

NOVEL DRUG THERAPIES FOR NEURODEGENERATIVE CONDITIONS

COMPANY PRESENTATION

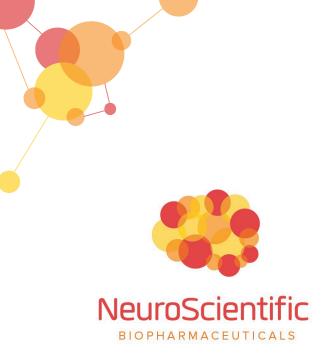
March 2022

ASX:NSB



NeuroScientific

BIOPHARMACEUTICALS



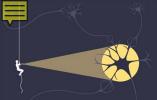
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## **COMPANY HIGHLIGHTS**



# DEVELOPING NOVEL PEPTIDE-BASED THERAPEUTIC DRUGS

Developing peptide-based drugs with disease modifying potential for neurodegenerative conditions

# EMTINB™: LEAD DRUG CANDIDATE WITH DISEASE MODIFYING POTENTIAL

A first-in-class treatment for Alzheimer's disease, Multiple sclerosis and glaucoma

# TRANSITIONING FROM PRECLINICAL TO CLINICAL DEVELOPMENT IN 1H CY2022

EmtinB<sup>™</sup> is set to enter a first-in-human Phase I clinical trial in the first half of 2022



# **COMPANY OVERVIEW**

CAPITAL STRUCTURE	
ASX CODE	NSB
SHARE PRICE (23/04/22)	\$0.29
SHARES ON ISSUE	143.5M
UNLISTED OPTIONS	16.8M
MARKET CAPITALISATION	\$42M
NET CASH POSITION	\$9.5M
TOP 20 SHAREHOLDERS	48%



BOARD & MANAGEMENT	OARD & MANAGEMENT			
PAUL RENNIE	MATT LIDDELOW	DR ANTON UVAROV	STEPHEN QUANTRILL	
CHAIRMAN	CEO & MANAGING DIRECTOR	EXECUTIVE DIRECTOR	NON-EXECUTIVE DIRECTOR	
Founder of Paradigm (ASX:PAR) Former COO of Mesoblast (ASX:MSB)	Experienced pharma executive 14+ years industry experience	Founding Director of Actinogen (ASX:ACW) Former equities analyst with Citigroup, US	20+ years corporate advisory Executive Chairman of McRae Investments	



# ADDRESSING GLOBAL UNMET MEDICAL NEED IN NEURODEGENERATIVE CONDITIONS

The underlying cause of most neurodegenerative conditions is not known

#### **ALZHEIMER'S DISEASE**



MOST SEVERE TYPE OF DEMENTIA

NO DISEASE MODIFING DRUGS AVAILABLE

#### **MULTIPLE SCLEROSIS**



**AGE OF ONSET 20-50Y** 

NO EFFECTIVE DRUGS TO TREAT LATER-STAGE OF DISEASE

#### **OPTIC NEUROPATHIES**



2<sup>nd</sup> LEADING CAUSE OF BLINDNESS

CURRENT TREATMENT
OPTIONS NOT SUITABLE FOR
ALL PATIENTS

DEVELOPING A SOLUTION IS CHALLENGING WHEN THE CAUSE IS NOT FULLY UNDERSTOOD

NSB'S RESEARCH IS A POTENTIAL SOLUTION BY HARNESSING THE BODY'S DEFENSE

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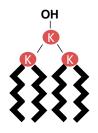
MECHANISMS TO COMBAT NEURODEGENERATIVE DISEASES



# EMTINB™: LEAD DRUG CANDIDATE WITH DISEASE MODIFYING POTENTIAL

EmtinB<sup>™</sup> promotes cell survival and regeneration, and reduces inflammation in neurodegenerative conditions

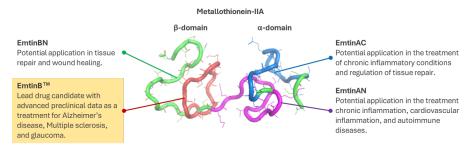
### **EMTINB™**



- Advanced peptide structure, synthetically manufactured
- Low potential for off-target effects highly specific for target receptor
- Crosses the blood brain barrier



#### **MODELLED ON HUMAN PROTECTIVE PROTEIN MT-II**



- Large body of published data demonstrating protective and regenerative activity
- Commercialisation of MT-II limited by complex structure, not able to be synthetically manufactured

