NEUROSCIENCE QUARTERLY

SPRING 2004

" I want you to leave here with more knowledge about the brain than when you came."

—Courtney Fletcher,
principal, Francis Junior High School,
Washington, D.C.

IN THIS ISSUE

SOCIETY FOR NEUROSCIENCE

President's FY 2005 Budget Squeezes NIH, NSF, and VA

President Bush's fiscal year (FY) 2005 budget request holds the increase in non-defense, non-homeland security discretionary spending for all federal agencies to less than 1 percent of his $2.3 trillion-plus budget plan.

SfN President Anne Young and Parkinson's advocate Perry Cohen testify before House appropriations subcommittee (see page 6).

The House Budget Committee adopted a budget that calls for non-defense program spending at a level slightly less than President Bush requested. Although the Senate provided a $1.3 billion increase that could go to the National Institutes of Health (NIH), it is unlikely to survive a House-Senate conference committee on the budget. These spending restrictions will not make an appreciable dent in projected deficits, but they are certain to force some difficult choices when Congress considers the details later this year.

Election years have never been conducive to bipartisan cooperation. Some observers of the process suggest that only the defense, homeland security, and military construction appropriations bills are likely to pass prior to the election. Other bills, including those that fund NIH,

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Thousands Participate in Brain Awareness Week 2004

More than 1,700 scientists, patient advocates, and members of health-care organizations sponsored educational events to promote the importance of basic neuroscience research to health and well-being during Brain Awareness Week (BAW), March 15 – 21, 2004. Activities such as classroom visits, laboratory tours, lectures, and exhibits were held all over the world, from Turkey to Australia.

Sponsored by the Society for Neuroscience and the Dana Alliance for Brain Initiatives (DABI), this year's events marked the ninth annual BAW.

The Arkansas chapter sponsored a public lecture titled, "How Basic Research Helps Us All," and an event at the Museum of Discovery in Little Rock, featuring models of brains, demonstrations of research methods, and specimens of brain tissue. At Oregon Health and Science University (OHSU), the public was invited to witness the inflation and flight of the world's largest brain balloon. OHSU also sponsored a brain fair and several lectures, including "The Undiscovered Country: How Understanding the Brain Will Shape Our Future."

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Message from the President

Society's Expanded and Strengthened Programs in Public Education Require Member Participation

Anne Young, SfN President

With recent advances in the understanding of the brain and nervous system — including many related to diseases — we have an important opportunity to educate the public about the achievements and promise of neuroscience research. We now have useful treatments for acute stroke, spinal cord injury, amyotrophic lateral sclerosis, multiple sclerosis, and some of the most devastating mental illnesses. Many more advances are on the horizon.

To ensure this healthier future, students, teachers, legislators, and the general public are our key audiences. I ask for your help in spreading the word through SfN's many activities and programs fostering increased neuroscience literacy. Your support will make a difference — not simply by creating widespread appreciation for what we do but by ensuring continued public support for neuroscience research.

We can only rally public support for our research if the public knows about science. This is clearly a challenge because studies show that only one in five American adults is scientifically or biomedically literate, according to Jon Miller, director of the Center for Biomedical Communication at Northwestern University in Chicago. This low rate of scientific literacy — the ability to read and understand a science story in the *New York Times* — poses a serious problem for neuroscience. Another 32 percent of American adults are somewhat more scientifically literate. However, close to half of American adults are biomedically illiterate.

To bolster widespread understanding and appreciation of neuroscience, public education is one of the four cornerstones of SfN's strategic plan. The plan challenges the Society and its members to "promote public information and general education about the nature of scientific discovery and the results and implications of the latest neuroscience research."

This mandate includes collaboration with other mutually interested organizations to expand and improve the effectiveness of public education programs devoted to scientific research. "The overall goal of these efforts will be to improve public understanding of basic scientific processes, with a focus on how research leads to discovery, and how discovery leads to cures," the plan notes. This will include specific initiatives to enhance general scientific literacy and to provide model educational curricula and resources about neuroscience for teachers and young students as well as those preparing for higher levels of education.

While the public may not be scientifically savvy, it does realize the importance of the conduct of science. In fact, a recent poll of 1,000 people representing a cross-section of Americans conducted by *Parade* magazine and Research!America, a medical research advocacy group, found that 80 percent strongly or somewhat agreed that government-sponsored science and engineering research should be doubled over five years.

During the middle weeks of March, we took our message to Capitol Hill by visiting key senators and representatives who sit on budget committees that draw up the first drafts of the FY 2005 budget.

BRAIN AWARENESS WEEK

One of my initiatives as SfN president was to create public service announcements (PSAs) in support of neuroscience. I'm pleased to report that the Society produced 10 announcements in written and audio format (www.sfn.org/bawaudio) for radio that promoted neuroscience during Brain Awareness Week (BAW), March 15 – 21, 2004. They ran on radio stations in New York City and Washington, D.C. The Society also made them available to BAW organizers and chapters. I urge you to read and listen to the PSAs. I invite you to modify them for your local radio stations to run them throughout the year when you reach out to the public, including teachers and students.

Such educational outreach by neuroscientists to key audiences can occur at any time of the year and in many settings. Outreach can include inviting your representatives and local media into your lab to see firsthand what you do and the contribution you are making to understand and overcome neurological and psychiatric disorders. Outreach can mean going into schools, community centers, and assisted living facilities to explain your work. All Americans benefit from your research. They should know more about neuroscience and about you.

A new Society initiative to achieve greater levels of public awareness about neuroscience is *Brain Research Success Stories*. This initiative is a series of newsletters explaining the good that has come from recent increases in federal biomedical research funding and what is possible with continued support at these levels (see Society Programs, p. 12).

On March 18, Carol Barnes, SfN President-Elect, Mahlon DeLong, SfN Government and Public Affairs Committee chair, and I used these in meeting with congressional budget committee members and their staff. While this will be an unusually difficult budget year for biomedical funding, we plan to make every possible effort to be sure that the biomedical community's voice is heard on Capitol Hill.

Later in the month, Perry Cohen, a Parkinson's patient and advocate, accompanied me for testimony in support of increased federal biomedical funding before the House Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies (see story, p. 6). SfN's Guide to Public Advocacy, available online at www.sfn.org/guide, is a blueprint for communicating the importance of biomedical and neuroscience research to elected officials, the press, and the public.

On March 19, I spent the morning visiting with students at Francis Junior High School in Washington, D.C., to celebrate BAW. It was clear from the brain posters produced by these seventh and eighth graders that they know a lot about the brain and want to learn much more. They got the message that only by understanding the brain will we be able to treat brain disorders.

