



NIGMS MINORITY PROGRAMS UPDATE

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Maria Elena Zavala (left), a professor of biology at California State University, Northridge, was among four MORE program directors who received the 2000 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. For more on the award recipients, see page 13.



POST-BACCALAUREATE

Research Education Program



The MORE Division has announced a new program designed to encourage underrepresented minorities who hold a recent baccalaureate degree in a biomedically relevant science to pursue a research doctorate. Post-Baccalaureate Research Education Program (PREP) grants allow participants to work as apprentice scientists in a preceptor's laboratory and participate in student development and education activities. It is anticipated that participation in this program will strengthen the research skills and competitiveness of participants for pursuit of a graduate degree, while also stimulating them to have an interest in addressing the health problems that disproportionately affect minorities and the medically underserved in the United States.

Grants are made to domestic, private and public universities or research institutions with graduate programs in the biomedical or behavioral sciences. An institution may submit only one application for this program. PREP scholars must have graduated with a baccalaureate degree in a biomedically related science no more than 36 months prior to their selection for participation in the program. Individuals selected as PREP scholars must intend to apply, within 2 years, for graduate education that will eventually lead to the research doctorate. In addition, PREP scholars must be U.S. citizens or permanent residents. The period of appointment is up to 2 years.

Beginning PREP scholars will be paid a salary of \$21,000 per year. Costs for the overall administration of the program, including coordination and program evaluation, are allowable. Such costs include salary support for the program director for the portion of time devoted to administering the program, and salary support for secretarial or clerical help when directly related to the program. The annual application receipt date for PREP grants is December 13. ●

The complete announcement for the PREP grant, issued September 22, 2000, can be found on the Web at: <http://grants.nih.gov/grants/guide/pa-files/PAR-00-139.html>

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Bridges Meeting Stresses the Need for Evaluation

BY DANIELLE WITTENBERG, NIGMS

More than 190 Bridges to the Future program directors, coordinators, and business officials from across the country gathered in Chantilly, VA, this past June for the annual Bridges to the Future Program Directors Meeting hosted by the MORE Division.

The meeting participants met to learn new strategies for administering their programs, to share their successes and challenges, and to help new programs get established. This year's meeting focused on evaluation and included presentations on such topics as setting evaluation priorities, bringing partners together to set goals and measur-

able objectives, and designing evaluation components that will guide program development. Program directors shared information on collecting data, tracking student progress, and using technology in evaluation.

Dr. Irene Eckstrand, director of the Bridges to the Future Program at NIGMS, said, "The meeting was energetic and upbeat, even though we all recognized the challenges

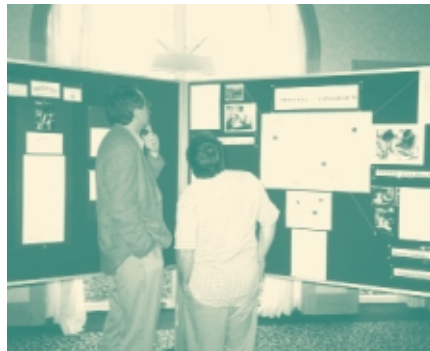
ahead. The people who work with Bridges are highly committed to improving education for minority students and are also highly motivated to learn from each other.

"As always," she added, "people probably learned as much from the informal conversations as they did from the formal presentations."

The meeting included a poster session, which allowed each Bridges institution to feature its program and highlight lessons learned. Several workshops also took place, enabling meeting participants to talk one-on-one with NIGMS staff. In addition, participants heard from Dr. Gordon Uno, a highly respected science educator from the National Science Foundation (NSF), about teaching science to undergraduate students. ●



Meeting participants were given the opportunity to meet with colleagues to share experiences and ideas.



Bridges to the Future institutions presented posters featuring interesting aspects of their programs.

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**NEED FOR EVALUATION
CENTRAL TO EACH BRIDGES TO THE FUTURE
APPLICATION IS:**

- A clear statement of program and institutional goals.
- A set of measurable objectives that tracks progress toward these goals.
- A plan for evaluating whether or not these objectives have been met.
- A measure of the efficacy of specific interventions.



Faculty From MORE Institutions Attend Genome Short Course

BY APRIL THOMPSON, NHGRI AND SUSAN ATHEY, NIGMS

The National Human Genome Research Institute's (NHGRI) annual "Current Topics in Genetic Research Short Course," held this past August at NIH's Bethesda campus, drew more than 27 university and college teachers from across the country, including 15 faculty members from minority-serving institutions supported by the MORE Division.

The course, organized by NHGRI's Office of Science Education, is designed to provide information on recent developments in genetics to biology teachers from Historically Black Colleges and Universities, predominantly Hispanic American institutions, and Native American tribal colleges.

Dr. Francis Collins, NHGRI director, and more than a dozen highly respected scientists and genetics professionals from or supported by NHGRI led hour-long workshops for the participants. Topics included bioinformatics, the Human Genome Project, genome mapping and sequencing, microarray technology, mouse models, single nucleotide polymorphism analysis, stem cell research, ethics, genetic counseling, mentorships, effective grantsmanship, and diseases such as hereditary prostate cancer and sickle cell anemia.

The course is sponsored annually to "attract science teachers to NHGRI each summer and show them the latest technologies, let them learn about the latest research, and update them on the Human Genome Project," said Office of Science Education director Jeff Witherly.

"By the time the course is done, participants are ready to go back to their schools in the fall and incorporate what they have learned into their curricula. Our job is to excite them, so they can in turn excite their students to pursue a summer internship or career in genetics or biology," Witherly added.

Dr. Clifton Poodry, director of the NIGMS MORE Division, sat in on the course and saw its value as a model for faculty development.

"I was struck by the outstanding quality of each presentation," Poodry said, adding that the "excitement and enthusiasm of the researchers

was contagious." He said he was particularly pleased to see faculty from MORE-supported institutions attending the course.

Dr. Edward Garrison, a biology instructor in the Division of Math, Sciences, and Technology at Diné College in Shiprock, NM, found the course invaluable.

"Being on the faculty at a 2-year tribal college located in a remote, rural area, we seldom have access to such high-powered programs as this one," Garrison said.

"We had several days filled with exceptionally informed and intelligent speakers who had huge amounts of relevant information to present to us on the newest findings associated with the Human Genome Project.

"Given the health and public health interests that I and most of my students have, I found presentations such as those on prostate cancer and cancer genetics, rare diseases, and sickle cell disease especially useful," he said, adding that the "presentations on genetic counseling and ethics were also of considerable value to this audience of faculty from minority institutions." ●



The course is sponsored annually to "attract science teachers to NHGRI each summer and show them the latest technologies, let them learn about the latest research, and update them on the Human Genome Project."

