



NIGMS MINORITY PROGRAMS UPDATE

NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES • FALL 2001

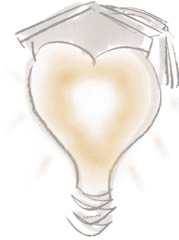
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NIGMS HOLDS

Diversity Workshop

BY SUSAN ATHEY, NIGMS



NIGMS held a workshop in May that brought together scientists and educators from across the country to exchange information and discuss strategies for the recruitment and retention of underrepresented minority students in biomedical research training programs.

The workshop, "Achieving Scientific Excellence Through Diversity," included administrative officials from institutions with funded NIGMS predoctoral training grants, the program directors of these grants, minority students, and staff from NIH and philanthropic foundations. Almost all of the 75 institutions that have NIGMS predoctoral training grants were represented.

Chaired by Dr. Richard I. Morimoto of Northwestern University, the workshop began on Sunday, May 6. Dr. Freeman A. Hrabowski, III, president of the University of Maryland, Baltimore County (UMBC), delivered the keynote address. Hrabowski challenged participants to raise their expectations and examine their approaches for encouraging minority students to pursue research careers. He described the highly successful strategies of the Meyerhoff Scholarship Program at UMBC, which has encouraged large numbers of minority undergraduate students to complete majors in science and pursue graduate education. Hrabowski emphasized that a combination of pragmatic approaches with a "fire in the belly" for research is the key to success.

On Monday, May 7, Dr. Ruth Kirschstein, NIH acting director, welcomed the workshop participants and exhorted them to "return to your institutions with fresh ideas, strong expectations, and a renewed determination to create a community of scientists that truly reflects the full talent of this nation." Her remarks were followed by a series of panel presentations, a poster session, and breakout discussion groups that addressed the importance of institutional commitment and strategies at all levels for the recruitment and retention of minority students.

The concluding address, "Learning from the Past to Plot a Future," was delivered by Dr. David R. Burgess, a biology professor at Boston College and former president of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS). Burgess noted that nationally, only 3 percent of Ph.D.s in biomedical science graduate programs are from underrepresented minority groups, despite a large investment on the part of NIH and private organizations. He insisted that the educational and research communities must do better and summarized some "take home" lessons from the workshop. One of these lessons was that individual efforts make a difference, but change has to be institutionalized.

Lovie Grayson (right), a recent graduate of Tennessee State University in Nashville, spent the summer working with Stefanie Furer (left) at the National Institute on Aging's Laboratory of Cellular and Molecular Biology in Baltimore, Maryland. Grayson was one of many NIGMS minority program participants who spent the summer performing research internships. For more on summer internships, see page 9.





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Throughout the workshop sessions, there was an extensive exchange of questions and animated discussion of issues. The meeting's organizer, Dr. Marion Zatz of the NIGMS Division of Genetics and Developmental Biology, said that the meeting "reflected the energy and commitment of our grantees to be more successful in recruiting and training underrepresented minority students. There was a sense of optimism that NIGMS training programs can learn from each other's successes

and failures, and move beyond frustration to new strategies at their institutions."

"There is a limit to what NIH can do," Zatz added, noting that "ultimately, individual and institutional commitment is what it will take to be successful." ●

More information on NIGMS' minority recruitment and retention strategies and the diversity workshop can be found on the NIGMS Web site at www.nigms.nih.gov/news/reports/diversity.html.

Program Directors Meeting a Success

BY SUSAN ATHEY, NIGMS



Meeting participants had many opportunities to interact and share information.

More than 180 Minority Access to Research Careers (MARC) and Minority Biomedical Research Support (MBRS) program directors and business officials gathered in Jackson Hole, WY, in June for the biennial MARC and MBRS Program Directors Meeting hosted by the MORE Division.

The theme of the meeting, "Striving for Academic Excellence," reflected the participants' commitment to increasing the number of underrepresented minorities in biomedical research careers. Participants attended presentations on student learning, innovative teaching, and program evaluation. The meeting also featured discussions of careers in biomedical science and grants management workshops.

Throughout the meeting, program directors had the opportunity to meet with MORE staff as well as with NIGMS grants management team members. Special program-specific breakout sessions enabled participants to discuss successful strategies with one another and with NIGMS staff.

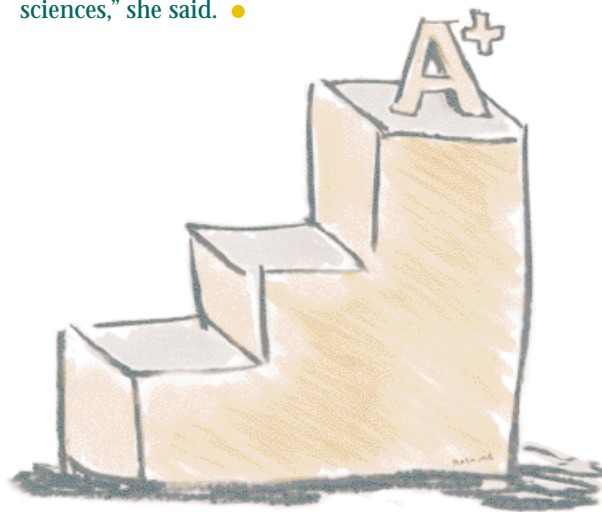
Dr. Adolphus Toliver, director of the MARC program at NIGMS, credited the success of the meeting to the "commitment and enthusiastic

participation of the program directors and the MORE and grants management professional staffs."

"The interpersonal interactions among attendees gave them the opportunity to share best practices for their programs. This was a highlight of the meeting," added Dr. Ernest Márquez, MBRS program director at NIGMS.

Dr. Dorothy Cowser Yancy, president of Johnson C. Smith University in Charlotte, NC, attended the meeting and said she found it "interesting and extremely informative."

"I left energized and ready to work even harder to get more students to major in the sciences," she said. ●



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Editor: Susan Athey
athes@nigms.nih.gov

Assistant Editor:
Danielle Wittenberg
wittenbd@nigms.nih.gov

Editorial Assistant:
Jilliene Mitchell
mitcheljj@nigms.nih.gov

Office of Communications
and Public Liaison, NIGMS
Room 1AS.25
45 Center Drive MSC 6200
Bethesda, MD 20892-6200
Tel: 301-496-7301
Fax: 301-402-0224

The next meeting of MARC and MBRS program directors is planned for June 14–18, 2003 in Lake Tahoe, NV. Be sure to mark your calendars!



