Nyrada inc

Improving Lives, Offering Hope

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Nyrada Introduction and Vision

Intro

- Nyrada formed in late-2017
- Spin-out from Noxopharm to develop 3 non-oncology assets

Vision

To become a high-growth pharmaceutical company, specialising in drug **discovery and early-stage development** in areas of **substantial unmet clinical** need, where few (if any) effective or well-tolerated therapies exist

Portfolio

Program 1

A drug to lower cholesterol levels beyond what can be achieved with statins

Program 2

A drug to minimise cell damage associated with brain injury

Program 3

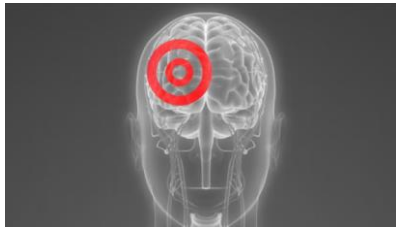
A drug to treat pain associated with nerve injury (sciatica)

Program 1: Cholesterol-lowering drug

Aim

Single-pill treatment for **high cholesterol** (PCSK9i + Statin)

Problem



43 million

ADULTS IN THE US

have **high LDL cholesterol** and are **taking statin medication**

US$317 billion

CARDIOVASCULAR DISEASE COSTS IN THE US

Including healthcare services, medications and lost productivity

1 in 4

DEATHS EACH YEAR

are attributed to **cardiovascular disease**

Current Standard of Care

Standard Treatment

Statin drugs block the liver's ability to make LDL-cholesterol

(Global sales of statin drugs in 2018 estimated to be **US$19 billion**)

However…

- Many patients are statin intolerant (up to 20%)
- Many patients do not achieve target 'healthy' cholesterol levels (up to 20%)
  (Gorcyca K, *et al* - see slide 7 for more details)
- Approx. half patients have sub-optimal response (<40% lowering)
  Akyea RK, *et al* Sub-optimal cholesterol response to initiation of statins and future risk of cardiovascular disease *Heart* 2019;**105:**975-981.

Opportunity

Identified need to supplement statin therapy

PCSK9: Beyond Statin Therapy

Cholesterol and PCSK9

PCSK9, a protein found in blood, plays a key role in regulating LDL cholesterol levels

Statins increase PCSK9 blood levels: This accounts for their failure to work optimally for many patients

PCSK9 inhibitors: If the action of PCSK9 is blocked, statins work more effectively, with LDL-cholesterol levels falling an additional 50-60% ✓

Current PCSK9 inhibitors

Two PCSK9-inhibitors came to market in 2015

Effective when used in combination with statins, however …

- Must be **injected every 2-4 weeks, for li**fe
- **High cost** (approx. US$5k per year)

Our Cholesterol-Lowering Solution

What's Unique

As far as we are aware, Nyrada is only 1 of 2 companies developing a small molecule PCSK9-inhibitor. Our aim is that our drug will pave the way for a **single pill solution**, for effective lowering of high LDL cholesterol.

- ✓ Benefit of allowing a **lower statin dose in statin-sensitive patients** (PCSK9 inhibitor + statin)
- ✓ **Monotherapy treatment** in patients **unable to tolerate statins** (Nyrada PCSK9 inhibitor alone)

Target Drug Profile

- Once-a-day oral tablet incorporating a generic statin
- Safety profile consistent with chronic administration
- Patentable
- Cost effective

Cholesterol-Lowering Drug: Market Overview (US)

Patient and Market Need

Large potential market – Approx. **18 million people** in the U.S. with atherosclerosis who live with elevated LDL levels despite taking maximally tolerated statin therapy — including individuals considered statin intolerant — leaving them at high risk for cardiovascular events.

Source: Gorcyca, K., et al., Prevalence of Atherosclerotic Cardiovascular Disease (ASCVD) and Diabetes Populations in the United States. Journal of Clinical Lipidology, 2015. 9(3): p. 424.

