



BIG QUESTIONS, BREAKTHROUGH SCIENCE.

afar

american federation
for aging research

2018 ANNUAL REPORT

In Memoriam

AFAR dedicates this Annual Report to physician-researcher Arti Hurria, MD, a 2005 Paul B. Beeson Emerging Leaders Career Development Awards in Aging scholar.

A founding member of the Cancer and Aging Research Group and trailblazer of geroscience, Dr. Hurria was well-regarded for her collaborative and innovative research in geriatric oncology. She was committed not only to high quality patient-oriented research but also to training the next generation of geriatric oncology researchers.

We are grateful for her gifts to the field and inspired by her legacy.

BIG QUESTIONS, BREAKTHROUGH SCIENCE

Research, at its core, is about asking questions. Scientific inquiry has been an essential element of the American Federation for Aging Research's DNA from the beginning. As the promise of aging research gains more momentum and attention, many of us are increasingly curious about how and when this research will move from the laboratory into our lives.

In AFAR's 2018 Annual Report, we focus on three of the big questions most commonly asked about aging research today: Will there be a pill to slow aging? What can I do now to stay healthier, longer? Is it ever too late to improve your health?

To answer these questions, we highlight a small sample of the breakthrough science led by AFAR investigators. The research AFAR supports is driving a new generation of bold and creative clinical trials designed to translate this knowledge into novel drugs and therapies. Researchers also are advancing the science that shows how exercise, nutrition, and lifestyle interventions can improve health, even late in life.

AFAR experts are leading the conversation on how we can stay healthier, for longer, as we grow older. This year marked an important milestone for aging research in the medical community: the esteemed *Journal of the American Medical Association (JAMA)* invited five AFAR experts to contribute articles on geroscience, the research paradigm that seeks to understand the genetic, molecular, and cellular mechanisms that make aging a major risk factor and driver of common chronic conditions and diseases of older people.

In his *JAMA* article, board member S. Jay Olshansky, PhD, argues that "life extension should no longer be the primary goal of medicine when applied to people over age 65." Instead, he writes, "the principal outcome and most important metric of success should be the extension of healthspan."

James L. Kirkland, MD, PhD, President-Elect and 2012 grantee, explains in *JAMA* the potential for senolytic drugs to "transform care of older adults and patients with multiple chronic diseases that now can only be managed and have not been amenable to disease-modifying interventions."

And Scientific Director Steven Austad, PhD, Deputy Scientific Director Nir Barzilai, MD, and 2000 grantee Ana Maria Cuervo, MD, PhD, note in a co-authored article: "The discovery of cellular and molecular pathways that modulate healthy aging in diverse species across great evolutionary distances offers an unprecedented opportunity for intervention."

AFAR scientists are at the forefront of geroscience, and AFAR's generous donors make possible the breakthrough science you will read about here. The investments we make in extraordinary scientists throughout their careers builds the pipeline of innovative research that will help us live healthier, longer. Championed by AFAR, the foundation of basic research in the biology of aging inspires new questions every day, and we are excited by the answers.

William J. Lipton
Chair, Board of Directors

Stephanie Lederman
Executive Director

Will there be a pill to slow aging?

There won't be a single pill, but a number of drugs and compounds that—combined with exercise, diet, and other healthy behaviors—will help us live healthier, longer.

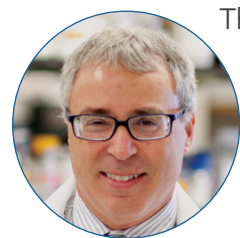


“Research into the basic biological processes of aging led by AFAR experts for nearly four decades has built a pipeline of about 50 compounds that show some degree of promise in targeting the biological processes of aging in animal models,” says AFAR President-Elect and grantee **James L. Kirkland, MD, PhD**.

We now know that aging is the major risk factor for most chronic diseases, including cancer, stroke, heart disease, type 2 diabetes, and Alzheimer's disease.

Moving into Clinical Trials

Currently, however, there is no U.S. Food and Drug Administration (FDA) indication for treatments that specifically target aging, as opposed to individual diseases.



That's why AFAR is planning a large clinical trial—Targeting Aging with Metformin (TAME)—designed to establish proof-of-concept that the condition of aging is a treatable composite of age-related diseases. Led by AFAR Deputy Scientific Director and multiple grantee **Nir Barzilai, MD (left)**, the TAME trial will investigate whether participants who take metformin, a widely used type 2 diabetes drug, experience delayed development or progression of age-related chronic diseases compared with those who take a placebo.

If the FDA considers aging an indication for treatment, the door would open to a range of drugs and compounds on the horizon to delay age-related diseases and extend years of health.

Senolytic drugs, which target damaged or senescent cells that tend to accumulate as we age, also are moving into clinical trials. Kirkland was part of the Mayo Clinic team that in 2015 reported the first senolytic drugs. In 2018, he was senior author on a study that found that a combination of the leukemia drug dasatinib and the supplement quercetin extended not just how long mice live, but also the time they live in good health. The first small pilot trial in humans was completed in early 2019, paving the way for larger trials.

In the Pipeline

AFAR experts are behind many of the scientific breakthroughs in aging research that have occurred in recent years—one or more of which may lead to new interventions:

Humanin, a mitochondria-derived peptide, prevents age-related cognitive decline in mice and is associated with improved cognitive age in humans, according to a 2018 study authored by grantee **Pinchas Cohen, MD**, and four other AFAR experts.

Fisetin, a natural product found in many fruits and vegetables, also extends health and lifespan in mice by clearing out senescent cells, a 2018 study reported. **Laura J. Niedernhofer, MD, PhD**, 2018 Vincent Cristofalo Rising Star Award in Aging Research recipient, co-authored the study along with **Kirkland** and grantees **Christin Burd, PhD (right)**, and **Ming Xu, PhD**.



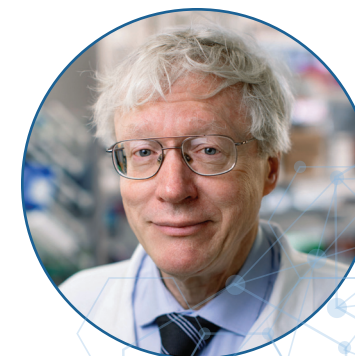
SS-31, a mitochondrial-targeted peptide, reverses age-related oxidation reduction (redox) stress and improves tolerance of exercise in aged mice, according to a 2018 study co-authored by grantee **David Marcinek, PhD**. His research has already led directly to human trials as he investigates whether shifts in the redox homeostasis of the cell are a key mechanism underlying loss of function and impaired stress response with age.

NAD boosters are molecules that restore levels of nicotinamide adenine dinucleotide (NAD), a compound found in all living cells that naturally decreases by half as we age. A 2018 study led by AFAR board member and grantee **David A. Sinclair, PhD**, showed that a NAD precursor, NMN, stimulates blood vessel growth and boosts stamina and endurance in mice. An earlier study found that it also restores the ability of cells in older mice to repair DNA to youthful levels. NAD boosters are already in Phase 1 and 2 clinical trials to test their safety and effectiveness in humans.

Kirkland cautions that further research and clinical trials will determine whether these and other compounds, which have been shown to target the biological processes of aging in animals, will work in humans. In addition, researchers will also need to test “intelligent combinations” of compounds and develop biomarkers to measure the effects of different approaches.

“AFAR researchers are spearheading drug therapies that show great hope for delaying multiple age-related diseases and extending healthspan.”

—**James L. Kirkland, MD, PhD**
AFAR President-Elect



What can I do now to stay healthier, longer?

A lot, as it turns out. Research increasingly supports how exercise and nutrition can help you live independently and in good health as you age.



“Science shows that everyday lifestyle choices such as regular exercise and paying attention to not only what you eat, but when you eat, can help you live longer and better,” says AFAR President and Beeson scholar **Mark S. Lachs, MD, MPH**.

