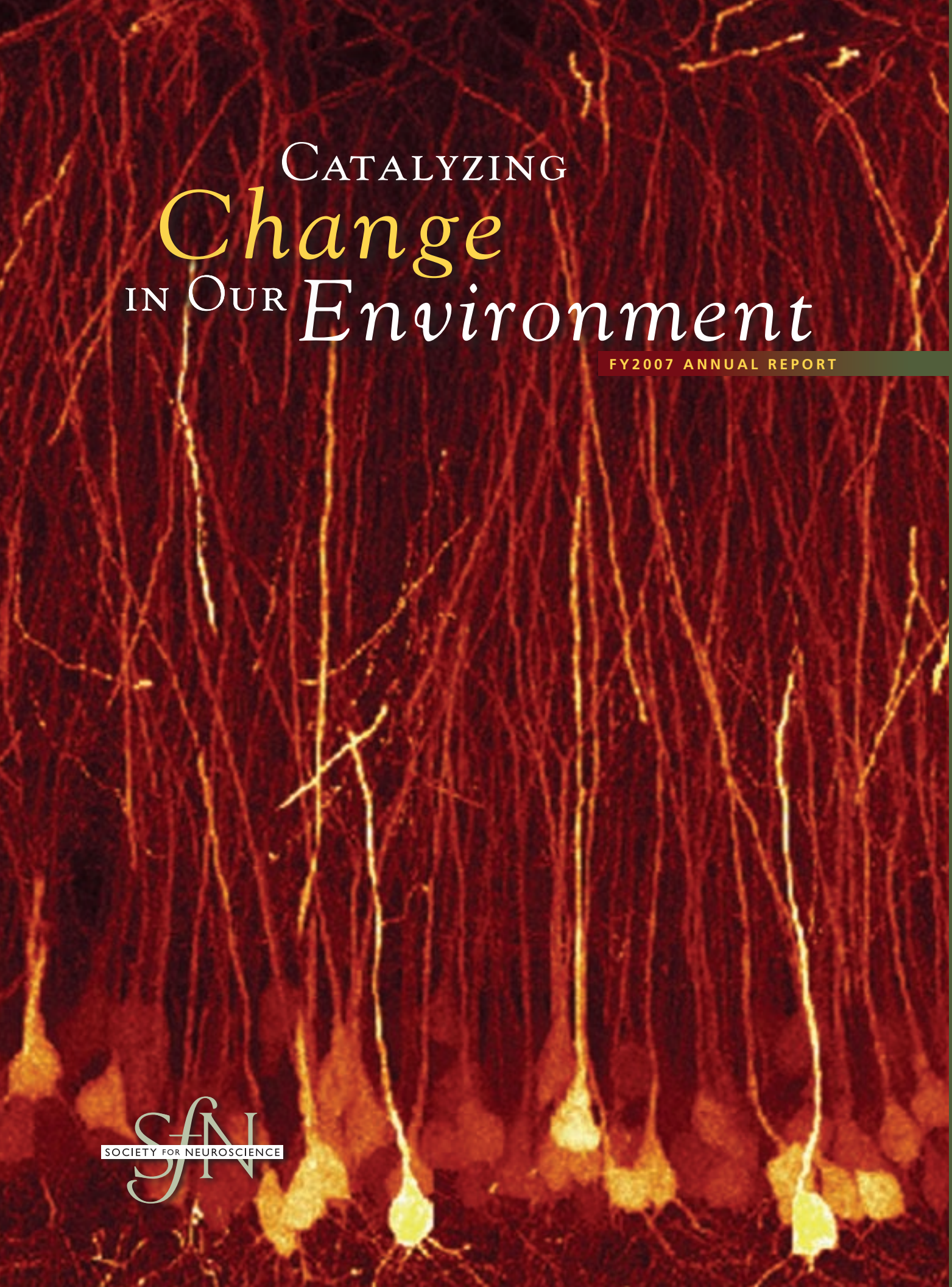
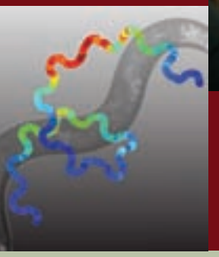
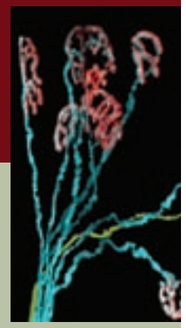


Catalyzing *Change* in Our *Environment*

FY2007 ANNUAL REPORT

SOCIETY FOR NEUROSCIENCE





2006–2007 Society for Neuroscience Council

OFFICERS

David Van Essen, PhD
President

Eve M. Marder, PhD
President-Elect

Stephen F. Heinemann, PhD
Past President

Christine M. Gall, PhD
Treasurer

S. Murray Sherman, PhD
Treasurer-Elect

Michael E. Goldberg, MD
Past Treasurer

Moses V. Chao, PhD
Secretary

COUNCILORS

Darwin K. Berg, PhD

Marie-Francoise Chesselet, MD, PhD

Carol A. Mason, PhD

Freda D. Miller, PhD

Marie T. Filbin

Robert C. Malenka, MD, PhD

Leslie P. Tolbert, PhD

Gina G. Turrigiano

2006–2007 Society for Neuroscience Committee Chairs

Darwin K. Berg, PhD
Audit Committee

Jeffrey H. Kordower, PhD
Committee on Animals in Research

Moses V. Chao, PhD
Committee on Committees

William J. Martin, PhD
Committee on Diversity in Neuroscience

Rita J. Balice-Gordon, PhD
Judy Illes, PhD (Co-chairs)
Committee on Women in Neuroscience

Christine M. Gall, PhD
Finance Committee

John H. Morrison, PhD
Government and Public Affairs Committee

Clifford B. Saper, MD, PhD
Information Technology Committee

Edward G. Jones, MD, DPhil
International Affairs Committee/
US National Committee

David H. Cohen, PhD
Investment Committee

Timothy S. McClintock, PhD
Membership and Chapters Committee

Robert W. Williams, PhD
Neuroinformatics Committee

David C. Van Essen, PhD
Nominating Committee

Frances E. Jensen, MD
Program Committee

William E. Cameron, PhD
Nicholas C. Spitzer, PhD (Co-chairs)
Public Education and Communication Committee

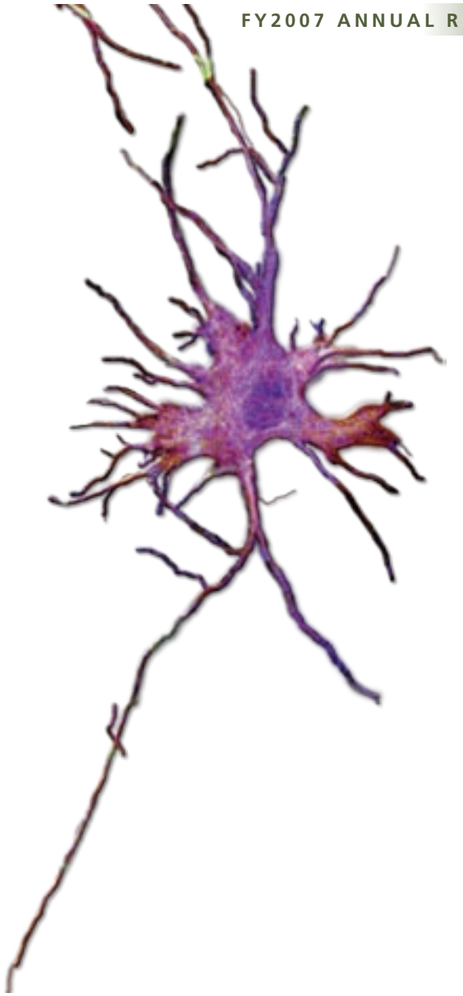
Sacha B. Nelson, MD, PhD
Scientific Publications Committee

Past Presidents

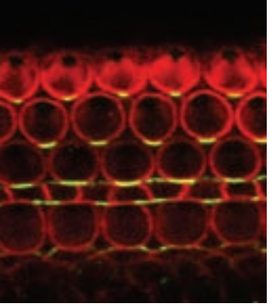
Stephen F. Heinemann, PhD, 2005-06
Carol A. Barnes, PhD, 2004–05
Anne B. Young, MD, PhD, 2003–04
Huda Akil, PhD, 2002–03
Fred H. Gage, PhD, 2001–02
Donald L. Price, MD, 2000–01
Dennis W. Choi, MD, PhD, 1999–00
Edward G. Jones, MD, DPhil, 1998–99
Lorne M. Mendell, PhD, 1997–98
Bruce S. McEwen, PhD, 1996–97
Pasko Rakic, MD, PhD, 1995–96
Carla J. Shatz, PhD, 1994–95
Larry R. Squire, PhD, 1993–94
Ira B. Black, MD, 1992–93
Joseph T. Coyle, MD, 1991–92
Robert H. Wurtz, PhD, 1990–91
Patricia S. Goldman-Rakic, PhD, 1989–90
David H. Hubel, MD, 1988–89
Albert J. Aguayo, MD, 1987–88
Mortimer Mishkin, PhD, 1986–87
Bernice Grafstein, PhD, 1985–86
William D. Willis, Jr., MD, PhD, 1984–85
Gerald D. Fischbach, MD, 1983–84
Dominick P. Purpura, MD, 1982–83
David H. Cohen, PhD, 1981–82
Eric R. Kandel, MD, 1980–81
Solomon H. Snyder, MD, 1979–80
Torsten N. Wiesel, MD, 1978–79
W. Maxwell Cowan, MD, PhD, 1977–78
Floyd E. Bloom, MD, 1976–77
Robert W. Doty, PhD, 1975–76
Edward V. Evarts, MD, 1974–75
Theodore H. Bullock, PhD, 1973–74
Walle J.H. Nauta, MD, PhD, 1972–73
Neal E. Miller, PhD, 1971–72
Vernon B. Mountcastle, MD, 1970–71
Edward R. Perl, MD, 1969–70

Catalyzing *Change* in Our *Environment*

FY2007 ANNUAL REPORT



SOCIETY FOR NEUROSCIENCE



Mission

- Advance the understanding of the brain and the nervous system by bringing together scientists of diverse backgrounds, by facilitating the integration of research directed at all levels of biological organization, and by encouraging translational research and the application of new scientific knowledge to develop improved disease treatments and cures.
- Provide professional development activities, information, and educational resources for neuroscientists at all stages of their careers, including undergraduates, graduates, and postdoctoral fellows, and increase participation of scientists from diverse cultural, ethnic, and geographic backgrounds.
- Promote public information and general education about the nature of scientific discovery and the results and implications of the latest neuroscience research. Support active and continuing discussions on ethical issues relating to the conduct and outcomes of neuroscience research.
- Inform legislators and other policymakers about new scientific knowledge, recent developments, and emerging opportunities in neuroscience research and their implications for public policy, societal benefit, and continued scientific progress.

CONTENTS

CHAPTER 1

Vision

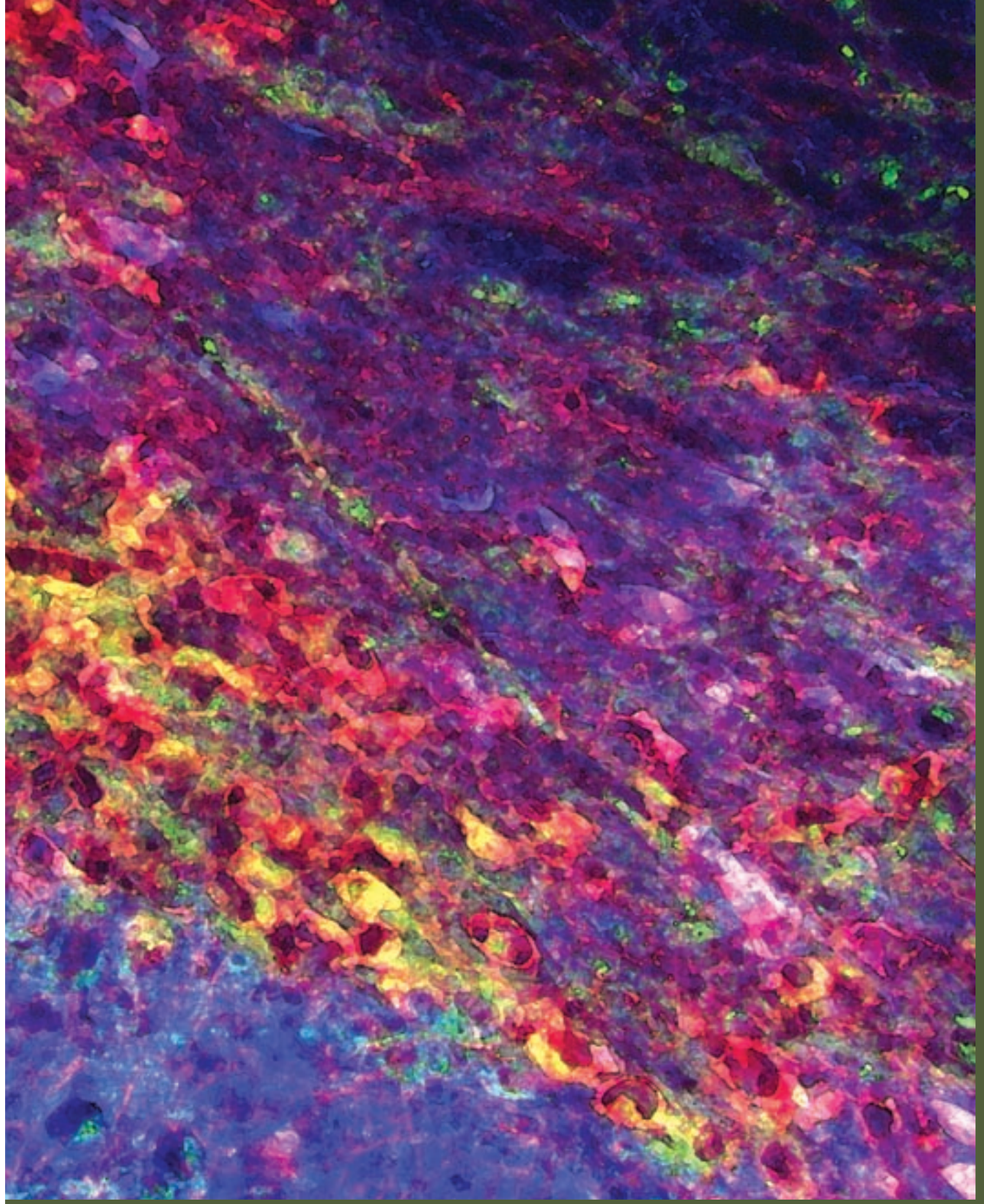
SfN's Scientific Vision

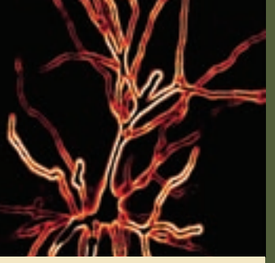
Guided by its mission and its values, the Society for Neuroscience (SfN)'s vision is that the next decade should be one of breakthrough discovery that will lead to the translation of scientific advances to improve the health of people everywhere.

As SfN represents the entire range of scientific research endeavors aimed at understanding, treating, and preventing nervous system disorders, it fosters the broad interdisciplinarity of the field that uses multiple approaches to study the nervous systems of organisms ranging from invertebrates to humans across various stages of development, maturation, and aging. SfN also facilitates the translation of research findings into treatment strategies, encourages information transfer from the clinic back to the basic research arena, and contributes to the breadth of the field of neuroscience, and its creative use of all the tools of modern biology to understand neural function in health and disease.

