PORTER

FELLOWSHIP

50 YEARS

aps
American Physiological Society

50th ANNIVERSARY HONORARY COMMITTEE

Pamela J. Gunter-Smith, PhD
York College of Pennsylvania

Nelson Escobales, PhD
University of Puerto Rico School of Medicine

Rayna J. Gonzales, MSc, PhD
University of Arizona College of Medicine-Phoenix

H. Maurice Goodman, PhD
University of Massachusetts, Emeritus

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University of Massachusetts Medical School

Keisa Williams Mathis, PhD
University of North Texas Health Science Center

Nathaniel G. Pitts, PhD
National Science Foundation, Retired

Annabell C. Segarra Marrero, PhD
University of Puerto Rico Medical Sciences Campus

Martin Frank, PhD
American Physiological Society

50 YEARS

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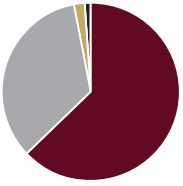
To learn more about the Fellowship or to apply, visit
www.the-aps.org/porter

PORTER FELLOWSHIP BY THE NUMBERS

140 Porter Fellows supported since 1967

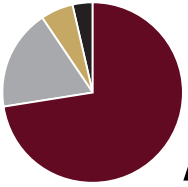
$4.4 Million in support awarded over the years

PORTER FELLOWS BY RACE & ETHNICITY



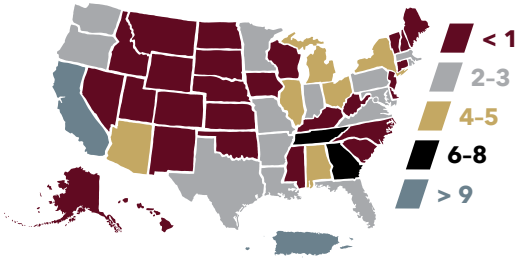
- **63%** African American/Black
- **34%** Hispanic/Latino
- **2%** American Indian/Alaska Native
- **1%** Native Hawaiian/Other Pacific Islander

PAST FELLOWS BY EMPLOYMENT SECTOR

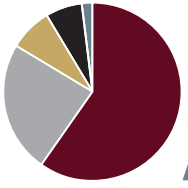


- **72.65%** Academia
- **17.95%** Industry
- **5.98%** Government
- **3.42%** Nonprofit

STATES WHERE PORTER FELLOWS HAVE CONDUCTED THEIR RESEARCH

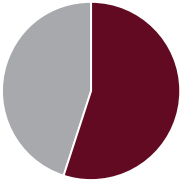


PAST FELLOWS' AREA OF EMPLOYMENT



- **59.83%** Research
- **23.93%** Science-Related, Non-Research
- **7.69%** Teaching
- **6.84%** Medicine
- **1.71%** Nonscience-Related

PORTER FELLOWS BY GENDER



- **55%** Female
- **45%** Male

THE PORTER FELLOWSHIP AT 50: A CELEBRATION OF DIVERSITY IN PHYSIOLOGY

In 1967, Joseph Hinds became the first minority physiologist to receive the American Physiological Society's (APS') Porter Physiology Development Fellowship. During a time of great change in the U.S.–nearing the end of Lyndon Johnson's presidency and in the midst of the Vietnam War and the American civil rights movement–Hinds' selection also marked a great change for the Porter Fellowship, one of APS' longest-standing and most prestigious award programs.

Fellowship Origins

The Porter Fellowship was established in 1921 by William Townsend Porter with proceeds from the sale of the Harvard Apparatus Company. The proceeds of the sale were managed by the Harvard Apparatus Foundation (HAF), which was later renamed the William Townsend Porter Foundation.

Porter founded the company "to promote laboratory teaching and research in physiology and its allied sciences (1) by the invention, development, manufacture, distribution and sale of instruments and apparatus, useful to or required by students, investigators, and other experimenters or teachers in physiology or its allied sciences. (2) By encouraging and assisting young men and women of promise in the study of physiology and related branches of medicine and surgery." ("History of the APS: The Third Quarter Century")

Since its establishment, the Porter Fellowship has been continuously administered and awarded by APS with the exception of the years during World War II (1943–1946). At its start, the Fellowship provided support to predoctoral students in physiology.

By the 1960s, the Fellowship program was ready for a revamp. APS began to take stock of how the Society should change with the times and draw a more diverse set of applicants for the long-standing award program and, in turn, to the APS membership. Between 1934 and 1950, APS had only elected three African-American scientists to its ranks. By 1965, that number had increased to eight regular and associate African-American members. "After World War II, as the fellowship programs of the National Institutes of Health, the National Science Foundation, and the National Research Council

expanded, the number of applications for the Porter Fellowship dwindled," former Porter Committee Chair A. Clifford Barger wrote ("History of the APS: The First Century, 1887–1987"). In addition, no African-American researcher had been awarded the Porter Fellowship in the nearly 45 years since its establishment.

Barger—an APS member who would go on to co-chair the Porter Committee with Edward W. Hawthorne for nearly 20 years—saw an opportunity. In 1965, Barger, Hawthorne and Edward P. Radford began to discuss using the Fellowship as a pipeline for attracting more African-American scientists to physiology and to APS. Barger took the idea to then-President John M. Brookhart who, along with the APS Council, enthusiastically approved the proposal. The idea was then presented to the directors of the HAF, who also eagerly agreed to the proposal and increased the annual support for the Fellowship.

Minority Researchers Excel as Porter Fellows

Under the expanded agreement, the HAF would provide funds for Fellows, expand the program to include postdoctoral researchers and set aside funds to support postdocs currently teaching or planning to teach in predominantly black colleges. The new agreement also included HAF grants of laboratory equipment to selected schools and provided funds for Visiting Porter Lecturers to teach for extended periods at colleges with predominantly black enrollment.

The Fellowship also afforded recipients the opportunity to attend the APS annual meeting, which today is held as part of the Experimental Biology meeting. For some Fellows, this was the first scientific meeting they had attended in their career. Indeed, as we were conducting interviews with past Fellows for this 50th anniversary book, the VIP treatment that Fellows received at APS annual meetings, and at other related meetings and professional events, remained a memorable facet of the Fellowship. Shortly thereafter, a standing APS committee was appointed to select Fellowship recipients and administer the program. The Porter Physiology Development Committee also worked to foster local collaborations between physiology programs at predominately black and predominantly white universities and had provided additional funds for honoraria and laboratory equipment.

Over the years, the program has continued to evolve. The Fellowship grew to include members of other minorities underrepresented in science, including Native Americans and Hispanic Americans. Improvements in technology, such as email, helped to increase interest and applicants from Puerto Rico. The internet also made it easier for a wider group of researchers to become aware of and apply for the

award, drastically expanding the candidate pool, which had previously relied on word-of-mouth within the physiology community and the individual networks of Porter Committee members.

As more talented applicants began to apply, APS and the Porter Foundation sunsetted some parts of the Fellowship, such as the Visiting Porter Lecturer program, in favor of providing support to more Fellows. "In my 30+ years as executive director of APS, I am most proud of the Porter Fellowship program," says APS Executive Director Martin Frank, PhD. "APS made the smart choice to invest in diversity in science years before NIH, NSF and other research-funding organizations made support of minority scientists a priority. This investment has paid dividends in the many past Fellows who've gone on to serve as researchers, administrators, teachers, mentors and role models for an ever-increasing group of minority scientists that have followed in their footsteps. Though there's still work to be done, the field of physiology is richer because of their contributions."

The Porter Fellowship in 2017 and Beyond

Since 1967, APS has supported 140 Porter Fellows. Today, Fellows receive more than $28,000 in support in each year of the Fellowship. The 2016 cohort includes eight Fellows who carry on the tradition of excellence in physiological research. Many program alumni have gone on to illustrious and dynamic careers. We share some of their stories in this book.

The success of the program is due in large part to the dedicated work of the Porter Committee, which often served as more than just applicant reviewers. Many committee members took it upon themselves to personally reach out to potential applicants, encourage them to apply and make extra efforts to help newly minted Fellows make connections with more established researchers, especially at the Experimental Biology meetings.

In particular, the dedication of two long-standing Porter Committee co-chairs was integral to the success and expansion of the program. A. Clifford Barger served as co-chair from 1967 to 1986. Eleanor Ison-Franklin co-chaired the committee from 1984 to 1998. Both were widely regarded as amazing mentors to physiology students of all backgrounds. Both were instrumental in attracting well-qualified applicants who would do the program proud. Both spent countless hours in service to APS and the Porter Committee and Fellows.

APS is extremely grateful for the contributions of past and current chairs and members of the Porter Committee, as well as the major ongoing support received from the William Townsend Porter Foundation. We also appreciate other donations to

the Porter Fund that APS has received over the years. We also thank the APS staff, especially Marsha Lakes Matyas, PhD; Brooke Bruthers; and the APS Education Department, who have worked tirelessly alongside and in support of the Porter Committee to get the Fellowship to where it is today.

"When you work for a professional society, you are working for its mission," says Lakes Matyas, APS director of education programs. "My research and personal interests had always been in increasing diversity in STEM. When I interviewed to become the Society's first education officer, I asked Marty Frank 'Why does APS have a fellowship for minority students?' His response was filled with both passion and pride for the Porter program. I knew then that diversity was more than a token goal for APS; it was a core part of the mission. It has been my honor to manage the Porter program, first in partnership with Eleanor Ison-Franklin and then as one of the APS Education programs."

The Society also thanks APS staff who worked on the development of this book and the 50th anniversary celebration at Experimental Biology 2017: Stacy Brooks; Brooke Bruthers; Martin Frank, PhD; Marsha Lakes Matyas, PhD; Megan Mitzelfelt, PhD; Robert Price; Veronica Purvis; and John Van Ness, PhD.

"Catching up with past Fellows—some who've stayed in close contact with APS and others with whom we've lost touch—has been an exciting endeavor. I am truly impressed with the path that many of our past Fellows have followed," Frank says. "My hope is that this trailblazing program will continue to grow in its capacity to support bright young scientists from underrepresented backgrounds and help make the people who conduct physiological research as diverse as the field of physiology itself."

