

Presenter	Presentation
<p><b>Judy Mikovits, PhD</b></p> <p>Dr. Mikovits holds a PhD from George Washington University, with her thesis in HIV Latency in Monocytes: Mechanism(s) of Immune Activation. The goal of her 3-decade research career has been to understand how human retroviruses dysregulate the delicate balance of the immune response leading to the development of chronic disease. Her research has focused on translational research in government, biotechnology and academic settings. She joined Whittemore Peterson Institute for Neuroimmune Disease (WPI) in November of 2006 as the WPI's first research director charged with establishing a translational research program aimed at identifying biomarkers and underlying causes of chronic fatigue syndrome (CFS) and other debilitating neuroimmune diseases with overlapping symptoms such as fibromyalgia (FM), atypical multiple sclerosis and autism spectrum disorder (ASD). She sought to examine these complex and poorly understood diseases using a systems biology approach. Following the establishment of a blood sample repository containing more than 1000 samples from 200 patients and 200 controls taken at different time points over a 3-year period using standardized sample collection/processing methods critical for obtaining comparable data sets from different sample types/methods, Dr. Mikovits established a collaborative network of world-renowned experts in retrovirology, human genetics, immune cell biology, flow cytometry, bioinformatics and drug development. This collaborative research network is using state of the art multiplex strategies such as a viral microarray, proteomic profiling a, gene expression and HLA/KIR analysis to decipher the pathophysiology of CFS. This approach resulted in the detection of a new infectious human retrovirus XMRV, in the majority of CFS patients tested. XMRV presents a testable hypothesis as a new human pathogen associated with neuroimmune disease and cancer.</p>	<p><b>XMRV</b></p> <p>Chronic fatigue syndrome (CFS) and autism spectrum disorder (ASD) share common clinical features including immune dysregulation, increased oxidative stress, increased expression of proinflammatory cytokines and chemokines, mitochondrial dysfunction and chronic active microbial infections suggesting an underlying immune deficiency may be involved in subgroups of CFS and ASD. We recently demonstrated the first direct isolation of an infectious gammaretrovirus, XMRV, from the blood of CFS patients. We have developed quantitative assays to detect XMRV replication and infection in cell culture. Moreover, we found evidence of XMRV infection in &gt;85% of more than 200 CFS patients tested to date. These data implicate a role for XMRV infection in the pathogenesis of CFS. Because of the clinical similarities of CFS and ASD, we hypothesized that XMRV infection may also be detected in subgroups of ASD. This presentation will update the status of XMRV research, show evidence of XMRV infection in ASD and discuss the implications of XMRV infection in the pathogenesis of neuroimmune disease including ASD.</p>