



Date: 7 June 2018

Sydney, Australia

**ASX: NOX**

**Noxopharm Limited**

ABN 50 608 966 123

**Registered Office  
and**

**Operational Office:**

Suite 3, Level 4  
828 Pacific Highway  
Gordon NSW 2072  
Australia

**Board of Directors**

**Mr Peter Marks**

Chairman

Non-Executive

Director

**Dr Graham Kelly**

Chief Executive Officer

Managing Director

**Dr Ian Dixon**

Non-Executive

Director

ASX Limited  
20 Bridge Street  
SYDNEY NSW 2000

## **NOXOPHARM RELEASES NYRADA CORPORATE PRESENTATION**

**Sydney, 7 June 2018:** Noxopharm (ASX: NOX) today is holding a Public Briefing concerning its subsidiary company, Nyrada Inc, and duly releases the official corporate presentation.

Nyrada was established to hold intellectual property developed by Noxopharm that sat outside of that Company's core focus on oncology. Nyrada currently is two-thirds owned by Noxopharm.

The details of today's briefing are:

Time: 3.00 pm Thursday June 7

Place: Sofitel Sydney Wentworth Hotel, 61-101 Phillip St.

To view this presentation please visit the Noxopharm website ([www.noxopharm.com](http://www.noxopharm.com)) or the Nyrada, Inc. website ([www.nyrada.com](http://www.nyrada.com)).

.....

### **About Nyrada Inc**

Nyrada Inc is a US-registered company based in New York, New York. It currently has a pipeline of 3 drugs assets: NYX-104 is an inhibitor of excitotoxicity intended to treat consequences of stroke, concussion and traumatic brain injury; NYX-205 is a novel anti-inflammatory; NYX-330 is a PCSK9-inhibitor intended to treat high blood LDL cholesterol levels.

### **About Noxopharm**

Noxopharm is an Australian drug development company with offices in Sydney and Hong Kong. The Company has a primary focus on the development of drugs to sensitise cancer cells to radiotherapy and chemotherapy. NOX66 is the first pipeline product, with later generation drug candidates under development.

### **Investor & Corporate Enquiries:**

Prue Kelly

M: 0459 022 445

E: [Prue.Kelly@nyrada.com](mailto:Prue.Kelly@nyrada.com)

### **Company Secretary:**

David Franks

T: +61 2 9299 9690

E: [dfranks@fa.com.au](mailto:dfranks@fa.com.au)

[www.noxopharm.com](http://www.noxopharm.com)

**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 that could cause the actual results, performance or achievements to differ materially from those expressed or implied by the forward-looking statement. No representation, warranty or assurance (express or implied) is given or made by Noxopharm that the forward-looking statements contained in this announcement are accurate and undue reliance should not be placed upon such statements.

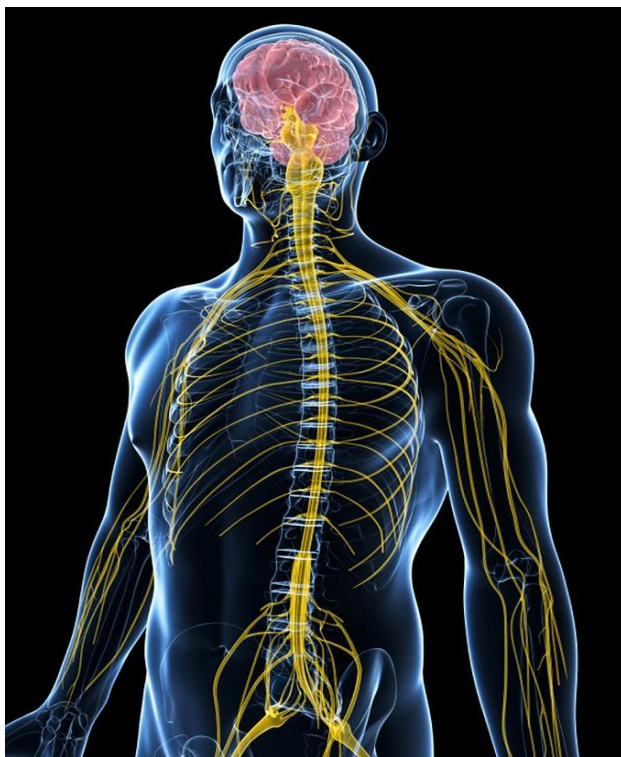


- ❑ US biotechnology company (NYC-based)
- ❑ Founded on Australian R&D
- ❑ 3 first-in-class drug candidates
- ❑ All for major unmet needs
- ❑ Primary focus on drugs for brain and peripheral nerve diseases and conditions

**NYX-104**

**NYX-205**

**NYX-330**



**Brain diseases**

**High cholesterol/ heart disease**

# *We have assembled a world-leading* **Scientific Advisory Board**



**Prof. Gary Housley**  
Chair of Physiology, University of  
New South Wales, Sydney and  
Founding Director of the  
Translational Neuroscience Facility.



**Junichi Nabekura**  
Professor of Physiology and Neuroscience  
and a Vice-Director of the National Institute  
of Physiological Sciences (NIPS) in Okazaki,  
Japan.



**Prof. Gilles Lambert**  
Professor Cell Biology and  
Biochemistry, La Reunion Medical  
School (France).



**Leslie Shinobu**  
Board-certified neurologist  
Massachusetts General Hospital and  
Harvard University.



## Objectives

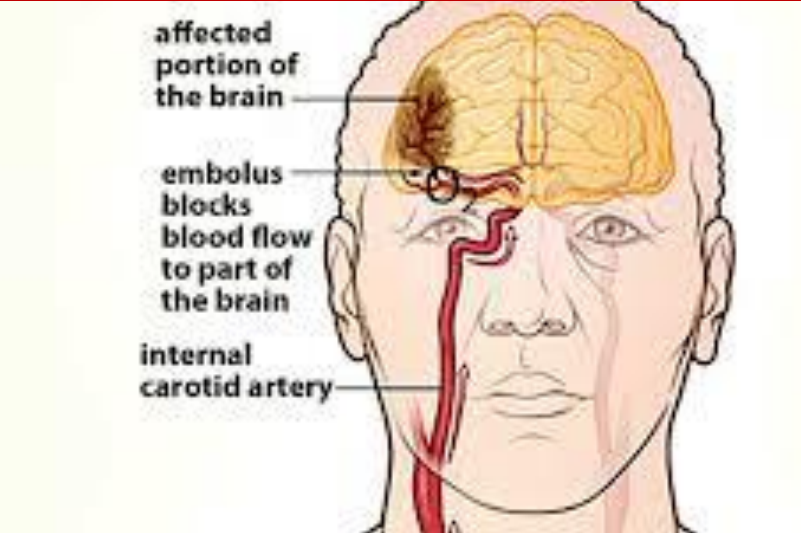
To bring to market a drug that limits brain damage following  
**stroke**

