Porter Physiology Development Program

Retrospective Study of Porter Fellows 1967 - 2001

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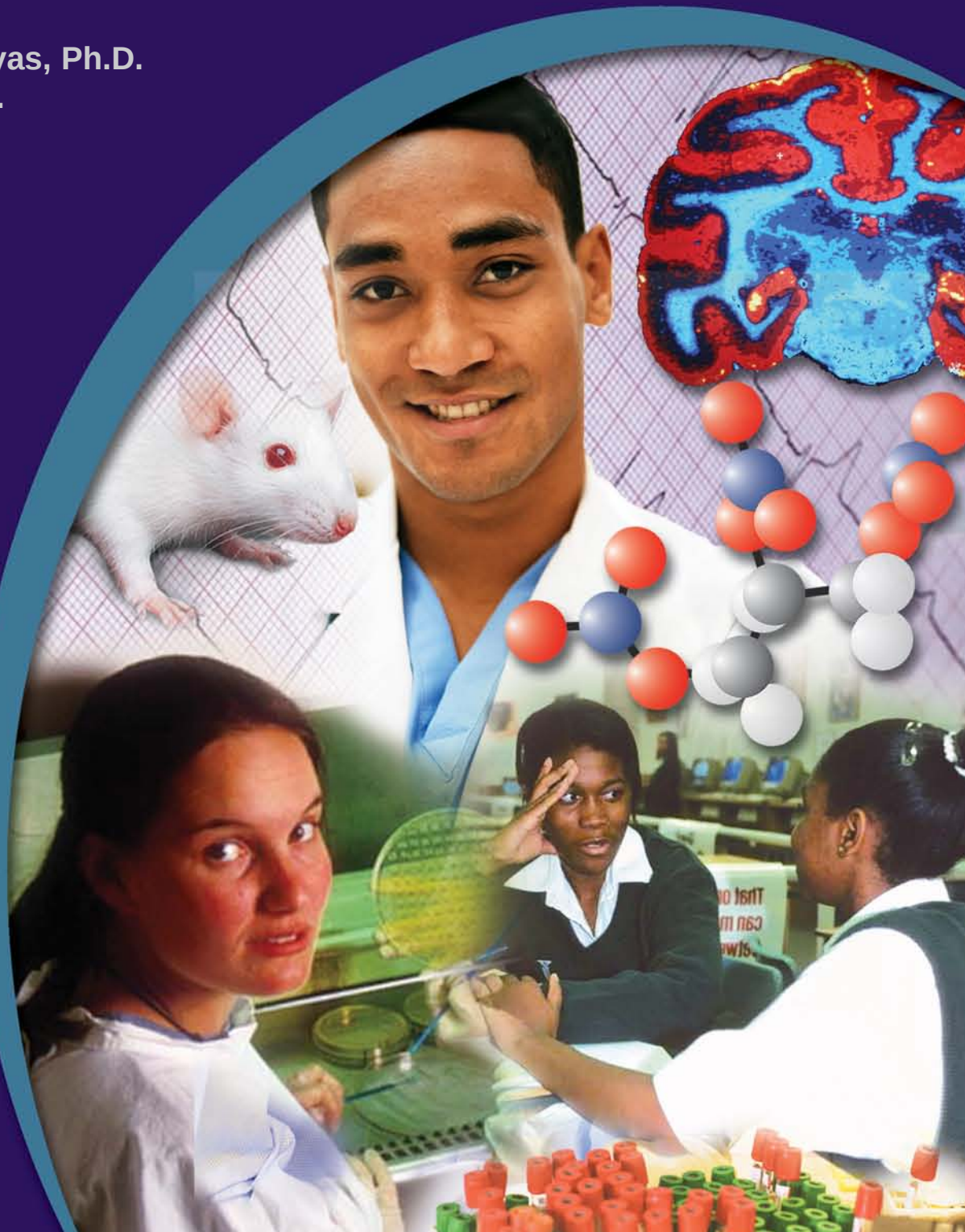

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Porter Physiology Development Program

A Retrospective Study
of Porter Fellows
1967 – 2001

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About the American Physiological Society

The American Physiological Society (APS) is a nonprofit organization devoted to fostering education, scientific research, and dissemination of information in the physiological sciences. The Society was founded in 1887 with 27 members. APS now has over 10,500 members. Most members have doctoral degrees in physiology and/or medicine (or other health professions). The APS supports a variety of educational activities, including programs and fellowships to encourage the development of young scientists at the undergraduate and graduate levels, with a particular focus on women and underrepresented minorities.

About APS Minority Programs

Science is incomplete without the contributions of scientists from both genders, diverse backgrounds, and all racial/ethnic groups. The APS is committed to serving as a catalyst in developing a scientific workforce that not only encompasses, but also embraces, the benefits of diversity among scientists. Toward that end, the APS has developed a broad and comprehensive approach to increasing diversity in the field of physiology and to improving K-12 life sciences education for all students. The APS has worked since the 1960s to systematically address issues of diversity throughout its educational activities, through a combination of targeted programs and specific policies and procedures in nontargeted programs. These programs benefit from feedback from participants, which guides ongoing program enhancements and improvements.

In 2003, the APS received the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM) for providing broad opportunities for participation by women, minorities, and people with disabilities in science, mathematics, and engineering in elementary, secondary, undergraduate, and graduate education.

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Executive Summary

Since 1967, Porter Physiology Development Program Fellowships have supported the predoctoral and postdoctoral studies of numerous minority students with the support of the American Physiological Society (APS) and the William Townsend Porter Foundation. The goal of the Fellowship Program is to encourage diversity among students pursuing full-time studies toward the Ph.D. (or D.Sc.) in the physiological sciences and to encourage their participation in the APS. Between 1967 and 2001, 73 Fellowships were awarded to minority graduate and postdoctoral students in physiology.

With support from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), the APS conducted a study of current and past Porter Fellows to gather information on their career paths and their perceptions of the impact of the Fellowship on their career. Full or partial information was gathered on 73% (*n*=53) of all current and past Fellows.

All of the Fellows responding to the survey continued to be involved in life sciences-related work, primarily as physiologists-in-training or as physiologists working in academia, government, or industry. Following receipt of their degree, the large majority of Fellows completed a single postdoctoral fellowship and entered their first professional position. At the time of the survey, most employed past Fellows spent at least part of their time engaged in research and were also involved in teaching, management, and administration. A large percentage of current and past Fellows are active members of the APS.

Respondents felt strongly that the Porter Fellowship contributed to the quality of their pre/postdoctoral training. They felt it gave them intellectual freedom to select research advisors and topics or postdoctoral positions. They also believed that the financial freedom provided by the Fellowship allowed them to concentrate on their research, contributing both to the quality of their work and to their overall career commitment. Fellows strongly recommended continuation of the program and offered suggestions for expansion and increased communication.

