trial

# One Drug

## ►► **NYR-BI03** ◀◀

Commencing Phase Ia clinical trial in late CY2024

# Two Applications



## Neuroprotection



## Cardioprotection

# Three Markets

## STROKE

~**US\$52.2 billion** by 2030<sup>2</sup>

## TRAUMATIC BRAIN INJURY

~**US\$5.5 billion** by 2030<sup>4</sup>

## MYOCARDIAL INFARCTION

~**US\$3.7 billion** by 2032<sup>5</sup>

# Drug Development Cycle

## Discovery & Development



Scientists study how a disease affects patients and look for potential compounds that might help treat these diseases



## Preclinical research



Once promising compounds are found, scientists begin to test the compounds in the lab and on animals



## Clinical trials



If the compounds pass preclinical tests, it is then tested on humans to confirm effectiveness, safety, and optimal dosage.



## FDA review



After clinical trials, the company sends all data to the FDA so that they can review the drug's safety and effectiveness.



## Post-market safety monitoring



After a drug is approved by the FDA, scientists continue to monitor both the drug's safety and effectiveness.



Potential for NYR-BI03 out-licencing



# NYR-BI03 – Path to the Clinic

Completed	In Progress
<ul style="list-style-type: none"><li>✓ 42% neuroprotective in stroke</li><li>✓ 86% cardioprotective in ischemia-reperfusion injury</li><li>✓ Safety and toxicology testing</li></ul>	<ul style="list-style-type: none"><li>➤ Penetrative TBI efficacy study</li><li>➤ HREC submission lodgement for Phase Ia</li></ul>



# Indicative Phase I Study Design

**OBJECTIVES** To assess the safety, tolerability, and pharmacokinetics of NYR-BI03

- DESIGN**
- Randomised, double-blind placebo –controlled, dose escalation design
  - 5 cohorts; 8 participants each cohort; 6:2 active and placebo treatments
  - 3 cohorts will be single ascending doses
  - 2 cohorts will be given continuous infusion doses

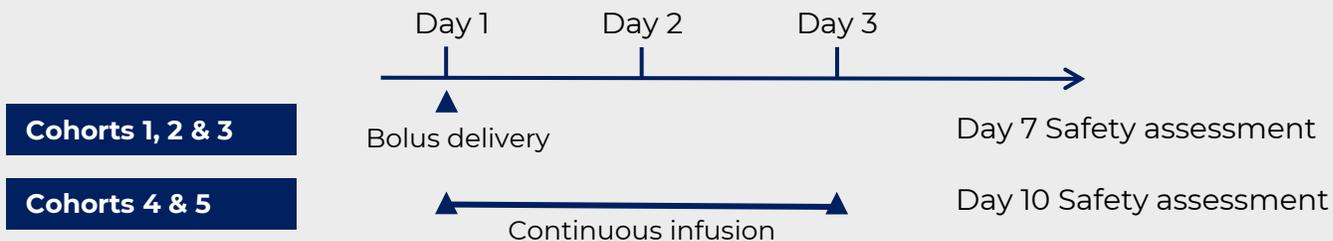
## PARTICIPANTS

- Male and female healthy volunteers
- 18 – 50 years age



Cohort number	Dose administered
1	Low dose single bolus
2	Medium dose single bolus
3	High dose
4	Low dose continuous infusion (72 hrs)
5	High dose continuous infusion (72 hrs)

