

LEADING SCIENCE



**10th Anniversary Report
Paul B. Beeson Career Development Awards
in Aging Research Program
1994-2004**

CELEBRATING LEADERS

About Paul Beeson

The Paul B. Beeson Career Development Awards in Aging Research Program is named after a distinguished leader in medicine who, accomplished in the art of healing and treating disease, exemplifies the word “physician.”

Now Professor Emeritus of Medicine at the University of Washington, Dr. Beeson remains connected to the field and has participated in several of this program’s annual meetings. Throughout his career, he has profoundly influenced the career paths of many young physicians, who today form the core leadership in geriatric medicine and aging research. His own career of unstinting service to medicine and unwavering commitment to geriatrics and aging research is an inspiration to all of us.



In 1994, with high hopes, a group of foundations and nonprofit organizations launched the Paul B. Beeson Physician Faculty Scholars in Aging Research Program, now known as the Paul B. Beeson Career Development Awards in Aging Research Program. This group set out a large award—\$450,000 over three years—and named the program after one of medicine’s leading physician-scientists. It gathered some of the most talented senior leaders in geriatrics and aging research to oversee the award winners’ selection. The intent was to create a dynamic new cadre of physician-scientists capable of developing breakthrough research, committed to mentoring and teaching the next generation of physicians about the care of older adults, and willing to provide needed leadership for the field.

The Beeson program has taken on an increasingly important issue. The confluence of extraordinary advances in longevity during the last century and the vast, aging baby boom generation, is poised to produce a dramatic spike in the number of older Americans during the next three decades and beyond. Medical care in the 21st century is requiring virtually all physicians and other health care professionals to be trained in the diseases, conditions, and needs unique to older adults. New knowledge to confront the debilitating (and costly) diseases of aging—from Alzheimer’s and diabetes to heart disease and cancer—has never been more critical. We need innovative research—and the medications and treatments it engenders—to help delay disease and forestall frailty and dependence.

While our work in promoting geriatrics training and research on aging is not yet complete, there has been extraordinary progress. The Beeson program in particular has supported an outstanding group of physician-scientists—104 to date—with more than \$46 million in monies for aging research. Current and former Beeson scholars are producing stellar research and assuming leadership roles within top research institutions and organizations around the country. This report celebrates the tremendous, transforming effect the Beeson program and its scholars have had on the growing fields of geriatrics and aging research.

Of course, the Beeson journey is not yet complete. Recently, the National Institute on Aging (NIA) has added its support, expanding the size of the award to \$600,000 to \$800,000 for a three- to five-year period. We invite you to join us in this exciting public-private partnership. We hope you will get to know the Beeson scholars, learn about and follow their research, and ultimately find ways to participate in and support this critically needed program.

Brian Hofland, PhD
Director, Aging Program, The Atlantic Philanthropies

Corinne Rieder, EdD
Executive Director, The John A. Hartford Foundation

"AN EXTRAORDINARY GROUP OF PEOPLE"

The Beeson Program's Growth and Accomplishments

The Paul B. Beeson Career Development Awards in Aging Research Program selected its first cohort of 10 talented physician-scientists in 1995. Since then, it has blossomed into one of the nation's most well-respected career development programs. It has attracted and supported some of the brightest minds not only in the field of aging, but in science as a whole. "The Beeson scholars are an extraordinary group of people," says Corinne Rieder, EdD, Executive Director of The John A. Hartford Foundation, one of the program's original funders. "All of the scholars are outstanding researchers, and in many cases, leaders in their respective disciplines."

The Beeson program had its impetus in a series of Institute of Medicine reports that, beginning in 1978, highlighted a growing need for physicians trained in aging-related issues. After the 1993 report called for more support of geriatrics research and training, Donna Regenstreif, PhD, Senior Program Officer of The John A. Hartford Foundation; Margaret Mahoney, then-President of The Commonwealth Fund; and Ray Handlan, Senior Advisor of The Atlantic Philanthropies, began discussing joint strategies for addressing the shortage of physicians interested in aging and dedicated to teaching, research, and practice. From their initial conversations, the Beeson program was ultimately formed and launched. Annually choosing approximately 10 scholars to each receive generous awards of \$450,000 over three years (up to \$150,000 per year), the program immediately became recognized as one of the most important in the field of aging.

This recognition was broadened by the generosity of Paul Beeson, MD, one of the most well-known and respected physician-scientists of the 20th century, who agreed to lend his name to the fledgling program. "By naming the award after Paul Beeson, we didn't have to say, 'This is a program for excellence.' Everyone knows that's what he stands for," says William Hazzard, MD, Professor of Medicine at the University of Washington School of Medicine. Dr. Hazzard is also an original member of the award's Program Committee and was its chair from 1997-2002.

A Rising Tide

Now in its 10th year, the Beeson program has been part of a dramatic upswing in interest in geriatrics and aging research. Until the early 1990s, these fields had been largely underappreciated by the medical community and generally underfunded. From the beginning, the size of the Beeson award attracted top physician-scientists. Their excellent work has in turn focused attention on the exciting possibilities associated with research on aging.

Since receiving their awards, Beeson scholars have published hundreds of peer-reviewed articles, including studies in prestigious journals such as the *Journal of the American Medical Association*, the *New England Journal of Medicine*, *Science*, the *Lancet*, and *Nature*. Beeson scholars are making substantial new advances in nearly every area of age-related science, including the biology of aging; neurodegeneration; disease mechanisms, management, and treatment; and health care systems analysis. "The benefits of this important research will impact not only older adults, but all generations," says Dr. Regenstreif.

Beeson Basics

The Beeson award is given annually to outstanding young physician-scientists in aging research. Through 2003, the award amount stood at \$450,000 over three years, with recipients allowed to spread the funds out over a longer period if necessary. As of 2004, the Beeson award has been incorporated into the National Institute on Aging's portfolio of career development awards as the Paul B. Beeson Career Development Awards in Aging Research. Award amounts have increased to \$600,000 to \$800,000 for three to five years. Private funders include The John A. Hartford Foundation, The Atlantic Philanthropies, and The Starr Foundation. Through 2003, the award was administered by the American Federation for Aging Research (AFAR), with the Alliance for Aging Research overseeing the annual meetings. Today, NIA and AFAR share the administration of the program, with AFAR managing the scholars' annual meeting, the Beeson Web site, and other public relations activities.

