

Brightening Up Brain Injuries-The Design, Synthesis and Characterization of a P.E.T. Diagnostic Agent for Neuronal Trauma

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Concussions are an increasingly significant issue today, however, there is still no single standard, objective criterion for diagnosing them. The symptoms of concussions are often observed in the absence of significant structural damage making neuroimaging techniques such as computerized tomography and magnetic resonance imaging exceedingly difficult to use to identify their presence. An objective test with high sensitivity and specificity for concussions would provide a substantial advance in concussion diagnostics, which can help in the prognosis, treatment, and medical decision-making regarding the disorder. This research looks to fill the void in concussion diagnostic techniques by synthesizing a specifically designed, small molecule 18F-radiotracer capable of binding to a biomarker of neuronal trauma, thus allowing for the imaging of its upregulation using a PET scanner. The S100B protein is a reliable biomarker of the onset and progression of astrogliosis in neuronal trauma and will be the target of the radiotracer.

Biography

Jessica Allingham is working towards her doctorate degree in Chemistry and Material Sciences at Lakehead University. Her research focuses on radiochemistry, medical imaging and nuclear medicine. She also works in science outreach as the coordinator of Let's Talk Science at Lakehead University.

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