NIH Officials Visit MORE Program Institutions and Navajo Reservation

BY SUSAN ATHEY, NIGMS

When Dr. Glenn Kuehn, director of the Bridges to the Baccalaureate program at New Mexico State University (NMSU), learned that the director of the National Human Genome Research Institute (NHGRI) would accept an invitation to visit NMSU if the trip included interaction with Native Americans, he turned to his friends and colleagues at Bridges partner school Diné College for assistance.

Dr. Don Denetdeal, a professor of Navajo studies at Diné's Tsaile campus, arranged for NHGRI director Dr. Francis Collins, NIGMS MORE division director Dr. Clifton Poodry, and other NIH representatives to visit Diné College in the center of the Navajo Reservation to meet with students of the Shiprock and Tsaile campuses of Diné College and have an open discussion with Navajo community members, including some from the society of Navajo medicine men and women.

Various advisors to NIH—especially the late Dr. Frank Dukepoo, a Hopi geneticist—have urged Federal administrators to get out among the Native American people and listen to their concerns about genetic studies that involve Native American participants. Collins told his audiences that he was there to listen and learn.

"I come with deep respect for you and your community," Collins said.

"I hope to in some small way engage in dialog and to explore means to keep the dialog going."

In his meetings at NMSU, Collins spoke about the Human Genome Project and its implications for future improvements in understanding and treating hereditary diseases. He also entertained questions that ranged from the impact of genetic testing and privacy issues to the future of the Human Genome Project.

Following the meetings at NMSU, the group visited Diné College and the nearby Navajo Reservation. Since travel by car to the heart of the reservation would have taken longer than schedules would allow, a charter flight was arranged to take Collins and one of his staff members, Dr. Monique Mansoura; Poodry; Kuehn; Kuehn's Bridges assistant, Priscilla

Marquez; and Kuehn's graduate student, Don Benn, from Las Cruces, NM, to Chinle, AZ (the location of the reservation). There, the group was met by Dr. Mark Bauer, an investigator on Diné's MBRS grant, staff members, and students. The party traveled past the historic Canyon de Chelly to the campus at Tsaile, where they met with Native American students and community members.

Kuehn said the visit served as a powerful reminder of "how large the knowledge gap is between those who conduct genomic research and the general nonscientific population.

"Scientists have an enormous task in the future to bring the general population to a higher level of understanding of the benefits that will come from the Human Genome Project."

According to Poodry, the visits to NMSU, Diné College, and the Navajo Reservation were a good start. "We are pleased how well the visits went," he said. "The two medicine people who spoke to us indicated the importance of community understanding of important topics such as genetics and their desire to learn more. The MORE Division will continue to work with the National Human Genome Research Institute to follow up on this historic outreach activity." ●



Dr. Francis Collins presented Dr. Don Denetdeal with a framed CD containing the human genome sequence that was published last February.



The day had added adventure when a wheel of the chartered plane went off the narrow airstrip and became bogged in mud. A group of eight industrious Diné students and faculty came up with a shovel and a board and together helped push the plane out of the mud and back onto the paved runway.



Singh Joins NIGMS

BY DANIELLE WITTENBERG, NIGMS

Dr. Shiva P. Singh recently joined NIGMS as a scientific review administrator in the Office of Scientific Review, where he will manage the review of applications to the MORE Division, as well as other selected research training, program project, and center grant applications.



Singh comes to NIGMS from Alabama State University in Montgomery, where he was chair of the Department of Biological Sciences and director of the university's biomedical and research training programs, including the MBRS and MARC programs. His research interests focused on the immunological structure of the outer membrane proteins of gram-negative bacteria, the expression of HIV epitopes in *Salmonella*, the genomic fingerprinting of pneumococci, and infection and antimicrobial resistance in patients with spinal cord injury.

Singh earned a B.S. in agriculture and animal husbandry from the G.B. Pant University of Agriculture and Technology in India and a Ph.D. in microbiology from Auburn University in Alabama. He conducted postdoctoral research at Tuskegee University in Alabama, Argonne National Laboratory in Illinois, and Auburn University and was an extramural associate at NIH.

He is a member of several professional societies, including the American Society for Microbiology and the American Association for the Advancement of Science. ●

Three New Science Education Booklets Available

BY JILLIENE MITCHELL, NIGMS

NIGMS recently published three new science education booklets: *The Chemistry of Health*, *The Structures of Life*, and *Genetic Basics*. All of the booklets are geared toward an advanced high school or early college-level audience and include questions testing comprehension at the end of each chapter.



The Chemistry of Health (66 pages) describes how basic chemistry and biochemistry research can encourage a better understanding of human health. The booklet also features interviews with a number of

chemists and biochemists.

The Structures of Life (60 pages) focuses on structural biology. The booklet contains a general introduction to proteins, a chapter each on X-ray crystallography and nuclear magnetic resonance spectroscopy, and a chapter on structure-based drug design. It also features "Student Snapshots" designed to inspire young people to consider careers in biomedical research.

Genetic Basics (68 pages) includes descriptions of how genes work, "strange but true" exceptions to the traditional rules of genetics, why basic research is important and worthwhile, some of the connections between genes and diseases, and the excitement of genetics research in the 21st century.

In addition to the new science education booklets, NIGMS has developed a recurring feature publication, *Findings*, which highlights the research of NIGMS-funded scientists. Each issue of the publication also contains a roundup of recent, clinically relevant NIGMS-funded research studies and a crossword puzzle containing terms used in the feature stories. ●

All of these publications can be found, and ordered, on the NIGMS Web site at

www.nigms.nih.gov/news/publist.html.

Free copies can also be requested by contacting:

NIGMS Office of Communications

and Public Liaison

45 Center Drive MSC 6200

Bethesda, MD 20892-6200

301-496-7301

pub_info@nigms.nih.gov



Tougaloo Celebrates 25th Anniversary of MARC Program

BY PATRICIA G. MURRAY, TOUGALOO COLLEGE

In February, Tougaloo College held a national conference to commemorate the university's entrance into its 25th year of MARC funding. Established in 1977, the Tougaloo MARC program has become one of the college's most successful initiatives.

