

Women in Science

Arti Hurria

MD
2005 Paul B. Beeson Career
Development Award in Aging Research
2001 Merck/AFAR Junior
Investigator Award in Geriatric
Clinical Pharmacology

Rochelle Buffenstein

PHD
2009 Glenn/AFAR Breakthroughs in
Gerontology (BIG) Award

Holly Van Remmen

PHD
1995 AFAR Research Grant
2008 Julie Martin Mid-Career Award
in Aging Research

ABOUT THE AMERICAN FEDERATION FOR AGING RESEARCH

The American Federation for Aging Research (AFAR) is a national non-profit organization whose mission is to support and advance healthy aging through biomedical research.



DEDICATION

AFAR dedicates this anniversary report to the memory of founder Irving S. Wright, MD, who had the wisdom and foresight to know that understanding aging processes is the most significant way to impact many of the most devastating diseases of aging, leading to longer, healthier lives.

And to AFAR grantees, who have continued his vision.

KEY INITIATIVES

AFAR focuses its activities on these major initiatives:

- Identifying and funding a broad range of cutting-edge research most likely to increase knowledge of healthy aging.
- Attracting more physicians to specialize in geriatrics to meet an aging population's increasing need for expert health care.
- Creating opportunities for scientists to share knowledge and exchange ideas to drive innovation in aging research.
- Providing information to the public on new medical findings that can help people live longer lives and be less susceptible to disease and disability.

RESEARCH FOCUS

For 30 years, AFAR has been at the forefront of the science of healthier aging, playing a major role in advancing knowledge of aging and mechanisms of age-related disease. AFAR funds scientists in two ways. First and foremost, AFAR focuses on scientists studying the fundamental mechanisms of aging. We are developing a cadre of scientists to explore aging and provide the research from which new discoveries and medical innovations will emerge. With AFAR's support, early-career scientists from the nation's leading academic institutions are making the study of aging—in all of its facets—their life's work.

AFAR also supports those working within disease-specific specialties to explore the importance of aging within those specialties. In this way, AFAR ensures that there will be scientists studying how aging underlies the conditions so common in late life in every area including diabetes, heart disease, cancer, and Alzheimer's.

Celebrating

30

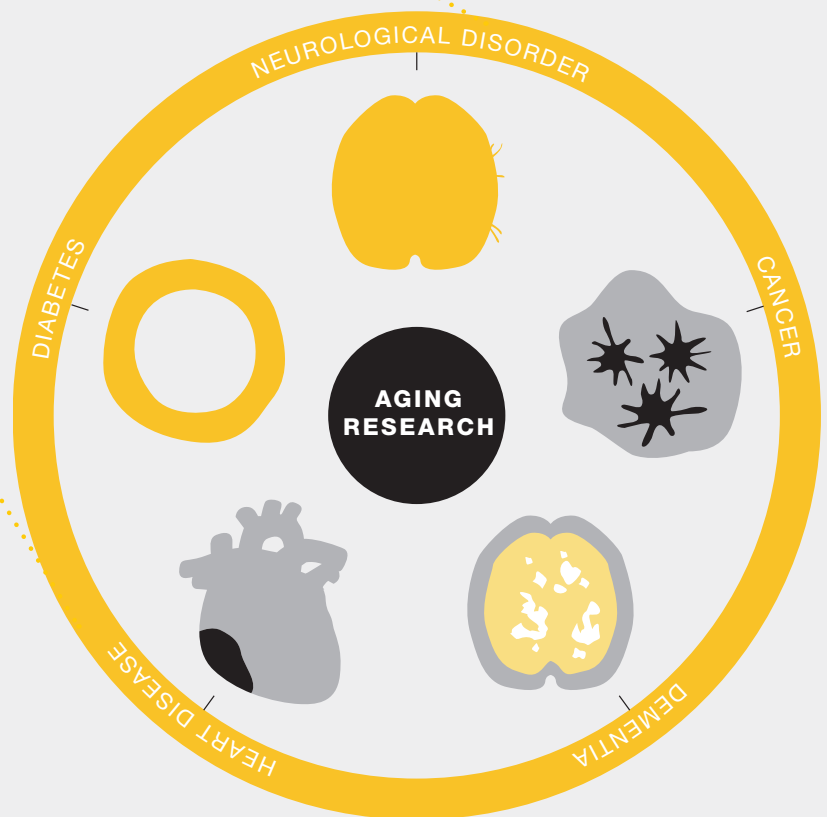
Years

FOCUS
ON AGING
RESEARCH

RESEARCH FOCUS

AFAR anticipates that results of basic research will create a knowledge base in the mechanisms of aging that can be translated into clinical approaches for our aging population. This research will guide the development of public health strategies to decrease the risk of age-related diseases, help develop new therapies to delay the onset and improve the management of diseases, and ultimately help people live healthier longer. Success toward this objective will, in turn, contribute to reducing the cost of health care as people grow older.

Since its founding in 1981, AFAR, in partnership with foundations, corporations, individuals, and the National Institute on Aging, has awarded approximately \$132 million to nearly 2,800 talented researchers as part of a broad-based series of grant programs.



“Sound basic and critical clinical research is our only hope. Although we cannot predict the degree and the speed of success in research, even a few achievements in the areas of dementia, Alzheimer’s disease, arthritis, osteoporosis, arteriosclerosis, macular degeneration, and other typical problems can improve the lives of millions of our elderly citizens and diminish health costs.”

Irving S. Wright, MD, Fall 1981

HONORING WOMEN IN SCIENCE

It is no small coincidence that AFAR's 30th anniversary coincides with the year that the first of the baby boomers turn 65. AFAR's founder, Dr. Irving Wright, was ahead of his time in realizing that this large cohort of Americans would test the resources of our healthcare system and that by finding ways of extending healthy life, we could potentially postpone, prevent, or even cure many diseases and disabilities of old age. This insight paved the way for AFAR's beginnings.

During this time, AFAR has cultivated and encouraged a new generation of scientists to enter the field and has witnessed the unprecedented growth of female scientists conducting research on aging. These women are emerging as leaders in geriatrics research, teaching, and clinical practice. We are proud to witness their rapid rise in the field and honor their contributions in this year's report. We are especially pleased to note that in 2010, AFAR awarded more than half of its grants to female scientists.

AFAR grantees have conducted research on important and new areas related to aging ranging from the fundamental

studies in molecular biology to clinical challenges in the care of older adults. We supported early research in areas that have gained widespread attention for their impact on healthy aging and disease prevention. Our support has advanced understanding about the interconnections of cellular stress, inflammation, telomeres, the immune system, and oxidative damage on aging and disease. Our researchers have also called attention to and helped address pressing social and psychological issues specific to older adults, including disparities in healthcare, depression, elder abuse, and end-of-life care. And they are creating novel approaches to prevent common disabilities, such as falls and mobility disorders, that lead to loss of independence and reduced quality of life.

