

A biomedical device for precision imaging of copper levels in the CNS



THE UNIVERSITY OF
SYDNEY

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Diagnostic Imaging - Neurology



> Pre-Clinical

Problem

Copper imbalance within the brain is a critical factor in the progression of various neurological disorders, including Parkinson's disease and amyotrophic lateral sclerosis (ALS), as well as certain types of cancer. Current therapeutic strategies aim to correct copper levels, yet clinicians face a significant challenge: the absence of a non-invasive method to measure copper concentrations in the living brain. Without this capability, it is difficult to diagnose these conditions early, tailor treatments accurately, or monitor the efficacy and safety of copper-modulating therapies over time. The healthcare industry needs an innovative solution to visualise and quantify brain copper levels in vivo, enabling better management of diseases associated with copper dysregulation and improving patient outcomes.

Solution

Our groundbreaking technology is a copper-sensing molecular probe that revolutionises the measurement of copper levels in the brain. Designed for dual-modality, it combines the precision of fluorescence imaging with the depth of PET scans, allowing for accurate copper quantification in biological systems. As a pro-probe, it is activated only in the presence of cellular copper and becomes immobilised for in situ quantification. This ensures that only relevant copper levels are measured, providing a clear and precise assessment. The novel probe is a game-changer for both in vitro studies and in vivo imaging, offering a significant leap forward in the diagnosis and treatment of copper-related diseases.

Commercial Opportunity

This is an opportunity to acquire a new copper-sensing molecular probe with potential applications for early diagnosis of Parkinson's disease and management of amyotrophic lateral sclerosis (ALS).

Intellectual Property Status

NPE AU, EP, US
WO 2023/168487

Inventors

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Potential Commercial Applications

- Early diagnosis and monitoring of Parkinson's disease
- Management of amyotrophic lateral sclerosis (ALS)
- Personalised treatment strategies for copper-related cancers
- Research tool for understanding copper's role in the central nervous system

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