Over the past two and a half decades, more than 128 students have completed the MARC program at Tougaloo. Most of these students have gone on to earn Ph.D.s, M.D.s, or M.D.-Ph.D.s in biomedical research or related fields from highly acclaimed institutions, including Harvard, Yale, Brown, Johns Hopkins, Duke, and Boston University.

MARC Program: Forward Motion

The MARC program began at Tougaloo College with 4 trainees—today there are 13. Initial funding for the program has grown from \$50,000 to more than \$1.6 million for the 5-year grant period.

At Tougaloo, the program supports a select group of students designated as MARC scholars, who are offered a competitive edge for advanced studies leading to the Ph.D. or M.D.-Ph.D.

MARC also brings respected research scientists to the campus to conduct seminars and discuss research one-on-one with students, and it funds advanced-level courses in biology and chemistry. Trainees are selected at the end of their sophomore or junior years based on their academic performance and initiative. Mentoring by respected and experienced science faculty, professional travel, partial tuition, a monthly stipend for research projects, and off-campus research opportunities at several major universities are additional incentives of the program.

Tougaloo's program and its longtime director, Dr. Bharati Mehrotra, have been recognized both regionally and nationally for success in producing highly qualified students and increasing the pool of minorities participating in the nation's biomedical research enterprise.

Tougaloo's silver anniversary conference celebrated the achievements of the program and its graduates with workshops, exhibits, networking opportunities, and special lectures and presentations by noted leaders in the fields of health and biomedical research.

The theme of the conference was "Forging Alliances to Increase the Number of Minority Biomedical Research Scientists." Participants engaged in critical discussions and were given the opportunity to speak to leaders in the research field from both academia and national funding sources, including NIH.

The return of several distinguished MARC graduates who are now scientists and practicing physicians, plus a surprise visit from U.S. Surgeon General Dr. David Satcher, added to the celebratory atmosphere surrounding the 2 days of events commemorating the anniversary.

Speakers at the conference included Dr. Adolphus Toliver, MARC program director at NIGMS, and Dr. John Ruffin, director of the NIH National Center on Minority Health and Health Disparities.

"Tougaloo is to be commended for its many accomplishments," Toliver said. "NIGMS invests in the future of minority participation in the biomedical sciences, and Tougaloo has proven to be a wise investment." ●



For more information about the MARC program at Tougaloo College, contact Dr. Bharati Mehrotra at 601-977-7779, bkmehrotra@aol.com. General information about the MARC program can be found on the MORE Division Web site at www.nigms.nih.gov/about_nigms/more.html.



Anderson currently works in the Center for Hearing and Balance at The Johns Hopkins University School of Medicine. His research entails foreground and background sound discrimination at two levels of the auditory brainstem. He describes this research as “studying the ability to hear someone talking (foreground) in a cafeteria full of noise (background).” His project is a segment of a larger international study that focuses on foreground and background sounds in the cochlear nucleus, inferior colliculus, thalamus, and auditory cortex in the brain.

Profile

DR. MICHAEL ANDERSON

This special section profiles former MORE participants who have excelled in their fields. We hope that the profiles will give students an idea of the types of careers available with science degrees and the paths others have taken to achieve those careers.

Electric Trains and Toy Race Cars Spark Interest in Science

BY JILLIENE MITCHELL, NIGMS

“When we were little, my mother would buy my older brothers and me electric train and racing car sets for Christmas,” said Dr. Michael Anderson, a postdoctoral fellow at The Johns Hopkins University School of Medicine in Baltimore, MD.

“So, I wanted to be either a train engineer or a tractor-trailer driver when I grew up,” he added.

Anderson, with the encouragement of one of his brothers and his interest in toy trains and race cars in mind, decided to go to vocational-technical high school and major in automotive mechanics. There, he excelled academically and was encouraged by a guidance counselor to go on to college. He landed in the pre-engineering program in the physics department at Delaware State University.

“On my first visit to the department, I met the chairperson, Dr. Eshan Helmy. On that first day, Dr. Helmy looked me in the eyes and told me that I would do well in college,” explained Anderson.

Under the guidance of Helmy and her sister, Dr. Fatma Helmy (the MARC program director at the university), Anderson became a MARC scholar. As required by the MARC program, Anderson participated in two summer internships. The first was in astrophysics at the University of California, Berkeley, and the second was in nuclear physics at Princeton University in New Jersey.

Anderson recalled being inspired at a MARC seminar he attended at Delaware State University—so much so that the presentation the speaker made influenced his decision to pursue a research career. Born deaf in one ear, Anderson decided to focus his studies on hearing research.

Anderson went on to graduate from Delaware State University with a triple major in physics, math, and physics with an engineering emphasis. He continued his education in the sciences in a joint program at Rutgers University and the University of Medicine and Dentistry of New Jersey, where he earned a master’s degree, and at the latter school, where he earned a Ph.D. Both degrees were in biomedical engineering.

Anderson says that most of his scientific opportunities and academic experiences were made possible by the MARC program.

“Not only did the MARC program provide me with financial support, it also helped me to establish my goals early in my academic career,” he said.

“The MARC program allowed me to attend seminars and participate in internships, giving me exposure to various types of research. In addition, the program gave me the opportunity to meet leading scientists and helped me to decide the area of research I would focus on.”

Anderson credits his interest in science not only to his professors and others in his field, but to his family members as well. In his early years, he wanted to follow in his brothers’ footsteps and go to vocational-technical high school. As he matured, his role models changed from his older brothers to his Aunt Janet, at that

“The thing I enjoy most about science is the freedom to explore things that are of interest to me.”



time the only member of his family to earn a Ph.D.

“My Aunt Janet has always been an inspiration to me, so when the idea of becoming a researcher was presented to me by Dr. Eshan Helmy and Dr. Fatma Helmy, I knew that such an accomplishment would put me in the company of some great people,” he said.

As a result of his experiences, Anderson is able to offer advice to students pursuing scientific careers.

“Get good mentors and advisors who have your best interest at heart and try to exceed their advice,” he said.