AFAR-supported research is helping to deepen our understanding of the essential role exercise and nutrition play in delaying the illnesses and ailments many of us associate with growing older.

The Cellular Benefits of Exercise

While the fact that exercise is good for our health is widely known, we’re just now beginning to appreciate the extent of the lifetime health benefits it bestows. Regular moderate to vigorous physical activity lowers the risk of heart disease, stroke, diabetes, frailty, dementia, cancer, and early death.

AFAR experts are blazing new trails by exploring the impact exercise has even at the cellular level as we age.

AFAR board member **Rudy E. Tanzi, PhD**, recently found that exercise can improve cognition in a mouse model of Alzheimer’s. The study shows that exercise not only turns on neurogenesis, inducing the production of new neurons in the brain, but also cleans up the hostile inflammatory environment associated with Alzheimer’s—allowing the new cells to survive and thrive.

And the research of Beeson scholar **Ozioma Okonkwo, PhD (right)**, shows that exercise can help protect people against Alzheimer’s disease, even if they are at high genetic risk. Okonkwo’s research has found that a moderate-intensity active lifestyle actually boosts neuronal function. This probably is a pathway through which exercise prevents cognitive decline in middle life.



Research by grantee **Ian R. Lanza, PhD**, found that interval exercise in particular strengthens and increases mitochondria—the so-called powerhouses of cells—that had previously been weakened and reduced from aging.

Exercise can even help protect against harmful consequences of unhealthy diets on a cellular level. A study led by grantee **Nathan LeBrasseur, PhD**, found that exercise helps prevent diabetes-like symptoms by decreasing the effects of an unhealthy diet as well as levels of premature senescent cell accumulation.

It’s not just What You Eat, but When

Groundbreaking research in nutrition, dietary timing, and caloric restriction is led by grantees **Valter D. Longo, PhD**, and **Satchidananda Panda, PhD**.

Longo has pioneered research on a “fasting-mimicking diet” that includes periodically reducing caloric intake for five days. His studies have shown that a diet that imitates fasting by periodically reducing calories decreases risk factors for age-related diseases such as heart disease and cancer, among others.



Research by Panda (left) supports aligning our eating patterns with the natural circadian rhythms that are programmed into our DNA. That means limiting food intake to eight to 12 hours a day, and fasting the rest of the time. Research with mice shows that adhering to time-restricted eating reduced fat mass, reduced inflammation, reversed type 2 diabetes and fatty liver disease, and increased endurance—even when mice ate an unhealthy diet high in fat and sugar.

Three Beeson scholars are exploring the science behind the benefits of the Mediterranean diet. A 2017 study authored by **Claire McEvoy, PhD (right)**, **Kristine Yaffe, MD**, and **Kenneth Langa, MD, PhD**, found that participants aged 50 and older with middle- to high-level adherence to the diet were less likely to have poor cognitive performance than those with lower adherence levels. A study by McEvoy and Yaffe has since linked adult adherence to the Mediterranean diet to improved cognitive performance at midlife.



We already know that lifestyle choices can extend healthspan. AFAR-supported research is revealing the biological underpinnings of specific benefits from exercise and healthy eating habits.

“AFAR experts are advancing the science behind exercise, nutrition, and aging. What you do today can extend your health tomorrow.”

—Mark S. Lachs, MD, MPH
AFAR President



Is it ever too late to improve your health?

In a word, no. Research shows that both drug therapies and lifestyle interventions can improve health, even late in life.



“In recent years, research has accumulated that shows how health can be transformed in our later years through both lifestyle interventions and emerging drug therapies,” notes AFAR Scientific Director **Steven N. Austad, PhD**.

Some of the drugs now in the pipeline that target the biological processes of aging, such as senolytics and rapamycin, provide substantial benefits even when given very late in life, animal studies show. And changes in exercise and diet also can have a positive impact on health even into our eighth, ninth, or tenth decades.

Lab Studies Turn Back Time

In a groundbreaking 2009 study co-authored by grantee **Richard A. Miller, MD, PhD**, mice that were given rapamycin in their food starting at the mouse equivalent of about 60 human-years-old lived about 30 percent longer than untreated mice from the time they began receiving the drug.

Another study, co-authored by multiple grantee **Matt Kaeberlein, PhD**, found that mice that were given rapamycin at the human equivalent of 70 years old also showed health improvements. Kaeberlein, who is the Co-Director of the Nathan Shock Center of Excellence in the Biology of Aging at the University of Washington, is now exploring rapamycin’s impact on canine longevity in order to better understand human healthspan through the Dog Aging Project.

Likewise, senolytic drugs, which reduce the number of senescent cells that accumulate throughout the body with age, have shown remarkable effects in older mice, improving kidney, heart, and lung functions, among other health benefits.

President-Elect **James L. Kirkland, MD, PhD**, and five AFAR grantees and/or awardees—**Yuji Ikeno, MD, PhD**, **Nathan LeBrasseur, PhD**, **Laura Niedernhofer, MD, PhD**, **Allyson Palmer, MD, PhD** (right), and **Ming Xu, PhD**—found that in mice, senolytic drugs that clear away these so-called “zombie cells” can improve health and extend life. The team gave senolytics to mice who are naturally aging, roughly equivalent to 80 human years old. Compared to untreated mice, these very old mice had a lower risk of early death and their post-treatment lifespan increased by about 36 percent.



Studies exploring how blood from younger animals can rejuvenate the cells and tissues of older animals also hold promise. Much of this research has been led by board member and multiple grantee **Thomas A. Rando, MD, PhD**.

“In recent studies, transfusing blood or even serum of blood from young mice into mice at the human equivalent of about 50 years old improved the health of their muscles, hearts, and brains,” Austad says. “There’s no reason to think that similar effects wouldn’t be found in even older mice.”

Reinvigorating Health through Exercise

The benefits of exercise—even if started late in life—are well supported. One study of especially frail people in their 90s found that three months of weight training significantly enhanced their strength, increased their walking speed, improved their balance, and prevented falls, even if they had previously been sedentary their whole lives.

AFAR-funded scientists are conducting research that has implications for late-in-life exercise and muscle strength.



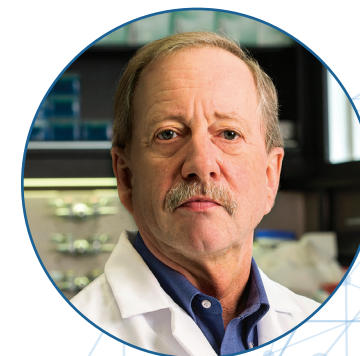
Grantee **Troy J. Cross, PhD** (left), is studying how neural information arising from breathing and limb muscles may be involved in increased perceptions of breathlessness and limb fatigue as we age. His research may identify new therapeutic targets that could reduce these symptoms during physical activity, increasing the likelihood that older people will exercise more frequently, for longer periods, and at higher intensities.

Grantee **Rizwan Qaisar, PhD**, is studying age-related muscle weakness and atrophy in mice, with a goal of using a compound called CND1163 or a related compound to help prevent muscle loss in people as they age.

At any age, exercise and drug therapies can help people live healthier, science shows.

“AFAR investigators are exploring how both drug and lifestyle interventions can revitalize health and reverse damage in our 60s, 70s, 80s, or even 90s. We can improve our health even late in life.”

—Steven N. Austad, PhD
AFAR Scientific Director



2018 AFAR GRANTS

AFAR supported 58 investigators with more than \$3,300,000 in funding through our Biology of Aging and Physician Training grants portfolio in 2018.

AFAR grants are selected through a meticulous process. AFAR's scientifically rigorous grant reviews help ensure that only the most promising science receives our support. Members of our Scientific Review Committees are accomplished scientists representing a wide range of expertise in biomedical research on aging. They volunteer their time and expertise to review hundreds of grant applications each year and select scientists and research projects that have the greatest likelihood of making significant contributions to help us stay healthier longer as we grow older. Many are also past AFAR grantees, and they play an important role in identifying the talent and research that AFAR supports. We are grateful for their contributions, which are essential in shaping the impact and reputation of AFAR's grant programs.