The benefits of the award for Beeson scholars are numerous. The program:

- Provides flexible, generous funding with ample resources to pursue a research program.
- Protects 75% of a scholar's time for research.
- Offers an outstanding support system. Senior faculty in each scholar's institution agree to serve as mentors, and scholars are also matched with a member of the Beeson Program Advisory Committee.
- Promotes extensive networking opportunities via the Beeson annual meeting, a unique interdisciplinary conference for scholars, their mentors, and leaders in the field.
- Encourages alumni participation. Even after their awards have ended, scholars are encouraged to continue attending the annual meeting, take on leadership roles in the program, and even to become mentors to other Beesons, offering guidance to the next generation of leaders.



Key program funders: Corinne Rieder, EdD, The John A. Hartford Foundation, Brian Hofland, PhD, The Atlantic Philanthropies, and Judith Salerno, MD, MS, the National Institute on Aging.

New Partners, New Promise

Over time, some of the funders of the Beeson program have changed. In 2000, the Starr Foundation joined the program, while The Commonwealth Fund phased out in 2001. In 2004, NIA joined the team of foundations as a major sponsor, and the program's name was changed to the Paul B. Beeson Career Development Awards in Aging Research Program.

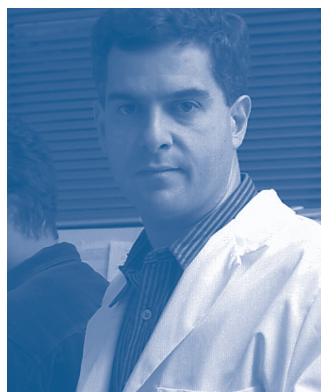
Though relatively new, this public-private partnership looks like a win-win for the participating foundations and NIA. The program's foundation supporters had been seeking approaches to leverage their investments. "We were looking for additional, sustaining partners," says Stephanie Lederman, Executive Director of the American Federation for Aging Research, the co-administrator of the program.

NIA, for its part, had recognized the success of Beeson scholars in obtaining highly competitive NIH independent investigator awards. It was eager to set up a career development program with similar success. Merging the Beeson award into NIA's portfolio seemed the perfect solution. "As dollars for research and training had gotten tighter in the current budget environment, we wanted to invest in a winner," says

Risky Business: Ashley Bush's Gamble on Metals and Alzheimer's

Judith Salerno, MD, MS, Deputy Director of NIA. "The Beeson program has a proven track record." With the additional resources of NIA brought to bear, awards were increased to \$600,000 to \$800,000.

Now firmly supported by NIA, the new award retains the Beeson program's spirit, intent, and structure. "To their credit, the people at NIA recognize that there's something very special about the Beeson program," says Mary Tinetti, MD, Professor of Medicine, Epidemiology, and Public Health at Yale University and current Chair of the foundations' Beeson Program Advisory Committee. With its financial future assured, the Beeson program can continue its important work of advancing the fields of geriatrics and aging research by providing a powerful springboard for the careers of future researchers and leaders.



Ashley Bush, MD, PhD

In 1994, Ashley Bush, MD, PhD, now Associate Professor of Psychiatry, Harvard Medical School, applied to the Beeson program as the champion of an intriguing, but unpopular, idea. He claimed that the formation of clumps of beta-amyloid protein in the brains of Alzheimer's patients is due to the activity of excessive amounts of copper and zinc. His paper on the subject was published in the prestigious journal *Science* in September 1994—but to nearly universal disdain. He received the Beeson award anyway.

The Beeson program was one of the few funding sources to bet on Dr. Bush's research. His theory implicating metals in the formation of beta-amyloid plaques seemed to resemble a discredited theory from the 1980s that fingered excessive aluminum deposits as a cause of Alzheimer's disease. Supported by the Beeson award, Dr. Bush accumulated experimental evidence showing that copper and zinc caused beta-amyloid to become toxic and form clumps. He also proved that removing metals from the brains of deceased Alzheimer's patients could cause beta-amyloid plaques to dissolve. Despite these successes, between 1995 and 1999, Dr. Bush received 39 rejections of his papers and grant applications as the scientific community scoffed at his hypotheses.

In 1998, Dr. Bush's Beeson funding ran out. After a difficult struggle to keep his research afloat, Dr. Bush found his savior: clioquinol, an experimental antibiotic previously retired due to side effects. It selectively gathers up copper and zinc in the brain, leaving other metals alone. When given to mice engineered to develop Alzheimer's-like symptoms, the drug effected a remarkable 49% reduction in the amount of beta-amyloid in the animal's brains. Preliminary data in hand, Dr. Bush landed a National Institutes of Health (NIH) grant. His star has been on the rise ever since.

Recent results from a small Phase II trial of clioquinol with a small number of patients, published in the December 2003 issue of the *Archives of Neurology*, were positive. The drug is scheduled for further testing in larger groups of people. Dr. Bush is also working to develop more potent versions of the drug and exploring its potential for treating other diseases of aging, like Parkinson's disease. He received professional recognition for his work in 2003, when the American Academy of Neurology awarded him its highest honor, the Potamkin Prize. Dr. Bush shared the prize with another 1995 Beeson scholar, David Holtzman, MD, Washington University School of Medicine. "It is unprecedented that two Beeson scholars would win this prize at the same time," Bush says. "The Beeson program must be tapping the right people on the shoulder."

"LIKE GETTING A HALO..."

"The Beeson award empowered me to decline commitments and concentrate on my research."

Mark Lachs, MD, MPH, Professor of Medicine at Weill Medical College of Cornell University and a 1995 Beeson awardee

The Many Benefits of Being a Beeson

For most Beeson scholars, obtaining a Beeson award is a career-changing, even life-changing, experience. The award helps junior scientists establish independent research platforms during a critical period in which funding is often scarce. Even the most talented physician-scientists can be forced back into full-time clinical practice due to lack of research support. Many Beeson alumni say they believe the award has been the difference between the success and failure of their research careers.