“Although at times it may seem like your trusted advisors are leading you down the most difficult path, you must keep in mind that a career in the sciences will be most rewarding when you have worked hard to obtain your results.” ●

If you know an outstanding former MARC, MBRS, or Bridges participant who has excelled professionally and you would like to nominate that person as a future Update profile subject, please let us know. Your suggestions are always welcome.





FROM THE MORE DIRECTOR

The Value of Student Research Experiences

BY CLIFTON POODRY, PH.D.

Much has been written about how the teaching of science has drifted away from the joy of discovery to the memorization of facts. In the interest of economy, lab classes are sometimes scaled back or are designed to have a “right” answer that reinforces the lecture material. It seems well accepted that a research experience is an important tool for motivating undergraduates to pursue graduate

education and research careers. Working in a research lab gives a practical reason for learning details about an experimental system—as well as about the broad problem to be solved and alternative ways to approach the problem.

Assuming that engaging in research is a highly effective activity for developing students, it makes sense that we would want as many students as possible to have the opportunity to perform research.

Unfortunately, at many institutions the number of interested students overwhelms the number of active research labs available to

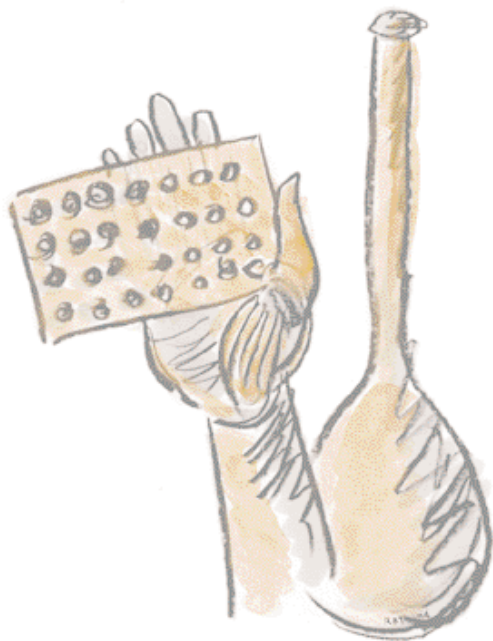
host them. A common response is to accept only the best prepared and most enthusiastic students—the top 10 percent—into research labs.

A practical alternative is to design laboratory classes for all students who meet the prerequisites so that they can experience the way we actually do science. To do this, we need to adjust our thinking about what a laboratory class should be. First, it doesn't need to cover every technique important to the discipline. Second, it doesn't need to cover every principle mentioned in a lecture class. And third, the laboratory class can stand alone, justified for its own heuristic value—it doesn't need to be woven into the fabric of a lecture class. It doesn't even need to be offered during the same academic term.

I recall a class that had a great deal of influence on me as an undergraduate. One semester, I missed registration because of an athletic injury, so I was “stuck” with a comparative plant anatomy class. The course had an associated lab section, but it was different from other classes—we were taught the fundamentals of histology and were then left on our own to experiment. We were encouraged to find our own material to prepare 10 slides of different specimens and a set of serial sections designed to illustrate some aspect of plant anatomy. Our lab practical assignment was to make an oral presentation of the slides to the instructor. When my professor asked to keep the slides I had made of cross sections of a banana and serial sections of a carrot root, I was filled with the joy that comes from exploring—of doing something different and doing it well.

In my former life as a professor of biology at the University of California, Santa Cruz, we offered a number of laboratory classes that were stand-alone courses. The courses often mirrored the current interests of and techniques used by the research faculty. This exposure to “cutting-edge” technologies of the time—such as *in situ* hybridization, PCR, and monoclonal antibody techniques—helped many students get jobs in the biotechnology industry. Although these courses required significant work on behalf of the researchers—from preparing materials to ensuring broad student access to the lab—the benefit to the students, as well as the host researchers, was indisputable. More importantly, these research-oriented lab classes—much like working in a research lab—taught new ways of thinking and provided a context for the concepts. The process of formulating and performing experiments made these concepts real. ●

*Dr. Clifton Poodry, poodryc@nigms.nih.gov,
Director, MORE Division, NIGMS, Room 2AS.37,
45 Center Drive MSC 6200, Bethesda, MD 20892-
6200, 301-594-3900*





NEWS

and Notes

- **Dr. Edward R. Garrison**, an MBRS investigator at the Shiprock campus of Diné College in New Mexico, was honored as the recipient of the Community College/Tribal College Mentor award at the October 2000 SACNAS national meeting in Atlanta, GA. Garrison, a member of the science faculty at Diné, was recognized for creating an outstanding program for biology students at the college.
- **Dr. Carlos G. Gutierrez**, a chemistry professor and director of the MARC and MBRS programs at California State University, Los Angeles, was the recipient of the 2001 American Chemical Society (ACS) Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences. The award, sponsored by the Camille and Henry Dreyfus Foundation, recognizes individuals who have stimulated minority student interest in chemistry, thereby promoting their professional development as chemists or chemical engineers. Gutierrez received the award and its \$5,000 prize at the ACS national meeting in San Diego, CA, in April.
- **Dr. Laura J. Robles**, the MBRS program director at California State University, Dominguez Hills (CSUDH), was elected as a member of the SACNAS Board of Directors for 2001–2003. Robles is a professor of biology at the university.
- **Dr. Maria Elena Zavala**, a professor of biology and the MARC and Bridges to the Future program director at California State University, Northridge (CSUN), was named a recipient of the Wang Family Excellence Award from the California State University (CSU) system. Zavala was recognized for her outstanding work with students and was credited for mentoring more than 125 minority science students at CSUN since 1993.

The Wang awards were established in 1998 by CSU Trustee Stanley T. Wang to recognize faculty and administrators who have “distinguished themselves by exemplary contributions and achievements in their academic disciplines and areas of assignment.”

Zavala was among five individuals who received the award, which included a \$20,000 prize, at the CSU Board of Trustees meeting this past May in Long Beach.

