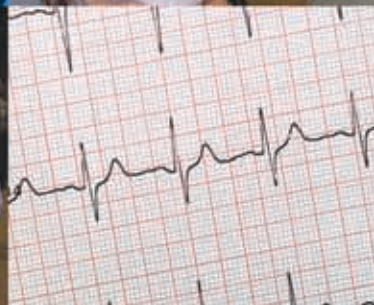


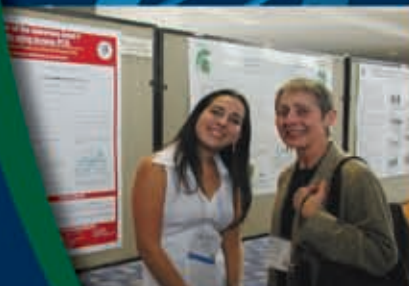
APS-NIDDK Minority Travel Fellows Program:

Retrospective Study 1987-2004

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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.



About the Authors

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Executive Summary

In 1987, the American Physiological Society (APS) established the APS-NIDDK Minority Travel Fellows Program with support from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The program addresses both the critical need to increase the number of minority biomedical researchers and the importance that scientific meetings play in the training and early career development of scientists. The goal of the program is encouraging underrepresented minority students to pursue professional careers in physiology and other biomedical sciences. Specifically, the program:

- Provides travel fellowships to minority students to attend the annual spring meeting, *Experimental Biology* (EB), and the APS conferences.
- Provides travel fellowships to faculty members at Minority Access to Research Career (MARC) and Minority Biomedical Research Support (MBRS)-eligible institutions to attend EB and the APS conferences.
- Develops and cultivates long-term communication between minority students and their meeting mentors and among minority students.
- Provides support to minority high school and middle school science teachers participating in the APS Frontiers in Physiology Science Teachers Research Program.
- Fosters communication between minority graduate and postdoctoral students and middle/high school minority life sciences students.

Between 1987 and 2004, the program made 665 travel awards to 470 students (undergraduate, graduate, and postdoctoral) and faculty. With support from the NIDDK, the APS conducted a study of past Travel 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 29% ($n=138$) of all past Fellows and from 36% of those Fellows for whom a valid e-mail address could be found.

The vast majority of past Fellows indicated that they were a graduate student, postdoctoral fellow, or employed physiologist at the time of the survey. All but one of the responding employed Fellows was currently working in a science-related field, either in research, policy, education, or science writing. The vast majority of the employed past Fellows had earned at least one degree beyond the bachelor's degree. Three-quarters of the employed respondents had earned a Ph.D., mostly in biomedical fields (physiology, pharmacology, and neuroscience). Very few of the responding Fellows had pursued or completed a medical degree (e.g., M.D., D.V.M.).

Past Fellows were asked several open-ended questions concerning the professional benefits/detriments they felt they gained from the Fellowship. Nearly three-quarters of the postdoctoral past Fellows and more than half of the graduate students cited professional networking as an important benefit. Both students and employed past Fellows cited the importance of sharing common experiences with other Fellows as important. Some noted that meeting other minorities had provided them with specific role models who were successful in their field and that this inspired both commitment and confidence.

Postdoctoral and employed past Fellows felt that the Fellowships allowed them to attend conferences that they would not normally have been able to attend. This gave them additional options for expanding their knowledge of related fields, their contacts in those fields, and their visibility to colleagues. Several respondents noted the dedication and personal interest





that the APS staff had in their training and their careers. Employed past Fellows noted that they had become involved in APS as a Society member due to their initial involvement in the Travel Fellowship program. Finally, several graduate students noted that the program helped keep them focused on their career goals because they could see the progress of their fellow awardees, especially those who had been at several APS meetings.

Past Fellows were asked about the benefits and detriments of having a meeting mentor as part of the Fellowship. Most comments were very positive, with more than 20% of respondents citing the guidance, advice, and encouragement they had received from the meeting mentors as important benefits. Not all past Fellows perceived the meeting mentor experience as beneficial, however. Some did not have a chance to meet their mentor or did not remember meeting their mentor. This was more likely for employed past Fellows than for postdoctoral fellows or graduate students. Past Fellows were more frustrated with the experience if their mentor was unable to attend the orientation session (2%) or to meet with the Fellow more than one time at the meeting (4%). Overall, the large majority of past Fellows who responded to the survey pointed out strong benefits of the meeting mentor component, while the number of past Fellows who were frustrated or disappointed by the experience was relatively small.

More than 50% of graduate students and more than 40% of postdoctoral students and employed past Fellows had kept in contact with one or more fellow awardees following their fellowship. Somewhat smaller percentages had kept in contact with their meeting mentees.

Fellows made a number of suggestions for program improvements. Many of these have been implemented and are producing positive results. Overall, the findings of this retrospective study suggest that the program has been highly successful in achieving its objectives.

Introduction and Program History

Program Goals and Objectives

In 1987, the American Physiological Society (APS) established the APS-NIDDK Minority Travel Fellows Program with support from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The program addresses both the critical need to increase the number of minority biomedical researchers and the importance that scientific meetings play in the training and early career development of scientists. The goal of the program was, and continues to be, encouraging underrepresented minority students to pursue professional careers in physiology and other biomedical sciences. Specifically, the program:

- **Provides travel fellowships to minority students to attend the annual spring meeting, *Experimental Biology*, and the APS conferences.** The *Experimental Biology* (EB) meeting is attended by approximately 12,000 scientists annually. The meeting serves as a forum for interactions between physiologists and scientists from other areas of experimental biology. The APS conferences are 3- to 5-day meetings focused on a specific physiology topic. They occur in an informal setting, allowing for greater interaction between the students and scientists at the meeting.
- **Provides travel fellowships to faculty members at Minority Access to Research Career (MARC) and Minority Biomedical Research Support (MBRS)-eligible institutions to attend EB and the APS conferences.** This aspect of the program is designed to enhance the research expertise of faculty and to improve science teaching at these institutions.
- **Develops and cultivates long-term communication between minority students and their meeting mentors and among minority students.** Using electronic communications (e-mail listserv and websites), communication networks developed during the APS meetings are fostered year round. Students share questions, concerns, and ideas with each other and with the APS meeting mentors.
- **Provides support to minority high school and middle school science teachers participating in the APS Frontiers in Physiology Science Teachers Research Program.** This program, now in its 14th year, encourages the participation of minority groups in physiology and other biomedical sciences by providing their science teachers with summer experiences in physiology research. Teachers share their knowledge and excitement with their students via new classroom activities, field trips, and research projects. The program has generated a wealth of inquiry-based laboratory activities for use by teachers nationwide via online publications.
- **Fosters communication between minority graduate and postdoctoral students and middle/high school minority life sciences students.** The APS K-12 Minority Outreach Fellowships provide support for graduate and postdoctoral students to serve as role models for middle and high school students through visits to their classrooms.

Program Activities

Between 1987 and 2004, the program made 665 travel awards to 470 students (undergraduate, graduate, and postdoctoral) and faculty. A complete listing of all awardees ($n=470$) is included in Appendix A.

The program provides travel support and registration costs to bring Fellows to the meeting. However, the program also seeks to enhance their experience during the meeting. Each Fellow is paired with a mentor, an APS member who is an established researcher, usually in the same



Between 1987 and 2004, the program made 665 travel awards to 470 students (undergraduate, graduate, and postdoctoral) and faculty.



research area. More than 60 APS members volunteer each year to be mentors. A number of mentors, now established researchers with their own graduate students, are past Travel Fellows themselves. Starting in 1999, finishing postdoctoral students who have been Travel Fellows as undergraduates or graduate students began serving as meeting mentors for undergraduate Fellows.

Fellows attend an orientation session on the evening prior to the start of the scientific sessions. The session also serves to introduce the Fellows to each other. In 2002, a reception was added to the orientation session to welcome back all past Travel Fellows, as well as current and past APS Porter Physiology Fellowship recipients. The Porter Fellowship is a minority fellowship for graduate studies in physiology. Travel Fellows and their mentors are also invited to attend an informal networking breakfast later in the meeting.

