

Upgrading multiplex panels for neurobiology with Neurofilament-Light as a reliable biomarker for neurodegeneration and brain injury

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Introduction

Neurological disorders comprise highly complex, multifaceted diseases that affect the central nervous system (CNS) and/or the peripheral nervous system. They are among the main causes of disability and mortality worldwide and can impair the brain, the spinal cord, peripheral nerves, or neuromuscular function¹⁻³. Additionally, as the global population ages, health issues related to aging, like dementia, have become significant public health concerns. Neurodegenerative diseases like Alzheimer’s disease (AD) result in the most prevalent type of age-related dementia, characterized by neuronal death, cognitive decline, and loss of motor function. Neuronal loss in neurodegenerative diseases is supposed to be attributed to the formation and deposition of pathogenic protein aggregates forming “incidental” plaques, tangles, and Lewy bodies, which can arise either spontaneously or due to inherited mutations.

Being able to measure and track multiple biomarkers over time speeds up research, providing a deeper understanding of neuroinflammation and neurodegenerative diseases. Multiplex immunoassays enable researchers to detect biomarkers that help differentiate between diseased and non-diseased states, as well as between various neurodegenerative conditions.

Aim

Help provide comprehensive multiplex assay panels based on the established Invitrogen™ Luminex® xMAP® technology for the investigation of biomarkers for neurobiology including neuro-inflammation, neurodegeneration, blood-brain-barrier integrity and neurotrophic factors.

Biomarkers for neurobiology

Figure 1. Major neuronal and non-neuronal cell types of the CNS and candidate biomarkers for neuroinflammation, brain injury and neurodegeneration.