- NIGMS and the **Indian Health Service (IHS)** have announced continued funding of the Native American Research Centers for Health (NARCH) program. NARCH awards are designed to promote, develop, and support centers that link the Native American community with organizations that conduct health research. The program encourages research on diseases and health conditions of importance to American Indians and Alaska Natives. For more information on the second round of applications being sought for NARCH awards, see the full announcement on the NIH Web site at <http://grants.nih.gov/grants/guide/rfa-files/RFA-GM-02-001.html>.
- The **Society of Toxicology (SOT)** hosted a special 2-1/2-day program for 32 undergraduate minority students and 8 of their advisors at the annual SOT meeting this past March in San Francisco, CA. The program, supported in part by the MARC program, introduced participants to toxicology and research careers and included a series of lectures, a special poster session, meetings with representatives from academic programs and summer intern hosts, and tips for successful graduate school admission.
- The **American Heart Association** has funding opportunities available for

research broadly related to cardiovascular function, disease, and stroke or related to basic science, clinical science, bio-engineering/biotechnology, and public health problems. The deadlines for its national research programs are in January and July. For more information, see the American Heart Association's Web site at www.americanheart.org/research.

- **Luis Campos**, a MARC undergraduate student at CSUDH, was named a recipient of the Paul and Daisy Soros Fellowship for New Americans to attend the graduate school of his choice. Campos, a senior chemistry major, plans to pursue a degree in organic chemistry and continue his postdoctoral work at a research institution. The fellowship will provide Campos with tuition and fees for up to 2 years of graduate study. He was among 30 individuals selected to receive the award.
- Many participants in NIGMS' minority programs spent this past summer performing research away from their home institutions.
 - University of Arizona, Tucson: **Paul Hoover** spent the summer performing research at the Universidad Peruana Cayetano Heredia in Lima, Peru; **Anthony Beas** participated in the Summer Research Internship Scholars Program at the University of California, San Diego; **Kelli Randon** performed research in the Summer Undergraduate Research Experience Program at Emory University in Atlanta, GA; and **Jullyn Chargualaf** spent a month this summer in Mali, West Africa, at the Malaria Research and Training Center, which is co-sponsored by the University of Mali and the University of Maryland School of Medicine and funded by the NIH Fogarty International Center (FIC).

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Barry University in Miami, FL, participants and their summer institutions: **Eauly Brutigam**, University of California, Riverside; **Melanie Camacho**, **Ivette Lopez**, and **Raquel Peralta**, University of the West Indies, Kingston, Jamaica; **Empress Hughes** and **Davecia Ragoonath**, Colorado State University, Boulder; **Kevin Peterson**, Stazione Zoologica, Italy; **Roody Pierre-Charles** and **Gessula Toussaint**, University of Florida, Gainesville; **Wendy Saintval**, Rensselaer Polytechnic Institute, Troy, NY; and **Christina Stujenske**, Georgia Institute of Technology, Atlanta.

Teresa Ramirez, an MBRS program participant at CSUDH, spent the summer at Royal Holloway, University of London, with support from the NIH FIC Minority International Research Training program.

Ifedayo Nicholson, a Bridges to the Future program participant at Kingsborough Community College in New York, spent the summer performing research in ecology at the University of Massachusetts, Amherst.

Six students and two faculty members from community colleges participating in the Purchase College Bridges to the Future program performed research at the State University of New York (SUNY) Purchase College campus this summer. The participants and their home institutions: **Bianca Matos** and **Joelle Rodriguez**, Orange County Community College, Middletown,

NY; **Kahlil Howard** and **Walter Soto**, Dutchess Community College, Poughkeepsie, NY; **Mahboob Raman**, Rockland Community College, Spring Valley, NY; and **Rita Guimaeres** and professors **Leelavarti Murthy** and **Glenworth Richards**, Westchester Community College, Valhalla, NY. In addition to their work on research projects, participants attended weekly meetings where they shared research results, and they participated in two field trips. The program concluded with formal research presentations by the students and faculty participants.

Ten MARC undergraduate students from various institutions spent the summer working in labs at the National Institute on Aging in Baltimore, MD. The students and their home institutions: **Ursula L. Bailey**, **Lovie Grayson**, and **Candace A. Jones**, Tennessee State University, Nashville; **Kwaku N. Boakye**, SUNY, College at Old Westbury; **Lavonne S. Hunter**, City University of New York (CUNY), Hunter College; **Jawara Jefferson** and **Erica L. Kinney**, University of Maryland, Eastern Shore; **Ana C. Macias**, San Jose State University, CA; **Dania G. Medina-Emmanueli**, Pontifical Catholic University of Puerto Rico; and **Stephanie M. Thomas**, CUNY, York College.

- Among the student participants in NIGMS' minority programs who received degrees recently are:

Three MARC undergraduate students at Barry University received their bachelor's degrees and will enter Ph.D. programs this fall. **Ria Achong** received a degree in biology and will attend the University of Maryland, Baltimore

Lavonne Hunter (left), a MARC undergraduate student at Hunter College, presents her research poster to a fellow MARC student during the National Institute on Aging's annual Student Poster Day in August.

County; **Elizabeth Honorat** received a degree in biology and will attend Emory University in Atlanta, GA; and **Wendy Saintval** received a degree in mathematics and will attend Rensselaer Polytechnic Institute in Troy, NY.

Eight MARC program participants at California State University, Los Angeles (CSULA), received bachelor's degrees and will enter Ph.D. programs this fall. The students, their areas of study, and graduate institutions are: **Talib Davis**, biochemistry, University of California, San Diego; **Ernest G. Cruz**, chemistry, California Institute of Technology, Pasadena; **Nestor Franco**, chemistry, Texas A&M University, College Station; **Rey David**, biochemistry, University of California, Los Angeles (UCLA); **Jose Cabrera**, chemistry, University of California, Irvine; **Yvonne Herrera**, chemistry, San Diego State University, CA; **Jose Nunez**, chemistry, UCLA; and **Tanya Porras**, biochemistry; UCLA.

Four MBRS program participants at CSULA received degrees in June and will enter doctoral programs this fall. **Trina Gordon** received a master's degree in psychology and will enter the Ph.D. program in psychology at the University of Alabama, Tuscaloosa; **Robert Ramirez** received a master's degree in chemistry and will enter the Ph.D. program in chemistry at UCLA; **Shantanu Sharma** received a bachelor's degree in chemistry and will enter the Ph.D. program in chemistry at the California Institute of Technology; and **Charlly Kao** graduated with a bachelor's degree in biology and will enter the Ph.D. program in molecular biology and biophysics at the University of Minnesota.