During the meeting, Fellows not only attend symposia and slide/poster sessions but also receive special invitations to attend the following:

- Workshops on career opportunities, including opportunities in industry and government.
- Workshops on professional skills development (e.g., writing abstracts, writing and reviewing for journals, working with the media).
- Networking sessions for women and/or minority scientists.

These events provide Fellows with additional opportunities to meet and get to know many of the scientists whose work they have read.

The annual meeting program for the Fellows and their mentors concludes with a luncheon at which an established minority scientist presents a talk on topics of interest to the Fellows. Recent topics have included developing one's career path, balancing research work with other professional commitments, setting and monitoring personal and career goals, and making the best use of professional society programs and resources.

Previous Program Evaluations

In 1993, a summative evaluation of the program was conducted to examine participants' perceptions of the program's long-term impacts. A retrospective survey was mailed to the (then) 137 previous Travel Fellowship recipients; 53% of the recipients responded. Respondents were mostly graduate students (46%), faculty members (24%), or postdoctoral fellows (14%). Most of the respondents (70%) received the Travel Fellowship when they were graduate students. Nearly all of the respondents (90%) were still pursuing careers in biomedicine, primarily in physiology (55%) and neuroscience (13%).

When asked how beneficial the Travel Fellowship was to their career, 75% of the respondents replied "Very Beneficial." Written comments indicated that key benefits included:

- Developing a network of contacts in one's research field, meeting and/or exchanging ideas with other scientists in one's field;
- Gaining understanding and knowledge via posters and symposia;
- Having an opportunity to present one's research; and
- Making contacts for future postdoctoral and faculty positions.

When asked whether the Fellowship had an impact on their decision to continue in biomedical sciences, 84% of the respondents said it had

“considerable” or “some” impact. In written comments, some respondents indicated that they had already firmly decided on a career in biomedical research before the fellowship (18%), whereas others said that attending the meeting confirmed or reinforced their decision (27%) or built up their confidence and enthusiasm about their career (18%). A number of respondents commented that the meeting helped them gain a better perspective about research careers, including what the rewards of a research career would be, and helped them to recognize that their work was worthwhile and would benefit society.

When asked whether they would recommend participation in the program to others, 82% of the respondents said they would highly recommend participation. No respondents indicated that they would not recommend the program, and one respondent was uncertain. Respondents offered the following reasons for recommending participation in the program and attendance at scientific meetings:

- Opportunity to develop a network of contacts in one’s field (36%);
- Providing a perspective on scientific research, that is, how diverse science is, what the cutting edge topics and techniques are, etc. (21%);
- Opportunity to present one’s self and be seen as a member of the research community (15%); and
- Opportunity to build one’s self-confidence and self-esteem (8%).

In summary, the 1993 retrospective survey indicated that the APS-NIDDK Travel Fellowship program had positive impacts on significant numbers of minority students in the biomedical sciences, particularly physiology.

Current Study

In 2002, with support from the NIDDK, the APS began a new evaluation of its Minority Travel Fellows Program to both determine long-term impacts of the program and receive recommendations from past Fellows for continued program improvement. This report provides information on the methodology and results of that evaluation. The current study does not include the Science Teachers Research in Physiology Program or the K-12 Minority Outreach Fellowship; those programs are evaluated separately. Instead, it gathers input from those receiving Travel Fellowships between 1987 and 2004.

Methods

Although it would be unlikely to be able to reach all of the past Fellows (especially those who were undergraduates when they were Fellows), surveys were sent by mail in 2002 and by e-mail in 2004 to seek feedback from as many past Fellows as possible. The mailed survey was sent in February 2002 to 375 past Fellows, and 117 were returned as “undeliverable.” There may have been a significant number of additional “undelivered” surveys, since many addresses were to university residence halls and apartments; these housing units often do not return or forward mail. A second mailing was sent to the remaining 258 awardees, and 82 responses were returned, a response rate of 32%. This response rate is within the characteristic range for this type of mailed survey with only a single follow-up (Heberlein and Baumgartner, 1978 in Miller, 1991). The e-mailed survey was sent in November 2004 to 172 past Travel Fellows from 2003 and 2004, who had not responded to the previous survey, and “bounce-backs” were received on 42 e-mail messages. Of the remaining 130 valid e-mail messages, 57 persons responded and completed all or part of





All but one of the responding employed Fellows indicated that they were currently working in a science-related field, either in research, policy, education, or science writing.

the online survey, resulting in a response rate of 44%. The higher response rate is not surprising; Yun and Trumbo (2000) found that online/e-mail surveys were more attractive to persons for whom work-related e-mail is a regular task. A copy of the survey instrument is included in Appendix B.

Results

Training and Career Path

The survey asked a number of questions about the past Fellows' training, career path, and current position. When asked to describe their current position (Table 1), nearly all of the past Fellows indicated that they were a graduate student (32%), a postdoctoral fellow (27%), or employed (40%). All but one of the responding employed Fellows indicated that they were currently working in a science-related field, either in research, policy, education, or science writing. These three major groups (graduate students, postdoctoral students, and employed past Fellows) were used as the primary organizers for analysis of responses to the survey. In the results, "total" results include responses from the three undergraduate respondents, as well.

Table 1
Current Position of Survey Respondents

Current position	Number	Percentage, %¹
Graduate student	43	32
Postdoctoral fellow	36	27
Employed	53	40
Research associate	5	4
Assistant professor	20	15
Associate professor	6	4
Full professor	1	1
Other ²	16	12
Lab technician	5	4
Undergraduate student	3	2
Total ³	135	100

¹ Three respondents did not answer this question. Their responses do not appear in subsequent analyses that analyzed factors by current position.

² Includes clinical scientist, educators at various levels and positions (from elementary to medical school), assistant dean, physical therapist, grants manager, retail clerk, medical reporter at a major newspaper, bioengineer, military researcher, and CEO of a private consulting firm.

³ Detail does not total 100% due to rounding.

Respondents provided information on their training and career paths, including fields of study and degrees completed (Tables 2 and 3). Nearly 90% of Travel Fellows earned undergraduate degrees in one of five major fields, with more than 80% receiving degrees in life sciences, allied health fields, or chemistry/biochemistry (Table 2). At the master's degree level, Fellows were equally likely to earn their degree in life sciences/biology and physiology. At the Ph.D. level, more than half of the Fellows had earned their degree in physiology. Pharmacology and neuroscience were also common Ph.D. fields for Fellows.

Table 2
Most Common Fields of Study of Past Fellows, by Degree Level

Degree	Percentage of respondents, % ¹		
	Undergrad	Masters	Ph.D.
Life sciences/biology	62	32	
Medicine/allied & public health	10	8	
Chemistry/biochemistry	10		
Food science/nutrition	3	8	
Engineering ²	3		4
Physiology		32	53
Pharmacology			11
Neuroscience			7
Biomedical science			4

¹ Total does not equal 100% because values are only reported for the most common fields of study.

² Ph.D. was in biomedical engineering.

Nearly all (96%) of the responding employed past Fellows had earned at least one degree beyond the bachelor's degree (Table 3). Three-quarters of the employed respondents had earned a Ph.D., mostly in biomedical fields (physiology, pharmacology, and neuroscience). Very few of the responding Fellows had pursued or completed a medical degree (e.g., M.D., D.V.M.).

Table 3
Degrees Earned by Employed Past Fellows

Degree	Number	Percentage, %
Undergraduate (B.S./B.A.)	47	100
Master's (M.S./M.A.)	18	38
Doctoral degree (Ph.D.)	36	75
Medical degree (M.D., D.V.M, etc.)	4	8
Other	7	15

Respondents also indicated how their working time is distributed among major job activities. As indicated in Table 4, graduate students and postdoctoral students spent the large majority of their time engaged in research. Overall, 42% of graduate student respondents spent 100% of their time engaged in research, and 60% were committed to at least 90% research time. Nearly two-thirds (64%) had no teaching responsibilities. The "other" responses were primarily coursework for graduate students. Most postdoctoral students were engaged in research full-time (61%) or at least 90% of their time (75%). Like graduate students, 64% of postdoctoral past Fellows had no teaching responsibilities in their current position. Employed past Fellows were more likely to teach than were graduate students and postdoctoral students, especially those in associate professorships where they spent, on average, almost half of their time (48%) teaching (Table 4).