I told them about some of the progress recently made in epilepsy, stroke, schizophrenia, and drug abuse. They had the opportunity to hear and ask questions of SfN minority fellows Karen David and Wilsaan Joiner of Johns Hopkins University. The Francis Junior High students also experienced a hands-on session handling cadaver brains with Paul Aravich of Eastern Virginia Medical School. This was an enormously rewarding experience for me, one that I encourage every SfN member to consider as part of their personal scientific mission.

Also during BAW 2004, Bhaktapriya Nagalla, a sophomore from Farmington High School in Connecticut, won the sixth annual International Brain Bee. Bhaktapriya and her academic adviser will be guests of the Society at Neuroscience 2004. We hope that this experience will lead her to a career in neuroscience.

To enhance the quality of neuroscience information in schools and elsewhere, the Society has recently begun discussing or embarked on several initiatives that will bring some of our public education objectives to fruition. They involve outreach to teachers and students, teacher organizations, and the general public. While the Society's committees are the official representatives in many of these areas, individual neuroscientists can make major contributions. This is an ambitious charge and one that we take very seriously. You should consider participating in one or more of these activities.

New initiatives include developing an easily accessible Web-based information portal providing the range of public information materials produced by the Society and others. The Society also is taking an active role in reshaping pre-college science curricula and maintaining a presence at meetings of science teachers' associations.

MATERIALS FOR TEACHERS

Keeping with its usual publication schedule, the Society will oversee the fifth edition of *Brain Facts*, which was first published in 1990. This book has enjoyed wide use among pre-college teachers and students, science journalists, and as a source for many brain bees conducted during BAW. The Public Education Working Group is reviewing the contents to decide what topics need to be expanded, added, or changed. We plan for the new edition to be available in the fall of 2005.

To keep up with secondary school educators, this year the Society will have a booth at annual meetings of the National Science Teachers Association and at the National Association of Biology Teachers. The booth will be staffed by members of SfN's Committee on Neuroscience Literacy (CNL). They will answer questions and distribute publications such as *Brain Facts*, *Brain Briefings*, *Brain Research Success Stories*, and SfN's CD of educational resources. SfN committee members will attend sessions and symposia to gain an understanding of the current climate in science education and to help think about ways newly developed materials could complement existing curricula.

Under the direction of the Committee on Animals in Research (CAR) and CNL, we are moving directly into the classroom to improve the curriculum regarding the responsible use of animals in research and to counter animal rights propaganda being distributed in schools. Our consultant on this project has submitted preliminary reports on the best examples of pro- and anti-research educational materials and on potential collaborators to produce such a product.

"We can only rally public support for our research if the public knows about science."

—Anne Young

Our goal is to create a unique pro-research, neuroscience educational product for junior high school teachers and students. Additionally, a CAR/CNL subcommittee voted to extend the duration of the consultant's contract so that he can conduct a teacher focus group on the West Coast. The subcommittee thought it was important to get a wide geographic representation of educators when conducting such focus groups. Focus groups have already been conducted in Seattle and Philadelphia. The information gained from these focus groups will be useful for the animals in research project and other neuroscience education purposes.

The activities described above are just a start. We have much more to do. And only the active engagement of neuroscientists in public education will help ensure the future of the field. Millions of patients worldwide are waiting for the scientific advances that will help alleviate or cure neurological and psychiatric disorders. It is our duty to keep them informed of scientific progress and enlist their continued support. Please join the effort. For more information and to participate, visit the education section of the SfN Web site: www.sfn.org/cnl. ■

… Brain Awareness Week, continued from page 1

Paul Aravich conducts a hands-on brain demonstration for students at Francis Junior High School (above) in downtown Washington, D.C. Students (below) handle a human spinal cord specimen.

SfN President Anne Young, Paul Aravich of the Eastern Virginia Medical School, and minority fellows Karen David and Wilsaan Joiner of Johns Hopkins University visited Francis Junior High School as part of BAW in Washington, D.C. Francis principal Courtney Fletcher gave the opening statement at the assembly of seventh and eighth graders. "You couldn't sit, you couldn't think, you couldn't do a lot of things without your brain," he said. "I want you to leave here with more knowledge about the brain than when you came."

Young spoke to the 125 assembled students about the brain's many functions and the control they have over their brains. "You have control over those parts of your brain that make you a good person or a drug addict," she said.

Joiner and David encouraged the students to follow a career path in science. Joiner compared playing video games to laboratory investigations: "Both are full of discoveries and obstacles." David explained her research on cell death and described the exciting world of laboratory work, where "you think of a question, and you have the means to answer it."

Aravich admonished students to take care of the "universe between their ears" and showed specimens to amazed students. A spinal cord, lung, and damaged brain were among the specimens passed around to the rubber-glove-wearing students. "I want to donate my brain to science!" said Hieu Vo, a seventh grader. Eighth grader Ana Guzman found the lungs to be especially interesting, saying, "Now I know what it really looks like when you smoke." Michael Smith, a seventh grade student, said, "I learned what a brain injury looks like."

The assembly followed a week of the students studying neuroscience in their classrooms, culminating in the creation of projects on the brain and nervous system. Prizes were awarded for 10 student projects, including a poster on "Should you Always Believe What You Read?"; "The Diseased Sheep," a story by Juanita Weaver about the differences between scrapie in sheep and Creutzfeldt-Jakob disease in humans; and "Brain Rap," imaginative rhymes by Courtney Weekes describing the parts of the brain.

The sixth annual International Brain Bee was held Saturday, March 20, at the University of Maryland (UMB) in Baltimore. Twenty students from throughout North America – from

Bhaktapriya Nagalla receives the International Brain Bee award from 2003 winner Saroj Kunnakkat.

Toronto to Minnesota – participated in the two-day event, following victories in their local competitions. The winner, Bhaktapriya Nagalla of Farmington High School in Hartford, Connecticut, will receive funding for two to attend Neuroscience 2004. She will also receive a $3,000 scholarship provided by Eminent Services Corp. and will work as a summer intern with a neuroscientist.

Questions were culled from *Brain Facts*, the Society's 52-page primer on the brain and nervous system, and the DABI 2003 Progress Report on Brain Research. They included "What is the most common malignant brain tumor in children?" and "Stargazer mice are experimental mice for which kind of epilepsy?"

The weekend event, organized by Norbert Myslinski, also included a trip to the National Library of Medicine in Bethesda, Maryland. Participants listened to several speakers, including Story Landis, director of the National Institute of Neurological Disorders and Stroke, speak on neuroscience and the importance of education. Students also attended a neuroanatomy practicum coordinated by Richard Meszler and Werner Seibel of UMB. ■

Students at Francis Junior High School learned by touching as specimens of human brains, lungs, and spinal cord were available for hands-on examination at the Brain Awareness Week assembly in Washington, D.C. Ten prizes were awarded for student projects (above left).