– Stacy Brooks

INTERVIEWS WITH SELECT PORTER FELLOWS

NATHANIEL G. PITTS, PhD

Fellow 1972–1974

On his 11th birthday **Nathaniel G. Pitts, PhD**, received an unusual gift. It was his entry into a new hobby and eventually a career in physiology. A fifth-grade buddy presented Pitts with a pigeon in a brown paper bag. This was not an ordinary street pigeon. The classmate's older brother raised show pigeons. "He probably looked around and didn't have any money to buy me anything, and his brother probably said, 'Why don't you give Nat a pigeon?" Pitts imagines. "My father always reminded me all the rest of my life how that pigeon changed my life."

Pitts' father helped him build a cage for the bird. And because there was space in the cage for more than one bird, Pitts went in search of more pigeons. So it began. He ended up having about 150 pigeons that he raced around southern California where they lived. He bought and sold pigeons through magazines for "fanciers," people who keep and breed pigeons. He joined a pigeon racing club, kept a record book of meticulous details about each pigeon, and he would ride his bike to old-timers' houses to quiz them on pigeon racing.

"I would race these yearlings, meaning first-year birds. They would go as far as about 1,000 miles for the race so I had to understand the homing instinct and how to train these birds and how to breed these birds," he explains. "I had to understand genetic backcrosses for strength and duration, etc. This led me into biology and psychology." But he started selling off his pigeons his senior year as he prepared to head off to Whittier College in Whittier, California. He majored in biology/chemistry and minored in psychology. Then, a neuropsychologist suggested he combine his two areas of study and look into neurophysiology. He headed to the University of California, Davis, to study in the Animal Physiology Department and earn a PhD in physiology with a neurophysiology emphasis.

Because Pitts studied his pigeons for eight years, the coursework came naturally to him. "All of that stuff was intuitive to me. All the embryology—which I thought was fascinating—I just understood it at a level that other people didn't understand it." Pitts was awarded the Porter Fellowship after he finished his qualifying exams in his PhD program. **"What the Porter Development Fellowship allowed me to do for the first time was to stop working odd jobs for living expenses … and totally focus on reading and writing and researching." But more important than the money, Pitts says, the Porter Fellowship introduced him to APS and other minority scientists."** The big part for

me was getting to know Cliff Barger, a sweetheart of a man. I am so glad I got a chance to meet and know him before he passed away."

Pitts remembers meeting other Porter Fellows at a special dinner for them at an APS meeting. "Meeting those people meant the world to me because when you are an African American fighting around in this world, not knowing exactly what you're going to do, the one thing you are is alone. There are no other African Americans that you are around. … It was very confirming, if you will, to get to see a number of African Americans who eventually did go on to do big, big things."

After his PhD, Pitts did three years of research at Rockefeller University in New York City before accepting a job at the National Science Foundation (NSF) in Washington, DC, at a time when the Carter administration was aiming to integrate federal agencies. He was hired as an assistant program director at NSF and retired in 2008 after 30 years. He retired as the originating director of the Office of Integrative Activities, a position he held for more than 10 years. When he started at NSF in 1977, the agency was only starting to focus on neuroscience and was hiring several young neuroscientists for its new division. Eventually, the division "was instrumental in helping shape how fundamental neuroscience was going to be funded through the National Science Foundation," he says. Did Pitts miss having his own research program? "Well, the answer is complex," he says. "I ended up being an industrial psychologist, if you will. The reason I got my stripes was because I understood organizational behavior better than a lot of other people did—and I actually liked people better than most scientists liked people. I could communicate well inside organizations."

One of Pitts' proudest accomplishments was pushing NSF to become paperless before this was a common occurrence at federal agencies. Before going paperless, "we had essentially 50,000 proposals coming to the National Science Foundation. Twenty copies of each proposal every year, and proposals would be on average about a hundred pieces of paper," Pitts recalls. He says he conceived, promoted and implemented the plan for web-based program management.

When Pitts' parents died, he and his siblings established a family foundation, which has donated to the Porter Fellowship program. "Cliff Barger always said to me—which I've always repeated—that he thought everybody deserved a good course in understanding how their own body functions," Pitts says. "He was all about trying to spread the word of human physiology so that people would understand and have a good sense of their own physiology. … My relationship with Cliff Barger, although it was brief, I honored it tremendously."

– Melanie Padgett Powers

JAMES TOWNSEL, PhD

Fellow 1971–1972

James Townsel, PhD, retired professor of neurobiology at Meharry Medical College, had a wife and three children to support when he finished his PhD at Purdue University in 1967, so he accepted a faculty position immediately after his PhD. Soon after, he received the opportunity to pursue a senior postdoctoral fellowship at Harvard; however, even a senior postdoctoral fellowship stipend fell short of covering his family obligations. **Thanks to the Porter Fellowship, which supplemented his income during those postdoc years, he was able to spend two years at Harvard, where he produced critical data and forged connections that helped him win his first R01 when he returned as a faculty member at Meharry in 1974.** "Launching my independent career was possible because I was able to stay for the full two years at Harvard as a senior postdoctoral fellow with the added support of the Porter," he explains. "Had it not been for the Porter, I'm not sure that I could have afforded this postdoctoral training."

As a faculty member at Meharry, Townsel developed a new PhD program in physiology with an emphasis in neuroscience. Many of the graduates of this program went on to postdoctoral fellowships at Harvard, thanks in part to the relationships that Townsel had established during his Porter Fellowship years. As he progressed in his career and gained recognition for his work, Townsel's impact reached beyond mentoring students at Meharry. "I was able to play a vibrant role on a national level, at NIH and other institutions. I was involved with students all across the nation," he says. The impact of the Porter Fellowship wasn't just that it helped him at a critical juncture in his career, but that it enabled him to raise the visibility of minority scientists and influence policies at the National Institutes of Health (NIH), he says.

– Viviane Callier

DARLENE K. RACKER, PhD

Fellow 1982-1988

Darlene K. Racker, PhD, now retired associate professor of cardiology at Northwestern University Feinberg Medical School, had an unusual career path. She worked as a histologist and electron microscope technician for more than 20 years before deciding to return to graduate school to pursue physiology at the age of 45. In the course of her graduate studies at the Chicago Medical School, she discovered new cellular structures inside the dog heart. Her findings put her at odds with her adviser, she says, but thanks to the support of the Porter Development Fellowship Committee, she was able to continue her research. The Porter program not only supported her, but also paid for an electronic engineer technician she hired to build electronic devices needed to characterize the electrophysiological features of the new structures she discovered. "Porter was integral. I would not have made it without the Porter," she says.

It wasn't just the financial support that mattered; the relationships that she forged as a Porter Fellow also proved invaluable. **"As a Porter Development Fellow, you have a host of mentors within the Society who are there for you. The Porter program is just an outstanding opportunity for minorities, who are left on the fringes so often," she says. "For a minority, it levels the field. And when you leave, you leave with a nucleus of relationships that are life-long."**

– Viviane Callier

PAMELA J. GUNTER-SMITH, PhD

Fellow 1973-1977

When **Pamela J. Gunter-Smith, PhD**, completed her PhD dissertation defense in 1978, then-Emory Physiology Department Chair Jack Kostyo, PhD, remarked that the number of black women with PhDs in physiology had just doubled. Gunter-Smith is used to being the first, including the first woman in the physiology lab at the University of Pittsburgh School of Medicine during her postdoctoral fellowship and the first woman of color on several National Institutes of Health peer-review panels.

Gunter-Smith, now president of York College of Pennsylvania, says the Porter Foundation was instrumental in how she discovered physiology as a student at Spelman College in Atlanta—and later the Porter Fellowship made it possible for her to earn her PhD at Emory University. The Foundation supported a course in mammalian physiology at Spelman in which Emory professors, including legendary physiologist and Spelman alum Eleanor Ison-Franklin, PhD, set up a physiology lab. That's when Gunter-Smith became interested in physiology, but she had been a budding scientist since the age of five. She grew up living in the apartment above her family's funeral home in Nashville, Tennessee. Anatomy lessons were all around her.

"I grew up wandering around where my family was taking care of the deceased," she says. "At five years old, I'm standing on a stool looking to see what was going on. I think that continued my fascination in the sciences, but I always knew I wanted to be a scientist." As a child, Gunter-Smith frequently conducted experiments with her chemistry set and created bug collections. "I got really smart and [realized] I could get the neighborhood boys to collect bugs for me and then have a bigger collection," she remembers. At a time when schools were beginning to desegregate, Gunter-Smith attended a high school with a strong science program, including classes in biochemistry and physiology. She chose Spelman College after a visit where she saw a professor using an electron microscope, which was a "big deal at that time for a small college," she says.

She says the mentors she found at Spelman and through the Porter Foundation, including APS Past President A. Clifford Barger, were fundamental to her receiving the Porter Fellowship to attend Emory for her PhD. "I've had all of this support from this group of

physiologists who were involved in the Porter program, who I credit with helping me to successfully navigate through the physiology program," she says. "Now I had to do the work, but they certainly served as mentors and helped me achieve that.

"My connection with Porter goes beyond just the Fellowship. It kind of followed me throughout my professional career, and that's why I believe it's so important to give back," continues Gunter-Smith, who is the current president of the Porter Foundation board. After earning her PhD, Gunter-Smith was a researcher for 12 years at the Naval Medical Center in Bethesda, Maryland. But then she received a phone call from Johnnetta B. Cole, PhD, Spelman's first black female president, telling her it was time to return to her alma mater. She was offered the chair position of the biology department and the ability to set up her own lab. "It was a wonderful, wonderful opportunity for me to go back and to think about how I could help influence the next generation of young women of color," she says.

After 14 years at Spelman, she became provost at Drew University in New Jersey for seven years before becoming president of York College in 2013. When she packed up her lab at Spelman, Gunter-Smith wasn't sure she'd have the chance to do research at Drew. But she took her equipment with her just in case and stored it in her garage. But as she left Drew for York College, she decided it was time to let go of her lab. She handed it off to a young professor who was just starting his own laboratory. "But you know what I did? I kept a little piece that I still have here with me now that if I ever wanted to do something, I could actually do it," she says.

