

afar

american federation
for aging research



FROM HOPE TO PROMISE

35th Anniversary and 2015 Annual Report

IN DEDICATION | For devoting their talents to the field of aging research, AFAR dedicates this report to all of our 2015 grantees, several of whom are seen on this report's covers:

(front cover, top to bottom)

Manu Sharma, Ph.D.

2015 New Investigator Award in Alzheimer's Disease

Sofiya Milman, M.D.

2015 Paul B. Beeson Career Development Award in Aging Research

Derrick Rossi, Ph.D.

2015 Julie Martin Mid-Career Award in Aging Research

(inside cover, left to right)

Nicholas Ashur

2015 Medical Student Training in Aging Research (MSTAR) Scholar

David Sabatini, M.D., Ph.D.

2015 Glenn/AFAR Breakthroughs in Gerontology (BIG) Award

Dena Dubal, M.D., Ph.D.

2015 AFAR Research Grant for Junior Faculty



IN MEMORIAM | AFAR remembers our colleagues and supporters. We are grateful for their long-time support of the field:

Reeva Friedman, former Senior Director/Team Leader of Global Medicine at Pfizer Inc

Jerome Kowal, M.D., former board member and Professor Emeritus of Geriatric Medicine at Case Western Reserve University

Joan L. Quinn, R.N., M.S.N., F.A.A.N., board member and Executive Director of UnitedHealth Group, Evercare

John T. Watters, board member and Vice President for External Medical Affairs at Pfizer Inc

LIVING HEALTHIER, LONGER | FROM HOPE TO PROMISE

“We are tackling the greatest health problem of today and the coming years—the innumerable and complex disabilities of the aging population.”

Irving S. Wright, M.D., proved prescient when he wrote those words 35 years ago, in the first newsletter of the new organization that he had founded and called the American Federation for Aging Research (AFAR). If anything, those words ring even more true for AFAR today.

The clarity of Dr. Wright’s vision set AFAR on the path it has followed in the decades since, guiding us to the future that he foresaw in 1981 as the first wave of baby boomers were entering middle age: the time, three decades down the road, when 10,000 people would turn 65 every day in America.

That day is here, and AFAR has played an essential role over the intervening decades: supporting rigorously conducted aging research driven by the hope that we would one day be able to extend our healthspan—the amount of time people can live independently and free of disability.

As we celebrate AFAR’s 35th anniversary, that hope is now a promise. The years of research in the lab have brought us to the threshold of being able to keep people healthier, longer. The question is no longer whether we can delay the onset of age-related illnesses, but when.

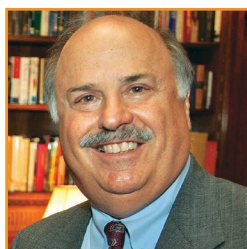
We reached this turning point by doing the hard but necessary work of supporting research on the basic biological processes of aging and nurturing several generations of scientists and clinicians. Since its founding, AFAR has supported nearly 3,200 investigators at more than 500 leading institutions through over \$160 million in grant awards. AFAR also has championed major breakthroughs and public education on healthy aging.

One recent notable example—the Targeting Aging with Metformin (TAME) Trial—has received considerable attention in the past year. Researchers believe that metformin, a widely used drug for type 2 diabetes, may influence fundamental aging factors that underlie multiple chronic diseases.

In 2015, the TAME Trial was featured in a *National Geographic Channel* special directed by Ron Howard and covered in *The New York Times*, *The Wall Street Journal*, *The Washington Post*, *CNN.com*, and more. Throughout, AFAR and its leadership have been centrally involved in supporting TAME’s planning and development, building the financial and institutional support to move TAME into clinical trials.

AFAR also was instrumental in organizing a pioneering collaboration with seven other of the nation’s top organizations that are working in the field of aging. As Leaders of Aging Organizations, the group has first published *Gauging Aging: Mapping the Gaps between Expert and Public Understanding of Aging in America*, which reveals key obstacles to the public’s ability to access and apply expert perspectives in thinking about growing older.

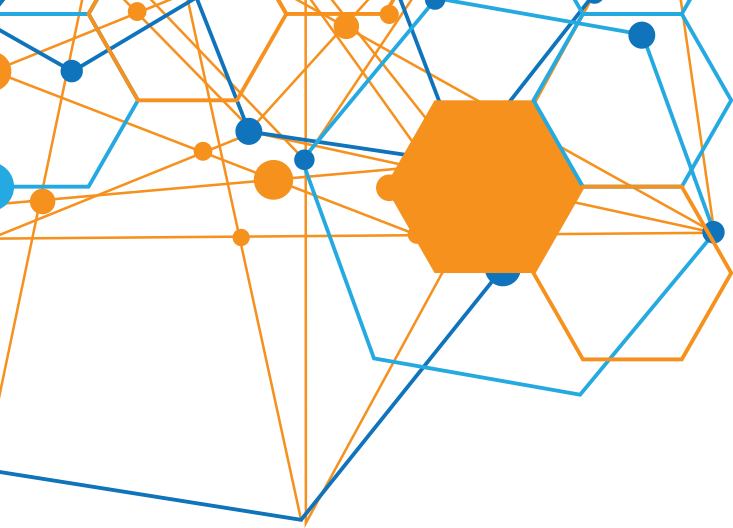
This commemorative annual report celebrates the vision of Irving Wright and all of the dedicated and talented researchers who have helped to make that vision become a reality today. With great anticipation, we look forward to the future, as AFAR supports the exciting work of delivering on the promise made possible by more than three decades of hard-won scientific knowledge—the promise of developing interventions that will alleviate suffering and enable people to enjoy health, independence, and well-being longer as they age.



William J. Lipton
Chair, Board of Directors



Stephanie Lederman
Executive Director



YEARS OF HOPE: *Expanding Knowledge, Building the Field*

Few people realized it at the time, but 1981 was a landmark year for the future of aging in America, due primarily to a visionary physician ... and fruit flies.

Thirty-five years ago, Irving S. Wright, M.D., convened a group of leading aging researchers at the annual meeting of the American College of Physicians in New Orleans and founded the American Federation for Aging Research. The mission from the beginning was to fund and nurture talented scientists and physicians and encourage them to pursue lifelong careers in research focused on aging processes and age-related diseases.

AFAR emerged at a time when public perception on aging was fueled by years of late-night television commercials for “miracle cures,” and the field was not only perceived as “anti-aging” but also the province of charlatans and quacks.

“At the time AFAR got started, I think it would be fair to say that most people in both the scientific and medical communities did not regard aging research as a serious scientific endeavor,” says Harvey J. Cohen, M.D., president of AFAR’s Board of Directors and the Walter Kempner Professor of Medicine and Director of the Center for the Study of Aging and Human Development at Duke University. “I think AFAR took up the challenge when few others were trying to inject real science into the study of aging at every level.”



AFAR began raising crucial financial support for research focused on the basic biological processes of aging, an area that then had precious few champions. At the same time, the organization committed financial support, as well as mentorship and networking opportunities, to develop a cadre of academic physician-scientists.