For more information on the next short course sponsored by NHGRI, contact:

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NIH Welcomes Community Voices on Genetic Research

BY ALISON DAVIS, PH.D., NIGMS

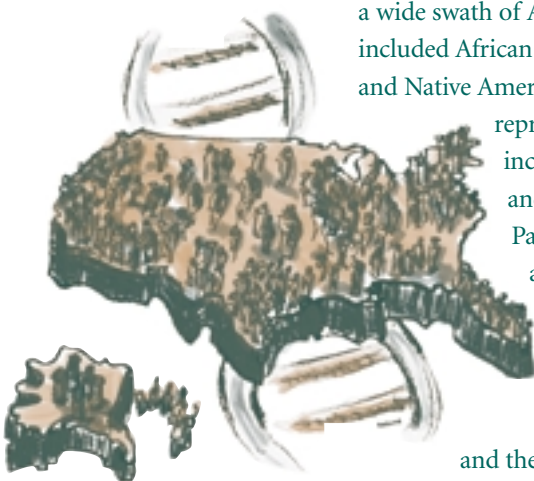
“Let’s talk,” said NIH to 57 representatives from communities across America.

This past September, NIH engaged in a large, sit-down consultation with ethnically diverse communities on the topic of protecting populations during the course of genetic research. The gathering, titled “First Community Consultation on the Responsible Collection and Use of Samples for Genetic Research,” took place at a hotel near the NIH campus in Bethesda, MD.

Communities welcomed NIH’s invitation warmly.

“I want to thank you for welcoming us into your house!” said John Castillo, a consultant from Okemos, MI, who attended along with Jose Gamez of Lansing, MI, to convey Latino views about community involvement in genetic research. Gamez is a community dialogue facilitator on issues of concern arising from the Human Genome Project.

In addition to Latinos—and cutting across a wide swath of America—group participants included African Americans, Asian Americans, and Native Americans. Also participating were representatives from several fields, including anthropology, clergy, law, and the natural and social sciences. Patient advocates for various diseases attended the consultation, as well.



Collectively, the group represented 26 states, the District of Columbia, 5 American Indian tribes, Puerto Rico, Finland, India, and the United Kingdom.

Nearly all in attendance agreed that the word “community” is a tough concept to draw a boundary around, yet a resounding message from those who attended the meeting was “we want to be included at every stage in the research process.”

Beyond Individual Protections

Over the past couple of years, NIH has sharpened its focus on involving the public in its planning processes and in actively soliciting public opinions about how tax dollars are used to better the health of all Americans.

“This is an issue of extraordinary importance to all of us,” said Dr. Ruth Kirschstein, NIH’s acting director, enlisting the group to help guide NIH in this “new and unknown territory... We need your ideas on how to communicate with, and provide safeguards for, the public.”

Dr. Judith Greenberg, director of the NIGMS Division of Genetics and Developmental Biology, organized the community consultation after wrestling for the last few years with issues surrounding the use of population-based samples in genetic research. As project officer for the NIGMS Human Genetic Cell Repository, a bank of cell lines and DNA used by scientists all over the world, Greenberg recognized the urgent need for developing new policies to protect not only individual research subjects (who are explicitly protected under Federal law), but also populations and communities who participate in genetic research studies.

“Scientists are very interested in identifying genes that play a role in many common disorders—heart disease, diabetes, asthma, cancer—and one way is through studying people who are more closely related to each other, such as people who have similar ethnic or racial or geographic backgrounds,” she said.

But Greenberg is well-versed in the potential discrimination and/or stigmatization that could result from such studies if they aren’t conducted properly. “It seemed to me that it was time to listen to what the stakeholders—individuals from diverse communities—think about this kind of research,” she said.

While timely cures and early prevention are the noble goals of research aiming to unearth the genetic roots and determinants of disease, an unintended consequence can be fear, misperception, and occasionally stigmatization, said Karen Rothenberg, dean of the University of Maryland School of Law. Rothenberg spoke in particular about the Ashkenazi Jewish population, which has been intensively studied and has provided researchers with valuable insights about a wealth



of diseases such as Tay-Sachs disease and breast cancer. But the community's involvement has come with a price, she said.

"Fear of genetic discrimination has become a civil rights issue," she said, adding that one public misperception is that "Jews have genetic problems."

Too Little Information or Too Much?

One theme that reverberated throughout the 2-day meeting was education. Most participants wholeheartedly agreed that there simply isn't enough of it to go around. In particular, many saw the need for an improvement in the training of scientists—including graduate students—in matters related to cultural sensitivity and ethics, especially as they apply uniquely to particular communities.

In this regard, among the recommendations put forth by the group was the idea of requiring scientists to explicitly state in their research applications what their plans are to involve the communities they plan to study, as well as how they intend to communicate with the communities before, during, and after the research project has been completed.

So-called "helicopter research," in which scientists fly in, retrieve their samples, and go home, is simply not acceptable, said Charles Rotimi, a researcher at the National Genome Center at Howard University who conducts field research in small African villages. Rotimi's point of view was repeated several times throughout the meeting sessions, and in at least one instance, it was tied to concerns of spirituality.

"Nobody wants samples to be collected by an arrogant group of doctors in a M*A*S*H* unit," said Rev. William Nebo of the First Presbyterian Church in Livermore, CA. He suggested that scientists keep in mind that biological researchers' "unraveling secrets" frequently collide with deep-rooted religious convictions.

Many attendees urged that another pressing need is educating the public. "The problem isn't a lack of information, but an overload of information," said Rabbi Gerald Wolpe of the Louis Finkelstein Institute of the Jewish

Theological Seminary in Philadelphia, PA. "Part of dealing with discrimination is providing people with [understandable] information."

Trust and Respect

"Why should we trust you?" That's the question communities often ask scientists who visit to conduct genetic studies and collect samples, recounted Maricela Aguilar, a registered nurse and genetics special programs director at the University of Texas Health Science Center at San Antonio.

According to Aguilar, in addition to communicating effectively, researchers must also use common sense and act respectfully. Only then, she predicted, will communities trust scientists.

For some communities, such as parents of children with incurable genetic diseases, the options seem clearer. "We have to trust you," said Suzanne Kindregan of the A-T Children's Project, a nonprofit organization dedicated to accelerating research toward finding a cure for the disease ataxia telangiectasia.

Native American communities—officially sovereign nations with self-governing power—offer yet another view. According to Governor Malcom Bowekaty, tribal leader for the Pueblo of Zuni, community decisions to participate in genetic research are extremely difficult to make. "If we don't make a decision [about participating in genetic studies] now, our people will be in a lot of misery and pain," he said. "But we need [access to] good research data to make these important decisions."

