Research Grants 2025

Neuroimmunology | Development of a PCR-Based Host Transcriptomics Assay for Rapid Differentiation of Encephalitides

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A quick and accurate diagnosis of brain inflammation and the cause of inflammation is essential for patient care, but current testing methods are often slow. Due to this delay, doctors need to relay on clinical evaluation to help identify the correct diagnoses. This can be very difficult as patients present to hospital with similar signs and symptoms regardless of the underlying cause. Delays in the investigations and difficulty in discerning the cause through clinical evaluation, can often lead to wrong diagnoses, and therefore the wrong treatment. Incorrect or delayed treatment often leads to poorer outcomes for patients.

Our research aims to address this by developing a simple, rapid, cost-effective diagnostic test that enables clinicians to distinguish between different types of brain inflammation, particularly infections versus autoimmune causes.

We will study fluid samples from patients who already have confirmed diagnoses. Using advanced sequencing techniques and computational analysis, we will find unique inflammation patterns that help identify different types of brain inflammation. We will then turn these patterns into a quick test that doctors can use in hospitals and clinics when a diagnosis is uncertain.

This incredibly novel method could greatly improve patient care by giving doctors a fast and reliable way to make diagnoses. When doctors can quickly figure out what type of brain inflammation a patient has, they can start the right treatment sooner. For infections this means antibiotics or antivirals, and steroids for autoimmune causes. This would mean better results for patients and lower healthcare costs. Our research fills an important gap in brain health care and could set a new standard for diagnosing brain inflammation.

Grant $40,000

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