



NeuroScientific

BIOPHARMACEUTICALS

ASX:NSB

ASX ANNOUNCEMENT

22 NOVEMBER 2021

NEUROSCIENTIFIC PARTNERS WITH LEADING NEUROIMAGING COMPANY IMEKA

HIGHLIGHTS

- NeuroScientific Biopharmaceuticals Ltd has partnered with world- leading neuroimaging company Imeka
- Imeka's cutting-edge Diffusion MRI imaging technology to be applied to NeuroScientific's Multiple sclerosis R&D Program
- Imeka combines Diffusion MRI with AI and deep learning to map microstructures and neural networks of the brain
- NeuroScientific will use Imeka's imaging technology to identify precise signals of the disease-modifying effect of EmtinB™ in the brain

NeuroScientific Biopharmaceuticals Ltd (ASX: **NSB**) ("**NeuroScientific**" or "**the Company**") is pleased to announce that the Company has engaged leading neuroimaging company Imeka, Canada to utilize their powerful biomarker technology to determine the effect of EmtinB™ in preclinical and clinical development programs.

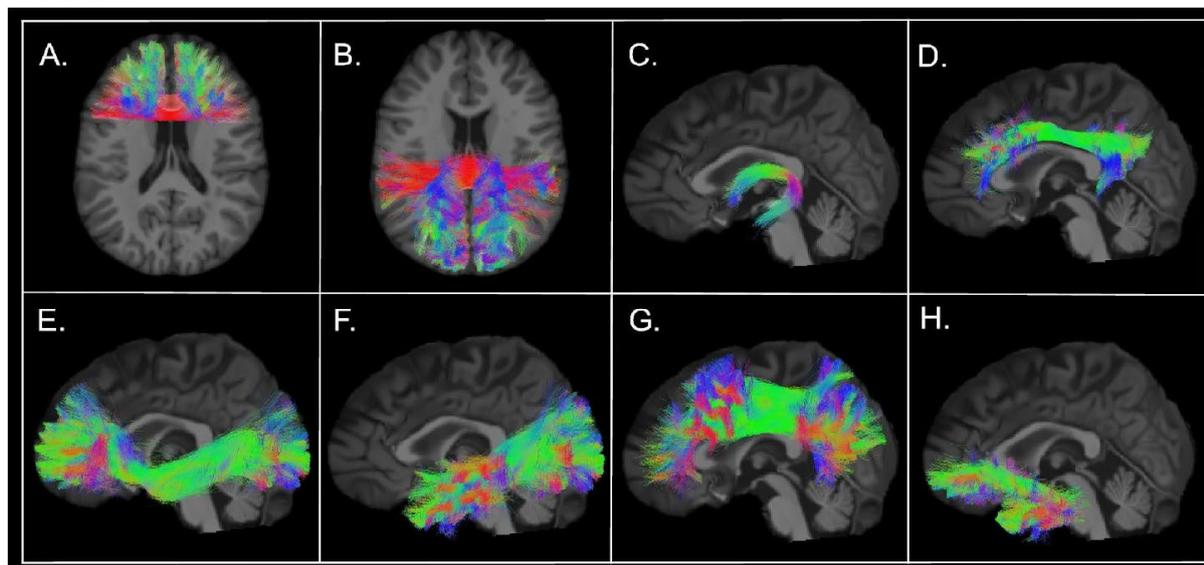
Imeka's cutting-edge imaging technology involves the use of magnetic resonance imaging (MRI) and powerful software to visualize and quantify different aspects of the brain's white matter, a method called diffusion MRI (dMRI) (**Figure 1**). Additionally, Imeka is the world's leading company in combining artificial intelligence (AI) and deep learning with dMRI to map structures and neural networks of the brain. The non-invasive technology measures aspects such as apparent fibre density (AFD), extracellular water fraction (white matter free water), and tissue radial diffusivity (tRD), to gain valuable insights into axonal loss, neuroinflammation, and demyelination. Traditional MRI and PET-CT imaging techniques do not allow analysis of microstructures within the brain to the sensitivity and specificity of dMRI.