SfN President AnneYoung, Parkinson's Advocate Testify on Capitol Hill

On Capitol Hill this spring, SfN President Anne Young and Parkinson's disease patient and advocate Perry Cohen testified in support of increased federal biomedical research funding before the House Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies.

In their testimony, Young and Cohen spoke about the tremendous research successes achieved during the past five years and the need for continued focus on research in order to maintain the forward momentum.

Young emphasized that Congress' commitment to biomedical research over the past several years has resulted in improved health for Americans. She discussed advances in treatments for schizophrenia, stroke, depression, multiple sclerosis, and neurodegenerative diseases, including Parkinson's disease.

Rep. Patrick Kennedy (D-Rhode Island), Parkinson's advocate Perry Cohen, and SfN President Anne Young meet following congressional testimony.

Talking Points for Advocating for Biomedical Research

In an effort to facilitate positive dialogue among the neuroscience community, the public, and elected officials, the Society has issued the following talking points. Society members are encouraged to use these key messages in speaking with elected officials and the public.

- A strong public health infrastructure is required in order to respond to bioterrorism attacks; emerging disease outbreaks such as SARS, bird flu, and mad cow disease; and known disease outbreaks such as HIV/AIDS and influenza.
- A high-quality science base is necessary to understand the organism or agent used in an attack or outbreak and to subsequently develop a safe and effective vaccine or other treatment protocol.
- Only with a strong science base can we understand the myriad diseases that will affect baby boomers such as Alzheimer's disease, Parkinson's disease, cancer, and heart disease. Treating these disorders could bankrupt both the private health insurance system and Medicare.
- Delivery of health care to the uninsured and underinsured through community health centers and other groups is essential to preventing the spread of disease during an outbreak, and for maintaining the public's health, especially for children.
- A well-trained cadre of health professionals at every level is essential to operate the public health system, determine the cause of an emerging disease outbreak, and treat the aging population.
- There is no viable alternative to federal support for health and science. Only Congress can provide the funding to assure the health and safety of all Americans.
- The investment of public funds in the National Institutes of Health (NIH) has returned a substantial dividend to the American public, both in terms of improved health and in economic benefits.
- Dramatic scientific advances frequently come from unexpected research directions. Support for basic research is a key component of the NIH mandate and its essential role in major medical advances. A few examples are in the areas of stroke, Parkinson's disease, and schizophrenia.
- As a result of the investment made during the past decades, and especially in the last five years, basic science has produced a wealth of knowledge that can begin to be applied at the bedside. Now the time has arrived for funding clinical research, which is often expensive. Without this investment, the results of decades of research may not reach the patient, which is the ultimate objective. It would be a tragedy if those meant to benefit from research never saw improvements in their health care because of decreased federal funding.

"This Congress has demonstrated incredible foresight in funding biomedical research," said Young. "[But] the level of funding over the next year, and the next five years, is going to determine how quickly we deliver on the promise of the last five years."

Cohen, a strategic planner and organizational analyst who was diagnosed in 1996, spoke of his personal experience with the disorder. "Parkinson's disease is an unwelcome passenger in my life and it is with me every minute," he said. "We need strategies to keep research moving forward and to improve treatments for Parkinson's patients."

"For Parkinson's and Alzheimer's patients, and for families fighting mental illness, every day closer we are to a breakthrough is one day less in hell."

—Anne Young

In written testimony submitted to the subcommittee, Young said, "We are not here to talk to you today about money… Rather we would like to talk to the committee this morning about time."

Cohen followed up in his written remarks: "There is a backlog of scientific breakthroughs waiting to come to fruition. Scientists now know what to do to tackle these terrible afflictions that are costing the U.S. billions, because of the incredible advances that have been made in the last five years. Now they need to push ahead and do it… But time is not on my side. We need strategies to keep research moving forward and to improve treatments for Parkinson's patients. Scientists can only forge ahead with the support of this subcommittee, and you can help put time on my side."

In her closing remarks, Young stated: "I think we all realize how much truth there is in the cliché that 'time is money.' The level of funding over the next year, and the next five years, is going to determine how quickly we deliver on the promise of the last five years… For Dr. Cohen and other Parkinson's patients like him, and for the millions of Alzheimer's patients, and for the families fighting mental illness, every day closer that we are to that breakthrough is one day less in hell."

QUESTIONS SHOW SUBCOMMITTEE INTEREST

After the testimony, subcommittee members had the chance to ask questions of Young and Cohen. Acting Subcommittee Chair Don Sherwood (R-Pennsylvania) and subcommittee member Patrick Kennedy (D-Rhode Island) both asked several questions of Young. Kennedy was especially interested in how research in one area, such as Parkinson's disease, can lead to advances in other areas.

To read the full testimony before the subcommittee, please visit www.sfn.org/content/Programs/GovernmentAffairs/news/03_29_2004.html. ■

New Neuroscience Database Gateway Under Way

The Society's Brain Information Group (BIG) will soon roll out the Neuroscience Database Gateway (NDG), a Web site that serves as a gateway for accessing about 75 neuroscience-related databases. The databases included in NDG vary widely in their complexity and navigability, but contain data or software tools that are useful to neuroscientists. NDG is a first step in the Society's efforts to help organize the knowledge contained in disparate neuroscience databases and to promote data sharing among neuroscientists.

BIG was formed by SfN's Council during 2003. Chaired by Floyd Bloom, BIG was charged with assessing the future directions of scientific data management, as well as promoting enhanced understanding of how databases can benefit the neuroscience community.

With funding from the Wadsworth Foundation, BIG members met between July and November 2003 to survey existing neuroscience databases and discuss future directions. In the course of the discussions, the usefulness of a centralized gateway for accessing and evaluating neuroscience databases became apparent. A subgroup of BIG, chaired by David Van Essen, created NDG as a pilot project, currently administered by Luis Marenco at the SenseLab facility at Yale University.

The hope is that NDG will be able to attract funding from the National Institutes of Health (NIH) and other sources to fulfill several important goals identified by BIG:

- Inform members about the exciting database capabilities that already exist.
- Identify the needs of the neuroscience community for more sophisticated tools for creating brain databases and for linking new and existing ones.
- Assist database developers in publicizing the existence of their research tools.
- Identify gaps in the currently available database tools by collecting as many of the existing neuroscience-related databases as possible in one place.
- Identify possible future hurdles of a larger scale project.
- Serve as a "proof of concept" that will allow further refinement and expansion.

The Society's hope is that NDG will serve as an important resource for members as it evolves over time. For example, it may help members meet the data-sharing requirements that the NIH has instituted over the past few years. The creation and use of secure, administered, public databases is one way for the neuroscience community to meet NIH's data-sharing requirements.