From a modest start in 1982 of awarding four grants totaling \$60,000, we now distribute millions of dollars annually to hundreds of researchers. While AFAR has grown, so too has the need for funding. We received a record number of grant applications just for the 2011 biology of aging grant programs, a nearly 25% increase from 2010. While

a recent survey of our grantees reported that a great majority stayed in the field, there is a tremendous concern that we will lose this brain trust as national funding becomes more limited.

The work of AFAR would not be possible without the leadership of our outstanding board of directors, as well as the backing of foundations, corporations, generous individuals, and the National Institute on Aging. In order to build upon the successes we have achieved, especially during these challenging times, we continue to need their support and that of new friends. There are many new areas to explore.

We would like to welcome the new AFAR president, Roger J. McCarter, PhD, of the Pennsylvania State University. He has led AFAR's Research Committee for many years and we look forward to his continued contributions.

We are ready to enter an exciting and promising period for the science of aging. And we hope you will join us for the next 30 years.



Stephanie Lederman
Executive Director



William J. Lipton
Chair, Board of Directors



Terrie Fox Wetle
President

POISED TO GROW: AGING RESEARCH AT 30

To paraphrase noted anthropologist Ashley Montagu, “We want people to die young as old as possible.” For three decades, this has been the ultimate goal of AFAR through its support for the study of the biology of aging. Studying the underlying mechanisms of aging will result in interventions and more targeted treatments which can be developed to prevent and cure diseases.

AFAR began as an organization committed to supporting junior investigators in the study of the basic biology of aging, helping them get a foothold in the field, create a funding track record, and launch their careers. Since 1981, AFAR has expanded to fund mid-career scientists, clinicians, and medical students in all areas of scientific and clinical investigation on aging. In particular, with help from long-time funders, The Ellison Medical Foundation and the Glenn Foundation for Medical Research, AFAR has been able to encourage scientists to pursue higher risk, less traditional areas of research that could accelerate the pace of discovery.

AFAR also has a prominent presence in public awareness. We have generated a greater understanding about aging research among the general public through media briefings on emerging scientific health issues and public education campaigns designed to address societal concerns and promote healthy aging. We also bring the findings of our researchers directly to the public through community lectures, e-newsletters, websites, and social media. The work of AFAR-supported researchers is also frequently featured in broadcast, print, and electronic media.

It is an exciting time for aging research, as scientists are making many promising discoveries and more researchers are entering the field. Unfortunately, financial support for their work is waning. This year, the number of applicants is much larger than the National Institute on Aging is able to support. With fierce competition for funding, many scientists are spending a large portion of their time writing grant applications, taking precious time away from conducting research, developing their careers, and mentoring others.

Thirty years ago, little was known about the effects of caloric restriction on lifespan, or whether a drug that is used to prevent rejection in organ transplant patients—rapamycin—could be shown to markedly lengthen life in mice. We didn't know much about the mechanisms behind muscle wasting that contribute to falls or longevity genes that perhaps can be tweaked one day so that we can all live to be healthy and vibrant older adults. Today, we know much more about ways that our bodies can regenerate cells to grow new heart muscle and other organs, and the environmental and genetic factors that influence tumor development, neurodegeneration, and many other devastating diseases of aging.

EVOLUTION OF WOMEN IN SCIENCE

As the field of aging research has expanded and thrived, so too has the number of female scientists. In AFAR's earliest days, we saw few grant applications submitted by women. In our first decade, 25% of AFAR Research Grants were awarded to women.

Now female and male scientists and medical students are equally applying for and receiving grants. Our female scientists are contributing to important discoveries in aging research and are serving as mentors to the next generation of scientists.

Since Marie Curie won the first Nobel Prize more than 100 years ago, more women are leading the pace of scientific discovery. For aging research in particular, women's contributions have advanced knowledge of the basic mechanisms of longevity, cell metabolism, genetic repair, and countless other areas that contribute to the body of research aimed at improving health and increasing lifespan.

WHY GERIATRICS? PEOPLE, PRIORITIES, POLICY



RICHARD W. BESDINE, MD

AFAR Medical Officer,
Professor of Medicine,
Greer Professor of Geriatric Medicine
Director, Center for Gerontology and
Health Care Research
Director, Division of Geriatrics
Alpert Medical School of
Brown University

Caring for our fast-growing aging population has become a central healthcare challenge, making geriatrics a discipline whose time has come. Geriatrics encompasses the scientific study of aging, the teaching of excellent care, and the provision of that excellent hands-on clinical care to older people, especially the most vulnerable. In the debate about healthcare reform, focusing on these three areas is critical.

Delivering the care that older adults need requires a strategic re-balancing of our healthcare workforce. We need more geriatricians, as well as biomedical researchers and academics with expertise in geriatrics who can conduct research, develop and implement better models of treatment, and train the next generation of physicians.

With help from one of our principal funders, The John A. Hartford Foundation, AFAR has been addressing these needs through the creation and management of such initiatives as the Medical Student Training in Aging Research (MSTAR) Program, The John A. Hartford Centers of Excellence in Geriatric Medicine and Training, and the Paul B. Beeson Career Development Awards in Aging Research. These programs encourage future physicians to gain a greater understanding of and explore careers in geriatrics, ensure best practices in geriatric medicine and research, and develop future leaders in the field.

Geriatrics is not just important to the health of millions of Americans; it is increasingly essential to the future financial well-being of the United States. The reasons are compelling for everyone to take a closer look at its benefits.

2010 AFAR GRANT PROGRAMS

In 2010, AFAR awarded more than \$5 million to 92 early and mid-career scientists, physicians, and medical students. Since its inception, AFAR has provided

more than \$132 million in support of researchers in aging, encouraging the training of new scientists and physicians in aging research and geriatric medicine.

GRANT PROGRAMS

AFAR RESEARCH GRANTS

Sixteen junior faculty MDs and PhDs each received awards of up to \$75,000 to study topics related to the basic mechanisms of aging, age-related diseases, and the processes underlying common geriatric functional disorders. Their grants, which support one to two years of research, examine areas that include genetic repair of cell function, regulation of the stress response in aging, restoration and prevention of age-related vision decline, and the effects of oxidative stress, exercise, hypertension, and hormone replacement on memory.

The AFAR Research Grants will increase to \$100,000 in 2011.