- To help the **65%** of stroke survivors who suffer disability requiring assisted living
- by reducing the severity of the disability in the short-term
- ↓
- by providing for faster recovery times and more complete recovery of function
- ↓
- by reducing rehabilitation costs.





# Ischaemic stroke



## LEFT BRAIN FUNCTIONS

- Movement and sensation of right side of body
- Understanding and expressing language
- Reading and writing
- Vision on the right side



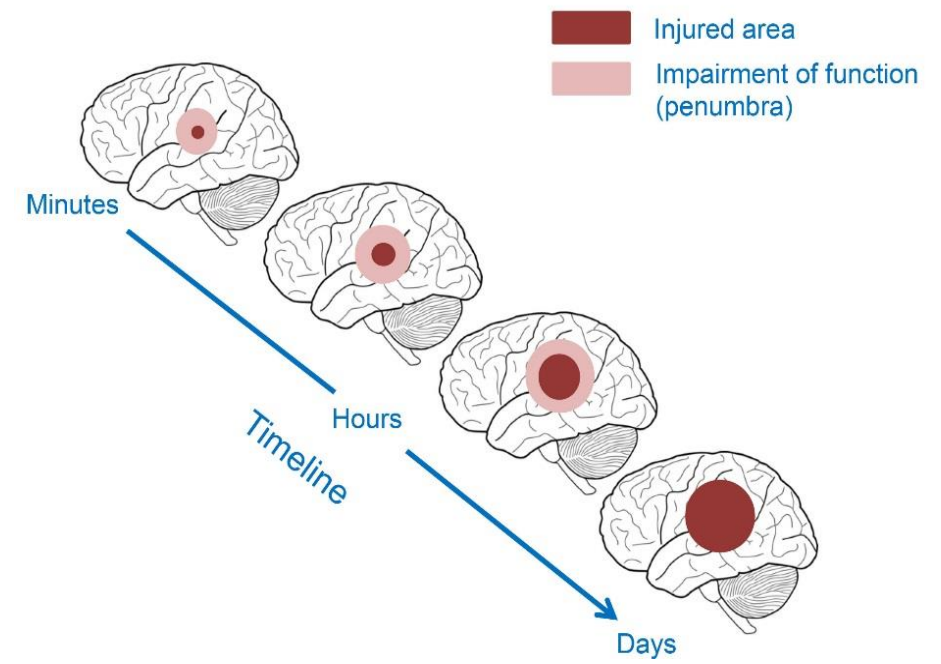
## RIGHT BRAIN FUNCTIONS

- Movement and sensation of left side of body
- Face and object recognition
- Body awareness
- Vision on the left side

# Neuro-protectant against the expansion of brain death following brain damage



Stroke  
Concussion  
Traumatic brain injury



Original area of brain deprived of blood dies and does not recover.

Zone around the central core of damage can be recovered if blood supply restored quickly.

Undamaged brain cells die over following days/weeks to produce an area of brain death up to **6 times** the original stroke area.

NYX-104 designed to block this expansion of area of brain death







**795,000**

PEOPLE EACH YEAR  
in the US have a stroke

**140,000**

PEOPLE EACH YEAR  
die from stroke in the US

STROKE ACCOUNTS FOR

**1 in 19**

deaths in the US

**10%**

recover almost completely

**25%**

recover with minor impairments

**40%**

experience moderate-severe  
impairment requiring special care

**10%**

require long-term nursing home  
care

**15%**

die shortly after stroke

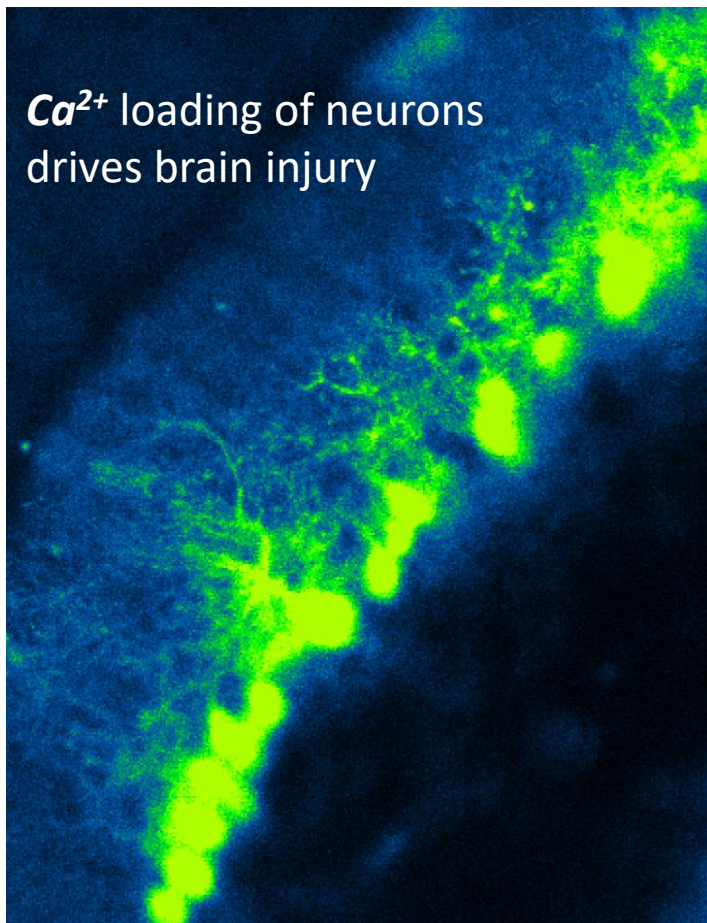
STROKE COSTS  
Indirect and direct  
medical costs