Since 1981, AFAR has provided more than \$178 million to more than 4,100 investigators and students.

above: 2000 AFAR grantee Ana Maria Cuervo, MD, PhD, mentors a new generation of researchers at Albert Einstein College of Medicine. Cuervo also received AFAR's Vincent Cristofalo Rising Star Award in Aging Research in 2008 and is Co-Director of Einstein's Nathan Shock Center of Excellence in the Basic Biology of Aging.

BIOLOGY OF AGING GRANTS

AFAR's Biology of Aging grant programs fuel the pipeline of researchers working to understand the basic biology of aging and age-related diseases in order to extend our years of health and decrease periods of sickness. Several grant programs help early career scientists acquire the knowledge, skills, and experience they need to obtain higher-level grants as they build a body of research. Just as critical are grants tailored to mid-career and senior investigators, which allow them to remain focused on aging as they expand their research programs.

GLENN FOUNDATION FOR MEDICAL RESEARCH AND AFAR GRANTS FOR JUNIOR FACULTY

Joshua Baker, MD, MSCE
Assistant Professor of Medicine,
University of Pennsylvania

Daniel Berry, PhD
Assistant Professor,
Cornell University

Benjamin Cosgrove, PhD
Assistant Professor,
Cornell University

Isha Jain, PhD
Sandler Faculty Fellow,
University of California, San Francisco

Kishore Kuchibhotla, PhD
Assistant Professor,
Johns Hopkins University

Po-Ru Loh, PhD
Assistant Professor,
Brigham and Women's Hospital /
Harvard Medical School

Andreas Pfenning, PhD
Assistant Professor,
Carnegie Mellon University

Andrew Pickering, PhD
Assistant Professor,
UT Health San Antonio

Vivek Venkatachalam, PhD
Assistant Professor,
Northeastern University

Kevin Wang, MD, PhD
Assistant Professor,
Stanford University School of Medicine

Deborah Winter, PhD
Assistant Professor,
Northwestern University,
Feinberg School of Medicine

Nilay Yapici, PhD
Assistant Professor,
Cornell University

Selection Committee

Pinchas Cohen, MD, *Chair*
University of Southern California

Steve Austad, PhD
University of Alabama at Birmingham

Dena Dubal, MD, PhD
University of California, San Francisco

Henri Jasper, PhD
The Buck Institute / Genentech

Salvatore Oddo, PhD
Arizona State University
School of Life Sciences

Yousin Suh, PhD
Albert Einstein College of Medicine

AFAR is grateful to the Glenn Foundation for Medical Research for its support of this grant program.

GLENN FOUNDATION
FOR MEDICAL RESEARCH



Other major funders include: The AFAR Board of Directors, Proceeds from AFAR's 2017 Luncheon and 2018 Dinner, Anonymous, The James A. and Dorothy R. Brunn Foundation, David W. Gore, The Hearst Foundation, The William G. and Helen C. Hoffman Foundation, Diana Jacobs Kalman, Diane Nixon, and The Irving S. Wright Endowment

GLENN FOUNDATION FOR MEDICAL RESEARCH POSTDOCTORAL FELLOWSHIPS IN AGING RESEARCH

Joel Blanchard, PhD
Postdoctoral Associate,
Massachusetts Institute of Technology

Jorge Castillo-Quan, MD, PhD
Research Fellow,
Harvard University

Ukrae Cho, PhD
Research Associate,
The Salk Institute for Biological Studies

Ching-Chieh Chou, PhD
Postdoctoral Research Fellow,
Stanford University

Susan Eliazer, PhD
Postdoctoral Fellow,
University of California, San Francisco

Karl Miller, PhD
Postdoctoral Associate,
Sanford-Burnham Prebys
Medical Discovery Institute

Sean James Miller, PhD
Postdoctoral Fellow,
Stanford University School of Medicine

Sharon Owino, PhD, MSCR
Postdoctoral Fellow,
Emory University

Jyung Mean Son, PhD
Postdoctoral Scholar,
University of Southern California

Kristoffer Svensson, PhD
Postdoctoral Researcher,
University of California, San Diego

Stephen Treaster, PhD
Postdoctoral Fellow,
Boston Children's Hospital

Selection Committee
Thomas A. Rando, MD, PhD, *Chair*
Stanford University

Rozalyn Anderson, PhD
University of Wisconsin

Catherine Kaczorowski, PhD
The Jackson Laboratory

Edward Koo, MD
University of California, San Diego and
National University of Singapore

Meng Wang, PhD
Baylor College of Medicine

Ashley Webb, PhD
Brown University

GLENN FOUNDATION FOR MEDICAL RESEARCH BREAKTHROUGHS IN GERONTOLOGY (BIG) AWARDS

Peter Adams, PhD
Professor,
Sanford-Burnham Prebys
Medical Discovery Institute

Selection Committee
Charlotte Peterson, PhD, *Chair*
University of Kentucky

Lisa Ellerby, PhD
The Buck Institute

M. Brandon Westover, MD, PhD
Associate Professor of Neurology,
Massachusetts General Hospital

Veronica Galvan, PhD
UT Health San Antonio

Vera Gorbunova, PhD
University of Rochester

David Marcinek, PhD
University of Washington Medical Center

GLENN FOUNDATION
FOR MEDICAL RESEARCH



AFAR is grateful to the Glenn Foundation for Medical Research for its support of these grant programs.



left: AFAR's annual scientific meetings bring together grantees, senior leaders in the field, and foundation representatives to discuss our investigators' recent research and emerging insights from the field. AFAR is grateful to The Rosalinde and Arthur Gilbert Foundation and the Glenn Foundation for Medical Research for supporting these meetings, held in Santa Barbara, CA.

NEW INVESTIGATOR AWARDS IN ALZHEIMER'S DISEASE

Xiaobo Mao, PhD
Assistant Professor,
Johns Hopkins University

Andrea Soranno, PhD
Assistant Professor,
Washington University in St. Louis

Vivek Swarup, PhD
Assistant Professor,
University of California, Irvine



THE ROSALINDE AND ARTHUR
GILBERT FOUNDATION

Selection Committee

Grace (Beth) Stutzmann, PhD, *Chair*
Rosalind Franklin University

Kim Green, PhD
University of California, Irvine

Itamar Kahn, PhD
Technion - Israel Institute of Technology

M. Paul Murphy, PhD
University of Kentucky

AFAR is grateful to The Rosalinde and Arthur Gilbert Foundation for its support of this grant program.

SCHOLARSHIPS FOR RESEARCH IN THE BIOLOGY OF AGING

Andree-Anne Berhiau
Seattle Children's Research Institute /
The Medical University of South Carolina

Ryan Castro
Virginia Polytechnic Institute and
State University

Michael Cooney
Harvard University

Albina Ibrayeva
University of Southern California /
The Buck Institute

Andrew Kane
Harvard University

Gavin Pharaoh
University of Oklahoma Health Sciences Center

Jason Wan
Georgia Institute of Technology

Xiaotian Wu
Brown University

Selection Committee

Paul Agris, PhD, *Chair*
Duke University School of Medicine

Todd Cohen, PhD
University of North Carolina at Chapel Hill
School of Medicine

Anna Csiszár, MD, PhD
University of Oklahoma Health Sciences Center

Bess Frost, PhD
UT Health San Antonio

Vyacheslav Labunskyy, PhD
Boston University School of Medicine

David Lombard, MD, PhD
University of Michigan

John Newman, MD, PhD
The Buck Institute and University of
California, San Francisco

ADVANCING TRANSLATION, SUPPORTING POSTDOCS

The Irene Diamond Fund and AFAR established a new award in 2017 to help advance research poised for translation, led by early-career investigators. The Irene Diamond Fund/AFAR Postdoctoral Transition Awards in Aging program focuses on basic aging discoveries that have clearly articulated pathways toward clinical relevance and impacting the health and well-being of older adults. To date, the program has supported 15 postdoctoral fellows, whose research has implications for treating a range of age-related issues including cognitive impairment, exercise intolerance, frailty and inflammation, immune health, muscle loss, osteoporosis, post-stroke recovery, and more.