Moreover, Bowekaty said, researchers should respectfully abide by the rules put forth by the community to be studied, adding that issues pertaining to data storage and ownership must be clearly delineated and respected without exception. ●

The consultation was sponsored by NIGMS and several other NIH components, NSF, and the Department of Energy.

To Do List

Like any good conversation, the community consultation generated more to talk about—and hopes for future community consultations, perhaps with even more time for discussion.

"We didn't get all the answers, but...this is just the beginning of the process," Greenberg said.

According to Greenberg, approaches NIH may consider are the following:

- Ask researchers to outline in their grant applications specific plans to involve communities in the protocols.
- Permit scientists to build in funds for community involvement in, and ongoing communication about, research projects.
- Encourage training of researchers on issues related to cultural sensitivities and interaction and involvement with communities.
- Compile and publicize a "best practices" list of successful researcher/community partnerships.



MORE Support Retains Minority Biomedical Science Students

BY GLENN D. KUEHN, PH.D., NEW MEXICO STATE UNIVERSITY, LAS CRUCES

This past June, NIGMS funded a new Minority Biomedical Research Support (MBRS) Research Initiative for Scientific Enhancement Program at New Mexico State University (NMSU) at Las Cruces.

A subproject of this program, “Supplemental Instruction in Organic Chemistry,” was developed by Dr. Antonio Lara in response to the extraordinarily high failure rate of minority students in the introductory organic chemistry course at NMSU. As many as 66 percent of minority students failed the course each semester (receiving grades of D, F, or withdrawal), forcing these students to repeat the course in order to continue in majors aligned with the biomedical sciences, such as chemistry, biochemistry, microbiology, biology, animal science, and the plant sciences. Other students avoided this course altogether, relinquishing their opportunity to pursue the biomedical science careers they sought when they first came to the university.

The goal of Lara’s subproject is to reduce these failures by instituting a program of supplemental instruction in organic chemistry at the sophomore level. The specific objective is to reduce these failures in the second, third, and fourth years of the program to 30 percent, 25 percent, and 20 percent, respectively.

Lara’s program is supported by preliminary evidence that supplemental instruction would be successful. During the fall semester of 1998, he conducted a pilot supplemental instruction project in two sections of organic chemistry at NMSU. This study involved 87 minority students. The failure rate for this group dropped to 19 percent, compared to 59 percent for a control group that received no supplemental instruction.

MORE Programs Are Examples

This past March, the Centers for Disease Control and Prevention (CDC) in Atlanta, GA, sent four representatives to NMSU to discuss possible collaborations that would move minority science graduates from the university into career research positions at the CDC in Atlanta and its regional laboratories. The CDC has few Hispanic or Native American scientists among its professional staff. During the site visit, CDC representatives learned of our successes with the MBRS, Minority Access

to Research Careers (MARC), and Bridges to the Future programs. We informed them of our need for more resources to expand supplemental instruction into freshman chemistry and biology course offerings in order to retain more minority students in the science careers pipeline, and shared with them Lara’s data on the pilot experiment involving supplemental instruction in organic chemistry. Following this visit, the CDC developed a request for applications seeking proposals for a collaborative program of minority student development that included summer internships at the CDC for Hispanic and Native American students. NMSU submitted an application in response to this announcement, proposing to use the majority of the funding for a supplemental instruction program in freshman chemistry and introductory biology. This proposal was accepted, and the program was initiated this past September. NMSU will recruit and train six minority students a year who will spend their summers at the CDC conducting research and learning how to become CDC career scientists.

This is clearly an example of how support by the MORE Division has helped an institution develop successful programs for minority students seeking to enter careers in the biomedical sciences. MORE support has now been leveraged to develop a complete system of supplemental instruction for freshman and sophomore chemistry students at NMSU.

This is also a clear example of how the combined support from two biomedical funding agencies—NIGMS and the CDC—is helping to fill the science careers pipeline with minority students. The CDC’s funding is helping minority students to succeed at the introductory levels of university chemistry and biology courses, and NIGMS’ funding is helping minority students to progress further through organic chemistry at the sophomore level. ●



From the MORE Director

A Practical Product of Evaluation

BY CLIFTON POODRY, PH.D.

Over the past several years, evaluation has become a central feature of MORE programs. In the following article, Dr. Rick McGee, associate dean for student affairs at Mayo Graduate School, writes about his experiences with using in-depth interviews as a method for evaluating Mayo's MBRS program. His research has identified a number of factors that affect the quality of a summer research experience, and from these, he has assembled a list of recommendations for potential mentors in his program. I believe that his insights are germane to most of our student development activities and to NIH training activities in general.

Evaluation Outcomes for Mayo SURF Mentors

BY RICK MCGEE, PH.D., MAYO GRADUATE SCHOOL

The Summer Undergraduate Research Fellowship (SURF) program, sponsored by Mayo Graduate School at the Mayo Clinic, has been running for over 10 years and is an important element of Mayo's Initiative for Minority Student Development grant. The program has gradually expanded from 20 to 25 students per year at its inception to the current level of 80 to 100 students. A diverse group of students is accepted into the program each year, from all perspectives of "diversity."

One important area of evaluation we have been probing is what makes a "successful" SURF experience, with special attention to mentoring. Establishing a positive mentoring relationship in a short (8- to 10-week) summer undergraduate research experience can be tricky, especially when the mentors and students don't know each other before the start of the summer. The process is very different than working with a student over the course of an academic year.

At the end of each summer, students are given an extensive survey to obtain feedback on their experiences during the summer. Over the past several years, we have implemented an in-depth, interview-based research project to probe more deeply into how the summer experience does or does not impact their career decisions. Overall, comments on the SURF evaluation reflect a high degree of satisfaction and a strong sense of "thanks for a great experience—it has had a big impact on me and my plans for the future." Nothing is perfect, however, so student feedback has been critical in the continual improvement and success of the program. From all of this data, some common themes have emerged that are especially critical to the "success" of the students' experiences. The list below highlights these themes in an effort to help provide the best possible experience for our SURF students. It was distributed to all SURF mentors this past spring, and we received positive faculty feedback on its value to them.

Common Themes of the Most Successful SURF Experiences

1. Provide journal articles or references regarding the lab's historical and current research activities. Students are eager to know as much as possible about what they will be doing. They arrive anxious to get started and become quite frustrated if they have to spend the first days or even a week reading to come up to speed. Mentors are often hesitant to "burden" students before they arrive, but in actuality, the students are hungry for information.

2. Be prepared for students when they arrive. Again, the students are eager to get going. They know they only have 10 weeks, plus the adrenaline rush that comes with starting anything new provides a great energy burst!