THE ROSALINDE AND ARTHUR GILBERT FOUNDATION/AFAR NEW INVESTIGATOR AWARDS IN ALZHEIMER'S DISEASE

These awards seek to accelerate the development of diagnostic methods, preventative interventions, and treatment of Alzheimer's disease by supporting research into its biological, genetic, and environmental causes. The program also encourages junior investigators in the United States and Israel to pursue research and academic careers in the neurosciences. In 2010, five scientists received awards of up to \$75,000 each.

This program, to be renamed the **New Investigator Awards in Alzheimer's Disease**, will increase to \$100,000 in 2011 and include an additional sponsor: The Diane and Guilford Glazer Foundation.



GRANT PROGRAMS

JULIE MARTIN MID-CAREER AWARDS IN AGING RESEARCH

Sponsored by The Ellison Medical Foundation, this program supports mid-career scientists conducting novel research with great potential to advance understanding of basic aging and its effects on age-related diseases. Recipients of the 2010 award are Kenneth Poss, PhD, associate professor at Duke University Medical Center, and Joanne Turner, PhD, associate professor at Ohio State University, who each received \$550,000. Dr. Poss is studying cardiac aging and regeneration in zebrafish as a way to better understand mechanisms of regrowing heart muscle in humans. Dr. Turner is studying how aging affects response to infectious agents by looking at the tuberculosis pathogen. Understanding these mechanisms could lead to better vaccinations to protect the elderly against infectious diseases.

MEDICAL STUDENT TRAINING IN AGING RESEARCH (MSTAR) PROGRAM

The MSTAR Program was created to encourage more physicians to pursue careers in geriatrics and research by providing early exposure to the field and reinforcing students' interests throughout their medical training. More than 100 students are selected each year to participate in an eight- to twelve-week research, educational, and clinical mentorship program alongside top experts at some of the leading academic institutions in the country.

Through a \$200,000 grant, the MetLife Foundation joined the partnership and funded 40 students for the 2010 MSTAR Program, nearly half of the 104 students that participated.

DANIEL C. BUTLER

University of Arizona
College of Medicine
2010 MSTAR Scholar

“The true strength of what MSTAR students take away is a confidence in their futures as clinicians and researchers. The autonomy provided by the MSTAR Program and my mentor fostered a greater understanding about aging research and my potential to make a contribution.”

E. WES ELY, MD, MPH

Vanderbilt University School of Medicine
2001 Paul B. Beeson Career
Development Award in Aging Research
2000 Merck/AFAR Junior Investigator
Award in Geriatric Clinical Pharmacology

“The AFAR grant catalyzed our inquiry into an overlooked area of aging brain research: cognitive rehabilitation to restore brain function in general medical and surgical ICU patients who recover from common, life-threatening diseases such as severe sepsis. Nearly two-thirds of these patients acquire a critical illness-associated brain injury that our research indicates may be mitigated through cognitive and physical rehabilitation.”

GRANT PROGRAMS

GLENN/AFAR BREAK-THROUGHS IN GERONTOLOGY (BIG) AWARD

Daniel Promislow, PhD, professor, University of Georgia, and Peter S. Rabinovitch, MD, PhD, professor, University of Washington, were selected as this year's recipients of the BIG Award. Established in 2005 with funding from the Glenn Foundation for Medical Research, the \$200,000 grants fund high-risk, original research that offers significant promise of yielding transformative discoveries in the fundamental biology of aging. Dr. Promislow's research aims to identify genes that explain variations in rates of aging among lineages within a population as well as specific traits within individuals. Dr. Rabinovitch will use "next generation" genomics and mass spectroscopy tools to explore the ways in which rapamycin changes protein synthesis and decay rates in young and old mice.

PAUL B. BEESON CAREER DEVELOPMENT AWARDS IN AGING RESEARCH

Eight physician-scientists received the prestigious 2010 Paul B. Beeson Career Development Award in Aging Research. The award—which provides grants of up to \$600,000 to \$800,000—seeks to create a cadre of clinically-trained faculty who are committed to academic careers in aging research, teaching, and practice. Funded by a public-private group of donors, approximately 165 Beeson Scholars have received more than \$92 million in research grant support since the program's inception in 1995.

HOLLY BROWN-BORG, PHD

University of North Dakota
School of Medicine and Health
Sciences
1999 AFAR Research Grant

"The AFAR award provided the first acknowledgement that studying how hormones affect aging and age-related processes was relevant and gave me the confidence as a new researcher to follow up on our preliminary data. Without this award, we may not have been able to pursue the fundamental work that now serves as the base of what we actively research today."

MALAZ A. BOUSTANI, MD

Regenstrief Institute
Indiana University School of Medicine/
Center for Aging Research
2008 Paul B. Beeson Career
Development Award in Aging Research
2000 Hartford/AFAR Academic
Geriatrics Fellowship

"AFAR support opened the first door for me to become a physician-scientist and allowed me to translate my research on dementia into effective health care solutions. With AFAR funding, the Indianapolis Discovery Network for Dementia and the Healthy Aging Brain Center Initiative became a reality, helping thousands of Americans suffering from Alzheimer's disease."

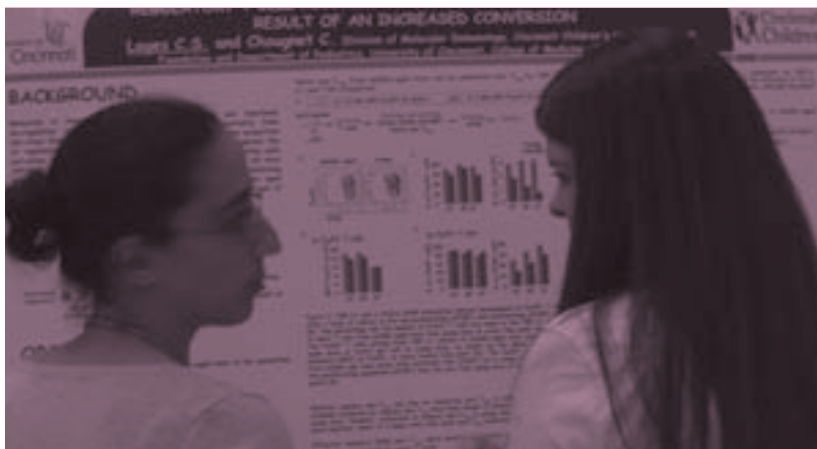
GRANT PROGRAMS

ELLISON MEDICAL FOUNDATION/AFAR POSTDOCTORAL FELLOWS IN AGING RESEARCH PROGRAM

Twenty postdoctoral researchers received one-year fellowships ranging from approximately \$45,000 to \$59,500 in 2010 to study the basic mechanisms that underlie aging. The program was created to address the concern about an adequate funding base for postdoctoral MDs and PhDs, in order to fill the gaps in the biomedical and clinical research base that will be necessary to ensure the health of millions of older people. As part of The Ellison Medical Foundation's commitment to furthering the careers of this group of researchers, the current program is open to postdoctoral fellows at all levels.