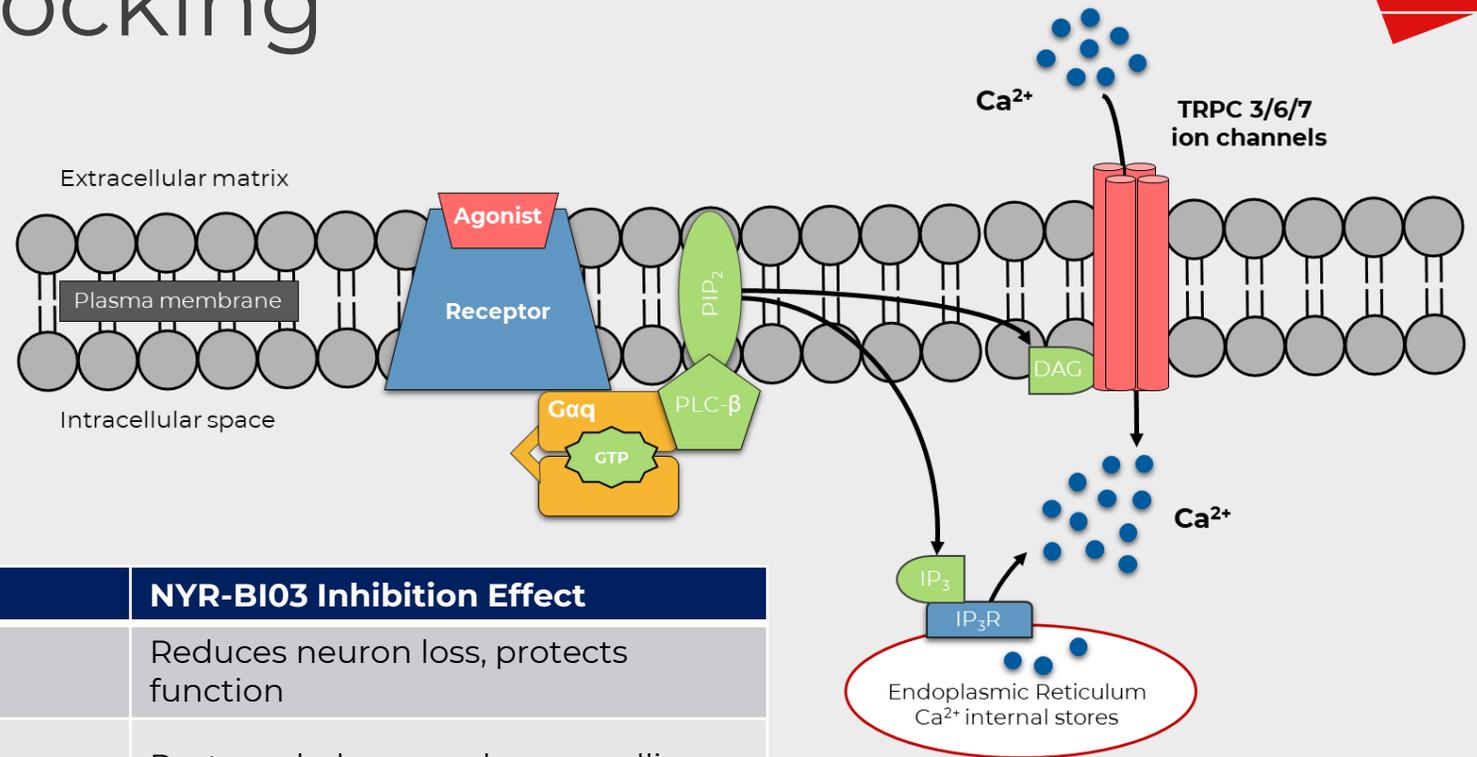
- LOCATION & DURATION**
- Study will be conducted at a clinical trial centre in Australia expected to commence 4QCY2024
  - Study duration will vary between 1 – 4 days