"In the 20th century, scientific societies established journals to communicate scientific knowledge," says Van Essen. "As we become fully immersed in the electronic era of the 21st century, it is critical to communicate information in more flexible and powerful ways. Linked, interoperable databases will become essential driving forces for the future of neuroscience research and education." ■

… Budget, continued from page 1

the National Science Foundation (NSF), and Veterans Affairs (VA)-funded health research, may have to wait until a lame-duck session in November, suggesting that neuroscientists and other funded researchers may be in for a difficult autumn before the issues are resolved.

BUDGET REALITIES AND POLITICAL PRESSURES

Two-thirds of the budget is made up of entitlement programs and payments against the national debt — items over which lawmakers have little control. That leaves the remaining one-third, the so-called discretionary programs, to bear the brunt of any budget cuts. If Congress agrees to the president's increases for defense, homeland security, international HIV/AIDS funding, and the National Aeronautics and Space Administration Mars mission, the remaining discretionary funds will shrink even more.

Conservatives in Congress have continued to call for deep cuts in government spending, noting that federal spending has grown twice as fast under President Bush as under President Clinton. Even when defense and homeland security are deleted, they say, other discretionary programs have grown 11 percent since 2001.

NATIONAL INSTITUTES OF HEALTH

The president's budget requests $28.8 billion for NIH, an increase of $764 million, or 2.7 percent over current funding. According to the budget document, this amount will support nearly 40,000 research project grants, including an estimated 10,400 new and competing awards, an increase of just 258 over this year's level.

To help pay for these awards, biomedical inflation increases for continuation grants would be held to 1.3 percent, rather than the actual biomedical inflation rate of 3.3 percent. Intramural research will continue to constitute about 11 percent of the NIH budget. If the rate of increase in intramural research is held to zero, some estimates suggest 640 competing awards will be cut.

In outlining the top NIH research priorities, the budget document states that the funds requested "will allow NIH to address imperative requirements in biodefense; implement the NIH Roadmap for Medical Research; pursue an obesity research initiative; and manage a research initiative on developing nuclear and radiological threat countermeasures.

Additional support will be provided to continue progress in promising arenas of science related to specific diseases such as cancer, HIV/AIDS, diabetes, Parkinson's disease, and Alzheimer's disease, while also pursuing whole new avenues of post-genomics research." As has been the case since September 11, a substantial portion of the NIH budget – $1.7 billion – is being routed to biodefense research as well as HIV/AIDS-related research ($2.9 billion). Of this amount, $100 million will constitute NIH's contribution to the Global Fund to fight AIDS/HIV, tuberculosis, and malaria.

The president's budget requests $150 million for construction of 20 specialized biosafety laboratories at universities and research institutions. These facilities will also back up state and federal facilities in the event of an emergency.

In an effort to target major research opportunities that transcend a single institute, the budget allocates $237 million for the NIH Roadmap initiative, an increase of $109 million over current funding. The budget will be divided according to the Roadmap's three core themes: new pathways to discovery, research teams of the future, and reengineering the clinical research enterprise.

Funds will be "tapped" from all institutes and flow back based on the anticipated research. The National Institute of Neurological Disorders and Stroke, for example, is estimated to contribute $5 million more than it gets back in this process, further restricting funding availability.

Budgetary Requests For FY 2005 vs. 2004 Appropriation

PRESIDENT BUSH'S BUDGET REQUEST FOR BIOMEDICAL RESEARCH

Agency	FY 2004 Appropriation	FY 2005 Request	$ Increase	Percent Increase
National Institutes of Health	$28.1 billion	$28.8 billion	$764 million	2.7 percent
National Science Foundation	$5.61 billion $4.24 billion for Research and Related Activities	$5.75 billion $4.45 billion for Research and Related Activities	$140 million $209 million for Research and Related Activities	2.4 percent 4.7 percent for Research and Related Activities
Veterans Administration	$408 million	$408 million	$0	0 percent

NATIONAL SCIENCE FOUNDATION

The president's budget contains $5.75 billion for the National Science Foundation (NSF) in FY 2005. Former NSF Director Rita Colwell said the requested funds would "address frontiers of knowledge and innovation that will strengthen economic growth and prosperity nationally."

NSF's five priority areas for investigation are biocomplexity, human and social dynamics, mathematical sciences, nanotechology, and workforce for the 21st century. As the lead federal agency for the National Nanotechnology Initiative, the agency's budget requests $305 million for NSF research in this emerging field, a 20 percent increase over FY 2004.

The total investment for the five priority areas is approximately $537 million. The relative share of the total budget allotted for the NSF's strategic goal of "research organizational excellence" increased from 5 percent to 6 percent in FY 2005. The requested $363 million for the final strategic goal will support NSF's human resources goals, the Office of the Inspector General, the National Science Board, and internal technology and tools.

Organized by traditional budget categories, the NSF request breaks out to $4.45 billion for Research and Related Activities, an increase of 4.7 percent over FY 2004, and $771.4 million for Education and Human Resources, a reduction of 17.9 percent. The NSF Authorization Act, signed into law by President Bush in December 2002, includes a plan for doubling the agency's budget by FY 2007. Under the doubling plan, the authorized level for the upcoming fiscal year is $7.38 billion, approximately $1.6 billion more than the FY 2005 request.

VETERANS AFFAIRS HEALTH RESEARCH

The president's budget recommends that spending for health research within the Department of Veterans Affairs be set at $408 million in FY 2005. This is the same level as the current fiscal year.

While acknowledging the quality of the research that is conducted in the Veterans Administration and recognizing that the research leads the highest caliber professionals to want to work there, the budget documents suggest that no increase is warranted because the "VA needs to develop meaningful performance measures to assess the direction and effectiveness of the research program."

THE FUTURE

Biomedical research faces many challenges in the near future. Grant funding at all these agencies will be affected by congressional decisions on larger funding issues, such as the budget resolution and allocations to the appropriations subcommittees that fund these agencies. Clearly, it is incumbent upon the neuroscience community to be active on the public advocacy front.

SfN provides a number of resources to assist scientists in advocating for further funding. Neuroscientists are also encouraged to respond to SfN calls to action, as broadcast in legislative alerts. Advocacy resources are available from the Government and Public Affairs page on the SfN Web site: www.sfn.org/legislative. ■

Neuroscience is Research Priority at NIEHS

Sheila Newton

The National Institute of Environmental Health Sciences (NIEHS) was established as an institute in 1969. The institute is currently headed by Kenneth Olden and is headquartered in Research Triangle Park, N.C. Sheila Newton, Director of Policy, Planning, and Evaluation at NIEHS, describes some of the research under way at the institute.

The mission of NIEHS is to understand how people's interaction with their environment has an impact on health and disease. So-called internal factors, such as genes, age, and sex, interact in various ways with external factors, such as diet, medications, or exposure to chemical pollutants in the air, water, and soil, to affect peoples' health. NIEHS conducts and funds a wide range of research in environmental health sciences, of which neuroscience is an integral part.