Research by 2018 Diamond/AFAR postdoctoral fellow **Jenna Bartley, PhD**, for example, may translate to interventions that improve general immune responses in older people. Bartley is studying whether the drug metformin can enhance T-cell function and boost the flu vaccine's effectiveness in vulnerable older adults. Reduced response to the flu vaccine leaves many people age 65 and older unprotected from influenza—one of the leading killers of older adults.

Bartley notes that receiving this support at this point in her research path “will allow me to develop my own independent research line and grow tremendously as a scientist. I believe this grant has helped solidify my future career in academia and will be integral to my future success and transition to faculty.”

AFAR is grateful to board member Peter Kimmelman for his leadership, on behalf of AFAR and the Irene Diamond Fund, in developing this program.

THE IRENE DIAMOND FUND /AFAR POSTDOCTORAL TRANSITION AWARDS IN AGING

Bumsoo Ahn, PhD
Postdoctoral Fellow,
Oklahoma Medical Research Foundation

Jenna Bartley, PhD
Postdoctoral Fellow,
University of Connecticut School of Medicine

John Collins, PhD
Postdoctoral Fellow,
University of North Carolina at Chapel Hill

Troy Cross, PhD
Senior Research Fellow,
Mayo Clinic

Shelli Farhadian, MD, PhD
Postdoctoral Fellow,
Yale University School of Medicine

Amy Gleichman, PhD
Postdoctoral Fellow,
University of California, Los Angeles

AFAR is grateful to The Irene Diamond Fund for its support of this grant program.

Claire Gustafson, PhD
Postdoctoral Fellow,
Stanford University

Emilie Reas, PhD
Postdoctoral Fellow,
University of California, San Diego

Selection Committee
Jeremy Walston, MD, Chair
Johns Hopkins University School of Medicine

Julie Glowacki, PhD
Brigham and Women's Hospital

Angela Jefferson, PhD
Vanderbilt University Medical Center

Kejal Kantarci, MD
Mayo Clinic, Rochester

Sean Leng, MD, PhD
Johns Hopkins University School of Medicine

Christian Sell, PhD
Drexel University College of Medicine

PHYSICIAN TRAINING GRANTS

AFAR's Physician Training grant programs help faculty researchers and medical students become academic and clinical leaders prepared to meet the increasing healthcare needs of an ever-growing older population. The necessity to sensitize physicians to the needs of older patients could not be clearer, and AFAR's Physician Training grants strengthen the research that will help older Americans stay healthier, longer.

THE PAUL B. BEESON EMERGING LEADERS CAREER DEVELOPMENT AWARDS IN AGING (K76)

Rebecca Brown, MD, MPH
Assistant Professor of Medicine,
University of Pennsylvania

Kathryn Callahan, MD
Assistant Professor,
Wake Forest School of Medicine

Andrew Cohen, MD, DPhil
Assistant Professor of Internal Medicine
(Geriatrics), Yale University

Guido Falcone, MD, ScD, MPH
Assistant Professor of Neurology,
Yale School of Medicine

Andrea Gilmore-Bykovskyi, PhD, RN
Assistant Professor,
University of Wisconsin-Madison

Rasheeda Hall, MD
Assistant Professor of Medicine,
Duke University Medical Center

Biren Kamdar, MD, MBA, MHS
Assistant Clinical Professor,
University of California, San Diego
School of Medicine

Jennifer Portz, PhD, MSW
Assistant Professor,
Colorado State University

Nancy Schoenborn, MD
Assistant Professor of Medicine,
Johns Hopkins University

Indranil Sinha, MD
Assistant Professor of Surgery,
Harvard Medical School/
Brigham and Women's Hospital

Program Advisory Committee
Thomas Gill, MD, Chair
Yale University School of Medicine

Liana Apostolova, MD, MSc, FAAN
Indiana University School of Medicine

Malaz Boustani, MD
Indiana University School of Medicine

Cynthia M. Carlsson, MD, MS
University of Wisconsin School of Medicine
and Public Health

Wes Ely, MD, MPH, FCCP
Vanderbilt University

Alison Moore, MD, MPH
University of California, San Diego

Nicolas Musi, MD
UT Health San Antonio

Consuelo Wilkins, MD
Vanderbilt University

Kristine Yaffe, MD
University of California, San Francisco

2018 Beeson Scholars are fully funded through the National Institute on Aging (NIA) of the National Institutes of Health (NIH). The Beeson Annual Meetings are supported through The John A. Hartford Foundation and the NIA.

MEDICAL STUDENT TRAINING IN AGING RESEARCH (MSTAR) PROGRAM

MSTAR students privately funded at Weill Cornell Medicine

Sarah Dion - University of Cincinnati College of Medicine
James Gang, Max Morin, Tatiana Requiño - Weill Cornell Medicine

Funded by Lile and John Gibbons, The John A. Hartford Foundation, John and Rebecca Mach, Earl (Trip) and Allyson Samson, Norman Volk, and the Kathryn Wriston Fund.

CLARENCE PEARSON FELLOWSHIP IN GLOBAL HEALTH AND AGING



AFAR board member Clarence Pearson dedicated his career to building relationships across the public, private, and nonprofit sectors in order to raise awareness about the impact of the growing aging population worldwide. In his honor, this fellowship provides graduate public health students the opportunity to gain deeper knowledge of scientific, clinical, and social science research in age-related health concerns. Antonella Fegan (left), an MPA candidate at Seton Hall University, analyzed messaging strategies of aging research organizations worldwide during her fall 2018 Pearson Fellowship.

WORKING WITH NIA TO FOSTER RESEARCH COLLABORATIONS ACROSS DISCIPLINES

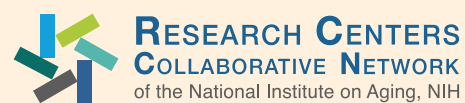
The National Institute on Aging (NIA) of the National Institutes of Health (NIH) selected AFAR to serve as the Coordinating Center for the Nathan Shock Centers of Excellence in the Basic Biology of Aging to strengthen coordination and cooperation among the Shock Centers as well as increase outreach to the aging research field. Together with Wake Forest University School of Medicine, AFAR manages the new Research Centers Collaborative Network (RCCN), which aims to catalyze cross-disciplinary research across the six NIA Center Programs.

AFAR has served as the Coordinating Center for the Nathan Shock Centers (NSC), which is funded by NIA's Division of Aging Biology, since 2017. AFAR's role as the NSC Coordinating Center includes:

- Enhancing NSC external communications, expanding information resources, and serving as scientific exchange forum among NSC sites
- Working with the NSC directors to develop and implement data quality control and sharing between centers and with the scientific community at large
- Providing logistical support to the NSCs for interactions with NIA staff
- Developing and implementing evaluation strategies for assessing the effectiveness of the NSCs and the Coordinating Center.



**NATHAN SHOCK CENTERS
OF EXCELLENCE IN THE
BASIC BIOLOGY OF AGING**



In 2018, the NIA selected AFAR and Wake Forest School of Medicine to co-manage the new RCCN. The RCCN supports multi-disciplinary efforts in aging research across

the NIA center programs through five complementary strategies: conferences, pilot programs, early career faculty education, web-based resource identification tools, and fundraising development. The NIA center programs include: Alzheimer's Disease Research Centers (ADRCs), Centers on the Demography and Economics of Aging (CDEAs), Claude D. Pepper Older Americans Independence Centers (OAICs), Resource Centers for Minority Aging Research (RCMARs), and Roybal Centers for Translational Research on Aging, as well as the Nathan Shock Centers. These NIA center programs include more than 80 individual centers.

Through our leadership of these NIA programs, AFAR deepens its commitment to interdisciplinary and multidisciplinary research to improve the health of older adults.

