

# Understanding Mitochondria May Increase Healthspan



Gerald Shadel  
Professor, Pathology and Genetics

## CURRENT RESEARCH

Dr. Shadel studies the unique aspects of mitochondria that affect aging and disease processes

The U.S. Department of Health has projected that by 2030, people that are 65 years and older will represent 19% of the population. Healthcare providers and scientists have begun to recognize the immense challenges that an aging population creates, especially those concerning quality of life. Dr. Gerald Shadel, of Yale School of Medicine, directs his research towards understanding how mitochondria are involved in human disease and aging. As major sites of energy metabolism, mitochondria are commonly known as the "powerhouses of the cell." However, mitochondria are complex and dynamic cellular structures that do much more than just make energy for cells. For example, they can also determine if a cell lives or dies, help mount responses to stress, and help combat infections by triggering anti-viral and anti-bacterial responses. In addition, they house the essential mitochondrial genome (or mtDNA) that is inherited from your mother and can cause inherited diseases. Finally, they are major players in the aging process and common diseases such as Parkinson's disease, diabetes and cancer, and can have either beneficial or deleterious effects on health and longevity. By understanding how mitochondria work, Dr. Shadel hopes to protect or improve their function to combat many diseases associated with mitochondrial dysfunction and perhaps intervene in the aging process to allow humans to live healthier lives.

Dr. Shadel's research presents an entirely new approach to mitochondria's impact upon aging and disease. Therefore, he hopes to augment mitochondria in a way that researchers will improve the healthspan for individuals of all ages. Dr. Shadel's research has expansive ramifications for our society and economy...

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## AFFILIATION



Yale University

## EDUCATION

- Postdoctoral Training in Developmental Biology, 1997 . Stanford University
- Ph.D., in Biochemistry, 1992 . Texas A&M University
- B.S., in Chemistry, 1986 . University of Nevada, Las Vegas

## AWARDS

- Amgen Outstanding Investigator Award, 2007
- Breakthroughs in Gerontology (BIG) Award, 2007
- Glenn Award for Research in Biological Mechanisms of Aging, 2011

## RESEARCH AREAS

Health & Wellness, Longevity, Immortality Research

## FUNDING REQUEST

Your contributions will support the continued research of Dr. Gerald Shadel as he studies how mitochondria affect the aging and disease processes. Donations will support the necessary \$600K/year for personnel and equipment. Your support will also aid scientists as they seek new quality of life improvements for the aging populations and patients affected by many diseases processes. In addition, your support will fund Dr. Shadel's commitment to educating and investing in future scientists.