THE JOHN A. HARTFORD CENTERS OF EXCELLENCE IN GERIATRIC MEDICINE AND TRAINING

In 2010, The John A. Hartford Foundation and AFAR awarded \$2.5 million to fund 25 Centers of Excellence (CoE) to support 71 advanced fellows and junior faculty. The CoE program is designed to increase the number of current and future academic geriatricians by recruiting and developing physician leaders in geriatric medicine and research. Since 2005, AFAR has served as the CoE Network Resource Center, facilitating communications among the centers and identifying and developing materials that support best practices. In 2009, The John A. Hartford Foundation provided \$8.4 million for a new Centers of Excellence National Program Office housed at AFAR.



30 YEARS OF SUPPORTING GREAT MINDS

AFAR applauds the grantees that are advancing knowledge of aging research and geriatric clinical care. They have furthered AFAR's mission and goals and the field. For a listing of all AFAR-supported grantees, visit www.afar.org.

GRANTEE REFLECTION: NEW DIRECTIONS FOR DISCOVERY



WILLIAM E. SONNTAG, PHD

Professor
Donald W. Reynolds Department
of Geriatric Medicine
University of Oklahoma Health
Sciences Center
1984 AFAR Research Grant

New directions for scientific research and discovery depend on investment of research funds in individual scientists or scientific teams. Without this investment, understanding of the basic cellular mechanisms of disease and the development of interventions cannot advance.

My initial academic appointment was as assistant professor at Wake Forest University. It was there that I submitted the first grant application of my career, which was to AFAR to support research on the regulation of IGF-1 and consequences of IGF-1 deficiency during aging. Fortunately, this application was funded and helped to establish my laboratory in the Department of Physiology and Pharmacology.

Our initial research studies on the regulation of this hormone allowed us to generate the necessary preliminary data to receive additional funding from the

National Institutes of Health. These results eventually led to a National Institute on Aging (NIA) program project with several of my colleagues to study the effects of IGF-1 on brain aging and mild cognitive impairment. The program project has been continually funded by the NIA for the past 16 years, produced more than 100 peer-reviewed publications and has been instrumental in advancing our understanding of the complex interactions between circulating hormones, vascular loss in the brain, and the basis of cognitive decline with age. Without the seminal funding from AFAR to launch these studies, it is unlikely that this line of research would have advanced beyond the most preliminary stage. As a result, we would be severely limited in our abilities to develop interventions to slow or prevent age-related cognitive impairment.

SCOTT PLETCHER, PHD

University of Michigan Medical School
2005 Glenn/AFAR Breakthroughs in
Gerontology (BIG) Award

"The BIG Award opened up the possibility of exploring new ideas at the interface of aging and immunity, and this work has established research directions that continue. The AFAR grantee meetings and research conferences were important in my career development. It allowed for the sharing of ideas with my peers and interaction with leaders in the field, all of whom provided valuable analysis, insight, and direction that has helped me greatly."



GEORGE M. MARTIN, MD

AFAR Scientific Director,
Professor Emeritus of Pathology
University of Washington

This is the 30th anniversary for AFAR but also the 50th anniversary for my personal entry into the world of research on the biology of aging. What was it like back in 1961? Drs. Leonard Hayflick and Paul Moorhead had just published their now famous paper telling the world that it may be possible to study aging in cultured cells from the human body, as these cells appeared to get old and stop growing in culture dishes. Then came the discovery by Drs. Michael Klass and Thomas Johnson that mutating a single gene in a roundworm could greatly increase their lifespans. Later work in the laboratories of Drs. Cynthia Kenyon, Gary Ruvkun, and Pamela Larsen, among others, showed that the mutant gene was part of a pathway that regulates the production of insulin and a similar hormone called insulin-like growth factor. These discoveries led to the important conclusion that the biochemical reactions regulating aging in worms are based

on molecules vital to controlling human development and disease. This confirmed that studying worm aging, as well as aging in fruit flies and mice, would likely reveal human aging mechanisms.

As we honor women in science, it is important to note their contributions. Those who have continued to teach us about the biochemical genetics of aging in these “simple” worms have included Drs. Heidi Tissenbaum, Siu Sylvia Lee, Catherine Wolkow, Catherine Clarke, Malene Hansen, Weiqing Li, Anne Hart, and a Nobel Laureate, Linda Buck. Dr. Yousin Suh has extended the work on the worm insulin signaling pathway to humans. Dr. Mel Feany has pioneered the use of fruit flies as models of neurodegenerative diseases like Parkinson’s and Alzheimer’s. Drs. Holly Van Remmen, Rochelle Buffenstein, and Holly Brown-Borg have made major contributions to research on the aging of rodents. And Dr. Judy Campisi has been a leader in research on the cell biology of aging. She has also trained many students, including Dr. Junko Oshima, who identified a gene that, when mutated, leads to the acceleration of many features that mimic aging.

It took almost a half-century for the first Nobel Prize to be given to research pioneers, including two women, Drs. Elizabeth Blackburn and Carol Greider, who discovered an enzyme that added bits of DNA to the ends of chromosomes, without which cells would eventually stop growing. Dr. Titia de Lange also made seminal contributions to that story, as did Drs. Woodring Wright, Jerry Shay, and Jack Griffith.

It has also taken almost a half-century to see the full blooming of the genomics revolution. We can now compare

almost all of the genetic information in a chimpanzee and a human. This will help us understand why we live about twice as long as our nearest relatives. Such research will soon allow us to understand why naked mole rats live much longer than lab rats and mice.

None of us could have imagined the degree of progress in biochemistry and in cell biology, all of which are now being applied to unravel the mystery of why the lifespans and healthspans of many creatures (from yeast to spiders to mice) can be extended by the right amount of limitation of food. Given these exciting new tools, scientists are poised to do much more. Unfortunately, there have been recent severe limitations of funding at a time when we are attracting more junior and senior scientists to our field. This is particularly sad, as our collective research has the potential to be translated into rational preventive medicine to extend our healthspans.

We all have some “pre-existing condition” that plays out in different patterns and with different degrees of ferocity as we age. The concepts and tools are now available to begin an attack upon these vulnerabilities before they become unmanageable.

