July \_\_, 2017

Francis S. Collins, MD, PhD

Director, National Institutes of Health

One Center Drive, Building 1

Bethesda, MD 20892-0160

Dear Director Collins:

We are writing to you to request your continued leadership in advancing research with respect to one of the most promising areas of biomedical research opportunity – mitochondrial disease and dysfunction.

As you know, mitochondrial diseases are now recognized by most clinicians as a major health issue, and the continued identification of new genes, drugs, and environmental toxins that directly impair the capacity of the oxidative phosphorylation system to generate energy is leading to growing recognition that these diseases are collectively more common than previously realized. Moreover, there is a growing understanding of the essential role of impaired mitochondrial function in aging, degenerative diseases (such as Parkinson's and Alzheimer’s), diabetes, autistic spectrum disorders, and hearing loss. Research has also shown that mitochondrial dysfunction and related adverse health effects can occur later in life through changes in environmental factors such as temperature, nutrition, and even occupational tasks. There is no longer any question that research into mitochondrial disease provides a window into understanding and treating many conditions that afflict large segments of the population.

We appreciate the past and present work the NIH has undertaken to address the challenges posed by mitochondrial disease. These efforts include support of the trans-NIH Mitochondrial Disorders Working Group, the North American Mitochondrial Disease Consortium, the Mitochondrial Disease Sequence Data Resource Consortium, and a 2014 workshop on nutritional interventions in primary mitochondrial disorders that resulted in the publication of information on future research opportunities and resources on the topic in 2016.

We believe that, with your leadership, the NIH should undertake a sustained effort to make tangible gains in our understanding of mitochondrial function and disease. As many in the research scientific community have recommended, the NIH should be endeavoring to support pre-clinical research objectives such as the development of better mitochondrial disease models, drug testing in animal models, continued improvement in understanding mitochondrial physiology (and the specific pathophysiology of diverse subgroups of mitochondrial disease) as well as the development of refined technological tools to examine mitochondria at the molecular level.

Given that mitochondrial disease and dysfunction is a true area of cross-cutting research in both academia and industry – and that at least 17 institutes have some role in funding such research – there is a high impact intramural-extramural opportunity at hand. We strongly urge the Office of the Director to seize this opportunity and take the following actions:

* First, we ask that you promote mitochondrial disease within the Environmental influences on Child Health Outcomes (ECHO) program. Despite pursuing numerous topics related to the effect of environmental exposures and genetic influences on child health and development, the ECHO program has yet to meaningfully include mitochondrial disease as a focus within its funded research.
* Second, we ask that you competitively fund mitochondrial disease centers of excellence. We believe this is an opportune time to utilize the center grant mechanism to support locations that combine a critical mass of clinical care and research on mitochondrial disease. This would be an important next step toward developing treatments for mitochondrial disease and its sequelae.
* Third, we ask that you facilitate the inclusion of patients with mitochondrial disease in the Precision Medicine Initiative, now known as the *All of Us* Research Program. The *All of Us* Research Program is an unprecedented opportunity to develop individualized, genetically based treatments by studying a national cohort of over 1 million people. Inclusion of mitochondrial disease patients in the program will provide a wealth of information on the genetic basis of many rare and common diseases tied to mutations in mitochondrial DNA.

We appreciate very much your service to the nation and your consideration of the requests contained in this letter. We look forward to hearing from you regarding implementation of these recommendations.

Sincerely,