As stated earlier, the goals of the Porter Physiology Fellowship Program are to encourage diversity among students pursuing full-time studies toward the Ph.D. (or D.Sc.) in the physiological sciences and to encourage their participation in the APS. The findings of this retrospective study suggest that the program has been highly successful in both of these aspects.

...to stimulate and assist in the improvement of underdeveloped American departments of physiology, particularly in those colleges and medical schools with predominantly minority enrollments... [and award] fellowships to minority students who are engaged in graduate study in physiology.

Porter Program History and Purpose

The American Physiological Society (APS) has been continuously involved in the support of career training of physiologists since the awarding of the first Porter Fellowship in 1920. The fellowship was first established and maintained by Dr. William Townsend Porter through his personal generosity and that of the nonprofit Harvard Apparatus Company, founded by Dr. Porter. During his term as President of the APS, Dr. Porter recognized the need to stimulate and recruit young scientists as career teachers and investigators. He later included in his legacy a means for perpetuation of the annually awarded Fellowship through the William Townsend Porter Foundation (formerly the Harvard Apparatus Foundation). Fellows were selected each year by a panel composed of APS members.

During 1966-1967, the APS approved the creation of a standing committee, the Porter Physiology Development Committee. The Committee was charged with the following focus and expanded duties: "...to stimulate and assist in the improvement of underdeveloped American departments of physiology, particularly in those colleges and medical schools with predominantly minority enrollments. In addition, the committee awards fellowships to minority students who are engaged in graduate study in physiology...." This overall charge has guided the Committee's activities for nearly four decades.

The current goal of the Porter Physiology Fellowship Program is to encourage diversity among students pursuing full-time studies toward the Ph.D. (or D.Sc.) in the physiological sciences and to encourage their participation in the APS. Fellowships are open to underrepresented ethnic minority applicants who are citizens or permanent residents of the United States or its territories (African Americans, Hispanics, Native Americans, Native Alaskans, or Native Pacific Islanders). Applicants must have been accepted into or currently enrolled in a graduate program in physiology at the time of their application. Applications are accepted biannually in January and June for awards announced in April and September, respectively. Fellowships are one-year awards. However, based on trainee progress, a second year of support is frequently awarded.

In addition to the training assistance granted to graduate students, the Porter Physiology Development Committee also approved a number of ancillary activities between 1970 and 1990:

- Support of visiting lecturers in physiology courses at institutions with a predominant minority enrollment;
- Summer research fellowships for undergraduates in research laboratories of physiologists;
- Travel for minority students and faculty to attend scientific meetings; and
- Support of pilot program initiatives to increase ethnic and racial diversity within the community of physiologists.

Since 1990, the Committee has primarily focused on the awarding of graduate fellowships.

Between 1967 and 1990, the number of minority predoctoral and postdoctoral fellows who were supported annually by the Porter Program grew from one per year in 1967 to nine per year in 1990. Overall, awards were made to 73 Fellows between 1967 and 2001. More than 67% of the Fellows were African-American students (n=49), and 29% were Hispanic

students (*n*=21). Very few Native American (1%, *n*=1) or Pacific-Islander (3%, *n*=2) students received Porter Fellowships, and applications from these two groups have been very rare. In 2000, with support from the NIDDK, the APS began a follow-up study to determine the impact of both the Porter Physiology Development Program and the NIDDK Minority Travel Fellows Program. A preliminary report on findings from the study was provided to the APS Council in 2002. The current report serves as the final report on the Porter Program retrospective study.

Survey Methodology

A brief survey questionnaire was developed to gather information on the career path of past Porter Fellows and on their perceptions of the impact of the Fellowship on their career. The survey included multiple choice, short answer, and open-ended questions. A copy of the survey is provided in **Appendix A**.

The survey process utilized several methods proven to increase overall mailed survey response rates (Miller, 1991):

1) Including an introductory letter from a known sponsor (APS) that explained the purpose of the survey;
2) Conducting a follow-up mailing of the survey (postal mail);
3) Conducting a second follow-up mailing of the survey (e-mail attachment); and
4) Offering a postsurvey incentive ($10).

Heberlein and Baumgartner (1978) found, in a study of 214 mailed survey studies, that the overall anticipated response rate is about 60% for a mailed survey with multiple follow-ups. Therefore, it was anticipated that the response rate for past Porter Fellows for whom active addresses could be found would be approximately 60%.

Addresses for Porter Fellows were obtained through the APS and FASEB membership lists, membership in other key scientific organizations, and via Internet searches. For some Fellows, the most recent address available was the address provided at the time of their Fellowship. Addresses were unavailable for seven Fellows, and one additional Fellow was deceased. Surveys were initially mailed to 65 current and past Fellows. This group constituted the possible respondent pool. Of the 65 mailed surveys, 24 were returned as undeliverable; additional efforts were made to track down these Fellows via Internet and through calls and e-mails to students' former research mentors. Ultimately, surveys were completed and returned by 43 Fellows for an overall response rate of 59% of all past Porter Fellows (*n*=73) and 66% of the possible respondent pool (*n*=65). These percentages compare favorably with the expected response rate noted above. Additional data for nonrespondents were extracted, where possible, from information found on the APS membership database, other society membership databases, and employers' websites. This brought the overall number of past Porter Fellows for whom some data were available to 57 (70%).

The large majority (87%) of the Porter Fellows had either already completed or were in the process of completing studies leading to a doctoral (Ph.D.) degree.

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Current Status of Past Porter Fellows

At the time of the survey, more than half (52%) of the past Porter Fellows were employed physiologists (Table 1). An additional 14% (*n*=10) were postdoctoral students, and 11% (*n*=8) were graduate students. The current status of the remaining 16 past Fellows could not be determined.

The large majority (87%) of the Porter Fellows had either already completed or were in the process of completing studies leading to a doctoral (Ph.D.) degree. Only one Porter Fellow could be identified as having not completed the doctoral degree. In addition to Ph.D. degrees in physiology, several fellows earned additional degrees, including an M.B.A., a Bachelor's degree in another field, a Ph.D. in Biophysics, and M.D./Ph.D. degrees (*n*=3).

Table 1
Status of Past Porter Fellows at Time of the Survey

Status at time of survey	Frequency	Percent,%
Graduate students	8	11
Postdoctoral fellows	10	14
Employed physiologists	38	52
Unknown status	16	22
Deceased	1	1
TOTAL	73	100

Postdoctoral Fellows and Graduate Students
Nearly two-thirds of the current and past Porter Fellows who were still in graduate school were earning their degrees at a medical school (Table 2). Postdoctoral students were involved in research at a wider variety of institutions, more evenly divided between medical schools and universities, and one postdoctoral fellow worked in a government laboratory.