“Up until the period when AFAR was created, there really was very little attention put specifically on understanding what it is about getting older that makes us vulnerable to disease and what we can do to keep people healthy as long as possible,” says Kevin J. Lee, Ph.D., AFAR board member, Executive Director of the Lawrence Ellison Foundation, and Senior Scientific & Programmatic Advisor of the Glenn Foundation for Medical Research.

In 1981, that understanding received a major boost, and also revealed a glimpse of the field’s future, when a team of scientists published the first in a series of studies that showed that the effects of aging can be delayed in fruit fly populations through selective breeding in the laboratory. This groundbreaking basic research on fruit flies, along with studies on yeast, worms, mice, opossums, and other mammals, has since played a key role in scientific breakthroughs in the quest to delay the effects of aging—fueling the hope that what was discovered in the lab would one day have applications in humans.

“At the time AFAR got started, I think it would be fair to say that most people in both the scientific and medical communities did not regard aging research as a serious scientific endeavor.”

Harvey Jay Cohen, M.D.
President - AFAR Board of Directors

EARLY MOMENTUM

By 1982, AFAR had awarded its first grants to five promising researchers. By the end of that decade, AFAR had awarded nearly 200 grants.

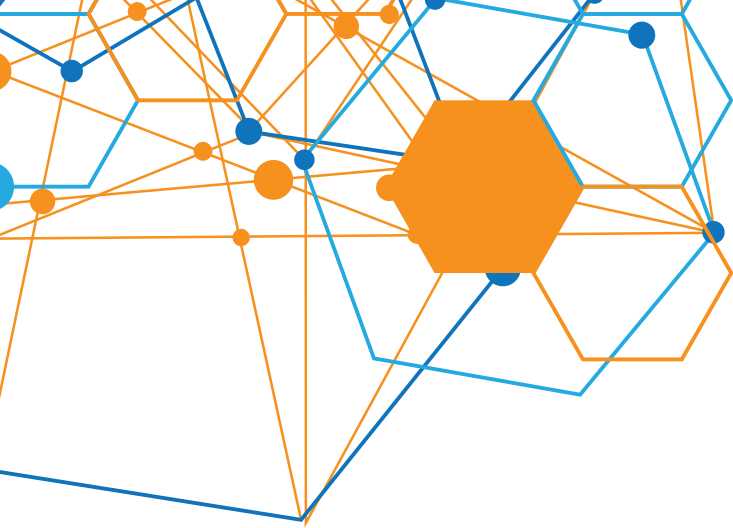
“What AFAR chose as its mission was really the most difficult thing, which is supporting research that doesn’t have an obvious and immediate application to humans, but that ultimately would lead to it,” says Steven N. Austad, Ph.D., the Scientific Director of AFAR. “Over the years, AFAR has supported a lot of research on things like fruit flies that are very, very difficult to raise funds for; however, what you find in fruit flies turns out to have a lot to say about human aging.”

And through career development programs, such as the Paul B. Beeson Career Development Awards in Aging Research and the Medical Student Training in Aging Research (MSTAR) program, AFAR has provided research support, critical mentorship, and networking opportunities to young, clinically trained investigators.

“AFAR’s concentration on young investigators, in my view, has paid off,” says George M. Martin, M.D., AFAR’s Scientific Director Emeritus and Professor of Pathology Emeritus at the University of Washington. “It’s given an opportunity to young people to get a start.”

Having served as both a Beeson and MSTAR mentor, Dr. Cohen agrees: “AFAR has really helped over the years to build a critical base of people who are now seen as serious clinician–investigators in the area of geriatrics and gerontology—something that essentially didn’t exist 20 years ago.”





YEARS OF PROMISE: *Translating Research to Keep Us Healthier Longer*

In the more than three decades since its modest beginnings, AFAR has awarded more than \$160 million in grants to support nearly 3,200 investigators at more than 500 leading institutions across the U.S. as well as Ireland, Israel, Italy, and the United Kingdom. The grants, ranging from \$3,500 to \$800,000, support scientists at all stages of their careers. The focus of the research that AFAR helps advance is about extending healthspan—the time we are in optimal health as we age.

Research on the biological processes of aging aims to “add life to years, rather than years to life,” says James L. Kirkland, M.D., Ph.D., Professor of Medicine and Physiology at the Mayo Clinic in Rochester, Minnesota, and winner of a 2012 Glenn/AFAR Breakthroughs in Gerontology (BIG) Award, and current AFAR board member.

The biological processes of aging are at the root of all major chronic conditions. For example, nearly 70 percent of cancer deaths occur in people over 65. Alzheimer’s disease affects one in nine Americans over 65—a figure that jumps to one in three over 85. Researchers hoped that a better understanding of the processes of aging would open the door to interventions that could address them all at once, instead of individually.

That hope has been borne out in recent years.

The approach, says Richard W. Besdine, M.D., AFAR’s Medical Officer, is based on “the premise that understanding the basic biology of aging will help us do far more to promote well-being accompanying longevity for older people than disease-specific research.”

Studying the biological processes of aging offers the tantalizing prospect of addressing multiple chronic diseases at the same time by “understanding how cells regulate themselves and how the molecular mechanisms underlying the processes of aging are called into play when virtually any disease state occurs,” says Dr. Besdine, Professor of Medicine, Greer Professor of Geriatric Medicine, Director of the Center for Gerontology and Health Care Research, and Director of the Division of Geriatrics in the Department of Medicine at Alpert Medical School of Brown University.

“So by manipulating the molecules engaged in aging, a broad array of diseases can be influenced and maybe even prevented.”



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Richard M. Besdine, M.D.
AFAR Medical Officer

Holly M. Brown-Borg, Ph.D., recent AFAR Vice President and Research Grant Committee Chair, says working from lifespan to healthspan was a natural progression in age-related research.

“While we had started to see some improvements in lifespan in lower species, we couldn’t really look at healthspan in yeast and flies and worms. They don’t communicate in the same way that even a mouse does or a monkey,” says Dr. Brown-Borg, who is the Chester Fritz Distinguished Professor at the University of North Dakota School of Medicine and Health Sciences. “I think encompassing all of those model systems early on helped us get to this stage today. We’re now at the point of focusing many efforts in the mammalian system only, and then into humans. It’s very exciting.”

TARGETING AGING: AN IDEA WITH BIG DIVIDENDS

AFAR has been influential in helping position the long-term socioeconomic benefits of aging research, or the Longevity Dividend, as spearheaded by board member S. Jay Olshansky, Ph.D. AFAR co-sponsored a much-cited 2013 study published in *Health Affairs*, co-authored by Dana P. Goldman, David Cutler, Pierre-Carl Michaud, Jeffrey Sullivan, Desi Peneva, former AFAR board president John W. Rowe, and Olshansky. The study estimated that by studying and harnessing the fundamental processes of aging, we could increase the time spent in good health with less disability. And the economic value translates into a savings of \$7.1 trillion over 50 years.

“I think it’s a very conservative estimate. But forget about the money,” says Dr. Olshansky, Professor in the School of Public Health at the University of Illinois at Chicago, as well as a Research Associate at both the Center on Aging at the University of Chicago and the London School of Hygiene and Tropical Medicine. “I’m more interested in how it influences people. How much more healthy survival time can we create? And how much frailty and disability can we avoid? Because ultimately, it’s all about healthy life and how much healthy life we can create and manufacture through medical technology as well as risk factor modification.”

