

Abstract: The neurovasculature is critical for the delivery of oxygen and nutrients for proper brain function. There is mounting evidence that there is neurovascular dysfunction in neurodegenerative diseases, including Alzheimer's disease, but the mechanisms are not fully elucidated. There is an association between pneumonia and dementia. People suffering from severe pneumonia often have cognitive impairment. Many people with Alzheimer's disease get pneumonia in end stages of the disease that accelerates decline and death. We found that pneumonia causes neurovascular unit dysfunction including blood-brain barrier breakdown and astrocytosis, that is tau dependent. We also discovered that pneumonia causes significant increases in p181 and p217 tau levels in the brain of experimental models. Other ongoing projects related to pericytes and brain organoids will also be briefly discussed.