"I was worried I wouldn't be able to continue in academic medicine," says Anne Kenny, MD, Assistant Professor of Medicine at the University of Connecticut Health Center and a 1998 Beeson awardee. "The Beeson award felt like a protective blanket that allowed those worries to melt away."

By protecting 75% of each awardee's time for research, the award allows recipients to minimize clinical and administrative responsibilities. "The Beeson award empowered me to decline commitments and concentrate on my research," says Mark Lachs, MD, MPH, a 1995 Beeson and now Professor of Medicine and Co-Chief of the Division of Geriatrics at Weill Medical College of Cornell University. "That is what enabled me to publish and become a tenured professor."

Mentorship: Making Critical Connections

The Beeson award can transform careers by connecting its recipients to geriatrics, grounding their research specialty within the broader field of aging. Mentorship and the Beeson annual meeting (see sidebar, p. 8) introduce Beesons to a national network of talented aging researchers in a wide spectrum of specialties.

Mentors, senior faculty at the scholar's institution, volunteer to serve as confidants, counselors, and advocates for the Beeson scholars. They offer advice and assistance with research, advise scholars on navigating the pitfalls of an academic career, and help ensure that scholars have the time they need to concentrate on their research. Many Beesons credit their mentors with making important contributions to their careers. "Dr. Mary Tinetti has been integral to both my scientific development and my development as a geriatrician," notes Terri Fried, MD, a 1998 Beeson and Associate Professor of Medicine at Yale University.



Mentor and mentee, David Reuben, MD, and Catherine Sarkisian, MD



Mentor and mentee, Gigi Lozano, PhD, and Sandy Chang, MD, PhD

“My mentors have been supportive and helpful, and they have made sure I have protected time for research.”

Laura Niklason, MD, PhD, Assistant Professor of Anesthesiology and Biomedical Engineering at Duke University Medical Center and a 2002 Beeson

Laura Niklason, MD, PhD, Assistant Professor of Anesthesiology and Biomedical Engineering at Duke University Medical Center and a 2002 Beeson, has similar praise for her mentors, Mortimer Friedman, PhD, and Harvey Cohen, MD. “They have been great,” she says. “They have been supportive and helpful, and they have made sure I have protected time for research.”

Mentorship also serves to connect senior faculty more closely to the field. John Trojanowski, MD, PhD, Professor of Pathology and Laboratory Medicine and Director of the Institute of Aging at the University of Pennsylvania, joined the Beeson Program Advisory Committee in 1998. Primarily an Alzheimer’s disease researcher, he joined the committee out of a desire and a sense of duty to help younger scientists. He says he received back more than he expected, not only enjoying selecting and mentoring Beeson recipients, but gaining a greater understanding of the field of aging as a whole. “My activities with the Beeson committee broadened my horizons on aging and grounded my research in the larger field,” explains Dr. Trojanowski. “Without that experience, I would never have had the nerve to think I could appreciate other areas of aging research well enough to head the Institute of Aging here at Penn.”

Gaining Recognition

In addition to the concrete benefit of a mentorship support system, Beeson recipients enjoy the more intangible, but equally important benefit of increased credibility for their research. As the premier development award in aging research, a Beeson award carries tremendous weight in the scientific community. “Receiving the award shows that you have successfully passed through a review process and garnered the attention of some of the most prominent and respected academic leaders in the field of aging research,” says Thomas Perls, MD, a 1998 Beeson and Associate Professor at the Boston University School of Medicine.

50% of Beeson scholars have received a promotion.

70% of Beeson scholars have received additional laboratory space.

The award also helps at the scholars’ home institutions. More than half of Beeson scholars have already received a promotion, with that number rising to 96% among the first three cohorts. Nearly 70% have received additional research space, and 75% subsequent funding related to their Beeson work.

The award opens doors on a national level as well. Beeson scholars are frequently asked to serve on editorial boards for prestigious journals, join national task forces on aging-related topics, and present their findings and opinions at national and international scientific meetings. “Becoming a Beeson scholar is like getting a halo,” says Judith Salerno, MD, MS, Deputy Director of the National Institute on Aging. “It has been a distinguished and well-recognized achievement, and it gives researchers a step up unlike any other award.”



May Reed, MD

From Wound Healing to Cardiac Revascularization: May Reed’s Journey

The work of May Reed, MD, now Associate Professor of Medicine, University of Washington School of Medicine, has been a study in scientific evolution. One discovery has led to another, related discovery. Her work has moved from concentrating on wound healing in aging tissue to the broader question of tissue turnover, with possible implications for heart disease, arthritis, and Alzheimer’s disease. It is just this kind of intellectual growth and career development that the Beeson award is well known for fostering.

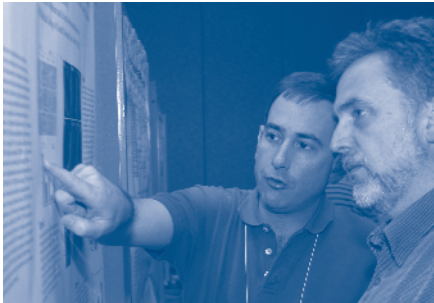
During her fellowship in geriatric medicine at the University of Washington in the early 1990s, Dr. Reed showed that adding growth factors to aged tissues improves wound healing. Receiving the Beeson award in 1996 allowed Dr. Reed to narrow her research focus, but broaden its clinical implications by concentrating on how to generate new capillaries in aging tissue. “We thought this technique might improve not only wound healing, but also recovery from cardiovascular problems like heart attacks and blood clots,” she says.

The Beeson award came at a critical point in Dr. Reed’s career. “The Beeson gave me the time I needed to develop my laboratory so I could later apply for an NIH R01 [independent investigator] award, which I received in 1999,” she says. Building on her previous work, Reed soon found that low growth factor levels impaired capillary formation in aging cells. As expected, the introduction of growth factors boosted this formation. Although her work with growth factors showed promising results, Dr. Reed was concerned about the use of these hormones in humans. She suspected that growth factors may be deficient in aging tissue for a specific purpose, namely to prevent cancer formation.