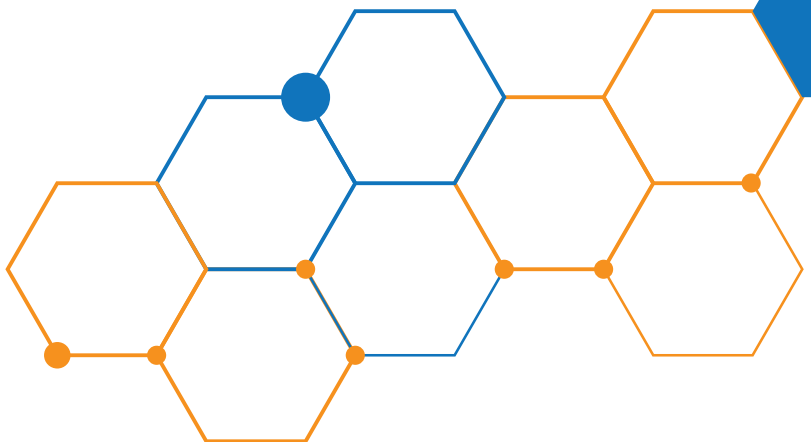
INTRODUCING GEROSCIENCE

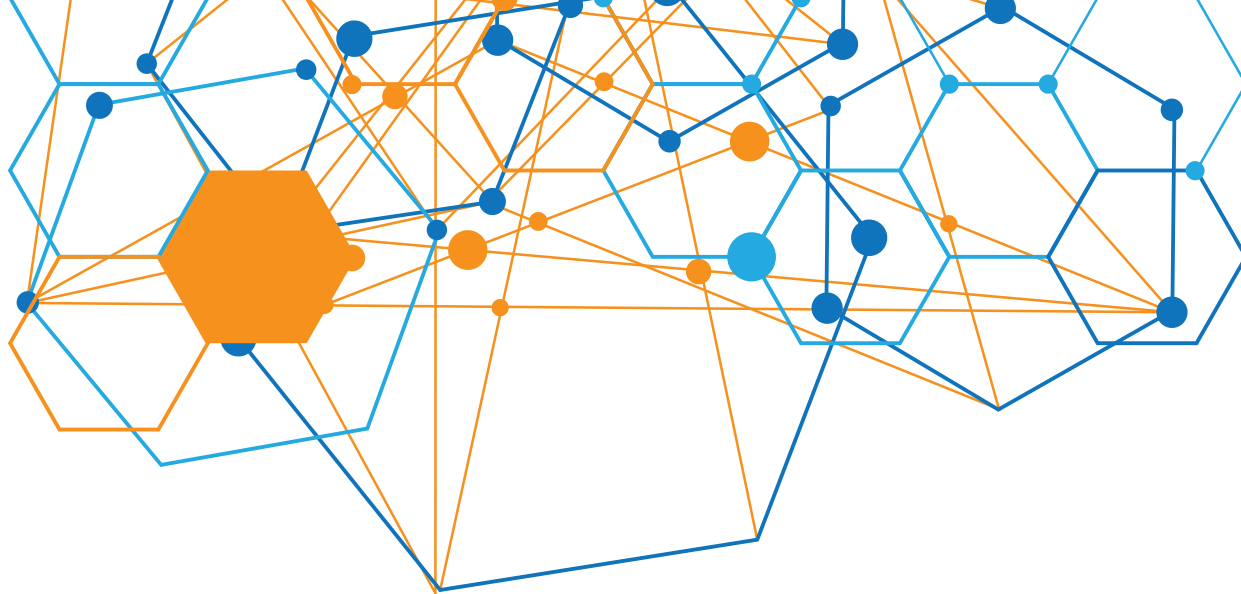
As the scientific community began to coalesce around the understanding that the relationship between aging and age-related diseases is of vital importance, a new term—geroscience—has emerged. It has given rise to a range of efforts, including the Trans-NIH Geroscience Interest Group (GSIG), which brings together disease-specific NIH Institutes to explore how biological mechanisms of aging underlie disease and disability.

“Geroscience is changing the conversation on aging,” says Felipe Sierra, Ph.D., Director of the Division of Aging Biology at the National Institute on Aging and a founder and coordinator of GSIG. “Understanding that aging may be at the root of many major diseases represents a significant paradigm shift in how scientific research views the interaction between aging and disease, and offers the best hope to address multiple age-related chronic diseases at once, instead of focusing our efforts on each individual disease. This approach promises a much larger impact on society by enabling people to enjoy good health and independence longer as they age.”

The geroscience initiative builds on the Longevity Dividend, Dr. Olshansky says, and promises to become “the next evolution in public health. I think we’ve positively influenced the field and the field is now gaining considerable traction.”

Dr. Kirkland agrees that geroscience has gained considerable momentum: “I think everybody realizes that age-related diseases cluster in people, that age is the biggest influence on all of them, and that by targeting fundamental aging processes, you might be able to target multiple age-related disabilities and diseases in the same person with the same intervention.”





BACK TO THE FUTURE

As AFAR Scientific Director Steven N. Austad, Ph.D., sees it, the field AFAR has nurtured and helped build for 35 years is currently in what he calls “the Pharmaceutical Era of Aging Research,” as the hope that fueled the basic science research turns into the promise of exciting new human therapies.

“I think that aging research as a field is at exactly the same place that the cardiovascular field was 20 years ago,” says Dr. Austad, Distinguished Professor and Chair, Department of Biology, University of Alabama at Birmingham. “In those 20 years, cardiovascular disease has fallen by 40 percent. And that’s because of medications for the underlying causes of cardiovascular disease—high blood pressure and high cholesterol. And we’re now at that place in aging research, where we’ve got some things with a lot of evidence to suggest that they are going to be effective at treating the underlying causes of aging. That’s what the next 35 years is going to hold.”

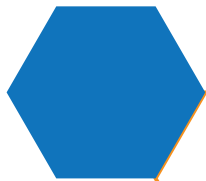
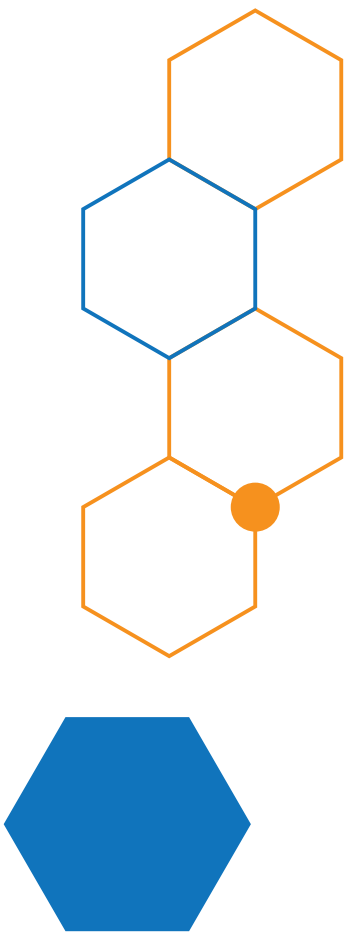
Drs. Austad, Kirkland, and Olshansky have been vital in building the case for the TAME (Targeting Aging with Metformin) Trial. Metformin is a widely used treatment for type 2 diabetes that, based on animal studies, may influence fundamental aging factors that underlie multiple age-related conditions in humans.