\*trial design subject to ethics approval

# TRPC Channel Blocking

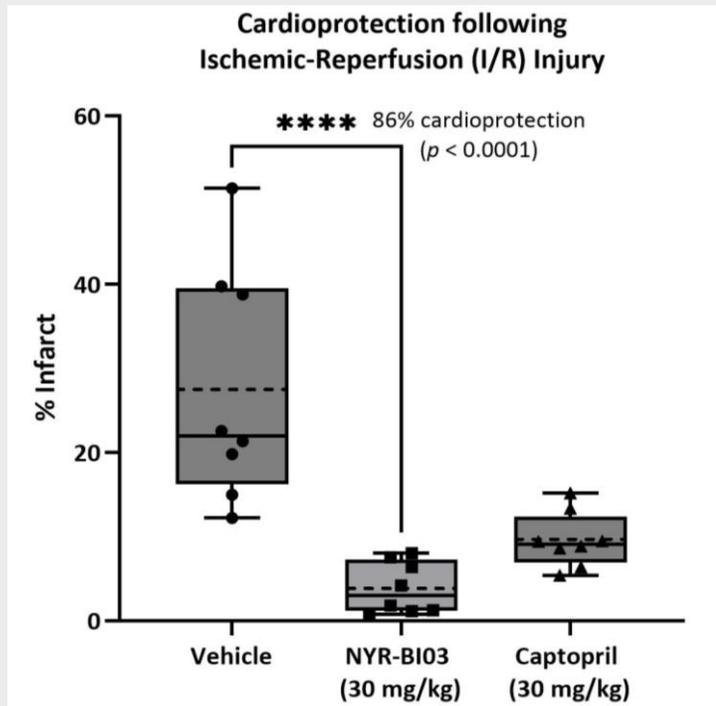
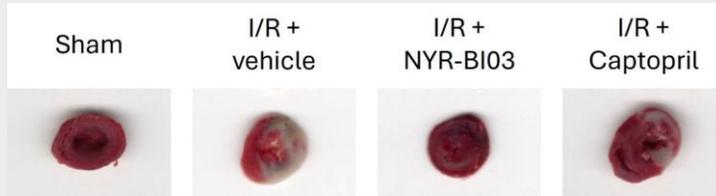
- **Activation** following injury **results in calcium entry** via TRPC ion channels
- **Excessive calcium** build-up leads to **cell death**
- **Blocking TRPC 3/6/7 ion channels is neuro- and cardio- protective**



Organ	Cell Type	TRPC Activation Effect	NYR-BI03 Inhibition Effect
Brain	Neurons	Calcium overload → neuron death	Reduces neuron loss, protects function
	Astrocytes	Impaired regulation → inflammation	Restores balance, reduces swelling
	Microglia	Excessive inflammation	Limits harmful immune response
Heart	Cardiomyocytes	Calcium overload → cell death, scarring	Prevents damage, improves contraction
	Endothelial	Impaired repair → poor blood flow	Enhances vessel repair, reduces inflammation
	Fibroblasts	Excessive scarring → stiff heart	Limits scarring, preserves flexibility