Neuroscience is a rapidly evolving field that benefits greatly from, and helps to drive, the ongoing development of powerful new tools used to acquire and analyze experimental data. The effort to make efficient use of the staggering amounts of diverse information known about the nervous system raises challenges that have social, ethical, and technical dimensions. Some of these challenges are common to biomedical research and its subdisciplines of bioinformatics and scientific ethics. Others are unique to neuroscience by virtue of the tremendous complexity of neural circuits and their role in controlling behavior. These challenges prompt opportunities, as well as responsibilities, to develop new tools and approaches for integrating and advancing the understanding of the nervous system.

SfN will play a key role in confronting new issues by challenging and energizing the field through active dialogue with federal funding agencies, such as the National Institutes of Health, National Science Foundation, and others, to define current needs and to develop strategies for meeting them. SfN's perspective on the field's current nature and its future trajectory permeates all the elements of the strategic plan and will guide the initiatives aimed at enhancing key scientific functions, including the annual meeting and *The Journal of Neuroscience*. This perspective will guide the ways in which SfN will strive to serve its membership and frame the public outreach and governmental interactions.





CHAPTER 2

Message from the *President*

Directed by our regularly updated strategic plan, the Society has embarked on new and exciting initiatives aimed at promoting changes that will strengthen the entire field of neuroscience. One effort is to motivate business leaders from the pharmaceutical and biotech arenas to join our advocacy efforts to work for a strong and steady rate of growth in federal funding for biomedical research. Another involves exploring ways to help neuroscientists access and mine the vast wealth of neuroscience data in online journals and in neuroscience databases, thereby accelerating the pace of research. In addition, a new editor-in-chief has been chosen for *The Journal of Neuroscience*, who will sustain and enhance its high quality editorial content.

All of these initiatives are aligned with the scientific vision outlined in our strategic plan. This plan identifies the steps necessary to make the next decade one of breakthrough discoveries, which are translated into applications that improve the health of people everywhere.

As you know, many of the recent advances in neuroscience have been made possible only with support from funding agencies around the globe for the biomedical research enterprise. Since the doubling of NIH budget ended in 2003, flat funding has slowed the pace of progress. Our strategic plan calls for the Society "to reach out to industry leaders . . . based on a shared agenda in support of the economic importance of research in the United States and global economy."

Under the leadership of Past President Steve Heinemann, the Society leadership met in October 2006 with biomedical industry leaders to discuss the need for advocacy with former House Speaker Newt Gingrich, founder of the Center for Health Transformation. This very informative meeting led to a white paper, which can be found at www.healthtransformation.net, and an op-ed piece in the *San Francisco Chronicle*, both co-authored by Gingrich. These publications presented new and compelling economic arguments in support of increased federal spending for biomedical research funded by NIH and the National Science Foundation. Along with this effort, the Society has begun to identify and educate key members of Congress in both parties whose vote could make a difference in gaining increased federal support for biomedical research. In addition, SfN partnered with Research!America's *Your Congress-Your Health* initiative, www.yourcongressyourhealth.org, to provide the Web's first and only database of members of Congress' positions on research policy issues.

The emerging field of neuroinformatics aims to enhance the ability of neuroscientists to access the staggering amounts of neuroscience data in journals and databases. This includes the development of powerful tools for searching, visualizing, and analyzing information about the nervous system and for integrating knowledge from different levels of analysis. To enhance synergies between online journals and databases, the leadership conference "PubMed Plus," proposed by the SfN Neuroinformatics Committee, was held in June 2007 at Washington University in St. Louis. This meeting brought together an international group of 60 neuroscientists; informaticians; journal editors and publishers; and representatives of foundations, societies, government institutes, and the library community.

The PubMed Plus conference generated a number of specific and practical recommendations on how to facilitate data mining, more effectively link databases and journal publications, and develop standardized databases for handling journal supplementary materials. Another important recommendation is aimed at making the manuscript review

system more efficient for authors and reviewers alike. Our hope is that the conference will serve to catalyze a process whereby continued collaboration among different domain experts will enhance the impact of neuroinformatics on mainstream neuroscience. Neuroinformatics and the use of new technology will be highlighted at our 2007 annual meeting in San Diego, where several sessions will focus on data mining, and others will discuss how new technologies will drive the future.

Many new, ground-breaking neuroscience discoveries appear in *The Journal of Neuroscience*. *The Journal* will have a new editor-in-chief, John Maunsell of Harvard University, whose five-year term begins in January 2008. He is an outstanding neuroscientist with a wealth of experience on the editorial side of science journals. On behalf of the whole neuroscience community, I am pleased to acknowledge the accomplishments and commitment of Gary Westbrook, the current editor-in-chief, who has greatly enhanced *The Journal's* quality and readability during his five-year term by leading *The Journal* to publish on a weekly schedule and by incorporating many innovations and several new feature sections.

Throughout the year, SfN continued to engage in a wide array of advocacy and public education efforts to spread the message about the progress and promise of neuroscience research. Joining hundreds of colleagues throughout the world in March during Brain Awareness Week, I had the wonderfully rewarding experience of speaking about the cerebral cortex to an audience of local students and teachers who gathered at the National Museum of Health and Medicine on the campus of the Walter Reed Army Medical Center in Washington, DC. In April, I made several visits to Capitol Hill to discuss the need for increased federal support for biomedical research.

These are examples of how SfN carries out its mission to encourage and ensure the highest levels of scientific excellence, professional development, public education, and science advocacy. SfN members represent the entire range of neuroscience research using a wide array of methods to better understand, treat, and prevent nervous system disorders. Through our annual meeting and journal, the Society facilitates the translation of research findings into treatment strategies, and encourages information transfer from the clinic back to the research arena. As a rapidly evolving field, neuroscience benefits greatly from and helps to drive the ongoing development of powerful new tools used to acquire and analyze experimental data.

In carrying out this vision, SfN is committed to serving the needs of our members and the field; promoting greater diversity by increasing the representation of women, minorities, and young investigators in our field and in our governance; seeking innovative ways to better utilize technology to serve members; being socially, economically, and environmentally responsible as an organization; and developing effective strategic relationships with appropriate external partners. The SfN Council considers the strategic plan an organic document. And as we move forward with its implementation, we are continually adjusting and adapting it to the changing conditions. The membership survey conducted earlier this year had a remarkably high response rate. It yielded an invaluable corpus of information about issues important to our members, along with ideas on how the Society can better serve its membership.

"Throughout the year, SfN continued to engage in a wide array of advocacy and public education efforts to spread the message about the progress and promise of neuroscience research."

One area where progress is ongoing is in the organization of our committees. As part of the strategic planning process, we developed a new organizational structure, creating some new committees and eliminating or merging others. Committees have been grouped into "clusters" in an effort to improve communication and coordination of activities. A steering group, consisting of committee chairs within each cluster, coordinates the activities of the cluster as a whole. The Society's Committee on Committees is seeking feedback from our committee volunteers to assess the efficacy of the restructuring and guide future refinements.

The dynamic and interdisciplinary nature of our field is underscored in this annual report by articles that highlight the Society's concern for the environment, as well as for understanding and improving treatments for brain disorders. One article discusses the relatively new and exciting interactions between the fields of neuroscience and architecture. Collaborative projects are exploring scientific data on how the brain responds to cues from different environments and how to use this knowledge to provide better informed tools for the design process. The Society has even incorporated some of these emerging principles in the design of its office space at its new headquarters building in Washington, DC. Finally, other articles discuss important advances being made in the area of neuroscience and genetics, and how our field is contributing to better treatments for injured war veterans suffering from traumatic brain injury and post-traumatic stress disorder.

To ensure the excellence of all of our programs, our staff continually monitors Society revenues and tracks how they may vary based on the funding and economic climate. Obviously, the NIH funding picture affects the health of the field and, to some extent, the financial health of the Society itself. In 2006, our annual meeting attendance and membership numbers were down for the first time in several years, and this had a negative effect on some of our revenue streams. However, revenue from the new SfN headquarters building should help stabilize SfN's finances because it is not tied to the ups and downs of NIH funding. Overall, the Society's leadership remains optimistic about the future of the organization and of the field, while remaining keenly aware of challenges posed by current funding constraints.

I hope you will review this report carefully. The accomplishments it highlights warrant an expression of great appreciation for the hard work carried out by the volunteer leadership, including Council and committees, and by our dedicated staff. We face many challenges as we strive for adaptive changes that will enhance this thriving field of neuroscience and allow us to pursue the advances that eventually will improve the health of everyone. I also encourage our members and other stakeholders to respond with your ideas and actively participate in initiatives that will help us advance the mission, vision, and values outlined in our strategic plan.

David Van Essen, PhD
President

How Neuroscience Research Is Aiding Care of *Returning Veterans*

As ABC newsman Bob Woodruff was standing in a moving Iraqi tank on January 29, 2006, the convoy passed a grove of palm trees. Suddenly, hidden insurgents set off a powerful explosive with shrapnel that crushed Woodruff's skull. Rocks packed around the explosive shot into his neck, face, and back, some just millimeters from vital organs. Woodruff fell into a deep coma. He was treated on the field and at a local U.S. base and underwent hours of surgery. Half of his skull was removed to allow for brain swelling. He was flown to Germany for additional treatment and later transported to the National Naval Medical Center in Bethesda, MD, where he underwent additional surgery and convalescence. Thirteen months later, Woodruff was back on the job.

While many severely injured veterans go unnoticed, Woodruff has become the face of the hundreds of wounded soldiers returning home from Iraq and Afghanistan each month, and he has continued to file many reports on their care.

More than half of U.S. military casualties in Iraq are attributed to improvised explosive devices, which produce the signature wounds of the war: traumatic brain injury (TBI), the loss of limbs, and post-traumatic stress disorder (PTSD), all of which raise neuroscience issues that have created considerable challenges to medical professionals. And many thousands of troops are expected to return from Iraq with a TBI.

Studies show that 20 percent of the veterans treated so far have suffered brain trauma, spinal injuries, or amputations, and an unprecedented 36 percent of the veterans treated so far have been diagnosed with a mental health condition. In part, this can be attributed to advanced body armor that shields soldiers' torsos from bullets, shrapnel, and injury and prevents them from being killed in attacks. Yet their bodies remain relatively exposed to the concussive effect of blasts that can raise atmospheric pressure by 1,000 times, rattling the brain against the skull.

This has resulted in a far higher percentage of surviving but wounded service members than in any other U.S. conflict. Depending on the estimate, 8 to 16 soldiers in Iraq, Afghanistan, and surrounding areas have been wounded for each service member who died. No previous conflict has surpassed a ratio of 3 to 1. The lifetime cost of treating these veterans, who may ultimately number 700,000, has been estimated at $200 billion to $600 billion, according to Linda Bilmes who teaches public finance at the Kennedy School of Government at Harvard University.

Neuroscience research has contributed significantly to the current standard of care in the field and at military health facilities across the country. Continuing basic and clinical research is showing the way toward the therapies that will effectively treat these injured veterans for decades into the future.

Research into better treatment for the damage these soldiers suffer is also the focus of increased federal attention. The Defense Advanced Research Projects Agency (DARPA) is actively promoting the development of a clinically viable prosthetic arm for which movement is controlled by the brain. Two programs funded by DARPA through 2009 represent the largest pool of funding for prosthetics in a decade or more. In 2007, Congress passed the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act, which allocated $150 million each to fund peer-reviewed research into PTSD and TBI.

Traumatic Brain Injury

The most obvious damage in TBI is blunt trauma, resulting in an acute impairment of consciousness, or visual, motor, or sensory deficits. While patients with these symptoms may recover partially or even completely, those with even mild to moderate TBI can later develop epilepsy or related disorders. Field medics and caregivers throughout the uniformed health services are also grappling with the proper care for blast wounds, which cause concussive injury without visible damage to the head.

New research is exploring improved methods of treatment of TBI. The Defense and Veterans Brain Injury Center and Veterans Administration facilities across the country are testing the anti-depressant sertraline as a treatment for symptoms of TBI, including irritability, depression, frustration, and anxiety. Neuroscientists are trying to understand how these explosives disrupt the function of the nervous system in order to develop specific recovery strategies.

Activity-based therapy, which takes advantage of the brain's plasticity or ability to rewire and recover, is proving to be one of the most effective approaches in treating head injuries. Even when certain functions are lost, repeatedly practicing a movement seems to encourage the brain to reestablish the connections that support that function. If the injured practice, chances are they may recover significant function. Research in animals suggests that activity itself can increase the secretion of some nerve growth factors known to play an important role in brain plasticity and learning.

Loss of Limbs

Neuroscience research has also been crucial to the development of prosthetic devices that may one day allow the paralyzed to move on their own. Advances on several fronts are moving this field forward at a rapid pace. Multiple electrode recording, first established in the 1960s, is now used widely and allows researchers to trace and record the activity of hundreds of nerve cells simultaneously and over time. Early discoveries allowed scientists to better understand how the brain controls movement at the single cell level, and one day may allow paralyzed people to monitor their own brain activity.

Scientists now know that even when a limb is lost, the signals from the brain that control movement in that limb are still active long after the original injury. These signals can be captured by technologies that can decode and convert them to activate, for example, a prosthetic arm.

New research is exploring the possibility of closing the loop from the brain to the robotic device and back to the brain. Primate studies show that signals from the machine can be sent back to and interpreted by the brain. The technology still

must be made portable, long-lasting, and, perhaps one day, wireless. In addition, recordings from neurons may help provide a sufficiently sensitive measure of brain function in TBI to better determine the optimal treatment.

Epilepsy

Scientists have known for years that the concussive effect of a TBI is the major contributor to the development of epilepsy. The injury sets in motion a chain of events that ultimately send certain neural circuits into overdrive — they fire too often, too quickly. The synapses are flooded with signals.

In people with TBI, epilepsy may take months or years to develop, but the resulting seizures interrupt normal routines and make it difficult, if not impossible, to hold down a job.

Scientists are still untangling the mechanisms at work when a healthy brain gets damaged and, instead of recovering, generates an overabundance of signaling activity. If basic research can uncover the mechanisms by which epilepsy develops after brain trauma, scientists may be able to prevent epilepsy due to this cause. Toward that end, scientists are searching for accurate animal models in which to study how epilepsy occurs after brain injury. These models could be used to clarify the window of time after the insult in which treatment is most effective, or lead to the discovery of neuroprotective drugs that could be administered to treat head injury patients as a precaution against epilepsy.

Because epilepsy resulting from head injury is a hidden illness, research could also lead to better screening of returning veterans. Scientists are pursuing imaging studies in people that will allow them to predict the likelihood of epilepsy developing after an insult to the brain. Recent functional magnetic resonance imaging data is helping clinicians to hone in on differences between brains in which epilepsy will develop and those in which it will not. Repeat studies are following patients for months and providing clues to the mechanisms at work and, hopefully, better treatments. In addition, with improved digital electroencephalography, scientists are discovering subtle changes in brain waves that might predict the development of epilepsy in an at-risk patient, allowing for earlier treatment.

