

Bio Glue For High-precision Repair Of Neuronal Tissue

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THE UNIVERSITY OF
SYDNEY

Medical Technology - Ophthalmology/Neurology



> Pre-Clinical

Problem

Neuronal tissue damage, such as that incurred during rhegmatogenous retinal detachment (RRD) or traumatic brain injury (TBI), poses a significant challenge in surgical repair due to the delicate nature of these tissues. The current treatments for RRD, affecting approximately 1 in 300 individuals, fail to effectively seal retinal breaks, often necessitating the use of supplemental oils and gases to support the healing process. Similarly, TBI management lacks an efficient bio glue that can adequately adhere to and repair the affected brain tissue.

These shortcomings result in decreased surgical success rates, prolonged recovery times, and increased risk of post-operative complications. The medical community urgently needs a solution that not only enhances the sealing of neuronal tissues but also improves the overall outcomes of such intricate surgeries.

Solution

Our invention addresses this critical need by introducing a protein-based bio glue and derived membrane specifically formulated to bind with neuronal tissues. Utilizing a unique protein-based material, our product offers unparalleled biocompatibility and low immunogenicity, making it an ideal candidate for neuronal tissue repair.

This transparent bio glue can be cross-linked in situ, ensuring robust adherence to retinal and brain tissues while facilitating cell growth. Beyond its exceptional adhesive properties, the material also

serves as a versatile platform for targeted drug delivery, revolutionizing the treatment of conditions like RRD and TBI. With the ability to seal retinal tears, macular holes, and brain damages more effectively, our bio glue and membrane technology promises to significantly improve surgical success rates and patient outcomes in the field of neurosurgery.

Commercial Opportunity

This is an opportunity to partner and/or acquire a protein-based bio glue formulated to bind to neuronal tissues. The technology can be used to repair neuronal tissues with a potential to improve outcomes related to neurosurgery.

Intellectual Property Status

Provisional Patent Application filed.

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Potential Commercial Applications

- Retinal tear and detachment repair
- Macular hole treatment
- Brain tissue repair in traumatic brain injuries
- Targeted neuronal drug delivery systems

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