Visit www.nathanshockcenters.org and www.rccn-aging.org to learn more.

NATIONAL SCIENTIFIC ADVISORY COUNCIL (NSAC)

AFAR is grateful for the commitment of our NSAC members for lending their scientific expertise to our grant review process.

Peter Adams, PhD
Glasgow University

Shawn Ahmed, PhD
University of North Carolina

Mikhail Alexeyev, PhD
University of South Alabama

Richard Altschuler, PhD
University of Michigan

Rozalyn Anderson, PhD
University of Wisconsin, Madison

Javier Apfeld, PhD
Northeastern University

Rajendra Apte, MD, PhD
Washington University

Ottavio Arancio, MD, PhD
Columbia University

Nicole Ashpole, PhD
University of Mississippi, School of Pharmacy

Kaveh Ashrafi, PhD
University of California, San Francisco

Brian Bacsikai, PhD
MassGeneral Institute for Neurodegenerative Diseases

Darren James Baker, PhD
Mayo Clinic

Joseph Baur, PhD
University of Pennsylvania

Narayan Bhat, PhD
Medical University of South Carolina

Paula Bickford, PhD
University of South Florida

Gal Bitan, PhD
Geffen School of Medicine at UCLA

Andrea Bodnar, PhD
Gloucester Marine Genomics Institute

Lynda Bonewald, PhD
Indiana University

Robert Brosh, Jr., PhD
National Institute on Aging, NIH

Holly Brown-Borg, PhD
University of North Dakota SOM & Health Science

Anne Brunet, PhD
Stanford University

Christin Burd, PhD
Ohio State University

Dongsheng Cai, MD, PhD
Albert Einstein College of Medicine

S. Thomas Carmichael, MD, PhD
Geffen School of Medicine at UCLA

Christy Carter, PhD
University of Florida

Jane Cauley, DrPH
University of Pittsburgh

Yung Chang, PhD
Arizona State University

Ved Chauhan, PhD
New York State Institute for Basic Research in
Developmental Disabilities

Danica Chen, PhD
University of California, Berkeley

Zheng Chen, PhD
University of Texas Health Science Center at Houston

Wallace Chick, PhD
University of Colorado Denver

Harvey Jay Cohen, MD
Duke University Medical Center

Lucio Comai, PhD
University of Southern California

Cheryl Conover, PhD
Mayo Clinic College of Medicine

Jon Corton, PhD
US Environmental Protection Agency

Kelvin Davies, PhD
University of Southern California

Abbe de Vallejo, PhD
University of Pittsburgh School of Medicine

Ferenc Deak, MD, PhD
University of Oklahoma Health Science Center

Lucian Del Priore, MD, PhD
Yale University

Fabio Demontis, PhD
St. Jude Children's Research Hospital

Nancy Dennis, PhD
The Pennsylvania State University

Vishwa Dixit, DVM, PhD
Yale University School of Medicine

Linda Dokas, PhD
University of Michigan

Anthony Donato, PhD
University of Utah

Peter Douglas, PhD
UT Southwestern Medical Center

Isabelle Draper, PhD
Tufts Medical Center, Molecular Cardiology Research Institute

Monica Driscoll, PhD
Rutgers University

Gustavo Duque, MD, PhD
University of Melbourne

Atanu Duttaroy, PhD
Howard University

Joseph El Khoury, MD
Massachusetts General Hospital

Paul Eslinger, PhD
Penn State Hershey Medical Center

James Fadel, PhD
University of South Carolina School of Medicine

Roger Fielding, PhD,
Jean Mayer Human Nutrition Research Center on Aging,
Tufts University

Els Fieremans, PhD
New York University of Medicine

Caleb Finch, PhD
University of Southern California

Mark Fisher, MD
University of California Irvine Medical Center

Alfred Fisher, MD, PhD UT Health San Antonio	Eric Howard, PhD University of Oklahoma Health Sciences Center	Christiaan Leeuwenburgh, PhD University of Florida	Philipp Oberdoerffer, PhD National Cancer Institute, NIH
Tracy Fitzgerald, PhD National Institute on Deafness and Other Communication Disorders/Division of Intramural Research, NIH	Ao-Lin Hsu, PhD University of Michigan	Sean Leng, MD, PhD Johns Hopkins University	Bradley Olwin, PhD University of Colorado Boulder
Thomas Flatt, PhD University of Fribourg	Patrick Hu, MD, PhD Vanderbilt University School of Medicine	Lisa Lesniewski, PhD University of Utah	David Orren, PhD University of Kentucky College of Medicine
Jerome Fleg, MD National Heart, Lung, and Blood Institute, NIH	Xudong Huang, PhD Massachusetts General Hospital	Rodney Levine, MD, PhD National Heart, Lung, and Blood Institute, NIH	Junko Oshima, MD, PhD University of Washington School of Medicine
Sebastian Fugmann, PhD Chang Gung University	Karen Hubbard, PhD The City College of New York	Harry LeVine, III, PhD University of Kentucky	Mary Ann Ottinger, PhD University of Houston
David Gardiner, PhD University of California, Irvine	Robert Hurst, PhD University of Oklahoma Health Sciences Center	Sergiy Libert, PhD Cornell University	Adam Pack, PhD Utica College
Arjumand Ghazi, PhD University of Pittsburgh	Bradley Hyman, MD, PhD Massachusetts General Hospital	Jonathan Lin, MD, PhD University of California, San Diego	Satchidananda Panda, PhD Salk Institute
Jadwiga Giebultowicz, PhD Oregon State University	Yuji Ikeno, MD, PhD UT Health San Antonio	Su-Ju Lin, PhD University of California, Davis	Vassilios Papadopoulos, DPharm, PhD University of Southern California
Matthew Gill, PhD The Scripps Research Institute-Scripps Florida	Shin-ichiro Imai, MD, PhD Washington University School of Medicine	Rui-Ming Liu, MD, PhD University of Alabama at Birmingham	Amy Pasquinelli, PhD University of California, San Diego
Thomas Gill, MD Yale University School of Medicine	Kailiang Jia, MD, PhD Florida Atlantic University	Richard Loeser, Jr., MD University of North Carolina at Chapel Hill	Hemal Patel, PhD University of California, San Diego
Julianne Glowacki, PhD Brigham and Women's Hospital	Leanne Jones, PhD University of California, Los Angeles	Jianyuan Luo, PhD Peking University Health Science Center	Viviana Perez, PhD Oregon State University
Todd Golde, MD, PhD University of Florida	Jan Karlseder, PhD Salk Institute for Biological Studies	Fernando Macian, MD, PhD Albert Einstein College of Medicine	Daniel Perl, MD Uniformed Services University of the Health Sciences
Scott Gordon, PhD Kennesaw State University	Jason Karpac, PhD Texas A&M University Health Science Center	Kathy Magnusson, DVM, PhD Oregon State University	Robert Petersen, PhD Central Michigan University
Andrea Gore, PhD The University of Texas at Austin	Rajesh Khanna, PhD University of Arizona	William Mair, PhD Harvard School of Public Health	Daniel Peterson, PhD Rosalind Franklin University of Medicine & Science
Jorg Goronzy, MD, PhD Emory University	Konstantin Khrapko, PhD Northeastern University	Goldis Malek, PhD Duke University, Albert Eye Research Institute	Michael Petrascheck, PhD The Scripps Research Institute
Cheryl Grady, PhD Rotman Research Institute at Baycrest	Mark Kindy, PhD University of South Florida College of Pharmacy	David Marcinek, PhD University of Washington Medical Center	Scott Pletcher, PhD University of Michigan
Kim Green, PhD University of California, Irvine	Amos Korczyn, MD, MSc Tel Aviv University	Mitch McVey, PhD Tufts University	Daniel Promislow, DPhil University of Washington
Eric Greer, PhD Harvard Medical School/ Children's Hospital Boston	Deborah Kristan, PhD California State University San Marcos	Alicia Melendez, PhD Queens College-CUNY	Jacob Raber, PhD, Oregon National Primate Research Center, Oregon Health & Science University
Lisbet Haglund, PhD Montreal General Hospital	George Kuchel, MD University of Connecticut Health Center	Keir Menzies, PhD University of Ottawa Interdisciplinary School of Health Sciences	Peter Rabinovitch, MD, PhD University of Washington
Marcia Haigis, PhD Harvard Medical School	Albert La Spada, MD, PhD, FACMG University of California, San Diego	Dana Miller, PhD University of Washington	Jon Ramsey, PhD University of California
Jeffrey Hausdorff, MSME, PhD Harvard Medical School/Tel-Aviv Sourasky Medical Center	Vyacheslav Labunskyy, PhD Boston University School of Medicine	James Mitchell, PhD Harvard University	Qitao Ran, PhD UT Health San Antonio
Cole Haynes, PhD University of Massachusetts Medical School	Mary Jo LaDu, PhD University of Illinois at Chicago	David Morgan, PhD Michigan State University	P. Hemachandra Reddy, PhD Texas Tech University Health Science Center
Laura Haynes, PhD University of Connecticut Health Center	Patrick Lajoie, PhD The University of Western Ontario	Shin Murakami, PhD Touro University-California	May Reed, MD University of Washington School of Medicine
Denise Head, PhD Washington University	Ashish Lal, PhD National Cancer Institute, NIH	M. Paul Murphy, PhD University of Kentucky	Michael Rich, MD Washington University School of Medicine
Janet Henderson, PhD Research Institute-McGill University Health Centre	Bruce Lamb, PhD Indiana University School of Medicine	Radhika Muzumdar, MD Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center	Russell Richardson, PhD University of Utah
Ahmad Heydari, PhD Wayne State University	Dudley Lamming, PhD University of Wisconsin-Madison	Tim Nagy, PhD University of Alabama at Birmingham	Arlan Richardson, PhD University of Oklahoma Health Science Center
Jason Hinman, MD, PhD University of California, Los Angeles	Thomas Lang, PhD University of California, San Francisco	James Nelson, PhD UT Health San Antonio	Paul Robbins, PhD The Scripps Research Institute, Scripps Florida
Fuki Hisama, MD University of Washington	Matthew LaVoie, PhD Brigham and Women's Hospital/ Harvard Medical School	Laura Niedernhofer, MD, PhD University of Minnesota	Jack Rogers, PhD Harvard Medical School
Steve Horvath, PhD, ScD University of California, Los Angeles	Frank Lee, MD, PhD University of Pennsylvania	Kristy Nielson, PhD Marquette University	Edwin Rubel, PhD University of Washington
Darlene Howard, PhD Georgetown University	William Lee, PhD The David Axelrod Institute	Janko Nikolich-Zugich, MD, PhD University of Arizona College of Medicine	Olav Rueppell, PhD University of North Carolina at Greensboro
	Menq-jeer Lee, PhD Wayne State University School of Medicine	Mariana Nikolova-Karakashian, PhD University of Kentucky	Martin Sadowski, MD, PhD New York University School of Medicine