Gunter-Smith says she will always be a scientist, even if she's not in the lab. In fact, she uses her research skills every day as president. "I think that that will always be how I identify myself … because my approach to administration really reflects my training as a scientist," she says. "We look at things a bit differently than people in other disciplines. … As I think about new initiatives, I'm always in my mind developing an experiment. Whenever you're planning to test a hypothesis, you want to design an experiment that will help you to decide between two different types of hypotheses. So when I approach my job, I'm always thinking of 'what if?' It's that deductive reasoning that a scientist uses that I use in my work and that I think is valuable for me."

– Melanie Padgett Powers

JEAN A. KING, PhD

Fellow 1982–1990

Jean A. King, PhD, vice provost for biomedical research at the University of Massachusetts Medical School, is the first African-American woman to be tenured at her institution. "I'm the first and only," she says. Although it can be isolating to be the "only," King is thrilled with her multiple roles at UMass. Her office oversees grants administration, where she helps young researchers get started. "Part of my job is to catalyze scientific endeavors, and I really enjoy that," she says. She also is a professor in the Department of Psychiatry, Radiology and Neurology and directs the department's imaging center. Her research explores the effects of stress on the brain and the factors that affect resilience to stress.

After her undergraduate degree, King was thinking of going into biotechnology, because although she loved science, she didn't have the financial resources to get a PhD. But meeting A. Clifford Barger, chair of the Porter Committee at the time and a full professor at Harvard, "changed my life," she says. Barger had great confidence in her abilities and was instrumental in helping her get the Porter Fellowship. With that support, she entered the PhD program in physiology and neuroscience at New York University. **"The Porter Fellowship really has been the No. 1 reason that I am in academic medicine as opposed to business or doing science someplace else," she says. "The Porter Fellowship was my invitation into the world of research."**

– Viviane Callier

ERIC FLOYD, PhD

Fellow 1990–1992

Throughout his 18-year career in the pharmaceutical industry, **Eric Floyd, PhD**, president of compliance services and chief scientific officer at Dohmen Life Sciences, has gotten more than 30 drugs approved by the U.S. Food and Drug Administration. But the most important thing he's done, he says, is push for greater representation of minorities in the clinical trials used to evaluate investigational drugs. "Minorities are often left out of clinical trials, but it's important to know how drugs will behave in minority communities," he explains.

Floyd started his research career studying the effects of alcohol on sensory processing in the brain. He was an APS minority travel fellow in 1989, a Porter Fellow from 1990 to 1992 and then a minority travel fellow again in 1993. "Going to Experimental Biology was critical to networking and gaining further exposure to opportunities," he says. **"In giving me the opportunity to present my research, it piqued the interest of other principal investigators that were working on alcohol and drug abuse, and that led to three offers of postdoc opportunities that otherwise would not have happened," he says.**

Growing up in a single-parent household in Chicago, Floyd held down a job while studying as an undergraduate and struggled to make ends meet as a graduate student. "The Porter Fellowship allowed me to solely focus on my academic training and on my dissertation without having to work, and the result of that was the completion of my PhD in neurophysiology in four and a half years," he explains. Floyd also notes the guidance and mentorship he received from James Townsel, PhD, who was chair of the physiology department at Meharry Medical College and a former Porter Fellow.

After his postdoc, Floyd became increasingly interested in translational medicine and transitioned into regulatory affairs at Merck. The rest is history: After stints at Merck, Novartis, Cephalon and Aventis and after earning two business degrees, he has ascended to the highest managerial level within the pharmaceutical industry.

– Viviane Callier

NELSON ESCOBALES, PhD

Fellow 1982–1984

Nelson Escobales, PhD, credits the Porter Fellowship for helping him, a kid who loved science growing up in rural Puerto Rico, make the leap to Harvard Medical School as a research fellow. Today, Escobales is professor and director of the Department of Physiology at the University of Puerto Rico School of Medicine with a research focus in cardiovascular and cellular physiology. Escobales received bachelor's and master's degrees in biology at the University of Puerto Rico-Mayaguez and his PhD at the University of Puerto Rico School of Medicine. But he had to turn down a research fellowship in epithelial physiology at Washington University in St. Louis because he couldn't afford to live in the States. Then in early 1982, he heard about the Porter Fellowship and was also offered a postdoctoral position in membrane transport at Harvard University.

"There was no way I could have lived in Boston while attending Harvard Medical School without the Porter Fellowship," he says. "My family from rural Puerto Rico did not have the resources needed to support my studies. The Fellowship … eliminated the financial disparities that typically limit high-quality academic education in disadvantaged populations such as mine." Escobales considers his time at Harvard his "golden years." "I not only polished my research skills and learned cutting-edge science but met leaders in the field of physiology, such as Dr. Daniel C. Tosteson, a leader in membrane transport; Dr. Dale Benos in cell physiology; and Dr. A. Clifford Barger, who worked in cardiovascular physiology." He also developed great friendships with other members of the Red Cell Club, an organization of scientists who studied red blood cells. "This was an excellent and enriching experience for me," he says.

Escobales vividly remembers being introduced by Barger at a reception at the FASEB Meeting in 1983. "He said, 'This is Dr. Nelson Escobales from Puerto Rico, and he is an example of the work the Porter Program is doing to help develop young physiologists from underserved minority populations. Scientists like him, following training, go back and help develop others in those communities.' He made me feel proud of the Porter Physiology Program and the APS for allowing me to be part of a society with strong scientific and social missions." Escobales first became interested

in science thanks to an engaging high school science teacher, Mr. Natal, at Washington Irving High School in Adjuntas, Puerto Rico, who continually questioned students about interesting cases of how animals adapted to their changing environment. "These cases were discussed in class much like we do in today's case-based, small-group discussions, where a leader presents a case and the student is engaged in the thinking process," Escobales says. "The challenge to be curious about a scientific problem, the challenge to think in the context of the scientific method, the field trips to collect different specimens for lab work, and the general introduction to biology was something that I enjoyed so much."

Escobales says he cannot overstate how significant the Fellowship was in his career as a teacher and investigator and in his success as department chair for the past 20 years. "The opportunity that the Porter program gave me enabled me to meet and share my experiences with recognized leaders in the field of physiology and made me part of a society that further fostered my interest in physiology," he says. It also contributed to his desire to found the Puerto Rico Physiological Society in 2009 with other Puerto Rican physiologists.

The Fellowship is still needed today and is an important program to support because, Escobales says, "It levels the playing field for students from economically disadvantaged areas and minority populations to pursue a career in physiology with the long-term objective of contributing to the development of these underserved/underrepresented populations."

Escobales has recognized the importance of mentorship and the importance of giving back throughout his career. His proudest accomplishments have been witnessing the success of students he has mentored from high school through postdoctoral positions and teaching the love of science to students of all ages, including during APS Physiology Understanding Week and through the Puerto Rico Physiological Society. In fact, if he wasn't a research physiologist and department chair, he imagines he'd be teaching physiology full time. "I enjoy teaching physiology, in particular to college students that are eager to learn and get excited when presented with topics of science and the interactions or adaptations of animals to the environment."

– Melanie Padgett Powers

KELLY MACK, PhD

Fellow 1992–1994

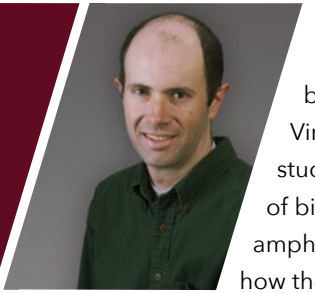
Kelly Mack, PhD, vice president of undergraduate STEM education at the Association of American Colleges and Universities (AAC&U) and executive director of Project Kaleidoscope (PKAL), leads a national STEM reform community committed to empowering faculty to produce a more diverse, competitively trained STEM workforce. Most of her work now is targeted at supporting faculty through professional and leadership development because of their direct impact on students and our future as a global competitor in science and technology.

Mack had been a faculty member in the Department of Natural Sciences at the University of Maryland Eastern Shore for 18 years when she received the opportunity to serve as a program officer at the National Science Foundation (NSF). At NSF, she spent several years overseeing the ADVANCE program, which focuses on advancing women faculty in STEM. "It was a natural progression in my career to contribute to transforming the culture of STEM higher education, which I had trained my students to enter. Having a national platform to explore was rewarding," she says. "When my tenure was up at NSF, I realized that it was my training as a physiologist—knowing how separate systems had to work together to sustain the whole organism—that made me well-suited for examining the national perspective on higher education." That led her to her current position at AAC&U.

For Mack, the Porter Fellowship provided financial support at a critical time in her graduate career. It wasn't until later, though, that Mack found greater significance in how this award had affected her. **When she learned about the first APS Porter Development Committee that, in 1966, directed that resources be made available to benefit young "minority-group" physiologists, she realized that scientific discovery, as important as it is, is not the only way to leave a scientific legacy.** "The Porter Fellowship program said a lot to me about what one's legacy could be," she says. "There is this idea that one's career must mean something more to others who also choose to pursue it and that one's career could honor that decision in a meaningful way."

– Viviane Callier

IGNACIO MOORE, PhD



Fellow 1997-1999

Ignacio Moore, PhD, full professor of biological sciences at Virginia Tech University, studies the physiology of birds, reptiles and amphibians to understand how these animals function in their native environments. He was a Porter Fellow as a graduate student at Oregon State University. "Having the Porter Fellowship enabled me to concentrate more on my research, which resulted in my CV being stronger," he says. "It also gave me independence and the freedom to pursue my own ideas." He credits his success as a faculty member to his early independence as a graduate student and later as a postdoc at the University of Washington.

As a faculty member who has sat on search committees, Moore notices that underrepresented minorities remain few and far between in the applicant pool for faculty positions. Partly, this is due to the lack of awareness about the research career path, he says. That's why "I think it's important to give students from underprivileged backgrounds help along the way," he says. "I think opportunities like the Porter Fellowship are huge."