Five MARC undergraduate students at UCLA have completed their undergraduate degrees. **Robert Carrillo** received a bachelor's degree in cybernetics and is now a research associate at the





biotechnology firm Xencor; **Karla Munoz** received a bachelor's degree in molecular, cell, and developmental biology and will enter an M.D. program at Harvard this fall; **Luis Ontiveros** received a bachelor's degree in biology and will enter the M.D. program at Vanderbilt University, Nashville, TN; **Sarah Villa Dolan** received a degree in biochemistry and will enter the Ph.D. program in biochemistry at UCLA; and **Jennifer Woo Mendoza** completed a degree in physiological science and has received an NIH Intramural Research Training Award to perform post-baccalaureate training at the National Cancer Institute.

Six MARC undergraduate students at Delaware State University have completed bachelor's degrees. All received scholarships to enter graduate school this fall. **Wauldron Afflick** completed a degree in biology and will attend Cornell University in New York; **Terrence Lewis** completed a degree in biology and will attend the University of North Carolina, Chapel Hill; **Cheryl Broderick** completed a degree in biology and will attend Indiana University; **Mispa Gwanmesia** completed a degree in biology and will attend The Johns Hopkins University in Baltimore, MD; **Mekia Winder** completed a degree in psychology and will attend Virginia Polytechnic Institute and State University in Blacksburg, VA; and **Stacey Simon** completed a degree in biology and will attend Virginia Polytechnic Institute and State University, in Blacksburg, VA.

- Many participants in NIGMS' minority programs made presentations about their research at recent scientific meetings.

Two MBRS program participants at the University of California, Irvine, shared top awards in the student poster competition at the American Association for the Advancement of Science annual meeting

this past February in San Francisco, CA. **Rosemary Valencia** was awarded first place in the life sciences category for research she conducted on risk factors in coronary heart disease; and **Bryan Sommese** shared the prize for his research on the neuroprotective role of TGF- α in the rodent nigrostriatal system. Fellow MBRS participants **Mabel Cortes** and **Daniel Gomez** received honorable mentions at the meeting for their research posters.

Three MBRS projects from El Paso Community College in Texas were presented at the 101st General Meeting of the American Society for Microbiology (ASM) this past May in Orlando, FL. The projects were presented by **Alisa Chavez**, **Gustin Elrod**, **Jose Hernandez**, **Jose Mendoza**, and **Jesus Nunez**. Elrod had previously received the undergraduate research award at the annual meeting of the Rio Grande branch of the ASM in Albuquerque, NM, in January.

Three MARC undergraduate students at Barry University made presentations at recent meetings. **Leisis Martino** and **Wendy Saintval** presented a poster on their research at the Joint Mathematics Meeting in New Orleans, LA, in January and **Ria Achong** made an oral presentation at the National Conference on Undergraduate Research in Lexington, KY, in March.

- In recent months, we have received word about the following current and former student participants in NIGMS minority programs • **Paul Lamont Bryant**, a former Bridges to the Future program participant at North Carolina Central University in Durham, received his Ph.D. in environmental sciences and engineering from the University of North Carolina at Chapel Hill. He has accepted a research position with Proctor and

Gamble in Cincinnati, OH • **Bernard de la Cruz**, a former MARC undergraduate student at the University of California, Santa Cruz, received his Ph.D. in biology from the University of California, San Diego, last fall and is doing postdoctoral work at the Keck Graduate Institute in Claremont, CA • **Michael Duncan**, a former MARC undergraduate student at Hampton University in Virginia, graduated in May with a bachelor's degree in chemistry. He is the recipient of a 5-year scholarship from the David and Lucille Packard Foundation and plans to pursue a Ph.D. in medicinal chemistry at the University of North Carolina, Chapel Hill.

- **Tammy Terrell Burroughs**, a former MBRS program participant at Fayetteville State University (FSU) in North Carolina, earned a master's degree in biology in May from the university. Burroughs participated in the Bridges to the Future program while pursuing her degree at FSU. She plans to enter a doctoral program in the fall of 2002 • **Marquea D. King**, a former MARC undergraduate student at Delaware State University in Dover, is pursuing her Ph.D. in toxicology at the Virginia-Maryland Regional College of Veterinary Medicine at Virginia Polytechnic Institute and State University in Blacksburg, VA. King is currently serving as president of the Graduate Student Assembly at the university and is a member of the Omicron Delta Kappa national honor society • **Liz Reynoso Paz**, a former MARC trainee at San Jose State University in California, received a Ph.D. in immunology from the University of California, Davis, in 2000 and is currently doing postdoctoral research in biochemistry at the University of California, Davis, School of Medicine • **Henry Rodriguez**, a former MBRS program participant

continued on page 13

**SELECTED PUBLICATIONS**

by MARC and MBRS Faculty and Students (listed by institution)

ARIZONA STATE UNIVERSITY

Markow TA, Coppola A, Watts TD. How *Drosophila* males make eggs: it is elemental. *Proc R Soc Lond B Biol Sci* 2001;268:1527–32.

BARRY UNIVERSITY

D'Aniello G, Tolino A, D'Aniello A, Errico F, Fisher GH, Di Fiore MM. The role of D-aspartic acid and N-methyl-D-aspartic acid in the regulation of prolactin release. *Endocrinology* 2000;141:3862–70.

Fisher GH, Arias I, Quesada I, D'Aniello S, Errico F, Di Fiore MM, D'Aniello A. A fast and sensitive method for measuring picomole levels of total free amino acids in very small amounts of biological tissues. *Amino Acids* 2001;20:163–73.

Silva A, Montague JR, Lopez TF, Mudd LM. Growth factor effects on survival and development of calbindin immunopositive cultured septal neurons. *Brain Res Bull* 2000;51:35–42.

CALIFORNIA STATE UNIVERSITY, DOMINGUEZ HILLS

Musio C, Santillo S, Taddei-Ferretti C, Robles LJ, Vismara R, Barsanti L, Gualtieri P. First identification and localization of a visual pigment in Hydra (*Cnidaria, Hydrozoa*). *J Comp Physiol A* 2001;187:79–81.

