The Solve ME/CFS Initiative Science and Discovery Plan

Taking a Comprehensive Approach to Solving ME/CFS

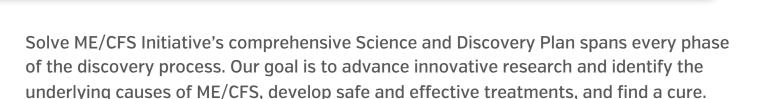


"Of the many mysterious illnesses that science has yet to unravel, ME/CFS has proven to be one of the most challenging."

Francis S. Collins, M.D., Ph.D., Director,– National Institutes of Health, 2015



the Discovery Process



CAPACITY BUILDING

BIOMARKER DISCOVERY PRE-CLINICAL RESEARCH

CLINICAL STUDIES & TRIALS

THERAPEUTIC DEVELOPMENT

FILLING KNOWLEDGE GAPS THROUGH ORIGINAL RESEARCH

We design and invest in innovative scientific studies to address severe knowledge gaps in ME/CFS. Priority areas include the fields of bioenergetics, neuroendocrine biology, and inflammation and immunity. Our partners in these pursuits are leading experts in the field of ME/CFS. SMCI has developed a portfolio of investments at some of the most prestigious medical centers and research laboratories in the United States and abroad.

- PATHWAYS AND BIOMARKER DISCOVERY Original research
 in the areas of bioenergetics, metabolomics, and lipidomics
 using high-throughput technology. Partners in this SMCIdirected research study include Dr. Maureen Hanson of Cornell
 University, Dr. Sue Levine of The Levine Clinic in NYC, and the
 biotech industry leader Metabolon.
- DRUG SCREENING AND THERAPEUTIC EXPLORATION Studies exploring potential drug targets in ME/CFS using advanced technologies and sophisticated drug screening platforms.
 Partners in this targeted initiative include leading experts at Memorial Sloan Kettering Cancer Center.

- CLINICAL TRIALS INITIATIVES Clinical interventions efforts using proprietary compounds, repurposed drugs or newly identified screening targets using our drug discovery platforms for rapid clinical applications. Program conducted by trusted clinical sites with committed partners.
- CELL-CYCLE ENERGETICS and IMMUNO-SENESCENCE STUDIES IN THE PATHOPHYSIOLOGY OF ME/CFS Research into the characterization of the disturbances in *enzymes*, receptors and cell-cycle regulators that control cell function using applied basic science principals and techniques. Partners in this targeted initiative include experts at Washington University in St. Louis, the University of Cambridge, UK and other partners around the world.
- DIET AND NUTRITIONAL SCIENCES IN ME/CFS Studies are aiming at characterizing nutrient sensing and signaling mechanisms in ME/CFS as well as dietary intervention, microbiome homeostasis and host-gene interaction with leading nutrition experts.

ESTABLISHING A PATIENT SCIENTIST PARTNERSHIP PROGRAM FOR DIAGNOSTIC TESTING AND CLINICAL APPLICATIONS

This program facilitates patient participation in decision-making and defining research priorities.

- ESTABLISHING THE ME/CFS FUND AT BRIGHAM AND WOMEN'S HOSPITAL This fund will support the cardiopulmonary and neuro-signaling research of Dr. David Systrom. focusing on the autonomic, peripheral neuropathy, and cardiovascular features of ME/CFS.
- ESTABLISHING THE CATHLEEN J. GLEESON PH.D. FUND FOR DIAGNOSTIC TESTING Studies focus on using non-invasive technology to measure tissue *metabolites* in ME/ CFS patients for diagnostic testing. This study is part of a collaborative partnership with the University of Washington and others.

INVESTING IN INNOVATIVE IDEAS AROUND THE WORLD

This program creates environments to attract, support and retain talent in the ME/CFS research community and helps awardees generate relevant data to compete for long-term federal funding; and facilitates collaboration and cross-pollination among researchers through the sharing of resources and access to additional programming and the organization's network.

RAMSAY AWARDS IN CLINICAL, PRECLINICAL, AND
EPIDEMIOLOGY RESEARCH Through seed grants and support
for pilot studies, our international Ramsay Awards Program
promotes original, bold research using a rigorous peerreview process. The portfolio of funded projects includes
gut microbiome, autoimmunity, bioenergetics, pathogenic
interaction, inflammation, brain imaging and metabolomics
studies. The research teams represent 6 universities,
4 countries and 3 continents.

FACILITATING CONNECTION AND PARTNERSHIPS: SMCI's MeetME TRAVEL AWARDS

SMCI's MeetME Travel Awards fund junior scientists and researchers from underrepresented groups to attend ME/CFS conferences and build scientific networks by paying their travel expenses for ME/CFS-focused meetings. A goal of this program is to attract new researchers to the field.

CREATING RELIABLE ELECTRONIC HEALTH RECORD SYSTEMS, DATA MANAGEMENT PLATFORMS, BIOBANKING AND PATIENT REGISTRIES

Our new, state-of-the-art national registry for ME/ CFS will enable clinical trials, further understanding of the natural history [e.g., onset, duration, triggers, progression] of this disease, and include built-in options for data sharing and collaboration among patients, researchers, and other disease organizations. This includes, beyond the health data, a repository of physical samples from patients to support the work of qualified researchers and accelerate discovery.