– Viviane Callier

ANNABELL C. SEGARRA MARRERO, PhD

Fellow 1988-1991

As a child in Puerto Rico, **Annabell C. Segarra Marrero, PhD**, envisioned herself as a future Jacques Cousteau. The explorer and conservationist was quite popular at the time, and Segarra's own father was a diver and lifeguard and had served in the U.S. Navy. "That got me interested in the environment and the sea, and living on an island also contributed," she says. Segarra discovered neurophysiology in a roundabout way. After earning her bachelor's degree at the University of Puerto Rico, Río Piedras, she began studying marine biology at the university. But when the one marine biologist left the school, Segarra switched to endocrinology.

After earning her master's, she married and had a daughter. For a few years, she taught high school science and then biology at the University of Puerto Rico, Río Piedras, before deciding to pursue her PhD in reproductive endocrinology. But again, this time at New York University, the school's reproductive endocrinologist left, so Segarra switched to physiology.

"Once I started to work in endocrinology and reproduction, I sort of fell in love with the field," says Segarra, who has been a professor of physiology at the University of Puerto Rico's Medical Sciences Campus since 1992. "In one way or another, my work has always been related to sex hormones, sex differences and reproduction."

She changed her focus a bit to match the funding that was available and now studies in the area of drug abuse. She examines how sex hormones can affect people's responses to drugs they abuse. She also studies how exposure to stress or hormones early in development or the neonatal period affects young animals. Other projects look at ways hormones and stress during adolescence affect the reproductive system and the body's response to drug abuse later in life.

When Segarra first started studying sex differences, she was surprised that many studies examined only males or only females. Often, she says, researchers chose to study males because they didn't want to account for females' fluctuating hormone levels.

"I always thought that both sexes should be studied at the same time, that you couldn't attribute findings that you found in one sex to the other," she says.

"That has been my main interest: that both sexes are looked upon equally." She's pleased that the National Institutes of Health (NIH) now requires both women and men to be included in human studies, thanks to a 1993 law. In 2014, NIH began to require both males and females be included in all animal and cell studies.

When Segarra was a PhD student at New York University, she benefited from having Fleur Strand, PhD, as her adviser. Strand encouraged her to apply for an APS minority travel fellowship—which she was ultimately awarded—to attend the Experimental Biology meeting.

"I had never been to a scientific meeting," she says. "I started to become associated with a professional scientific association. The people there were really nice. They were excellent mentors; they treated me like an equal [and] made me feel part of a group." She also cherishes the relationships she's developed, thanks to the Porter Fellowship, over the past 30 years with other physiologists and Porter Fellows.

During her postdoctoral work at Rockefeller University in New York City, she applied for the Porter Fellowship. She was divorced and raising her young daughter in the city. The Porter Fellowship and a MARC (Maximizing Access to Research Careers) Faculty Fellowship from NIH enabled her to afford to live in New York City.

After her postdoc work, Segarra returned to the University of Puerto Rico. She primarily teaches medical and graduate students but also volunteers to teach one to two undergraduate neuroscience classes at the main campus. In addition, she gives presentations on physiology, reproduction or drug abuse at other undergraduate programs and at high schools. She is the coordinator of graduate studies in her department and is also heavily involved—sometimes as an outspoken advocate—on committees at her school.

"Teaching in Puerto Rico is difficult. Funding is always a problem. And having protected time to do research is also a problem. And I tend to get involved politically." Currently, she's the director of her campus's Association of University Professors, which is similar to a union. "I tend to be a bit vocal defending the rights of other people."

Through it all Segarra remains dedicated to her work and to her students. And it must show because science now runs in the family: She got remarried to fellow physiologist and Porter Fellow Jorge Gonzalez, PhD. And her youngest daughter, Amanda Gonzalez, is currently applying to PhD programs in neuroscience.

– Melanie Padgett Powers

MYLA PATTERSON, PhD

Fellow 2002–2004

For **Myla Patterson, PhD**, marketing manager for medical devices at Leica Biosystems, attending Experimental Biology meetings as a Porter Fellow was the highlight of her graduate career. The interactions she had at these meetings sparked an interest in exploring careers at the intersection of science and business. "To be quite frank with you, those trips that I took with APS were some of my first exposures to scientific conferences," she says. "At those meetings, I was able to gain exposure to science and new technologies that Meharry did not have." Meharry Medical College was a small institution in Nashville, Tennessee, that lacked access to some of these technologies, but it turned out to be the nurturing environment that Patterson needed as a graduate student. The Porter Fellowship allowed her to matriculate at Meharry in the lab of Evangeline Motley, PhD, who Patterson wanted to work with but who otherwise did not have funding to support her.

"The Porter Fellowship is important to support because it levels the playing field for minorities," Patterson says. Many scientists from underrepresented backgrounds don't see scientists in their own communities, so they are underexposed to the career possibilities in science and don't have much of a support network to help them through graduate school, she explains. "For me, it was key to be in that small, supportive environment [at Meharry]. The Porter Fellowship was a way for me to have that."

– Viviane Callier

JOHANA VALLEJO-ELIAS, PhD

Fellow 2003–2004

Johana Vallejo-Elias, PhD, associate professor with tenure at Midwestern University in Arizona, grew up on a farm in Puerto Rico. She always had an insatiable curiosity to understand how the natural world works, which led to her interest in research. But as an undergraduate in Puerto Rico, applying to PhD programs in the U.S. was daunting because it meant moving far away from her family. "My family was very scared of this process of letting go. My mom was so scared that her reaction was to get upset at me," she explains. But Vallejo-Elias decided to matriculate in the PhD program at the University of Missouri, which offered her a scholarship.

Her graduate mentor, Christopher D. Hardin, introduced her to APS and the minority travel fellowship and Porter programs. Vallejo-Elias is proud to have been a minority travel fellow every single year from her first year of graduate school until she became faculty at Midwestern University. Attending the Experimental Biology (EB) meeting for the first time was a huge eye opener. "I just never saw so many scientists in my life," she says. "At EB, you see many minorities who have been able to succeed, and you get full of optimism. I started to see the possibilities for my career in physiology."

The connections she has made through the minority travel fellowship and the Porter Fellowship have "been an unsurpassed blessing at the personal and professional level," she says. "At every single step of my career where I needed advice, there was a way to obtain information, whether it was through a workshop offered by the APS or just simply talking with people that I had met through the EB meetings," she explains. "The networking opportunities have been such an important aspect of my professional development." Vallejo-Elias has proudly served on the APS Porter Development and Education committees as a way to give back to the next generation of minorities in science.

– Viviane Callier

EVANGELINE MOTLEY, PhD

Fellow 1989–1991

"If anybody had ever told me that I'd be where I am today, I wouldn't have believed them," says **Evangeline Motley, PhD**.

Motley is interim chair and professor of physiology and associate dean of the School of Graduate Studies and Research at Meharry Medical College, a historically black college (HBCU) in Nashville, Tennessee. Meharry was the first medical school in the South for African Americans.

Motley and her twin sister, Jacqueline, were both interested in science as kids. They grew up in rural Southern Virginia in the tiny community of Dry Fork. As kids, their family encouraged them to go to college and enter the health care field. They began to follow that path: Motley and her sister attended the University of Virginia (UVA) as pre-med students. But going to a big university in Northern Virginia was a culture shock. "At UVA the courses were hard, and it took me a couple of years to overcome that and start making good grades," Motley says.

As a first-generation college student, Motley didn't have anyone to guide her through college decisions. For example, she and her sister took biology, chemistry and physics classes all at the same time—there was no one close to them to explain that that was too rigorous a course load.

Motley was inspired to work toward a career with a pharmaceutical company after a company representative visited UVA and talked about research opportunities. After graduation, the twins both took jobs as research technicians at the UVA Medical Center. Motley's sister has been there for nearly 30 years and is now a lab manager.

As a research tech, Motley monitored the blood pressure in rats as part of studies on hypertension. "That's when I really became interested in physiology," she says. "Plus, my family has a history of heart disease so that sparked my interest in pursuing cardiovascular research."

She still planned to work at a pharmaceutical company and applied to the PhD program at Howard University in Washington, DC. Because of her struggles at UVA and average GRE scores, she was accepted at Howard on probation but quickly showed her professors she was no longer a struggling student. She earned a

98 percent on her first physiology exam, surprising her professors at how quickly she began to shine. "I became a star student," she says.

Motley participated in a summer research program at the pharmaceutical company SmithKline Beckman (now GlaxoSmithKline) and moved to King of Prussia, Pennsylvania, to do her dissertation research on signal transduction in alpha receptors (studying what causes blood vessels to constrict and cause hypertension). She then went on to conduct postdoctoral research at the University of Cincinnati.

During her PhD and postdoc, she continued to apply for jobs, including positions in academia. Soon she interviewed and was offered a job as an assistant professor of physiology at Meharry Medical College. This was not on the path to her goal of developing cardiovascular drugs at a pharmaceutical company. But Motley decided she'd take the job and if she didn't like it, she'd leave. Twenty-four years later she remains at Meharry.

Motley immediately loved the opportunity to teach and encourage minority students to pursue science and medicine. "I felt like I was helping to contribute more by helping to train minority students so they can go out and you can see more of us out in the world working at companies and at majority institutions."

At both the pharmaceutical company and in her postdoc, Motley was often the only African American in the room, a problem that persists even now on review panels for the National Institutes of Health and the American Heart Association. "There's still a lot of work to be done," she says. "It makes me feel good on graduation day to see Meharry graduate so many African-American doctors, dentists, PhDs and public health professionals."

Motley credits the Porter Fellowship with developing her career. She received it as a Howard University student, and it was a tremendous financial gift. But it also introduced her to the world of APS. The legendary physiologist Eleanor Ison-Franklin, PhD, who also studied hypertension, was a mentor of Motley's at Howard. Ison-Franklin referred to Motley as one of her children and, later, when she would see her at APS meetings, she would call Motley's Meharry students "my grandchildren."

Motley says minority initiatives like the Porter Fellowship are critical because they give minority students a greater chance to obtain funding. Furthermore, the Fellowship opens the door to a lifetime of APS meetings, mentors and networking. She hopes that her successful and rewarding career and that of other previous Porter Fellows serve as an inspiration to current and future Porter Fellows.