# Cardioprotection

## Key Preclinical Results:



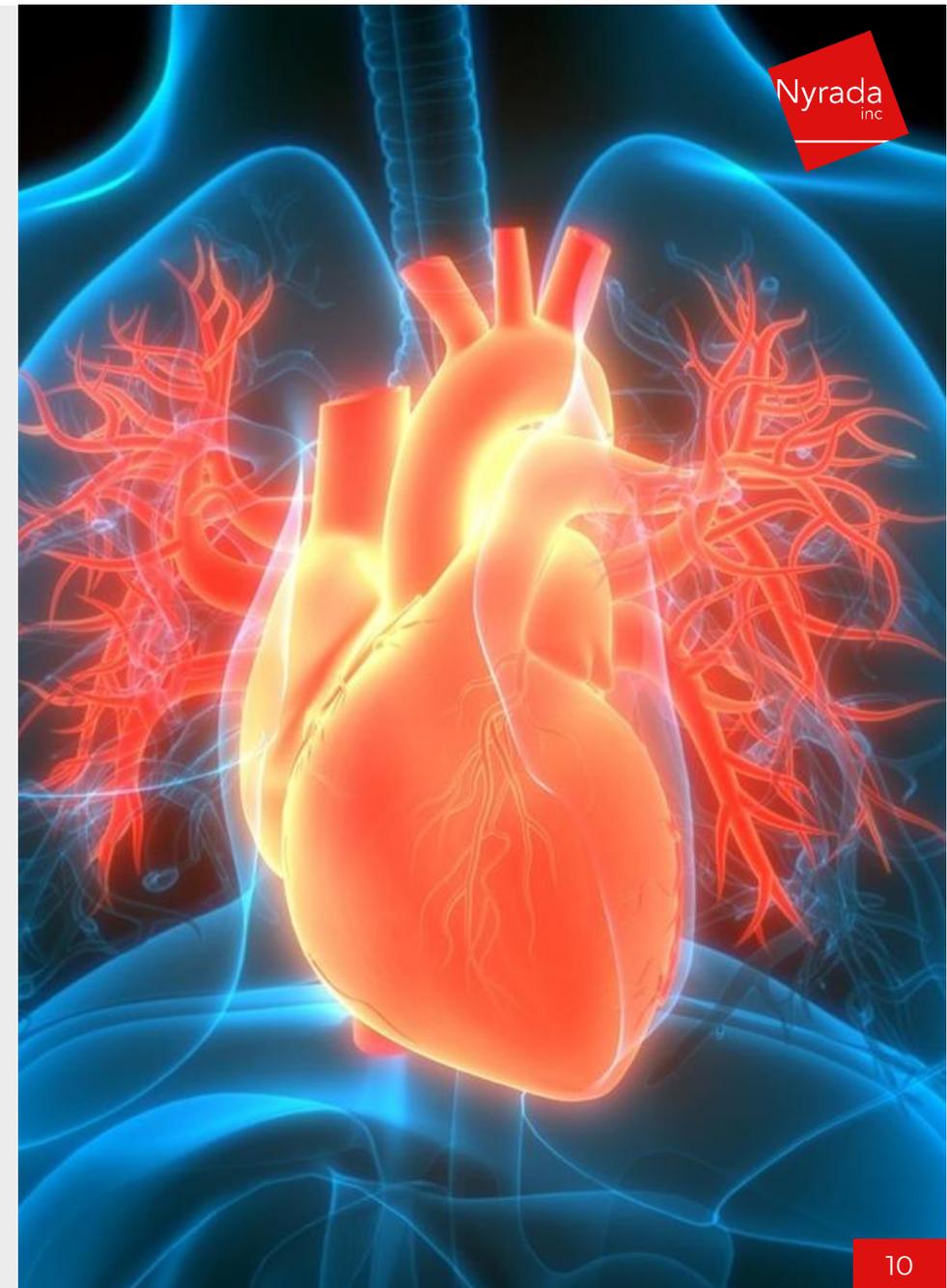
**NYR-BI03** showed strong efficacy limiting cardiovascular damage resulting from myocardial ischemia-reperfusion (IR) injury

- **86%** Cardioprotection
- **43%** increase in left ventricular ejection fraction
- **50%** increase in fractional shortening

Key blood biomarker markers assessed

- **42%** decrease in AST levels
- **45%** decrease in LDH levels
- **32%** decrease in Troponin I

**Superior efficacy** compared to FDA-approved, Captopril



# Large Market Opportunity – Myocardial Infarction

## Globally:

**~15-20 million**  
people suffer heart  
attack annually

**~15%**  
mortality within 30  
days

No current FDA approved treatments targeting myocardial infarction-reperfusion injury