AFAR has supported the planning process of the TAME Trial led by AFAR Deputy Scientific Director Nir Barzilai, M.D., and is helping manage the process to build financial and institutional support to move TAME into clinical trials, which could open the door to Food and Drug Administration approval of aging as an indicator, as well as to the development of new drugs that will target aging. There are other promising compounds ready to be tested as well, heralding a new age of promise in aging research.



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Steven N. Austad, Ph.D.
AFAR Scientific Director





TEN MAJOR DISCOVERIES IN AGING RESEARCH DURING 35 YEARS OF AFAR

In the 35 years since its founding, AFAR has been instrumental in building the body of knowledge and discourse that has developed the field of biomedical research on aging. With AFAR's support, science has led to innumerable discoveries that are bringing us closer to the development of therapies that will extend healthspan, or our years of health as we age. To illustrate this, **AFAR Scientific Director Steven N. Austad, Ph.D.**, has described ten discoveries that have changed the field by both revealing answers and generating new questions.

SINGLE GENES CAN HAVE A DRAMATIC IMPACT ON THE RATE OF AGING.

The significance of this discovery is that single genes provide feasible targets for drugs that modulate their activity, thus preventing disease.

SENESCENT CELLS DO HAVE A DAMAGING IMPACT AS WE AGE.

These are cells that could once replicate to repair aging tissue but have now lost that capacity due to internal damage. It turns out that they degrade surrounding tissue by secreting harmful molecules. A long-time controversy has been whether senescent cells really had any damaging impact on us. We now know that they do—and why.

SENESCENT CELLS CAN BE REMOVED.

Researchers have discovered methods to get rid of accumulating senescent cells. This has proven to have many beneficial effects on health in mice, such as preventing cancer and preserving heart and kidney function. We are now ready to translate this to humans.

YOUNG BLOOD HAS REJUVENATING PROPERTIES.

Blood of young animals contains molecules that can actually rejuvenate damaged heart, brain, and muscle in older adult animals. Although the identity of these molecules is still uncertain, researchers are curious to learn if humans have similar molecular rejuvenation patterns, which could help prevent or delay disorders like dementia and heart failure.

EXERCISE CAN IMPROVE COGNITIVE HEALTH AS WE AGE.

In addition to established benefits of preserving cardiovascular health, reducing body fat, and lowering blood sugar, we now also know that exercise slows age-related processes within our cells, which can benefit the brain.

RESTRICTING CERTAIN FOODS—WITHOUT RESTRICTING CALORIES—CAN INCREASE HEALTHSPAN.

Research is showing that the restriction of certain food components, such as protein, or even just foods containing a certain amino acid, methionine, may preserve health without restricting calories themselves.

PREVENTING PROTEIN AGGREGATION CAN PRESERVE HEALTH.

Aggregation of misfolded proteins has long been assumed to be involved in neurological diseases such as Alzheimer's disease, where these aggregates form the classic plaques and tangles, but we now know that preventing such protein aggregation misfolding preserves health generally.

SIX DRUGS HAVE BEEN DISCOVERED THAT EXTEND LIFE IN MICE.

This success rate affirms how deeply the field now understands the underlying biology of aging.

ONE OF THESE DRUGS, RAPAMYCIN, HAS AGE-RELATED EFFECTS.

In mice, rapamycin has been shown to delay the onset of Alzheimer's disease and even slow normal age-related memory decline, preserve heart function, prevent several types of cancer, and improve vaccine response in older adults. It also has been shown to improve vaccine response in humans.

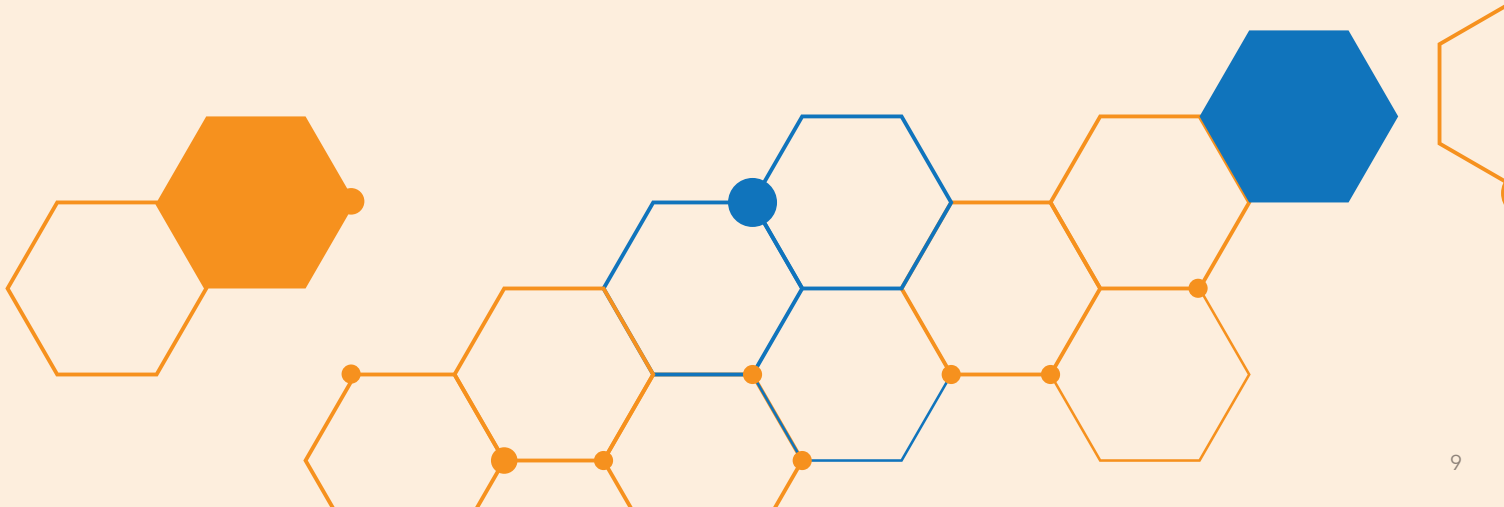
BIOLOGICAL PROCESSES OF AGING MAY DIFFER BETWEEN MEN AND WOMEN.

The therapies that have proven successful at preserving health in mice are effective only in one sex: might human treatments to preserve health differ for men and women? Sex differences in longevity and healthspan should be explored to help understand mechanisms underlying variation in longevity within a species.

We are excited to see what lies ahead. What's next? Notably, the majority of these ten top discoveries has been found in laboratory animals: **it is now time to move these discoveries into human trials.**

The first such trial, the TAME (Targeting Aging Through Metformin) Trial, will test whether metformin—a drug currently prescribed as the first line of defense against type 2 (adult onset) diabetes and already taken by millions of people—can delay the onset of age-related diseases. Through AFAR's management, TAME is now in its planning stages and will open the door to more trials based on other promising drugs.