As part of their career path description, past Fellows were asked whether their current career path includes a focus on biomedical research and, if not, to describe how and why their career plans had changed since their Travel



Three-quarters of the employed respondents had earned a Ph.D., mostly in biomedical fields (physiology, pharmacology, and neuroscience).



"I teach at a Tribally Controlled Community College and I train students to go into biomedical research and other fields."

Fellowship. As suggested by the percentages in Table 4, most of the responding Fellows were still engaged in a career that included biomedical research.

Table 4
Mean Percentages of Time in Current Position, by Job Activity

Current position	Mean percentage of time, %				
	Research	Teaching	Management/ admin.	Patient care	Other
Graduate student	78	4	<1	4	15
Postdoctoral fellow	91	6	3	1	1
Employed-total	53	31	10	5	7
Assistant professor	65	30	5	2	1
Associate professor	38	48	5	3	7
Full professor ¹	-	-	-	-	-
Lab technician	84	12	20	<1	8
Other ²	36	25	18	10	14

¹ Sample size (n=1) too small to calculate average.

² Includes clinical scientist, educators at various levels and positions (from elementary to medical school), assistant dean, physical therapist, grants manager, retail clerk, medical reporter at a major newspaper, bioengineer, military researcher, and CEO of a private consulting firm.

For most of those who were no longer involved in research, their reasons were in three primary areas: a desire to focus on teaching, money issues or family conflicts, or a change in research interests. For many, they viewed their current position as a stepping stone toward one where they could integrate biomedical research with their current responsibilities. Their comments included the following:

- *I'm still teaching, however, I've made an earnest effort to include more biomedical research topics/discussions and student literature reviews in my classes.*
- *Current position is a teaching position which does not require research. With adequate funding there is a good possibility of doing biomedical research.*
- *My career plan changed when I realized that the institution I was at did not value excellent teaching, but instead placed an inordinate amount of value on research and grant writing. I chose to leave that institution and work in an environment that did value teaching - a community college.*
- *My current position combines teaching and academic administration. My plans are to eventually secure a position that combines research, teaching, and academic administration.*
- *I teach at a Tribally Controlled Community College and I train students to go into biomedical research and other fields. This includes student-based research on thermoregulation in honeybee colonies. I used NIDDK Fellowships to get my students to a scientific meeting before we had other funding...*
- *My parents...became ill while I was at [graduate school]. I moved to be closer to them. I could not find a position in biomedical research in the south...*
- *Upon completion of postdoctoral training, I could not get a position where biomedical research was important to the institution. But I have attempted to write proposals and gain funding to initiate biomedical research at my present place of employment.*
- *I have taken a liking to patient care. I plan to work in this field for a while. I may return to the research focus when I begin work on my graduate degree.*
- *I decided to become a medical reporter because I enjoy communicating science and health issues to the public.*

- *Following my initial participation in the NIDDK Travel Fellowship, I accepted a postdoctoral position with the U.S. Department of Agriculture. I have adapted functional genomics tools utilized in the biomedical field to study embryo development in livestock (porcine).*

In summary, the majority of respondents to the past Fellows survey were still working in the biomedical research field, and nearly all of the respondents were still working in some area of life sciences research, teaching, writing, administration, or policy.

Impact of the Fellowship

Past Fellows were asked several open-ended questions concerning the professional benefits/detriments they felt they gained from the Travel Fellowship. First, they were asked what benefits/detriments they gained by participating in the EB meeting or APS conference. Open-ended comments were nearly unanimously positive. They are summarized in Tables 5 and 6 along with sample comments. The most commonly cited benefit was professional networking, especially making contacts with not only colleagues in one's specific field, but also in broader fields of biomedicine. This was deemed important by nearly three-quarters of the postdoctoral past Fellows and by more than half of the graduate students. Many graduate (33%) and postdoctoral (39%) students, as well as one-fifth of employed past Fellows, felt that the opportunity to present research and gain feedback from colleagues gave them both confidence and exposure to potential colleagues, collaborators, and employers. Having the opportunity to meet peers, colleagues, and friends was also frequently cited. Many students noted that this was a good opportunity to identify future collaborators. Therefore, whereas a number of respondents cited the scientific and career sessions available at the meeting, the respondents' primary perceived benefits focused on building a network of professional contacts and colleagues and having opportunities to hone their skills in presenting their work. A few respondents specifically cited the opportunity to meet other minority scientists as a primary benefit of the program.

Table 5
***Perceived Benefits of Participating in the APS Meetings,
by Current Position***

Perceived benefit	Percentage of respondents, %		
	Graduate students	Postdoctoral students	Employed
Networking and making new contacts with both those in your specific field and those in other fields of biomedical research	51	72	32
Presenting research to gain feedback, exposure to colleagues and possible employers, and confidence in presentation and research skills	33	39	21
Meeting with peers, colleagues, and future collaborators	28	28	15
Learning about new research and methods, hot topics and issues in one's field, and new technologies	16	28	15
Learning about new career opportunities, gaining skills through career workshops, and participating in interviews	7	8	11
Building motivation to continue studies/work	9	6	-
Learning what the meeting has to offer	2	3	2
Meeting other minority scientists	2	-	-



...The respondents' primary perceived benefits focused on building a network of professional contacts and colleagues and having opportunities to hone their skills in presenting their work.



"Attending the APS meeting was completely different for me after obtaining a Travel Fellowship. I met a lot of different people to whom I would have not been exposed had I not been a Travel Fellow."

Table 6
Selected Comments on Benefits of Participating in the APS Meetings, by Current Position

Current position	Selected comments
Graduate students	<ul style="list-style-type: none">• <i>The APS meeting...was the best student's meeting I have ever attended. Not only because the meeting was excellent, but also because I could meet other minority people.</i>• <i>I met many interesting people in fields other than my own. I also received important feedback on my current research during my poster presentation at EB. My experiences at EB were overwhelmingly positive and were encouraging for my continuation in scientific research.</i>• <i>The Fellowship allowed me to travel and present my work at a national meeting while I was an undergraduate student. That exposure was so valuable to me as a student because it showed me how much I could accomplish and gave me motivation to further succeed.</i>
Postdoctoral students	<ul style="list-style-type: none">• <i>Attending the APS meeting was completely different for me after obtaining a Travel Fellowship. I met a lot of different people to whom I would have not been exposed had I not been a Travel Fellow. I was also made aware of a lot of other activities (receptions, lectures, meetings with distinguished scientists) that I would not have otherwise known about.</i>• <i>The professional contacts I have made by attending the APS meeting are the best benefits in my academic advancement.</i>
Employed past Fellows	<ul style="list-style-type: none">• <i>The Fellowship program helped me to meet more minority students. At the time I was in graduate school there were not many of us. It was very encouraging. The program also gave me a greater feeling of inclusion in science, physiology, and a group of professionals. Felt very encouraged. People were excited for us.</i>• <i>Attending EB meetings changed my life and opened my eyes to an entire world of possible careers involving biology. It was an incredibly valuable experience. I met several world-renowned scientists, which fostered two collaborations and has led to my tenure-track appointment at [institution] as Assistant Professor.</i>• <i>It showed me how the world of research is conducted. I learned what it was like to be put on the spot and asked questions about my research. I was able to understand why so much preparation is necessary for such an event.</i>

When asked about the benefits of meeting with other Travel Fellows (Tables 7 and 8), both students and employed past Fellows cited the importance of sharing common experiences as scientific trainees and as minorities. Some noted that meeting other minorities had provided them with specific role models who were successful in their field and that this inspired both commitment and confidence. Respondents again cited the importance of building a network of contacts and colleagues, specifically within the group of awardees. Above all, the concept of “sharing the experience” of becoming a scientist was noted as a key benefit of meeting other awardees.