Robles LJ, Clark YM, Mendoza J, Ramirez T, Rivas F. Localization and expression of myosin III in light and dark-adapted octopus retinas. *Invest Ophthalmol Vis Sci* 2001;42:S365.

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

Ye Z, Rodriguez R, Tran A, Hoang H, de los Santos D, Brown S, Vellanoweth RL. The developmental transition to flowering represses ascorbate peroxidase activity and induces enzymatic lipid peroxidation in leaf tissue in *Arabidopsis thaliana*. *Plant Science* 2000;158:115–27.

PRAIRIE VIEW A&M UNIVERSITY

Muneer E, Bell J, Doctor VM. Mechanism of enhancement by fucoidan and CNBr-fibrinogen digest of the activation of glu-plasminogen by tissue plasminogen activator. *Eur J Drug Metab and Pharmacokinetics* 2000;25:137–43.

SAN FRANCISCO STATE UNIVERSITY

Lu H, Hu Y, Choy CJ, Mallari JP, Villanueva AF, Arrozal AF, Berkman CE. Synthesis of individual glutamate-containing phosphoramidothionate stereoisomers. *Tetrahedron Lett* 2001;42: 4313–16.

Mirel DB, Estacio WF, Mathieu M, Olmsted E, Ramirez J, Marquez-Magana LM. Environmental regulation of *Bacillus subtilis* sigma(D)- dependent gene expression. *J Bacteriol* 2000;182:3055–62.

West JT, Estacio W, Marquez-Magana L. Relative roles of the *fla*/*che* P(A), P(D-3), and P(sigD) promoters in regulating motility and sigD expression in *Bacillus subtilis*. *J Bacteriol* 2000;182:4841–8.

SUNY COLLEGE AT OLD WESTBURY

Garg PK, Labaree DC, Hoyte RM, Hochberg RB. [7 α -¹⁸F]Fluoro-17 α -methyl-5 α -dihydrotestosterone: a ligand for androgen receptor-mediated imaging of prostate cancer. *Nucl Med Biol* 2001;28:85–90.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Carrillo R, Thiemann OH, Alfonso JD, Simpson L. Uridine insertion/deletion RNA editing in *Leishmania tarentolae* mitochondria shows cell cycle dependence. *Mol Biochem Parasitol* 2001;113: 175–81.

Fратиello A, Kubo-Anderson V, Lee RA, Patrick M, Perrigan RD, Porras TR, Sharp AK, Wong K. A direct carbon-13 and nitrogen-15 NMR study of praseodymium(III)- and neodymium(III)-isothiocyanate complex formation in aqueous solvent mixtures. *J Sol Chem* 2001;30:77–97.

Ishimaru RS, Leung K, Hong L, LaPolt PS. Inhibitory effects of nitric oxide on estrogen production and cAMP levels in rat granulosa cell cultures. *J Endocrinol* 2001;168:249–55.

UNIVERSITY OF TEXAS AT SAN ANTONIO

Galvan CD, Hrachovy RA, Smith KL, Swann JW. Blockade of neuronal activity during hippocampal development produces a chronic focal epilepsy in the rat. *J Neurosci* 2000;20:2904–16.

Send in your references for inclusion in Selected Publications. We would appreciate your contribution to this section in order to represent as many MARC and MBRS programs as possible. Complete bibliographical citations can be phoned, faxed, mailed, or e-mailed to the Editor (see page 2).



UPCOMING

Meetings

OCTOBER 31–NOVEMBER 3, 2001

ANNUAL BIOMEDICAL RESEARCH CONFERENCE FOR MINORITY STUDENTS

Disney's Coronado Springs Resort
Orlando, FL
CONTACT: ASM Education Department
1752 N Street, NW
Washington, DC 20036-2804
Tel: 202-942-9228 Fax: 202-942-9329
abrcms@asmusa.org
www.abrcms.org

NOVEMBER

10–15, 2001

SOCIETY FOR NEUROSCIENCE

31ST ANNUAL MEETING

San Diego Convention Center
San Diego, CA
CONTACT: Society for Neuroscience
11 Dupont Circle, NW, Suite 500
Washington, DC 20036
Tel: 202-462-6688
info@sfn.org
www.sfn.org/am2001

16–18, 2001

AMERICAN INDIAN SCIENCE AND ENGINEERING SOCIETY

23RD ANNUAL NATIONAL CONFERENCE

Albuquerque Convention Center
Albuquerque, NM
CONTACT: AISES
2201 Buena Vista SE, Suite 301
Albuquerque, NM 87106
Tel: 505-765-1052 Fax: 505-765-5608
info@aises.org
www.aises.org/conference/
2001confgeneral.html

DECEMBER

8–12, 2001

AMERICAN SOCIETY FOR CELL BIOLOGY

41ST ANNUAL MEETING

Washington Convention Center
Washington, DC
CONTACT: ASCB
8120 Woodmont Avenue, Suite 750
Bethesda, MD 20814
Tel: 301-347-9300 Fax: 301-347-9310
ascbinfo@ascb.org
www.ascb.org

FEBRUARY

23–27, 2002

BIOPHYSICAL SOCIETY

46TH ANNUAL MEETING

Moscone Convention Center
San Francisco, CA
CONTACT: Biophysical Society Office
9650 Rockville Pike
Bethesda, MD 20814
Tel: 301-530-7114 Fax: 301-530-7133
society@biophysics.org
www.biophysics.org/annmtg/

MARCH

17–21, 2002

SOCIETY OF TOXICOLOGY

41ST ANNUAL MEETING

Opryland Hotel Convention Center
Nashville, TN
CONTACT: Society of Toxicology
1767 Business Center Drive, Suite 302
Reston, VA 20190
Tel: 703-438-3115 Fax 703-438-3113
sothq@toxicology.org
www.toxicology.org/memberservices/
meetings/am2002/index.html

APRIL

7–11, 2002

AMERICAN CHEMICAL SOCIETY

223RD ACS NATIONAL MEETING

Orlando, FL
CONTACT: ACS Meetings Department
1155 16th Street, NW
Washington, DC 20036
Tel: 202-872-6059 Fax: 202-872-6128
natlmtgs@acs.org
www.acs.org/portal/Chemistry?PID=
acsdisplay.html&DOC=meetings\
orlando2002/index.html