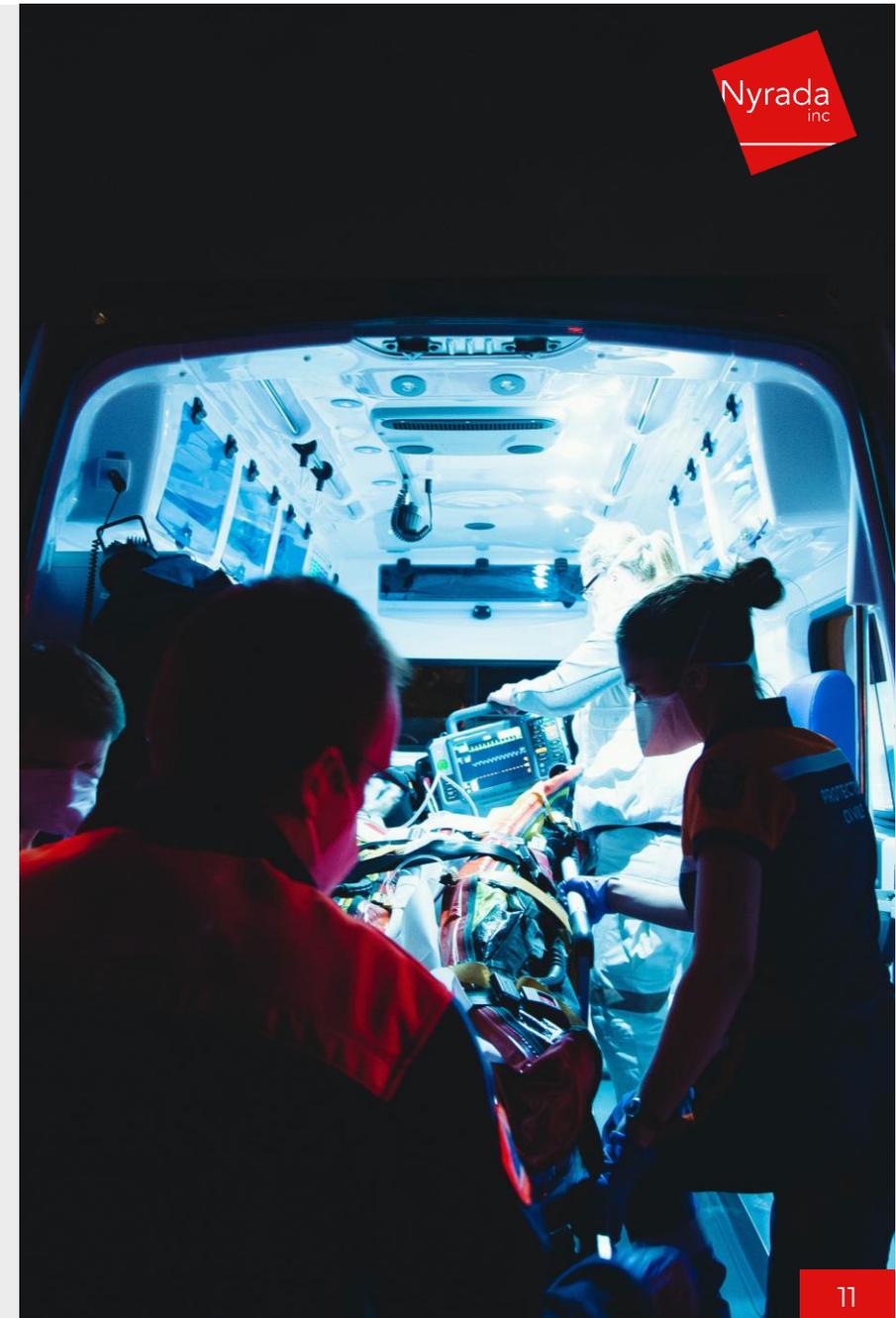
Effective treatment will improve patient outcomes and reduce high costs associated with long-term care of heart attack survivors.