Overview of competitor PCSK9 therapies

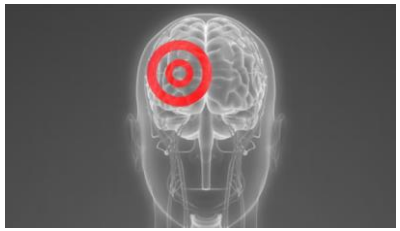
Drug Name	Status	Company	Target	Molecule	Delivery
Evolocumab (Repatha)	Marketed	Amgen	PCSK9 inhibitor	Monoclonal	Injectable
Alirocumab (Praluent)	Marketed	Sanofi/Regeneron	PCSK9 inhibitor	Monoclonal	Injectable
Bempedoic acid ± ezetimibe	Phase III	Esperion	ATP citrate lyase inhibitor	Small molecule + combination	Oral
Inclisiran	Phase III	The Medicines Company	PCSK9 siRNA	siRNA	Injectable
Evinacumab	Phase III	Regeneron	ANGPTL3 inhibitor	Monoclonal	Injectable
LY3015014	Phase II	Lilly	PCSK9 inhibitor	Monoclonal	Injectable
AFFITOPE (AT04A)	Phase I	AFFiRiS AG	PCSK9	Vaccine	Injectable
P-21	Preclinical	Shifa Biomedical	PCSK9 inhibitor	Small molecule	Oral
NYX-330	Preclinical	Nyrada Inc.	PCSK9 inhibitor	Small molecule	Oral

Program 2: Brain Injury Drug

Aim

Treatment for **Stroke** and **Traumatic Brain Injury**

Problem



Stroke

0.8 million

PEOPLE EACH YEAR

suffer a stroke in the US

STROKE COSTS

Direct medical costs and indirect costs

US$34 billion

yearly in the US

Traumatic Brain Injury

2.8 million

PEOPLE EACH YEAR

sustain a TBI in the US

TBI COSTS

Direct medical costs and indirect costs

US$60 billion

yearly in the US

Brain Injury Solution

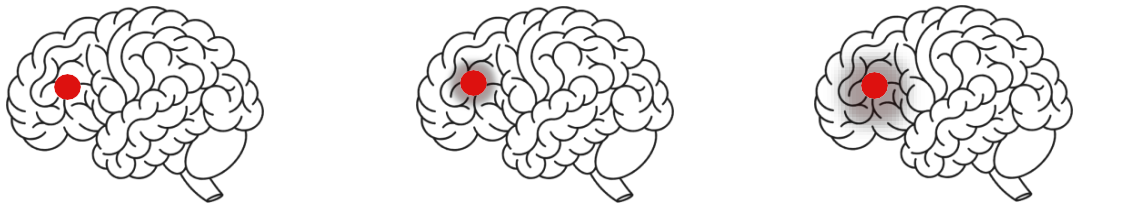
Current Treatment Options

Largely unmet clinical need

- Clot-buster drugs for treatment of ischemic stroke
  (Only suitable for approx. 10% of acute stroke patients due to short (<4.5 hr) therapeutic window)
- Drug treatments for brain injury limited to diuretics, anti-seizure, and coma-inducing drugs

Nyrada Drug

- In the days following brain injury, the area of damage expands, worsening patient outcomes
- Drug aims to **prevent damage**, **limiting injury size** and **improving patient outcomes**



Brain Injury Drug: Market Overview (US)

Stroke	
Stroke emergency room visits per year in the **US**	Approx. 650k
Patients who present within nominal 12-hour therapeutic window (>75%)	Approx. **490k**

Clot-buster Alteplase sales approx. US$1.2 billion in 2017; cost per patient approx. US$11k

Traumatic Brain Injury (Moderate to Severe)	
Hospital admissions for TBI per year in the **US**	Approx. 280k
Patients who present within nominal 12-hour therapeutic window (>75%)	Approx. **210k**

Total annual US market for brain injury combined: approx. **700k patients***

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5614785/

Morris DL et al. Prehospital and emergency delays after acute stroke: the Genentech Stroke Presentation Survey: Stroke 2000 Nov;31(11):2585-90

Taylor CA et al. Traumatic Brain Injury–Related Emergency Department Visits, Hospitalizations, and Deaths — United States, 2007 and 2013

* However, there is no guarantee that such a market will eventuate and that, even if such a market does eventuate, Nyrada will be able to enter into, and take advantage of, any such a market.