Post-Traumatic Stress Disorder

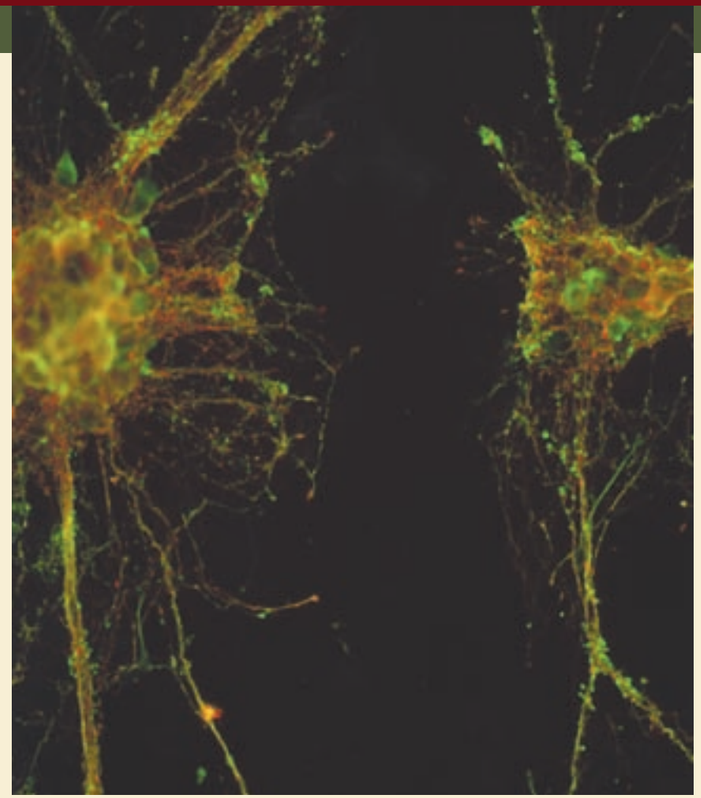
Nearly a third of soldiers who returned from Iraq and Afghanistan between 2001 and 2005 received mental health treatment and half of them had PTSD, according to a study of more than 100,000 veterans conducted at the San Francisco Veterans Administration Medical Center. Some expect the situation to worsen. Research is being conducted through the Department of Veterans Administration (VA) to distinguish PTSD and TBI diagnoses, and in the spring of 2007, the VA rolled out an initiative to screen all returning servicemen and women for both TBI and PTSD.

In PTSD, the body's natural stress response seems to be stuck in overdrive. Studies show that PTSD patients have heightened levels of stress hormones in cerebrospinal fluid. In addition to an anatomical approach, researchers are examining the mechanisms by which we learn, remember, and forget fear in an attempt to find effective treatments for this condition. Much of this work focuses on the amygdala, a brain region that plays an important role in emotional learning and fear, and, more recently, the medial prefrontal cortex, which people use to evaluate the emotional component of various stimuli and choose an appropriate response.

One of the major problems in PTSD is that the memories of trauma are so vivid that people with the disorder cannot stop thinking about these awful events, leading to distraction, terrible and recurrent dreams, and an inability to concentrate. Research is now trying to discover how to block the recall of these memories or make them less painful.

Studies of rats show that learned fear may be processed not only by the amygdala, but also by cortical areas. The research suggests that hypoactivity in a region of the prefrontal cortex might contribute to conditions such as post-traumatic stress disorder, and points to a new target for quieting overactivity in the amygdala, highlighting a potential treatment approach for PTSD.

Scientists are also looking at the biological effect of traumatic levels of stress on groups of neurons. A recent study of mice may help to show how stress disrupts normal brain function and impairs the process of unlearning fear, called extinction. In the study, scientists forced a subset of mice to swim three days in a row and then trained them to anticipate a shock to the foot when placed in a certain chamber. When they were subsequently placed in the chamber, but no shock was



delivered, the mice who had undergone the stress of the forced swim took longer to get over their fear. Examination of their brains revealed changes in the shape of certain neurons, adding to the understanding of the biological effects of stress and how they can contribute to conditions such as PTSD.

Human studies show that various forms of psychological therapy can be effective in treating PTSD. Patients typically are asked to relive their traumatic experience, either alone with a therapist or in a group setting, under comfortable, controlled circumstances that help them unlearn their fear. Antidepressants and other medications are also being used effectively in combination with such therapy. Several other drugs that focus on mechanisms of memory formation and extinction are under study.

Because a window of time exists after a memorable experience and before the memory of it is recorded in the brain, researchers know that before the memory is consolidated, it can be altered or distorted. Many research teams are focusing on finding a drug that could be used in the field to block a traumatic memory before it sets in.

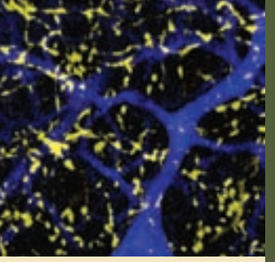
Alternative strategies are examining possible treatments that could be effective days or months after the initial assault. Even as the work in animals continues and models are being developed, trials in humans are advancing.

Administering a natural stress hormone to mice immediately after reproducing the context in which a stressful experience occurred can eliminate the painful memory of that experience quicker. It is thought the hormone not only blocks the recall of the memory, but aids in its extinction.

Following extensive work in animals and trials of patients with obsessive-compulsive disorder and panic disorder, a trial is now underway of a compound called D-cycloserine, which boosts activity of a brain cell component implicated in general learning. A recent NIH grant is helping establish the first trials of D-cycloserine for PTSD. The study is tailored to returning veterans. Using a simulated Humvee ride, complete with imaginary bombs exploding, the trial will examine D-cycloserine's effectiveness at speeding up the extinction process.

Other scientists are studying the idea that a traumatic memory may be unstable during a period long after the initial incident. Previous studies have shown that propranolol, a drug that inhibits the release of certain stress-related hormones, may stop traumatic memories from being reinforced in the brain. The latest extension of this research is to see if the drug can also be used to disrupt the unwanted memory and keep it from getting reestablished.

The care of the veterans from Iraq and Afghanistan will remain on the nation's healthcare and neuroscience agendas for decades to come. Bob Woodruff's recovery shows that the best care can produce remarkable results. Likewise, the challenge for neuroscience is to help produce the best outcome no matter how serious the injury, or prominent the patient.



CHAPTER 3

Science *Advocacy*

Since the doubling of the NIH budget ended in 2003, funding for the agency has not kept pace with the rate of biomedical research inflation. The Society engaged in a variety of new advocacy efforts to change the mindset of those in Congress who believe that NIH has been "taken care of" in terms of funding. This year, SfN has built partnerships with non-traditional allies, especially those in the business community, to further its advocacy efforts.

In an effort to develop new arguments in favor of increased NIH funding, the Society joined the Center for Health Transformation (CHT) in 2006, and renewed its membership again in 2007. Former Speaker of the U.S. House of Representatives, Newt Gingrich, is the founder of CHT and a strong supporter of science research funding. Society leaders met with Gingrich, as well as a variety of leaders in the pharmaceutical, biotech, and medical device fields to discuss the importance of basic research to furthering medical discoveries.

As a result of the meeting, Gingrich co-authored a white paper and a *San Francisco Chronicle* op-ed piece making the case for greater NIH funding. The report highlights both the health benefits of additional funding, as well as the economic stimulation that biomedical research provides to U.S businesses and the economy. The white paper was distributed to all members of Congress and made available on the SfN Web site, www.sfn.org.

Two new advocacy videos entitled "Battling Brain Disorders: Voices from Public Figures," were shown at Neuroscience 2007. They highlight U.S. Rep. Patrick Kennedy (D-RI) and his struggle with addiction and bipolar disorder, and Sen. Lisa Murkowski (R-AK) and her family's experience with amyotrophic lateral sclerosis. SfN members Joseph Coyle, a psychiatrist, and Jeffrey Rothstein, a neurologist, discuss the state of research for these disorders. The videos may be viewed on the SfN Web site, and will be used in advocacy efforts on Capitol Hill to show that brain diseases can affect anyone, regardless of political party, wealth, or stature in the community.

SfN continued its participation with coalition partners, such as the Campaign for Medical Research (CMR), an organization working for increased investment in research. CMR launched its corporate council, a group of business executives who are dedicated to advocacy on behalf of NIH. G. Steven Burrill, a biotech venture capitalist and the chair of CMR, leads this group of business executives and their advocacy efforts. In addition, the Society plans to bolster its outreach to industry leaders through *The Washington Update*, a new newsletter for business leaders.

SfN has embarked on an effort leading up to the 2008 election to identify key players in both parties who may become more supportive of biomedical research. The Society is targeting 40 members of Congress, aiming to educate them on the importance of biomedical research and robust, consistent funding for the NIH. This will be a key focus of our advocacy efforts going forward.

In addition to reaching out to the business community, SfN leaders maintained a strong presence on Capitol Hill. Cavarocchi-Ruscio-Dennis Associates, the Society's legislative advisory firm, helped to analyze and navigate policy issues affecting biomedical research.

Meetings with key legislators continued to be a critical part of SfN's advocacy strategy. SfN President David Van Essen met with legislative staff from the offices of U.S. Rep. Jo Ann Emerson (R-MO), and Sens. Kit Bond (R-MO) and Edward Kennedy (D-MA). Van Essen emphasized SfN's strong support for the use of the NIH peer review system. SfN President-Elect Eve Marder visited U.S. Reps

SfN VALUE

Developing effective strategic relationships and collaborative initiatives with appropriate external partners, including other scientific societies and associations, health advocacy groups, foundations, public agencies, government entities, educational institutions, corporate entities, information technology service providers, etc.

Ralph Regula (R-OH) and Denny Rehberg (R-MT). She described the negative effect of NIH flat funding on employees in her lab and others, and how this situation has made it difficult to recruit top young scientists. In addition, SfN staff members made a number of visits, particularly to key members of Congress in the House, during late spring and early summer.

SfN's Government and Public Affairs Committee Chair John Morrison and nearly 20 neuroscientists gathered in Washington, DC in April for SfN's first-ever Congressional Visits Day. The day began with a breakfast meeting with former Republican member of Congress from New York, Sherwood Boehlert, who was the chairman of the House Science Committee from 2001 to 2007. Boehlert discussed the importance of the scientific community as a lobbying entity and what members of Congress want to hear when scientists visit their offices. After the training session, SfN staff escorted groups of members to the offices of the following 10 senators and 10 representatives: Sens. Jim Webb (D-VA), John Cornyn (R-TX), Bob Corker (R-TN), Barbara Mikulski (D-MD), Lamar Alexander (R-TN), Kay Bailey Hutchison (R-TX), Charles Schumer (D-NY), Maria Cantwell (D-WA), John Warner (R-VA), and Hillary Clinton (D-NY); and U.S. Reps. Dennis Moore (D-KS), Jim Moran (D-VA), Jim McDermott (D-WA), Nita Lowey (D-NY), Stephen Cohen (D-TN), Elijah Cummings (D-MD), John Sarbanes (D-MD), Mac Thornberry (R-TX), Eleanor Holmes Norton (D-DC), and Chris Van Hollen (D-MD).

"The Society engaged in a variety of new advocacy efforts to change the mindset of those in Congress who believe that NIH has been "taken care of" in terms of funding. This year, SfN has built partnerships with non-traditional allies, especially those in the business community, to further its advocacy efforts."

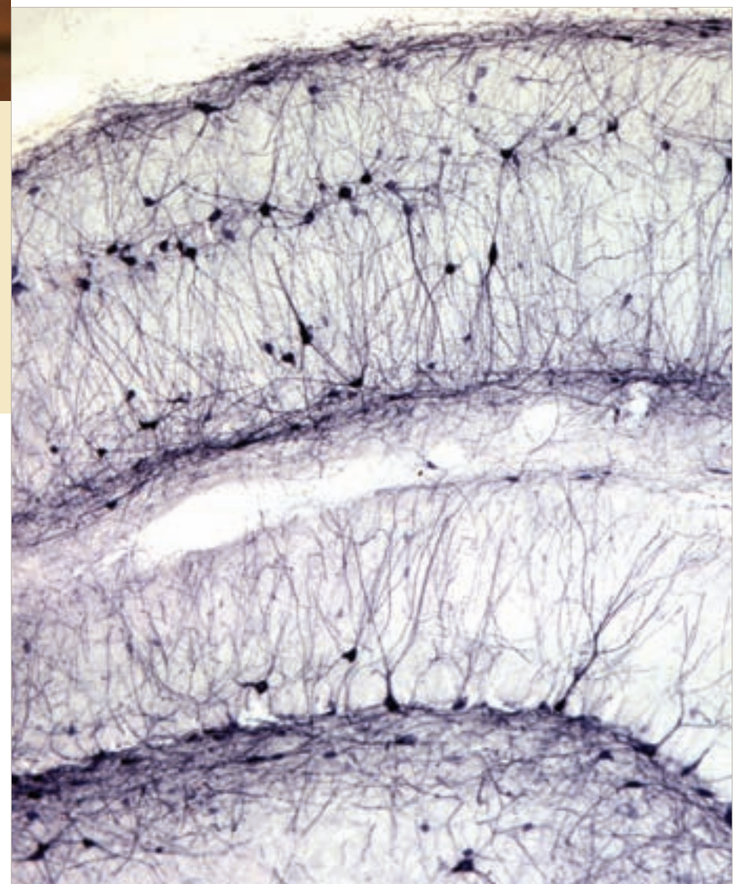
On February 15, SfN member David Goldman and Ting-Kai Li, director of the National Institute on Alcohol Abuse and Alcoholism, met with U.S. Rep. Patrick Kennedy (D-RI) and his cousin, Chris Lawford, to discuss the genetics of alcoholism. Both Rep. Kennedy and his cousin have suffered from addictions and are advocates of Mental Health Parity legislation. The congressman is a longtime friend of the Society, and in 2002, he received the SfN Public Service Award.

Throughout the year, the Society distributed *Brain Research Success Stories*, two-page newsletters highlighting neuroscience advances from research funded by the NIH, to every member of Congress, more than 400 patient advocacy groups, and to leaders of other scientific societies. The 36 topics in the series cover the spectrum of neurological and mental health disorders, including addiction, autism, depression, dyslexia, addiction, stroke, and traumatic brain injury. By describing the many important advances brought about by doubling the NIH budget, the series illustrates the good that would come from continued adequate funding. The series was completed this year and is available on the Society's Web site.

The American Brain Coalition (ABC), which the Society helped to organize along with the American Academy of Neurology and the American College of Neuropsychopharmacology, is an alliance of nearly 50 neurological and psychiatric organizations that represent patients, families, and professionals. ABC currently is focused on NIH funding, chronic care, mental health parity, stem cell research, and access to care.

With attacks by animal rights activists becoming more widespread, the Society joined with influential partners throughout the year to advance public understanding of the benefits of responsible animal research and to inform SfN members on how best to prepare for and manage attacks.

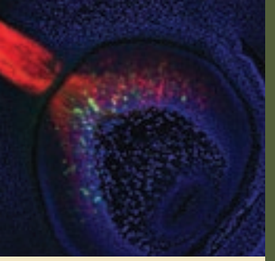
In a major victory for the research community, the Animal Enterprise Terrorism Act was signed into law in November 2006, which codified penalties for illegal animal rights activity and associated domestic terrorism.



A university outreach proposal brought to Council in fall 2006 is flexible yet firm, and will allow the Committee on Animals in Research (CAR) and the Society to properly address these important issues and cases. A secure SfN database to better chronicle the instances and nature of attacks on SfN members was created in fall 2006. Additionally, Randy Nelson, member of CAR, addressed an audience of 30 attorneys about threats to animal researchers and their legal implications for institutions at the National Association of College and University Attorneys meeting in Washington, DC in November 2006.

After a turbulent year of animal rights protests and violent attacks at the University of California, Los Angeles (UCLA), the university completed a landmark safety and security report in late 2006 that clearly articulated the university's responsibility to protect its researchers in their conduct of legitimate academic inquiry. In early 2007, SfN President David Van Essen and Jeff Kordower, CAR chair, visited Norka Ruiz Bravo, deputy director of extramural research at NIH, to discuss animals in research issues. They covered what could be done to encourage other universities to create plans similar to UCLA's. SfN agreed to publicize the report's findings and recommendations and provide support to universities nationwide, including the University of Utah, where animal rights attacks have been particularly frequent in recent months.