In a search for a safer way to manipulate capillary growth in aging tissue, Dr. Reed again chose to shift her research to a related area. She began concentrating on matrix metalloproteases, enzymes that enable cells to move. Their activity is required for new capillary growth. However, these substances are deregulated in aging, with too much activity in certain areas—like knees, where cartilage becomes unstable—but possibly not enough activity in tissues during new blood vessel formation. Dr. Reed is pleased with this new focus, as she believes it may be possible to manipulate metalloproteases for a variety of beneficial effects.

“We think this will be a more fruitful area than just studying capillary formation because it could be important in arthritis and Alzheimer’s disease, as well,” she explains, noting that her new direction and continued intellectual growth is yet another, perhaps harder-to-recognize, but critically important benefit of her Beeson award.

The Beeson Annual Meeting: Building Careers and Community



Spirited interactions and networking are important aspects of the popular Beeson annual meeting.

The Beeson annual meeting, run from its inception until 2003 by the Alliance for Aging Research (AAR), is a cornerstone of the Beeson program. "The goal of the annual meeting has been to build a sense of community and common purpose among the recipients of the Beeson program," says Dan Perry, Executive Director of AAR. "We wanted to create a setting that would reflect the achievements of the scholars and the strong commitment of the funders and the program committee to support and nurture the careers of these future leaders."

The three-day conference takes place each spring and typically features lectures by leaders in aging research, poster sessions involving the Beesons, and skill workshops on key career development issues. These have included a wide variety of topics such as how to set up a division or department, obtain funding, relate to your mentor, balance personal life and career, and work with the media.

The Beeson scholars say they have found nearly every aspect of the annual meeting helpful. They enjoy learning about other areas of aging research outside their own purview, giving them more insight into the field as a whole. The meeting also offers extensive networking opportunities. Scholars meet experts in aging research, including their Program Committee mentor, and make connections with other researchers in their own disciplines. Some of these discussions have resulted in formal collaborations. For example, May Reed, MD, a 1996 scholar, whose work focuses on blood vessel growth (see sidebar, p. 7), has authored papers with fellow scholar Jay Edelberg, MD, PhD, a cardiologist at Weill Medical College of Cornell University, and 2001 scholar. Thomas Perls, MD, MPH (1998), Alan Shuldiner, MD (1995), and Nir Barzilai, MD (1997) have teamed up in a productive search for longevity genes (see sidebar, p. 9).

As the pool of scholars has grown, so has their involvement in the Beeson meeting. Whereas early meetings were presided over by outside, leading experts in the fields of aging, former and current Beeson scholars have now joined the ranks of the annual meeting's advisory committee. Scholars now organize and give many of the meeting's lectures and presentations.

Although stewardship of the annual meeting has passed from AAR to AFAR, and the program is now co-funded and co-administered by NIA, few changes are expected. "The annual meetings are where the bonding and the social interactions necessary to support these scholars take place," says William Hazzard, MD. "AFAR will continue to reinforce the culture we're developing among the Beeson scholars. That's unique, not only for NIA, but for all National Institutes of Health career development programs."

Teaming Up: Three Beesons Search for Longevity Genes

Perhaps one of the most tangible and important contributions of the Beeson award to aging research is the collaboration it fosters among recipients. At the Beeson annual meeting in 1998, Thomas Perls, MD, MPH (1998), Nir Barzilai, MD (1997), and Alan Shuldiner, MD (1995), formed a particularly fruitful partnership to search for so-called longevity genes.

Today, each researcher is examining a specific group of people for genes that enable some older adults to live much longer, healthier lives than the general population. The first of the three to enter this area of investigation, Dr. Perls, Associate Professor, Boston University School of Medicine, is Director of the well-known New England Centenarian Study. His team is analyzing the genetic profiles of hundreds of New England centenarians, as well as their siblings and children.

Originally a diabetes researcher, Dr. Barzilai, Professor of Medicine and Molecular Genetics and Director of the Institute for Aging Research at Albert Einstein College of Medicine, began his own longevity study after reading a paper by Dr. Perls that showed a clear genetic component to longevity. His work concentrates on very old Ashkenazi Jews and their families, as the homogeneity of the Ashkenazi population makes it easier to detect genes that may influence longevity.

Dr. Shuldiner's work is also focused on a homogenous population, the Old Order Amish of Lancaster County, Pennsylvania. Dr. Shuldiner, Professor and Head, Division of Endocrinology, Diabetes and Nutrition, University of Maryland, Baltimore, School of Medicine, originally began studying this group in a search for genes influencing diabetes and obesity. He expanded his work to include longevity genes after discussions with Drs. Barzilai and Perls at the 1998 Beeson annual meeting.

This collaboration has already led to significant progress. Drs. Shuldiner and Barzilai published a paper in the *Journal of the American Medical Association* showing that persons with exceptional longevity and their children have significantly larger cholesterol particle sizes than the general population. Drs. Barzilai and Perls have begun a project to look at levels of heat shock protein, which protects the body from stress, in their respective populations of centenarians. All three scientists collaborated on a review article on longevity genes published in the *Journal of Gerontology* in 2003, as well as a grant application to the National Institute on Aging to establish exceptional survival study centers.

Drs. Perls, Shuldiner, and Barzilai all note that the Beeson program was instrumental in encouraging the networking that led to their collaboration. "I never would have gotten involved with the genetics of longevity if I hadn't met Tom Perls and Nir Barzilai at the Beeson meetings," says Dr. Shuldiner. "The Beeson award has really fostered these kinds of important collaborations in aging-related research."



From top:
Alan Shuldiner, MD;
Nir Barzilai, MD;
Thomas Perls, MD

"The Beeson award has really fostered important collaborations in aging-related research."

Alan Shuldiner, MD, Professor and Head, Division of Endocrinology, Diabetes and Nutrition, Joslin Diabetes Center, University of Maryland School of Medicine, a 1995 Beeson

Beeson Scholars Lead the Way in Research and Training

No area of scientific inquiry can advance without forward-thinking leaders. Aging research is no different. For the last decade, the Beeson program has been identifying and encouraging future leaders in gerontology and age-related research. Many of them are already filling important roles at their institutions and within the broader scientific community. "This program captures talented physician-scientists at a crucial point in their careers and encourages them to think of themselves as aging researchers," says Brian Hofland, PhD, Director, Aging Program, The Atlantic Philanthropies. "Since they are such high quality researchers, they have a ripple effect on other faculty and staff they train. As they take on leadership roles, they are having a tremendous influence on the field."