Program Status

- **Proof-of-concept established** for both the cholesterol-lowering and neuroprotection programs
- **Lead optimisation well-advanced**
  - Composition of matter patents have been lodged (but not yet granted) for both programs
  - Key publication submitted (PCSK9 inhibitor)
- **First-in-human Phase I studies** target time frames (subject to all necessary regulatory approvals and preclinical results)
  - Cholesterol-lowering program: late-2021
  - Neuroprotection program: mid-2022

Board of Directors

Nyrada operates under the direction of a board of international calibre, with track record in founding and realising the value of biotech companies

Mr John Moore
Non-Executive Chairman

John currently serves as Non-Executive Chairman of Trialogics, a clinical trial informatics business. John is a director of Scientific Industries (SCND-OTCQX), a producer of laboratory instruments for the life sciences industry. He is a graduate of Rutgers University.

Dr Graham Kelly
Executive Director

Graham is a scientist with 50 years' experience in drug development in both academic and biotechnology sectors. He is the Founder and Executive Chairman of Noxopharm Limited (ASX:NOX), a major shareholder of Nyrada. He holds a PhD as well as degrees in Science and Veterinary Science from The University of Sydney.

Mr Peter Marks
Non-Executive Director

Peter is currently a Director of Alterity Therapeutics Limited (ASX:ATH and NASDAQ:ATHE), Non-Executive Director of Noxopharm Limited (ASX: NOX) and Non-Executive Director of Fluence Corporation Ltd (ASX: FLC). Peter holds an MBA from the University of Edinburgh, Scotland, a Bachelor of Economics, Bachelor of Laws and a Graduate Diploma in Commercial Law from Monash University, Australia.

Mr Marcus Frampton
Non-Executive Director

Marcus is CIO of Alaska Permanent Fund Corporation (APFC), a $65 billion sovereign wealth fund for Alaska. He is also a shareholder/Director of Scientific Industries, Inc, a leading manufacturer of laboratory equipment and owner of IP relating to bioprocessing systems. Marcus graduated from UCLA with a degree in Business-Economics and a Minor in Accounting.

Dr Rüdiger Weseloh
Non-Executive Director

Rüdiger joined Merck KGaA, Darmstadt, Germany, as Senior Licensing Manager in 2006 holding positions in BD and is now a Senior Director. He has a university diploma in biochemistry from the University of Hannover and a PhD in molecular neurobiology, obtained at the Center for Molecular Neurobiologyin Hamburg.

Scientific Advisory Board

Nyrada benefits from an international team of experts with deep experience in drug development to advise its board and management

	Prof Gary Housley MSc, PhD	Scientia Professor Housley holds the Chair of Physiology and is director of the Translational Neuroscience Facility,School of Medical Sciences at the Universityof New South Wales, Sydney, Australia
	Prof Junichi Nabekura PhD	Junichi Nabekura is Professor of Physiology and Neuroscience, and Director of the National Institute of Physiological Sciences (NIPS) in Okazaki, Japan
	Prof David Burke MD, DSC	David is Professor of Neurology at Royal Prince Alfred Hospital, University of Sydney
	Prof Gilles Lambert PhD	Gilles Lambert is Professor of Cell Biology at The University of La Réunion Medical School (France) and group leader, Inserm Laboratory of Diabetes & Atherothrombosis of the University Hospital of La Réunion
	Jim Palmer PhD	Jim brings over 30 years of experience in drug discovery programs targeting oncology, cardiovascular, inflammation, joint and bone disease, and infectious diseases. Jim currently operates his own consulting business (Pharma Discovery)

Nyrada inc

- Large and under-served therapeutic areas
- Proof of concept data from cell and animal models
- Right team assembled to execute on strategic objectives

JamesBonnar - CEO
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www.nyrada.com