– Melanie Padgett Powers

ADRIENNE BRATCHER, PhD

Fellow 2003–2005

When **Adrienne Bratcher, PhD**, graduated from the University of Louisville with a PhD in physiology and biophysics in 2007, she stayed on to teach. Now a clinical assistant professor, she teaches anatomy and physiology to graduate and undergraduate students. In her additional role as graduate program coordinator, she discovered that she had an interest and ability in program administration and leadership. She grew the graduate program from three graduate students to 18 and learned more about program development and assessment. "I didn't know that I had leadership characteristics, but as I continued to progress, I found that it was a talent of mine," she explains.

As a minority travel awardee and then a Porter Fellow, Bratcher learned to network with attendees, including other minority physiologists, at the Experimental Biology meeting. That came as a relief, being the only African-American woman in her graduate program. The meeting also provided the opportunity to hone her presentation and outreach skills, she says. **"I owe the APS everything when it comes to my career because the foundation that I learned, beyond what I got from my mentor and committee, came from APS," she says. "The more important aspect of an opportunity like the Porter Fellowship is that it can always be paid forward and continued," she adds.**

– Viviane Callier

JESSICA DOMINGUEZ RIEG, PhD

Fellow 2004–2006

Jessica Dominguez Rieg, PhD, associate professor at Bastyr University in San Diego, got her start at the University of Arizona in the physiological sciences graduate program. She discovered that she loved to teach, and when she went on to her postdoctoral training at Washington University in St. Louis, she continued to find ways to get involved in teaching undergraduates, medical residents and others. As a postdoc, she was an APS K–12 Minority Outreach Fellow, where she taught underrepresented minority high school students. "I always have this sense of wanting to pay forward the opportunities I've received," she says.

In her first independent position at the University of Colorado, Denver, she thrived as a researcher but found herself wanting more teaching opportunities. When the chance came to become a founding member of the new branch campus of Bastyr University, she took it. Working at Bastyr gave her leadership and teaching roles, while allowing her to continue her research investigating intestinal function in the context of systemic diseases such as septic shock or type 2 diabetes.

The Porter Fellowship, which supported Dominguez Rieg during graduate school, allowed her to engage with the broader physiology community and find role models and mentors, she says. She hasn't missed an Experimental Biology meeting since her first one in 2005 as a Porter Fellow. Seeing that she wasn't alone and that she belonged to a supportive community was invaluable. "I always remember how [APS Executive Director] Marty Frank would walk around and say hello and introduce the Fellows to different leaders in the APS, and it was just really inspiring and helped me stay committed to physiology," she says.

– Viviane Callier

RAYNA J. GONZALES, MSc, PhD

Fellow 1997–1999

From a young age, **Rayna Gonzales, MSc, PhD**, planned to go to college, becoming the first member of her family to do so. She was always interested in science, but in her small town in Milan, New Mexico, she didn't have much opportunity to learn about the possibilities of a career as a research scientist.

"Growing up, I was always a good student; I tried to get good grades," she says. "By the time I graduated high school I knew that I wanted to attend college and major in something science related.

"I always felt it was such a privilege to go on to a higher education, and the Porter Fellowship was one of the key stepping stones that helped support my graduate school training," she says.

Gonzales earned a bachelor's degree in microbiology with a chemistry minor at New Mexico State University. She wanted to land a job in a medical-related field but had difficulty finding a job after college because her degree was so specific. However, she soon became a phlebotomist in a hospital, assisting medical technicians. She learned valuable skills but yearned to work in an academic setting.

She applied for a job as a research assistant at the Lovelace Institutes in Albuquerque, New Mexico, under the direction of Stephen C. Wood, PhD. Seeing she was interested in furthering her education, Wood encouraged her to seek out a master's degree at the University of New Mexico (UNM). He offered to serve as her thesis adviser.

The master's program was "a hypothesis-driven program, and so I was immersed in an intensive research program," she explains. "We did comparative physiology, so that exposed me to a lot of different species, and it piqued my interest greatly."

Her research thesis examined the ventilatory response and metabolism of male and female rodents exposed to high altitude. She discovered a sex difference in metabolic responses and thermoregulation. During her master's program, she had the opportunity to attend her first Experimental Biology meeting and another APS meeting in England, the first time she'd ever traveled abroad.

After her master's thesis was completed, she transitioned to a PhD program at UNM School of Medicine. She had developed an interest in physiology, so she did the bulk of her lab rotations with physiology researchers and her PhD dissertation work in the laboratory of Nancy Kanagy, PhD. She also trained under the direction of Benjimen Walker, PhD,

who served on her dissertation committee and later as her first post-doc adviser.

One of the opportunities that arose during this time was the Porter Fellowship. **"The whole process exposed me to the grant writing process," she says. In addition, she says the Fellowship was "valuable to me because I knew I could have the potential to help support our research program.** This is very valuable to trainees because it gives them the passion and ability to creatively think in terms of experimental design and hypothesis-driven research."

The writing practice was also helpful because it helped her outline her experimental design and aims. "It laid out the dissertation plan very nicely, resulting in a very tight dissertation research plan by the time I finished writing the Fellowship application," she says.

Today, Gonzales is a vascular physiologist and associate professor at the University of Arizona College of Medicine-Phoenix. Her research program investigates the mechanisms associated with the development and progression of vascular inflammation and its impact on the dysregulation of the cerebral circulation following cardiovascular events such as stroke.

Her experience drives Gonzales to purposefully showcase science and potential careers to students in her community through high schools and community organizations. "I do everything I can now to find students who are interested in research and medicine and try to pave a path for them," she says, adding, "I encourage postdocs and graduate students to be part of that commitment of service to help others. It gives them a very important perspective."

Eight years ago, Gonzales started a mentorship program that pairs up University of Arizona medical students with students from a local bioscience high school for low-socioeconomic students in Phoenix. She and other faculty members also created a research program that invites high school students to spend six weeks in an intensive laboratory internship at the College of Medicine-Phoenix.

Gonzales says the training and support she's received from APS, her mentors over the years and her youth experiences help fuel her passion for these outreach programs. Her students and mentees are another source of passion and pride for her work. One of her proudest moments was when her first graduate student defended her dissertation. That young researcher recently learned she was accepted into a tenure-track faculty position.

– Melanie Padgett Powers

ADRIENNE ORR, PhD

Fellow 2005–2007

Adrienne Orr, PhD, project manager at Gilead Sciences, facilitates and oversees the progression of pharmaceutical products from discovery to launch. The development of small molecule drugs is a complex process, and Orr finds satisfaction in the fact that her role is both intellectually stimulating and of service to people who need medicines.

As a graduate student, Orr was fascinated by neurodegenerative diseases. Her PhD work focused on amyloid beta proteins in Alzheimer's disease. The Porter Fellowship provided her flexibility in choosing which lab to join at Stanford, and that was important for both scientific and personal reasons. "I was able to join a lab that had research that was not only interesting to me but also fit within what I could do as a parent. When you're a parent, your time is not as flexible and you need to be able to go home at a certain time to pick up your kid," she explains.

For Orr, the Porter Fellowship provided an edge in graduate school, where she felt she was competing with students who had undergraduate degrees from Ivy League schools. **"A lot of minorities can be first in their families with a college degree or come from working-class or lower-middle-class families, and they don't have the resources that other students have. They may not be plugged into all the cultural aspects of working in academia," she explains. "I came in from a state college (University of Alaska Fairbanks) with a small biology program," she says. "It helped me out tremendously to have a [Porter] Fellowship that acted as a bridge between going from a smaller state college with less resources to a graduate program that was higher profile."**

– Viviane Callier

DOLORES GUEST, PhD

Fellow 2007–2009

Dolores Guest, PhD, associate director of the Behavioral Measurement and Population Sciences Shared Resource at the University of New Mexico (UNM) Comprehensive Cancer Center, oversees and supports health research on human populations, including many from underrepresented backgrounds. With her mixed Native American, Hispanic and white heritage, Guest has found that she can relate to and gain the trust of study participants that she is recruiting for research studies.

Guest began her scientific career as a graduate student in nutritional sciences and physiology and was supported through the Porter Fellowship in her final two years. "It freed me up to focus on my research and get out within five years, and it also allowed me the freedom to pursue additional volunteer opportunities, like working for the graduate student association," she says. After her graduate work, she ventured into clinical science, working with breast cancer survivors for her postdoc. Then she found a position at the Parkinson's Institute in Sunnyvale, California, where she developed expertise in population-based research that involved fieldwork, participant recruitment, data collection and data analysis. She moved with her husband to New Mexico in 2014, where she found her position at the UNM Comprehensive Cancer Center. Guest's eclectic training "has allowed me to help with the different design elements of research studies and grant applications," she explains.

"I work in New Mexico—we are a majority-minority state—and I've been able to see firsthand how important it is to have minority researchers doing the work in the field and on the ground," she says. "The Porter Fellowship makes a huge difference in diversifying the research that is conducted."

– Viviane Callier

ROBERT CARTER III, PhD, MPH

Fellow 1999-2001

At eight years old, **Robert Carter III, PhD, MPH**, was already fascinated with physiology—even if he didn't know the word yet. He would study his two dogs, a Pekingese named Duke and a German shepherd named Tatoochi, intently watching them pant after running around on a hot and sticky Louisiana summer day. He even mimicked his dogs' panting but discovered it didn't help him cool off.

Later, he remembers an accident in which both dogs' chains became entangled in the backyard. Duke sustained a severe injury to his eye. On the drive to the vet's office, where Duke's eye would have to be removed, Carter remembers sitting in the back seat, cradling his dog, wishing he could help him. "I think at that point, the passion for studying life and physiology and treatment of animals became my lifelong pursuit."

In high school, he had the opportunity to take part in a summer research program with a Louisiana State University veterinary parasitologist, Dennis French, DVM. For a project that added supplementary minerals to improve dairy cows' milk quality, a teenage Carter conducted and analyzed liver biopsies on the cows. "I had an opportunity to engage in experimental science at quite a young age. I was 14 or 15, teaching third-year veterinary medical students how to do liver biopsies," he says, chuckling.