One-third of Beeson scholars hold tenured positions, and 15% are full professors.

A Litany of Leaders, of Leadership

Today, many Beeson scholars have already achieved tenure, and 15% have obtained full professorship. Many scholars have significant leadership positions. Just to name a few:

- Mark Lachs, MD, MPH, one of the original 1995 Beesons, is a leader in the field of elder abuse. He co-founded and is now the Co-Director of Cornell's Wright Center on Aging, a unique comprehensive care center for the elderly, as well as Co-Chief of the Division of Geriatrics.
- Lina Obeid, MD, also a 1995 Beeson, has focused her work on the biology of aging, with particular interest in cellular aging and stress responses. She is the Boyle Professor of Medicine at the Medical University of South Carolina, as well as Associate Director of the Center on Aging's Research Program.
- Christopher Callahan, MD (1996), is the Director of the Indiana University Center for Aging Research within the Regenstreif Institute for Health Care and the University's Cornelius and Yvonne Pettinga Professor in Aging Research. His research concentrates on late-life depression and primary care for the elderly.
- Mark D'Esposito, MD (1997), who has received national attention for his groundbreaking work on using functional MRI technology to study memory, is Director of the University of California, Berkeley's Henry H. Wheeler, Jr., Brain Imaging Center within the Helen Wills Neuroscience Institute.
- Jürgen Unützer, MD, MPH (2002), who has developed improved models of depression care for older adults, is Chief of Psychiatric Services at the University of Washington.

"The scholars' careers have taken off as a result of this award," says Stephanie Lederman, Executive Director of the American Federation for Aging Research, inviting funders and others to consider the program's broad effects. "If a foundation or individual wants to make an impact, they should look at the Beeson program, how successful these scholars have become. They are now recognized as important, serious researchers within their institutions and by the entire research community."

New Research That Matters

The research generated by Beeson scholars is adding exponentially to our understanding of age-related conditions and diseases as well as providing insights into how best to care for our aging population. Beesons' work is acknowledged by the scientific community to be among the most important in their fields. For example, an article on neurodegeneration by 2002 Beeson scholar Albert La Spada, MD, PhD, University of Washington, recently graced the cover of *Human Molecular Genetics*. Fellow 2002 scholar Jürgen Unützer, MD, MPH, published an analysis of his IMPACT study on depression care of the elderly in the *Journal of the American Medical Association* in 2003. In 2001, Beeson scholars Edward Koo, MD (1995), University of California, San Diego, School of Medicine and Todd Golde, MD, PhD (1997), Mayo Clinic, Jacksonville, shook up the field of Alzheimer's research with a paper, published in *Nature*, that showed the preventative effect of non-steroidal anti-inflammatory (NSAID) medications on Alzheimer's disease is independent of their anti-inflammatory effects. These are just a smattering of the many substantive papers published by Beeson scholars in key peer-reviewed journals.

Building the Field

Aside from providing departmental and scientific leadership within their institutions, Beeson scholars are also mentoring the next generation of researchers in aging. According to a recent survey, 93% of Beeson scholars assist with the training of students and young investigators. Collectively, Beeson awardees have helped train more than 700 medical and graduate students, postdoctoral fellows, residents, and junior faculty to date.

Beeson scholars serve as emissaries for the Beeson program and aging research to other scientists, policymakers, the public, and the media. They are invited speakers at scientific conferences throughout the year, and many serve on national or international committees on age-related topics. Some make a special effort to communicate with the public by publishing lay-oriented books and articles in the popular press. Others participate in media briefings sponsored by the American Federation for Aging Research, assist journalists by providing expert information, and contribute their knowledge to aging research Web sites.

"The Beeson scholars are powerful, living demonstrations of the excellence and high quality of leadership that has been marshaled into the field of aging-related medicine and research," says Dan Perry, Executive Director of the Alliance for Aging Research. "Each scholar is a living ambassador who can talk about the value, importance, and necessity of meeting the medical needs of the largest population of older patients this country has ever seen."

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Heart and Soul: Mary Whooley Examines Depression and its Effects on Health



Mary Whooley, MD

In 2001, Mary Whooley, MD, was finishing her third year as an Assistant Professor of Medicine at the University of California, San Francisco (UCSF). “I was on the cusp of either returning to clinical practice or having my research take off,” remembers Whooley. Winning a Beeson award meant she could stick to her research, dedicated to probing how depression affects the physical health of the elderly. Today, Dr. Whooley’s most well-known project, the Heart and Soul Study, focuses on the relationship between depression and cardiovascular disease.

Although the Heart and Soul Study will not be completed for several years, the rich baseline data Dr. Whooley collected has yielded 10 published papers and several others under review. Among these are papers published in the *Journal of the American Medical Association*, *Circulation*, and the *American Journal of Cardiology*. These studies have shown a number of things, including:

- Levels of depressive symptoms have a greater influence on an older adult’s perceived quality of life than does the severity of their heart disease.
- The inflammatory marker C-reactive protein is linked to myocardial ischemia, or reduced blood flow to the heart.
- Chest pain, surprisingly, is not associated with ischemia in older patients.

Dr. Whooley’s data—including information on exercise patterns, medication compliance, eating habits, and social support—have also afforded research opportunities for more than 10 fellows and residents beginning their academic careers in her laboratory. They have co-authored many of Dr. Whooley’s papers. She also assists younger faculty through the “Building a Career in Clinical Research” course she directs at UCSF, which includes information on obtaining grants, planning a career path, and job seeking.

Dr. Whooley is an excellent example of academic success for her students, as she was promoted to Associate Professor at UCSF in August 2004. “I really enjoy one-on-one mentoring,” she says. “Experiencing the Beeson program has brought me greater aging awareness, and I hope to inspire others to work in aging research.”

“Experiencing the Beeson program has brought me greater aging awareness, and I hope to inspire others to work in aging research.”