Hiroshi Saito, PhD
University of Kentucky College of Medicine

Adam Salmon, PhD
Barshop Institute / UT Health San Antonio

Paul Salvaterra, PhD
Beckman Research Institute of the City of Hope

Andrew Samuelson, PhD
University of Rochester Medical Center

Ann Marie Schmidt, MD
New York University Langone Medical Center

Steven Schreiber, MD
University of California, Irvine School of Medicine

Michael Seidman, PhD
Laboratory of Molecular Gerontology,
National Institute on Aging, NIH

Christian Sell, PhD
Drexel University

Colin Selman, PhD
University of Glasgow

Sudha Sharma, PhD
Howard University

Zelton Sharp, PhD
UT Health San Antonio

Eric Shelden, PhD
Washington State University

Paul Shiels, PhD
University of Glasgow

Alan Shiels, PhD
Washington University School of Medicine

Barbara Shukitt-Hale, PhD
USDA, Human Nutrition Research Center on Aging at
Tufts University

Josh Shulman, MD, PhD
Baylor College of Medicine

Einar Sigurdsson, PhD
New York University School of Medicine

Meharavan Singh, PhD
University of North Texas Health Science Center

Erik Snapp, PhD
Howard Hughes Medical Institute

William Sonntag, PhD
University of Oklahoma Health Sciences Center

John Sorkin, MD, PhD
University of Maryland School of Medicine

Alexander Soukas, MD
Massachusetts General Hospital / Harvard Medical School

Joseph Starnes, PhD
University of North Carolina at Greensboro

Randy Strong, PhD
University of Texas Health Science Center

Yousin Suh, PhD
Albert Einstein College of Medicine

Patrick Sullivan, PhD
The University of Kentucky Chandler College of Medicine

Nathalie Sumien, PhD
University of North Texas Health Science Center

Yuxiang Sun, MD, PhD
Texas A&M University

Mark Supiano, MD
University of Utah

Karen Swisshelm, PhD
University of Colorado Denver

Nektarios Tavernarakis, PhD
Hellas Medical School, University of Crete

J. Andrew Taylor, PhD
Harvard Medical School / Spaulding Hospital Cambridge

Qiang Tong, PhD
Baylor College of Medicine

John Tower, PhD
University of Southern California

Kelly Tremblay, PhD
University of Washington

R. Scott Turner, MD, PhD
Georgetown University Medical Center

Dennis Turner, MD
Duke University Medical Center

Zoltan Ungvari, MD, PhD
University of Oklahoma Health Sciences Center

Dario Riccardo Valenzano, PhD
Max Planck Institute for the Biology of Ageing

Linda Van Eldik, PhD
University of Kentucky

Holly Van Remmen, PhD
Oklahoma Medical Research Foundation

Marc Vermulst, MSc, PhD
University of Pennsylvania

Ruben Vidal, PhD
Indiana University School of Medicine

David Vilchez, PhD
CECAD, University of Cologne

Amy Wagers, PhD
Harvard University

Meng Wang, PhD
Baylor College of Medicine

Xin Wang, PhD
Brigham and Women's Hospital

Huber Warner, PhD

Gordon Warren, PhD
Georgia State University

Ashley Webb, PhD
Brown University

Noah Weisleder, PhD
The Ohio State University Wexner Medical Center

Edward Weiss, MEd, PhD
Saint Louis University

Fletcher White, PhD
Indiana University School of Medicine

John Woodard, PhD
Wayne State University

Dean Yamaguchi, MD, PhD
VA Greater Los Angeles Healthcare System

Andrew Yoo, PhD
Washington University School of Medicine

Yixian Zheng, PhD
Carnegie Institution for Science

Shuanhu Zhou, PhD
Brigham and Women's Hospital / Harvard Medical School

Nicholas Ziats, PhD
Case Western Reserve University

Driss Zoukhri, PhD
Tufts University

2018 DONORS

*AFAR is deeply grateful to our donors
for their generous support. Their continued
contributions enable us to fulfill our mission
and strengthen our programs.*



AFAR BOARD OF DIRECTORS

Steven N. Austad
Laura Barzilai
Nir Barzilai
Charles and Barbara Beever
Richard Besdine
Caroline S. Blaum
Harvey Jay and Sandra Cohen
Mark Collins
Ann M. Connolly and Gordon Medenica
Nathaniel E. David
Alexandra L. Gatje
Michael Hodin
Thomas and Marilyn Kahn
Peter and Elbrun Kimmelman
Mark S. Lachs
Kevin Lee and Leslie Vosshall
Dr. Carol M. and Mr. William J. Lipton
Roger and Christine McCarter
S. Jay Olshansky
Thomas A. Rando
John Rhodes and Lucy Allen
David A. Sinclair
Hume R. Steyer
Pol Vandenbroucke
Terrie Fox Wetle
Joyce M. Yaeger