Health care systems around the globe are struggling to treat older adults who have the clusters of diseases for which age is the main risk factor. With AFAR's leadership and your support, the opportunity is at hand to keep us all in better health as we age—all that is missing are the resources to do it. The promise of aging healthier is closer than ever.



2015 HIGHLIGHTS



Capturing Major Media Attention

In November, AFAR experts were prominently featured in the *National Geographic Channel* special, **"BREAKTHROUGH: The Age of Aging,"** narrated and directed by Ron Howard. AFAR is proud to have helped shape the content and have several of our leaders featured, including Scientific Director Steven N. Austad, Ph.D., Deputy Scientific Director Nir Barzilai, M.D.; board members S. Jay Olshansky, Ph.D., and James Kirkland, M.D., Ph.D., as well as Executive Director Stephanie Lederman. The special followed the development of the TAME (Targeting Aging with Metformin) Trial and gained unprecedented visibility for the field of aging research.

"We were thankful to work with Nir Barzilai and AFAR on our Age of Aging special for National Geographic's Breakthrough. It was a thrill to document Dr. Barzilai's and his colleagues' work as they try to focus attention on aging research."

Ron Howard - Director and Narrator, *Breakthrough: The Age of Aging*

In 2015, aging research also captured popular media attention as never before, thanks in part to the articles and insights that AFAR experts lent to feature stories. Major publications, including *Discover*, *Newsday*, *Science*, and *TIME* magazine, devoted special issues to the field, and AFAR was prominently featured on the cover of the Personal Journal section of *The Wall Street Journal* in March.



AFAR Scientific Director Emeritus George M. Martin, M.D., accepts his Honorary Leadership Award at our Boston luncheon.

Convening Leaders in Alzheimer's Across the Country

In 2015, AFAR gathered leaders in research and philanthropy for three special events across the country exploring research innovations in Alzheimer's disease (AD).

In July, AFAR helped present the **MetLife Foundation Awards for Medical Research in Alzheimer's Disease** to Randall Bateman, M.D., and Christian Haass, Ph.D. In addition to managing the selection process for the awards, AFAR organized a reception and research briefing at the Alzheimer's Association International Conference in Washington D.C.

Next, more than 70 guests from the academic, philanthropic, and science communities joined AFAR on October 27 at the Harvard Club in Boston for our regional awards luncheon and panel, **"The Future of Alzheimer's Disease: Translation and Therapeutics."** Board member Kevin Lee, Ph.D., presented the Honorary Leadership Award to George M. Martin, M.D., Professor of Pathology Emeritus at the University of Washington School of Medicine and AFAR's Scientific Director Emeritus. Renowned AD expert Rudy Tanzi, Ph.D., presented the Chairman's Award to Roger Nitsch, M.D., Co-Founder and President of Neurimmune. A panel featuring experts from the academic and pharmaceutical sectors closed the afternoon.

In Marina del Rey, California, AFAR organized the **"Effective Translation of Alzheimer's Disease Research"** roundtable on November 3 in collaboration with **The Rosalinde and Arthur Gilbert Foundation** and the **Santa Barbara Foundation**. The day-long program convened philanthropic leadership, policy makers, and scientific and medical experts. 2005 Beeson Scholar Cynthia Carlsson, M.D., 1998 Beeson Scholar Laura Dugan, M.D., and 2015 New Investigator Award in Alzheimer's Disease recipient Jason Hinman, M.D., Ph.D., discussed the social and economic impact of Alzheimer's disease as well as the current landscape, challenges, and gaps in translating basic AD research to effective therapies. AFAR is excited to share the roundtable's recommendations for moving AD research into translation in an upcoming report.





AFAR celebrated Paul F. Glenn's 50-year commitment to research on the processes of aging.

**GLENN FOUNDATION
FOR MEDICAL RESEARCH**

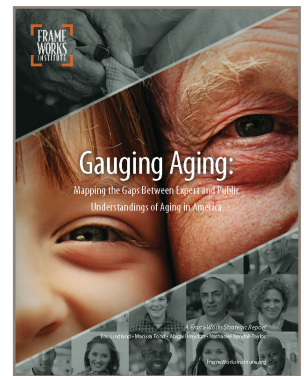


Exchanging Ideas at the Glenn/AFAR meetings

In June, AFAR returned to Santa Barbara, CA, to convene grantees from across our programs for the annual scientific meetings, held in collaboration with the [Glenn Foundation for Medical Research](#). Nearly 100 attendees—including grantees, leaders in the field, and representatives from foundations—assembled to review AFAR-supported research, and senior investigators from top institutions nationwide shared insights on emerging directions in the field. The New Investigators in Alzheimer's Disease Grantee Meeting, sponsored by [The Rosalinde and Arthur Gilbert Foundation](#), kicked off the sessions, followed by the 28th Annual AFAR Grantee Conference. Next, a special joint meeting of the AFAR Grantee Conference and Glenn Workshop was held to commemorate the 50th anniversary of the Glenn Foundation for Medical Research. The meetings concluded with the 6th annual Paul F. Glenn Workshop on the Biology of Aging featuring researchers at eight Glenn Centers across the country. AFAR is proud to have worked with the Glenn Foundation and The Gilbert Foundation to bring together these talented investigators.

Reframing Aging in a New Publication

AFAR was instrumental in creating a pioneering collaboration with seven other of the nation's leading groups focused on aging: AARP, the American Geriatrics Society, the American Society on Aging, The Gerontological Society of America, Grantmakers in Aging, the National Council on Aging, and the National Hispanic Council on Aging. Known as Leaders of Aging Organizations, the group first launched a report [Gauging Aging: Mapping the Gaps between Expert and Public Understanding of Aging in America](#). *Gauging Aging* reveals key obstacles to the general public's ability to access and apply expert perspectives in thinking about adult aging. Based on in-depth interviews with a cross section of Americans, the report was created by the award-winning Frame-works Institute and was produced with the generous support of AARP, the Archstone Foundation, The Atlantic Philanthropies, the John A. Hartford Foundation, the Fan Fox and Leslie R. Samuels Foundation, The Retirement Research Foundation, and the Rose Community Foundation.



“With our long-term commitment to improving the care of older adults, The John A. Hartford Foundation is inspired to see AFAR and other partners represented by the Leaders of Aging Organizations combine their talents and resources to take on the essential task of reframing aging and eradicating ageism in our culture. The Gauging Aging Report offers us an actionable analysis of what is needed to deepen public understanding and strengthen our society’s commitment to healthy aging.”

Terry Fulmer, Ph.D., R.N., F.A.A.N. - President of The John A. Hartford Foundation

The *Gauging Aging* report can be downloaded at www.afar.org/media/publications.



Erin Beck receives a crystal award from Laurie Norris to commemorate her Pearson Fellowship.