Table 2
Type of Institution Currently Attended by Students, by Student Status

Type of institution	Graduate students, % of students	Postdoctoral students, % of students
Medical school	62	50
University	38	40
Government agency	-	10

The institutions that students attended were also examined in terms of their Carnegie Classification. This classification strategy categorizes institutions based on their degree-granting activities in terms of numbers and types of degrees awarded. The general categories and brief definitions are included in Table 3, and more detailed descriptions are available at the Carnegie Foundation website.[1]

In terms of Carnegie Classifications of institutions, 50% of the graduate students were at "specialized institutions: medical schools/medical centers" while 38% were at "doctoral/research universities-extensive." Only one graduate student was attending a "baccalaureate college-general," that is, an institution focused primarily on baccalaureate education. Postdoctoral fellows also indicated whether their current position was a first postdoctoral fellowship. Half of the responding postdoctoral students indicated that they were completing their first postdoctoral fellowship. The

[1] www.carnegiefoundation.org

Table 3
Carnegie Classification Descriptions

Doctorate-Granting Institutions offer a wide range of baccalaureate programs and are committed to graduate education through the doctorate.

- **Doctoral/research universities—extensive:** Award 50 or more doctoral degrees per year across at least 15 disciplines.
- **Doctoral/research universities—intensive:** Award at least 10 doctoral degrees per year across 3 or more disciplines, or at least 20 doctoral degrees per year overall.

Master's Colleges and Universities offer a wide range of baccalaureate programs and are committed to graduate education through the master's degree.

- **Master's colleges and universities I:** Award 40 or more master's degrees per year across 3 or more disciplines.
- **Master's colleges and universities II:** Award 20 or more master's degrees per year.

Baccalaureate Colleges are primarily undergraduate colleges.

- **Baccalaureate colleges—liberal Arts:** Major emphasis on baccalaureate programs. Award at least half of their baccalaureate degrees in liberal arts fields.
- **Baccalaureate colleges—general:** Major emphasis on baccalaureate programs. Award less than half of their baccalaureate degrees in liberal arts fields.
- **Baccalaureate/associate's colleges:** Majority of conferrals are below the baccalaureate level (associate's degrees and certificates). Bachelor's degrees account for at least 10 percent of undergraduate awards.

Associate's Colleges offer associate's degree and certificate programs but, with few exceptions, award no baccalaureate degrees. Includes institutions where, during the period studied, bachelor's degrees represented less than 10 percent of all undergraduate awards.

Specialized Institutions offer degrees ranging from the bachelor's to the doctorate, and typically award a majority of degrees in a single field. They include theological seminaries, medical schools and medical centers, other health profession schools, teacher's colleges, and schools of engineering, business, management, art, music, design, and law.

Tribal Colleges and Universities are, with few exceptions, tribally controlled and located on reservations. They are all members of the American Indian Higher Education Consortium.

other half was completing their second fellowship. None of the postdoctoral students indicated that they were engaged in a third fellowship.

Not surprisingly, the vast majority of student work time was spent on research (Table 4). On average, the graduate students responding to the survey spent 99% of their time on research, and the postdoctoral students spent 97% of their time engaged in research activities. It is important to note that graduate students completing the survey would likely be senior students in the last years of their studies, since they had already competed for and received a Porter Fellowship.

Table 4
Current Allocation of Time to Key Work Activities, by Student Status

Key work activity	Graduate students, mean % of time	Postdoctoral students, mean % of time
Research	98.6	96.8
Teaching	1.4	1.6
Management/administration	-	2.1
Patient care	-	-
Other	-	-

Employed Physiologists

The career paths of past Fellows (*n*=38) who were employed physiologists at the time of the survey were examined in greater detail, to gain a better understanding of where they were in terms of career development and participation in the physiology community. Initially, the large majority (88%) of employed Fellows completed a postdoctoral fellowship before beginning their first professional position. Most Fellows completed a single postdoctoral study (69%), while smaller percentages completed two (12%) or three (8%) studies.

...the large majority of past Fellows indicated that they were employed by academic institutions (77%).

Respondents were asked to describe their first professional position (Table 5). About two-thirds of responding past Fellows (65%) held first professional positions as assistant professors in medical schools or universities.

Table 5
First Professional Position of Employed Fellows

Position title	Number	Percentage of respondents,%
Assistant professor, university *	8	35
Assistant professor, medical school	7	30
Research assistant professor	2	9
Research physiologist in government or private industry	2	9
Research instructor	1	4
Clinician	1	4
Government funding program director	1	4
Manager, technology licensing for medical school	1	4
No response	15	

* Includes one Fellow who indicated that the Assistant Professorship was non-tenure track.

When asked about their current position, the large majority of past Fellows indicated that they were employed by academic institutions (77%) (Table 6). Nearly half were in faculty positions, primarily in physiology or life sciences departments. Smaller percentages were in clinical (5%) or administrative (8%) positions. Less than 20% described their position as research assistant, lab assistant, or instructor. A number of Fellows were working in government positions, primarily as administrators of research programs, including an NIH Deputy Director and an Institute Director.

Only 10% of the past Fellows were identified as holding positions in industry. It should be noted that this may be an underestimate, since some information was gathered via web searches, and it is harder to identify and locate scientists employed in industry via web searches than either those in academia or government. Unlike researchers in academia or

government, industry scientists are unlikely to have individual web pages describing their research or work, and most industries do not publish employee titles and contact information online.

Table 6
Current Professional Position of Employed Fellows

Position title	Number	Percentage, of respondents %
Faculty positions	17	45
Associate professor (6)		
Assistant professor (4)		
Professor (5)		
Faculty position-title unspecified (2)		
Clinical positions	2	5
Clinical assistant professor (1)		
Chief resident neurosurgery (1)		
Other academic research and teaching positions	7	18
Research assistant professor (3)		
Research associate (1)		
Lab assistant (1)		
Research instructor (1)		
Director, multidiscipline teaching lab (1)		
Administrative positions	3	8
Associate Dean (1)		
Associate Provost (1)		
Associate Vice President for sponsored research (1)		
Industrial positions	4	10
Biological systems scientist (1)		
Senior manager, biomedical licensing (1)		
Industry position-title unspecified (2)		
Government positions	5	13
Government office directors (3)		
Deputy Director, NIH Division of Extramural Activities (1)		
Director, NIH Institute (1)		

The type of academic institution in which the past Fellows were employed was also examined (Table 7). Among those at academic institutions, the large majority were in medical schools, with only one past Fellow at a Doctoral/Research University, two at Master's Colleges and Universities, and three at Baccalaureate Colleges. None of the Fellows for whom information was available was working at Associate's Colleges or Tribal Colleges.