Table 7
Perceived Benefits of Meeting Other Awardees, by Current Position

Perceived benefit	Percentage of respondents, %		
	Graduate students	Postdoctoral students	Employed
Share common experiences as trainees & minority students	28	30	32
Make contacts/network with future colleagues & friends	30	44	28
Increase comfort & confidence and gain encouragement	9	3	6
Meet other minorities as colleagues & role models	16	8	8
Learn about career opportunities & receive career advice	2	8	8
Help in selecting graduate schools	2	-	-
Give/receive invitations to collaborate or give seminars	-	-	2
Gain a sense of the breadth of research areas	2	-	-

Table 8
Selected Comments on Benefits of Participating in the APS Meetings, by Current Position

Current position	Selected comments
Graduate students	<ul style="list-style-type: none"> <i>I was extremely pleased and happy to interact with other awardees. It was highly encouraging to see minorities in all facets of research and in several different academic places (undergraduates, graduate students, postdocs, and professors). I was really impressed with the caliber of awardees.</i> <i>It greatly inspired me to know that there are many minority students like myself who work hard and are very successful in such a competitive field. At the time, I was still an undergrad and all the students and postdocs served as role models for me.</i> <i>Knowing that I share experiences with other minority students gave me encouragement and real-life ways to overcome common obstacles.</i> <i>Allowed me exposure to meetings that I would never have been able to attend. Also allowed me to be exposed to other minorities accomplishing great research. This meant a great deal, because minorities in research are few and not very visible.</i> <i>Students that have participated for several years look forward to seeing each other at the NIDDK awardee functions.</i>
Postdoctoral students	<ul style="list-style-type: none"> <i>I have met several life-long friends with whom I have a lot in common. I am building a scientific network that I may rely on in the future.</i> <i>Felt like I was part of a family at the meetings by having close interactions with the people.</i> <i>By meeting other minority awardees, I was able to interact with and discuss similar ideas/problems specific to minority students and trainees.</i> <i>It was good to meet other minority graduate students and postdocs because there weren't that many at my graduate institution and there are also very few at my postdoc institution.</i> <i>It is encouraging to see other awardees that are going through some of the similar "growing pains" that you are experiencing at the time...</i> <i>I think the benefits of meeting other awardees will pay off in the future (i.e., when we have faculty/research positions of our own) and are able to network for future awardees.</i>



"Knowing that I share experiences with other minority students gave me encouragement and real-life ways to overcome common obstacles."



"This experience showed me that there were people like me who were successfully matriculating through their programs and that I could do it also."

Table 8
Selected Comments on Benefits of Participating in the APS Meetings, by Current Position (continued)

Current position	Selected comments
Employed past Fellows	<ul style="list-style-type: none"> • It was so important for me to meet other minority PhD students in order to network and gain confidence in my ability to succeed in this field. • It was fun meeting other aspiring young investigators, exchange ideas with them to share our research experience. These informed exchanges were a motivation for me personally, because their personal achievements inspired me to forge ahead. • Opportunity to meet not only students but postdocs and faculty role models, successful role models of color who had achieved what I was working and training for. • This experience showed me that there were people like me who were successfully matriculating through their programs and that I could do it also. • I met several of my peers, which helps to feel that I'm not "alone" anymore. Being the ONLY minority can be very stressful at times.

When asked whether there were other benefits of the program (Tables 9 and 10), several were noted by a number of respondents. First, postdoctoral and employed past Fellows noted that the Travel Fellowships allowed them to attend conferences that they would not normally have been able to attend, especially conferences that their research advisor did not plan to attend. This gave them additional options for expanding their knowledge of related fields, their contacts in those fields, and their visibility to colleagues. Several respondents noted the dedication and personal interest that the APS staff had in their training and their careers. Employed past Fellows were more likely to note that they had become involved in APS as a Society member due to their initial involvement in the Travel Fellowship program. Finally, several graduate students noted that the program helped keep them focused on their career goals because they could see the progress of their fellow awardees, especially those who had been at several APS meetings.

Table 9
Other Perceived Benefits of the Program, by Current Position

Perceived benefit	Number of respondents		
	Graduate students	Postdoctoral students	Employed
Attending conferences that one would not be able to attend without the financial support of the program	2	11	9
Building a relationship with and experiencing the caring, dedication, and personal interest of the APS staff	5	6	4
Membership and involvement in the APS	2	-	8
Helping keep one focused on career goals	7	-	2

Table 10
Selected Comments on Benefits of Participating in the APS Meetings,
by Current Position

Current position	Selected comments
Graduate students	<ul style="list-style-type: none"> • Attendance at the APS conference was a major determinant in my career path selection. I am currently seeking a government/DOD position in physiology research. • Interacting with the administration for the APS and its program officers and coordinators was a pleasant experience. The APS seems to be very dedicated to supporting and encouraging minority research, I applaud you all. • I really have felt taken care of by the executive APS staff.
Postdoctoral students	<ul style="list-style-type: none"> • Although I cannot pinpoint the specific event, I learned a great deal about progressing and maturing as a scientist. It probably occurred while I interacted with professors and others associated with this program when I picked their brains. I was able to ask questions regarding ways to succeed of those whom I perceived as successful. This program provided me this opportunity. I've never been provided similar mentoring to that given by APS and I'm very thankful for it. • The "Stereotype threat" mentioned above is a psychological phenomenon discovered by Stanford University social psychologist who found that minorities confidence in their own scientific success was predicated in large measure by the degree to which they can identify with role models of color. This NIDDK Award goes a long way to help thwart the influence of this power by showing that other people of color are succeeding and pursuing success in the sciences. • The financial benefit is certainly helpful. It is good to be able to attend a meeting for your own professional development which your own advisor may not attend, but will still be helpful to your own personal research and career goals. • I would have never had the opportunity to attend Experimental Biology or the Genetics APS conference...due to the fact that my graduate fellowship didn't support travel to scientific meetings. Thanks NIDDK Travel Award. • As I attend more Experimental Biology meetings, I can see that I am passing on knowledge that I have gained to younger scientists. I have been exactly where they are now. So, it is exciting to know that I am helping someone.
Employed past Fellows	<ul style="list-style-type: none"> • As an instructor at a relatively rural community college the opportunities that APS provides are invaluable. The staff really makes you feel welcomed, and they do such a fantastic job! • Went to my first [APS] business meeting. • Got me very involved in the Society and gave me a professional home.



"I learned a great deal about progressing and maturing as a scientist...I was able to ask questions regarding ways to succeed of those whom I perceived as successful. This program provided me this opportunity. I've never been provided similar mentoring to that given by APS and I'm very thankful for it."

Past Fellows were asked about the benefits and detriments of having a meeting mentor as part of the Fellowship. Most comments were very positive (Tables 11 and 12), with more than 20% of all three groups citing the guidance, advice, and encouragement they had received from the meeting mentors as important benefits. They also pointed out the advantage of networking with another scientist. Postdoctoral students were especially likely to mention that they had been introduced to other researchers in their field by their meeting mentor. One postdoctoral past Fellow said, "At the meeting, the initial hesitation one might have in introducing themselves to a prominent researcher is reduced because your mentor often does the introduction." Postdoctoral students also appreciated receiving feedback on their research and were more likely to note that they liked getting a perspective on both research and careers from another scientist, in addition to the perspective provided by their research advisor.



"At the meeting, the initial hesitation one might have in introducing oneself to a prominent researcher is reduced because your mentor often does the introduction."