Neuroscience covers a variety of research fields, ranging from molecular biology to behavioral science. Understanding environmental impacts on the brain and on behavior requires the input of all these disciplines, focusing across the life span. Disruption of neuronal development and function produces lifelong effects on human cognition and behavior. Both early neurodevelopmental outcomes like learning disabilities and later neurodegenerative diseases associated with aging have become major public health concerns. Twin studies of many neurological disorders, such as attention-deficit hyperactivity disorder, Parkinson's disease (PD), and Alzheimer's disease, show a low correlation between identical twins, suggesting that environmental factors may play a role.

High doses of neurotoxic agents, such as metals, have been proven to be extremely dangerous to humans and animals. Equally important is the less obvious impact of long-term low-dose and multiple-dose exposures, because these conditions affect the largest number of people in the United States. Effects of such exposure could include learning disabilities, balance problems, and neuromuscular disorders. These influences can be either dramatic or subtle, but all are important to understand.

NEURODEGENERATIVE DISEASES

Increasing evidence suggests that environmental exposure to certain neurotoxicants (e.g., heavy metals, pesticides, and fungicides) may play a role in the development of neurodegenerative movement disorders, such as PD and amyotrophic lateral sclerosis (ALS).

In the case of PD, for example, both epidemiological and laboratory studies have focused on a potential role for environmental toxicants, particularly metals and pesticides. Several animal models of PD have been developed based on exposure to agricultural chemicals. These models demonstrate the ability of specific environmental agents to selectively target dopaminergic neurons in the brain and to reproduce the key behavioral and neuropathological features of PD.

NIEHS is supporting a multiyear initiative to research the relative roles of environmental, genetic, and external neurochemical factors in causing neurodegenerative diseases. The new initiative plans to shift its research focus each year, emphasizing a different neurodegenerative disease.

The initiative has already focused on an expansion of research in PD, culminating in the establishment of the NIEHS Collaborative Centers for Parkinson's Disease Environmental Research (CCPDER). The CCPDER consortium is a five-year, $20 million program, bringing together three research centers with demonstrated multidisciplinary expertise: Emory University, the University of California at Los Angeles, and the Parkinson's Institute. The consortium's objectives are to identify the interactions of genetic and environmental factors that contribute to PD, to understand the ways in which gene-environment interactions trigger the pathophysiological processes that ultimately produce PD, and to develop the knowledge base to enable translation of research findings into rational prevention and intervention strategies for PD. CCPDER researchers are investigating mutations and polymorphisms in relevant PD genes, environmental risk factors, oxidative stress, protein aggregation and metabolism, and the development of new animal models.

The research focus shifted to ALS in 2004. In ALS, the motor neurons of the brain and spinal cord are targeted to degenerate, leading to muscle atrophy and progressive paralysis, while usually sparing cognitive function. About 30,000 Americans have ALS, and no treatment is currently available that will prevent, reverse, or otherwise alter the course of the disease.

Unlike PD, where research has increasingly focused on environmental factors, ALS research has no such focus. Several epidemiological studies have suggested a role for gene-environment interactions in the development of ALS. Nevertheless, it is still not clear whether differences in prevalence rates or clusters in various communities are due to the differences in exposure to an environmental factor or simply reflect differences in the same hereditary defect. Seeming contradictions in the studies performed to date may reflect methodological and geographic differences. We hope to stimulate new research in this underfunded area. The current program announcement is called "Gene/Environment Interaction in Neurodegenerative Disease" and can be found at http://grants.nih.gov/grants/guide/pa-files/PAS-03-160.html.

BEHAVIORAL TOXICOLOGY

Efforts to understand the effects of neurotoxicants have long used behavioral studies in both animals and humans; however, it has been difficult to reconcile the wide variations in the impact of these toxicants on behavior and to understand the mechanistic bases for these effects. Clearly, individual genetic susceptibility must be considered to achieve a complete

understanding of the effects of toxic exposure on the nervous system. In recent years, new technologies have been applied to behavioral genetic research that will be especially useful for studying gene-environment interactions. Methods like quantitative trait locus analysis have led to the development of animal models for human pathological behavior. These tools, along with transgenic approaches and more sophisticated behavioral testing, could be used to examine the influence of environmental exposure on the genetics of behavior. The NIEHS held a workshop in April 2004 in Research Triangle Park, N.C. The workshop brought together experts in behavioral neurotoxicology and behavioral genetics to discuss the ways that these new methods could advance the field of behavioral neurotoxicology and establish a more mechanistic basis for the role of toxic exposure in behavior and in cognitive deficits.

NEURODEVELOPMENT

It is well established that developing neuronal systems are exquisitely sensitive to the impacts of a variety of external and internal influences. One of the great public health success stories of the twentieth century is the reduction of lead levels in the bloodstreams of children in the United States, following the elimination of leaded gasoline and lead solder in food cans and the lowering of the Centers for Disease Control's action level for lead poisoning treatment. These regulatory actions followed a decade or more of research showing the damaging effects of lead exposure in young children and in animal models. The NIEHS continues to support this work with a significant investment in research on a wide range of neurodevelopmental toxicants, including lead, mercury, polychlorinated biphenyls, pesticides, and tobacco smoke.

The NIEHS Centers for Children's Environmental Health and Disease Prevention Research Program includes four centers that emphasize neurological outcomes: two focusing on neurodevelopment (Children's Hospital Medical Center in Cincinnati and the University of Illinois, Champaign-Urbana) and two focusing on autism (the University of California at Davis and the University of Medicine and Dentistry of New Jersey). Researchers at these centers are investigating the contributions of various environmental factors to children's health and are also working to develop strategies for treatment and prevention of disease and disability.

The environmental effects on prenatal and neonatal thyroid hormone function and neurological development is of great importance. We currently have insufficient data on the magnitude or the timing of these effects, in either humans or animals, to shape sound policy. NIEHS scientists have already begun thyroid hormone studies in rodents, using chemicals with known thyroid effects and focusing on specific endpoints of nervous system and immune system integrity that may be sensitive to thyroid hormone disruption. The results from the NIEHS-sponsored conference on this topic, "Thyroid Hormone and Brain Development," are currently being evaluated. A full meeting report and associated paper are being prepared for publication in the NIEHS publication *Environmental Health Perspectives*.

BEHAVIORAL AND SOCIAL SCIENCES RESEARCH

As our understanding and definition of "environment" becomes more comprehensive, we are moving toward a greater investment in studies that use behavioral and psychosocial research parameters to address important public health outcomes. In addition to studying the effects of physical exposures to contaminants like lead and PCBs, grantees in our Health Disparities Research program are studying the effects of socioeconomic status, psychosocial stress, and occupational hierarchy on a variety of health outcomes.