He realized he was more interested in learning how animals work than focusing on their care. Instead of going to veterinary school, he attended graduate school at Southern University in Baton Rouge where he earned a master's in biology. Carter went on to get his PhD in biomedical sciences and a master's in public health in epidemiology and biostatistics, both at the University of North Texas Health Science Center in Fort Worth. He also joined the U.S. Army after college.

Carter is now an Army lieutenant colonel and the product manager of medical simulation at the Joint Project Management Office for Medical Modeling and Simulation in Orlando, Florida. In his position—equivalent to a battalion commander—he oversees the Army's medical simulation program, which uses simulators and mannequins to train military medical personnel how to treat injured soldiers in combat. The Army center also supports simulation programs for the Air Force, Navy and Veterans Health Administration.

Carter learned about the Porter Fellowship at his first Experimental Biology meeting in San Diego, which he attended thanks to an APS travel award. His PhD adviser, Michael Smith, PhD, had encouraged him to apply for the travel award so he could meet other

minority physiologists. He then applied and was selected for a Porter Fellowship in 1999.

"Having the Fellowship … provided me an opportunity to interact with senior members of the physiology community, in particular at meetings. It gave me another group of minority physiologists across the country to engage with and to get to know," he says. "Also, having the Fellowship prevented me from having any other responsibilities. … It gave me the opportunity as a student to focus 100 percent on my research. As a result, as a graduate student, I was able to publish six or seven articles."

Carter has been able to integrate his expertise and interest in physiology and public health with the military, researching and teaching combat casualty care. The simulation program teaches all military personnel and medics who will be in combat life-saving interventions, such as hemorrhage control, needle decompression for a collapsed lung or penetrating injury, and airway management.

Carter's proudest accomplishment was the personal gratification—and later recognition from the Army—he received after a nine-month deployment to Afghanistan. He was selected to be on a field assistance science and technology team, delivering simulation equipment to the field and training soldiers on casualty care. For his work, the Army presented him with a Meritorious Service Medal and the U.S. Army Surgeon General Designation in Physiology and Biochemistry. The latter is typically awarded to lieutenant colonels or higher, but Carter earned it as a young major.

While Carter currently serves in a leadership and managerial role, he blocks off about eight hours a week to brainstorm and write for ongoing research projects on pre-hospital medicine and combat casualty care. He also maintains an adjunct full professor position in emergency medicine at the University of Texas Health Science Center-San Antonio. His current projects are studying how physiological status can be used to triage patients during a mass casualty event and how battlefield analgesic compounds affect blood pressure regulation and cardiovascular stability in a combat or trauma situation.

In addition, Carter and his wife, Kirti Carter, MD, MPH, who is a physician, teach breath-based meditation to military veterans through the nonprofit Project Welcome Home Troops. During APS Physiology Understanding Week, his wife taught relaxation techniques to teachers and staff at a local school while he taught the kids about nutrition and gastrointestinal physiology. From this volunteer work, they are now also researching whether relaxation techniques can improve cardiovascular function, thus reducing heart attacks, as measured by wearable devices.

– Melanie Padgett Powers

KEISA WILLIAMS MATHIS, PhD

Fellow 2008–2009

Keisa Williams Mathis, PhD, assistant professor of physiology at the University of North Texas Health Science Center, began her research career studying hemorrhagic shock at Louisiana State University Health Sciences Center. The Porter Fellowship supported her graduate training and helped her get a competitive postdoc at the University of Mississippi Medical Center studying cardiovascular disease and the role of kidneys in regulating blood pressure. **"The Porter Fellowship is a great start, and it gives you some confidence that if you can get this grant, you can get others. It's a confidence builder," she says.**

Mathis was also an APS K–12 Minority Outreach Fellow, where she taught students and teachers in K–12 schools about physiology. She continues to organize and participate in APS Physiology Understanding Week and other outreach programs. Attending Experimental Biology meetings, she says, helped her hone those teaching and outreach skills and gave her the opportunity to network with leaders in her field.

– Viviane Callier

MARESHIA DONALD, PhD

Fellow 2010–2011

Mareshia Donald, PhD, education and diversity program manager at Massachusetts Institute of Technology (MIT), studied developmental neuroscience at Brandeis University. As a graduate student, she was actively involved with the local chapter of the Association of Women in Science. After she received her degree, she leveraged her advocacy skills to get her first position in STEM outreach and education at the SEED Academy, an educational program for under-resourced and underrepresented high school students. There, she felt like her work really resonated with her values. Recognized for the work she did in that program, she was recruited for a program manager position at MIT, where she currently continues her work in teaching, outreach and advocacy.

Through the Porter program, Donald met a group of peers from whom she learned the breadth of professional trajectories that someone with her background could pursue. She also learned to advocate for herself and achieve her goals within a particular ecosystem. The problems that minorities face are very complex, "but people who receive Porter funding are well-equipped to address the issues at hand," she says. "I think it's super important for the Porter Fellowship to continue to bring diversity of thought and experience to the bench and apply it to real-life problems that we can see every day."

– Viviane Callier

CHRISTINA N. BENNETT, PhD

Fellow 2004-2005

In middle school, **Christina N. Bennett, PhD**, developed a love for science thanks to her seventh grade science teacher, Lisann Carriker, who taught her how to ask questions and find their answers. "She was fantastic, and I think getting that excitement about research really matters at a young age," Bennett says. Bennett was accepted into a science and technology program in high school, which provided her the opportunity to spend summers working in labs at the U.S. Department of Agriculture and University of Maryland. She earned a bachelor of science degree in biochemistry at the University of Virginia before earning her PhD at the University of Michigan, where she studied mouse models of obesity.

Bennett says the Porter Fellowship was instrumental in allowing her to stay on as a fifth-year PhD candidate. She had been on two two-year training grants, but as she approached her fifth and final year, she wasn't sure where the funding would come from—until she received the Porter Fellowship. "I was really thankful to get the Fellowship because I probably would have had to graduate and wrap up my project earlier if I didn't have it," she says, "and because I had it, I actually pursued a new line of research." Her research team had discovered that her mouse model had low fat but high-density bone. She was able to pursue the bone phenotype her fifth year and publish two papers about it. **"Just having the gift of time really translates into better career opportunities. I think the currency of research fields is publication, so by having more time, you're given a better opportunity to publish more."**

She went on to a postdoctoral fellowship at the National Cancer Institute, studying mouse models of breast cancer. But as she looked for job opportunities toward the end of her postdoc, she considered leaving the lab. She says it took about a year to "work through my anxiety about leaving the bench because I felt like my identity was as a scientist and a researcher." The decision to leave research has been her biggest career challenge. "When you choose to leave and do a non-research career it's harder for your mentors [who are all researchers] to help, and you kind of feel like you're doing it alone," she says. "Finding opportunities outside of research is much harder when [your mentors] don't necessarily have a network to share with you." But she realized skills she had developed–

how to think, how to manage projects—could transfer and be beneficial in other careers. When Bennett saw a job posting for an ethics manager in the Publications Department at APS, her interest was piqued. She made the leap and began working at APS in 2011.

Since starting at APS, Bennett has been promoted to associate publisher of ethics and policy. She works with editors and authors of 14 journals to address any ethics concerns, such as authorship disputes, image manipulations or animal ethics issues. She also helps integrate guidelines from the National Institutes of Health or the National Science Foundation into APS publication policies. "I see my role as helping authors clarify concerns," she says. "You find that each journal has its own set of policies and authors aren't always aware of what our policies are and how to report their findings appropriately, so I try to work with them in that case."

Bennett developed an interest in ethics as an undergrad, earning a minor in bioethics. She remembers class discussions about the need for medical doctors to have high standards when dealing with patients. However, at the same time, she was witnessing other students in the research lab hiding equipment or knocking over each other's tools. She realized "while these issues were going on at a student level, the same types of things can go on at a research lab, except that it's public money. Those types of issues should not be happening with a mandate to use research money to find cures and treatments," she says, "so I felt like scientists needed to have more discussions about good practice and good ethics and what their role is in society and how important it is and perceived to be by the general public."

Bennett says she doesn't miss the bench on a daily basis but she does miss working on her cells occasionally. "I liked doing my cell culture, and I miss the discussions that I could have within the lab. There's a lot of really smart people and a lot of good ideas, and that interaction is really neat and not seen in every other work environment." But, at APS, she's still immersed in the science. "I clearly don't do research anymore, but I get to read literature. I get to work with the scientists from a different perspective."

– Melanie Padgett Powers

NATASHA LUGO-ESCOBAR, PhD

Fellow 2008–2009

Growing up in Puerto Rico, **Natasha Lugo-Escobar, PhD**, was always interested in math and science and had plans to become a pediatrician. She majored in chemistry at the University of Puerto Rico, but the coursework made her realize that path wasn't for her. After college, Lugo-Escobar's interests switched to physiology, and she earned her PhD at the University of Puerto Rico, Medical Sciences Campus, which is when she received the Porter Fellowship. As a member of the university's Biomedical Sciences Graduate Student Association, she participated in events for students during APS Physiology Understanding Week and Brain Awareness Week.

During her PhD, her principal investigator (PI) was collaborating with a PI at the National Institute on Drug Abuse in Maryland. Lugo-Escobar was presented with an opportunity to travel to Maryland to work on the project and was later offered a postdoctoral fellowship, the Scientific Director Fellowship for Diversity in Research. While she enjoyed the experience, it was during her postdoctoral work that she realized she wasn't meant for the bench. "I wasn't interested in having a lab," she says. "I did enjoy science, but I wanted to interact more with students. I wanted to have more of an immediate reward, like working with students and seeing how excited they get about science." Her love of teaching and working with students remained and is apparent when she talks about the summer program she runs.

Lugo-Escobar is director of the High School Scientific Training and Enrichment Program (HiSTEP) at the National Institutes of Health's (NIH's) Office of Intramural Training and Education (OITE). She was the first director of the program when it was created in 2014. As it grew, the program added a second director. Previously, Lugo-Escobar was a coordinator of other NIH programs that involved students, such as journal clubs and a science skills boot camp, both offered to summer interns. When HiSTEP was developed, her boss offered her the chance to oversee the program.