Table 11
Perceived Benefits of Having a Meeting Mentor, by Current Position

Perceived benefit	Percentage of respondents, %		
	Graduate students	Postdoctoral students	Employed
Receive guidance, advice, and encouragement	21	22	23
Network with another scientist	9	14	8
Be introduced to other scientists by mentor	2	17	8
Gain feedback on one's research	5	11	2
Learn how to get the most from the conference	9	3	4
Gain a perspective on one's research and careers in science from someone other than research advisor	5	8	2
Gain an "inside" view on jobs and funding opportunities	2	6	4
Learn about APS opportunities and programs	5	-	2
Learn how to be a mentor	-	3	2
Gain a perspective from another minority scientist	2	-	-

Table 12
Selected Comments on Benefits of Participating in the APS Meetings, by Current Position

Current position	Selected comments
Graduate students	<ul style="list-style-type: none"> • <i>Having a mentor was beneficial during and after the meeting. During the meeting, my mentor provided me with guidance and support as a student at such a large event as an EB meeting. During and after the meeting my mentor provided advice and direction on my interest in the field.</i> • <i>... she shared with me her experience on how to get the most out of the meeting....helped me to organize my time to be able to attend all of the seminars and poster sessions I was interested in.</i> • <i>My mentor informed me of the intricacies of graduate school from an African American's perspective dealing with class work, research, thesis, and picking a mentor.</i> • <i>It was nice being able to have input about my research from someone other than my primary research professor.</i>
Postdoctoral students	<ul style="list-style-type: none"> • <i>The mentor is a great idea and I have enjoyed meeting every one of my mentors. I also still remain in contact with several of them. At the meeting, the initial hesitation one might have in introducing oneself to a prominent researcher is reduced because your mentor often does the introduction.</i> • <i>Attending a large meeting can be intimidating and overwhelming for young investigators; however, having a mentor is very beneficial. Mentors provide assistance and guidance. My past mentors found time in their busy schedules to stop by and visit my poster, I enjoyed the opportunity to share and discuss my research! Having a mentor is a good way to form a collaborative relationship which I feel is an important aspect of scientific research.</i> • <i>My mentors helped me to brainstorm what type of postdoctoral position would benefit me. Also my mentors introduced me to their colleagues.</i>

Table 12
Selected Comments on Benefits of Participating in the APS Meetings,
by Current Position (continued)

Employed past Fellows	<ul style="list-style-type: none"> • <i>My mentors have been great! Having an opportunity to associate with and be cordially greeted by individuals in such distinguished research positions is surely not an everyday thing for me. I really appreciate the mentors.</i> • <i>This was also EXTREMELY valuable. The mentors I met through this organization were invaluable in helping me decide to pursue a Ph.D. in physiology.</i> • <i>The meeting mentor....was not only helpful at the meeting, but [he] has been responsible for getting me more involved with both the Renal Section and the APS, in general.</i> • <i>... The mentors I had inspired me and also provided me with some useful tips on how to further one's research career. They enlightened me with their research experience and the journey they made to achieve their success.</i> • <i>...I had three different mentors. It was great. I had a chance to talk (luncheon) with three different people with three different career paths in physiology academics, research, and commercial. This is very beneficial if you are in the process of choosing a career path in physiology.</i> • <i>This let me know that there were people out there who cared about my advancement.</i>
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Not all past Fellows perceived the meeting mentor experience as beneficial, however. Some didn't have a chance to meet their mentor or did not remember meeting their mentor. This was more likely for employed past Fellows (9%) than for postdoctoral (3%) or graduate (5%) students. Past Fellows were more frustrated with the experience if their mentor was unable to attend the orientation session (2% of all respondents) or to meet with the Fellow more than one time at the meeting (4%). Three postdoctoral past Fellows (8%) indicated that they didn't gain much benefit because the mentor's field of research was different from their own and they didn't have much in common to discuss. A few respondents felt they had not gained any benefits from the meeting mentor experience (3%). Some (2%, $n=2$) felt that, if one had been to a meeting previously, there was no need for a meeting mentor. Two other past Fellows felt that their research advisor would take care of guiding them through the meeting. Only one respondent indicated that they had a poor interaction with their meeting mentor. Overall, the large majority of past Fellows who responded to the survey pointed out strong benefits of the meeting mentor component, while the number of past Fellows who were frustrated or disappointed by the experience was relatively small. As described below (*Program Improvements*), steps have already been taken to improve these aspects of the program.

Past Fellows were asked whether they had kept in contact with any of their fellow awardees and meeting mentors (Table 13). More than 50% of graduate students and more than 40% of postdoctoral student and employed past Fellows had kept in contact with one or more fellow awardees. Somewhat smaller percentages had kept in contact with their meeting mentors. This is not surprising, since awardees often saw fellow awardees in subsequent years at the Travel Fellow orientation session. Most of the contacts were via e-mail and through contact at subsequent meetings.

In addition to keeping in contact with other Fellows, many past Fellows who have entered their first professional position have volunteered to serve as mentors for new Fellows. In 1999, postdoctoral Travel Fellows who had been in the program previously became eligible to mentor undergraduate



"I had a chance to talk (luncheon) with three different people with three different career paths in physiology academics, research, and commercial. This is very beneficial if you are in the process of choosing a career path in physiology."



...more than half of the postdoctoral students and employed past Fellows became regular members of the Society.

students. Many postdoctoral students have expressed pride that they have the experience and expertise to serve as a mentor for other minority students and proudly introduced their mentees at the orientation session. One postdoctoral student said, “As I attend more *Experimental Biology* meetings, I can see that I am passing on knowledge that I have gained to younger scientists. I have been exactly where they are now. So it is exciting to know that I am helping someone.”

Table 13
Subsequent Contact With Fellow Awardees and Meeting Mentors, by Current Position

Contact with...	Percentage of respondents, %			
	Graduate students	Postdoctoral students	Employed	Total
Fellow awardees	55	44	42	47
Meeting mentors	42	35	27	36

Since the overall goal of the program is to encourage the participation of minorities in biomedical sciences, an important part of most scientific careers is not only attendance at meetings but actively participating in a professional society’s activities. Toward that end, Travel Fellows are encouraged to join the APS as student members. As shown in Table 14, the large majority of graduate and postdoctoral students in the sample are or were student members of the Society. Nearly two-thirds of the employed past Fellows were student members at one time. Although graduate students are not typically eligible for regular membership, more than half of the postdoctoral students and employed past Fellows became regular members of the Society.

Table 14
Past Fellows’ Membership in the American Physiological Society

Membership type	Percentage of Fellows, %			
	Graduate students	Postdoctoral students	Employed	Total
Student member	78	76	64	72
Regular member	2	52	59	36

Respondents also indicated whether they would be interested in volunteering for roles in the APS Education Office programs (Table 15). Past Fellows were, overall, very interested in participating in Society volunteer activities. Nearly half of postdoctoral and employed past Fellows were interested in serving on a Society committee. Past Fellows at all three levels were interested in serving as a mentor to other Travel Fellows and participating in outreach to undergraduate students. Significant proportions of the employed past Fellows indicated that they would be interested in participating as a research host for a middle or high school teacher or in other K-12 outreach activities (51%).

Table 15
***Desire to Participate in Society Education Activities,
 by Current Position***

Activities	Percentage of respondents, %			
	Graduate students	Postdoctoral students	Employed	Total
Committee member	17	47	44	34
Travel Fellow mentor	34	50	44	40
Undergraduate outreach	46	32	47	43
Middle/high school teacher	22	12	33	24
research host				
K-12 outreach activities	27	29	51	37

Comments and Suggestions

At the end of the survey, respondents were encouraged to offer final comments on the program and suggestions for improvement. The great majority of the comments were very positive, for example:

- *It was an important award during my grad school years. It allowed me to attend the meeting and made me realize that I should expect more from myself.*
- *Outstanding program that has achieved great results. Certainly need to continue.*
- *It is a wonderful program. It gives students a chance to get introduced into the world of research and travel to other states to present their findings with their peers.*
- *It is an excellent program. Aside from providing the opportunity to attend the meeting to present our work, it also exposes us to different people (faculty, postdocs, grad students). This allows us to develop a networking base which is so important at this early stage of our careers.*
- *It is an invaluable service to minorities. The future will bring a huge payoff to the physiology field.*
- *I was always astonished by the degree of seriousness and commitment to the program expressed from the top line, Dr. Marty Frank, Director of APS, and each of the APS presidents.*

Past Fellows had numerous suggestions for improving the program (Table 16). Some of their recommendations have already been implemented. Examples include the Porter reception at the EB meeting to allow more time for social interaction between and among awardees and mentors, providing additional information to mentors on the expectations for their time commitment to awardees, providing a list of abstract titles at the meeting, and recruiting additional minority mentors.