**\$34 billion**  
per year in the US

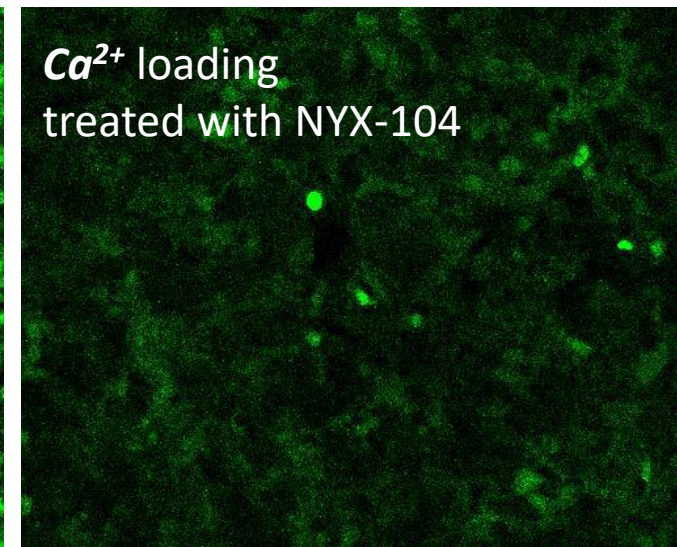
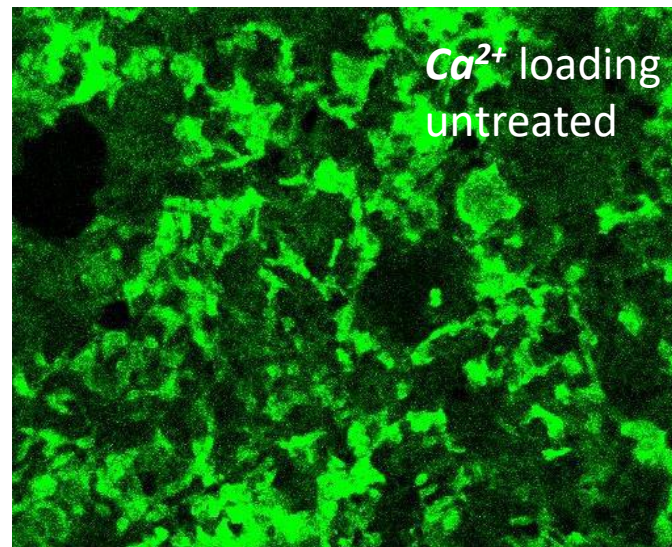
# NYX-104 Neuroprotection



- Loss of blood flow to brain regions in Stroke and Traumatic Brain Injury drives dysregulation of neurochemicals, which in turn, leads to a massive loading of brain cells with *calcium ions* ( $Ca^{2+}$  - hundreds-fold increases) – switching on cell death signalling.



- A robotic screen identified NYX-104 as the stand-out lead compound compared with structurally-related (isoflavone) analogs, based on its effectiveness in blocking  $Ca^{2+}$  loading in a cell culture model for brain injury.

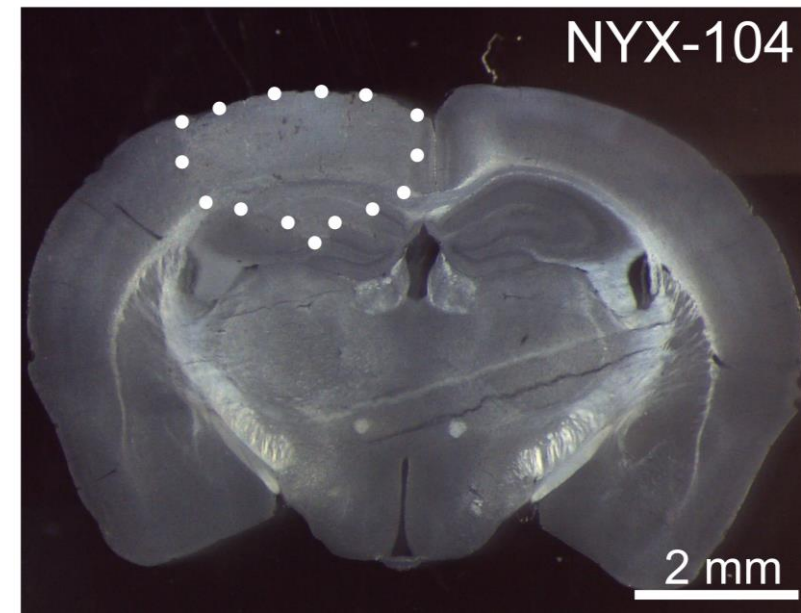
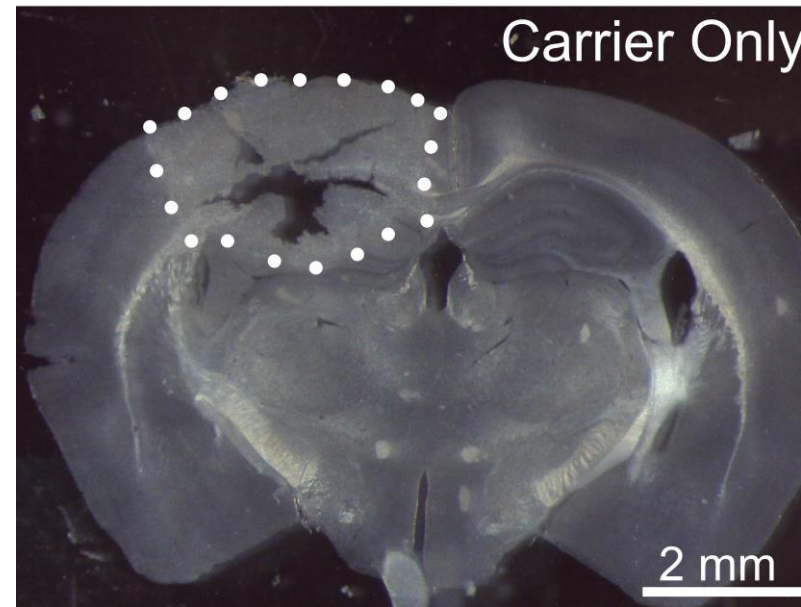
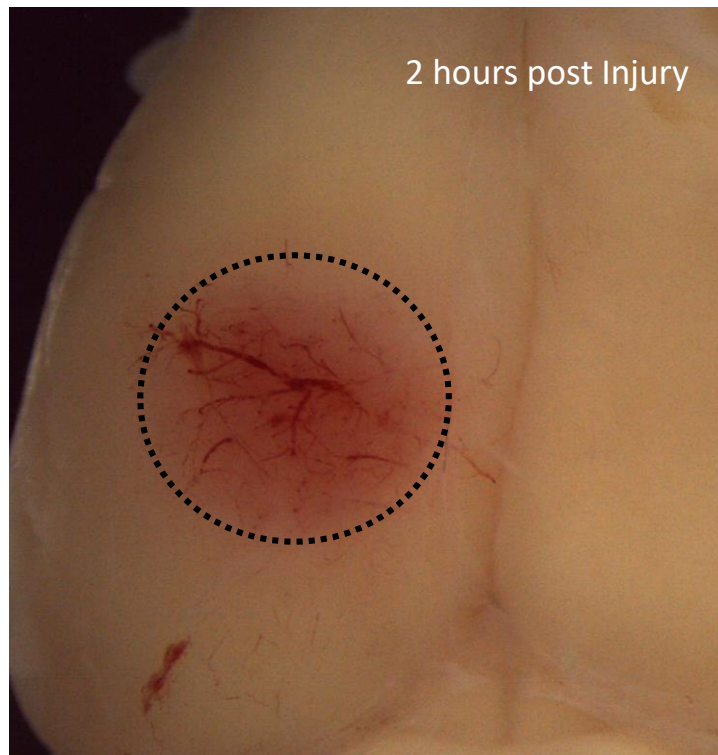