Table 7
Type of Academic Institution

Carnegie classification of institution	Number	Percentage, of respondents %
Specialized institution: medical school	17	45
Doctoral/research university-extensive	0	
Doctoral/research university-intensive	1	3
Master's colleges and universities I	2	5
Master's colleges and universities II	0	
Baccalaureate colleges-liberal arts	1	3
Baccalaureate colleges-general	2	5
Baccalaureate/associate's colleges	0	
Associate's colleges	0	
Tribal colleges and universities	0	
Nonacademic position	11	29
Unknown institution	4	10
TOTAL	38	100

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Finally, respondents indicated how their work time is allocated (Table 8). On average, the employed past Fellows spent just under half of their work time engaged in research with the other half of their time divided between teaching and management/administration. This varied with specific job title, of course, with some Fellows (*n*=5) indicating that they spent 100% of their time in management/administrative tasks. Few Fellows (*n*=5) spent more than half of their time in teaching, and only two Fellows indicated that they engaged in patient care activities. Three Fellows indicated that they spent a portion of their time on committee work.

Table 8
Current Allocation of Time to Key Work Activities

Key work activity	Employed physiologists		
	Mean % of time	Median % of time	Min/Max,%
Research	47.4	45.0	0/100
Teaching	28.8	10.0	0/95
Management/administration	26.9	10.0	0/100
Patient care	6.7	0.0	0/80
Other ("committee service")	1.5	0.0	0/15

In summary, the past Porter Fellows who have completed their training are, in general, working in physiology-related positions commensurate with their doctoral training. They are found not only in academic positions in medical schools and universities but also in industry and government positions. A number of the past Fellows hold significant positions as department chairs, senior managers in industry, or department/division heads in government agencies. Most of the past Fellows spent a significant portion of their time engaged in biomedical research and spent at least a portion of their time in teaching, management, and administration. Few of the past Fellows were engaged in patient care or clinical research as a physician.

Porter Fellows and APS Membership

One of the goals of the Porter Physiology Development Program is to encourage participation of Fellows in the APS. As shown in Table 9, the large majority of graduate students and postdoctoral fellows in the program are student or regular members of the Society. More than 40% of the employed physiologists were regular members at the time of the survey. Among the employed physiologists, 34% also indicated that they had been student members of the APS during their training. Of those who were student members during their training, 62% are now active members in the APS. Overall, of the surviving 72 past Fellows, 40% (*n*=29) were active regular or student members at the time of the survey.

Table 9
Membership Status of Past Fellows, by Career Level

Membership status	Graduate students,%	Postdoctoral students,%	Employed physiologists,%
Regular member	-	40	42
Student member	75	30	-
Nonmember	25	30	58

Past Porter Fellows have also made significant contributions to the APS through service on APS committees, sections, and task forces.

Past Porter Fellows have also made significant contributions to the APS through service on APS committees, sections, and task forces. They have played key roles in APS education programs, such as the NIDDK Minority Travel Fellowships, by serving as role models and mentors for minority students attending the APS annual meeting and fall conferences. Similarly, a number of past Porter Fellows have served as Physiologists-in-Residence for the APS Frontiers in Physiology Summer Retreat for middle and high school science teachers. During the retreat, these physiologists share their knowledge of physiology and their perspectives on biomedical research and the use of animal models with teachers who work with hundreds of students each year.

Contribution of Minority Institutions

The role of minority institutions in the success of the Porter Physiology Development Program should be noted. Minority postsecondary institutions[2] have long been one of the most important contributors to the production of minority scientists and engineers. Between 1990 and 1998, more than 40% of all Black undergraduates in biological sciences earned their bachelor's degrees at Historically Black Colleges and Universities (HBCUs) (NSF, 2003). Similarly, 46% of biology bachelor's degrees earned by Hispanic students were awarded by Hispanic Serving Institutions (HSIs). Although the number of Native American students earning bachelor's degrees in biological sciences more than tripled between 1990 and 1998, still fewer than 400 students earn biology bachelor's degrees annually (NSF, 2003). Significant proportions of Native American undergraduates attend Tribal Colleges. However, few of the Tribal Colleges offer bachelor's degrees in biological sciences; therefore, their contribution to the number of biology degree recipients is limited.

At the graduate level, minority institutions continue to have an important impact. HBCUs account for 5 of the 10 graduate schools with the highest enrollment of Black students in science and engineering. HSIs comprise 6

[2] The U.S. Department of Education Accredited Postsecondary Minority Institutions listing is based on data from the National Center for Education Statistics (NCES). A minority postsecondary institution is defined as an institution "whose enrollment of a single minority or combination of minorities…exceeds 50% of total enrollment" (U.S. Department of Education, 2003).

of the top 10 graduate schools attended by Hispanic science and engineering graduate students (NSF, 2003). The survey of past Porter Fellows also examined whether minority institutions had a similar strong relationship to the undergraduate and graduate training of the Porter Fellows (Table 10). Overall, more than two-thirds (*n*=29, 67%) of the Porter Fellows for whom information was available on their undergraduate institutions attended historically minority colleges and universities. These ranged from small, private baccalaureate institutions to state colleges.

Table 10
Undergraduate Institution of Responding Past Fellows, by Current Status

Undergraduate institution	Graduate students,%	Postdoctoral students,%	Employed physiologists,%	Total,%
Not minority	12	62	30	32
Minority	88	38	70	67

The impact of minority institutions is also apparent at the graduate level, especially among recent Fellows. As shown in Table 11, only one of the postdoctoral fellows was working at a historically minority institution, but nearly two-thirds (62%) of the graduate students were studying at historically minority institutions, primarily minority medical schools. More than 40% of responding employed past Fellows also attended a minority graduate school.

...historically minority institutions have made important contributions to the success of the Porter Program.

Table 11
Graduate Institution of Responding Past Fellows, by Current Status

Graduate institution	Graduate students,%	Postdoctoral students,%	Employed physiologists,%	Total,%
Not minority	38	88	59	60
Minority	62	12	41	40

Finally, the current institutions where postdoctoral students were completing their studies and where past Fellows were employed were examined. While very few of the postdoctoral past Fellows were completing their studies at minority institutions, about 40% of the employed past Fellows currently held positions at historically minority institutions, primarily medical schools.

Table 12
Current Institution of Responding Past Fellows, By Current Status

Current institution	Postdoctoral students, %	Employed physiologists, %
Not minority	90	59
Minority	10	41

In summary, historically minority institutions have made important contributions to the success of the Porter Program. Undergraduate institutions have been a strong source of students who enter graduate programs in physiology. Minority medical schools have not only been involved in the training of minority graduate students in physiology, but have also served as a key employer of minority physiologists who have received the Porter Fellowship.

Results: Impacts of the Porter Fellowship

The impacts of the Porter Fellowship cannot be assessed simply by numbers of degrees, titles, and institutional descriptions. Graduate and postdoctoral fellowships have important impacts on trainees in terms of not only financial status but perseverance to degree completion, self-image, and perceptions of others. The retrospective study of past Porter Fellows also explored their perceptions of how the Fellowship impacted their training, professional development, and self-image.