The Society is continuing its involvement in the Coalition for Animal Research Education as it develops a plan to advance its pro-biomedical research message to the public. SfN also plans to continue its relationships with States United for Biomedical Research, a group that focuses on teaching K-12 students the value of animal research, and the National Association for Biomedical Research, an organization that focuses on crisis management and legal issues surrounding the use of animals in research.



CHAPTER 4

Membership and *Professional Development*

The Society's membership remained strong at 36,653 in 2006, but has rebounded in 2007 to reach a record high of over 38,000. SfN is committed to ensuring that modest growth can be supported without negatively affecting member satisfaction and engagement. Consistent with its strategic plan goal of identifying and serving the changing needs of its members, the Society is engaged in a long-term research project that is laying the foundation for development of a membership enhancement plan responsive to members' evolving needs and priorities.

Using the services of a consulting firm and with guidance from SfN's volunteer leaders, the Society gathered information about members and the current neuroscience environment through means that included focus group meetings with distinct demographic segments of the membership. These efforts culminated in the design and launch of a membership survey in June 2007. Survey results will be used to craft a five-year plan aimed at catalyzing greater member engagement in and satisfaction with the Society.

Meanwhile, the Society continued to invest considerable effort in assisting members through an array of programs and services. Among these are support to SfN chapters, travel and other award programs, a mentoring program, and other professional and career development activities.

Chapters are one mechanism for reaching out to SfN members at a regional and local level, and this year two were newly established for a total of 119 SfN chapters. To support chapter capacity building, 26 grants were awarded to chapters to fund a range of local activities, such as Brain Awareness events. In addition, 40 chapters received a Grass Traveling Scientist Program award to support visiting lecturer programs. Chapters are playing an increasingly important role within the Society and for the first time, a workshop will be offered at Neuroscience 2007 on creating or revitalizing chapters.

In FY2007, a total of 111 travel awards were presented to graduate students and post-doctoral students, as well as young neuroscientists from developing countries to support their attendance at Neuroscience 2006 in Atlanta. A commitment has been made to double the number of international travel awards for developing country neuroscientists for the 2007 annual meeting.

This year, SfN received external funding to establish several major new awards to recognize the work of neuroscientists. With an endowment from the Eli Lilly and Company Foundation, SfN established the Julius Axelrod Prize for distinguished achievements in neuropharmacology or a related field and exemplary mentoring of young scientists. Funding from the Astellas USA Foundation enabled creation of the SfN Research Awards for Innovation in Neuroscience (RAIN). Both prizes will be presented for the first time at Neuroscience 2007.

SfN's career center at Neuroscience 2006 and NeuroJobs, the online job bank free to job-seeking members, helped employers and job seekers connect at the meeting, with nearly 100 interviews conducted on-site. As of June 2007, close to 2,000 employers had registered with NeuroJobs and registered job-seekers numbered nearly 12,000. The Society this year implemented several new initiatives aimed at better serving members with

SfN VALUE

Continuing to promote greater diversity of representation of women, minorities, and young investigators, along with geographic and specialty balance, in SfN's meetings, conferences, committees, and governance processes.

more opportunities to find jobs. Efforts in the coming year will focus on continued expansion of the job bank as well as the addition of career-related references and resources.

One of the Society's professional development programs in greatest demand has been mentoring. Last year, in a mentor matching program spearheaded by the Committee on Women in Neuroscience (C-WIN), more than 150 mentees were matched with mentors during the annual meeting. Expansion to a year-round mentoring program has been identified as a high priority collaborative effort among the three committees that make up the Professional Development Cluster: Committee on Diversity in Neuroscience (C-DIN), C-WIN, and International Affairs Committee.

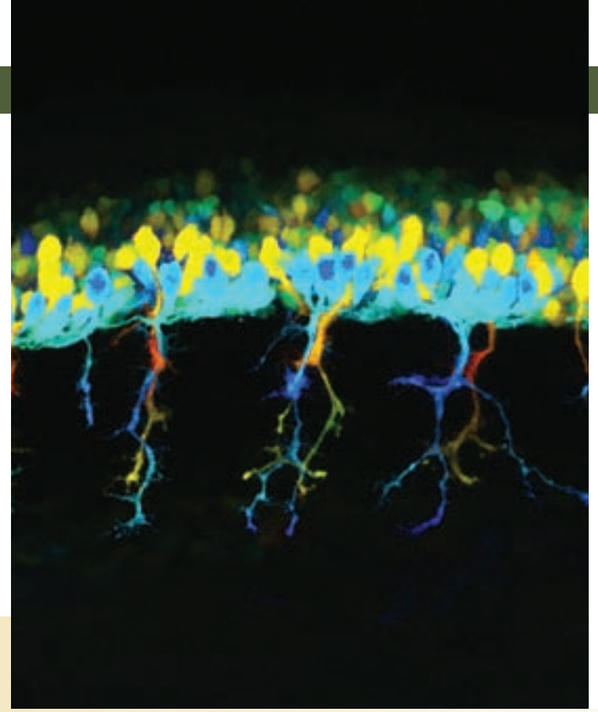
In FY2007, the Society also moved forward in its goal of fostering diversity within the field of neuroscience through the work of the three committees. These efforts included special events held at Neuroscience 2006 to facilitate networking, such as the Diversity Fellows Poster Session, Mentor-Fellow Breakfast, and C-WIN Awards Ceremony. Joanne Berger-Sweeney, former C-DIN member, was honored at the Diversity Reception for her lifelong dedication to excellence and diversity in neuroscience and leadership in working with the NIH-funded Minority Neuroscience Fellowship Program, which ended in 2006. C-WIN launched their first annual guest speaker luncheon, attended by over 200 women and men, with Carla Shatz as the featured speaker and a special slide presentation highlighting accomplishments of distinguished women neuroscientists.

Ten new scholars were added to the Neuroscience Scholars Program, a three-year fellowship program for underrepresented minorities, overseen by C-DIN and funded by the National Institute of Neurological Disorders and Stroke. The program, with a current roster of 42 scholars, provides benefits of mentoring, career enrichment, and networking opportunities for pre- and post-doctoral minority students in neuroscience, including funds to attend the Society's annual meeting.

On the international front, the Society continued to embrace the importance of global cooperation by strengthening partnerships with international organizations and supporting training for promising young neuroscientists from developing countries.

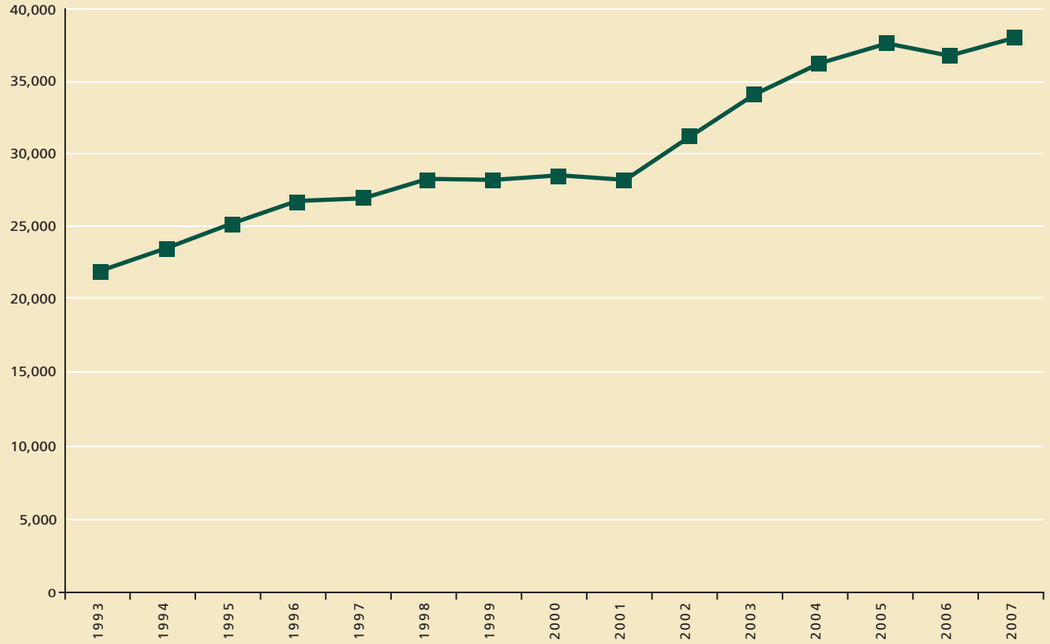
The Society held its third Ricardo Miledi Program for Neuroscience Training, a four-week intensive hands-on course funded by The Grass Foundation. Fifteen competitively selected neuroscience students from Latin America and the Caribbean participated in the course on stem cells held in Mexico in November. Other training opportunities were provided through the Society's collaboration with the International Brain Research Organization. In FY2007, SfN helped support two neuroscience schools — one in Cape Town, South Africa, for 27 students from 12 African countries and one in Toronto for 14 students from Africa and Latin America. The Toronto course was organized in close collaboration with Canada's Institute of Neurosciences, Mental Health and Addiction, an important strategic partner to SfN.

In the coming months, as results of the membership survey are analyzed and opportunities for creating greater value for our members are identified, the Society will continue to strengthen its professional development offerings and other programs to best serve member needs and the field of neuroscience.

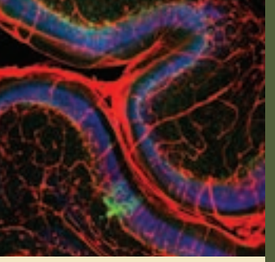


"Consistent with its strategic plan goal of identifying and serving the changing needs of members, the Society is engaged in a long-term research project that is laying the foundation for development of a membership enhancement plan responsive to members' evolving needs and priorities."

SfN MEMBERSHIP GROWTH 1993-2007



Year 2007 total is as of October 3, 2007.



CHAPTER 5

Annual Meeting

Neuroscience 2006 drew nearly 26,000 attendees to Atlanta's Georgia World Congress Center on October 14 – 18. Leading scientists from around the world shared ideas about cutting-edge research on the brain, spinal cord, and nervous system at the Society's 36th annual meeting. Discussions, presentations, and lectures centered on the scientific ideas from 14,300 submitted abstracts on the latest technological and communication advances in neuroscience, ethical issues, and expanding research funding.

More than 7,000 attendees assembled to hear acclaimed architect Frank Gehry's lecture and discussion with SfN member Fred Gage on "Architecture and Perception." Gehry spoke about his approach to architectural design in his lecture marking the second presentation of the series "Dialogues between Neuroscience and Society," which fostered an exchange between thought leaders and the neuroscience community.

Four presidential special lectures highlighted how the study of human genetics informs basic neuroscience and tells us more about human disease. Huda Zoghbi of the Howard Hughes Medical Institute at the Baylor College of Medicine spoke about the studies providing insights into the gene encoding protein responsible for Rett Syndrome. The University of Chicago's Sangram Sisodia summarized recent investigations of genetics in relation to various forms of Alzheimer's disease. Peter Carmeliet of the University of Leuven, Flanders Interuniversity Institute of Biotechnology, Belgium, talked about the emerging importance of the neurovascular link and potential future opportunities for the treatment of neurodegeneration. Finally, Harry Orr, a geneticist at the University of Minnesota, discussed how inherited genetic factors might enhance susceptibility of adult neurons to certain degenerative diseases.

Several events broadened the discussion of biomedical research funding. In Atlanta, SfN's leadership held its first meeting with a group of biomedical business leaders in an effort to cement new partnerships and find common ground in advocacy efforts. The meeting with former House Speaker Newt Gingrich, a proponent of biomedical research and founder of the Center for Health Transformation (CHT), grew out of concern for flat funding for the National Institutes of Health (NIH). SfN joined CHT as a member in 2006. Also, in a special presentation, a panel of NIH institute directors with significant neuroscience portfolios discussed the NIH Roadmap and the Neuroscience Blueprint, along with recent falling grant funding success rates, funding priorities, and challenges the agency faces moving into a 21st century health and medicine landscape.

A variety of other noteworthy lectures were featured at Neuroscience 2006. Judy Illes of Stanford University gave the David Kopf Memorial Lecture on Neuroethics. Illes discussed certain ethical problems in research and explored the challenges associated with commercializing emerging technologies. Winfried Denk of the Max-Planck Institute for Medical Research presented the Fred Kavli Distinguished International Scientist Lecture. Denk discussed how modern optical technology allows neuroscientists to look deeper, see more clearly, and watch for longer periods in carrying out research on the cortex of living animals. Roger Nicoll of the University of California, San Francisco, and Masao Ito of the RIKEN Brain Science Institute together presented the Peter Gruber Lecture about how the brain learns with molecules and circuitry.

Workshops provided attendees with instruction in a range of topics. A short course led by Teresa Nicolson addressed how and why zebrafish are used

to study neuroscience. György Buzsáki organized a second short course about how the brain orchestrates perceptions, thoughts, and actions from the activity of its neurons.

The Neurobiology of Disease Workshop, organized by Serge Przedborski, focused on motor neuron diseases (MNDs), a group of devastating paralytic disorders. Experts presented a comprehensive clinical review and evaluation of the mechanisms behind some of the most common MNDs. Patients with spinal muscular atrophy and amyotrophic lateral sclerosis joined the speakers on stage to discuss the current understanding of the mechanisms of their disorders and to provide a powerful illustration of the diseases' effects on patients. A reception at the end of the workshop gave speakers, attendees, and organizers the opportunity to converse and informally explore remaining questions.

Colin Blakemore, last year's recipient of SfN's Science Educator Award and former Chief Executive of Britain's Medical Research Council, moderated the Public Advocacy Forum. He was joined by science journalist Sharon Begley; Bruce McEwen of Rockefeller University; Lisa Newbern, chief of public affairs at Yerkes National Primate Center; and Sanjay Gupta, senior medical correspondent for Cable News Network. They discussed ways neuroscientists could better communicate with the media to advocate for the research enterprise.

The Animals in Research Panel provided neuroscientists with pointers for speaking in public about animal research and its benefits. Speakers Judy Cameron, Donna Marie Artuso, Peter Santi, and Kenneth Catania talked about how to form partnerships with veterinarians, teachers, and clinicians to spread the message about how animal research is expected to be important for development of new clinical therapies — for humans and animals — in the near future.

In the Social Issues Roundtable, organized by Dona Chikaraishi, speakers highlighted recent developments in imaging and genetics in autism research and the impact of the disorder on affected individuals, families, and communities.

The "(R)evolution in Scientific Publishing: How Will It Affect You?" roundtable, chaired by President David Van Essen, focused on the changing landscape in scientific publishing, open access, and coping with the flood of data. The roundtable was convened by SfN's Publishing Open Access Group (POAG), an eight-member working group appointed by Council during Neuroscience 2006, to examine these issues as they may affect the Society, *The Journal of Neuroscience*, and the world of science publishing in the next few years.

The annual meeting generated 178 original news stories and nearly 400 reprints in print and electronic publications. Most popular stories were on the relationship of marijuana use and Alzheimer's disease, autism, and electrical brain stimulation.