3. If possible, provide students with an actual project, or piece of a project, to work on. A student's ability to handle a project may vary with prior research experience, and students know they will need time to learn lab skills. But the impact of working on a real, live research question is powerful. Not having a project or piece of a project was one of the most commonly mentioned negative experiences.

4. Students like to be challenged. Another common disappointment mentioned by students was not being sufficiently challenged—few state that the summer was too challenging. The selection filter to get into the SURF program is very stringent, and those who make it through are usually those with high energy

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Profile

DR. DEBORAH PHILP

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.

Transplanted New Yorker Finds Excitement at NIH

BY MICHAEL VATALARO

“I never thought I would leave New York,” said Dr. Deborah Philp. “I didn’t think I would make it—I didn’t think I could find the excitement, flavor, or convenience [elsewhere],” she said.

Some outsiders might not think of New York City as convenient, but Philp misses having everything she needs within walking distance. In talking with Philp, you get the impression that she has worked very hard to get where she is and has enjoyed the journey. Born in Harlem

“I wanted to be another positive product of Harlem.”

to parents of Jamaican descent and raised in the Bronx, she earned her doctorate at City University of New York, City College with support from the MORE Division.

Philp says she chose City College because it was in Harlem. “I wanted to be another positive product of Harlem,” she added.

She chose to major in biology at City College after a high school Advanced Placement biology course sparked her interest. During her senior year at City College, she began working as a

technician in a newly formed immunology lab run by Dr. Jerry Guyden.

It was Guyden who encouraged Philp to pursue a master’s degree and who became her advisor and mentor. After she received her master’s degree, he convinced her to get her Ph.D. at City College.

During graduate school, Philp got the opportunity to teach. “Initially, I did not think of myself as a role model,” she said. But after her third semester as a teaching assistant, her lab sections were routinely oversubscribed. Philp attributes this phenomenon to her habit of giving advice to students who asked for it. “I realized I was a role model to many of my undergraduates.”

Part of her growth as a role model came from her participation in a local outreach program while at City College. She and other graduate students mentored seventh graders 2 days a week in the lab, exposing them to science and laboratory techniques with the hope of keeping them interested in science through high school.

Philp has not lost the urge to teach. Her ultimate goal is to become an academic research instructor. “My parents always taught us knowledge was power and teaching is empowering others,” she said.

Currently, Philp holds a postdoctoral position in Dr. Hynda Kleinman’s lab at the National Institute of Dental and Craniofacial Research, where she is working to identify the receptor for thymosin beta-4, a protein with anti-inflammatory and wound healing properties. Kleinman



selected Philp for the position because her background and experience related to Kleinman's current project. So far, the match has worked well. "She is not afraid to do new things, and everything she is doing is new," said Kleinman.

Much of Philp's work focuses on the functions of thymosin beta-4, which was discovered by Dr. Allan Goldstein at George Washington University. The protein has been shown to increase collagen deposition and promote skin and blood vessel formation in a variety of species. Kleinman's group is overseeing the use of thymosin beta-4 as an active ingredient in an ointment used to promote

wound healing that should enter Phase I clinical trials by late 2001.

Philp is also looking for the genes that regulate the production of thymosin beta-4.

"I have my hands in more than one cookie jar," she said. "These are things I have never been exposed to before, and I am really excited about it." ●

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.





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and aspirations. These students have elected to devote their entire summer to research. It is important that the principal investigator and student talk at the beginning of the summer to establish mutual expectations. Don't be afraid to challenge your students with respect to the reading and background material you give them, as well as what you hope they can accomplish in the lab.

5. Provide mentors and role models. All of our survey and interview data are confirming the incredible importance of mentors and role models in the progression and persistence of students toward research careers. SURF students want to see how successful scientists think and work. They also want critique and feedback. The best students know that graduate students, postdocs, and laboratory technicians have valuable but limited perspectives on research careers. It is important that a person in the lab be identified as the student's day-to-day contact or mentor. This person should have a clear idea of what the principal investigator has planned for the student. Some departments and programs will also assign a graduate student mentor to each SURF student if there is not one in the lab already. Additionally, it is important that the principal investigator spend at least a small amount of time every week with a SURF student. It is recommended this be at least a 30-minute meeting. The meeting should happen even if the primary day-to-day guidance is provided by someone as senior as a postdoc. SURF students are perfectly fine with daily guidance by others, but they need and want the chance to interact with the principal investigator.

6. Include students in the regular activities of the department or program with which you have your primary research identity. Students find it valuable to get to meet and know a wide variety of faculty, students, and postdocs. The most enthusiastic evaluation responses come from students involved with cohesive programs. Some departments host weekly lunchtime seminars specifically for SURF students where faculty talk informally about their research. Students find these valuable and helpful.

7. Encourage students to go to the extra seminars and activities put on for them during the summer. Goals of the SURF program include broadening students' perspectives of what is going on in biomedical research and providing career guidance on the steps toward success. Students recognize the time it takes to get good results in the lab, so they often feel conflicted by these competing demands. Keep the number of seminars and workshops to a minimum and encourage students to attend!

8. Help students see the broader picture of what goes on at the university as well as the real-life facets of the careers they are considering. Ten weeks go by fast—be as helpful as you can to facilitate students' seeing other aspects of "life" at the university beyond the workings of your lab. Students comment positively about any efforts faculty make to give them a glimpse of research and clinical activities. They are looking for both an idea of what life is like in various careers and for people to talk to who have chosen different paths.

9. Be sure to include students in any social activities hosted by your lab or department. Without question, the biggest "negative" students comment on is the difficulty of finding and organizing recreational activities during the summer. Many do not have cars, so they are somewhat limited in getting around.

10. Students appreciate a sense of "closure" at the end of the summer and having something concrete displaying their summer accomplishments to take back to school. Students uniformly like the end-of-summer poster and oral presentations. They comment on how this helps bring their thinking and data together, develops communication and presentation skills, and makes it possible for them to show their friends and faculty at school what they accomplished during the summer. Be sure to encourage your students to participate in these events and help them with preparation of the oral or poster presentations. ●



List of “Must-Read” Articles Available

BY CLIFTON POODRY, PH.D.

One of the goals of the MORE Division is to raise the scholarship that guides the programs and interventions supported by the Division. A large and growing amount of literature exists, but it is often untapped in the planning of MORE proposals, particularly in the area of student or faculty development. Proposals with literature cited often lack critical judgment, balance, or thoroughness.

MORE Division staff are aware of the literature in their respective areas of science, but find it challenging to keep abreast of current thinking and research in education and in the development of human potential. Occasionally, a reference catches the eye, but realistically—to get more than occasional snapshots of this literature—help is needed.