Fellows first were asked whether they felt that the Porter Fellowship had an impact on the quality of their training as biomedical researchers. Many respondents indicated that the Fellowship provided them with the freedom to make important professional choices. Because they had an independent fellowship, they felt they could select a graduate advisor based on their own research interests, not on the availability of funds in the advisor's laboratory group. One fellow stated:

> *The Porter Fellowship allowed me to choose the university, the major advisor – with or without funds – and my specific research area. Otherwise, I would have chosen a professor with funds whether or not I liked their research area.*

Similarly, those who received the Fellowship following their doctorate felt it gave them the flexibility to select a postdoctoral position that would best meet their needs.

A number of Fellows indicated that having a Fellowship allowed them to focus fully on their research work, contributing to the quality of their work and training. Comments included the following:

> *The Fellowship allowed me to concentrate on my research and resulted in a higher quality Ph.D. dissertation. As a result, my entire dissertation was published in quality peer-reviewed journals. This certainly helped me get a postdoctoral fellowship.*
>
> *Academically, the Porter Fellowship has allowed me to be a stronger and more focused researcher as the financial assistance afforded me time to concentrate 100% on research and my development as a researcher.*
>
> *[The Fellowship]... Allowed freedom from student teaching which allowed me to focus on my research. This, in turn, allowed me to publish more, which made me more competitive as I searched for post-docs & tenure-track positions in academia.*
>
> *The Porter Fellowship has allowed me to gain a degree of autonomy in the laboratory. I feel more responsible and have a greater degree of ownership about the research I perform.*

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"...I became part of a selected and highly distinguished group of scientists that defined the knowledge and direction of what constitutes physiology today."

The Fellows also commented on the Fellowship's impacts on their career commitment. They noted the positive impacts the Fellowship had on their financial security during their graduate studies and on their self-confidence as a researcher:

> *The postdoctoral Fellowship was very instrumental in shaping my career path as it provided core support for my postdoc position in the...lab. [W]ithout this funding I likely would not have remained in academia pursuing a career in [my research] field.*
>
> *It gave me more confidence in my ideas and career path. Science is often negative and critical, and support (financial and emotional) is greatly needed and appreciated during graduate school.*
>
> *The Fellowship was pivotal in my career. It offered the opportunity of doing a post-doc in a new area of research, developmental neurobiology, which became my principal research interest. I cannot imagine becoming a successful investigator without the training opportunity this Fellowship offered me.*
>
> *Receiving the Porter Fellowship made my self-confidence as a researcher improve. I...was very thankful to receive the Porter Fellowship during my pre-doctoral training. It was a very significant honor for me.*
>
> *The Fellowship helped me focus more on my research activities without having to worry about living/studying expenses.*
>
> *Because of the Porter Fellowship, I was able to complete my degree (Ph.D.) and apply for a postdoctoral fellowship that allowed me to continue my career commitment in physiology. I went from classical physiology to molecular physiology.*
>
> *The Porter Fellowship was available to me at a time when financial difficulties made it strenuous to maintain my commitment to biomedical research. In this regard, the Porter Fellowship was instrumental in helping me maintain focus throughout the graduate school experience.*
>
> *This prestigious award played a critical role in defining my career path as a physiologist, both as a teacher and a researcher. It increased my commitment and devotion to the physiological sciences because I became part of a selected and highly distinguished group of scientists that defined the knowledge and direction of what constitutes physiology today.*

Another Fellow noted that the Fellowship helped him/her to have a commitment to research as part of his/her clinical medicine career:

> *I have a commitment to continued research. During my residency, I have received a nationally recognized neurosurgical award from some of my research related to Parkinson's disease. A portion of my ability to shape questions in research and think critically was formed [during my Fellowship].*

Fellows were invited to add additional comments about the overall impact of the Fellowship, both positive and negative. Their comments indicate that the Fellowship, in many cases, provided important support and recognition at critical junctures in their career development:

This Fellowship has helped me tremendously, economically and academically. I have been able to work long hours on my research project, and not worry about part-time jobs. Also, being part of the Porter Physiology Fellowship assured me of the relevance of my research topic.

This Fellowship gave me the opportunity to pursue my graduate studies full time. As a single [parent] at the time, this really helped me out!

The Porter Fellowship is a wonderful program for graduating doctoral students to develop their grant-writing "muscles" and develop independent research.

The Porter Fellowship gave me peace of mind and allowed me to get completely immersed in my research work.

Networking also helped me when applying for the position I currently have.

It provided a basis (financial and scientific) for me to maintain my studies.

As a Ph.D candidate I have gained more support and recognition from my institution after receiving the Fellowship.

My collegues consider the Porter Physiology Fellowship a prestigious award, therefore, it has helped my C.V.

When asked for final comments about the program, Fellows whole-heartedly encouraged the continuation of the program. Comments included the following:

I think the Porter Physiology Program is doing a very good job of providing a very needed opportunity for under-represented minority future biomedical researchers. Not only does it provide a comfortable financial stipend, but also insures that the student is provided the opportunity to meet others who have like interests and to learn more about a career in research.

The Porter Physiology Program is a terrific method of enhancing the productivity of young scientists. I'm very grateful for having received the award.

Many thanks to the APS/Porter Physiology Committee for providing these two last years of support. [I] hope you keep supporting Puerto Rican minority students.

The APS and the Porter Physiology Program have a collective personality or "face," so to say, that offers comfort and interest to its students. It has been a wonderful experience!

"The APS and the Porter Physiology Program have a collective personality or 'face,' so to say, that offers comfort and interest to its students. It has been a wonderful experience!"

"It is a program with a great tradition."

It is very beneficial! It allowed me to obtain my degree, without working three jobs; therefore, I could concentrate on my studies. It allowed me to attend meetings, present my work, and talk with other scientists.

It is an excellent program. I strongly recommend it to anyone that really wants to reach their goals.

A superb model that should be emulated. One the country should be using in other areas of science and engineering.

This is an excellent program, which is helping young minority graduate students to pursue a career in the physiological sciences. I was priviledged to meet Dr. C. Barger, then Co-Chairman of the Porter Physiology Development Program (1968-1986), who helped me realize my career as a teacher and as a role model for other minority students.

It is a program with a great tradition.

It made my studies possible. Will always be grateful.

As a minority student I appreciate the opportunity the Porter Program has given me to continue my work as a Ph.D. student without the worries of economics.

Keep doing what you're doing!