AFAR FORMER, HONORARY AND EMERITUS DIRECTORS

Charles J. Fahey
Hadley and Mary Ford
Michael I. and Joan Murtagh Frankel
Diana Jacobs Kalman
George M. Martin
Diane A. Nixon
Richardson K. Noback
Richard L. Sprott
William and Carolyn Stutt
Mary J. Veverka
Patrick J. Waide, Jr.
Gary L. Zwerling

CORPORATIONS / FOUNDATIONS / EDUCATIONAL INSTITUTIONS / ORGANIZATIONS

Anonymous
Alexandra Foundation
The American Geriatrics Society
The Sidley Austin Foundation
Rose M. Badgeley Residuary Charitable Trust
Biohaven Pharmaceuticals
Biophytis
Bloomberg LP
The James A. and Dorothy R. Brunn Foundation
Canton Games
The Carwill Foundation
Charina Foundation, Inc.
The Irene Diamond Fund
The Charles Edison Fund
The Lawrence Ellison Foundation
Family Management Corporation
The Gerontological Society of America
The Rosalinde and Arthur Gilbert Foundation
Glenn Foundation for Medical Research
Global Coalition on Aging
The Goode Family Charitable Foundation
The John A. Hartford Foundation
The Lowell F. Johnson Foundation
The Marion Esser Kaufmann Foundation
Anna-Maria and Stephen Kellen Foundation
The Edward & Lucille Kimmel Foundation, Inc.
The Jan M. & Eugenia Krol Charitable Foundation
Life Biosciences, Inc.
Memic
The Ambrose Monell Foundation
JP MorganChase Foundation
MorganStanley CyberGrants Inc.
Princeton Wealth Advisors of Raymond James &
Associates
Pfizer Essential Health
Regeneron Genetics Center
Mary Ann Sanford Revocable Trust
Charles and Mildred Schnurmacher Foundation
Sinclair/Luikenhuis Charitable Fund
UConn Health, Center on Aging
UNITY Biotechnology
The George M. Van Cleave Family Foundation
Samuel Waxman Cancer Research Foundation
Weill Medical College of Cornell University

INDIVIDUALS

Anonymous
Itamar and Christine Abrass
Matthew Adamowicz III
Robert Adler
Benedict Albeni
Sharon and Stephen Alpert
Audrey S. Amdursky
Eleanor H. Ascher
Joyce and Ken Ball
Andrzej Bartke and Tracy Evans
Janet and Henry Bartosch
Ann Beck
Joan Beck
Robert D. Blank
Frederica Blum
Karen Bower and Joseph Pezzano
Douglas E. Brash
Michael Brown
Dennis E. Buetow
Carmelita Caluag
Glenn Campbell and Melissa Dowling
Henry Cannon
Raymond and Bonnie Carlson
Cynthia Carlsson
Mary Lou Caspers
Richard Cecchi
Harold Chapman
Margaret F. Cristofalo
Catherine Cullar
Janis Cummings
Cara David
Jefferson Davis
Thomas De Fazio
Barbara Dillon
David Dodd
Linda Dokas
Dwight Edwards and Hattie Herman
David L. Eigen
Donald Elrod
Nigel Emmett
Susan Enger
Gerald P. and Lydia M. Esmer
Jack Extract
Brett Farina
Stephanie and Michael Ferdman
Alan Finn
Trevor Frankel
Daniel and Linda Forman
Mr. and Mrs. Al Garland
Daniel Marvin Garrett
Barbara Wright Gatje
Robert Giaquinto
Lile and John Gibbons
William and Gayle Glauz
Karyn L. Gold
Andrew and Gail Goldberg
Margaret Goldman
Carl Golub
Karen A. Goraeski
David W. Gore

Claudia Gravekamp
Douglas Hamilton
Adam Hanft
Ellen Heffes
Barbara C. Hevener
David M. Holtzman
Kathleen and Charles Howland
Chandra Ivey
Richard Johnson
Audrey Kahane
Robert and Mimi Kahn
Karen Katen
Elisabeth Keane
Jeffrey Kelling
Garrett Kelley
Carolyn Dineen King
Mary B. King
Bonnie Kirkwood
Brandi Klein
Peter Brooke Klein
V. Wensley Koch
Michael and Atsumi Kolba
Cindy Kosik
Paul Krugler
Steve Latsch
Stephanie Lederman
Janice Leitner
Judith S. and Edwin Deane Leonard
Marc Levine
Larry Leviton
Martha Maas
John and Rebecca Mach
Kathy Magnusson
Paul Malarik
David Malouf
Edward R. Marcantonio and MaryAnn Wattendorf
Carl and Edith Markel
Gemma Martinelli
Robert Mathewson
Clara Mayer
James Mellon
Karole Mendelsohn
Richard and Ronay Menschel
Helen Mitchell
Vincent Monnier
Cristina Montagna
Alison A. Moore
David Morgan
Elissa Moses and Mark Shornick
Jeffrey L. Neuman
Ellery Newton
Janko Nikolich-Zugich
Laurie Norris
Timothy O'Mara
Mr. and Mrs. William O'Toole
Lynn Patinkin
Brad and Nancy Purifoy
Evelynn and William Putnam
Kathleen Rabbers
Donna Regenstreif
Jacquelyn Reingold

Jean Evans Rich
Michael D. Riley
Jo Anne Robbins and David Falk
Leonard Rokaw
Susan Ross
Ericka Rubenson
Marilyn Sackett
Earl and Allyson Dale Samson
Marvin and Connie Schmeiser
Eugenia L. Siegler
Ron Skalberg
Matthew Slater
David Smith
Joshua Speight
Paul Spiegel
Peter D. and Joan F. Stogis
Andrea Stottler
Natalie Stottler
Cynthia Suga
Don Summa
Ernest Thomas
Michael Thomas
Trygve Tollefsbol
Richard Topper
Andre Tuscisny
Odette van der Willik
William Vaughan
Eduardo Viegas

Jay and Randi Vodofsky
Norman Volk
Jeremy D. Walston
Barry Weisfeld
Karen Wenderoff
Barbara West
Rosalinde Westling
Cody Weston
Terry A. Wigness
Smith J. Williams, Jr.
Raymond Yung
Clarita Zeppie
Natalie Zimmer
Seymour Zises

IRVING S. WRIGHT LEGACY SOCIETY

We want to thank individuals who have named AFAR in their estate plans:

George E. Doty*
Dorothy Dillon Eweson*
Mary and Hadley Ford
Barbara Wright Gatje
Diana Jacobs Kalman
Robert and Bette Nielson
Leonard Rokaw
Mary Ann Sanford*

*Deceased



BREAKTHROUGHS IN HEALTHY AGING START WITH YOUR SUPPORT

AFAR offers a range of giving opportunities:

- Make a gift to underwrite or endow a **named research grant**. Naming opportunities in support of AFAR research grants or disease-specific grants are available at multiple levels of giving. AFAR can also help design grant programs.
- Make a gift to our **annual fund**, the central vehicle for supporting our core research grant programs. Gifts may be made annually, as well as monthly and quarterly as a sustaining donor.
- Sponsor a **scientific conference** or public educational program. Opportunities for sponsorship are available at many levels.
- Make a **planned gift** as a member of the Irving S. Wright Legacy Society.
- Make a **memorial** or a **tribute gift** to honor a loved one or special occasion.
- Make a **gift of stock** or other tangible property. This is a win-win: while supporting aging research, you avoid paying capital gains taxes.
- Designate AFAR as the recipient of your **donor advised fund**.

We welcome the opportunity to speak with you about how your gift can help support AFAR's work to advance research that will help us all live healthier, longer. For more information, please contact AFAR at 212.703.9977.

To make a gift online, please visit AFAR's secure website at www.afar.org/give.

HONORING LEADERS IN INNOVATION

AFAR hosted its Annual Awards Dinner and Scientific Symposium on November 6, 2018 in New York City at Lotte New York Palace.