20-24, 2002

FEDERATION OF AMERICAN SOCIETIES

FOR EXPERIMENTAL BIOLOGY

EXPERIMENTAL BIOLOGY 2002

Morial Convention Center
New Orleans, LA
CONTACT: Jean Lash
Office of Scientific Meetings
and Conferences
9650 Rockville Pike
Bethesda, MD 20814
Tel: 301-530-7009 Fax: 301-530-7014
jlash@faseb.org
www.faseb.org/meetings/eb2002

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at Florida International University, has received the 2001 Sigma Xi Young Investigator Award in the life sciences. The annual award honors researchers within 10 years of their highest degree and carries a \$5,000 prize. Rodriguez is a molecular and cell biologist at the National Institute of Standards and Technology, an agency of the U.S. Department of Commerce • **Rashida Mawusi Shivers**, an MBRS program participant at FSU, has been awarded an Environmental Protection Agency Minority Academic Institution Graduate Fellowship to complete a master's degree in biology at the university. Shivers is the first FSU biology major to receive an individual graduate fellowship from a federal funding agency. She will receive 2 years of support under the award. •

We are always interested in hearing about NIGMS minority program faculty, alumni, and students. Photographs of your students, research labs, and activities are also welcomed and encouraged.

Please send information to:

Editor

NIGMS Minority Programs Update

Room 1AS.25

45 Center Drive MSC 6200

Bethesda, MD 20892-6200

Tel: 301-496-7301

Fax: 301-402-0224

atheys@nigms.nih.gov



RECENT

*Awards and Fellowships***PREDOCTORAL FELLOWSHIPS FOR MINORITY STUDENTS***(listed by fellow and graduate institution)***Joseph Austin**

Louisiana State University of the Health Sciences, Shreveport

Fredericka D. Brown

University of Nevada, Las Vegas

David C. Chang

The Johns Hopkins University, Baltimore, MD

Linda E. Hammond

University of North Carolina, Chapel Hill

Stacey R. Jeffries

University of Alabama, Tuscaloosa

Claudia G. Lucero

University of California, Irvine

Erica D. Riddle

Stanford University, CA

Ricardo H. Roda

University of Rochester, NY

Nathan C. Rowland

Emory University, Atlanta, GA

Catherine Sabatos

Brigham and Women's Hospital, Boston, MA

Rachelle Salomon

Brown University, Providence, RI

Mariam L. Sydnor

Yeshiva University, New York, NY

Maria E. Villalvazo

University of California, Los Angeles

Matthew A. Weed

Yale University, New Haven, CT

Bridget D. Williams

Tulane University of Louisiana, New Orleans

BRIDGES TO THE FUTURE AWARDS*(listed by institution and principal investigator)***Bridges to the Baccalaureate****Florida A&M University, Tallahassee**
Henry I. Lewis**Tidewater Community College, Norfolk, VA**

Valarie J. Evans

Bridges to the Doctorate**University of Minnesota, Twin Cities**
Susan J. Henly**MBRS RISE AWARDS***(listed by institution and principal investigator)***Barry University, Miami Shores, FL**

Flona A. Redway

California State University, Dominguez Hills

Laura J. Robles

Haskell Indian Junior College, Lawrence, KS

George L. Godfrey

Long Island University, Brooklyn Campus, NY

Edward J. Donahue

Savannah State College, GA

Chellu S. Chetty

University of Puerto Rico, Cayey University College

Wilfredo Otano-Rivera

University of Puerto Rico, Rio Piedras

Jose E. Garcia

University of the Virgin Islands

Teresa Turner

MBRS SCORE AWARDS*(listed by institution and principal investigator)***Savannah State College, GA**

Chellu S. Chetty

University of Puerto Rico, Cayey University College,

Wilfredo Otano-Rivera

MBRS IMSD AWARDS*(listed by institution and principal investigator)***Loma Linda University, CA**

Marino A. DeLeon

University of Arizona, Tucson

Maria T. Velez

University of Kansas, Lawrence

James A. Orr

MARC ANCILLARY TRAINING ACTIVITIES AWARD*(listed by institution and principal investigator)***Brown University, Providence, RI**

James H. Wyche

MARC U*STAR AWARDS*(listed by institution and principal investigator)***University of California, Riverside**

Jolinda A. Traugh

INSTITUTIONAL RESEARCH AND ACADEMIC CAREER DEVELOPMENT AWARDS*(listed by institution and principal investigator)***Keck Graduate Institute, Claremont, CA**

James D. Sterling

ACRONYMS USED IN THIS ISSUE

ACS	American Chemical Society
ASM	American Society for Microbiology
CSU	California State University
CSUDH	California State University, Dominguez Hills
CSULA	California State University, Los Angeles
CSUN	California State University, Northridge
CUNY	City University of New York
FIC	Fogarty International Center
FSU	Fayetteville State University
IHS	Indian Health Service
MARC	Minority Access to Research Careers
MBRS	Minority Biomedical Research Support
MORE	Minority Opportunities in Research
NARCH	Native American Research Centers for Health
NHGRI	National Human Genome Research Institute
NIGMS	National Institute of General Medical Sciences
NIH	National Institutes of Health
NMSU	New Mexico State University
SACNAS	Society for Advancement of Chicanos and Native Americans in Science
SOT	Society of Toxicology
SUNY	State University of New York
UCLA	University of California, Los Angeles
UMBC	University of Maryland, Baltimore County

WE'D LIKE TO HEAR FROM YOU!

The *NIGMS Minority Programs Update* strives to keep you informed about the news, initiatives, and minority programs at NIGMS and NIH. Please take a minute to let us know how we are doing.

I found the following most interesting or useful:

- News/Feature articles
- Profile
- Research Highlights
- News and Notes
- Publications
- Upcoming Meetings
- Recent Awards

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Office of Communications

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Room 1AS.25

45 Center Drive MSC 6200

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Thank you for your comments!

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- Please send me more information on NIGMS' minority programs

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Additional comments/suggestions:

Name/Title (optional):

Address/Affiliation (optional):