#### **EMTINB™ TARGETS LRP-1**

- LRP-1 receptor is expressed by most cells of the nervous system
- EmtinB activates LRP-1 pathways that stimulate cell survival, induce regeneration, and downregulate inflammation

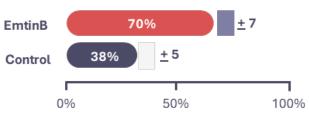


## EMTINB™ DISEASE MODIFYING EFFECT IN ALZHEIMER'S DISEASE

#### **ALZHEIMER'S DISEASE – PREVENTING COGNITIVE DECLINE**

#### **AD MOUSE MODEL**

Cognition: treatment for 48 days

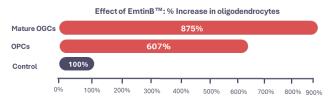


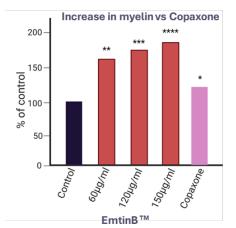
- Validated in the gold-standard animal model
- Protected tissue of the brain and improved memory
- Reduced inflammation



# EMTINB™ DISEASE MODIFYING EFFECT IN MULTIPLE SCLEROSIS

#### **MULTIPLE SCLEROSIS – POTENTIAL TO TREAT ALL STAGES**





- Increased the number of myelin-forming cells (oligodendrocytes)
- Increased myelin production
- Increased survival and regeneration of neurons

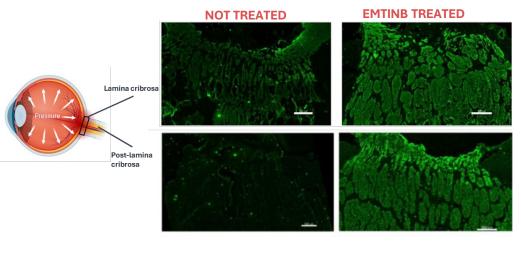


Recently announced data demonstrated a significant downregulation of the inflammatory responses of immune cells strongly associated with Multiple Sclerosis



### EMTINB™ DISEASE MODIFYING EFFECT IN GLAUCOMA

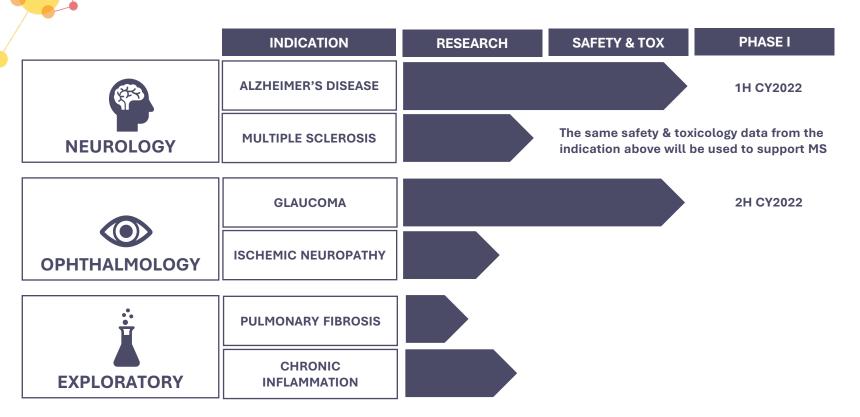
### **GLAUCOMA – PROTECTING THE OPTIC NERVE AND PREVENTING VISION LOSS**



- Performed in pig model; structure of the eye very similar to humans
- Prevented damage to retinal cells
- Prevented damage to the optic nerve



# EMTINB™ - DEVELOPMENT PIPELINE





# PARTNERING WITH LEADING RESEARCH ORGANISATIONS

### **NON-CLINICAL RESEARCH**



























### TRANSITIONING TO CLINICAL DEVELOPMENT

NSB is progressing EmtinB™ to Phase I clinical trials in 1H CY2022

EmtinB™

FIRST-IN-HUMAN PHASE I STUDY



DISCOVERY RESEARCH



PRECLINICAL TOXICOLOGY



PHASE I CLINICAL TRIAL



PHASE II CLINICAL TRIAL



PHASE III CLINICAL TRIAL



REGULATORY REVIEW & APPROVAL

Basic validation of drug candidate



GLP safety and toxicology studies in animals

Assessment of safety in healthy human subjects

Assessment of safety and efficacy in patients Assessment of efficacy and safety in large patient groups

Assessment of safety and efficacy in patients

## **CONTACT INFORMATION**

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