# NYX-104 Neuro-protection *proof-of-concept*



Mouse model of human stroke.  
2mm diameter area of brain death.

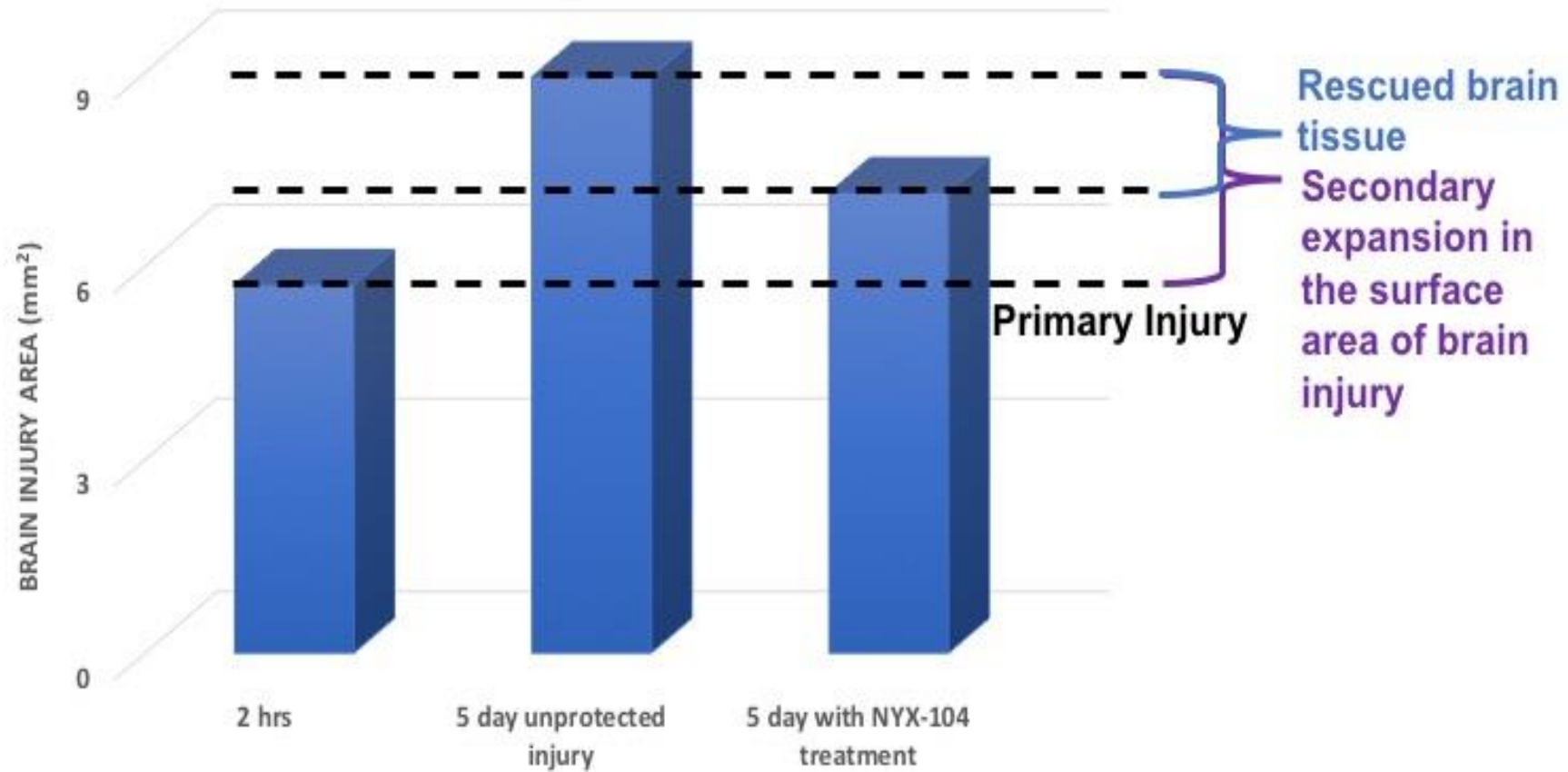


Mice given  
NYX-104 had  
*smaller injury  
volumes*  
compared to  
control mice