2010 AT A GLANCE

FACES OF DISCOVERY: AFAR ANNUAL AWARDS DINNER

On October 4, 2010, AFAR presented awards to: Sam and Ann Barshop, founders of the Sam and Ann Barshop Institute for Longevity and Aging Studies at the University of Texas Health Science Center at San Antonio; Sylvain Durrleman, MD, PhD, vice president and head of Ageing Therapeutic Strategy, sanofi-aventis; William D. Novelli, professor, McDonough School of Business at Georgetown University and former CEO, AARP; and Clarence E. Pearson, global health advocate and long-time AFAR board member. Nir Barzilai, MD, director of the Institute for Aging Research, Albert Einstein College of Medicine, and Andrew Dillin, PhD, associate professor, Molecular and Cell Biology Laboratory, Salk Institute for Biological Studies, received the Irving S. Wright Award of Distinction and the Vincent Cristofalo Rising Star in Aging Research Award, respectively.

SCIENTIFIC CONFERENCE: RAPAMYCIN AND MTOR SIGNALING IN THE MODULATION OF HEALTHSPAN AND LIFESPAN

Also on October 4, AFAR convened a meeting of leading scientists to discuss the potential of an exciting new area of research: the drug compound rapamycin and the mechanisms by which it may extend lifespan. Speakers included: Z. David Sharp, PhD, University of Texas Health Science Center; Michael Hall, PhD, University of Basel; George Thomas, PhD, University of Cincinnati; Brian Kennedy, PhD and Pankaj Kapahi, PhD, both with the Buck Institute for Research on Aging; Eric Klann, PhD, New York University; Dudley Lamming, PhD, Massachusetts Institute of Technology; and Felipe Sierra, PhD, National Institute on Aging.

The conference was sponsored by The Ellison Medical Foundation, the Glenn Foundation for Medical Research, the National Institute on Aging, and an anonymous donor.

AFAR AFFILIATES

AFAR goes global with the 2010 launch of AFAR Italy, a collaboration with the Luigi Amaducci Foundation. AFAR president Terrie Fox Wetle, PhD and board members, Gaetano Crepaldi, MD, and Stefania Maggi, MD, PhD, led the international expansion efforts.

AFAR Florida held its first awards luncheon and symposium on February 11, 2010, honoring Edwin Hannum, president of AvMed Health Plans, who received the first Dr. Mark H. Beers AFAR Florida Award of Distinction. Benjamin Leon, Jr., and the Leon Family of the Leon Medical Centers, were recognized for their work in serving the healthcare needs of the Medicare population and improving the lives of older adults.

The purpose of the affiliates program is to increase AFAR's local, national, and international presence, raise funds for aging research, and expand support to local researchers worldwide.



AFAR-AARP HEALTH PROMOTION INSTITUTE

A new partnership between AFAR and AARP, the Health Promotion Institute, seeks to expand the capacity to communicate about critical issues in healthy aging by providing the public access to the latest news about aging research advances. The Institute will also serve as a focal point for interdisciplinary communication among scientists creating a “think tank” resource for the scientific community. The official launch of the Institute will be in 2011.

TWENTY-THIRD ANNUAL AFAR GRANTEE CONFERENCE

Forty-two grantees participated in the 2010 conference, held in Santa Barbara, California, June 6-8. The grantee conferences encourage scientific and personal exchanges among recent AFAR grantees and experts in the fields of geriatrics and gerontology. This year’s meeting presented the latest research on sirtuins, stem cells, and genetics, as well as a discussion about opportunities for private and federal funding by representatives from The Ellison Medical Foundation and the National Institute on Aging.



CALL TO ACTION: MORE RESEARCH FUNDING NEEDED FOR ALZHEIMER'S DISEASE: AFAR HOLDS PRESS CONFERENCE

To address the urgent need for more research funding for Alzheimer's disease, AFAR held a press conference on the topic on November 18, 2010. Samuel Gandy, MD, PhD, Mount Sinai School of Medicine, and James Galvin, MD, MPH, NYU Langone Medical Center, were among the speakers.

BEESON ANNUAL MEETING

AFAR held the 2010 annual meeting of the Paul B. Beeson Career Development Awards in Aging Research in Asheville, North Carolina, September 22-25. This event, a key part of the Beeson program, offers scholars an opportunity to present their findings to colleagues, develop their leadership and mentorship skills, further their career development, and network with other Beeson Scholars and leading researchers in the field.

MEDIA BRIEFING: TELOMERES: SECRET OF LONGEVITY?

AFAR hosted a January 26, 2010, press event about telomere research in aging. Woodring E. Wright, MD, PhD, professor of Cell Biology at the University of Texas Southwestern Medical Center; Abraham Aviv, MD, director, Center of Human Development and Aging at UMDNJ-New Jersey Medical School; Calvin B. Harley, PhD, former chief scientific officer and now advisor to Geron Corporation; and Noel Thomas Patton, founder of T.A. Sciences, comprised the panel of experts.

A close-up portrait of a woman with long dark hair, smiling slightly. The image is overlaid with three horizontal color bands: blue at the top, pink in the middle, and yellow at the bottom. The text is positioned on the right side of the image.

TIME TO HEAL: RE-EVALUATING CANCER TREATMENT IN OLDER ADULTS

ARTI HURRIA, MD

Director, Cancer and Aging
Research Program
City of Hope Comprehensive
Cancer Center

2005 Paul B. Beeson Career Development
Award in Aging Research
2001 Merck/AFAR Junior Investigator
Award in Geriatric Clinical Pharmacology

The majority of cancer cases and cancer deaths occur in people over the age of 65, yet there is a lack of data about the efficacy and safety of treatments in this population. Assumptions about how older patients will tolerate treatment can greatly affect survival and quality of life.

Early funding from AFAR influenced Dr. Hurria's interest in drug efficacy and needs assessment in this population. And it blended geriatrics and oncology, a new area in cancer research and care. "I had the geriatrics and oncology experience but not the pharmacology experience," Dr. Hurria recalls. "The AFAR grants propelled me on a trajectory of research that probably would not have happened otherwise."

As director of the City of Hope's Cancer and Aging Program, one of the first such programs in the country, Dr. Hurria leads a team of researchers studying the biology, treatment, and survivorship issues that are specific to older adults with cancer. The research team includes medical oncologists, hematologists, pharmacologists, supportive care medicine specialists, basic scientists, nurses, biostatisticians, and researchers in the area of population sciences.

One area of study is developing assessment tools to understand the functional age of older patients rather than just chronological age. "Looking at the overall health, activity level, mental health, and social support network will tell us a lot more about who will do well with chemotherapy, without undue toxicity," says Dr. Hurria. It could also help determine which patients would be the best candidates for more aggressive treatments. Dr. Hurria and colleagues performed a study including over 500

older adults with cancer in order to identify risk factors for chemotherapy toxicity.