AFAR presented the George E. and Mary J. Doty Award to **Jim Mellon**, Chairman and Co-Founder of Juvenescence Limited. A UK-based entrepreneur, Mellon aims to develop therapies for aging and the diseases of aging.

"It is an honor to be recognized by AFAR, an organization that is a pioneer in aging research," Mellon said. "The field could not have advanced to where we are today without AFAR's vision and willingness to take chances on funding the scientists who are conducting innovative studies that serve as the basis for so many of the therapies that are being developed today."



AFAR also recognized its Scientific Awards of Distinction recipients.

Laura J. Niedernhofer, MD, PhD, of the University of Minnesota was honored with the Vincent Cristofalo Rising Star Award in Aging Research. We presented our Irving S. Wright Award to **David A. Sinclair, PhD**, of Harvard Medical School, who shared how his 2000 AFAR grant supported his research path.

Emmy-Award winning producer **Meredith Vieira** served as Master of Ceremonies. Vieira also recently hosted the PBS documentary *Incredible Aging*, which features 14 AFAR experts.



New Therapies & Investment Opportunities Symposium

Preceding the dinner, AFAR hosted a scientific symposium discussing new therapies in aging research and highlighting opportunities for investment. The panel featured Deputy Scientific Director and multiple grantee Nir Barzilai, MD, BIG Award Selection Committee member Veronica Galvan, PhD, board member and multiple grantee Thomas A. Rando, MD, PhD, and the event's honoree David Sinclair, PhD. Board Member Pol Vandenbroucke, MD (Senior Vice President and Chief Development Officer, Pfizer Essential Health) facilitated.



2018 BOARD OF DIRECTORS

Irving S. Wright, MD,
Founder

William J. Lipton, JD, LLM, CPA
Chair, Board of Directors

EXECUTIVE COMMITTEE

Mark S. Lachs, MD, MPH
President

Ann M. Connolly, MBA
Treasurer

Harvey Jay Cohen, MD
Immediate Past President

Charles Beever, MBA
Secretary

Steven N. Austad, PhD
Scientific Director

Kevin J. Lee, PhD

Richard W. Besdine, MD
Medical Officer

Roger J. McCarter, PhD

John B. Rhodes, MBA

Terrie Fox Wetle, PhD

HONORARY AND EMERITI DIRECTORS

Paul F. Agris, PhD

Jeremiah Barondess, MD

Hadley C. Ford, ScB, MBA
Chair Emeritus

John Blass, MD, PhD

Diana Jacobs Kalman
Chair Emerita

Carl Eisdorfer, MD, PhD

George M. Martin, MD
Scientific Director Emeritus

Rev. Msgr. Charles J. Fahey

Diane A. Nixon
Vice Chair Emerita

John W. Rowe, MD

Richard L. Sprott, PhD

Marc E. Weksler, MD

BOARD OF DIRECTORS

Laura M. Barzilai, JD, LLM

James L. Kirkland, MD, PhD
President-Elect

Nir Barzilai, MD
Deputy Scientific Director

Stefania Maggi, MD, PhD, MPH

Caroline S. Blaum, MD, MS
Deputy Medical Officer

Roger J. McCarter, PhD

Mark R. Collins

AnnaRosa Miele

Nathaniel E. David, PhD

S. Jay Olshansky, PhD

David L. Eigen

Thomas A. Rando, MD, PhD

Richard G.A. Faragher, PhD

David A. Sinclair, PhD

Alexandra L. Gatje

Rudolph E. Tanzi, PhD

Michael W. Hodin, PhD

Pol Vandenbroucke, MD

Thomas G. Kahn, CFA

Joyce M. Yaeger

Peter Kimmelman

Stephanie Lederman, EdM
Executive Director

2018 STAFF

Stephanie Lederman, *Executive Director*

Elizabeth Pritchett-Montavon,
Grant Programs Assistant

Riki Blum, *Finance Director*

Karen Wenderoff, *Director of Development*

John Chaich, *Director of Communications*

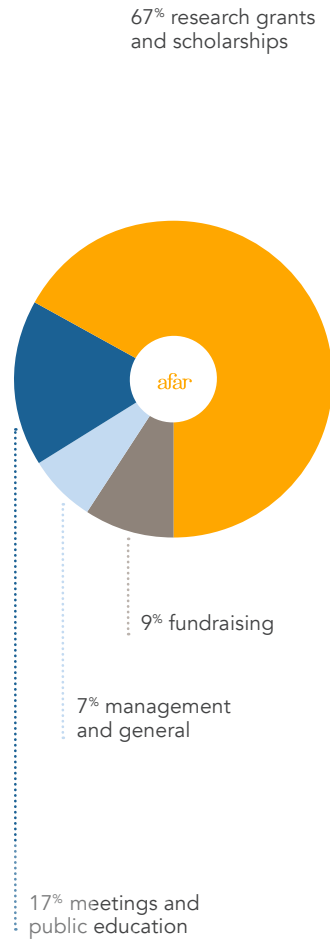
Catherine Cullar, *Administrative Manager*

Odette van der Willik, *Deputy Executive Director and Director, Grant Programs*

Hattie Herman, *Program Officer*

Morgan Long, *Development and Communications Assistant*

SUMMARIZED FINANCIAL INFORMATION Year Ended December 31, 2018



AFAR is proud to maintain high fiscal standards internally, and we require the same of our grantee institutions.

SUMMARIZED OPERATING RESULTS

OPERATING REVENUE

Contributions	5,139,575	83%
Investment Income, Net	76,888	1%
Endowment Earnings	305,426	5%
Government Grants	705,632	11%
Other	-	-
Total Operating Revenue	6,227,521	100%

EXPENSES

Research Grants and Scholarships	4,095,341	
Meetings and Public Education	1,021,312	
Total Program Expense	5,116,653	84%
Management and General	458,366	7%
Fundraising	574,476	9%
Total Supporting Expense	1,032,842	16%
Total Operating Expense	6,149,495	100%
Total Operating Income	78,026	1%

SUMMARIZED BALANCE SHEET

Assets		
Cash	3,138,557	15%
Contributions Receivable	4,134,737	20%
Investments	12,474,700	59%
Other	1,391,598	6%
Total Assets	21,139,592	100%
Liabilities and Net Assets		
Research Grants and Scholarships Payable	1,712,975	8%
Other	179,432	1%
Total Liabilities	1,892,407	9%
Net Assets		
Net Assets without Donor Restrictions	5,601,346	29%
Net Assets with Donor Restrictions	13,645,839	71%
Total Net Assets	19,247,185	91%
Total Liabilities and Net Assets	21,139,592	100%

The above summarized financial information is derived from the organization's audited financial statements, which are available at www.afar.org and upon request.

For the sixth consecutive year, AFAR has earned a 4-star rating from Charity Navigator, America's largest and most-utilized independent evaluator of charities. This is the highest possible rating and shows that AFAR adheres to sector best practices and executes its mission in a financially efficient way.

Only 8% of the charities evaluated by Charity Navigator have received at least six consecutive 4-star evaluations, indicating that AFAR outperforms most other charities and exceeds industry standards.

Special thanks to all of the featured experts for lending their time and insights to this report.

AFAR 2018 Annual Report Creative Team:
SCP Communications - Copywriting; Elizabeth Hanson - Copyediting; John Chaich, MFA - Design.

All photographs courtesy of AFAR or the featured expert, as well as Nir Arieli Photography (p.22), Albert Einstein College of Medicine (p. 2, 8), Chris Keeney Photography (p. 5), Mayo Clinic (p. 3, 6), Ohio State University (p. 3), UConn School of Medicine (p. 12), University of Alabama at Birmingham (p. 7), and University of Wisconsin School of Medicine (p. 4).



afar

american federation
for aging research

*Our mission: to support and advance
healthy aging through biomedical research.*

55 West 39th Street, 16th Floor
New York, New York 10018
212.703.9977

www.afar.org

  AFARorg