Dr. Kenneth Maton, a psychology professor at the University of Maryland, Baltimore County,

recently provided the MORE Division with a bibliography of nearly 1,000 references on research into factors important in the development of an ethnically diverse biomedical research workforce. To help MORE staff begin familiarizing themselves with the references, Maton highlighted 20 that he felt were a “must read.” The list, along with brief annotations, can be found on the MORE Web site at www.nigms.nih.gov/about_nigms/more.html.

I look forward to receiving your comments and additional contributions. ●

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MORE Brochure Available

NIGMS is pleased to announce the publication of a new brochure for the MORE Division. *Scientists for the 21st Century: Biomedical Research and Training Opportunities for Minorities* provides information on all NIGMS research and research training programs aimed at increasing the number of minority biomedical scientists and includes descriptions of the MARC, MBRS, and Bridges programs. If you'd like to receive a copy, please e-mail atheys@nigms.nih.gov or call 301-496-7301. For information on all publications available from NIGMS, including the new science education booklet *The Chemistry of Health*, see the NIGMS publication list at www.nigms.nih.gov/news/publist.html. ●

For the most up-to-date information about the MORE Division and its programs, visit the MORE Web page at www.nigms.nih.gov/about_nigms/more.html.





RESEARCH HIGHLIGHT

Horse Study May Lead to Better Understanding of Muscle Function During Running

BY MICHAEL VATALARO

Just as your car has different gears that allow the engine to run efficiently at different speeds, horses have different gaits that serve a similar purpose. As a horse increases speed, it goes from a walk, to a trot, to a canter, and finally to a gallop, with each distinctive gait covering a range of speeds. But unlike your car, if given a choice, a horse will naturally settle at a particular pace in each gait. Scientists refer to this phenomenon as preferred speed and have observed it in a large variety of terrestrial animals. Scientists have yet to develop an adequate explanation for this behavior.

Dr. Donald Hoyt, a professor in the Biology Department and MBRS program director at California State Polytechnic University, Pomona, and his colleague, Dr. Steven Wickler, conducted a study of preferred speed in Arabian horses. Wickler is a professor in the Department of Animal and Veterinary Sciences and is Director of the Equine Research Center. Previous studies hinted that a horse's preferred speed in each gait is also the most energy-efficient—the metabolic equivalent of the highest possible miles per gallon fuel economy.

It seems to be common sense that a horse would travel at the ideal cruising speed in each gait. Nature would work

to assure that distance runners such as horses get the most miles out of every meal. But how do the horses know what speed that is? Hoyt and Wickler set out to answer this question.

The study is part of a larger ongoing effort to understand muscle function during steady-paced running. A better understanding of the roles of various muscles in an animal as it runs could eventually help bioengineers develop more advanced prosthetic limbs for humans.

Trainers conditioned six horses on an equine treadmill for 6 months, which allowed the animals to reach peak fitness and stabilized their preferred speeds. Hoyt and Wickler measured each horse's preferred speed on both level and slightly inclined surfaces. The researchers then measured oxygen consumption as an indicator of metabolic rate while the horse trotted on an equine treadmill under both conditions. Trotting up a 10 percent incline requires a relatively large increase in oxygen consumption. If a horse's preferred speed is determined by its metabolic fuel economy, then it should slow down to compensate for the increased metabolic effort of trotting uphill. If preferred speed is influenced by other factors, such as the stresses on the

muscles and joints—factors that do not change significantly while trotting on a slight incline—then the horse's preferred speed should remain steady.

In fact, the horses' speeds did change in response to the incline, decreasing significantly and settling near the most economical pace, as determined by oxygen consumption. This suggests that preferred speed is strongly linked with metabolic economy. But Hoyt and Wickler do not believe that horses can sense their metabolic economy directly. They speculate that instead, the horses feel changes in their muscles, much the way trained distance runners know when they are tired or off their normal pace.

The study appeared in the *Journal of Experimental Biology* in June 2000. ●

Reference: Wickler SJ, Hoyt DF, Cogger EA, Hirschbein MH. Preferred speed and cost of transport: the effect of incline. J Exp Biol 2000;203:2195–200.

Research Highlights features the research being done by current and former students and faculty in the MARC, MBRS, and other NIGMS minority programs. We welcome your story ideas and suggestions for future Research Highlights items.





NEWS and Notes

- Four NIGMS minority program directors were among the recipients of the 2000 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. The awards recognize influential institutions and individuals who have been leaders in encouraging minorities, women, and disabled persons to pursue careers in the scientific, engineering, and technical labor force. The recipients included **Dr. Glenn Kuehn**, a professor of biochemistry at New Mexico State University, Las Cruces; **Dr. Michael Summers**, a professor of chemistry at the University of Maryland, Baltimore County; **Dr. Luis Villarreal**, a professor of molecular biology and biochemistry at the University of California, Irvine; and **Dr. Maria Elena Zavala**, a professor of biology at California State University, Northridge.

Kuehn directs a Bridges to the Future program and an MBRS program; Summers directs an MBRS program; Villarreal directs a Bridges to the Future program and an MBRS program; and Zavala directs a Bridges to the Future program, as well as MARC and MBRS programs.

The awards were established by the White House Office of Science and Technology Policy in 1996 and are administered through the NSF. Each year up to 10 individuals and 10 institutions are honored with a \$10,000 grant and a commemorative Presidential certificate in recognition of their mentoring activities.

- Dr. Juliette B. Bell**, a biochemistry professor and director of the MBRS program at Fayetteville State University in North Carolina, was among the recipients of the Millennium Award for Excellence in Teaching in Mathematics, Science, Engineering, and Technology. The award is sponsored by the White House Initiative on Historically Black Colleges and Universities, which was created by President Clinton to strengthen these schools and increase their ability to participate in federally sponsored programs.

Bell was recognized as an outstanding teacher who has “worked tirelessly to enhance student performance in her courses as well as mentoring and advising those requesting assistance.” She was among four individuals receiving the award for teaching. All were honored at a ceremony in Washington, DC, in September.

- The Board of Education and Training of the **American Society for Microbiology (ASM)** was named a recipient of the 2000 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring. ASM was recently awarded a grant from NIGMS to manage the Annual Biomedical Research Conference for Minority Students. This conference, which was formerly known as the NIGMS-supported National Minority Research Symposium, is often the first opportunity that minority students have to present their research to a national audience. The 2001 meeting is scheduled for October 31–November 3 in Orlando, FL.

- Dr. Maria Elena Zavala** became president of the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) in January. This appointment marks the first time in SACNAS’ history that a woman has held the office of president. Zavala, a professor of biology at California State University, Northridge, has been director of MORE’s programs at the university for the past 12 years.