# NYX-104 Neuro-protection *proof-of-concept*

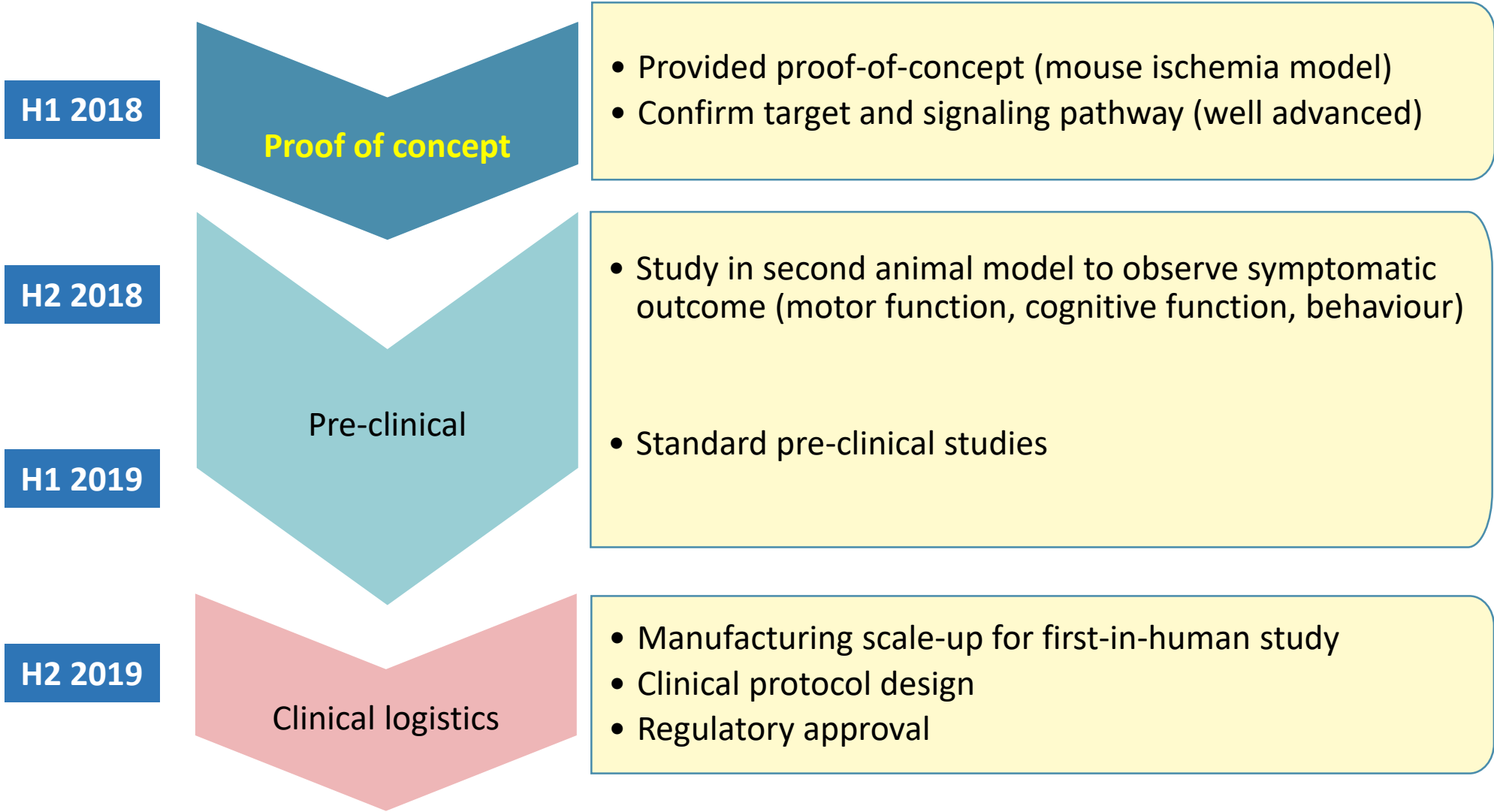


Neuroprotection with NYX-104



NYX-104 treatment reduced expansion of brain injury by **56%**

# NYX-104 Development Program 2018-19





## Objectives

To bring to market a drug that **lowers LDL ('bad') cholesterol levels** in blood by inhibiting the blood protein

### PCSK9

That will be used in combination with statin drugs:

- To lower LDL cholesterol levels to target levels in the 2/3<sup>rds</sup> of patients in whom statin drugs fail to achieve target levels
- To achieve a reduction in the risk of cardiovascular disease (heart failure, stroke).

That will be:

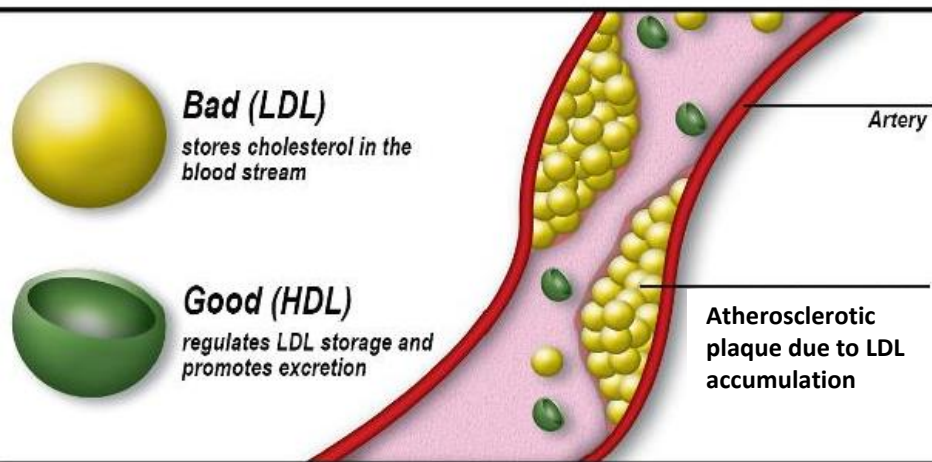
- convenient (oral dosage form)
- cost-effective (cost to benefit ratio)