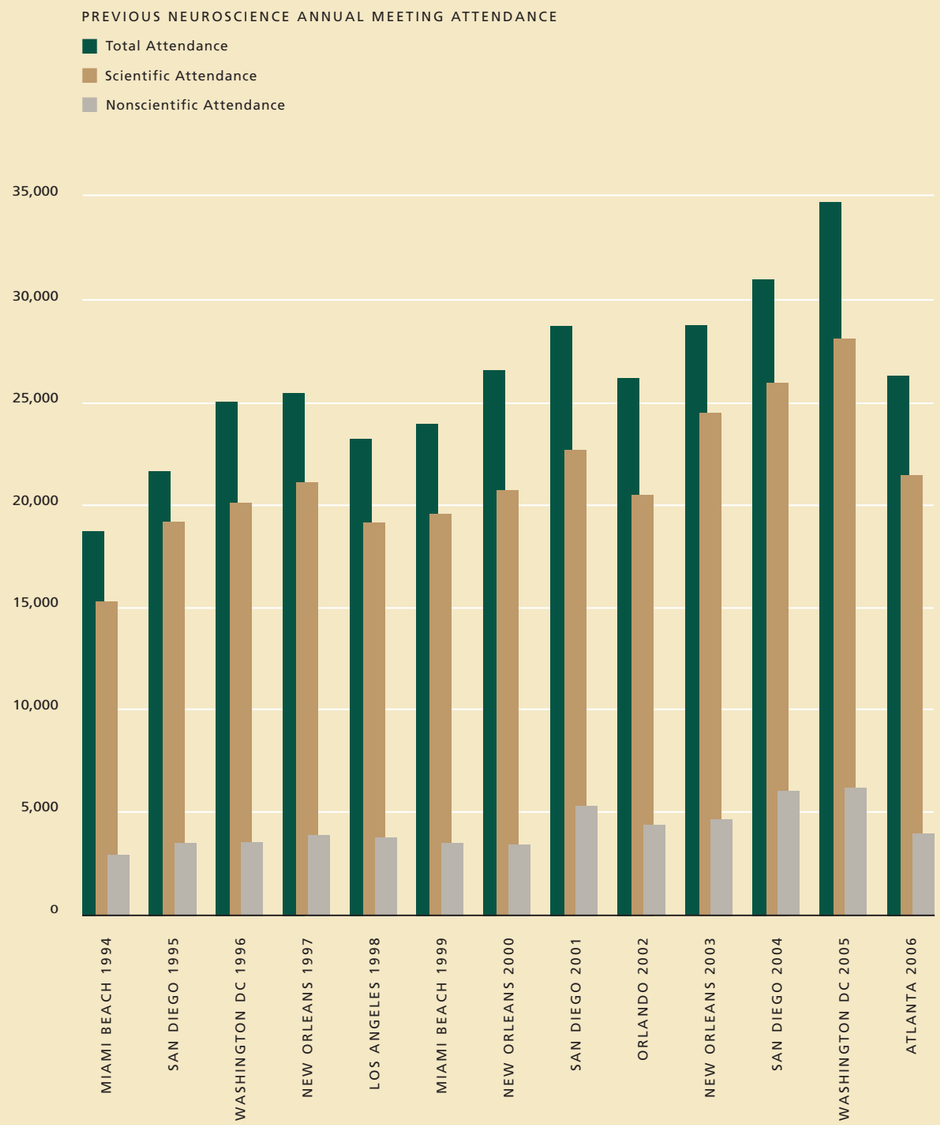
For the second year, the annual meeting featured the NeuroJobs Career Center. Offerings included more computer consoles and private meeting rooms than were available last year, thus making it easier for attendees and exhibitors to access job listings and schedule interviews with participating employers during the meeting.

Also featured for the second year was the "Meet-the-Experts" series of workshops. These five concurrent sessions allowed experts to detail their techniques and accomplishments to student scientists and postdoctoral researchers. During each 90-minute workshop, experts and the audience engaged in an informal and informative dialogue over breakfast.

In order to facilitate networking and socializing opportunities at the annual meeting, scheduling for Neuroscience 2006 ensured all scientific content was completed by 6:15 p.m. each day. This schedule allowed more time for social and networking evening sessions. Scheduling changes were adopted based on member feedback, and indications suggest that the new schedule succeeded in making it easier for attendees to network with colleagues.

The Society will continue to make changes as needed to ensure that the annual meeting continues to be the arena for presenting and discussing the best neuroscience research that eventually will drive changes to improve the understanding and treatment of brain disorders.

SOCIETY FOR NEUROSCIENCE ANNUAL MEETING



Committing to *Environmental Responsibility*

From the design of its office space, to printing of various publications, to its purchase of office supplies, to maintenance practices at its annual meeting venue, the Society for Neuroscience is reinforcing its commitment to a sustainable environment. These efforts are the result of the pledge made in SfN's strategic plan that outlines the organization's commitment to help promote change in ways that are environmentally, socially, and fiscally responsible wherever possible.

In one of the strategic plan's key six organizational values, SfN commits to: "Fulfilling its mission in a socially, economically, and environmentally responsible fashion, including minimizing SfN's environmental footprint through energy efficiency, recycling, and other initiatives, and being mindful of the broader impact of its day-to-day practices, decisions, and actions."

During FY2007, SfN achieved three recognitions that attest to its environmental commitment. In the fall of 2006, SfN received gold certification for environmentally responsible design of its three floors of headquarters office space from the green building rating system of the U.S. Green Building Council Leadership in Energy and Environmental Design. SfN is at the forefront of eco-friendly design in the Washington, DC area, where only six other work spaces shared this distinction as of July 2007. In April 2007, SfN and partner architectural firm Envision Design won a national award for design collaboration and promotion of sustainability for the three floors of SfN office space. The collaboration received a designation of "Highly Commended" from the Sustainable Leadership Awards for Design and Development, a joint effort of CoreNet Global, an association for corporate real estate and related professions; the American Institute of Architects; and the International Design Association. Additionally, the SfN space received a Presidential Citation for Sustainable Design from the DC Chapter of the American Institute of Architects.

SfN's innovative Washington, DC headquarters office space is constructed from many sustainable building materials, including those that are recycled, locally manufactured, and rapidly renewable. A full 22 percent of building material and furniture is made with recycled material. Carpets, flooring, upholstered wall panels, ceiling tiles, wallboards, and cabinetry within SfN's headquarters are all partly recycled.

Wood used in the office space is primarily rapidly renewable, meaning that all doors, plywood, and paneling are derived from trees with a harvest cycle of 10 or fewer years, and comes from trees certified by the Forest Stewardship Council (FSC), an organization responsible for promoting sustainable forestry globally. Wall paints contain low or no harmful volatile organic compounds (VOCs) which, when broken down, contribute to smog, respiratory problems, and even cancer and birth defects. Other locally produced building materials were used in order to reduce the environmental impact of long-distance transportation.

Drawing on the creativity of the architects at Envision Design, the plan for the utilities for the office space curbed excessive use of energy and water. Clean and renewable wind power provides the energy needs for the entire building. SfN has joined the U.S. Environmental Protection Agency Green Power Partnership Program, online at www.epa.gov/greenpower, which encourages the voluntary use of green power to reduce the risk of climate change. SfN's lighting fixtures are linked to dimmer sensors that react to natural light, which is maximized by glass corridor walls. Motion sensors in offices, common areas, and storage rooms ensure that fluorescent lights are off when those spaces are unoccupied. Modifications, like the installation of separate electric meters for each floor, help to encourage tenants to save electricity, while a light-colored reflective roofing material reduces heat absorption in the summer. Similar efforts are made to conserve water in the form of automatic faucets and flush devices in the restrooms. The installation of a filtered tap in favor of water coolers helps the building use 22 percent less water.

SfN is conscious of avoiding office waste and provides facilities that allow employees to conserve resources. SfN encourages employees to use public transportation for their commute by offering pre-tax subway and bus Metrochek vouchers to minimize the environmental impact of hydrocarbons, nitrogen oxides, and carbon monoxide. Recycled paper is used exclusively in Energy Star rated printers and copy machines; used toner cartridges are recycled. SfN also coordinates an extensive, building-wide recycling program for building tenants that collected over three tons of bottles and cans and two tons of cardboard paper for reuse during FY2007 — one third of all waste for the building.

The Society also teams up with other eco-friendly partners when possible. In printing, where more than 100 million tons of paper is used in the U.S. every year, the Society strategically partners with FSC-certified printers. The FSC certification allows printing vendors to make use of FSC-certified paper to print jobs with the FSC trademarked "checkmark and tree" logo, as a way of ensuring purchasers that the paper was made from wood harvested from well-managed forests. For example, the Neuroscience 2006 *Preliminary Program* was printed on New Leaf Opaque, a 100 percent post-consumer, white opaque paper. The paper is manufactured using biogas energy, sourced from the decomposition of waste in a local landfill. By utilizing this process, SfN saved nearly 452 full-grown trees, nearly 194,186 gallons of water, 21,714 pounds of solid waste, and 42,354 pounds of greenhouse gases on this one publication alone.

SfN also makes its publications available online to help eliminate unnecessary printing. But when printing is necessary, SfN specifies vegetable-based inks and recycled paper for most of its publications. This alternative to petroleum-based inks uses oil that is naturally low in VOCs. These toxins can leach into the soil when printed paper ends up in landfills, and can be released into the air as fresh inks dry.

The Society is fortunate to host Neuroscience 2007 at the San Diego Convention Center, an environmentally conscious partner with an extensive "Recycle, Reduce & Reuse" policy. The convention center recycled over 100 tons of its waste in 2006 and provides only recycled materials such as copy paper, legal pads, envelopes, toilet paper, facial tissue, and paper towels at its events. Infrastructural improvements like low flow sinks and toilets have helped save an estimated 81,000 gallons of water per year.

SfN is serious about operating in an environmentally responsible fashion and is emerging as a leader among professional associations seeking to make their routine business practices more "green" and sustainable. By promoting excellence in scientific inquiry and in conservation, SfN moves into the future harnessing every effort it can to improve the health of people everywhere — including in its own backyard.

SfN VALUE

Fulfilling its Mission in a socially, economically, and environmentally responsible fashion, including minimizing SfN's environmental footprint through energy efficiency, recycling, and other initiatives, and being mindful of the broader impact of its day-to-day practices.

CHAPTER 6

Public Education *and Outreach*

Understanding that the future of neuroscience ultimately belongs to today's youth, the Society devotes significant effort to education and outreach programs for grades K-12 teachers and to SfN members engaging in public education. By stimulating greater integration of neuroscience content into educational programs, these efforts will yield a generation of young people with stronger knowledge of and interest in neuroscience.

Highlights of FY2007 include strengthened collaborations as well as promising new partnerships aimed at expanding the Society's outreach to its target audiences. SfN worked closely with a key partner, the Dana Alliance for Brain Initiatives (DABI), to strengthen the popular, worldwide Brain Awareness campaign. One result was the exponential growth in the number of organizations reporting from around the globe on a range of innovative outreach activities that make up this unique campaign. Available online, these reports allow SfN and DABI members and their partners to utilize a rich vein of resources for year-round brain awareness public education activities.

The 2007 Brain Awareness Week, March 12 – 18, was celebrated locally by SfN staff and leadership in Washington, DC. Mayor Adrian Fenty issued a proclamation declaring Brain Awareness Week in Washington, DC, as SfN joined forces with the National Museum of Health & Medicine and DABI to reach over 600 students and their teachers from the Washington area with a wide range of hands-on neuroscience education activities, including a talk by SfN President David Van Essen.

As trademarks of Brain Awareness Week, Brain Bee competitions — events focused on neuroscience knowledge and application — took place around the world. SfN assisted DABI with sponsorship of two regional Brain Bees in New York City and Washington, DC, and supported the capstone international event held in Baltimore. As with past International Brain Bee winners, the 2007 champion was awarded a trip to the SfN annual meeting and a summer internship in a lab, working under the guidance of an SfN member.

This year, the Society launched a new partnership with the Science Olympiad program, one of the premier science competitions in the nation. Middle and high school students participate in local and state competitions at more than 14,000 schools nationwide in efforts to reach the national tournament, held this year in Kansas. SfN sponsored two of 23 team-based events, the Health Science and Anatomy events, which included a neuroscience focus. The Health Science event's winning team from Ohio was presented, before a crowd of over 5,000 competitors, coaches and parents, with a special award by SfN — a trip to Neuroscience 2007.

The Society's continuing alliance with the National Science Teachers Association included a strong presence at their annual convention of 10,000 science teachers, including participation by the SfN president. At the St. Louis gathering in March, SfN sponsored three hands-on workshops led by SfN members experienced in neuroscience education. At SfN's bustling exhibit booth, current neuroscience-related information and resources were distributed to teachers with help from enthusiastic local SfN chapter members.

Reflecting the successful collaboration between SfN members and educators, the Society's Neuroscientist-Teacher Partner Program experienced notable growth in FY2007. The program, which also grants teachers the opportunity to attend the Society's annual meeting, attracted 36 applications this year, more than double last year's number. At Neuroscience 2006, 10 educators and their neuroscientist partners were honored as special guests at the Brain Awareness Campaign Event and the Public Education Breakfast, along with the recipient of the Science Educator Award, who was recognized for her outstanding contributions to educating the public about neuroscience.

A key factor in the success of the Society's public education and outreach efforts is the investment made in translating current neuroscience findings and discoveries into top-notch educational resources. Among these are *Brain Facts*, a 64-page primer on neuroscience, the *Neuroscience Resources for the Classroom* CD-ROM, and the two popular lay-language series, *Brain Briefings* and *Brain Research Success Stories*.

The Society is continually working to develop new alliances and initiatives that support its public outreach strategy and will focus this coming year on expanding Web-based neuroscience education resources that are expected to exponentially increase dissemination of information. An ambitious project to define core concepts in neuroscience will serve multiple public education and advocacy purposes, including providing benchmarks for teachers as they integrate neuroscience into educational activities.

With new educational resources, a growing and robust set of collaborative partnerships, and new awards to recognize the public outreach contributions of neuroscientists, SfN will continue to reach out to the public and the education community and build upon its catalytic role in securing new generations of enthusiastic young scientists and an informed populace.

SfN VALUE

Identifying and serving needs of SfN members as well as the field of neuroscience.

Genetics of Brain Disorders

Since the completion of the Human Genome Project in 2003, scientists have been gathering information about the genetic components of various brain disorders at what seems like warp speed. Whether identifying patterns in large gene clusters that greatly increase the risk of Parkinson's disease or discovering that different defects in the same gene lead to either schizophrenia or depression, researchers are rapidly unraveling many long-standing mysteries. In doing so, they also hope to discover more effective ways to treat and possibly even prevent some of the most common — and most devastating — brain disorders.

The stakes are huge. In addition to the immense personal cost that genetically influenced brain disorders inflict on the lives of millions of Americans and their families, the annual financial cost to the country is enormous: an estimated $475 billion.

So rapid is the flood of genetic research into various neurological and psychiatric disorders that scientists have recently launched several Web sites to regularly collect and post findings from genetic studies for such brain disorders as Alzheimer's (www.alzgene.org), Parkinson's (www.pdgene.org), and schizophrenia (www.schizophreniaforum.org). Instead of wading through one study at a time, researchers can now find — and share — genetic information more quickly and systematically. In addition, NIH has launched within the past year the Database of Genotype and Phenotype (www.ncbi.nlm.nih.gov/sites/entrez?db=gap), which archives and distributes data from genome wide association studies. These studies use new technology that rapidly scans genetic markers across complete sets of DNA, or genomes, of many people with and without a particular disease. The scans enable scientists to identify previously unknown markers of genetic variations, called single nucleotide polymorphisms (SNPs), associated with that disease. Finding patterns of SNPs is crucial to understanding — and treating — brain disorders because most are not caused by a single gene mutation, but by subtle malfunctions in many genes coupled with lifestyle and environmental factors.