HiSTEP is a summer internship program for high school juniors and seniors in the Washington, DC; Maryland; and Virginia area who are interested in STEM-M (science, technology, engineering, mathematics and medicine) and attend a high school with a large population of financially disadvantaged students. Approximately 30 students commute from home to the NIH campus for six weeks. They attend workshops led by Lugo-Escobar and other NIH scientists on scientific topics but also on college preparation, career readiness and leadership skills. They spend two weeks conducting their own experiments in an NIH lab, guided by postdoctoral

fellows who serve as lab mentors. The students also conduct informational interviews to learn about different STEM-M careers and visit five or six NIH labs to learn about NIH research.

"We provide them with a foundation in STEM-M and careers, and we also help them develop their leadership and communication skills," Lugo-Escobar says. The program has expanded to create HiSTEP 2.0, in which HiSTEP alumni are encouraged to apply to return for a second summer at NIH. After an introduction week to prepare the students to work in a lab, they spend eight weeks on a research project and attend weekly workshops on making the transition to college.

The students' success has been Lugo-Escobar's proudest career accomplishment. HiSTEP alumni frequently return to NIH to tell her how the program is helping them in college and as they consider their future careers. They joke that they want a HiSTEP 3.0 program. "Knowing how the students at the end were so proud of themselves, how they grew in terms of their knowledge in science. … Now they have such a high self-esteem. Now they believe in themselves," she says.

After her postdoc, Lugo-Escobar was offered a job coordinating student programs at OITE. "When I was in grad school, I never thought I was going to the mainland," she says. Even after she moved to Maryland, she thought she'd return home. But Lugo-Escobar met her future husband in Maryland and discovered a career she loves. She conducts a lot of student outreach and promotion of HiSTEP, including trying to recruit Puerto Rican students interested in science for different programs offered at NIH.

"I cannot be there, but I'm trying to contribute from here. … There are not that many [Hispanic scientists]. That's one of the things that I love about HiSTEP because the demographics are underrepresented students in science," she says. "They have a lot of potential, and they are really willing to work hard. They're motivated, but they just need a chance." Lugo-Escobar knows how important such programs are because of the difference the Porter Fellowship made in her life. The Fellowship was not only helpful financially during her PhD, it gave her a support system and opportunities to attend FASEB meetings and network with physiology leaders.

"As students, you want to present your research at different scientific meetings, but the funding is always hard. … [The Porter Fellowship] gave me a way to feel free to go to meetings and present my research and not to have to worry about anything else," she says. "I think for students who are financially struggling these type of fellowships make a huge difference in students' lives." The Porter Fellowship application was also her first time writing a type of thesis where she had to consider the big picture and lay out her research steps. "I'm grateful for the opportunity to be a Porter recipient. It was one year out of my career, but it made a huge difference."

– Melanie Padgett Powers

OLIVER LOSON, PhD

Fellow 2013–2014

Oliver Loson, PhD, licensing associate in the technology transfer office at Caltech, found his home in technology transfer after graduating with a PhD from Caltech in 2014. As a graduate student, he crystallized a protein implicated in a variety of diseases—an important first step toward designing small molecules to target this protein for therapeutic purposes. His work, similar to the work that goes on at pharmaceutical companies, led him to join the biotechnology club to explore translational science and learn about careers in patent law, venture capital and tech transfer. Upon graduating, he found a position at the technology transfer office at Caltech. "It's an interesting field because it is at the crossroads of science, patent law and business," he says.

Loson knows firsthand the challenges of being a Latino scientist. As a student, he wanted to get the best scientific training but also wanted to stay connected to the social and cultural life that continue to be central to his identity. He went to undergraduate and graduate school close to home, forgoing bigger name schools that were farther away, he explains. Thankfully, Caltech was both reputable and close to home. His research project at Caltech proved challenging but started to bear fruit in Loson's fifth year. **The Porter Fellowship supported him for an additional year so that he could wrap up his dissertation project. "Porter is not really so focused on whether you went to a big-name school. They understand the cultural challenges that you are facing as a minority, and they help celebrate the fact that you're doing things a little bit differently from the next person," he says.**

– Viviane Callier

LIST OF PORTER FELLOWS (1967–2017)

Joseph Hinds
Meharry Medical College
1967–1971

John C.S. Fray
University of Massachusetts
1968–1975

Russell Tearney
Howard University
1969–1972

Kenneth Olden
Temple University
1970–1971

James Townsel
Meharry Medical College
1971–1972

Mary Pinkett
Temple University
1972–1973

Nathaniel G. Pitts
University of California, Davis
1972–1974

Jean Flagg-Newton
Harvard University
1973–1976

Pamela Gunter-Smith
Emory University
1973–1977

Renty Franklin
Howard University
1974–1975

Hardin Jones Jr.
University of California, Berkeley
1978–1979

Cynthia Jackson
University of Alabama
University of California, Davis
1980–1983; 1988–1991

Jose Garcia-Arraras
Centre National de la Recherche Scientific
1981–1984

Nelson Escobales
Harvard Medical School
1982–1984

Darlene K. Racker
Chicago Medical School
1982–1988

Jean A. King
New York University
1982–1990

Jorge Mancillas
Salk Institute
1983–1985

Carlos Jimenez-Rivera
Universidad National Autonoma de Mexico
1985–1986

Joyce Hunter
Howard University
1985–1987

Claude Saint-Come
University of Massachusetts
1986–1987

Karen Anderson
Colorado State University
1986–1988

John Okwusidi
Howard University
1987–1988

J. Michael Gonzalez-Campoy
Mayo Medical School
1987–1990

Richard W. Campbell
Life University
1988–1990

Alfredo Rego
Georgetown University
1988–1990

Paulene Washington
University of Western Ontario
1988–1990

Annabell C. Segarra Marrero
Rockefeller University
1988–1991

Maria L. Ruiz
Harvard University
1988–1992

Evangeline Motley
Meharry Medical College
1989–1991

Patricia Marks
University of Arkansas for Medical Science
1990–1991

Eric Floyd
Meharry Medical College
1990–1992

David McLaughlin
Pennsylvania State University
1990–1992

Victor Ruiz-Velasco
Tulane University
1990–1992

Maria Castro Laboy
Pontificia University Católica de Puerto Rico;
University of Puerto Rico
1990–1992; 1995–1996

John Hamilton
Henry Ford Hospital
1991–1992

Azeez Aileru
University of Maryland
1991–1993

C. Torrence-Campbell
Meharry Medical School
1991–1993

Owen I. Wilson
Iowa State University
1991–1994

Ozuem Mgbonyebi
Fox Chase Cancer Center
1992–1993

Kelly Mack
Howard University
1992–1994

Byron Ford
Meharry Medical College
1993–1994

Francis Bosah
Morehouse College
1993–1995

Artenzia Young-Seigler
Meharry Medical College
1993–1995

Debbi-Anne McDermott
Boston University
1993–1996

Raymond Foust
Temple University
1994–1996

Sheila Mathias
Meharry Medical College
1994–1996

Ronald McMillon
University of South Alabama
1994–1996

Trina Murry
Wright State University
1995–1996

Heidi Collins
Northeastern Ohio Universities
College of Medicine
1995–1997

Robert E. Espinoza
University of Nevada, Reno
1995–1997

Stephania Miller-Hughes
University of Arkansas for Medical Sciences
1995–1997

Corigan Smothers
Virginia Commonwealth University
1995–1998

Maria Leavitt
Eastern Virginia Medical School
1996–1997

Jason Hokama
University of Arizona
1996–1998

Trini Vargas
University of North Dakota
1997–1998

Rayna Gonzales
University of New Mexico
1997–1999

LIST OF PORTER FELLOWS CONTINUED

Ignacio Moore
Oregon State University
1997–1999

Kameha Kidd Bell
University of Arizona
1998–1999

Stanley Carlyle
Howard University
1998–2000

George Ekema
Wright State University
1998–2000

Cheryl Rust
Howard University
1998–2000

Robert Carter III
University of North Texas Health Science Center
1999–2001

Orlando Gonzalez
University of Puerto Rico
1999–2001

Paul Gray
University of California, Los Angeles
1999–2001

Marcelo Febo-Vega
University of Puerto Rico
1999–2002

Lisa Hernandez
University of California, Davis
2000–2002

Adrienne Hicks
Meharry Medical College
2000–2002

Sonia Houston Pichardo
University of Missouri-Columbia
2000–2002

Annelyn Torres-Reverón
State University of New York Downstate
Medical Center College of Medicine
2000–2002

Wendy Brisbon
Meharry Medical College
2001–2003

Jorge Gonzalez-Perez
University of Puerto Rico
2001–2003

Carmen Padro
University of Puerto Rico
2001–2003

Maurice Williams
University of North Texas Health Science Center
2001–2003

Becky Marquez
Cornell University
2002–2003

Rashad J. Belin
University of Illinois, Chicago
2002–2004

Myla Patterson
Meharry Medical College
2002–2004

Elethia Woolfolk Tillman
Meharry Medical College
2002–2004

Vanessa I. Toney Bobb
Brown University
2003–2004

Johana Vallejo-Elias
University of Missouri, Columbia
2003–2004

Claudio J. Villaneuva
David Gladstone Institutes, San Francisco
2003–2004

Adrienne Bratcher
University of Louisville School of Medicine
2003–2005

Gary Z. Morris
Eastern Virginia Medical School
2003–2005

Christina N. Bennett
University of Michigan
2004–2005

Alfredo J. Garcia III
Wright State University
2004–2005

Stefanie Raymond-Whish
Northern Arizona University
2004–2005

Jessica A. Dominguez Rieg
University of Arizona
2004–2006

Damon T. Jacobs
University of North Carolina-Chapel Hill
2004–2006

Walson K. Metzger
University of Medicine and
Dentistry of New Jersey
2004–2006

Clintoria L. Williams
University of Alabama at Birmingham
2005–2006

Andrew J. Clark
University of California, Irvine
2005–2007

Lymari Lopez-Diaz
University of Michigan
2005–2007

Jeffrey B. Mason
University of California, Davis
2005–2007

Kristy M. Nicks
University of Arkansas for Medical Sciences
2005–2007

Adrienne L. Orr
Stanford University
2005–2007

LaShon C. Sturgis
Medical College of Georgia
2006–2007

Ricardo A. Valenzuela
Stanford University
2006–2007

Brandi A. Thompson
University of Michigan
2006–2008

Antiño Allen
Indiana University
2007–2008

Lizette Warner
Mayo Clinic
2007–2008

Zelieann R. Craig
University of Arizona
2007–2009

Dolores D. Guest
University of Illinois at Urbana-Champaign
2007–2009

Natasha Lugo-Escobar
University of Puerto Rico
Medical Sciences Campus
2008–2009

Miren J. Maiz
University of California, Los Angeles
2008–2009

Keisa Williams Mathis
LSU Health Sciences Center
2008–2009

Heidy Contreras
University of California, Irvine
2008–2010

Melissa Blackman
Brandeis University
2009–2010

Leroy Cooper
Brown University
2009–2010

Aisha Kelly-Cobbs
Medical College of Georgia
2009–2010

Tanganyika Wilder
University of Illinois at Chicago
2009–2010

Timetria Bonds
University of South Florida
2010–2011

Mareshia Donald
Brandeis University
2010–2011

Pierre-Yves Jean-Charles
Florida Atlantic University
2010–2011

Kenny Roman
The Ohio State University
2010–2011

Steven Romero
University of Oregon
2010–2011

Annie Whitaker
LSU Health Sciences Center
2010–2011

Giselle Barreto-Torres
University of Puerto Rico
Medical Sciences Campus
2010–2012