Launching a Global Health and Aging Fellowship

In January, AFAR launched an interdisciplinary initiative for graduate students: [The Clarence Pearson Fellowship in Global Health and Aging](#), named after our late board member in honor of his tremendous dedication to aging across sectors and around the world. The first fellows—Stephane LaBoissierie and Erin Beck, both public health students at Columbia University—looked at opportunities for global collaborations and integrating aging across the lifecourse. AFAR looks forward to continuing to grow this program and is grateful to Laurie Norris, wife of Clarence Pearson, and the members of the fellowship's advisory committee for their support and guidance.

RIGOROUS REVIEW PROCESSES ENSURE AFAR GRANTS DELIVER ON PROMISE

At a time when resources to fund aging research are tightening nationwide, AFAR's stringent review process ensures that grants support only the best science in a highly competitive field.

"The dedicated scientists who review AFAR's grant applications bring a depth of expertise and breadth of scientific knowledge that is unmatched in the field of aging research," says Pinchas Cohen, M.D., Dean, USC Leonard Davis School of Gerontology and Chair of the AFAR Research Grant for Junior Faculty Selection Committee. "Every application is meticulously reviewed according to the highest possible standards. This rigorous review process ensures that applications chosen for funding hold the real promise of making a significant contribution to AFAR's commitment to increase the healthspan of older adults."

Reviewers for the two-step process are drawn from AFAR's National Scientific Advisory Council (NSAC), which is comprised of almost 300 highly acclaimed scientists representing a wide range of areas of expertise within aging research.

Rather than having to write a full proposal, applicants first submit a short abstract outlining specific aims and then send a short biographical sketch to help determine eligibility. The panel of initial screeners for the letters of intent are "fairly senior AFAR scientists with a wide range of expertise," says Holly Brown-Borg, Ph.D., the Chester Fritz Distinguished Professor at the University of North Dakota School of Medicine and Health Sciences and former chair of the AFAR Research Grant Committee.

About one in four of the letters of intent are accepted to go to a full proposal. In 2015, across AFAR's Biology of Aging grant programs, we received over 400 letters of intent, and 29 proposals ultimately were approved for funding.

"AFAR's grant review process is widely recognized for both the unsurpassed expertise of the scientists who conduct the reviews and their unwavering commitment to applying the very highest standards in choosing which applications are funded each year," says Arlan Richardson, Ph.D., the Donald W. Reynolds Endowed Chair of Aging Research and Professor of Geriatric Medicine, University of Oklahoma Health Science Center, and Research Career Scientist, Oklahoma City VA Medical Center.

"As the aging research community has become more aware of the Glenn/AFAR Breakthroughs in Gerontology (BIG) Awards and the Julie Martin Mid-Career Awards in Aging Research, which ended in 2015, there has been a dramatic increase in the number and quality of proposals we have reviewed," adds Dr. Richardson, who chairs AFAR's BIG and Mid-Career Selection Committee. "Support from AFAR is a clear sign of the high quality of research that a scientist is conducting in aging and is extremely important in helping investigators, especially junior investigators, obtain NIH funding."



2015 SCIENTIFIC REVIEW COMMITTEES

AFAR RESEARCH GRANT FOR JUNIOR FACULTY SELECTION COMMITTEE

Pinchas Cohen, M.D., *Chair*
University of Southern California

Sandy Chang, M.D., Ph.D.
Yale University

Sean Curran, Ph.D.
University of Southern California

Jennifer Garrison, Ph.D.
Buck Institute for Research on Aging

Nathan LeBrasseur, Ph.D.
Mayo Clinic

Nicolas Musi, M.D.
University of Texas Health Science Center,
San Antonio

NEW INVESTIGATOR AWARD IN ALZHEIMER'S DISEASE SELECTION COMMITTEE

Norman Relkin, M.D., Ph.D., *Chair*
Weill Cornell Medical College

Chad Dickey, Ph.D.
University of Southern Florida Byrd Alzheimer's Institute

Orly Lazarov, Ph.D.
University of Illinois at Chicago

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Children's Hospital of Philadelphia

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AFAR is grateful to The Rosalinde and Arthur Gilbert Foundation for supporting this program.



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David Walker, Ph.D.
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AFAR is grateful to The Lawrence Ellison Foundation for supporting this program.



"AFAR is a pillar of credibility, influence, and support of rigorous science in aging research. As a young investigator, still in the early, critical stages of my career, receiving an AFAR Research Grant for Junior Faculty is a tremendous honor. This support not only serves as a catalyst to do the work, but also a validation that the research we are doing is important."

Derek Huffman, Ph.D.

2015 AFAR Research Grant for Junior Faculty
Assistant Professor - Albert Einstein College of Medicine

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AFAR is grateful to the Glenn Foundation for Medical Research for their support and collaboration on several grant programs.

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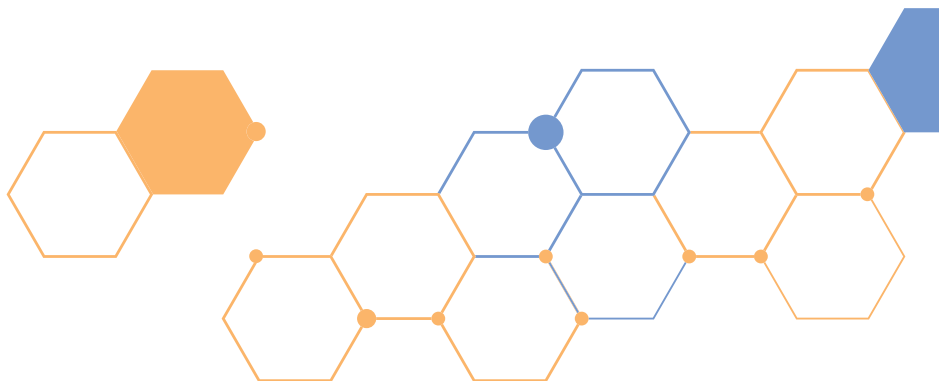
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Brigham and Women's Hospital

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Assistant Professor of Medicine,
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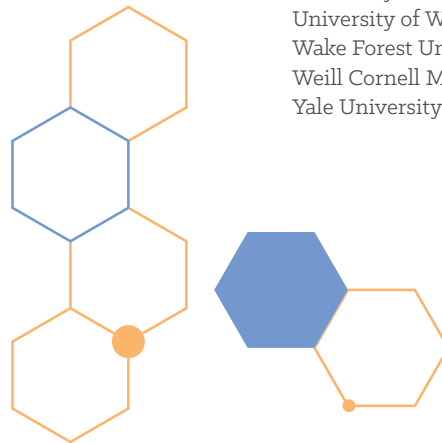
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FOR THE COMPLETE LIST OF
THE 119 SCHOLARS WHO
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IN AGING RESEARCH (MSTAR)**
PROGRAM IN 2015, PLEASE VISIT
www.afar.org/research/grantees



"I have been a geriatrician for nearly 30 years, and worked in three states and several healthcare systems. Based on that experience, and my current role as the Director of NYU's Division of Geriatrics & Palliative Care, I am acutely aware of the continuing and growing need for a highly skilled geriatric care workforce. For 35 years AFAR has provided a bridge between the lab and the bedside, bringing research to doctors and their patients to promote healthy aging. Through its Beeson, MSTAR, and Centers of Excellence programs, AFAR helps not only populate the field of geriatric medicine but also move the latest science-backed interventions into clinical practice."