One of the brain disorders that has seen a number of recent genetic advances is Alzheimer's disease, a debilitating illness that robs people of their memory and cognitive abilities. About 4.5 million Americans currently live with Alzheimer's disease and the number is expected to almost triple by 2040, due to the aging of the U.S. population.

Alzheimer's disease may be triggered by many factors, including age, the overproduction of free radicals, brain inflammation, and environmental toxins. Having a susceptible gene does not necessarily mean a person will develop the disease, but some gene mutations directly cause the disease in the relatively rare forms of familial Alzheimer's that usually occur early in life, before the age of 60.

In recent years, scientists have identified dozens of mutations on three genes, APP, PSEN1, and PSEN2, that cause familiar early-onset Alzheimer's disease. These mutations trigger the production in the brain of large amounts of a toxic protein fragment called amyloid beta peptide, which forms plaques in the brain — a key feature of Alzheimer's. Scientists have also found that variations, or alleles, of another gene, apolipoprotein E (APOE), increase the risk of late-onset Alzheimer's, the more common form of the disease. The e4 allele of the APOE gene is of particular interest. Research has shown that the more APOE e4 alleles a person inherits, the lower the age at which he or she develops Alzheimer's. Yet some people inherit two copies of the APOE e4 allele and never develop the disease — one of the genetic riddles researchers soon hope to solve.

So far, the known Alzheimer's disease genes account for only 30 percent of the genetic risk of the disease, but scientists believe they have a good chance of figuring out the remaining 70 percent of the genetic puzzle within the next few years. The full genetic mapping of Alzheimer's disease promises to greatly speed up the development of effective strategies aimed at early prevention and treatment. Researchers are already working on

DNA vaccines that will reduce the formation of amyloid beta plaques — and, hopefully, keep Alzheimer's at bay.

Parkinson's disease is the second most common neurodegenerative disorder after Alzheimer's, affecting 1.5 million Americans. It occurs when nerve cells located in a small area of the brain known as the substantia nigra become damaged or destroyed and stop producing dopamine, a chemical that helps transmit messages within the brain. People with Parkinson's disease experience tremors, muscle stiffness, poor balance, and slowness of movement.

Until a decade ago, scientists believed Parkinson's had little or no genetic component. Then, in 1997, a mutation on the gene coding for a protein called alpha synuclein was identified in several large families in whom a rare, early-onset (before age 50) form of the disease was unusually common. That discovery led scientists to study the role of alpha synuclein in Parkinson's disease. They found that abnormal deposits, or clumps, of the protein — called Lewy bodies — tend to form inside the nerve cells of people with the disease. The exact role that these clumps play in the development of Parkinson's is currently being investigated.

Mutations in other genes also have been linked to familial, early-onset forms of Parkinson's. The vast majority of Parkinson's cases, however, are sporadic — meaning they don't seem to run in families. Researchers now believe that these more common, late-onset forms of Parkinson's are caused by a combination of genetic susceptibility and exposure to one or more environmental toxins that trigger the disease.

The pace of the hunt for genetic links to the sporadic forms of the disease has greatly quickened in recent years. In 2005, researchers found a link between late-onset Parkinson's and a mutation on the leucine-rich repeat kinase 2 gene, located on a region of chromosome 12 known as PARK8. Scientists have also completed two large-scale scans of the entire human genome for SNPs associated with Parkinson's disease. These databases, which include hundreds of thousands of SNPs, are proving to be an invaluable resource for understanding the genetic causes of Parkinson's. In 2007, after mining one of the databases,

scientists found that people with certain combinations of SNPs have a 90-fold increased risk for the disease.

Identification of Parkinson's-associated gene mutations is crucial for understanding how the disease develops — and for the creation of effective therapies. Scientists are already exploring ways of repairing defective Parkinson's-related genes — and thus possibly halting or reversing the disease's progression.

Scientists are also getting closer to unlocking the genetic clues that increase the risk for developing major psychiatric illness, such as schizophrenia and bipolar disorder. It's estimated that in any given year as many as 44.3 million Americans have a diagnosable mental illness and that 30 percent of Americans develop such an illness during their lifetime.

Much progress has been made in the past two decades in diagnosing and treating psychiatric disorders, but we remain woefully ignorant about the underlying causes. Genetics are definitely involved in mental illness, interacting in complex ways with environmental factors. Many serious mental illnesses run in families, and studies of families with one or more affected members have clearly identified schizophrenia, bipolar disorder, and several other mental illnesses as having a strong and multifaceted genetic component.

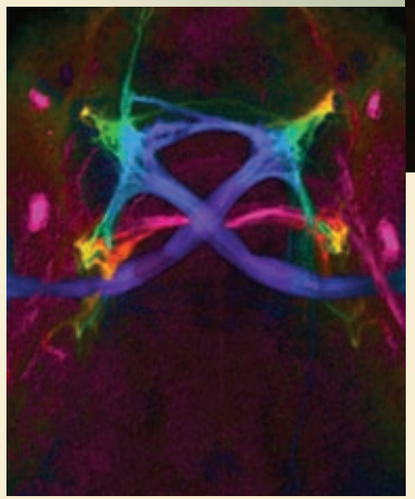
The new science demonstrating the importance of genes is another nail in the coffin of the old argument that mental illness is different from other diseases such as cancer. This may open the way toward more funding for research and insurance coverage. Research has clearly demonstrated that mental illnesses, like other diseases, have a biological basis.

Schizophrenia, a brain disorder characterized by delusions, hallucinations, and aberrant behavior, has long been known to run in families. Although only 1 percent of the general population develops schizophrenia, the incidence rate rises to 10 percent among people with an affected parent, brother, or sister. Those with an identical twin with schizophrenia are at the greatest risk: They have a 41 to 65 percent chance of developing the disorder themselves.

found a link between schizophrenia and a common variant of a "master switch" gene that helps integrate information within the brain. In most people, this gene improves thinking, memory, and other cognitive activities. In people with schizophrenia, however, the gene appears to interact negatively with other genetic and environmental factors, leading to the symptoms characteristic of the illness.

In recent years, scientists have been surprised to discover that several regions of the genome are implicated in both schizophrenia and bipolar disorder, another serious brain disease that causes extreme

"The new science demonstrating the importance of genes is another nail in the coffin of the old argument that mental illness is different from other diseases such as cancer. This may open the way toward more funding for research and insurance coverage."

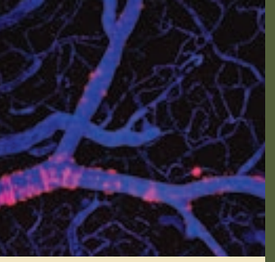


Scientists have identified more than a dozen gene variants linked to schizophrenia. These risk variants appear on genes associated with brain development and synaptic transmission — the exchange of information from one nerve cell to another. One is a variant of the COMT gene, which codes for an enzyme (catechol-O-methyltransferase) involved in the breakdown of dopamine. Research suggests that when the dopamine system is either overactive or underactive, schizophrenic symptoms may develop. More recently, researchers have

mood swings and that affects an estimated 2.3 million American adults. These findings suggest that both illnesses share some genetic risk factors and may also explain symptoms common to both illnesses. Bipolar patients sometimes experience schizophrenia-like hallucinations and delusions and, conversely, schizophrenic patients sometimes experience major depression or even manic episodes.

Of particular interest is a gene region on chromosome 13, which activates D-amino oxidase, a protein involved in synaptic transmission. Variants of this gene appear to create a susceptibility to the mood disorders associated with both diseases. Also under close scrutiny is a variant in the gene for neuregulin 1, a growth factor involved in brain development. Recently, scientists have also pinpointed how different variants to another gene — DISC1 — can cause some people to suffer from schizophrenia while others develop major depression.

Despite the speed with which scientists are identifying the genetic underpinnings of these and other brain disorders, an enormous amount of work remains. Yet already this research has led to more accurate diagnoses of brain disorders — diagnoses based on biology rather than symptoms. It has also given scientists better knowledge-based tools to create promising new treatments to slow, prevent, or even reverse these genetically complex illnesses, thus bringing hope to millions of affected Americans and their families.



CHAPTER 7

The Journal of *Neuroscience*

The Journal of Neuroscience, the premier publication covering all topics in contemporary neuroscience, took several steps during FY2007 to transform and improve the ways it interacts with its many audiences to advance the goals of presenting information quickly and efficiently in the electronic age.

John Maunsell, a professor of neurobiology at Harvard Medical School and the Howard Hughes Medical Institute, was named *The Journal's* seventh editor-in-chief. Maunsell will start his five-year term on Jan. 1, 2008. For the last eight years, he has served as both a Reviewing and Senior Editor for *The Journal*. He will continue and expand on the enormous contributions of the current Editor-in-Chief, Gary Westbrook.

Under Westbrook's leadership, *The Journal* developed new communication connections with its authors, members, the scientific community at large, and the public. It began to publish on a weekly schedule, reduced the time from acceptance to publication to 27 days, implemented an open access policy for all articles six months after publication, and transitioned from a print publication to a primarily electronic one. Important new feature content was introduced by Westbrook to increase the range of scientific content in *The Journal* to fill 14,300 pages, while maintaining a 23 percent acceptance rate. He has maintained a strong commitment to scientific excellence coupled with fairness in the review process, and overseen a number of improvements in the manuscript processing and production process.

This year the SfN Scientific Publications Committee recommended to Council that the online journal be acknowledged as the Society's journal of record going forward, while continuing to provide print issues to subscribers willing to pay the full incremental cost of producing and distributing them. This decision stemmed, in part, from the results of the June 2006 SfN survey of members and authors about future options for *The Journal of Neuroscience*. An overwhelming majority of respondents reported using the online edition much more frequently than the print edition, and voiced approval of transitioning to exclusively online publication.

Submissions of manuscripts and subscriptions continued to rise in FY2007. The number of submissions numbered more than 5,700 in 2006. Submissions of feature material, such as Journal Club and Toolbox articles, increased by about 40 percent in FY2007 compared with the previous year. Both features have been well received by graduate students, as well as seasoned researchers. In FY2007, *The Journal* had 1,035 institutional subscriptions, 337 of which were online only and 698 of which were online plus print. This number includes an increasing number of multi-site licenses.

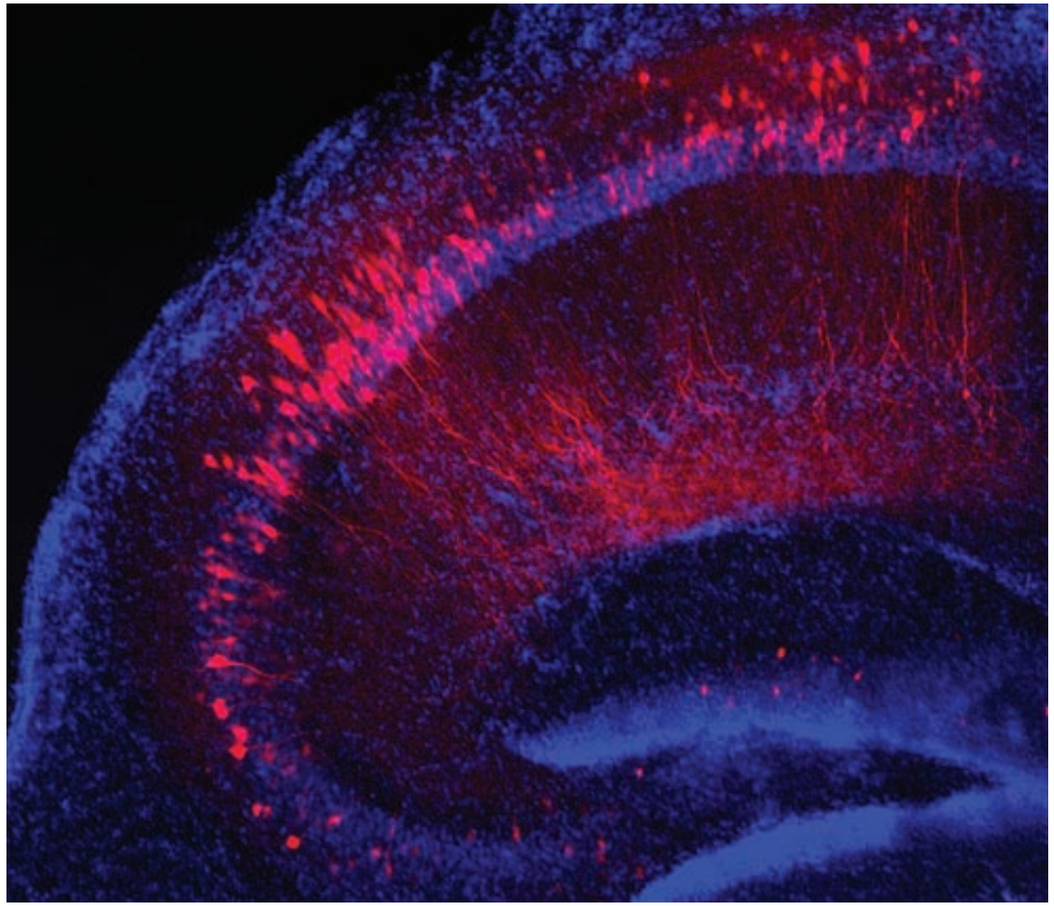
The Journal will continue to offer its readers the complete line of online features such as CITE-TRACK, eLetters, and collected papers, as well as links to cited articles through its participation in CrossRef.

In FY2007, *The Journal* continued to make innovations designed to increase the quality and usability of the publication. A new online feature was "The Most Frequently Read Articles," which lists the 50 most frequently downloaded articles in the last month. Among them was "On the Move from Academia to Industry: Established Neuroscientists Who Have Made the Transition from Academia to Industry Are Finding Different Rewards in a New Environment." This was the first article in a new editorial series entitled Neuroscience in Brief, which focuses on non-academic aspects of neuroscience.

A landmark event during FY2007 was "PubMed Plus: New Directions in Publishing and Data Mining," a leadership conference sponsored by

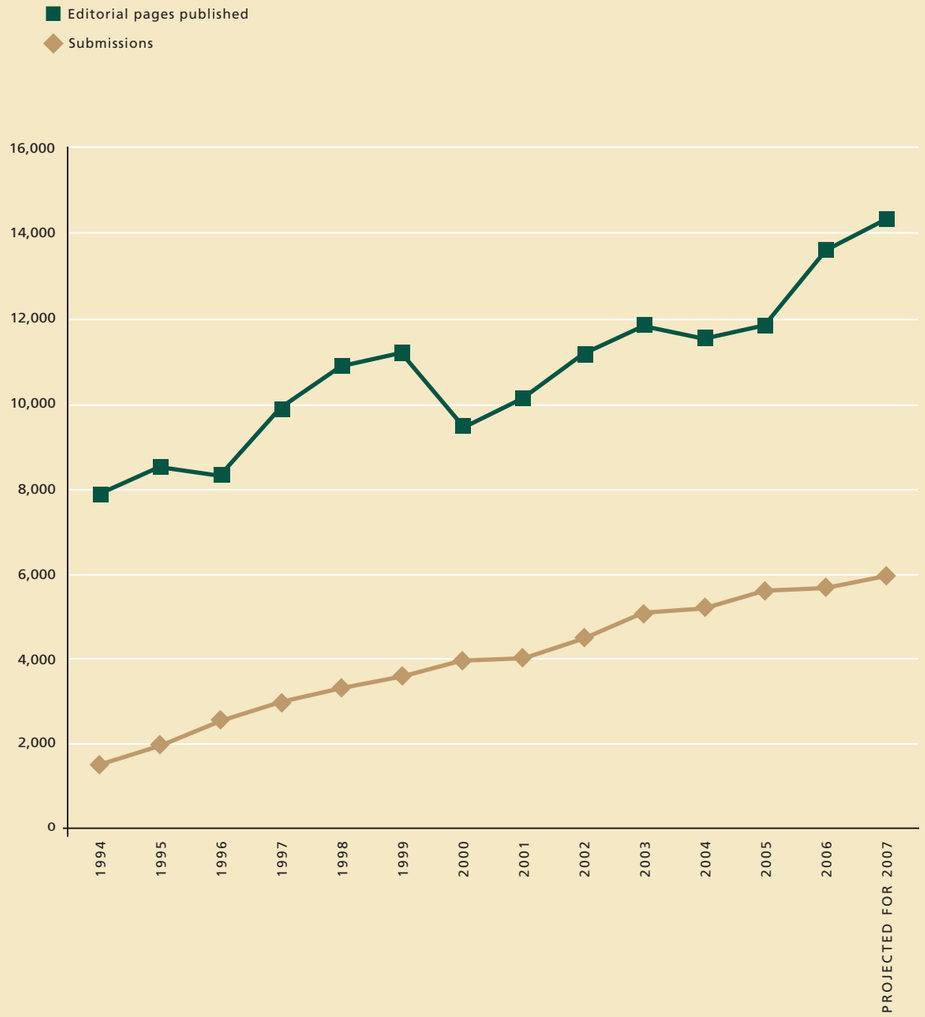
SfN VALUE

Seeking innovative ways to utilize technology to better serve members and to help manage the problems of scale as a successful association in the 21st century.