## Large and growing treatment market:

Currently  
**~US\$1.9 billion<sup>5</sup>**

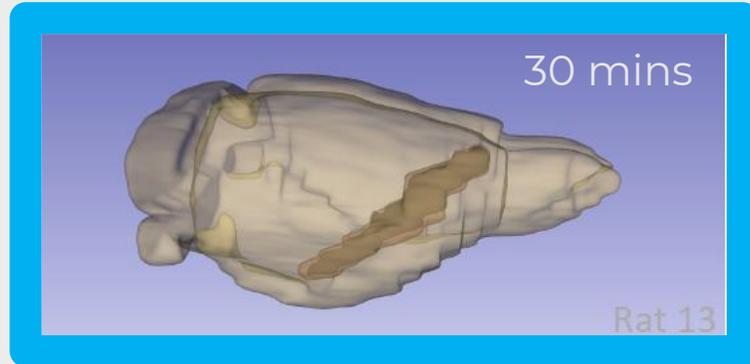
Growing  
**~6.8% CAGR<sup>5</sup>**

Forecast  
**~US\$3.7 billion by  
2032<sup>5</sup>**

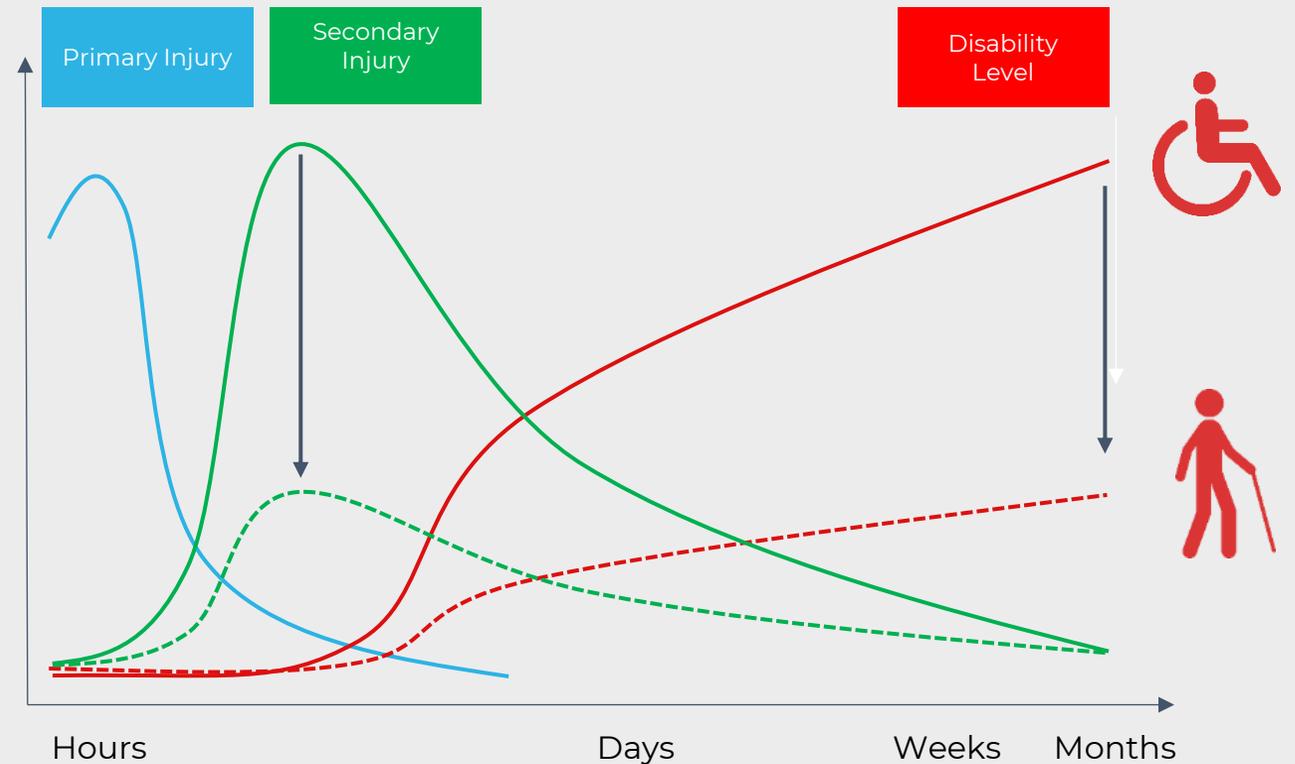
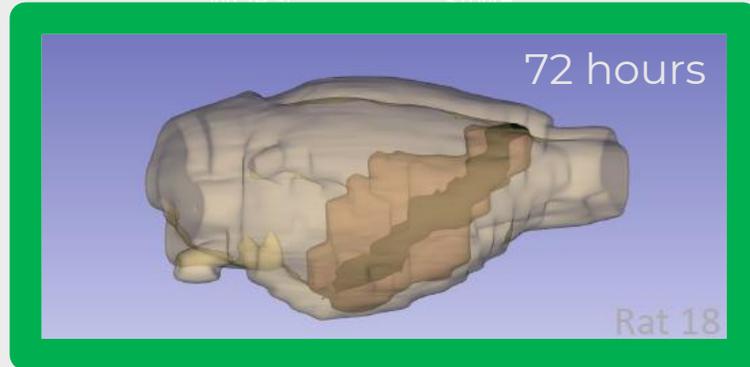