NeuroScientific will initially incorporate Imeka's dMRI technology into the Company's Multiple sclerosis (MS) R&D program, with plans to widen its use across future clinical studies. NeuroScientific recently announced it has partnered with specialist contract research organisation BioSpective to accelerate its MS R&D program (see previous announcement from 2 November 2021).

NeuroScientific's CEO and Managing Director Matt Liddelow commented: "*NeuroScientific Biopharmaceuticals is committed to finding solutions for neurodegenerative conditions and strongly believes our lead drug candidate, EmtinB™, is one of the most promising drugs currently in development for the treatment of Alzheimer's disease and Multiple sclerosis. The Company is also committed to collaborating with world-leading companies such as Imeka that are advancing game-changing imaging technologies that we can use to further demonstrate the treatment effect of EmtinB™ in the human brain with a degree of certainty*

that is otherwise not possible. Combined with traditional outcome measures, we believe Imeka's diffusion MRI technology will allow us to characterise the disease-modifying effects of EmtinB™ in patients and firmly position EmtinB™ as a first-in-class treatment for neurodegenerative conditions, especially in Multiple sclerosis.”

Figure 1: Imeka's advanced diffusion MRI technology used to map of various regions of the brain.



A. Anterior corpus callosum (rostrum, genu) B. Posterior corpus callosum (isthmus, splenium, tapetum) C. Fornix D. Cingulum E. Inferior fronto-occipital fasciculus (IFOF) F. Inferior longitudinal fasciculus G. Superior longitudinal fasciculus H. Uncinate fasciculus

NeuroScientific has established the therapeutic activity of EmtinB™ in MS across multiple studies using validated cell-based models of the disease (see previous announcements from 18 March 2020 and 14 July 2020), in which EmtinB™ treatment significantly increased myelin formation by up to 146% (vs control; $p < 0.001$) and increased the survival of neurons by up to 137% (vs. control; $p < 0.001$). More recently, EmtinB™ was shown to significantly reduce key drivers of dysfunctional immune responses associated with MS (see previous announcement from 31 August 2021).

MS is a progressive neurodegenerative disease characterised by chronic inflammatory responses, whereby activated immune cells migrate into the central nervous system (CNS) and attack the myelin sheath that surrounds nerve fibres and damage neurons, leading to disruption of normal cognitive, sensory, and motor function. Currently approved MS drugs modulate inflammatory responses only and do not directly affect myelin production or neuronal survival. Global sales for approved MS drugs in 2020 was approximately US\$22 billion.¹

This announcement is authorised by the Board of NeuroScientific Biopharmaceuticals Ltd.

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¹ www.biomedtracker.com

For more information please contact:

Matthew Liddelow
CEO and Managing Director
ml@neuroscientific.com
+ 61 8 6382 1805

Lucas Robinson
Investor Relations
Corporate Storytime
lucas@corporatestorytime.com
+ 61 408 228 889

About NeuroScientific Biopharmaceuticals Ltd

NeuroScientific Biopharmaceuticals Limited (ASX: NSB) is a company developing peptide-based pharmaceutical drugs that target a number of neurodegenerative conditions with high unmet medical demand. The company's product portfolio includes EmtinB™, a therapeutic peptide initially targeting Alzheimer's disease and glaucoma, as well as other Emtin peptides (EmtinAc, EmtinAn, and EmtinBn) which have demonstrated similar therapeutic potential as EmtinB™. For more information, please visit www.neuroscientific.com

About EmtinB™

EmtinB™ is a peptide-based compound that binds to surface-based cell receptors from the LDLR family, activating intracellular signalling pathways that stimulate neuroprotection, neuroregeneration and modulate neuroinflammation. EmtinB™ is modelled on a specific active domain of the complex human protein called Metallothionein-IIA, which is produced as part of the human body's innate immune response to cell injury.

Our preclinical research has established that EmtinB™ is highly specific and selective for its target receptor, safe and well tolerated at high concentrations, and is able to penetrate the blood brain barrier. A series of Phase I clinical studies will be conducted to establish the safety profile of EmtinB™ in humans.