"It is an invaluable service to minorities. The future will bring a huge payoff to the physiology field."

Table 16
Suggestions for Program Improvement

Topic	Comment/status
<i>Special sessions</i>	
Have a reception at EB that is open to current and previous awardees	This reception was implemented starting in 2001 and has proven very successful.
Have Fellows present research in a special session	Emphasis is on providing visibility for minority students' work within their research field and through regular poster sessions. However, starting in 2003, all undergraduates are invited to present at a special poster session.
Hold targeted symposia at meetings especially for awardees; Hold a grant-writing seminar for Fellows; Increase focus on helping students find jobs	The FASEB Career Services offers extensive career and interview services. Starting in 2003, the career workshops became free to meeting attendees. In 2006, the APS is launching new professional skills workshops for minority students.
Don't have award luncheon when it will conflict with posters/talks	The luncheon would conflict with a poster session on any day of the meeting except the same day as the orientation session.
<i>Meeting mentors and networking</i>	
Provide more background info on awardees; Provide a list of abstracts of awardees	Additional information is now provided at the orientation session, including information on abstracts.
Recruit more minority mentors; Allow senior graduate students to be mentors	Minority mentors are being recruited as they complete their graduate training and become postdoctoral students. At this time, senior graduate students cannot serve as mentors. It is felt that this stage is appropriate for building a network of professional contacts.
Make mentor-awardee interaction time more active and longer; Require more commitment from mentors to spend time with awardees	During recruitment, mentors receive directions on what their responsibilities are and how much time they should commit to the program. In 2005, awardees will also receive additional information on what they should expect from their mentor. In 2005, a breakfast discussion session was added for Fellows and Mentors.
Base matches of mentor and Fellow on research field	This is done to the extent possible. More senior students and postdoctoral students are given first priority for the closest matches, followed by junior graduate students, then undergraduate students.
Have group mentors instead of one-on-one	Starting in 2005, mentors and awardees will be formally grouped for the orientation session. However, each student will still have an individual mentor.
Include the research/thesis advisor in the meeting activities	A number of respondents indicated that they valued hearing another perspective on their graduate training. However, starting in 2005, research advisors will receive additional information about the Travel Fellow's expected activities at the meeting.
Have a "where are they now" section in the APS journals	The APS website now includes selected biographies of past Fellows.
<i>Involvement with the APS</i>	
Make it easier to become an APS student member at the meeting	Each awardee is provided with an application form and does not need to have separate sponsors sign the form.
Involve awardees in Society leadership	The information from the retrospective survey will be used to recruit participants for Education and other Society activities.
<i>Application process</i>	
Electronic application forms; Implement a faster review process	Electronic applications have been developed and were available in late 2006. The review process and notification process has been streamlined by the use of e-mail and web posting of awardees. Awardees now have ample opportunity to make travel plans for the meetings.
Publicize the program more widely	E-mail listserves and web postings have greatly expanded publicity.
<i>Award finances</i>	
Book hotel rooms for awardees to minimize up-front costs	This is not feasible for most meetings. Raising the travel advance limit is more promising.
Raise the travel advance	This was done for EB 2005 but limits apply to the amount of travel advance that can be offered.

Conclusions

The APS-NIDDK Minority Travel Fellows program seeks to encourage underrepresented minority students to pursue professional careers in physiological/biomedical sciences through Travel Fellowships, meeting mentor experiences, development of a minority student network, and building supports for better precollege science education. The current evaluation sought to assess long-term impacts of the program and receive recommendations from past Fellows for continued program improvement. Findings suggest that past Fellows are progressing in their science career development and the large majority remain committed to a biomedical research career. Three-quarters of the employed past Fellows have earned a Ph.D., and all but one of the total respondents indicated that they were in a science-related position. Most spend a significant portion of their time engaged in research.

Participants felt they had benefited from the program through networking opportunities with both their fellow awardees and meeting mentors, sharing common experiences with their fellow awardees, making contacts with scientists in their own fields and other life sciences fields, and attending scientific meetings that they could not have attended without the financial support provided by the Fellowship. Many of the Fellows kept in contact with fellow awardees and/or mentors after the meeting by e-mail or by connecting at other meetings. Most of the awardees became student members of the APS, and more than half moved into regular membership sometime later. Fellows expressed considerable interest in participating in APS Education opportunities and APS committees. Overall, the program evaluation suggests that the program is meeting its goals.

References

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Appendix A
APS-NIDDK Travel Award Fellows
1987-2004

**APS-NIDDK TRAVEL FELLOWSHIP
RECIPIENTS
FALL 1987 - FALL 2004**

Since 1987, 685 Fellowships have been awarded to support the participation of 470 minority students and scientists at APS meetings.

Fellows designated with an asterisk (*) were supported with funds from the National Institute of General Medical Sciences.

Fellow	Year of Award
Sean R. Abram	1999
James P. Abulencia	2002
Saint K. Adeogba	1996
Adwoa D. Aduonum-McKinney	1998
Lee A. Aggison, Jr.	2002
Nancy M. Aguilar	1994, 1997, 2002
Azeez A. Aileru	1995
Yadamu Alemayahu	1988
Larry D. Alexander	1994
Diane S. Allen-Gipson	1997, 2000
Guy Alvarez	2002
John J. Andazola	1991, 1992
Biree Andemariam	1998
Lisa C. Applewhite	1997
Phillip Archer	1988
Inez Archuleta	1994, 1996
Patricia Avila Arreola	1994, 1996, 1997
Osei Kwame Asamoah	2001
William W. Ashley	1996
Anita Austin	2003
Vera Averyhart-Fullard	1992
Elias Babilonia	2003, 2004
Michela N. Baca	1994
Rachel M. Bailon	1996
Reginald Baker	1995
Daniel Glen Baldwin	1992
Frantzie Balmir	1994
Erwin A. Bautista	2000, 2001, 2002, 2003
Rowin S. Begay	1998
Tracy D. Bell	2004
Natalie J. Belle	1996
Jabbar Bennett	2001
Reginald L. Berry	1995
Richard A. Beswick	2000, 2001, 2003
Barika Bettis	1992

Fellow	Year of Award
Della Bewernick-Montion	1989
DaVonne Bivins	2002
Ahmad R. Blanton	2004
George T. Blevins	1989, 1990, 1991, 1993
Cheryl Bliss	1989
Le Ann Blomberg	2001, 2003
Marisela Bonilla	1988
Francis N. Bosah	1992, 1993
Lillie M. Boyd	1991
Adrienne P. Bratcher	2004
Wendy Brisbon	2003, 2004
Candice Brown	2003
Ricardo A. Brown	1988, 1991
Wilmarie J. Bruckman Blanco	2003
Jessica Bryant	2004
Wendy R. Burns	2000
Shirley Burton	1991
A. Dianne Bustamante	1990
Cherie L. Butts	1997
Raul Camacho	2003, 2004
Amadou K.S. Camara	1993, 1995, 1996
W. Richard Campbell	1991
Isabel Campos	2004
Esther R. Carlisle	1994
Robert Carter III	2000, 2001, 2002, 2003, 2004
Antonio J. Carrasco	2000
Yoli G. Casas	1999
Jose Paulo Castro	1995
Maria Castro	1990, 1991
Clivel G. Charlton	1989
Ferman A. Chavez	1988
Robert Anthony Chavez	1996
V. Michelle Chenault	1991
Marina Chicurel	1989
Dayna Jo-Ann Clarke	1990
Christie R. Claxton	2000
Sonya Coaxum	1999, 2001, 2004
Turner Coggins, Jr.	2001, 2003
Margaret Colden-Stanfield	1988
Heidi L. Collins	1993
Virginia G. Corpus	1992, 1996
Nancy Correa-Matos	2001
Jose R. Criado	1991