Mary Whooley, MD, Associate Professor of Medicine, UCSF, and a 2001 Beeson awardee

FINDING THE CREAM OF THE CROP

The Beeson Review Process and Program Advisory Committee

One of the key steps in establishing the Beeson award as the premier career development award in aging research was procuring the involvement of leaders in the field. By any measure, the foundations that created the award succeeded admirably. “The scientists who joined the committee, including William Kelley, MD, the first chair; William Hazzard, MD; Mary Tinetti, MD; and George Martin, MD, were major players in aging research,” says AFAR’s Stephanie Lederman. “They understood the importance of the award.”

The committee’s primary goal is to identify future leaders in aging research. To do this, committee members judge applications on scientific merit, dedication to aging research, and potential leadership abilities. The committee’s role will continue to evolve as the Beeson award settles into its new relationship with NIA. Although NIA reviews Beeson applications in accordance with NIH policies and regulations, it is committed to maintaining the spirit and intent of the Beeson program. Accordingly, the NIA Scientific Review Administrator appreciates suggestions from AFAR and its foundation partners for appropriate peer reviewers. The foundations will continue to seek guidance and input from the Beeson Program Advisory Committee as they evaluate the progress of the Beeson award and its scholars. Committee members will also continue to attend annual meetings and serve as additional mentors to the scholars.

The Beeson program’s mission will remain unchanged: to identify and fund talented physician-scientists who will produce important geriatrics and aging research, provide leadership to the field, and pass on their enthusiasm and knowledge to the next generation of scientists.



Members of the Beeson Program Advisory Committee. From the left: Dan Blazer, MD, PhD; Mary Tinetti, MD, (chair); William Hazzard, MD; Lina Obeid, MD; Edward Koo, MD; Linda Fried, MD, MPH; Lewis Lipsitz, MD; Harvey Cohen, MD. Not pictured: Alan Shuldiner, MD, and John Trojanowski, MD, PhD.

Current Program Advisory Committee

Mary Tinetti, MD, Chair

Professor of Medicine, Epidemiology and Public Health
Yale University School of Medicine

Dan Blazer, MD, PhD

J.P. Gibbons Professor, Psychiatry and Behavioral Sciences
Duke University Medical Center

Harvey Cohen, MD

Chief, Division of Geriatrics
Chief, Center for the Study of Aging and Human Development
Duke University Medical Center

Linda P. Fried, MD, MPH

Director, Center on Aging and Health
Director, Division of Geriatric Medicine and Gerontology
Johns Hopkins Medical Institutions

William R. Hazzard, MD, Former Chair

Professor of Medicine
University of Washington School of Medicine

Edward Koo, MD

Professor, Department of Neurosciences
University of California, San Diego, School of Medicine
(1995-98 Beeson scholar)

Lewis Lipsitz, MD

Professor of Medicine
Harvard Medical School, Hebrew Rehabilitation
Center for the Aged

Lina Obeid, MD

Boyle Professor of Medicine and Biochemistry
Medical University of South Carolina
(1995-98 Beeson scholar)

Alan Shuldiner, MD

Professor and Head, Division of Endocrinology,
Diabetes and Nutrition
University of Maryland, Baltimore, School of Medicine
(1995-98 Beeson scholar)

John Trojanowski, MD, PhD

Co-Director, Center for Neurodegenerative Disease Research
University of Pennsylvania School of Medicine

Former Program Committee members

Richard Mayeux, MD

Columbia University, College of Physicians and Surgeons

Jesse Roth, MD

North Shore-Long Island Jewish Health System

Janice G. Douglas, MD

Case Western Reserve University

George M. Martin, MD

University of Washington School of Medicine

Anthony Cerami, PhD

Kenneth S. Warren Laboratories

William N. Kelley, MD

University of Pennsylvania School of Medicine,
Founding Chair

Julius R. Krevans, MD

University of California, San Francisco

THE PAUL B. BEESON PHYSICIAN FACULTY SCHOLARS IN AGING RESEARCH

1995-1998 Scholars

Ashley I. Bush, MD, PhD

Associate Professor of Psychiatry
Harvard Medical School

Ted M. Dawson, MD, PhD

Professor of Neurology and Neuroscience
Johns Hopkins University School of Medicine

David M. Holtzman, MD

Professor and Chair, Department of Neurology
Washington University School of Medicine

Edward H. Koo, MD

Professor, Department of Neurosciences
University of California, San Diego, School of Medicine

Mark S. Lachs, MD, MPH

Co-Chief, Division of Geriatrics, and Professor of Medicine
Weill Medical College of Cornell University

Frank M. Longo, MD, PhD

Professor of Neurology and Chair
University of North Carolina, Chapel Hill, Medical School

Richard A. Marottoli, MD, MPH

Associate Professor of Medicine
Yale University School of Medicine

Lina M. Obeid, MD

Professor of Medicine
Medical University of South Carolina

Peter D. Reaven, MD

Staff Endocrinologist, Director, Diabetes Program
Carl T. Hayden VA Medical Center

Alan R. Shuldiner, MD

Professor and Head, Division of Endocrinology,
Diabetes and Nutrition
University of Maryland, Baltimore, School of Medicine

1996-1999 Scholars

Christopher M. Callahan, MD

Professor of Medicine
Indiana University School of Medicine

Robert W. Doms, MD, PhD

Associate Professor of Microbiology
University of Pennsylvania School of Medicine

P. Murali Doraiswamy, MD

Associate Professor of Psychiatry
Duke University Medical Center

Harlan M. Krumholz, MD

Professor of Medicine of Epidemiology and Public Health
Yale University School of Medicine

Makau P. Lee, MD, PhD

Jackson Medical Clinic

Richard F. Loeser, Jr., MD

Professor of Medicine (Rheumatology) and Biochemistry
Rush University, Rush-Presbyterian-St. Luke's Medical Center