- Dr. Victoria N. Luine**, an MBRS program director at Hunter College in New York, has been designated a distinguished professor at the university. Luine, a professor of psychology, joined Hunter College in 1987 after serving as an associate professor at The Rockefeller University. In 1990, she became a member of Hunter’s Center for Gene Structure and Function and was also promoted to professor.

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- **Joel Rodriguez**, a former MARC undergraduate student at Barry University in Miami, FL, was recently awarded an NSF fellowship to cover his tuition for 3 years. He is currently pursuing a Ph.D. in psychology at the University of Michigan. His presentation, “Bridging Perspectives, Study of Culture, Cognition,” won first place at the American Psychological Society annual conference in Miami Beach, FL, this past June. As a result, he was asked to chair the society’s Research on Socially and Economically Underrepresented Populations Committee.
- Two MARC undergraduate students at Pontifical Catholic University of Puerto Rico have received recent honors. **Carol Rivera**, a junior chemistry major, was named for inclusion in the 2001 edition of *Who’s Who Among Students in American Universities and Colleges*. She was selected for her outstanding academic record, community service, leadership ability, and potential for continued success. **Edelyn Octaviani**, a senior biology major, was named the recipient of a 2000 ASM Minority Undergraduate Research Fellowship. Octaviani will receive a \$2,500 stipend to travel to the ASM General Meeting to present her research.
- Three MARC undergraduate students at the University of Arizona in Tucson participated in extramural summer research programs. **Tori Matthews**, a senior molecular and cellular biology major, worked in the laboratory of Dr. Brian Key at the University of Queensland in Australia; **Francisco Villa**, a senior biochemistry and molecular and cellular biology major, traveled to Japan to work in the lab of Dr. Hiroshi Nakato at Tokyo Metropolitan University; and **Felipe Perez**, a senior general biology and molecular and cellular biology major, participated in the Space Life Sciences Training Program at the Kennedy Space Center in Florida.
- **Amanda Austin**, an eleventh grader at San Diego High School and the recipient of an NIH minority research supplement, spent this past summer performing research in the lab of Dr. Renate Pilz at the University of California, San Diego School of Medicine. The 2-month appointment was the first ever awarded at the university to a minority high school student.
- Among the student participants in NIGMS’ minority programs who received degrees recently are:
 - **Shuntele Burns**, a MARC predoctoral fellow at the University of Florida, has received a Ph.D. in entomology from the university. She is currently performing postdoctoral research at the United States Department of Agriculture’s Center for Medical, Agricultural, and Veterinary Entomology in Gainesville, FL.
 - **Marcus Ware**, a former MARC undergraduate student at Tougaloo College in Mississippi, has received an M.D.-Ph.D. from Harvard University in Cambridge, MA. He is currently doing his residency in neurosurgery at the University of California, San Francisco. Ware has a brother and sister who are following in his footsteps at Tougaloo—sister LaTonya is a senior MARC trainee and was the recipient of a scholarship from the English Speaking Union of the United States to spend 1 year studying at the University of Manchester in England, and brother Terrance is a junior MARC trainee studying biology.
- Many participants in NIGMS’ minority programs made presentations about their research at recent scientific meetings.
 - Fourteen MARC undergraduate students at Delaware State University in Dover presented posters at the 2000 National Minority Research Symposium, held this past November in Washington, DC. They were: **Wauldron Afflick, Mispa Gwanmesia, Terrence Lewis, Tricia McCampbell, Mekia Winder, Melissa Tamburo, Aaron Williams, Darius Sanders, Shari Lee, Yvette Green, Stacey Simon, Patrice Green, Cheryl Broderick, and Jenel Nixon.**
 - Eleven MARC undergraduate students at Xavier University of Louisiana also presented posters at the meeting. They were: **Derrick Burgess, Funmilayo Carter, Kimberly Davis, Lena Gamble, Macalus Hogan, John Hollier,**



Crystal Lane, Quyn Sherrod, Ramona Ussin, Alicia Williams, and Daisy Woods.

Fabricio Rojas and **Keri Silva**, MBRS program participants at California State University, Northridge, made a presentation on their research at the Oxygen 2000 Conference in San Diego this past November.

Felipe Perez, a MARC undergraduate student at the University of Arizona, presented a poster at the American Society for Gravitational and Space Biology annual meeting this past October in Montreal, Canada.

• In recent months, we have received word about the following current and former student participants in NIGMS minority programs. • **Claudia Garcia**, a former MARC undergraduate student at California State University, Northridge, has received her Ph.D. in cell biology from Harvard University. • **Lorna Graham**, a Bridges to the Future program participant at Los Angeles Southwest College, has received her bachelor's degree in biology from California State University, Dominguez Hills. She is currently performing immunological research at NIH. • **Chau Nguyen**, a former MBRS program participant at the University of Texas at San Antonio, received a master's degree in chemistry from the University of California, Riverside, and is currently pursuing a Ph.D. in chemistry at the University of Houston. • **Kelli Randon**, a MARC undergraduate student at the University of Arizona, has organized a new club, "African Americans in Life Sciences," at the university. The club seeks to inspire a life-long interest in the life sciences by providing motivational and confidence-building activities for African Americans pursuing careers in this area. • **Gloria Rodriguez**, a former MARC trainee at the University of California, Santa Cruz, was awarded the Frank Talamantes Science Prize for 2000. The award was established by the university in 1998 and honors outstanding students with

aspirations for advanced degrees, particularly the Ph.D. Rodriguez is currently attending graduate school at the University of California, Los Angeles. • **Marc Rodriguez**, a former MARC trainee at the University of Texas at San Antonio, is currently pursuing a Ph.D. in chemistry at the university. •

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

Please send information to:

Editor

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MORE Program Director Greenwood Dies

Dr. Frederick C. Greenwood, a former MARC and MBRS program director at the University of Hawaii at Manoa, died of liver cancer on August 8 at the age of 73.

Greenwood was born and educated in England, where he received a doctorate in biochemistry from University College in London in 1953 and a doctorate in endocrinology from the University of London in 1967. In 1968, he left the Imperial Cancer Research Fund in London to join the Department of Biochemistry and Biophysics at the University of Hawaii. He and his wife, Gillian Bryant, set up a research lab, obtained NIH funding, and taught medical, graduate, and undergraduate students before he became the director of the Pacific Biomedical Research Center in 1973. In 1974, he helped the university receive recognition as a minority institution, which led to the center's first minority grant for college juniors and seniors. A similar grant for graduate student fellows was awarded in 1979.

