Review Date	Last Name	First Name	Institution	Title	Cohort	Abstract
2021	McCarthy	Michael	University of California – San Diego/VA San Diego Healthcare Research Service	Cellular Circadian Rhythm Disruption in ME/CFS	CFI	We hypothesize that TGF-β signaling is upregulated in ME/CFS and remains persistently elevated leading to a series of pathological events including circadian rhythm disruption that contributes to sleep disruption and cognitive complaints in a subset of ME/CFS patients. We anticipate that serum from ME/CFS patients with significant sleep disruption will be sufficient to cause circadian disruption in cultured fibroblasts and neurons. Our laboratory has substantial experience performing cellular circadian rhythm assays and has extensively used the NIH 3T3 cell model with *Per2-luc* transfection. In this aim, the effects on rhythms of serum from ME/CFS patients and control will be studied using *Per2-luc* in fibroblasts to determine if there are disease-specific factors (such as TGF-β) that affect cellular rhythms in live cells. In multi-day cellular rhythm assays using live cells, we will identify and characterize ME/CFS-associated abnormalities, identify the serum factors responsible, and assess the role of TGF-β using gene expression knockdown, recombinant cytokines, and pharmacological interventions to recapitulate or block the effects of serum.
2022	Robbiani	Davide	Università della Svizzera italiana (Switzerland)	Autoantibodies against chemokines in CFS/ME	CFI	The primary aim of this pilot study is to measure the level of plasma autoantibodies against the 43 human chemokines in CFS/ME patients. This will be compared to matched cohort controls, and to convalescent individuals after COVID-19 (with or without long-COVID) and other infections. Moreover, as a secondary aim, we will test the hypothesis that common cold coronaviruses may be involved in CFS/ME pathogenesis by measuring the same samples for the presence of antibodies to the spike protein of human common cold coronaviruses (229E, OC43, NL63, HKU1) and SARS-CoV-2 (note: since the requested samples are pre-pandemic, SARS-CoV-2 reactivity will serve as negative/background control). Since the presence of specific anti-chemokine antibodies is associated with protection from long-COVID, in addition to having diagnostic utility, the study of these autoantibodies in CFS/ME has the potential to pave the way to novel therapeutic approaches.

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2024	Sluss	Hayla	University of Massachusetts Chan Medical School	Sluss MECFS NINDS Research Strategy	CFI	A correlate of ME/CFS disease is the presence of vascular endothelial cell dysfunction that may contribute to pathogenesis. Endothelial cell dysfunction in ME/CFS has been characterized by decreased eNOS activity and production of nitric oxide (NO), endothelial cell senescence, and increased permeability of the intestinal and blood brain barrier that lead to endotoxin-mediated inflammation. This dysfunction has been proposed to be mediated by changes in the serum proteome and metabolome 3-8. Evidence to support this conclusion is based on the effects of ME/CFS serum to suppress NO production by endothelial cells 5. Moreover, we have found that ME/CFS plasma, compared with control plasma, promotes endothelial cell senescence. Endothelial dysfunction can lead to impaired blood brain barrier function. In addition, ME/CFS disease is associated with mitochondrial defects that may contribute to disease pathogenesis. This study aims to shed light on the role of endothelial senescence in ME/CFS pathogenesis. Understanding these mechanisms will have important translational implications for developing targeted interventions to improve outcomes in ME/CFS patients.