Fellows' Recommendations and Program Enhancements

Communication

Fellows were asked for suggestions for enhancing or improving the Fellowship program. A number of Fellows had no suggestions for improvement. One said, "I have witnessed many improvements since I first participated. The program continues to excel." Several Fellows encouraged more communication and interaction among Fellows. For example:

> *Meetings w/Fellows exclusively -Fellow listserve -Job postings - Facilitate networking (listserve would aid in this)*
>
> *The committee talked about having a reception for Porter Fellows. I would suggest more advertising of the program that we are working on.*
>
> *... An annual meeting for current and former Porter Fellows to meet, discuss research trends, and network.*
>
> *I would have liked more contact with other Porter Fellows. This could be easier now with the net. There should be a student forum website where students can voice concerns and give support & advice to each other.*

Many of the Fellows' suggestions echoed enhancements already being added to the program. For example, communication between and among Porter Fellows and NIDDK Minority Travel Fellows has been promoted through the initiation in 2002 of a joint reception at the Experimental Biology meetings. The new Porter Physiology Reception was well attended in 2002 and 2003 and is now an annual Experimental Biology event.

In 2003, the APS Education Office launched an e-mail listserv for Porter Fellows and NIDDK Travel Fellows. All minority physiologists are welcome to join the listserv that, in addition to offering easy communication among minority physiology students, disseminates a biweekly e-mail with information on awards, fellowships, grant opportunities, and postdoctoral and professional positions available. The listserv, along with the Porter Reception, has enhanced communication with and among Porter Fellows and other minority physiology students.

In addition, in 2005, a new Minority Programs website was launched at the APS website.[3] This website documents the array of programs and resources at the APS to increase diversity among biomedical researchers. At the site, visitors can learn about the Porter Physiology Development Program, search a list of past awardees, read biographies of several past Fellows, and access evaluation reports on the program's impact on Fellows' careers.

[3] http://www.the-aps.org/education/minority_prog/index.htm

Increase Publicity and Visibility

Several fellows recommended that the program be more widely advertised, through various routes:

> *Market the program more efficiently to minority colleges, majority colleges with significant minority students, and the Internet.*

In recent years, the program has been more widely advertised and publicized. The Internet has provided a number of excellent avenues to disseminate program information, including posting to all APS members via a monthly "All-APS" e-mail message, letters and e-mail messages to the Chairs of Departments of Physiology, and letters and e-mails to directors of MARC, MBRS, and Bridges Programs. The program is publicized to minority science organizations, such as the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) and the NIH-sponsored Annual Biomedical Research Conference for Minority Students (ABRCMS), via both e-mail announcements and by exhibits at these meetings. The Porter Fellowship is also highlighted in the APS Awards brochure, which is disseminated widely at scientific meetings through the APS exhibit booth. In addition, many requests come in response to information on the Awards section of the APS website. Finally, many online and published listings of fellowships include a listing for the Porter Physiology Program.

As a result of the increased publicity, in recent years applications to the Porter Fellowship have increased. For example, 17 applications were received in 2002 and 8 awards were made, a funding rate of 47%. In 2003, 29 applications were received and 9 awards were made for a funding rate of 31%. Currently, the Program receives more highly rated applications than can be funded. The Porter Physiology Development Committee is discussing plans for additional fund-raising for the program.

Travel Funds

Several Fellows made suggestions concerning the addition of travel monies to the Fellowship. Currently, Porter Fellows are eligible to compete for APS-NIDDK Minority Travel Fellowships to attend APS meetings but do not receive any priority in these competitions and are not provided with travel funds to attend non-APS meetings. Suggestions included:

> *The program should provide travel and/or supplies money for the students.*

> *The program could be enhanced by including a travel stipend for scientific meetings attendance.*

Most Porter Fellows apply for and receive NIDDK Minority Travel Fellowships to attend APS meetings. The Porter Physiology Development Committee is considering the possibility of providing additional travel monies in future years, pending additional support for the program.

Mentoring Component

Some Fellows recommended that the program have a stronger mentoring component to build student connections to the wider community. For example:

> *Recruit mentors from Puerto Rico by either contacting an APS member from Puerto Rico or sending one from the US....Hold a scientific meeting in Puerto Rico.*
>
> *I think it would be great to have the Fellows (Porter) get to know the [Porter] Committee. It was great having a contact person just to talk with during the academic year. Dr. Franklin was my mentor. I saw her at every meeting and talked with her for an hour or so.*
>
> *Greater emphasis on nontraditional physiologists was lacking. I was the only student doing comparative, whole-organism physiology. Ecophysiology is virtually unrepresented by Society members, making APS less attractive to me & colleagues who share my interests.*
>
> *My suggestion is that the Porter Physiology Foundation continue to make efforts to enhance its Mentor/Mentoree program and to encourage and direct students in learning how to network with professionals in their area of scientific interest.*

Unlike the NIDDK Minority Travel Fellowship, the Porter Fellowship does not include a specific mentoring component. The suggestion that the Porter Fellows get to know the Porter Committee members has been addressed initially by the new Porter Physiology Reception at Experimental Biology.

Increasing Fellowship Stipend

Finally, Fellows encouraged expanding the number of students and the stipend level. Others made suggestions on the management of the program. Comments included the following:

> *Postdoc salary should conform to NIH guidelines.*
>
> *[G]ive more fellowships if the money becomes available.*
>
> *It would be helpful if Porter Funds were direct deposit. Sometimes student do live check to check and if they are out of town (for conferences or interviews) it is difficult to make payments on time. Also inform students of their 1099 status. Students usually receive W-2s but 1099s require higher tax burdens when preparing to pay federal income tax. Perhaps taking out social security & FICA would alleviate this problem.*
>
> *I would like to see a tighter oversight of the institution accepting Porter fellows, particularly at the Department level.*

The Porter Committee has worked in recent years to ensure that the Fellowship stipend is in line with NIH levels. The APS Business Office offers Fellows the option of direct deposit payments of their stipends and provides W-1099 information. As noted earlier, the Porter Committee is currently exploring fund-raising options that will allow increased numbers of Fellowships to be awarded.

...past Porter Fellows are very involved in the Society's outreach activities.

Career Information

One Fellow noted the need for more career information. In 2002, the APS launched a new careers website (www.the-aps.org/careers) with information for students from elementary school through continuing education for physiologists. Information for graduate and postdoctoral students includes career advice and articles, links to other resource websites, profiles of physiologists, and information on scientific meetings and award programs. In addition, at each educational level, the website has specific pages with resources for minority students and minority physiologists, including links to organizations, career resources, awards, and grants for minority students.

Porter Fellow Involvement in APS Activities

Porter Fellows have been extensively involved in other APS programs and activities. As noted earlier, since the inception of the NIDDK Minority Travel Fellows program in 1987, most Porter Fellows have successfully competed for travel fellowships to attend the APS annual meeting, Experimental Biology, and/or the smaller APS conferences. As they graduate and become postdoctoral fellows, most of the Porter Fellows volunteer to serve as mentors for undergraduate and graduate NIDDK Travel Fellows. Each year, an increasing number of the NIDDK Travel Fellow mentors are minority physiologists. Some have been invited to serve as the luncheon speaker for the Travel Fellows program, offering advice on career planning, interviewing, and balancing career and family life.