**SELECTED PUBLICATIONS***by MARC and MBRS Faculty and Students (listed by institution)***ALABAMA STATE UNIVERSITY**

Singh SP, Williams YU, Klebba PE, Macchia P, Miller S. Immune recognition and lipopolysaccharide epitopes of *Salmonella typhimurium* in mice.

Microbial Pathogenesis 2000;28:157–67.

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

Chern BY, Chen YH, Hong LS, Lapolt PS. Ovarian steroidogenic responsiveness to exogenous gonadotropin stimulation in young and middle-aged female rats.

Proc Soc Exp Biol Med 2000;224:285–91.

Huang E, Zhou F, Deng L. Studies of surface coverage and orientation of DNA molecules immobilized onto preformed alkanethiol self-assembled monolayers.

Langmuir 2000;16:3272.

Lee BY, Padick DA, Muchlinski AE. Stress fever magnitude in laboratory-maintained California ground squirrels varies with season.

Comp Biochem Physiol A Mol Integr Physiol 2000;125:325–30.

Phinney JS, Ong A, Madden T. Cultural values and intergenerational value discrepancies in immigrant and non-immigrant families.

Child Dev 2000;71:528–39.

Zhang Y, el-Maghrabi MR, Gomez FA. Use of capillary electrophoresis and indirect detection to quantitate in-capillary enzyme-catalyzed microreactions.

Analyst 2000;125:685–8.

CITY UNIVERSITY OF NEW YORK, HUNTER COLLEGE

Cheng X, Khan N, Mootoo DR. Synthesis of the C-glycoside analogue of a novel sialyl Lewis X mimetic.

J Org Chem 2000;65:2544–7.

Diem M, Chiriboga L, Yee H. Infrared spectroscopy of human cells and tissue. VIII. Strategies for analysis of infrared tissue mapping data and applications to liver tissue.

Biopolymers 2000;57:282–90.

DELAWARE STATE UNIVERSITY

King MD, Lindsay DS, Ehrich MF, Nagarkatti M. Effect of 2,3,7,8-

tetrachloro-di-benzo-p-dioxin on T cell subpopulations in the thymus and spleen of mice with chronic *Toxoplasma gondii* infection.

Int J Toxicol 2000;19:323–9.

FLORIDA A&M UNIVERSITY

Yoon K, Wilson T, Williams S, Redda K. Synthesis and pharmacological evaluations of *N*-(substituted benzoylamino)-5 carbethoxymethyl-1,2,3,6-tetrahydropyridines as potential anti-inflammatory agents.

Drugs Exp Clin Res 2000;26:73–82.

FLORIDA INTERNATIONAL UNIVERSITY

Rachev A, Manoach E, Berry J, Moore JE Jr. A model of stress-induced geometrical remodeling of vessel segments adjacent to stents and artery/graft anastomoses.

J Theor Biol 2000;206:429–43.

MOREHOUSE SCHOOL OF MEDICINE

Chu E, Chu TC, Potter DE. Mechanisms and sites of ocular action of 7-hydroxy-2-dipropylaminotetralin: a dopamine(3) receptor agonist.

J Pharmacol Exp Ther 2000;293:710–6.

Pierangeli SS, Gharavi AE, Harris EN. Experimental thrombosis and antiphospholipid antibodies: new insights.

J Autoimmun 2000;15:241–7.

TENNESSEE STATE UNIVERSITY

Whalen MM, Crews JD. Inhibition of a phosphodiesterase III in the lysis-sensitive target-induced elevation of cyclic AMP (cAMP) in human natural killer cells.

Biochem Pharmacol 2000;60:499–506.

Whalen MM, Hariharan S, Loganathan BG. Phenyltin inhibition of the cytotoxic function of human natural killer cells.

Environ Res 2000;84:162–9.

UNIVERSITY OF HAWAII AT HILO

Brown DE, James GD. Physiological stress responses in Filipino-American immigrant nurses: the effects of residence time, life-style, and job strain.

Psychosom Med 2000;62:394–400.

UNIVERSITY OF HAWAII AT MANOA

Blanchard RJ, Hebert M, Dulloog L, Markham C, Figueira R, Nishimura O, Newsham K, Kaawaloa JN, Blanchard DC. Cocaine-induced sniffing stereotypy changes in response to threat.

Pharmacol Biochem Behav 2000; 66:249–56.

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY

Al-Awar O, Radhakrishna H, Powell NN, Donaldson JG. Separation of membrane trafficking and actin remodeling functions of ARF6 with an effector domain mutant.

Mol Cell Biol 2000;20:5998–6007.

Amarasinghe GK, De Guzman RN, Turner RB, Chancellor KJ, Wu ZR, Summers MF. NMR structure of the HIV-1 nucleocapsid protein bound to stem-loop SL2 of the *psi*-RNA packaging signal. Implications for genome recognition.

J Mol Biol 2000;301:491–511.

Johnson PE, Turner RB, Wu ZR, Hairston L, Guo J, Levin JG, Summers MF. A mechanism for plus-strand transfer enhancement by the HIV-1 nucleocapsid protein during reverse transcription.

Biochemistry 2000;39:9084–91.

Mohan RS, Gavardinas K, Kyere S, Whalen DL. Spontaneous hydrolysis reactions of *cis*- and *trans*-beta-methyl-4-methoxystyrene oxides (anethole oxides): buildup of *trans*-anethole oxide as an intermediate in the spontaneous reaction of *cis*-anethole oxide.

J Org Chem 2000;65:1407–13.

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

MARCH

25–29, 2001

SOCIETY OF TOXICOLOGY

40TH ANNUAL MEETING

Moscone Convention Center
San Francisco, CA

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/am-workshops/meet2.html

MARCH 31–APRIL 4, 2001

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

EXPERIMENTAL BIOLOGY 2001

Orange County Convention Center
Orlando, FL

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/eb2001/

APRIL

1–5, 2001

AMERICAN CHEMICAL SOCIETY

221ST ACS NATIONAL MEETING

San Diego, CA

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/meetings/sandiego2001/

MAY

18–20, 2001

AMERICAN SOCIETY FOR MICROBIOLOGY

8TH UNDERGRADUATE MICROBIOLOGY

EDUCATION CONFERENCE

University of Central Florida

Orlando, FL

CONTACT: Jennifer Thomas, ASM

1752 N Street, NW

Washington, DC 20036

Tel: 202-942-9317 Fax: 202-942-9329

EducationResources@asmusa.org

www.asmusa.org/edusrc/edu4c2001b.htm

20–24, 2001

AMERICAN SOCIETY FOR MICROBIOLOGY

101ST GENERAL MEETING

Orange County Convention Center

Orlando, FL

CONTACT: ASM Meetings Department

1752 N Street, NW

Washington, DC 20036

Tel: 202-942-9356 Fax: 202-942-9340

MeetingsInfo@asmusa.org

www.asmusa.org/mtgsrc/generalmeeting.htm

JUNE

7–9, 2001

BRIDGES TO THE FUTURE

PROGRAM DIRECTORS MEETING

Turf Valley Resort and Conference Center
Ellicott City, MD

CONTACT: Irene Eckstrand, Ph.D.