SfN to explore ways to enhance synergies between online journals and databases. The meeting was proposed by the SfN Neuroinformatics Committee, and in October 2006, SfN Council approved a proposal to organize a leadership conference in June 2007 on data sharing through databases. The goals were to discuss how neuroscience journals and databases might operate more collaboratively and permit more powerful mining of text and data published in the neuroscience literature. Participants in the resulting PubMed Plus conference included an international group of working scientists, journal editors and publishers, experts in computer science and semantic web technology, librarians, and representatives from scientific societies and funding agencies, many, but not all having some association with neuroscience. Ideas from the conference will be presented at a roundtable discussion at Neuroscience 2007 in San Diego. SfN will present "New Directions in Data Mining: Synergistic Enhancements of Online Journals and Databases," a roundtable discussion, moderated by David Van Essen, in which panelists will present new ideas that emerged from the conference, including a new proposed Neuroscience Peer Review Consortium for sharing reviews between neuroscience journals; ideas for capturing experimental metadata to enhance searching and data mining; better ways to link databases and journal publications; and approaches toward standardizing and sustaining databases and journal supplementary materials.

1994–2007 MANUSCRIPT SUBMISSIONS AND EDITORIAL PAGES PUBLISHED



Form Follows Function: The Fusion of Neuroscience and *Architecture*

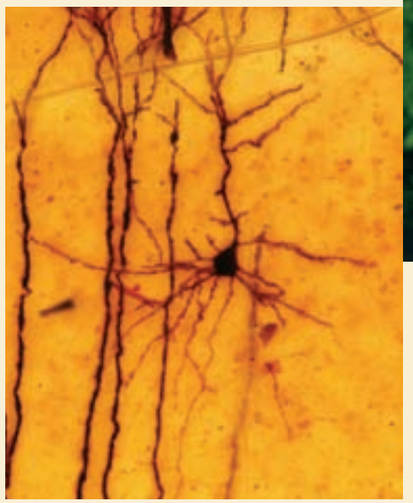
Considering the many hours we spend in the built environment — spaces for living, working, and playing — creating structures that optimally affect our lives, experiences, productivity, and moods would be quite advantageous. This "power of place" is bringing neuroscientists and architects together in search of keys that may ultimately transform our understanding of built environments and how they influence us.

The goal of architecture is practical — to design a building — with an instinctive understanding of how and why it works. Historically, architects have relied on intuition and creativity to inform their designs. Studies on the interaction between environment and human thought and behavior depended on observing how people reacted to the built environment after it was constructed.

But now, neuroscience is showing promise as a significant tool to help architects scientifically understand and test their intuitive observations and hypotheses. Advances in neuroscience are discovering how and why people perceive the world as they do; how people think, move, learn, and remember. Architecture may have the most impact when buildings are designed around how the brain reacts to and is influenced by different environments. Such spaces would enable people to live, work, and play to their fullest potential. Ideas already emerging incorporate neuroscience research in the design plans of healthcare facilities, academic buildings, research laboratories, correctional facilities, and spiritual retreats.

The underlying principle of blending neuroscience and architecture comes from the discovery that the adult brain is more plastic, or changeable, than previously thought. Enriching both behavioral and environmental factors has been shown to improve cognition and alter the brain in animal models, including stimulating the birth of new neurons throughout adult life in some main brain structures. If this is true, then buildings where people spend most of their time can influence the fundamental structure of the brain, and therefore affect people's thoughts and behaviors in either positive or negative ways.

The collaboration between neuroscience and architecture is in its infancy, but it is likely that over the next 10 to 20 years, the findings of neuroscience will increasingly influence the practice of architecture. Groups like the Academy of Neuroscience for Architecture (ANFA), a nonprofit organization in San Diego are helping to cultivate this changing paradigm. Formed in May 2003, ANFA plays a significant role in fostering collaboration between neuroscientists and architects to study how and why the human brain perceives and responds to architectural cues. Professionals in these fields are generating comprehensive hypotheses from which systematic experiments can be constructed. The eventual goal is to accumulate evidence-based results that architects can use to design buildings that positively affect people's performance and experience. Several universities already have begun to teach courses using this interdisciplinary approach.



The synthesis of neuroscience and architecture is catching on, particularly in healthcare facility design, including hospitals and centers for Alzheimer and elder care. Because newly built facilities need to last for decades, the ideal is to design buildings using evidence-based methods that successfully and cost-efficiently serve all users. The neuroscience of healing and navigation are two big areas of research that have begun to interest neuroscientists and architects, especially regarding hospital design.

Studies are showing that the brain and body are strongly intertwined when it comes to healing. Research is finding pathways connecting the areas of the brain that generate thoughts and feelings with the immune system, which controls disease and infection resistance. Scientists are learning more about how these pathways work and their implications for many diseases. Neuroscience is now beginning to find measurable evidence confirming what is known intuitively — that being exhausted or stressed can make a person more vulnerable to illness.

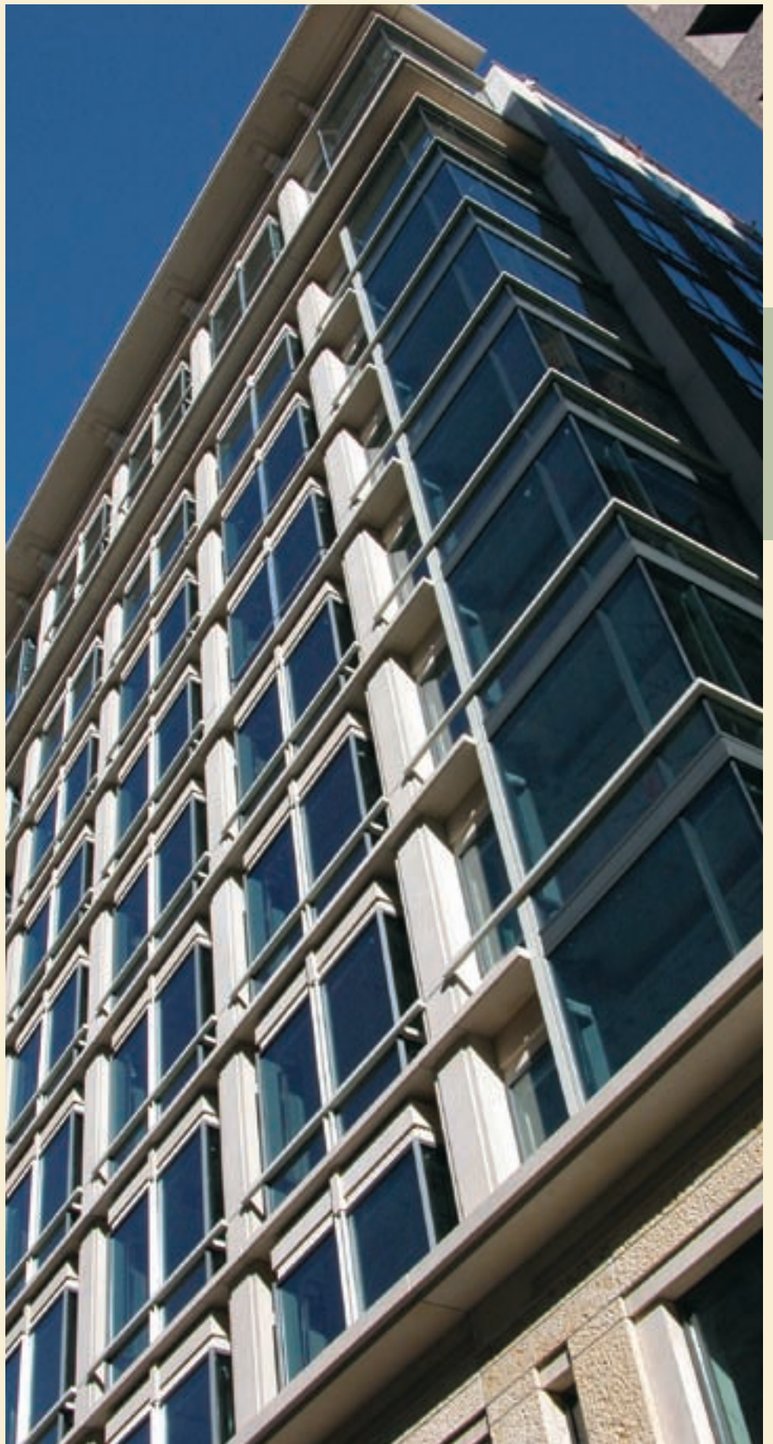
Scientists have also found that rodents subjected to factors like crowding, sudden loud noises, bright lights, lack of landmarks, and new environments can show a physiological stress response. This response includes increased activation of the stress chemical corticotrophin-releasing hormone in the brain's hypothalamus. Taken together, stress and immunity research could lead to designing spaces that avoid triggering stress reactions and instead enhance the calming and healing properties of people's brains and bodies.

Kaiser Permanente is one organization that is fusing the neuroscience of healing with design, as it rebuilds healthcare facilities previously destroyed by earthquakes. Kaiser and two other organizations recently received a Latrobe Fellowship — a monetary research award granted by the American Institute of Architects — to research multi-cultural influences and healing in healthcare facilities. This award builds from the 2003 fellowship, which aided research on how the human brain perceives architecture at the biomedical level.

The Hearthstone Alzheimer Care facilities in Massachusetts are other examples of designs that use the neuroscience of healing, as well as memory and navigation research. Hearthstone has created a physical environment to improve the care of patients living with Alzheimer's disease. The aim is to reduce symptoms such as stress, aggression, withdrawal, and depression. Placing memory cues, like photos from the past or a familiar object, in central locations, could bolster Alzheimer patients' memories and decrease the stress of forgetting. The building design also helps patients find their way, thus avoiding the stress of being lost. The map portion of the brain is no longer accessible to someone with Alzheimer's, so architects designed a "mapless" building. The center is a dog-bone-shape, with no obstructions or corners, enabling patients to see all spaces no matter where they are.

A growing body of research in navigation, including memory and spatial orientation, may help not only Alzheimer's and elderly patients, but also anyone needing to navigate complex buildings successfully and stress-free.

Past research has shown that the brain's hippocampus is involved in navigation and the formation and retrieval of memory. Newer animal studies have found that specific neurons in the hippocampus track the direction the animal is facing and change when the animal moves between environments. Another experiment showed that rats swimming in milky water in search of a hidden platform did better with shapes on the walls to find the platform. Without landmarks, the rodents took longer to learn the platform location and showed signs of physiological stress. Scientists think that disorientation may stem from difficulty in tracking direction within an environment and relating the orientation of one environment to another.



"Architecture may have the most impact when buildings are designed around how the brain reacts and is influenced by different environments. Such spaces would enable people to live, work and play to their fullest potential."

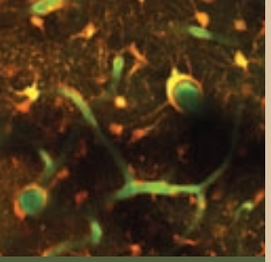
Using landmarks and cues, such as floor textures, pictures on the walls, or wall colors, as a person travels through an interior path may help with navigating a complex structure. Windows to the external landscape also may help. Windows have been shown to support the brain's orienting system and provide stability to spatial representations in the hippocampus, thus reinforcing a strong sense of space.

Architecture also will benefit from new brain-related technologies that didn't exist 10 years ago. Advances like functional brain imaging now may reveal what goes on in the brain as a person experiences a built space.

One research team is taking advantage of this new brain technology and pairing it with virtual reality to investigate navigating complex environments. The scientists' research is twofold. One aim is to create a virtual building and test protocol that will accurately represent a real building and how a person experiences it, as measured by brain and physiological activity. The team is investigating, both in reality and virtual reality, what happens in the brain and body as a person navigates through the built environment. If the scientists are successful in creating a virtual building and protocol for testing its effect on a person's brain and behavior, this discovery will open the door to many design opportunities. These include helping architects to better predict and test how a structure's design will affect the human experience before the building is constructed.

Neuroscientists and architects are exploring a host of other ways brain function interacts with design. Researchers currently are investigating methods to improve a person's experience in office spaces, including designing experiments to measure stress responses — such as cortisol levels, heart rate, mood, and problem solving — in tests and real office environments. Scientists are asking other questions as well. If architects build unimpeded, free flow spaces that the hippocampus views as continuous areas, will this stimulate the free flow of ideas, creativity, and productivity in facilities such as classrooms and research laboratories? How can designers use knowledge of the brain's developmental stages to create classrooms geared to boost learning at those stages?

The collaboration of neuroscience and architecture is off to an exciting and promising beginning. If it is correct that the physical environment can change the brain in a positive way to enhance our quality of work and play, then the architect's impact is greater then we imagined. Continuing collaboration of neuroscientists and architects will be essential in creating spaces that stimulate healthy physical and mental function. This fusion of disciplines and talent will ultimately enhance our interior experience in more ways than one.



CHAPTER 8

Financial *Highlights*

The ongoing strong fiscal position enjoyed by the Society for Neuroscience is due to continuing vigilant internal oversight of its financial controls and systems to ensure they adhere to current best practices for nonprofit financial management. This year, the Society focused on leasing the space in its new headquarters building in Washington, DC — an 11-story testament to past prudent financial planning and management. The headquarters building will provide a revenue stream that will help protect and enhance Society programs well into the future.

