

**TITLE: Acute serum levels of two neuronal markers (UCH-L1 and NSE):
Correlation to injury cranial CT abnormality and lesion types - a TRACK-TBI
study**

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RESEARCH PROJECT DESCRIPTION

Traumatic brain injury (TBI) is a major worldwide neurological disorder of epidemic proportions. To date, there are still no FDA-approved therapies to treat any forms of TBI. Encouragingly, there are emerging data showing that biofluid-based TBI biomarker tests have the potential to diagnose the presence of TBI of different severities including concussion, and to predict outcome. Dr. Wang is a co-Investigator of a large national Institute of Health /Department of Defense-funded consortium study: Transforming Research and Clinical Knowledge in Traumatic Brain Injury (TRACK-TBI) (<https://clinicaltrials.gov/ct2/show/NCT02119182>). In this on-going study, overall 1,375 TBI, 65 orthopedic injury and 40 normal control subjects have been enrolled. Acute serum samples (collected \leq 24h post-injury) from these subjects were assayed with multiple blood-based biomarkers analysis. Among them are a pair of promising neuronal protein biomarkers [ubiquitin C-terminal hydrolase-L1 (UCH-L1) and neuronal specific enolase (NSE)]. Curated biomarker data, clinical cranial CT abnormality results and CT-detectable pathoanatomical lesion types were collected. Dr. Wang would like to involve a motivated medical student to help conduct biomarker to CT clinical data correlation analysis, biomarker temporal profile analysis, and participate in writing up this study for a high impact journal publication. As such, he/she will be a Co-author of the final manuscript. The medical student will be working with Dr. Wang (Emergency Medicine) directly. In addition, he/or she will have the opportunity to interact with researchers/scientists at the Program for Neurotrauma, Neuroproteomics & Biomarker Research (NNBR) at the McKnight Brain Institute, as well as network with key clinical researchers from the TRACK-TBI consortium study.