# Neuroprotection – Stroke and TBI

## Serial reconstruction from MRI



DIED BECAME WORSE STAYED THE SAME



**Nyrada drug NYR-BI03**  
An acute 3-day intravenous treatment



**Reduce secondary injury resulting from stroke or TBI**

- Improve survivability, limit disability
- Improve quality of life

# Large Market Opportunity – Stroke

## Globally:

**~15 million**  
people suffer  
strokes annually<sup>1</sup>

**~5 million**  
left permanently  
disabled<sup>1</sup>

One approved drug class for stroke suitable for <15% of patients (tPA - tissue plasminogen activator).

Effective treatment will improve patient outcomes and reduce high costs associated with long-term care.

## Large and growing treatment market:

Currently  
**~US\$30.3 billion<sup>2</sup>**

Growing  
**~7.5% CAGR<sup>2</sup>**

Forecast  
**~US\$52.2 billion  
by 2030<sup>2</sup>**



# Large Market Opportunity – Traumatic Brain Injury (TBI)

## Globally:

**~5.5 million**  
people suffer severe  
TBA annually<sup>3</sup>

**~55 million**  
living with effects of  
medically treated TBI<sup>3</sup>

No current FDA approved treatments

Effective treatment will improve patient outcomes and reduce high costs associated with long-term care of brain injury survivors.

## Large and growing treatment market:

Currently  
**~US\$3.5 billion<sup>4</sup>**

Growing  
**~6.2% CAGR<sup>4</sup>**

Forecast  
**~US\$5.5 billion by  
2030<sup>4</sup>**



# Vision and Strategy

## Our Vision:

- to become a high-growth pharmaceutical company specialising in the discovery and development of novel treatments

## Our Strategy:

- to develop treatments for diseases where there is an unmet clinical need, or where current treatments are suboptimal, and to monetise the value of these treatments through advancing clinical drug candidates towards out-licencing.



# Nyrada's Lead Drug Candidate **NYR-BI03**



## **First-in-Class with Novel Mechanism of Action**

- › NYR-BI03 is a first-in-class therapy.
- › Novel mechanism of action.
- › Australian developed innovation.
- › Entering clinic in late CY2024.



## **Significant Unmet Clinical Need and Market Opportunity**

- › Targeting multiple indications.
- › Stroke, TBI and ischemia-Reperfusion injury are leading causes of death and disability.
- › No current FDA approved drugs to treat these conditions.

# Cash and Capital

- › Cash balance of AU\$2.98 million at 30 September 2024

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- › Expected R&D rebate of AU\$1.38 million subject to Government Agency Review

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- › AU\$3.36 million (before costs) in new equity capital raised in October 2024.

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- › Target AU\$1.00 million (before costs) SPP to close in December 2024