Numerous past Fellows have served as members of APS committees and advisory boards. Many have served on the Porter Physiology Development Committee, but Porter Fellows have also served on the Career Opportunities in Physiology Committee and Women in Physiology Committee. In addition, several past Fellows currently serve on the Advisory Board for the Professional Skills Training project. This APS project is developing both live and online short courses designed to help graduate students and postdoctoral fellows gain skills critical to their success as biomedical researchers. The courses have a special focus on the needs and issues faced by minority students. Several past Fellows have been involved as speakers at the live courses; a number of the students in those courses have been current Fellows.

Finally, past Porter Fellows are very involved in the Society's outreach activities. One past Fellow led discussions about career paths and options with groups of undergraduate students at the first APS Undergraduate Retreat in June 2006. This program, sponsored by the National Institute for General Medical Sciences, allowed minority students to hear about hot topics in biomedicine, explore those topics through hands-on laboratories, and have extensive interaction with both minority and majority physiologists in academe, industry, and clinical practice. The Retreat, held in Denver, had a special focus on involving Native American students and was successful in attracting Native American students from the western states and Alaska.

Fellows also have been extensively involved in the APS' long-term program for middle and high school science teachers, the Frontiers in Physiology Research Teacher program. Teachers in the program do biomedical research with an APS member for 7-8 weeks and attend a Science Teaching Forum in the summer to improve their teaching methods and skills. Past Fellows have served as "Physiologists-in-Residence" at the Forum, providing content background in cardiovascular and neurophysiology and working with teachers as they develop new inquiry-based lessons.

Summary

The Porter Physiology Development Program Fellowships have supported the predoctoral and postdoctoral studies of numerous minority students **(Appendix B)**. All of the Fellows responding to the current survey continue to be involved in life sciences-related work, primarily as physiologists-in-training or as physiologists working in academia, government, or industry. Following receipt of their degree, the large majority of Fellows completed a single postdoctoral Fellowship and entered their first professional position. Most employed past Fellows spent at least part of their time engaged in research and were also involved in teaching, management, and administration.

Respondents felt strongly that the Porter Fellowship contributed to the quality of their pre/postdoctoral training. They felt it gave them intellectual freedom to select research advisors and topics or postdoctoral positions. They also felt the financial freedom provided by the fellowship allowed them to concentrate on their research, contributing both to the quality of their work and to their overall career commitment. Fellows strongly recommended continuation of the program and offered suggestions for expansion and increased communication.

Finally, one of the most powerful benefits of the program is in its longitudinal impact. Past Fellows now serve as role models for a new generation of minority students aspiring to careers in biomedical research. Some have their own graduate students who have received the Porter Fellowship. One such Fellow emphasized the importance of this aspect of the program:

> *I was always told by my colleagues that I would be a good role model to minority students. Having fellowships like the Porter Development Fellowship insures the training of minority professionals. Young minority students have hope of becoming scientists when they see those of us who have made it. I have graduate students who tell me that they want a laboratory and to do research like I am doing which makes me feel that I have accomplished something [important].*

"Young minority students have hope of becoming scientists when they see those of us who have made it."

As stated earlier, the goal of the Porter Physiology Fellowship Program is to encourage diversity among students pursuing full-time studies toward the Ph.D. (or D.Sc.) in the physiological sciences and to encourage their participation in the APS. The findings of this retrospective study suggest that the program has been highly successful in both of these aspects.

References

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National Science Foundation (NSF), Division of Science Resources Statistics. (2003). *Women, Minorities, and Persons With Disabilities in Science and Engineering: 2002* (NSF 03-312). Arlington, VA: National Science Foundation.

U.S. Department of Education. (2003). *2003 United States Department of Education Accredited Postsecondary Minority Institutions.* (http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst-col-ny.html)

Resources

For more information on the Porter Physiology Development Program, see the website at www.the-aps.org/education/minority_prog/ or contact the APS Education Office at education@the-aps.org or 301-634-7132.

Appendix A

Survey Instrument

Survey of
Porter Physiology Fellowship Recipients

The American Physiological Society
February 2002

Confidentiality note: Your responses to this survey are confidential. Data will be reported in the aggregate and your name will not be associated with any comments, quotes, or list of respondents. Your current and permanent addresses will not be distributed to other organizations.

Directions: Please complete all questions. Be sure to write or print legibly. If you have any questions or concerns about the survey, contact Marsha Lakes Matyas, APS Education Officer, 301-530-7132 or mmatyas@the-aps.org. **Return the survey in the enclosed postage paid envelope or fax to APS Education Office, 301-530-7098 no later than March 15, 2002. Completed surveys returned by the March deadline will receive a $10 honorarium.**

Your Contact Information

1. Your name	
2. Your **current** street address	
3. City, State, Zip	
In the boxes below, please provide a **permanent address**, that is, the name and address of someone who will know how to locate you in the future, should you move. This is especially important for students to include.	
4. Name	
5. Permanent street address	
6. City, State, Zip	

Your Current Position

7. Are you currently employed?	____ Yes ____ No
8. What is the title of your current or most recent position?	
9. Please describe your most recent position	
10. What percentage of time in your current position is spent on these activities? (**Note**: your percentages should total 100%)	____% Research
	____% Teaching
	____% Management or Administration
	____% Patient Care
	____% Other (please describe)

Your Career Path

11. Degree(s)	Year	Field	Institution	State
Undergraduate (BS/BA)				
Master's				
Ph.D.				
M.D.				
Other professional (please describe)				

12. Did you do one or more postdoctoral studies/fellowships or internships/residencies? If so, please describe where you completed this work and how long you were in each position.

13. Please describe your first professional position (after postdoc or residency). Include the institution, position title, and how long you were in this position.

14. Please list any other positions you have held between your first professional position and your current position. Include both the institution, position title, and how long you were in this position.

15. If your current career does not include a focus on biomedical research, can you describe why/how your career plans changed since you had your Porter Physiology Fellowship?

Impact Of The Porter Fellowship

16. Please describe the professional benefits/detriments, if any, that you feel you gained from the Porter Physiology fellowship in terms of…

…the quality of your training as a biomedical researcher:

…your career commitment and/or career path:

17. Are there other benefits/detriments not mentioned above?

18. Were/are you a student member of the APS?

19. Were/are you a regular member of the APS?

20. Do you have any other comments about the Porter Physiology program?

21. Do you have suggestions for enhancing or improving the Porter Physiology program?

22. Would you be interested in receiving more information or participating in the following APS activities? (check all that apply)
____ Committee Member
____ NIDDK Travel Fellow Meeting Mentor
____ Volunteer for Undergraduate Outreach Efforts
____ Middle/High School Teacher Summer Research Host
____ Volunteer for other K-12 Outreach Programs

Please return this survey by March 15, 2002 via mail (use enclosed return envelope) to:

APS Education Office
9650 Rockville Pike
Bethesda, MD 20814-3991

Or FAX to (301) 530-7098

Thank you for your assistance!