Another research focus is investigating how older adults tolerate cancer therapy drugs with studies assessing effectiveness, impact on memory, and daily functioning. "There have been few studies in this area and geriatric patients are woefully under-represented in drug trials. Therefore the prescribing information often has limited data on how to dose these drugs in older adults. If we are treating so many older patients, then we need to include older adults in clinical trials so that we can understand the appropriate dosing and anticipate side effects."

This has become a rallying cry for Dr. Hurria, who is trying to generate greater awareness about this issue among her peers.

To foster collaboration with researchers outside of City of Hope, the Cancer and Aging Program spurred the creation of the Cancer and Aging Research Group, a nationwide network of experts who specialize in the care of older adults with cancer. Currently, through a grant from the National Cancer Institute and National Institute on Aging, Dr. Hurria is leading a series of national conferences with the goal of developing high quality research that will ultimately improve the standard of care for this population.

As for what has and continues to motivate her as a clinician-researcher: "My mother, a physician, paved a path for me, my mentors taught me the skills, and my patients inspire my passion for research."

A close-up portrait of Rochelle Buffenstein, a woman with long, wavy blonde hair, wearing glasses and a light-colored top. The image is split into three horizontal color bands: blue at the top, pink in the middle, and yellow at the bottom. The text is overlaid on the pink band.

OXIDATIVE DAMAGE, CANCER, AND AGING

ROCHELLE BUFFENSTEIN, PHD
Professor, Barshop Institute for
Longevity and Aging Studies and
Department of Physiology
University of Texas Health Science
Center, San Antonio

**2009 Glenn/AFAR Breakthroughs in
Gerontology (BIG) Award**

They aren't much to look at, but naked mole rats offer much to attract our attention: they live long, healthy, and active lives—10 times longer than the similarly-sized mouse—and are protected against many of the diseases that occur with age. At the equivalent of age 90 in human years, they still successfully reproduce, have the physical abilities of their much younger counterparts, and remain cognitively intact.

“No matter what we throw at them: radiation, oxygen deprivation, arsenic, and chemotherapeutic toxins, their cells withstand it all with no ill effects,” says Dr. Rochelle Buffenstein, who has dedicated her career to studying naked mole rats and whose lab has the largest colony in the world. “And when we try to induce cancer, they do not form tumors. In fact, we have never observed any incidence of cancer in naked mole rats.” In a collaborative study with colleague Dr. Peter Hornsby, naked mole rat cells were infected with a cocktail of oncogenes—known to turn the cells of humans and laboratory rodents into tumor-forming cells—and then transplanted into immune-compromised mice. The result was that only the naked mole rat cells did not form tumors. This was in sharp contrast to the cells of humans, rats, and mice that had produced large invasive tumors within 30 days.

Their exceptionally long life combined with their ability to maintain activity, reproduction, and other physiological functions well into old age make the naked mole rat perfect for studying how to prolong healthspan as well as how oxidative damage affects the rates of aging and onset of cancer.

Dr. Buffenstein's research has determined that the long lifespan of the naked mole rat is not because they produce fewer oxygen-free radicals nor have less damage from them. Naked mole rats actually show higher levels of oxidative damage to fats, protein, and mitochondria than the short-lived mouse. But both their DNA and proteins are more resistant to cell stressors than those of other mammals. One theory is that naked mole rats have a built-in DNA repair mechanism that allows them to go into “hibernation” mode when a stressor is identified. This allows for a slower, more thorough repair of cells that makes them more resistant to cancer.

Dr. Buffenstein and colleagues are looking closely at the genetic mechanisms that protect naked mole rats from developing tumors and slow aging. Current studies are focusing on how regulation by the Nrf2 signaling pathway—a major detoxification pathway that produces anti-oxidants, detoxicants, and molecular chaperones—protects naked mole rats from cellular stress that contributes to age-related diseases.

Her years of work could ultimately help identify ways to provide protection from cancer and other diseases, slow aging, and increase healthy lifespan in humans.



FLEXING THE AGING MUSCLE: UNDERSTANDING MECHANISMS OF DEGENERATION

HOLLY VAN REMMEN, PHD
Associate Professor, Barshop Institute
for Longevity and Aging Studies and
Department of Cellular and
Structural Biology
University of Texas Health Science
Center, San Antonio

1995 AFAR Research Grant
2008 Julie Martin Mid-Career Award
in Aging Research

Holly Van Remmen has been on track for a career in aging research for more than half her life, starting in college when she worked in nursing homes and observed the physical decline of the residents. It sparked her interest to study physiology and aging. At the time, the University of Texas Health Science Center at San Antonio was one of the only institutions that had an aging program with researchers like Dr. Edward Masoro conducting the early studies on dietary restriction, and Dr. Arlan Richardson, her future mentor, studying oxidative damage effects on aging and age-related diseases.

Dr. Van Remmen studies the role of oxidative stress on age-related muscle atrophy and neuromuscular diseases, such as amyotrophic lateral sclerosis (ALS) and the role of mitochondria in maintaining the neuromuscular junction and muscle innervation during aging. This is essentially the way motor neurons “talk” to each other to achieve muscular contraction, which prevents the death of muscle cells.

The first grant Dr. Van Remmen ever received was from AFAR to study lifespan using an anti-oxidant model. This led to several more grants, including awards from the Veterans Administration, the National Institute on Aging, and the Muscular Dystrophy Association, as well as a second AFAR grant—the Julie Martin Mid-Career Award in Aging Research—to spur and advance her work in muscular atrophy and ALS.

Research by Dr. Van Remmen and colleagues has shown that damage from oxidative stress impairs the ability of mitochondria to work properly, resulting in the death of muscle cells. Now they are delving into why and how this happens.

“The Julie Martin Award has allowed us to really hone in on the ways the neuromuscular junction is involved in age-related muscle atrophy,” says Dr. Van Remmen. “Surprisingly, this is not a very well-studied area of skeletal muscle research despite its potential importance as the intermediary between muscle and neurons. We are very excited about the opportunity to explore the common mechanisms by which motor neurons and the neuromuscular junction can influence muscle physiology in aging and cause a muscle wasting condition called sarcopenia.” Sarcopenia contributes to frailty, gait, and balance problems in the elderly and is a predictive indicator of falls, a rising public health problem.

Discovering the mechanisms underlying age-related muscle atrophy and alterations at the neuromuscular junction, could aid in the development of preventative interventions and therapeutic targets for sarcopenia and the devastating effects of ALS and other neuromuscular diseases.