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# Conclusion

## › Summary

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- › Pioneering TRPC channel blocking therapies.
  - › First-in-class neuroprotection and cardioprotection therapy with novel mode of action.
  - › One drug asset targeting two significant therapeutic areas and three large markets.
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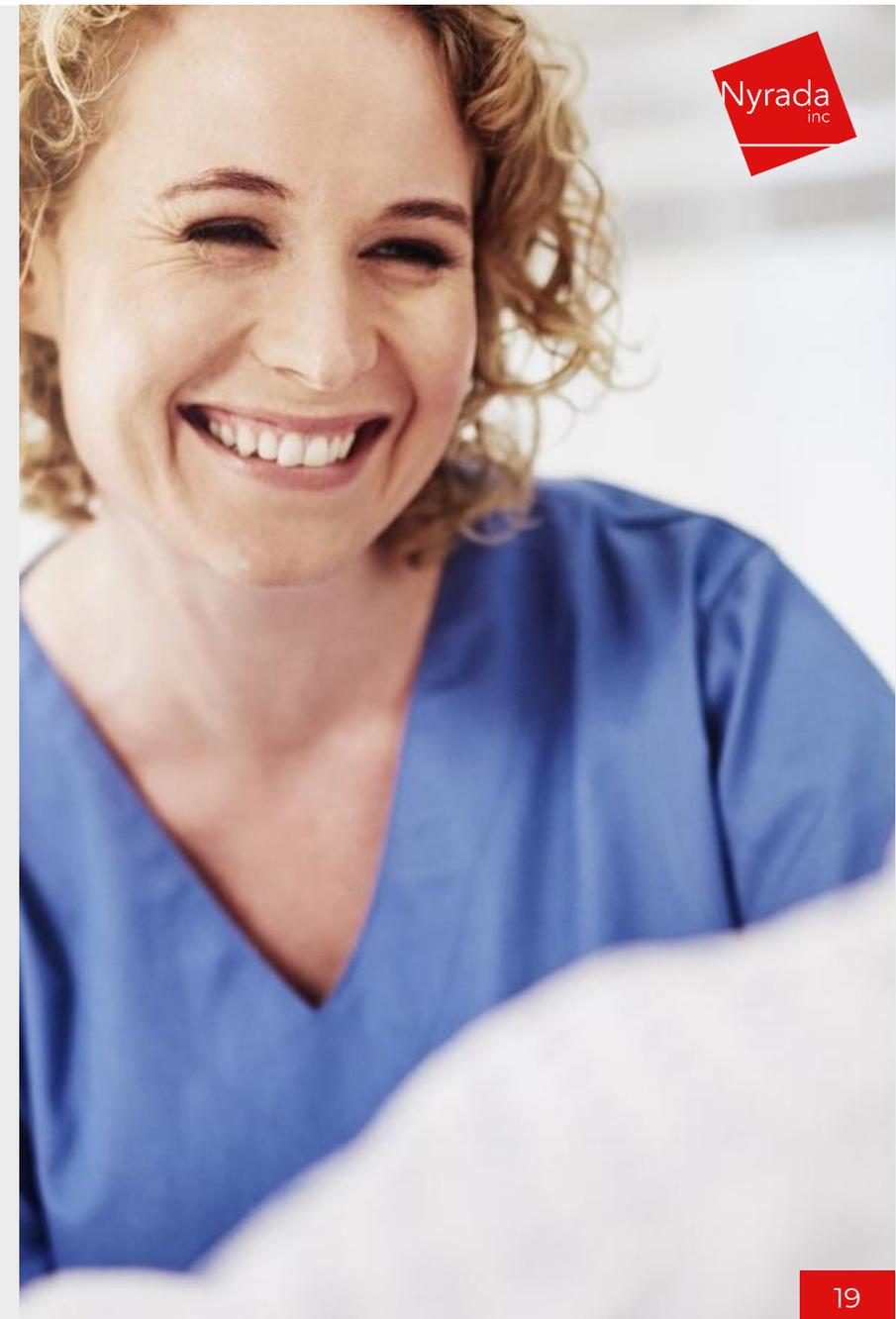
## › News Flow

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- › Late CY2024 - NYR-BI03 Clinical Trial Commencement
  - › Early CY2025 - WRAIR TBI study readout
  - › 1HCY2025 - Progressive updates on NYR-BI03 Clinical Trial
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# References

- 1 – World Health Organization - <https://www.emro.who.int/health-topics/stroke-cerebrovascular-accident/index.html#:~:text=Annually%2C%2015%20million%20people%20worldwide,cause%20i%20high%20blood%20pressure>
- 2 – Databridge Market Research - <https://www.databridgemarketresearch.com/reports/global-stroke-market> .
- 3 – National Academy of Sciences - <https://nap.nationalacademies.org/catalog/25394/traumatic-brain-injury-a-roadmap-for-accelerating-progress>
- 4 – Databridge Market Research - <https://www.databridgemarketresearch.com/reports/global-traumatic-brain-injuries-treatment-market>
- 5 – Spherical Insights – <https://www.globenewswire.com/en/news-release/2023/05/30/2678779/0/en/Global-Myocardial-Infarction-Market-Size-To-Grow-USD-3-7-Billion-By-2032-CAGR-of-6-8.html>





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