Appendix B

Porter Physiology Development Fellows

1967-2006

NAME	INSTITUTION	AWARD YEAR
Aileru, Azeez	University of Maryland	1991-1993
Anderson, Karen	Colorado State University	1986-1988
Belin, Rashad Jabali	University of Illinois, Chicago	2002-2004
Bennett, Christina	University of Michigan	2004-2005
Bosah, Francis	Morehouse College	1993-1995
Bratcher, Adrienne	University of Louisville School of Medicine	2003-2005
Brisbon, Wendy	Meharry Medical College	2001-2003
Campbell, Richard W.	Life University	1988-1990
Carlyle, Stanley	Howard University	1998-2000
Carter III, Robert	University of North Texas	1999-2001
Castro Laboy, Maria	Pontificia Universidad Católica de Puerto Rico	1991-1992
Clark, Andrew J.	University of California, Irvine	2005-2007
Clark, Jessica Ann	University of Arizona	2004-2006
Collins, Heidi	Northeastern Ohio Universities College of Medicine	1995-1997
Ekema, George	Wright State University	1998-2000
Escobales, Nelson	Harvard Medical School	1982-1984
Espinoza, Robert	University of Nevada, Reno	1995-1997
Febo-Vega, Marcelo	University of Puerto Rico	1999-2002
Flagg-Newton, Jean	Harvard University	1973-1976
Floyd, Eric	Meharry Medical College	1990-1992
Ford, Byron	Morehouse College	1993-1994
Foust, Raymond	Temple University	1994-1996
Franklin, Renty	Howard University	1974-1975
Fray, John C.S.	University of Massachusetts	1968-1975
Garcia III, Alfredo Joseph	Wright State University	2004-2005
Garcia-Arraras, Jose	Centre National de la Recherche Scientific	1981-1984
Gonzales, Rayna	University of New Mexico	1997-1999
Gonzalez, Orlando	University of Puerto Rico	1999-2001
Gonzalez-Campoy, J. Michael	Mayo Medical School	1987-1990
Gonzalez-Perez, Jorge	University of Puerto Rico	2001-2003
Gray, Paul	University of California, Los Angeles	1999-2001
Gunter-Smith, Pamela	Emory University	1973-1977
Hamilton, John	Henry Ford Hospital	1991-1992
Hernandez, Lisa	University of California, Davis	2000-2002
Hicks, Adrienne	Meharry Medical College	2000-2002
Hinds, Joseph	Meharry Medical College	1967-1971
Hokama, Jason	University of Arizona	1996-1998
Houston, Sonia	University of Missouri-Columbia	2000-2002
Hunter, Joyce	Howard University	1985-1987
Jackson, Cynthia	University of California, Davis	1988-1991
Jackson, Cynthia	University of Alabama	1980-1983
Jacobs, Damon T.	University of North Carolina - Chapel Hill	2004-2006
Jimenez-Rivera, Carlos	Universidad National Autonoma de Mexico	1985-1986
Jones, Jr., Hardin		1978-1979
Kidd, Kameha	University of Arizona	1998-1999
King, Jean A.	New York University	1982-1990
Laboy, Maria Castro	University of Puerto Rico	1995-1996
Laboy, Maria Castro	Pontificia Universidad Católica de Puerto Rico	1990-1991
Leavitt, Maria	Eastern Virginia Medical School	1996-1997
Lopez-Diaz, Lymari	University of Michigan	2005-2007
Mack, Kelly	Howard University	1992-1994
Mancillas, Jorge	Salk Institute	1983-1985
Marks, Patricia	University of Arkansas for Medical Science	1990-1991
Marquez, Becky	Cornell University	2002-2003
Mason, Jeffrey B.	University of California, Davis	2005-2007
Mathias, Sheila	Meharry Medical College	1994-1996
McDermott, Debbi-Anne	Boston University	1993-1996

NAME	INSTITUTION	AWARD YEAR
McLaughlin, David	Pennsylvania State University	1990-1992
McMillon, Ronald	University of South Alabama	1994-1996
Metzger, Walson K.	UMDNJ	2004-2006
Mgbonyebi, Ozuem	Fox Chase Cancer Center	1992-1993
Miller, Stephania	University of Arkansas for Medical Sciences	1995-1997
Moore, Ignacio	Oregon State University	1997-1999
Morris, Gary Z.	Eastern Virginia Medical School	2003-2005
Motley, Evangeline	Meharry Medical College	1989-1991
Murry, Trina	Wright State University	1995-1996
Nicks, Kristy M.	University of Arkansas for Medical Sciences	2005-2007
Okwusidi, John	Howard University	1987-1988
Olden, Kenneth	Temple University	1970-1971
Orr, Adrienne L.	Stanford University	2005-2007
Padro, Carmen	University of Puerto Rico	2001-2003
Patterson, Myla	Meharry Medical College	2002-2004
Pinkett, Mary		1972-1973
Pitts, Nathaniel	University of California, Davis	1972-1974
Racker, Darlene	Chicago Medical School	1982-1988
Raymond-Whish, Stefanie	Northern Arizona University	2004-2005
Rego, Alfredo	Georgetown University	1988-1990
Ruiz, Maria L.	Harvard University	1988-1992
Ruiz-Velasco, Victor	Tulane University	1990-1992
Rust, Cheryl	Howard University	1998-2000
Saint-Come, Claude	University of Massachusetts	1986-1987
Segarra, Annabell	University of Puerto Rico	1988-1991
Smothers, Corigan	Virginia Commonwealth University	1995-1998
Sturgis, LaShon C.	Medical College of Georgia	2006-2007
Tearney, Russel	Howard University	1969-1972
Thompson, Brandi A.	University of Michigan	2006-2007
Toney, Vanessa Ingrid	Brown University	2003-2004
Torrence-Campbell, C.	Meharry Medical College	1991-1993
Torres-Reveron, Annelyn	Ponce School of Medicine	2000-2002
Townsel, James	Meharry Medical College	1971-1972
Valenzuela, Ricardo A.	Stanford University	2006-2007
Vallejo, Johanna	University of Missouri, Columbia	2003-2004
Vargas, Trini	University of North Dakota	1997-1998
Villaneuva, Claudio	J. David Gladstone Institutes, San Francisco	2003-2004
Washington, Paulene	University of Western Ontario	1988-1990
Williams, Clintoria Latrice	University of Alabama at Birmingham	2005-2006
Williams, Maurice	University of North Texas Health Science Center	2001-2003
Wilson, Owen I.	Iowa State University	1991-1994
Woolfolk, Elethia	Meharry Medical College	2002-2004
Young-Seigler, Artenzia	Tennessee State University	1993-1995

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