Fellow	Year of Award
Jurandir J. Dalle Lucca	2000
Edward Daniel	1991
Richard C. Daniel	1987
Whitney Daniels	2002
Barbara Davis	1988
Peter Daudu	2001
Claude Andrew Davis	1989, 1990
Vianey Roselle De Aguero	1996
Indira De Jesus Aluelo	2002
Qadriyyah J. Debnam-Pillow	1997, 1998
Diana de la Rosa	1987
Joel B. De Leon	1995, 1997
Vondolee M. Delgado-Nixon	2003
Dominique Delma	1988
Christopher A. DeSouza	1996 (2), 1997
Michael A. Dray	1992
Robert Dunn	1991
Danita Eatman	1996, 1998
Marcos Echegaray	2002
Sarah K. England	1989
Lourdes A. Esparza	2004
Robert Espinoza	1992
Ana Y. Estevez	1997, 1998, 1999, 2000
Paula Estrada	1997
Crystal Evey	2001
Lorette Fahie	1991
Ricardo Falcon	2000
Martin Farias III	1999, 2000, 2001, 2002, 2003, 2004
Marcelo Febo	2001, 2002
Lillybeth Feliciano	1991, 1992
Karen Feng	2000, 2001, 2002
Alacrico Fernandez	1990
Paul Fidelis	2004
Carmina A. Flores	2000
Patrizia A. Flores	2001, 2002
Xavier F. Flores	1989, 1990
Maria L. Florez-Duquet	1990, 1994, 1995, 1996, 1998
Eric Antony Floyd	1992
Billie Foote*	2001, 2002
Theodore Ford	1990
Jacqueline S. Foster	1993

Fellow	Year of Award
Raymond Foust	1996
Karessa Fox*	2001
Gerald D. Frank	1997, 1998, 1999, 2000, 2001, 2002, 2003
David W. Frederick	1995
Oliver I. Fregoso	2002
Annette Gabaldon	1990, 1996, 1997, 1999, 2000
John P. Galan	1990
Felipe Galicia	1998, 1999
Monica Gallegos	1998
Thomas F. Gallegos	2002
Jesus Garcia	1997
Ruben Garcia	1989
Josephine M. Garcia-Ferrer	1999
Carla Gardner	2003
Etoi Garrison	1994
Jacob Garza	2002, 2003
Maria Lourdes Gemeniano	1995
Terra Gibbs	2001
Melinda Gillus	1995
Murrell Godfrey	1996
Kish L. Golden	1993
Ronald R. Gomes	1996
Terri D. Gomez	1998, 1999, 2000
Rayna J. Gonzales	1994, 1997, 2000, 2001
Anjelica L. Gonzalez	2004
Daniel N. Gonzalez	2002
Lorie Ann Gonzalez	2002, 2003
Orlando Gonzalez	1992, 1999, 2000, 2001
Jorge L. Gonzalez-Perez	2002, 2003, 2004
Vyvian J. Gorbea-Oppliger	1992, 1994
Monica Grafals	2000
Tholeathcus A. Grantham	1997
Paul Gray	2001
Torrance Green	2004
Alane T. Gresham	1991, 1992
Kawanza L. Griffin	1997, 1998, 1999
Carlotta E. Groves	1993
Earl G. Haley	2002

Fellow	Year of Award
Milton Hamblin	2002, 2003, 2004
George J. Hammons	1995
Barbara Y. Hargrave	1987
Michael Pak Lin Harris	1993
Natalie Harris-Nelson	2001
Carla M. Harwell	1988
Cathy J. Greene Hatcher	1996, 1997
Timothy A. Hawkins	1991, 1992, 1995
Justin Hawley*	2002
Bennye S. Henderson	1991
Hantz Hercule	2001
Lucrecia Anzueto Hernandez	1988
Gerardo A. Hernandez	2001, 2004
Mark J. Hernandez	2002
Gerald M. Herrera	1996, 1997, 1998, 1999, 2000, 2001
Shawn D. Hingtgen	2003, 2004
Vallie M. Holloway	2000, 2001, 2002, 2003
Minnie Q. Holmes-McNary	1994, 1996
Shannon Holt	2001
Omotola Hope	1995
Sonia Houston	1998
Benjamin Hughes	1992
Danielle Leteshe Hughes	2002
Empress Hughes	2003
Shunda R. Irons	1999
Allison Ivy	2001, 2002
Cynthia Ann Jackson	1987, 1988, 1989, 1990, 1991, 1993
Denise Jackson	1993
Inneke Jackson	2001, 2003
Keith E. Jackson	1999, 2000, 2004
Keshia L. Jackson	2004
LaRhonda Jackson	2004
Jamil Jacobs-El	1992
Kelvin E. Jeames	1995
Nikki Jernigan	2000, 2001, 2002, 2003, 2004
Jesus Jimenez	2004
Carlos A. Jimenez-Rivera	1990
Theresa John	2001
Elmond J. Johnson	2000

Fellow	Year of Award
Sheree M. Johnson	1998
Karen F. Johnson-Mills	1996, 1998
Dorian Jones	2000
Harlan P. Jones	1999
Joyce J. Jones	1995, 1996
Percy Joseph Jordan	1994
Brigid Joseph	2003, 2004
Lyndon Joseph	1997
Kristen Kaba	2001
Shane B. Kanatous	1996
Alphonso Keaton	1994
Jennifer L. T. Keeling	2002
Ollie Kelly-Appleberry	1999, 2000, 2001, 2002, 2003, 2004
Roberta Kiffin	2004
Shelly King	1991
Keri Kles	1998, 1999, 2000, 2001
Michael Knox	2003
Erik Kupperman	1993
Rhonda J. Kuykindoll	1998, 1999
Sylvia Laano	1996
Cindy LaNeave	1987, 1989, 1990
John H. Lawrence	1992, 1993
Kera P. Lawson	2004
Daniel C. Lee	2003
Dexter L. Lee	2003, 2004
Kimberly D. Lee	1998, 1999
Mark E. Lee	1992
Elia V. Leos	1996
Rafael A. Leos	2000, 2002, 2004
Terrence Lewis	2001
Kentrell M. Liddell	1995
Ora E. Lockley	1990
Angelique K. Lopez	1995
Jose Lopez	1996
Joseph P. Lopez	1999, 2001
Lymari Lopez-Diaz	2004
Marcy K. Lowenstein	2002
Michael Edward Lozano	1989
Barbara Lujan	1998
Johnalyn D. Lyles	1998, 2001, 2002, 2003
Margaret Lyles	2001
Brandon Macias	2004

Fellow	Year of Award
Hector Macias	2002
Cina M. Mack	2000
Anthony B. Madison	1993, 1994
Lorraine H. Manciet	1989, 1990
Philip Marjon	2003
Renee D. Markham	1995
Patricia A. Marks	1990, 1991, 1993
Jennifer Marquez	2002
Martin G. Martin	1992
Rosalinda Martin	1996
Christina L. Martinez	1997
Juanita M. Martinez	1991
Julian Martinez	1995
Zaira Mateo	1995
Sheila A. Mathias	1993, 1994, 1997, 1998
Colette C. Matthews	1998
Danilo V. Mazzella	1996
James Eric McDuffie	1997, 1998
Carla S. McKinney	1993
Tracy Richmond McKnight	1994, 1995
Ronald K. McMillon	1993, 1995, 1996, 1998, 2000, 2003
Chastity N. McRae	2002
Delphine F. Medicine Horse*	2000
Edward A. Medina	1999, 2001
Maria Medina	2001
Juan Andres Melendez	1992
Gilsa E. Melendez-Padilla	1993
Christopher Mendias	2004
Jose Mercado	1991
Ozuem Paul Mgbonyebi	1992
Stephania T. Miller	2000
Karmardi Mills	1998
Laura Milo	1999
Andre L. Mitchell	1997
Deidra Montague	1998
Mahealani K. Monteilh-Zoller	1995
Gwen-Marie Moolenaar	1991
Alicia R. Glover Moore	1995
Andres Mora	1999
Juan A. Morales	1999
Catherynne Morgan	2001
Caurnel Morgan	1990
Rogelio Mosqueda-Garcia	1988
Evangeline D. Motley	1994, 2003