Caroline S. Blaum, M.D. - AFAR Deputy Medical Officer

Diane and Arthur Belfer Professor of Geriatrics and the Director of the Division of Geriatric Medicine and Palliative Care - New York University Langone Medical Center

FOR 35 YEARS, THE HOPE OF AN AFAR GRANT HAS FUELED THE PROMISE OF A CAREER IN AGING RESEARCH.



"AFAR grants are critically important because they allow the exploration of unconventional ideas, and they nurture projects that are at the early, most vulnerable stage of development that is rarely supported by traditional funding agencies. An AFAR grant helps young investigators attract outside money and empowers them for the next stages of their career. Accordingly, the trajectories of AFAR grantees have been quite superb."

Anne Brunet, Ph.D.

2005 AFAR Research Grant for Junior Faculty
Michele and Timothy Barakett Professor of Genetics Stanford University

"As an Assistant Professor, when I wanted to take my lab in the direction of aging research, AFAR was the first to provide a pilot grant to get me off the ground. Without that, it is not clear whether I would have developed a successful project in the field. I am sure that a large percentage of scientists who now are leaders in this emergent field have the same story to tell. Simply put, AFAR has been essential to bringing aging to the forefront of medical research."



Brian Kennedy, Ph.D.

2008 Julie Martin Mid-Career Award
2003 AFAR Research Grant
CEO & President - The Buck Institute for Research on Aging



"An AFAR Beeson grant provides much more than just funding to support a research project: it is an opportunity to connect with the leading experts in the field and a catalyst for dynamic collaborations with other researchers. Furthermore, the AFAR Beeson program fosters exceptional mentoring that is formative for both academic and funding success."

Kristine Yaffe, M.D.

2001 Beeson Scholar
Professor of Psychiatry, Neurology, and Epidemiology, the Roy and Marie Scola Endowed Chair, and Vice Chair of Research in Psychiatry - UCSF School of Medicine

"My two AFAR grants were essential to my success as a researcher in the field of brain aging, because they offered me support at precisely those critical times when a young scientist needs them most. Receiving these grants from AFAR, who is a respected leader in aging research funding and is known for its rigorous review process, helped validate my career."



Adam Gazzaley, M.D., Ph.D.

2005 Pfizer/AFAR Innovations in Aging Research Grant
2002 Glenn/AFAR Postdoctoral Fellowship
Director - Neuroscience Imaging Center, Neuroscape Lab & Gazzaley Lab, University of California, San Francisco

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

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"The Santa Barbara Foundation was proud to partner with The Rosalinde and Arthur Gilbert Foundation and AFAR to bring together philanthropic leaders, policy makers, and scientific and medical experts in Alzheimer's disease and aging research to our local community in Marina del Rey, California. We are excited to share the recommendations for moving Alzheimer's research into translation in an upcoming report. As a national organization, AFAR provided our local community leaders with access to the top minds in aging research and geriatric care. Foundations like ours look to AFAR's leadership and expert network for the best research and insights to help improve the health and well-being of local communities throughout the country."

Phylene Wiggins - Senior Director of Community Investments
Santa Barbara Foundation



"AFAR has distinguished itself by developing a highly effective and rigorous process for identifying the highest quality research and most promising investigators. Over the years, this strategy has contributed to the success of leading gerontologists and researchers in changing the science of aging. AFAR has also played an important role in disseminating research findings by convening conferences and workshops that bring together prominent scientists with leading journalists to discuss the latest and most promising research findings and their implications for healthy aging. As a board member and professional in the field, I'm proud to support AFAR's work to make this the age of aging better."

Terrie Fox Wetle, M.S., Ph.D. - AFAR Board Member and former President
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"AFAR is undoubtedly the most important source of support for aging research outside the National Institute on Aging. It provides a vital source of support for postdoctoral and newly emerging independent scientists. It also provides crucial support for conferences and workshops that stimulate scientists at all levels of accomplishment, as well as the general public and national policy-makers. Given the increasing social and economic toll caused by the rising number of elderly with debilitating age-related diseases, supporting AFAR should be a priority for all concerned citizens. As a former grantee, it gives me great pride to give back to AFAR as a donor."

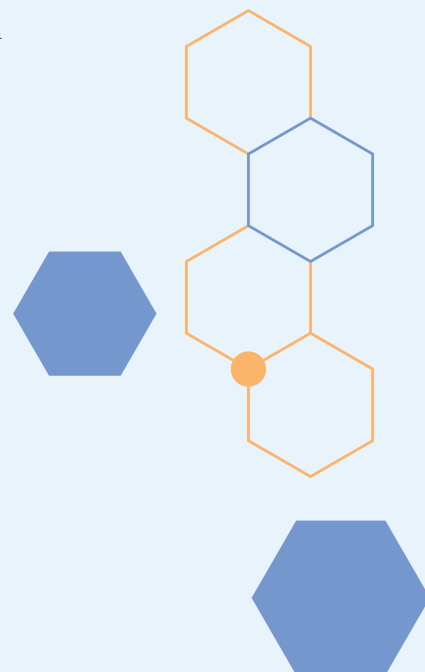
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Professor - Buck Institute for Research on Aging

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"I strongly believe that AFAR is engaged in a critical mission: supporting research in healthier aging. I was particularly touched by a recent conversation with a researcher in the Alzheimer space, conveying the impact of the disease and his exploration approach. I believe most people welcome the idea of living longer, but I also think that there's no benefit in living longer without quality of life or health. On behalf of Bloomberg LP's matching gift program, I hope this gift will help AFAR advance their core mission and support new areas of research."

Dwight Edwards - Donor

Information Systems Architect - Bloomberg LP



THE IRVING S. WRIGHT LEGACY SOCIETY

The newly launched Irving S. Wright Legacy Society is an honorary society created to recognize and thank individuals who make planned gifts to AFAR. The Society is named for our founder, Irving S. Wright, M.D., a pioneer in aging research who had the foresight to realize that there would be a substantial age boom in the years ahead, yet scant resources devoted to biomedical research to support such growth. He saw that providing financial support to encourage more scientists to enter the field and more geriatricians to care for an aging population would be key to securing a greater commitment to the field of aging research.

We thank the following founding members who have named AFAR in their estate plans:

George E. Doty*
Diana Jacobs Kalman

Dorothy Dillon Eweson*
Robert and Bette Nielson

Mary and Hadley Ford
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For more information about making a planned gift to AFAR, please contact Karen Wenderoff, Director of Development, at 212.703.9977 or karen@afar.org.