Reflecting on being a female scientist, Dr. Van Remmen recalls receiving encouragement early on. “I have always been interested in science for as long as I can remember. It was just something I was always attracted to. I had my first microscope and chemistry set at about age eight. I was also blessed with great teachers in grade school that brought science to life for me. And the enthusiasm and insight of my freshman high school biology teacher sealed the deal.”

AMERICAN FEDERATION FOR AGING RESEARCH 2010 SUPPORTERS LIST

AFAR BOARD OF DIRECTORS

Charles Beever
Richard W. Besdine
Harvey J. Cohen
Mark R. Collins
Ann M. Connolly
Gaetano Crepaldi
Helen K. Edelberg
Jay M. Edelberg
Howard J. Federoff
Alexandra L. Gatje
Mark S. Lachs
Kevin J. Lee
William J. Lipton
Stefania Maggi
George M. Martin
Roger J. McCarter
Joan Murtagh Frankel
Diane A. Nixon
Clarence E. Pearson
Joan L. Quinn
John B. Rhodes
Corinne H. Rieder
Richard L. Sprott
John T. Watters
Terrie T. Wetle
Joyce M. Yaeger
Gary L. Zwerling

AFAR FORMER , HONORARY AND EMERITUS DIRECTORS

Jacob A. Brody
Judith Campisi
Rose W. Dobrof
George E. Doty
Estate of Dorothy Dillon Eweson
Charles J. Fahey
Hadley C. Ford
Diana Jacobs Kalman

James R. Rowen
William C. Stutt
Patrick J. Waide, Jr.
T. Franklin Williams

CORPORATIONS/ FOUNDATIONS/ EDUCATIONAL INSTITUTIONS

Anonymous
AARP Office of International Affairs
Alexandra Foundation
The Atlantic Philanthropies
Booz & Company
The James A. and Dorothy R. Brunn
Foundation
Bristol-Myers Squibb Co.
Buck Institute for Research on Aging
The Carwill Foundation
Charina Foundation
Congregation Rodeph Sholom
The Charles Edison Fund
Albert Einstein College of Medicine of
Yeshiva University
The Ellison Medical Foundation
EmblemHealth
Owen J. Flanagan & Co.
Georgetown University McDonough
School of Business
The Gerontological Society of America
The Rosalinde and Arthur Gilbert
Foundation
Diane and Guilford Glazer Foundation
Glenn Foundation for Medical Research
The Glickenhau Foundation
The John A. Hartford Foundation
Health Affairs – Project Hope
The Lowell F. Johnson Foundation
The Marion Esser Kaufmann Foundation
F. M. Kirby Foundation
The Jan M. and Eugenia Krol
Charitable Foundation

The Lucius N. Littauer Foundation
The Litwin Foundation, Inc.
The Marshall Family Foundation
MetLife Foundation
The Ambrose Monell Foundation
National Institute on Aging/National
Institute of Health
The New York Academy of Medicine
PepsiCo
Pfizer Inc
Princeton Wealth Advisors of Raymond
James and Associates
The Rosenthal Family Foundation
sanofi-aventis
The Charles & Mildred Schnurmacher
Foundation
The Isak & Rose Weinman Foundation, Inc.

PARTNERS OF GOLDMAN SACHS & COMPANY

Anonymous
George T. Boyer
Leon Cooperman
George E. Doty
Robert A. Friedman
Stephen Friedman
Thomas Healey
Richard L. Menschel
Eugene Mercy
Michael Rantz
Gary L. SeEVERS
Eric P. Sheinberg
William C. Stutt
George M. Van Cleave
Sidney J. Weinberg, Jr. Foundation
J. Fred Weintz
John C. Whitehead
Gary L. Zwerling

AMERICAN FEDERATION FOR AGING RESEARCH 2010 SUPPORTERS LIST

INDIVIDUALS

Anonymous
Roger W. Ackerman
Sam and Ann Barshop
Maryann Baxter Sudo
Robert L. Cahill, Jr.
Guy A. Caldwell
William Campbell
William E. Chatlos
Margaret F. Cristofalo
Gordon H. DeFriese
DJ Diehl
Jean Evans Rich
David K. Falk
Norman and Eva Fleischer
Reeva Friedman
Karen A. Goraleski
David W. Gore
Phil and Marta Herzbrun
Jan K. Housinger
Robert Kahn
Judith and Edwin Leonard
James M. McLaughlin
The Marshall Family Foundation
Lois G. Michaels
Helen Mitchell
Brion Morrison
Laurie Norris
Richardson and Nan Noback
Mitchell Pines
Lorraine Reich
Thomas Sadiq
LaJuana Shewmaker
Frank Skerbetz
Nathan Strug
Ernest Thomas
Charlotte Waters
Michael Weiner
Clarita Zeppie

AFAR ALUMNI FUND

Anonymous
Itamar B. Abrass
Nir and Laura Barzilai
Robert D. Blank
Donna Z. Bliss
Patsy Brannon and Wes Buchanan, Jr.
Douglas E. Brash
Dennis E. Buetow
Judith Campisi
Mary Lou Caspers
Barbara A. Clark
Kelly Dineley
Linda A. Dokas
Andrew P. Goldberg
Marcia Gordon and David Morgan
Malene Hansen
David M. Holtzman
Brian W. Kennedy
Mary B. King
Lewis A. Lipsitz
Kathy Magnusson
Edward R. Marcantonio
Mervyn J. Monteiro
Neha Parikh
Margaret Pisani
Marcus and June Reidenberg
Alec Rooke
Eugenia L. Siegler
David Sinclair
Cagdas Tazearslan
Trygve Tollefsbol
Jeremy D. Walston
Hoau-Yan Wang
David L. Wilson

IN MEMORIAM

We are deeply grateful for the contributions of these and so many other individuals that supported AFAR and influenced the direction of aging research and

care of older adults. Their lives and actions are a testament to how one individual can impact the lives of many.

William B. Abrams, MD

Mark H. Beers, MD

Paul B. Beeson, MD

Frederick L. Bissinger

Robert N. Butler, MD

Vincent J. Cristofalo, PhD

Marie J. Doty

Dorothy Dillon Eweson

Fredric B. Garonzik

Rosalinde and Arthur Gilbert

Gladys and E. Roland Harriman

C. A. "Joe" Kalman

Joshua Lederberg, PhD

John Loeb

Florence Mahoney

Julie Martin

Estela Medrano, PhD

Nan Allen Nixon

Edward Northrop

Hon. Paul Rogers

Richard and Hinda Rosenthal

Fred D. Thompson

Irving S. Wright, MD

ROBERT N. BUTLER, MD
(1927-2010)

Physician, gerontologist, psychiatrist, Pulitzer Prize winning author, and one of the founders of AFAR, Dr. Butler was a pioneer in research on healthy aging. Throughout his life he was a constant advocate for the medical and social needs and rights of the elderly.