# NYX-330 Cholesterol-lowering



- Two main forms of cholesterol:
- LDL = low density lipoprotein
  - HDL = high density lipoprotein



High levels of LDL are associated with increased risk of cardiovascular disease (heart attack and stroke)

33% (71 million) of US adults have 'at risk' LDL levels

Only 1 in 3 'at risk' adults have LDL levels under control

*\* US Centers for Disease Control and Prevention*



## Statin drugs



Statin drugs are standard of care for patients with 'at risk' LDL levels. But.....,

Target LDL levels are achieved in:

**60% patients, leaving 40% patients still exposed to risk**

Statins deliver limited cardiovascular benefit:

**For every 138 'at risk' people treated for 5 years, just 1 fewer dies from heart disease**

# Cholesterol cycle



- Cholesterol cycle.**
- Liver cell makes LDL-C.
  - Releases into bloodstream.
  - LDL receptors on liver cell remove LDL-C from blood.
  - LDL-C deposited inside liver cell and is broken down.
  - Breakdown particles then re-assembled into LDL-C.

- Blood protein, PCSK9, then discovered in 2005:**
- Important component of cholesterol cycle
  - Binds to LDL-receptor.
  - Causes LDL receptor to be broken down along with LDL-C.
  - High PCSK9 levels lead to fewer LDL receptors = higher LDL-C levels in blood.

**Statins block cholesterol production by liver cell.**

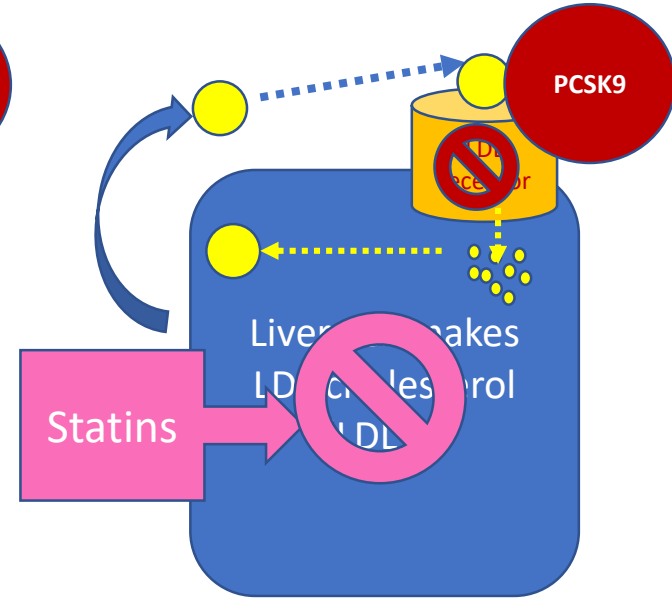
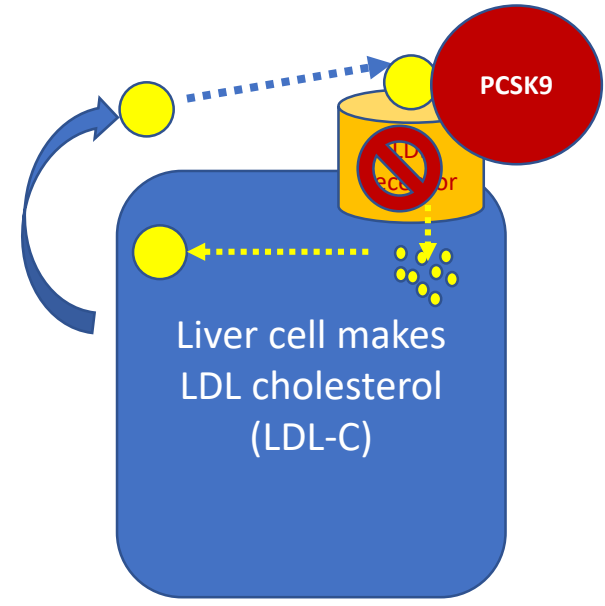
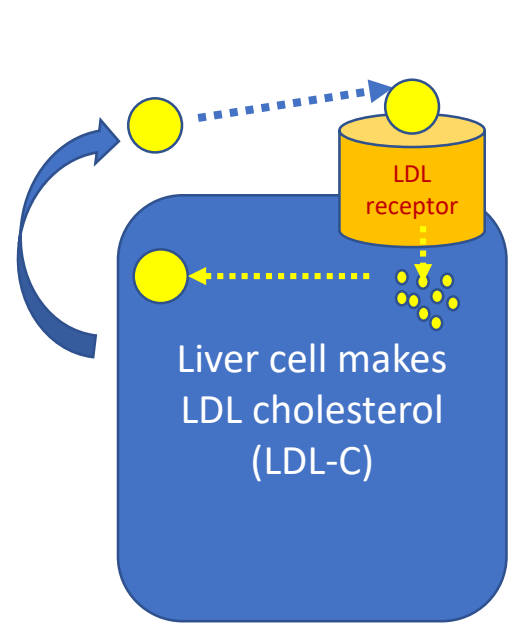
**BUT.....**

**This leads to increased PCSK9 levels in blood.**

**Which leads to less LDL-C being removed from the blood.**

Effectiveness of statins hampered by unwanted consequence of increased PCSK9 levels.

New strategy is to continue to use statins, but to add a second drug to block PCSK9 activity





Initial attempts to develop a small molecule drug to block PCSK9-LDLR binding appear to have failed.

Alternative pathway taken was to develop monoclonal antibodies against PCSK9

**Repatha** (Amgen) and **Praluent** (Sanofi/Regeneron) approved 2015.

In combination with statins, boost LDL reduction by up to additional **60%**.

→ Significant reduction in cardiovascular events.