Anniesha Hack
Johns Hopkins University
2010–2012

Matthew Valdez
University of California, Riverside
2012–2013

Joshua Avila
Texas A&M University
2012–2014

Angelina Hernandez
Indiana University School of Medicine
2012–2014

Alexis Jones
Oklahoma State University
Center for Health Sciences
2012–2014

Heidi Medford
Washington State University
2012–2014

Nsini Umoh
Howard University
2012–2014

Stan Andrisse
Saint Louis University
2013–2014

Lateece Griffin
Washington University in St. Louis
2013–2014

Oliver Losón
California Institute of Technology
2013–2014

Esther Bolanis
Indiana University
2014–2015

Roxana Loperena
Vanderbilt University
2014–2015

Vanitra Richardson
University of California, Los Angeles
2014–2015

Raymond Isidro Vega
Ponce School of Medicine and Health Sciences
2014–2016

Matthew Clark
University of Oregon
2015–2016

Jada Domingue
University of Illinois at Chicago
2015–2016

Ijeoma E. Obi
University of Alabama at Birmingham
2015–2017

Jinae N. Roa
Scripps Institution of Oceanography
2015–2017

Lindsey K. Stavola
Yale University
2015–2017

Olubusayo A. Awe
Johns Hopkins School of Medicine
2016–2017

Mariano Colón-Caraballo
Ponce Health Sciences University
2016–2017

Victoria S. Parker
University of Iowa
2016–2017

Candy M. Rivas
University of Arizona
2016–2017

Diarra K. Williams
Texas A&M University
2016–2017

PIONEERS OF THE PORTER FELLOWSHIP

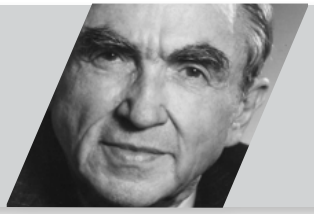
WILLIAM TOWNSEND PORTER

1862-1949

- Established the first physiology lab west of the Eastern seaboard at the old St. Louis Medical College in the late 1880s
- Elected to APS membership in 1891
- Founder and first managing editor of the *American Journal of Physiology*
- Instrumental in changing physiology studies in the U.S. from the then-common lecture- and book-based method to the experiment-based model used today
- Only American ever elected as an honorary member of APS, an honor previously reserved for distinguished international scientists
- While working in the department of Henry Pickering Bowditch at Harvard Medical School, Porter established a machine shop and began to make simplified versions of expensive German equipment needed to run experiments in the lab. This shop became the Harvard Apparatus Company.
- Established the Porter Physiology Development Fellowship in 1921 with the proceeds from the Harvard Apparatus Company

Full Biography:
www.the-aps.org/wtporter

"Facts memorized from a textbook or from lecture notes will not make a physiologist. Physiology is a state of mind—only to be had by a carefully planned sequence of experiments made in the laboratory by the student's own hand. The Harvard Apparatus Company was created to supply the apparatus for these experiments; at a price so low that even poor schools, and almost all the schools are poor, could teach our science in the only way in which the physiological state of mind can be created."



A. CLIFFORD BARGER

1917–1996

- Robert Henry Pfeiffer Professor of Physiology and Chair of the Department of Physiology at Harvard Medical School
- Elected to APS membership in 1949
- Led the efforts to refocus the Porter Physiology Fellowship program into one that recognized and supported the efforts of young and talented minority physiologists
- Porter Committee co-chair, 1967–1986
- APS president, 1970–1971
- Throughout his tenure as an APS member, councilor, president and chair of multiple committees, Barger made significant contributions to increasing diversity in physiology and mentorship.
- Namesake of the APS A. Clifford Barger Underrepresented Minority Mentorship Award

Full Biography:
www.the-aps.org/cabarger

"My most important contributions probably have been in the founding and funding of the Porter Physiology Development Program and the education of minority physiologists through the Porter Physiology Development Committee, as well as the first presidential tour of the predominantly black schools, the organization of a workshop for minorities in research, . . . and support of women in the affairs and offices of the Society."

ELEANOR ISON-FRANKLIN

1929-1998

- Dean of the School of Continuing Education and professor of physiology at Howard University
- Porter Committee co-chair, 1984–1998
- First female dean in Howard University history, 1970
- Visiting Porter Lecturer for 30 years, 1967–1997
- Elected to APS membership in 1971
- Named a "Magnificent Professor" at Howard for her many accomplishments and great service to the university
- The highest-ranked second-year Porter Fellows receive the designation of Eleanor Ison-Franklin Fellow.

Full Biography:
www.the-aps.org/eison-franklin

"It is axiomatic that the only true rewards of an academic career are the successes of one's students. Therefore, I am witness to my rewards as I look around. ... They sit as chairs of departments, directors of programs, chiefs of divisions, deans, vice presidents and researchers. They are also clinical health providers, health physicians, dentists, therapists and technicians. I hope that in some small way, I have stimulated their development and have imparted to them a modicum of their knowledge. Of course, it is not enough that there has been the transmission of facts between me and the young men and women with whom I have been privileged to learn and think and solve problems. I hope that through all of the many engagements with my students, I have also succeeded in imparting some time-honored values, which they have been able to incorporate into their lives, their practices and their interpersonal relationships. Among these that I hold most high are integrity and continuous learning."

PORTER COMMITTEE CO-CHAIRS (1967–2019)

APS would like to thank the dedicated co-chairs of the Porter Committee for their countless hours of service to the Porter program and Fellows.

- **A. Clifford Barger**
  1967–1986
- **Edward W. Hawthorne**
  1967–1986
- **Eleanor Ison-Franklin**
  Howard University
  1984–1998
- **H. Maurice Goodman**
  University of Massachussetts Medical School
  1993–Present
- **Pamela J. Gunter-Smith**
  Spelman College
  1999–Present
- **Gregory Florant**
  Colorado State University
  2005–2007
- **Patricia Molina**
  LSU Health Sciences Center
  2008–2010
- **Dexter L. Lee**
  Howard University
  2011–2013
- **Margarita C. Curras-Collazo**
  University of California, Riverside
  2014–2016
- **Layla Al-Nakkash**
  Midwestern University
  2017–2019

INSTITUTIONS HOSTING MULTIPLE FELLOWS

Thanks to the following institutions that have hosted two or more Porter Fellows:

- Brandeis University
- Brown University
- Eastern Virginia Medical School
- Harvard University and Harvard Medical School
- Howard University
- Indiana University and IU School of Medicine
- Johns Hopkins University and School of Medicine
- LSU Health Sciences Center
- Mayo Clinic and Mayo Medical School
- Medical College of Georgia
- Meharry Medical College
- Stanford University
- Temple University
- Texas A&M University
- University of Alabama at Birmingham
- University of Arizona
- University of Arkansas for Medical Science
- University of California, Davis
- University of California, Irvine
- University of California, Los Angeles
- University of Illinois at Chicago
- University of Massachusetts
- University of Michigan
- University of Missouri, Columbia
- University of North Texas Health Science Center
- University of Oregon
- University of Puerto Rico and UPR Medical Sciences Campus
- Wright State University

PORTER FELLOWSHIP SPONSORS

APS sincerely thanks the corporations and foundations that have partnered with APS to provide Porter Fellowships.

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William Townsend Porter Foundation

PAST PARTNERS

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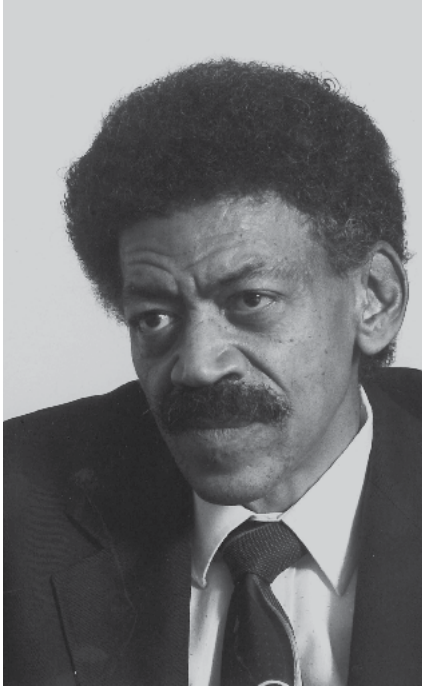
Upjohn Company Foundation
Procter & Gamble
Merck
The Pitts Family Foundation

A LOOK BACK AT THE PORTER FELLOWSHIP

A LOOK BACK AT THE PORTER FELLOWSHIP



AMERICAN PHYSIOLOGICAL SOCIETY

9650 Rockville Pike
Bethesda, MD 20814-3991

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www.the-aps.org/porter