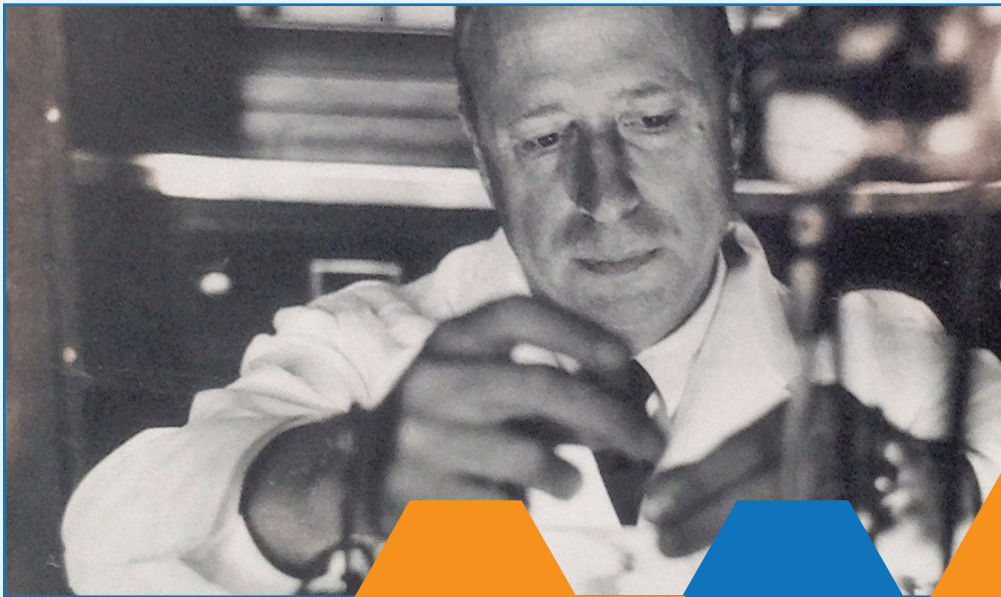
* deceased



"Given the fact that we now live longer, it is critical that the scientific advancement of healthier aging continues to develop and receive support. During my tenure on the Board, I observed the organization's strength in identifying and funding research talent through an outstanding peer review process. This process and its results are a major reason why I wish to provide for AFAR in my will. It is gratifying to know that my bequest will help AFAR continue its laudable work."

Diana Jacobs Kalman - Irving S. Wright Society Member
AFAR Chair Emeritus

AFAR founder Irving S. Wright, M.D., featured in LIFE magazine in 1955.



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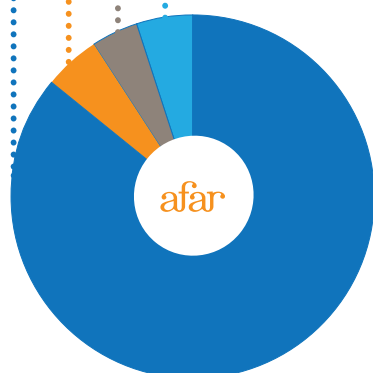
SUMMARIZED FINANCIAL INFORMATION | Year Ended December 31, 2015

88% research grants and scholarships

4% meetings and public education

4% management and general

4% fundraising



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

SUMMARIZED OPERATING RESULTS

OPERATING REVENUE

Contributions	10,031,136	97%
Investment Income, Net	5,808	—
Endowment Earnings	274,868	3%
Other	24,644	—
Total Operating Revenue	10,336,456	100%

EXPENSES

Research Grants and Scholarships	9,102,902	
Meetings and Public Education	429,680	
Total Program Expense	9,532,582	92%
Management and General	449,873	
Fundraising	351,227	
Total Supporting Expense	801,100	8%
Total Operating Expense	10,333,682	100%
Total Operating Income	2,774	0%

SUMMARIZED BALANCE SHEET

Assets

Cash	3,952,017	18%
Contributions Receivable	7,286,216	33%
Investments	9,448,494	43%
Other	1,273,483	6%

Total Assets	21,970,210	100%
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Liabilities and Net Assets

Research Grants and Scholarships Payable	3,351,008	15%
Other	49,470	0%

Total Liabilities	3,400,478	15%
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Net Assets

Unrestricted	4,564,377	25%
Temporarily Restricted*	9,900,144	53%
Permanently Restricted Endowment	4,105,211	22%

Total Net Assets	18,569,732	85%
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Total Liabilities and Net Assets	21,970,210	100%
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* Funding pledged in support of future programming

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



A young researcher is mentored by Nir Barzilai, M.D., AFAR's Deputy Scientific Director and Director of the Institute for Aging Research at the Albert Einstein College of Medicine and the Director of the Paul F. Glenn Center for the Biology of Human Aging Research and of the National Institutes of Health's (NIH) Nathan Shock Centers of Excellence in the Basic Biology of Aging.

SUPPORT AFAR | MOVE RESEARCH FROM HOPE TO PROMISE

Since our founding in 1981, the American Federation for Aging Research (AFAR)—a 4-star Charity Navigator organization—has been at the forefront, supporting the research that has built and grown the field of biomedical research on aging. To date, AFAR has funded over 3,200 investigators at more than 500 leading institutions nationwide.

Thanks to AFAR, discoveries HAVE been made over the past 35 years that will allow us to **live longer, healthier lives**. Thanks to our donors, AFAR-supported scientists are bringing us closer to the development of therapies that will extend healthspan—our years of health as we age.

As healthcare costs escalate and our population continues to age, we cannot afford to wait another 35 years to reap the benefits of the breakthroughs made in aging research today. The time is now to make living healthier as we grow older a reality—**all that is missing are the resources to do it**.

Donor support enables AFAR to continue to advance scientific discoveries, and low administrative costs and a volunteer scientific network allow us to accomplish what we do in the most cost-effective way, ensuring that **92% of your donation goes directly to programs!**

BY SUPPORTING AFAR, YOU WILL HELP MOVE AGING RESEARCH FROM HOPE TO PROMISE.

If you wish, gifts can be made through your donor advised fund. We offer a range of giving options for your consideration:

- Make a gift to underwrite or endow a **named research grant**. Naming opportunities in support of AFAR research grants, including disease-specific grants, are available at multiple levels of giving.
- Make a gift to our **annual fund**, the central vehicle through which our core research grant program and our operations are funded. Gifts can be made annually, or by becoming a sustaining donor through our monthly and quarterly gift program.
- Consider **sponsoring a scientific conference or public educational program**. Sponsorship opportunities are available at several levels of giving.
- Make a **planned gift or bequest** and become a member of the **Irving S. Wright Legacy Society**.
- Make a **memorial or a tribute gift** to honor a loved one or mark a special occasion.
- Make a gift through your **employer's matching gift program**, which doubles your donation.
- Make a gift of **stock or other tangible property** and avoid paying capital gains taxes.

We welcome the opportunity to speak with you about making a gift to AFAR. If you would like more information, please contact Karen Wenderoff, Director of Development, 212.703.9977 or karen@afar.org. You may also give online at www.afar.org/give.

For sound fiscal management and commitment to accountability and transparency, AFAR's accomplishments and low administrative expenses have secured the highest rating from Charity Navigator, an independent evaluator of the nation's charities.



OUR MISSION

The American Federation for Aging Research (AFAR) is a national, non-profit organization whose mission is to support biomedical research on aging and the diseases associated with aging. Since 1981, AFAR has advanced basic research and breakthroughs in the science of healthy aging by supporting more than 3,200 talented M.D.'s, Ph.D.'s, and students across the country. What AFAR-supported scientists are learning today about the processes of aging will help us all live healthier, longer.

Learn more at www.afar.org or follow AFARorg on Facebook and Twitter.

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