Fellow	Year of Award
Kawonia P. Mull	1996, 1997
Enchanta L. Murphy	1993
Sheree L. Murphy	1997
Evelyn F. Navarro	1995
Patricia A. Nez	1988
Wesley Nixon	2002
Bethany Not Afraid*	2002
Christopher Nunez	1995, 1996
Joseph Nunez	2001
Nomeli Nunez	1993, 1999
Patrick M. Oats	1991
Monique L. Ogletree-Hughes	1997
John Okwusidi	1988
Alejandro Ortiz	1996
Andrea L. Ortiz	1996
Blanca Ortiz	1989
Donna A. Ortiz	1999, 2000, 2001
Rudy M. Ortiz	2000, 2001, 2002, 2003, 2004
Alexandro Ortiz-Acevedo	1992
Suzette Y. Osei	1996
Hilda M. Osorio	1988
Jose Ospina	2001
Kwaku N. Owusu	1989
Carmen A. Padro-Alvarado	2002, 2004
Lauren Pagarigan	2003
Phillip D. Palmer	2003, 2004
Maria Teresa Z. Paraz	2002
Candace Parker	1997
Stuart Parker	1996
Myla M. Patterson	2003, 2004
Jewel R. Payne*	2000
Linda C. Payne	1992
Michael Payne	2003
Octavia M. Peck	2004
Lloyd Pena	1993
Elizabeth T. Penades	1994
Karl Pendergrass	2004
Lorelei Ellazar Perez	1989
Manuel Navaira Perez	1989
Michael F. Perrine	2002
Erika S. Piedras-Renteria	1996
Steve J. Plane, Sr.	2002
Manu O. Platt	2004
Dorris Powell	1987

Fellow	Year of Award
Cassandra Prioleau	1998
Rhonda Prisby	2003, 2004
Jose A. Quidgley	2004
Victor J. Quijano	1997
Elizabeth S. Quintana	1990, 1991, 1992, 1993, 1997, 2002
Omar Quintero	2001
Karma Rabon-Stith	2001
Darlene K. Racker	1987, 1988
Priscila Sanabria Ramirez	1987, 1989
Marilys G. Randolph	1987, 1989
Yolanda Rangel	2004
Deborah R. Rayfield	1995
James E. Raynor	1994
Phyllis Y. Reaves	1998
Levi A. Reyes	2004
Stephanie M. Richardson	2003
James Recinos	2004
Rhoda A. Reddix	1992
Christine Redmon	2001
Gloria Jean Respress	1989
Jayne Reuben	2001
Cassandra V. Reyes	2000, 2001, 2003, 2004
Cherilynn M. Reynolds	1997, 1999, 2001
William Richards	2004
Stephanie M. Richardson	2004
Joyce M. Richey	--
Alfredo Rigo	1988, 1989
Julio A. Rimarachin	1989
Alex W. Rivera	1995
Chantal Rivera	2004
Miguel Rivera	2002
Maria M. Rivera-Correa	1994
Rebecca R. Rizo	1995
Tiffany T. Robinson	2000
Todd V. Robinson	1990, 1991
Daniel O. Robleto	1987, 1988
Carmen Rodriguez-Sargen	1988
Eduardo Rodriguez-Iglesias	1995
Fernando A. Rodriguez-Rodriguez	1993
Jesse S. Rodriguez	1999
Maria B. Rodriguez de Salzberg	1990
Tracy Rodriguez	1997
Victor R. Rodriguez	1996

Fellow	Year of Award
Jose D. Rojas	2003
Carmencita Rojas Cartagena	2004
Jose R. Romero	1994
Caridad D. Rosette	1991
Kassandra I. Rossiter	2002
Pamela Johnson Rowsey	1993
C. Nathaniel Roybal	2003, 2004
Lisa Phyllis Rubero	1988
Maria L. Ruiz	1989
Victor Ruiz-Velasco	1992
Christy Russo	1999
Sharon L. Samuel	1999
Ilva I. Sanabria	1991
Elizabeth Sanchez-Maloy	2003
Hiromi Michelle Sanders	2004
John L. Sanders	1993
Darleen Sandoval	2000
Raudel Sandoval	2000, 2002
Jose Angel Santiago	1994
Luciana O. Santos	2002
John Scheel	2001
Robin V. Searles	1994
Annabell Segarra	1987, 1988
Christopher Selhorst	2001
Oscar Kenneth Serrano	2000
Kiernan A. Seth	1994
Arnold L. Silva	1990, 1991, 1993
Roberto Silva	1997
Edward G. Smith	2002
Stacie A. Smith	1997
Corigan Smothers	1993, 1994
Dean Snow*	2001
Joel M. Solano	1998
Martha H. Stella	2000
Andra Stevenson	2001
Arturo Stever	1995
LaTonia M. Stiner	1999, 2000, 2001, 2002, 2004
Sherell Stokes	1998
Joseph Strike*	2002
Ronald T. Stroman	1994
Oscar Suman-Vejas	1992
Sonya R. Summerour	1999
Barbara L. Tabor	1994
Abraha Taddese	1993
Derek M. Tate	1995

Fellow	Year of Award
Mechelle E. Taylor	1993
Belay Tesfamariam	1989
Keshari Thakali	2004
Candice M. Thomas	2004
Joseph B. Thompson	1993
George D. Thorne	1998, 2000
Vanessa I. Toney	2002, 2003
Amilcar Toro	1988 (2)
Cheryl Torrence-Campbell	1989, 1992
Oscar A. Torres	1992
Samantha N. Torres	2004
Raul Trejo	1994
Jerry Trevino	1998
Thomas B. Trice	1988
Torry Tucker	2001
Patricia Turner	2000
Ita Timothy Udosen	2002
Brian Underhill	1998, 1999
Tino Unlap	1998
Jorge Martin Uribe	1992
Pomposo Urquidies III	2000
Alberto Vallejo	2004
Johana Vallejo	2002, 2003, 2004
Adrian E. Varela	1995
Trini Vargas	1994
Mildred Morales Velez	1990
Alice R. Villalobos	1989, 1990, 1991, 1992, 1993
Greg Villareal	1997
Selene Virk	1995, 1998
Angelica S. Vrablic	1996
John Walker	2000
Matthew Walker	1996, 1998, 2000
Michelle Walker	2001, 2003
Oristyne E. Walker	1992, 1993
Ruth A. Washington	2002
Vabren L. Watts	2003
James A. Weaver	1996, 1998
Gerald Weigle	1996
Elizabeth K. Weihe	2002
Lori Wesely	1997, 1998
Ceceile Ann Wight	2003
Julia E. R. Wilkerson	2001, 2003, 2004
Anita Williams	1992

Fellow	Year of Award
Ianthalates Williams	2002, 2003
Jan Michael Williams	2002, 2003
Keith Williams	1991, 1993
Maurice Williams	2000
Owen O. Wilson	1992
Tracy A. Womble	2003
Letha Woods	1997, 2000
Elethia Woolfolk	2003, 2004
Joyce Marie Wright	1990
Latasha P. Wright	1995
Marcus T. Wynn	1992
Joaquin Zalacain	2004
Taonga T. Ziba	2004

Appendix B

Survey Instrument





Survey of NIDDK Minority Travel 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 NIDDK Travel Fellowship(s)?

Impact of the Fellowship

16. Please describe the professional benefits/detriments, if any, that you feel you gained from the fellowship by...

...attending/participating in the APS meeting(s)?

...having a meeting mentor?

...meeting other awardees (minority undergraduate students, graduate students, and postdocs)?

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



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