Karen M. Prestwood, MD

Associate Professor of Medicine
University of Connecticut Health Center

May J. Reed, MD

Associate Professor of Medicine
University of Washington School of Medicine

R. Glenn Smith, MD, PhD

Associate Professor of Medicine and Neurology
University of Texas Medical Branch

1997-2000 Scholars

Nir Y. Barzilai, MD

Professor of Medicine and Molecular Genetics
Albert Einstein College of Medicine

Michele F. Bellantoni, MD

Associate Professor of Medicine
Johns Hopkins University School of Medicine

James R. Burke, MD, PhD

Associate Professor of Medicine
Duke University Medical Center

Mark T. D'Esposito, MD

Professor of Neuroscience and Psychology
University of California, Berkeley

Thomas M. Gill, MD

Associate Professor of Medicine
Yale University School of Medicine

Bernard F. Godley, MD, PhD

Senior Scientist and Director
Retina Foundation of the Southwest

Todd E. Golde, MD, PhD

Chair and Associate Professor of Neuroscience
and Assistant Professor of Pharmacology
Mayo Clinic, Jacksonville

Helen M. Hoenig, MD

Associate Professor of Medicine
Duke University Medical Center

Elan D. Louis, MD

Associate Professor of Neurology
Columbia University College of Physicians and Surgeons

Charles A. Thornton, MD

Associate Professor of Neurology
University of Rochester School of Medicine and Dentistry

1998-2001 Scholars

Helen Benveniste, MD, PhD

Professor of Anesthesiology
SUNY Stony Brook Health Sciences Center

Laura Dugan, MD

Associate Professor of Neurology, Neurobiology
and Internal Medicine
Washington University School of Medicine

Terri Fried, MD

Associate Professor of Medicine
Yale University School of Medicine

Anne Kenny, MD

Assistant Professor of Medicine
University of Connecticut Center on Aging

Alison Moore, MD, MPH

Associate Professor of Medicine
University of California, Los Angeles

Thomas Perls, MD, MPH

Associate Professor of Medicine
Boston University Medical School

Eric Peterson, MD, MPH

Associate Professor of Medicine
Duke University Medical Center

Scott Turner, MD, PhD

Associate Professor of Neurology
University of Michigan

Jeremy Walston, MD

Associate Professor of Medicine
Johns Hopkins University

Raymond Yung, MD

Associate Professor of Internal Medicine
University of Michigan

1999-2002 Scholars

Kenneth Covinsky, MD, MPH

Associate Professor of Medicine
University of California, San Francisco

Matthew Frosch, MD, PhD

Assistant Professor of Pathology
Harvard Medical School

Daniel Laskowitz, MD

Associate Professor of Medicine (Neurology)
Duke University Medical Center

Dale Leitman, MD, PhD

Assistant Professor
University of California, San Francisco

Richard Lin, MD

Assistant Professor of Medicine
SUNY Stony Brook Health Sciences Center

David Lynch, MD, PhD

Associate Professor of Neurology and Pediatrics
University of Pennsylvania

Edward Marcantonio, MD

Assistant Professor of Medicine
Harvard Medical School

Mitchell Nobler, MD

Associate Professor of Clinical Psychiatry
Columbia University College of Physicians and Surgeons

Anne Louise Oaklander, MD, PhD

Assistant Professor of Anesthesia
Harvard Medical School

Thomas Rando, MD, PhD

Associate Professor of Neurology
Stanford University School of Medicine

2000-2003 Scholars

Brock Beamer, MD

Assistant Professor of Medicine
Johns Hopkins University School of Medicine

Gunnar Gouras, MD

Assistant Professor of Neurology and Neuroscience
Weill Medical College of Cornell University

Mary Beth Hamel, MD, MPH

Associate Professor of Medicine
Harvard Medical School

Joshua Hare, MD

Professor of Medicine
Johns Hopkins University School of Medicine

Fuki Hisama, MD

Associate Professor, Director, Neurogenetics Clinic
Yale University School of Medicine

Jason Karlawish, MD

Assistant Professor of Medicine
University of Pennsylvania School of Medicine

Jean Kutner, MD, MSPH

Associate Professor of Medicine
University of Colorado Health Sciences Center

Brett Luring, MD, PhD

Assistant Professor of Pathology
Columbia University College of Physicians and Surgeons

Frank Lee, MD, PhD

Assistant Professor of Pathology
University of Pennsylvania School of Medicine

R. Sean Morrison, MD

Professor of Palliative Care
Mount Sinai School of Medicine

Scott Small, MD

Assistant Professor of Neurology
Columbia University College of Physicians and Surgeons

2001-2004 Scholars

Asa Abeliovich, MD, PhD

Assistant Professor of Pathology and Neurology
Columbia University College of Physicians and Surgeons

Katrin Andreasson, MD

Assistant Professor of Neuroscience
Johns Hopkins University School of Medicine

Eric Coleman, MD, MPH

Associate Professor of Geriatric Medicine
University of Colorado Health Sciences Center

Jay Edelberg, MD, PhD

Associate Professor of Medicine
Weill Medical College of Cornell University

Wesley Ely, MD, MPH

Associate Professor of Medicine
Vanderbilt University School of Medicine

Roger Hajjar, MD

Associate Professor of Medicine
Harvard Medical School

James Mastrianni, MD, PhD

Assistant Professor of Neurology
University of Chicago School of Medicine

Michael Naski, MD, PhD

Assistant Professor of Pathology
University of Texas Health Science Center at San Antonio

Cary Reid, MD, PhD

Associate Professor of Medicine
Weill Medical College of Cornell University

Mary Whooley, MD

Associate Professor of Medicine, Epidemiology, and Biostatistics
University of California, San Francisco, School of Medicine

Kristine Yaffe, MD

Associate Professor of Psychiatry, Neurology, and Epidemiology
University of California, San Francisco, School of Medicine

2002-2005 Scholars

David Casarett, MD

Assistant Professor of Geriatrics
University of Pennsylvania School of Medicine

James Galvin, MD

Assistant Professor of Neurology
Washington University School of Medicine

Brad Johnson, MD, PhD

Assistant Professor of Pathology
and Laboratory Medicine
University of Pennsylvania School of Medicine

Albert La Spada, MD, PhD

Associate Professor of Laboratory Medicine
University of Washington

Michael Lin, MD

Assistant Professor of Neurology and Neuroscience
Weill Medical College of Cornell University

Robert Marciniak, MD, PhD

Assistant Professor of Medicine and Cell and Structural Biology
University of Texas Health Science Center at San Antonio

Laura Niklason, MD, PhD

Associate Professor of Anesthesiology,
Biomedical Engineering and Surgery
Duke University Medical Center