In September 2003, a new trans-NIH program of Centers on Population Health and Health Disparities was established, supporting interdisciplinary research on the complex interactions of the social and physical environment, behavioral factors, and biologic pathways. A current program announcement in which the NIEHS is participating is "Social and Cultural Dimensions of Health" (available at: http://grants.nih.gov/grants/guide/pa-files/PA-02-043.html).

"Both early neurodevelopmental outcomes like learning disabilities and later neurodegenerative diseases associated with aging have become major public health concerns."

—Sheila Newton

INTRAMURAL RESEARCH

With expertise in toxicology and epidemiology, and recently established programs of excellence in signal transduction and structural biology, the NIEHS Division of Intramural Research provides an environment that fosters an integrated systems-level approach to identifying the fundamental processes that increase the nervous system's vulnerability to environmental agents. To achieve these goals, a new Laboratory of Neurobiology is being formed at the NIEHS, bringing together current investigators who have expertise in neuronal and glial signaling at all levels of mammalian brain organization from cells in vitro to behaving animals. Initial studies will focus on the molecular mechanisms regulating neuronal and glial cell development and function and on the cellular consequences of disrupting those processes. A symposium to identify and highlight these new research opportunities will be held at the NIEHS during the spring of 2005.

We invite researchers in all these fields to contact the NIEHS to learn how their research interests might contribute to these initiatives, as well as to discuss opportunities for investigator-initiated research. Contact information for NIEHS extramural program officials can be found at: www.niehs.nih.gov/dert/pasci.htm. ■

BRAIN RESEARCH SUCCESS STORIES DEBUT

The Society this spring issued the first four in its new series of *Brain Research Success Stories*. The two-sided newsletters are being used in the Society's efforts to foster discussions among the public and policymakers about the reasons why increased biomedical research funding continues to be an urgent public priority.

The newsletters explain in simple language on the first side what good has already come from research funded by the National Institutes of Health (NIH) and supported by Congress. The second side describes what further gains can be made for patients with sufficient future funding.

"Brain and spinal cord research is on the cutting edge of technology," said SfN President Anne Young. "This research has translated into direct benefits for millions of Americans. However, future progress is dependent on continued strong federal support for research."

The federal government, mainly through NIH, funds about 35 percent of all U.S. medical research, according to a 2000 report from the Senate's Joint Economic Committee. One study cited in the report showed that "spending an additional $15 billion on research and development would save lives whose economic value was conservatively measured at about $27 billion, thus suggesting a high rate of return."

The first four *Brain Research Success Stories* cover stroke, depression, schizophrenia, and post-traumatic stress disorder. These issues were delivered to the Capitol Hill offices of representatives and senators during Brain Awareness Week, March 15 – 21.

Other topics soon to be published include Parkinson's disease, epilepsy, multiple sclerosis, memory impairment, spinal cord injury, dyslexia, and insomnia.

THE GENESIS OF AN IDEA

Brain Research Success Stories came about as the Society was considering ways to use its set of *Translational Neuroscience Accomplishments* to maximum benefit.

Translational Neuroscience Accomplishments are a collection of positive examples of research that illustrate the benefits of responsible use of animal models. The series of short writeups was conceived by the Committee on Animals in Research and developed by the Ad Hoc Translational Neuroscience Committee.

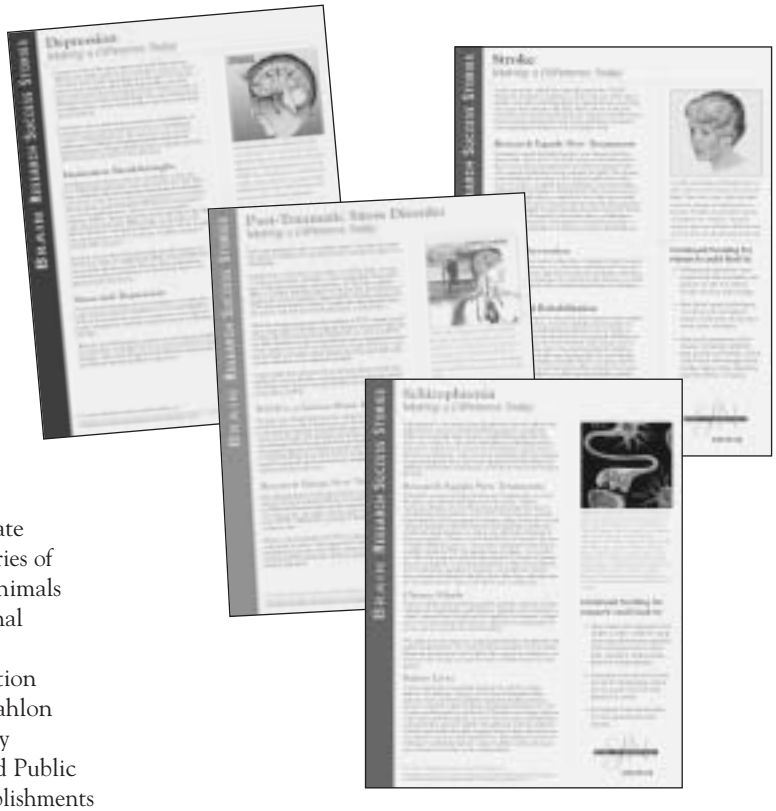
"*Brain Research Success Stories* are a natural evolution of *Translational Neuroscience Accomplishments*," said Mahlon DeLong, director of the Neuroscience Center at Emory University, and chair of the Society's Government and Public Affairs Committee. "They crystallize the positive accomplishments of neuroscience research and speak to what more can be accomplished with additional funding."

Council approved the concept of *Brain Research Success Stories* at its November meeting at Neuroscience 2003. The first set of topic ideas came directly from the list of *Translational Neuroscience Accomplishments*. Additional topic ideas were garnered from suggestions by Council, the Public Information Committee, the Government and Public Affairs Committee, and others.

All the topic ideas and content for individual success stories undergo a rigorous fact-checking, review, and vetting process. Reviewers include scientific experts in specific topic areas, Public Information Committee members, Government and Public Affairs Committee members, and SfN leadership.

While the SfN leadership continues to strengthen the Society's position in governmental and legislative areas by conveying the importance of neuroscience research, members can also help by sharing *Brain Research Success Stories* with their representatives and the media in their home districts.

The publications are available by contacting SfN (brss@sfn.org) or they may be downloaded from the SfN Web site at: www.sfn.org/brss. ■



PUBLIC SERVICE ANNOUNCEMENTS TOUT BRAIN AWARENESS WEEK; SPREAD EDUCATION MESSAGE

In an effort to generate publicity and raise public awareness of neuroscience, the Society for Neuroscience created a series of public service announcements (PSAs) to be aired on the radio during Brain Awareness Week (BAW). Announcements were aired throughout the Washington, D.C., and New York City metropolitan areas on several stations ranging in focus from pop rock to National Public Radio.