Dr. Butler was the first director of the National Institute on Aging and founded the Department of Geriatrics and Adult Development at The Mount Sinai Medical Center, the first department of geriatrics in a U.S. medical school.

In 1990, Dr. Butler founded the International Longevity Center (ILC), a policy, research, and education organization conducting research and education projects on population aging. Today, the ILC has 10 independent centers in the U.S., Europe, Asia, Latin America, Africa, and Israel.

He was the voice and advocate for healthy aging and his legacy will benefit all societies in the years to come.

BOARD

Irving S. Wright, MD
Founder

William J. Lipton, JD, LL.M., CPA
Chair, Board of Directors

**BOARD OF DIRECTORS
EXECUTIVE COMMITTEE**

Roger J. McCarter, PhD
President

Diane A. Nixon
Vice Chair

George M. Martin, MD
Scientific Director

Richard W. Besdine, MD
Medical Officer

Steven N. Austad, PhD
Vice President

Ann M. Connolly, MBA
Treasurer

Joan L. Quinn, RN, MSN, FAAN
Secretary

Joan Murtagh Frankel, JD
John B. Rhodes, MBA
Richard L. Sprott, PhD
Terrie T. Wetle, PhD
Joyce M. Yaeger

Stephanie Lederman, EdM
Executive Director

**HONORARY AND
EMERITI DIRECTORS**

George E. Doty
Honorary Chair

Hadley C. Ford, ScB, MBA
Chair, Emeritus

Diana Jacobs Kalman
Chair, Emeritus

Senator John H. Glenn
Honorary Director

BOARD OF DIRECTORS

Nir Barzilai, MD*

Charles Beever, MBA

Marie A. Bernard, MD

Federal Liaison - ex-officio

Harvey J. Cohen, MD

Mark R. Collins

Gaetano Crepaldi, MD

Helen K. Edelberg, MD, MPH

Jay M. Edelberg, MD, PhD

Howard J. Federoff, MD, PhD

Alexandra L. Gatje

Mikhail Y. Gurfinkel, JD

William J. Hall, MD*

Mark S. Lachs, MD, MPH

Kevin J. Lee, PhD

Stefania Maggi, MD, PhD, MPH

Rick A. Martinez, MD

Clarence Pearson, MPH

Corinne H. Rieder, EdD

John T. Watters, MB, ChB

Gary L. Zwerling, MBA

*Term begins 01/01/11

STAFF

Stephanie Lederman
Executive Director

Ashby Andrews
*Communications and Development
Officer*

Katherine Kelly Apple
*Communications and Development
Program Associate*

Aimee Cegelka
Program Associate

Catherine Cullar
Administrative Manager

Michelle Elliott
Accounting Assistant

Hattie Herman
Program Officer

Nancy O'Leary
Director, Development

Jacalyn Schwartz
Director, Finance

Odette van der Willik
Director, Grant Programs

CREDITS

Writing:
Stacey Harris

Design:
designwajskol

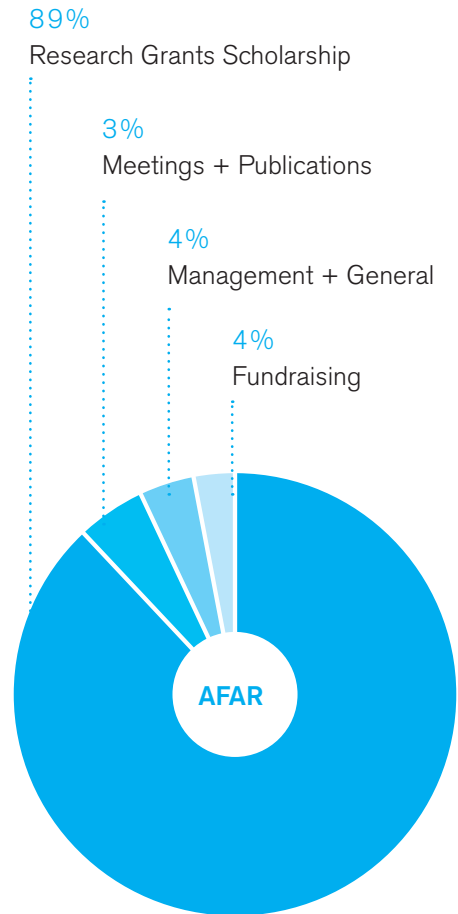
JOIN US

By supporting AFAR and aging research, you advance knowledge of many diseases of aging. This is more cost-effective than studying one disease at a time.

Our donors know that we identify and support some of the world's most exciting science. We do this through our rigorous review process, which is conducted by leading researchers in aging and age-related fields who form AFAR's scientific research committees. These individuals volunteer their time to carefully consider each proposal's scientific merit—part of the comprehensive process to identify the best and most promising research in the field.

AFAR's impact and low administrative expenses have secured a four-star ranking, the highest possible, from Charity Navigator, an independent evaluator of the nation's charities. AFAR has a track record of excellence demonstrating that donor dollars go toward its mission of supporting research on aging.

For more information on donating to AFAR, please visit us at www.afar.org/give or call Nancy O'Leary at 212-703-9977.



WHY WE SUPPORT AFAR

CORINNE H. RIEDER, EDD

Executive Director
The John A. Hartford Foundation

"The John A. Hartford Foundation supports AFAR because we share a common vision of improving the health of older Americans. In the more than two decades that The John A. Hartford Foundation has been aligned with AFAR, we have seen the organization evolve to address the pressing needs of an aging society."

DIANE A. NIXON

AFAR Board Member

"I continue to support AFAR after 25 years because of its incredible track record in identifying the best in scientific research. We are already reaping the rewards of AFAR's efforts through groundbreaking discoveries that go beyond the laboratories into clinical practice, aiding in drug development, and other interventions which improve health. I am thrilled to be part of this entire process."





American Federation for Aging Research

55 West 39th Street, 16th Floor
New York, NY 10018
212.703.9977
888.582.2327 toll-free
212.997.0330 fax

grants@afar.org
info@afar.org

www.afar.org

Affiliate:
AFAR Florida
c/o Stern Gerontological Institute
5200 N.E. 2nd Avenue
Miami, FL 33137
347.331.9633
www.afarFL.org

 Printed on 100% post consumer waste paper.