Michael Schwarzschild, MD, PhD

Associate Professor of Neurology
Harvard Medical School

Jürgen Unützer, MD, MPH

Professor of Psychiatry
University of Washington Medical Center

2003-2006 Scholars

Meredith Hawkins, MD

Associate Professor of Medicine
Albert Einstein College of Medicine

Michael Irizarry, MD

Assistant Professor of Neurology
Harvard Medical School

Kenneth Langa, MD, PhD

Assistant Professor of Internal Medicine
University of Michigan

S. Holly Lisanby, MD

Associate Professor of Clinical Psychiatry
Columbia University College of Physicians and Surgeons

Jack Parent, MD

Assistant Professor of Neurology
University of Michigan

Henry Paulson, MD, PhD

Associate Professor of Neurology
University of Iowa

Elizabeth Phelan, MD

Assistant Professor of Medicine
University of Washington

Wendy Post, MD

Assistant Professor of Medicine
Johns Hopkins University School of Medicine

Norman Sharpless, MD

Assistant Professor of Medicine and Genetics
University of North Carolina, Chapel Hill

Michael Shlipak, MD, MPH

Assistant Professor of Medicine, Epidemiology,
and Biostatistics
University of California, San Francisco

Reisa Sperling, MD

Assistant Professor of Neurology
Harvard Medical School

2004-2007 Scholars

Sandy Chang, MD, PhD

Assistant Professor of Cancer Genetics
UT MD Anderson Cancer Center

Cathleen Colon-Emeric, MD

Assistant Professor Medicine
Duke University Medical Center

William Dale, MD, PhD

Assistant Professor Medicine
University of Chicago

Lee Goldstein, MD, PhD

Assistant Professor of Psychiatry
Harvard Medical School/Brigham and Women's Hospital

Cary Gross, MD

Assistant Professor of Medicine
Yale University

John Lehman, MD

Instructor in Medicine
Washington University

Andrew Lieberman, MD, PhD

Assistant Professor of Pathology
University of Michigan

Atul Malhotra, MD, PhD

Assistant Professor of Medicine
Harvard Medical School/Brigham and Women's Hospital

Marcin Sadowski, MD

Assistant Professor of Neurology
New York University School of Medicine

Catherine Sarkisian, MD

Assistant Professor of Medicine
University of California, Los Angeles, School of Medicine

Clemens Scherzer, MD

Instructor in Neurology
Harvard Medical School/Brigham and Women's Hospital

Lisa Silbert, MD

Assistant Professor of Neurology
Oregon Health Sciences University

Joe Verghese, MD

Assistant Professor of Neurology
Albert Einstein College of Medicine

LOOKING AHEAD

The Beeson program has had a tremendous impact on the field of aging research since its inception a decade ago. Within those 10 years, geriatrics research has grown in stature into an increasingly well-recognized and well-funded area of scientific inquiry. The Beeson award has played no small role in that evolution by creating a new cadre of leaders among its 104 recipients. They are innovative scientists doing critical, cutting-edge research and communicating the importance of confronting aging to their institutions, the public, and the young investigators following in their footsteps.

“The Beeson scholars continue to produce significant research,” says Richard Hodes, MD, Director of the NIA. “Equally important, they are assuming leadership roles within top research institutions and organizations around the country. This program is an effective mechanism for bringing new scholars and their ideas into the field of aging research.”

The Beeson program provides support to promising junior physician-scientists when they need it most. The program’s foundation partners and the National Institute on Aging invite other private funders to join them in this important endeavor. An expansion of the program’s resources would allow it to support more talented scientists and speed improvement in our understanding of the mechanisms and disease of aging and how best to care for our aging population.

Ashley Bush, MD, PhD, a 1995 scholar, sums it up nicely. “The Beeson program allows us to dedicate ourselves to aging research in ways we couldn’t otherwise have done,” he says, expressing the gratitude that he and his fellow scholars feel for the program. “There aren’t many programs like it.”

Beeson.org: A Resource for the Field

Year-round, Beeson scholars, scientists, and interested laypersons can check the latest information on developments in the Beeson program and Beeson scholars’ research at www.beeson.org. The site includes information about the program, including its history, mission, and application information. Users can search for scholars by name, class year, research topic, or institution to find information on each scholar’s ongoing research. The site also includes general information on numerous topics in aging research and several feature articles on age-related topics and Beeson scholars. It is both a helpful resource for the field and a mechanism that helps scholars keep track of one another and their research.

About the American Federation for Aging Research

The American Federation for Aging Research (AFAR) is a private, nonprofit organization whose charge is to support biomedical research into aging. It is devoted to creating the knowledge that all of us need to live healthy, productive, and independent lives. Since 1981, nearly \$80 million has been awarded to more than 2,000 talented scientists as part of its broad-based series of grant programs. Its work has led to significant advances in the understanding of the aging process, age-related diseases, and healthy aging practices. The American Federation for Aging Research communicates news of these innovations to the public through publications such as the newsletter *Lifelong* and two educational Web sites, Infoaging (www.infoaging.org) and Health Compass (www.healthcompass.org).

Acknowledgments

We would like to thank The Atlantic Philanthropies for providing generous support not only for the Beeson program, but also for publication of this report.

Sponsors

The National Institute on Aging
The John A. Hartford Foundation
The Atlantic Philanthropies
The Starr Foundation

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Collaborating Organization

Alliance for Aging Research

Contact Information

American Federation for Aging Research (AFAR)
70 West 40th Street, 11th Floor
New York, NY 10018
Tel: 212.703.9977
Fax: 212.997.0330
Email: grants@afar.org
Web: www.beeson.org, www.afar.org,
and www.infoaging.org

Credits

Writing and editorial support was provided by Strategic Communications & Planning, Wayne, PA.

Photos on the inside front cover, page 4 and page 7 provided courtesy of The John A. Hartford Foundation/Don Battershall.

Design provided by Wajskol Inc., New York, NY.

American Federation for Aging Research

70 West 40th Street

11th Floor

New York, NY 10018

Tel: (212) 703-9977

Fax: (212) 997-0330

www.afar.org

www.infoaging.org

www.beeson.org

e-mail: grants@afar.org



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