

Diagnostic Method for Chronic Fatigue Syndrome and Other Neuroimmune Disorders

Chronic Fatigue Syndrome (CFS) is characterized by a cluster of symptoms that includes severe fatigue, headache, insomnia and memory problems. It is estimated that 2.5 million people in the US are affected by CFS. A large proportion of Gulf War veterans suffer from a collection of chronic symptoms that are similar that of CFS, and it is referred to as the “Gulf War Illness” (GWI). Studies have estimated that about 35% of the over six hundred thousand men and women deployed to Gulf War experienced symptoms of GWI. It is characterized by headache, dizziness, insomnia, gastrointestinal disorders, respiratory issues, memory problems and persistent fatigue. Both CFS and GWI impose a heavy socioeconomic burden on the healthcare system. Currently there are no clinically proven diagnostic test for detection of either of these two diseases. Their diagnosis is done mainly through description of symptoms by patients, which can be often unreliable. Inventors at NSU have identified specific biomarkers that can be used to develop a quantitative assay for the diagnosis of these complex diseases.

Technology

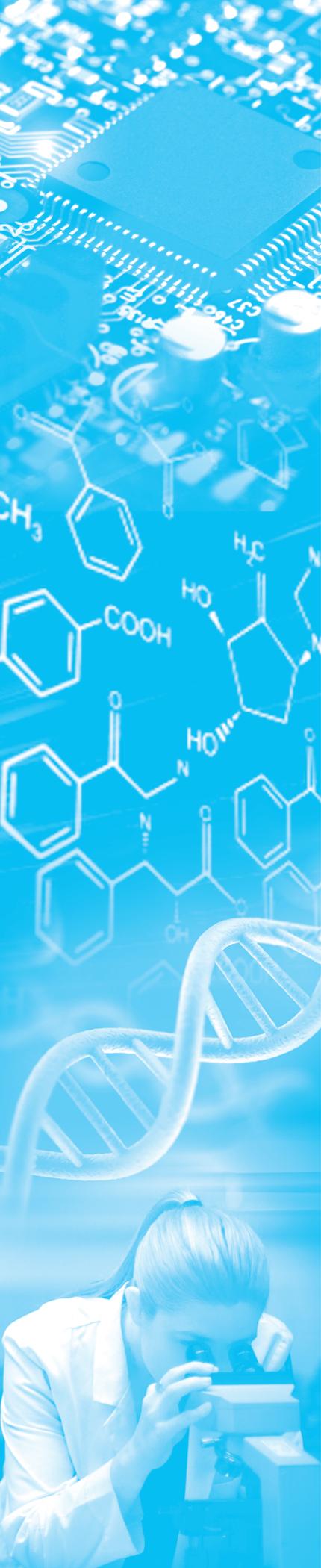
Researchers investigating GWI and CFS at NSU, have found that specific immunologic cell populations and cytokines can be used as indicators of these complex disorders. Blood samples from patients suspected to have GWI or CFS, were taken and analyzed for a specific cytokine (Interleukin-15) and 12 lymphocyte populations. The analysis was done through a unique computational projector-based parameter estimation technique. This proposed technology will act as a lab based test for two complex disease and therefore offer a significant improvement over the current practice of using description of symptoms. Administration of IL-15 also has therapeutic potential for treating these diseases and the researchers are currently studying it.

Application

This technology offers the opportunity to develop a laboratory based quantitative test that can be used to accurately detect two complex diseases through blood tests.

Advantages/Benefits

Currently diagnosis of CFS and GWI are done only through description of the symptoms by the patients. A diagnostic assay based on the technology described here will offer a much more reliable and accurate method of detection for these two diseases.



Status of Development

The researchers were awarded a VA Merit Award for their work on these neuro-immunological disorders. They are utilizing this funding to conduct clinical studies on CFS and GWI with a larger number of subjects. This will enable them to gain better understanding of the disease and further explore the potential of this diagnostic technology. They are also investigating the therapeutic possibilities of administering IL-15 for the treatment of CFS.

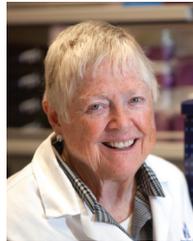
Patent Status

International Patent Application published on 22nd September, 2016.

Information on Inventors



- Dr. Nancy Klimas—Dr. Klimas is a Professor of Medicine and Chair of the Department of Clinical Immunology at the College of Osteopathic Medicine at Nova Southeastern University. She also serves as the Director of NSU's Institute for Neuro-Immune Medicine.



- Dr. Mary Ann Fletcher—Dr. Fletcher is a Professor of Immunology at the Kiran C Patel College of Osteopathic Medicine.



- Dr. Gordon Broderick—Dr. Broderick is currently the Director, Centre for Clinical Systems Biology at Rochester General Hospital Research Institute. He is also a Visiting Professor, Dept. of Biomedical Engineering at Rochester Institute of Technology.

- Zachary Barnes—Mr. Barnes was a Lab Coordinator at NSU's Institute for Neuro-Immune Medicine.

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