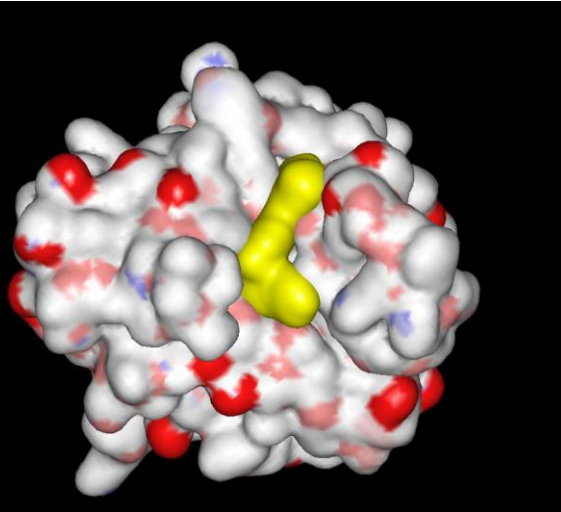


**Health benefit of anti-PCSK9 drugs validated.**

**But .....**

**limited market uptake:**

- Lifetime injection every 2-4 weeks
- US\$14,000 p.a. cost
- No reimbursement currently for most patients



Australian chemists identify suitable binding site on PCSK9 for attachment of small molecule.

**NYX-330** effectively blocks binding of PCSK9 to LDL receptor.

First-in-class PCSK9 inhibitor.

Appropriate drug-like behaviour confirmed in mice.

**First-in-class, small molecule inhibitor of PCSK9.**

Aim is to develop NYX-330 as:

- Once a day oral treatment
- Use in combination with statins
- Particular use in the 40% of 'at risk' patients where statins alone fail to achieve target LDL levels

Current statin sales = US\$19 billion p.a.

Potential US\$60 billion if all 'at-risk' patients in US were treated and achieved target LDL levels

**H1 2018**



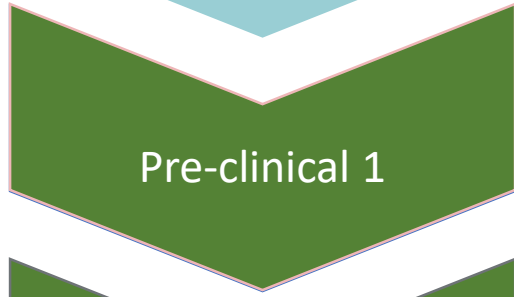
- Novel family of PCSK9 inhibitor compounds discovered
- Proof-of-concept in mouse model (current)
- Patentability confirmed (International Examiner report)

**H2 2018**



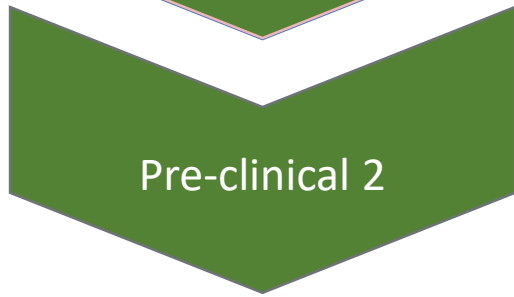
- Oral formulation studies
- *In vitro* toxicity studies