The PSAs are part of a broader initiative by SfN President Anne Young to promote education about neuroscience (see *Message from the President*, p. 4).

"Reaching out to the public is an essential part of promoting science education," said Young. "Providing a glimpse into the exciting world of science can spark interest and foster a greater understanding of neuroscience."

The PSAs ranged in length from 10 to 60 seconds, with 15-, 20-, 30-, and 40-second spots also provided to radio stations to provide them with a broader range of choices to fill air time. The spots focused on several areas of research of interest to the public including stroke, depression, and schizophrenia.

Facts featured in these announcements included the number of Americans suffering from some form of brain or spinal cord injury (50 million) and the number of Americans who may experience a mental disorder at some point in their lives (one in three). Several spots included an advocacy message by describing research funded by NIH with support from Congress.

Other spots focused on more lighthearted, surprising brain facts. Fun facts — including the number of taste buds on the tongue (10,000) and the number of colors the human eye can detect (three) — were designed to spark the public's imagination about the brain and nervous system.

PSAs REFER LISTENERS TO WEB, OTHER PUBLIC RESOURCES

Each spot referred listeners to the Society's Web site to learn more information about BAW and neuroscience in general. From the home page, visitors can easily find their way to public resources including links to *Brain Briefings*, the two-page newsletter series explaining how basic neuroscience discoveries lead to clinical applications; the Public Resources directory, an extensive collection of links to sites related to neuroscience, including patient advocacy groups; and *Brain Facts*, the 52-page primer on the brain and nervous system.

PSAs were distributed to 55 radio stations throughout the Washington, D.C., and New York City metropolitan areas, and were also made available to more than 100 Society chapters. Chapters were encouraged to tailor the messages to promote a specific BAW event and to use the PSAs throughout the year to help generate publicity for various SfN activities.

To listen to the PSAs, visit www.sfn.org/bawaudio. All 10 spots are available for downloading, and written scripts are also provided. ■

SFN ISSUES POLICY STATEMENT IN SUPPORT OF TEACHING EVOLUTION

The Society for Neuroscience recently released a policy statement describing the SfN position supporting the teaching of evolution in science classrooms.

In its official statement on teaching the origins of life, the Society recognizes that evolution is fundamental to understanding the study of the origins and diversity of living organisms.

The Society opposes assertions that creationism or intelligent design (ID) theory are valid scientific alternatives to evolution. Creationism and ID share the belief that the mainstream scientific discipline of evolution is largely incorrect. Both involve an intervening deity, but ID is more vague about what happened and when.

"This policy statement is extremely timely given the existing pressures in many states to block the teaching of evolution in K – 12 science curriculum," said Mahlon DeLong, director of the Neuroscience Center at Emory University, and chair of the SfN's Government and Public Affairs Committee. "This is a major threat to our national preeminence in science and is no way to educate our citizenry or prepare future scientists."

AN ANSWER TO MEMBER CONCERNS

Members approached the Society with concerns about the increasing trend toward teaching creationism in the classroom as a valid approach to science. At that time, various pieces of legislation against the teaching of evolution were under consideration or had been adopted in several states including Arizona, Florida, Georgia, Indiana, Kentucky, New Hampshire, New Mexico, North Carolina, Ohio, Tennessee, Washington, and West Virginia.

The matter was referred to the Government and Public Affairs Committee, which voted in favor of formulating a policy statement supporting the teaching of evolution as the only scientifically valid approach in K–12 science curriculum. The SfN Council embraced the idea of having a formal policy statement, which has since been drafted and disseminated to interested organizations and the news media.

The policy states that the theory of evolution is accepted with remarkable consensus in the scientific community. Evolution explains and supports findings in scientific areas ranging from botany to zoology and from embryology to neuroscience. Findings from archaeology and molecular biology also support the theory of evolution.

"Scientists can differ in their interpretations of certain aspects of evolution, but these differences can be tested using the scientific method. Thus, the Society believes that teaching evolution is an essential component of modern science education," DeLong said. "K–12 science education based on anything other than tested and accepted scientific theory is counterproductive to the education of America's youth."

The full policy statement is available at: www.sfn.org/evolution. ■

Society to Visit San Diego in October 2004

Neuroscience 2004 will take place in San Diego from Saturday, October 23, to Wednesday, October 27. Scientists from around the world will gather to present and discuss the latest developments in neuroscience research.

The Society for Neuroscience 34th annual meeting will feature a new presentation category and an outstanding lineup of symposia and special lectures, including the second in its series of neuroethics lectures. The meeting promises to build on last year's successes to be as manageable and fulfilling as possible.

A new feature at this year's annual meeting is a new presentation category, minisymposia. An important addition to the program, minisymposia will be a hybrid of standard in-depth symposia and slide sessions. At each minisymposium, six speakers will give talks over a period of two and a half hours. Minisymposia will feature more narrowly focused topics than those covered in regular symposia, helping to broaden the number and types of topics that receive attention. The new presentation format will also provide younger investigators a new forum in which to present their research, giving them more visibility and an opportunity to showcase important work in progress.

During the submission period, 168 minisymposia proposals were submitted, 27 of which were selected by the Program Committee for presentation at the meeting. Out of 101 submissions for regular symposia, 28 were selected. In its selection process, the Program Committee emphasized diversity of topics covered, as well as gender and ethnic diversity of speakers.

Neuroscience 2004 will continue the Saturday-to-Wednesday schedule adopted at last year's annual meeting, allowing all attendees to more fully participate in the entire meeting. More attendees were present on the last day of Neuroscience 2003 than at many previous meetings. High attendance at scientific sessions on the last day allowed all presenters to receive valuable exposure for their research, regardless of assigned presentation time.

As with Neuroscience 2003, activities will be organized thematically, in a continuing effort to make the meeting more manageable for attendees. The Program Committee strives to maintain a feeling of "meetings within a meeting," providing each attendee with a home base in his or her main theme areas while also offering ample opportunity to sample events from the full spectrum of neuroscience.

To help attendees take advantage of the breadth of offerings, the Program Committee selected a number of special lectures, symposia, and minisymposia that bridge multiple themes, from basic to translational or clinical research issues. Much of the Program will also contain thematic information, all in an effort to allow easier navigation at the meeting.

Also in an effort to help with meeting navigation and convenience, the Society will again sponsor a large, multipurpose exhibit booth. This will allow members to renew membership, learn more about *The Journal of Neuroscience*, gather information on chapter initiatives, and purchase T-shirts and other SfN merchandise all at one convenient location in the exhibit hall. The Society will build on the success of last year's more frequent shuttle service and extended hours by offering the service again at Neuroscience 2004. Attendees from last year's meeting greatly approved of the extended shuttle hours and the greater frequency of trips made by shuttles during the morning and evening hours.