45 Center Drive MSC 6200

Bethesda, MD 20892-6200

Tel: 301-594-0943 Fax: 301-480-2753

eckstrai@nigms.nih.gov

20–24, 2001

MARC/MBRS

PROGRAM DIRECTORS MEETING

Snow King Resort

Jackson Hole, WY

CONTACT: Adolphus Toliver, Ph.D.

or Ernest Márquez, Ph.D.

45 Center Drive MSC 6200

Bethesda, MD 20892-6200

Tel: 301-594-3900 Fax: 301-480-2753

tolivera@nigms.nih.gov

marqueze@nigms.nih.gov

JULY

18–22, 2001

SOCIETY FOR DEVELOPMENTAL BIOLOGY

60TH ANNUAL MEETING

University of Washington

Seattle, WA

CONTACT: SDB

9650 Rockville Pike

Bethesda, MD 20814-3998

Tel: 301-571-0647 Fax: 301-571-5704

http://sdb.bio.purdue.edu/SDBNews/Meetings.

html#60thAnnualMeeting

AUGUST

26–30, 2001

AMERICAN CHEMICAL SOCIETY

222ND NATIONAL MEETING

Chicago, IL

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/meetings/chicago2001.html

SEPTEMBER

27–30, 2001

SOCIETY FOR ADVANCEMENT OF CHICANOS AND

NATIVE AMERICANS IN SCIENCE

NATIONAL CONFERENCE

Hyatt Regency

Phoenix, AZ

CONTACT: SACNAS

P.O. Box 8526

Santa Cruz, CA 95060

Tel: 831-459-0170 Fax: 831-459-0194

info@sacnas.org

www.sacnas.org/NationalConference.html

OCTOBER

4–7, 2001

BIOMEDICAL ENGINEERING SOCIETY

2001 ANNUAL MEETING

Sheraton Imperial Hotel and Convention Center
Durham, NC

CONTACT: BMES

8401 Corporate Drive, Suite 110

Landover, MD 20785-2224

Tel: 301-459-1999 Fax: 301-459-2444

bmes2001@bmes.org

www.mecca.org/BME/BMES/society/

12–16, 2001

AMERICAN SOCIETY OF HUMAN GENETICS

51ST ANNUAL MEETING

San Diego Convention Center

San Diego, CA

CONTACT: ASHG Meeting Office

9650 Rockville Pike

Bethesda, MD 20814

Tel: 301-571-1825 Fax: 301-530-7079

mryan@genetics.faseb.org

www.faseb.org/genetics/ashg/meet-

2001/2001meetmenu.htm

21–25, 2001

AMERICAN ASSOCIATION OF

PHARMACEUTICAL SCIENTISTS

ANNUAL MEETING AND EXPOSITION

Colorado Convention Center

Denver, CO

CONTACT: AAPS

2107 Wilson Boulevard, Suite 700

Alexandria, VA 22201

Tel: 703-243-2800 Fax: 703-243-9650

meetings@aaps.org

www.aapspharmaceutica.com/meetings/

annualmeet/index.htm

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

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/



RECENT

Awards and Fellowships

PREDOCTORAL FELLOWSHIPS FOR MINORITY STUDENTS

(listed by fellow and graduate institution)

Mercedes E. Arana
University of Miami,
Coral Gables, FL

Osei K. Asamoah
University of California,
Los Angeles

Sarah F. Benki
University of Washington,
Seattle

Eduardo L. Bolanos
University of California,
Los Angeles

Tamika Burns
Yeshiva University,
New York, NY

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Medical School,
Worcester

Johnny E. Croy
University of California,
San Diego

Julissa Cruz
Yeshiva University,
New York, NY

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New Haven, CT

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Yale University,
New Haven, CT

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Iowa City

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Massachusetts Institute of
Technology,
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Virginia Polytechnic Institute
and State University,
Blacksburg

Veronica A. Marin
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Health Sciences Center,
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Atlanta, GA

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Worcester

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Louisiana State University
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University of Wisconsin,
Madison

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University of Pennsylvania,
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University Park

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University of Wisconsin,
Madison

BRIDGES TO THE FUTURE AWARDS
(listed by institution and principal investigator)

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Fresno
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Purchase College, State
University of New York
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Goucher College,
Baltimore, MD
Leleng P. To

Medgar Evers College,
City University of New York,
Brooklyn
Edward J. Catapane

Shelby State
Community College,
Memphis, TN
Saeid Baki-Hashemi

South Dakota State
University,
Brookings
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Philadelphia, PA
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Baltimore, MD
Gail E. Gasparich

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Humacao University College
Esther Z. Vega

University of Southern
Colorado, Pueblo
David S. Gonzales

Bridges to the Doctorate

California State University,
Northridge
Maria Elena Zavala

Hampton University,
Hampton, VA
Elaine T. Eatman

MBRS RISE AWARDS
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California State
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Pomona
Pamela J. Sperry

California State University,
Fresno
Shirley A. Kovacs

California State University,
Los Angeles
Carlos G. Gutierrez

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City College
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Itta Bena
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Marvin H. Bernstein

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Durant
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University of Arkansas
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Medical Sciences Campus
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University of Michigan
at Ann Arbor
Harold Neighbors

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(listed by institution and principal investigator)

Western Interstate
Commission for Higher
Education
Kenneth Pepion

MARC FACULTY FELLOWSHIP
(listed by institution and principal investigator)

Cornell University,
Ithaca, NY
One R. Pagan

MARC U*STAR AWARDS
(listed by institution and principal investigator)

Florida International
University, Miami
Charles H. Bigger

University of New Mexico,
Albuquerque
Nasir Ahmed

ACRONYMS USED IN THIS ISSUE

ASM	American Society for Microbiology
CDC	Centers for Disease Control and Prevention
MARC	Minority Access to Research Careers
MBRS	Minority Biomedical Research Support
MORE	Minority Opportunities in Research
NHGRI	National Human Genome Research Institute
NIGMS	National Institute of General Medical Sciences
NIH	National Institutes of Health
NMSU	New Mexico State University
NSF	National Science Foundation
PREP	Post-Baccalaureate Research Education Program
SACNAS	Society for Advancement of Chicanos and Native Americans in Science
SURF	Summer Undergraduate Research Fellowship



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.

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News and Notes

Publications

Upcoming Meetings

Recent Awards

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