**H1 2019**



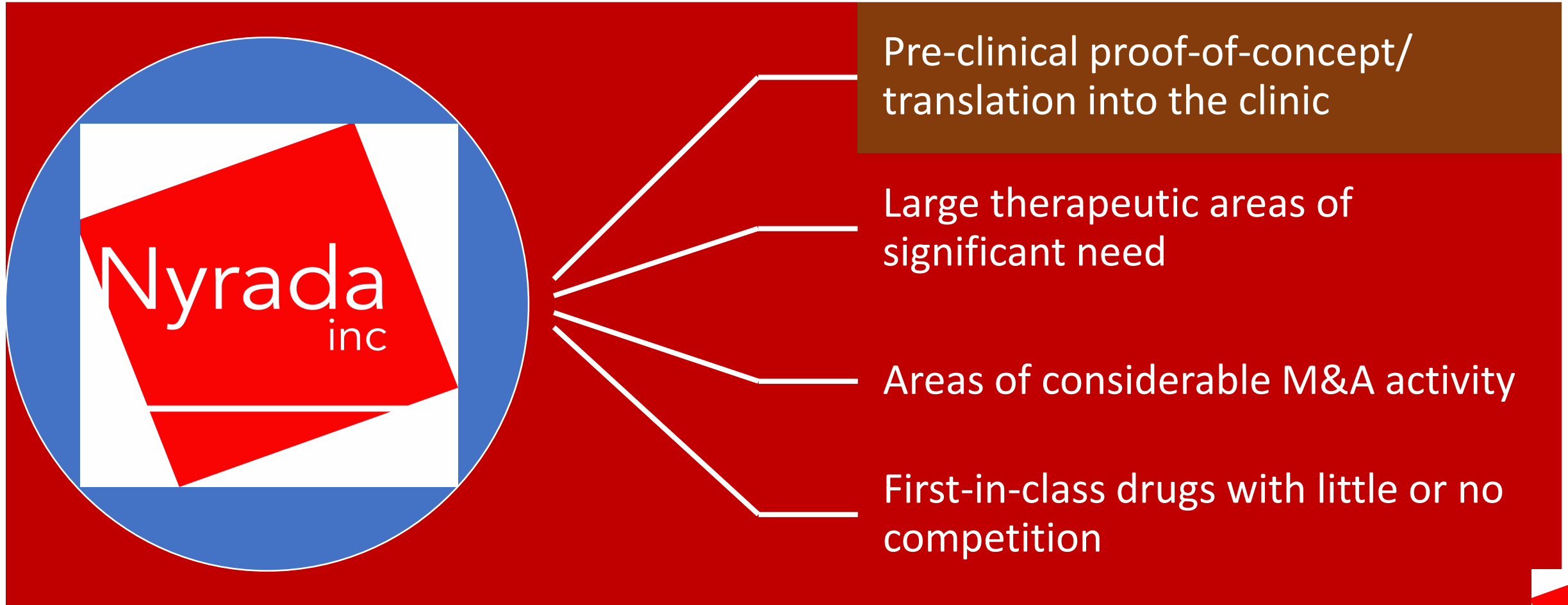
- Standard pre-clinical studies

**H2 2019**

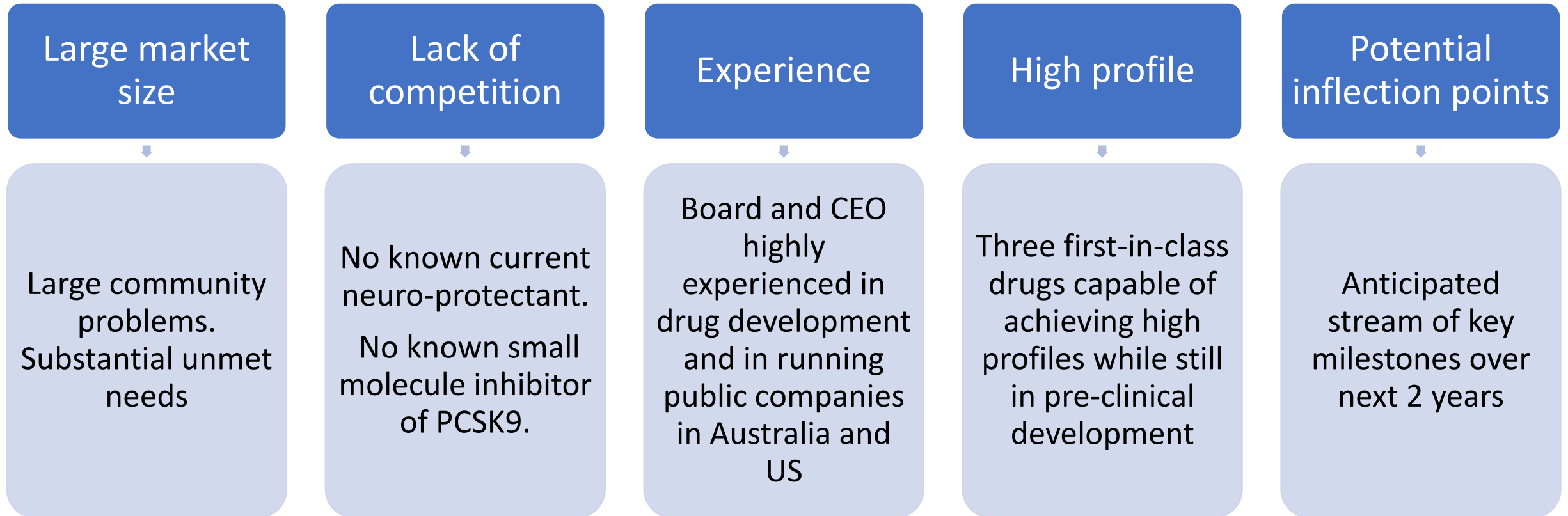


- Complete pre-clinical studies
- Undertake GMP manufacturing
- Plan first-in-human studies
- IND submission





# Value Drivers



# Key Metrics

|                                |   |
|--------------------------------|---|
| Founding shareholding          | <ul style="list-style-type: none"><li>▪ Noxopharm Ltd <b>67%</b></li><li>▪ Altnia Holdings Pty Ltd <b>33%</b></li></ul>   |
| Seed Round Raise<br>(Feb 2018) | <ul style="list-style-type: none"><li>○ \$4M</li><li>○ 38 New Shareholders</li><li>○ Convertible Notes</li><li>○ Each Note = 3 Shares and 2 Options</li><li>○ If all Notes converted and Options exercised, shareholding will be:<ul style="list-style-type: none"><li>• <b>60%</b> Noxopharm</li><li>• <b>27%</b> Altnia</li><li>• <b>13%</b> New Shareholders</li></ul></li></ul> |

# Disclaimer

- *This presentation has been prepared by Nyrada Inc (the Company). It should not be considered as an offer or invitation to subscribe for or purchase any shares in the Company or as an inducement to make an offer or invitation to subscribe for or purchase any shares in the Company. No agreement to subscribe for securities in the Company will be entered into on the basis of this presentation or any information, opinions or conclusions expressed in the course of this presentation.*
- *This presentation is not a prospectus, product disclosure document or other offering document under Australian law or under the law of any other jurisdiction. It has been prepared for information purposes only. This presentation contains general summary information and does not take into account the investment objectives, financial situation and particular needs of an individual investor. It is not a financial product advice and the Company is not licenced to, and does not provide, financial advice.*
- *This presentation may contain forward-looking statements which are identified by words such as 'may', 'could', 'believes', 'estimates', 'targets', 'expects', or 'intends' and other similar words that involve risks and uncertainties. These statements are based on an assessment of past and present economic and operating conditions, and on a number of assumptions regarding future events and actions that, as at the date of this presentation, are expected to take place. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors many of which are beyond the control of the Company, its Directors and management.*
- *Although the Company believes that the expectations reflected in the forward looking statements included in this presentation are reasonable, none of the Company, its Directors or officers can give, or gives, any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this document will actually occur or that the assumptions on which those statements are based are exhaustive or will prove to be correct beyond the date of its making. Readers are cautioned not to place undue reliance on these forward-looking statements. Except to the extent required by law, the Company has no intention to update or revise forward-looking statements, or to publish prospective financial information in the future, regardless of whether new information, future events or any other factors affect the information contained in this presentation.*
- *Readers should make their own independent assessment of the information and take their own independent professional advice in relation to the information and any proposed action to be taken on the basis of the information. To the maximum extent permitted by law, the Company and its professional advisors and their related bodies corporate, affiliates and each of their respective directors, officers, management, employees, advisers and agents and any other person involved in the preparation of this presentation disclaim all liability and responsibility (including without limitation and liability arising from fault or negligence) for any direct or indirect loss or damage which may arise or be suffered through use of or reliance on anything contained in, or omitted from, this presentation. Neither the Company nor its advisors have any responsibility or obligation to update this presentation or inform the reader of any matter arising or coming to their notice after the date of this presentation document which may affect any matter referred to in the presentation.*
- *The information contained in this presentation has been prepared in good faith by the Company. No representation or warranty, express or implied, is made as to the accuracy, adequacy, reliability or completeness of any statements, estimates, opinions or other information contained in this presentation, any of which may change without notice. This includes, without limitation, any historical financial information, estimates and projections and other financial information derived from them. Nothing contained in this presentation is, or may be relied upon, as a promise or representation, whether as to the past or the future.*



Dr Graham Kelly  
Chief Executive Officer

[graham.kelly@nyrada.com](mailto:graham.kelly@nyrada.com)