This year the Society will offer a new hotel, air, and car rental reservation service provider, Travel Planners. After registering, attendees will be able to not only reserve their hotel room online, but also their airline ticket and rental car, all without having to pay any additional fee. More information will be posted on the SfN Web site as it becomes available.

Registration Fees

	Advance Registration Opens to Members July 13 at noon Opens to Nonmembers July 20	On-Site Online Registration Opens Sept. 22	On-Site Registration Opens Oct. 22
Member	$205	$240	$250
Student Member	$65	$75	$80
Nonmember	$365	$400	$410
Student Nonmember	$80	$90	$100
Guest	$20	$25	$30
CME Accreditation	$40	$50	$50

Dates and Deadlines

Open abstract submission	Monday, May 3
Receipt deadline for paper abstract submissions	Friday, May 7
Deadline for electronic submission of abstracts	Wednesday, May 19, 5 p.m., local time
Deadline for receipt of replacement abstracts	Wednesday, May 26
Deadline for withdrawal of abstracts	Tuesday, June 1
Deadline for Graduate and Postgraduate Travel Awards	Tuesday, June 1
Deadline for Neuroscience Scholars Program Applications	Friday, June 25
Member Registration and Housing	opens July 13
Nonmember Registration and Housing	opens July 20
Deadline for Minority Neuroscience Travel Awards Applications	Wednesday, September 1

With the Society's continued growth — membership is now at an all-time high of more than 34,000 — the number of expected abstract submissions is also increasing. More than 15,000 abstracts were submitted for Neuroscience 2003.

Abstracts for Neuroscience 2004 may be submitted electronically or on paper. Abstract submission opens Monday, May 3. The deadline for electronic submission is Wednesday, May 19, at 5 p.m., submitter's local time. The deadline for receipt of paper submissions is over two weeks earlier, Friday, May 7. Paper abstract submission also has a higher fee of $70. The nonrefundable handling fee for submissions is $60, providing a savings of $10. There is a $60 nonrefundable fee for handling of replacement abstracts. The deadline for withdrawal of abstracts is Tuesday, June 1. Member registration and housing will once again open one week prior to non-member registration. Please be sure to visit www.sfn.org/am2004 for more information on Neuroscience 2004. See you in San Diego! ■

SURVEY RESULTS FOR NEUROSCIENCE 2003 SERVICES

To gauge how effectively the annual meeting serves attendees, the Society asked attendees at Neuroscience 2003 to participate in an online survey. Respondents were asked to rate the meeting's logistical services and information dissemination. More than 4,000 attendees responded to the survey and weighed in on topics ranging from meeting registration to the SfN booth.

The registration process received high marks, with 93 percent rating the process as either good or very good. Almost 90 percent of respondents registered online in advance of the meeting, and 50 percent agreed that advance registration should be available only by Internet and telephone in the future.

Shuttle service also received high marks. More than 77 percent of those surveyed used the service. Eighty-seven percent found the service to be good or very good, and 63 percent noticed the increased number of shuttles at Neuroscience 2003.

Forty-seven percent of respondents booked their hotel using SfN's official housing agent. In rankings of important amenities when selecting a hotel, shuttle service and proximity to the convention center proved to be most important (both 79 percent).

More than 80 percent of those surveyed found the annual meeting publications — *Preliminary Program*, Program, annual meeting Web site, and CD-ROM itinerary planner — to be good or very good. The meeting navigation booth in the convention center lobby also received high marks in navigation assistance – 76 percent rated it good or very good. Those surveyed also liked to plan ahead. Sixty-nine percent felt that receiving a Program prior to the meeting was very helpful, and 88 percent found the information available online and in the CD-ROM itinerary planner to be useful.

The SfN booth, new at Neuroscience 2003, combined many member needs in one place. At the booth, attendees could meet the editorial staff of *The Journal of Neuroscience*, ask questions about membership, meet with mentors and mentees, and learn about the Society's new educational programs. Of those surveyed, 39 percent visited the booth, and 54 percent agreed that the booth should be present at future meetings. ■

NEUROSCIENCE QUARTERLY

Published quarterly by the Society for Neuroscience

Circulation: 34,000

Opinions expressed in *Neuroscience Quarterly* do not necessarily reflect those of the Society or its officers and councilors.

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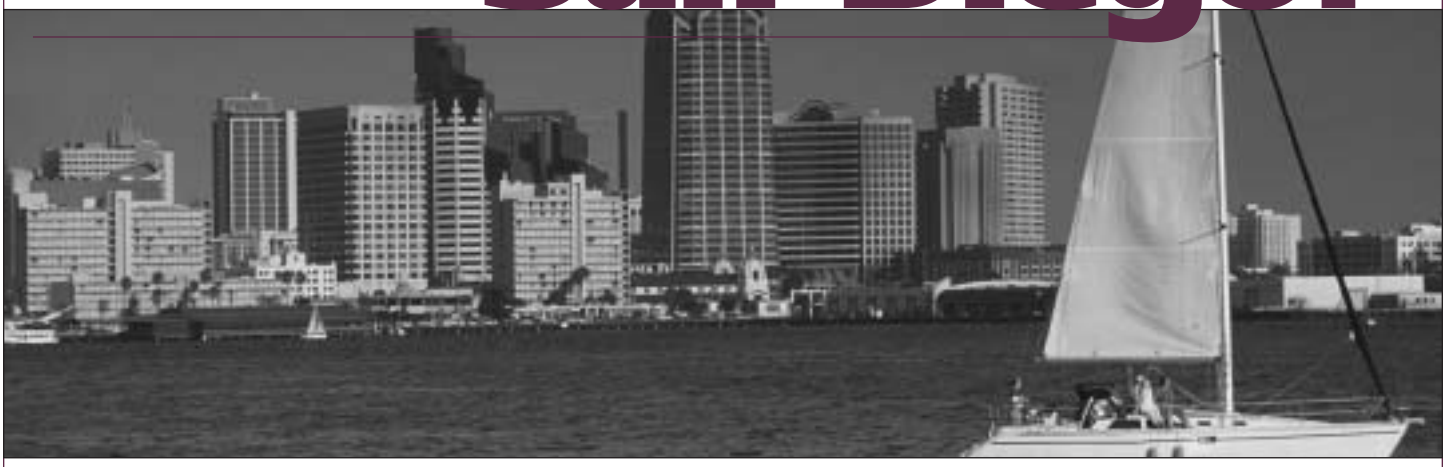

Neuroscience 2004 ■ 34th Annual Meeting ■ San Diego, CA ■ October 23-27

SOCIETY FOR NEUROSCIENCE