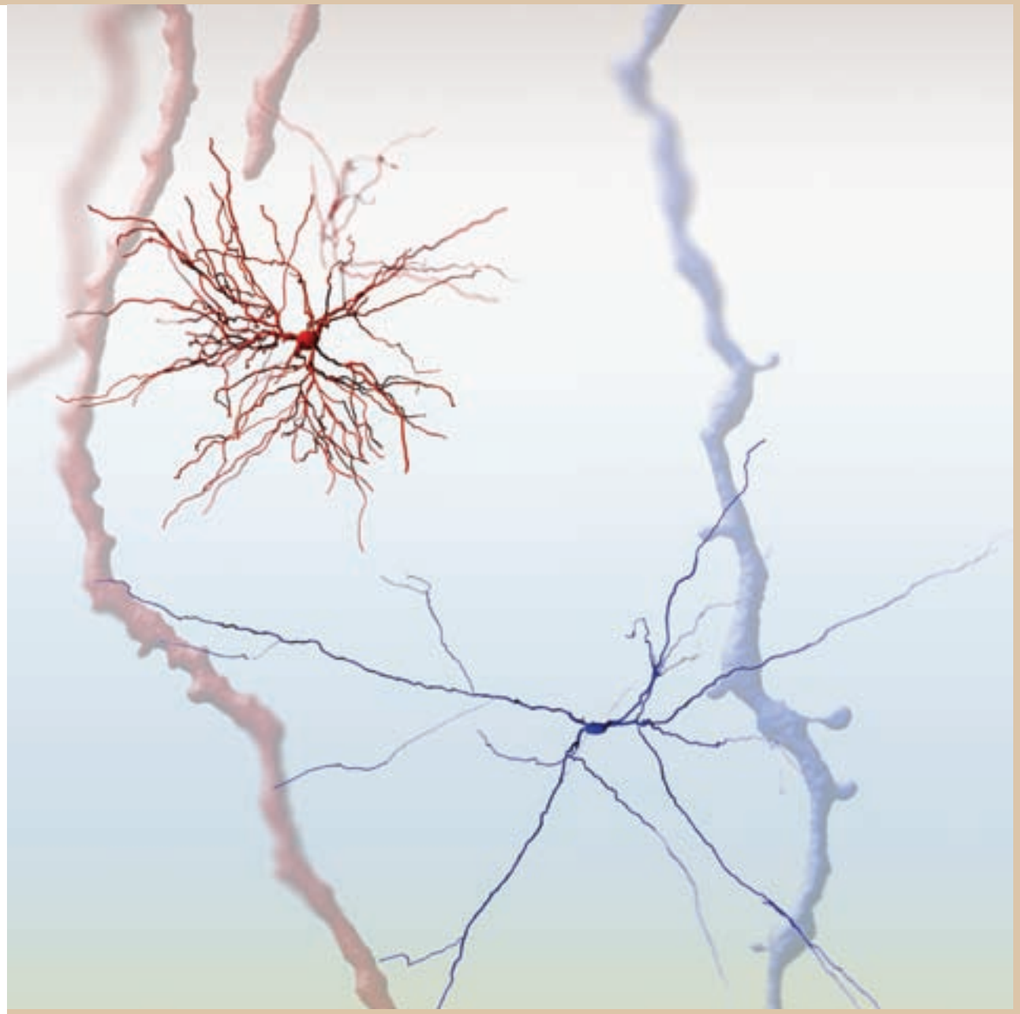
Gelman, Rosenberg & Freedman audited the Society's financial operations for the fiscal year, beginning July 1, 2006, and ending June 30, 2007. The auditor's opinion letter and the audited financial statements are included later in this section.

The SfN headquarters building, located at 1121 14th St., NW, near Thomas Circle, occupies the top three floors. As of the end of August 2007, six tenants have signed leases, representing 77 percent of the building, with two more leases under negotiation. SfN's leasing team continues touring the space with the goal of full occupancy in 2008. As anticipated, during this year of very active leasing, construction of office space and tenants moving into the building, there have been significant upfront costs, with rent revenue in the first full fiscal year of ownership beginning to increase along with occupancy.

The building will begin generating a positive cash flow in fiscal year 2008, during which there will be a gradual ramp up of rent revenue, as well as other building related revenues, such as parking fees and operating expenses. Owning a building in one of the nation's strongest and most stable commercial real estate markets will put the Society in a better position to manage existing programs and initiate new ones, and to maintain reasonable costs to members over the long-term for annual dues, annual meeting fees, and *The Journal of Neuroscience*.

The growing membership — up more than 30 percent in the past five years — continues to be the organization's greatest strength. Although in 2006 the total membership declined slightly, membership dues continue to be a major revenue source for the Society. So far in calendar 2007, membership has trended up, already surpassing 2006 levels and appears headed for a new record. Another crucial revenue stream is the annual meeting, which continues to draw significant attendance. Although Neuroscience 2006 saw a decrease in attendance from the previous few years, annual meeting related revenues still comprised more than a third of the Society's annual revenue of over $24.5 million. Registration fees, exhibitor fees, and other annual meeting fees, such as those for abstract submission, provide somewhat independent revenue streams even within the annual meeting revenues. Based on early registration figures, the 2007 annual meeting attendance is headed for a significant increase over 2006.

At the same time, SfN saw growth of nearly $500,000 in the area of grants and sponsorships. While funding from NIMH for the Minority Neuroscience Fellowship Program was ended, the Society received a new $650,000 grant from the Eli Lilly & Company Foundation to endow the Julius Axelrod Prize, and 2007 is the inaugural year for this new prize. In addition, SfN has received continuing funding from NINDS to support both the Neurobiology of Disease Workshop and the Neuroscience Scholars Program. Funding from private foundations and corporations has also continued, including a few new agreements, to sponsor educational programs both at the annual meeting and elsewhere. The Society has continued to build strong



SfN VALUE

Building a model of iterative planning into the fabric of SfN governance and management processes, incorporating regular evaluation of the impact and success of initiatives and activities and periodic revisiting programs.

relationships with public, private, and corporate organizations, with an eye to strengthened collaborations, both now and in the future. These development efforts during fiscal year 2007 have paid off with several new long term support agreements that will translate into increased funding in fiscal year 2008.

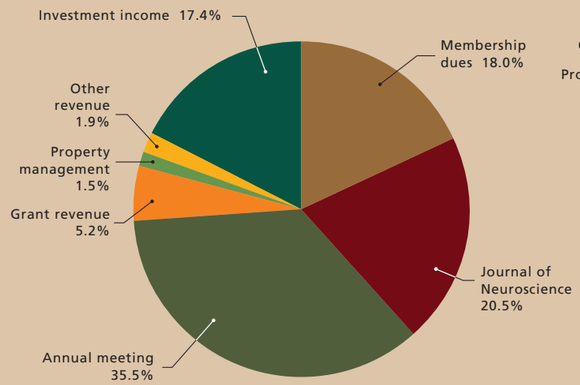
The Society also generates revenue through *The Journal of Neuroscience*, primarily from institutional subscriptions and author submission, publication, and reprint charges. The Society's reserve strategy allows for using a portion of current and future reserves to generate income that could, at some point in the future, be utilized to support *The Journal*. This support will be critical during a time when all publishers' business models are facing the challenges of the ever-changing world of digital publishing.

At the end of fiscal year 2007, the Society's investment reserves were valued at a total of more than $32 million. SfN's investments experienced very strong returns in fiscal year 2007, resulting in investment income of nearly $4.3 million. The Society's current investment strategy, guided by the outside investment experts who provide *pro bono* advice as members of SfN's Investment Committee, is flexible and sector-based, prudently allowing for the ups and downs of the economic cycle. Council, in consultation with the Society's Investment Committee, will continue to provide the oversight necessary to successfully manage the reserves. Maintaining a healthy reserve fund will help protect SfN from the volatile economic climate that continues to confront the entire nonprofit community.

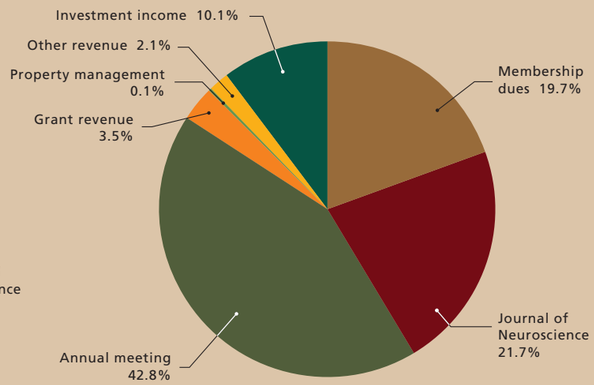
As mentioned previously, SfN's building is expected to generate revenue beginning in the coming year, and together with anticipated growth in membership and annual meeting attendance, SfN expects additions to the reserves in the coming fiscal year. Within five years, SfN aims to establish financial reserves adequate to cover all identified risks the Society might face in a given year. The Finance and Investment Committees continue to examine the reserve strategy based on investment returns, revenue and spending projections, and risk assessment. The committees are also taking steps, in consultation with the SfN Council, to explore how best to utilize and leverage those funds as the Society strives to find more ways to support its scientific mission and enhance member value.

CURRENT AND PAST FISCAL YEAR REVENUE AND EXPENDITURES BY ACTIVITY

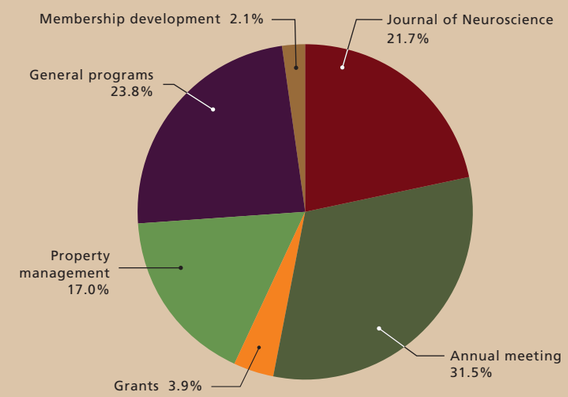
FY2007 REVENUE — $24,565,776



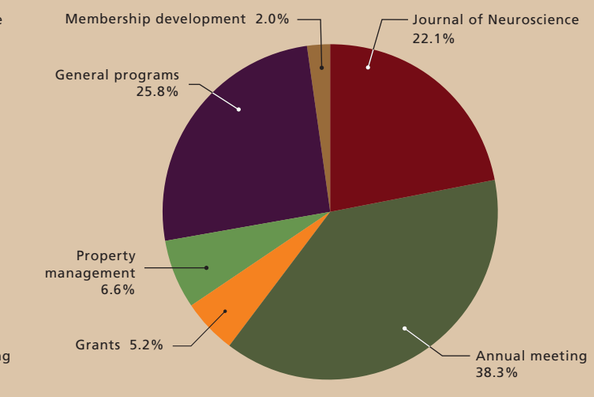
FY2006 REVENUE — $22,770,396



FY2007 EXPENSES — $21,823,072



FY2006 EXPENSES — $19,593,269



GELMAN, ROSENBERG & FREEDMAN
CERTIFIED PUBLIC ACCOUNTANTS

INDEPENDENT AUDITORS' REPORT

To the Council
Society for Neuroscience and 1121 Properties, LLC
Washington, D.C.

We have audited the accompanying consolidated statement of financial position of the Society for Neuroscience and 1121 Properties, LLC (collectively the Society), as of June 30, 2007, and the related consolidated statements of activities and change in net assets and cash flows for the year then ended. These financial statements are the responsibility of the Society for Neuroscience's management. Our responsibility is to express an opinion on these financial statements based on our audit. The prior year summarized comparative information has been derived from the Society's 2006 financial statements and, in our report dated August 18, 2006, we expressed an unqualified opinion on those statements.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of the Society for Neuroscience and 1121 Properties, LLC, as of June 30, 2007, and their consolidated change in net assets and their consolidated cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

Gelman Rosenberg & Freedman

September 4, 2007

4550 MONTGOMERY AVENUE · SUITE 650 NORTH · BETHESDA, MARYLAND 20814
(301) 951-9090 · FAX (301) 951-3570 · WWW.GRFCPA.COM

MEMBER OF CPAMERICA INTERNATIONAL, AN AFFILIATE OF HORWATH INTERNATIONAL
MEMBER OF THE AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS' PRIVATE COMPANIES PRACTICE SECTION

BALANCE SHEET *(as of 6/30/2007)*

ASSETS	2007	2006
Current Assets		
Cash and cash equivalents	$641,102	$1,899,137
Accounts receivable, net of allowance for doubtful accounts	536,576	515,245
Prepaid expenses	1,489,031	1,824,536
Total current assets	2,666,709	4,238,918
Non-current Assets		
Investments (Note 2)	32,048,816	27,391,292
Property, furniture, equipment and improvements, net of accumulated depreciation and amortization of $2,389,569 and $1,142,819 for 2007 and 2006, respectively (Notes 5, 7 and 8)	34,301,555	33,259,396
Deposits	3,892	3,892
Total non-current assets	66,354,263	60,654,580
Total assets	$69,020,972	$64,893,498

LIABILITIES AND NET ASSETS		
Current Liabilities		
Current portion of note payable (Note 7)	$425,000	$65,529
Line of credit (Note 9)	1,030,556	-
Accounts payable and accrued liabilities	2,427,405	2,201,066
Deferred revenue	5,214,992	5,087,117
Total current liabilities	9,097,953	7,353,712
Non-Current Liabilities		
Note payable, net of current portion (Note 7)	19,575,000	19,934,471
Bonds payable (Note 8)	12,000,000	12,000,000
Tenant deposits	17,854	17,584
Total non-current liabilities	31,592,584	31,952,055
Total liabilities	40,690,537	39,305,767
Net Assets		
Unrestricted	27,647,259	25,587,731
Temporary restricted (Note 3)	683,176	-
Total net assets	28,330,435	25,587,731
Total Liabilities And Net Assets	$69,020,972	$64,893,498

See accompanying notes to consolidated financial statements.

STATEMENT OF ACTIVITIES *(as of 6/30/2007)*

	2007			2006
	Unrestricted	*Temporarily Restricted*	*Total*	*Total*
REVENUE				
Membership dues	$4,434,616	-	4,434,616	$4,479,078
Journal of Neuroscience	5,034,765	-	5,034,765	4,930,637
Annual Meeting	8,715,166	-	8,715,166	9,744,928
Grant revenue	599,289	683,176	1,282,465	797,882
Investment income (Note 2)	4,275,891	-	4,275,891	2,302,530
Property management revenue	367,714	-	367,714	32,931
Other revenue	455,159	-	455,159	482,410
Total revenue	23,882,600	683,176	24,565,776	22,770,396
EXPENSES				
Program services:				
Journal of Neuroscience	4,732,576	-	4,732,576	4,342,145
Annual Meeting	6,865,356	-	6,865,356	7,507,350
Grants	854,812	-	854,812	1,009,745
General Programs	5,209,862	-	5,209,862	5,051,033
Total program services	17,662,606	-	17,662,606	17,910,273
Supporting services:				
Membership development	451,918	-	451,918	392,676
Property management expenses	3,708,548	-	3,708,548	1,290,320
Total supporting services	4,160,466	-	4,160,466	1,682,996
Total expenses	21,823,072	-	21,823,072	19,593,269
Change in net assets	2,059,528	683,176	2,742,704	3,177,127
Net assets at beginning of year	25,587,731	-	25,587,731	22,410,604
Net assets at end of year	27,647,259	683,176	28,330,435	$25,587,731

See accompanying notes to consolidated financial statements.

STATEMENT OF CASH FLOWS *(as of 6/30/2007)*

CASH FLOWS FROM OPERATING ACTIVITIES	2007	2006
Change in net assets	$2,742,704	$3,177,127
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Loss on disposal of equipment	-	43,098
Depreciation and amortization	1,246,750	589,380
Realized gain from sale of investments	(1,626,330)	(1,532,324)
Unrealized loss (gain) on investments	(1,879,080)	540,224
(Increase) decrease in:		
Accounts receivable	(21,331)	272,793
Prepaid expenses	335,505	(855,090)
Deposits	-	19,941
Other assets	-	685,410
Increase (decrease) in:		
Accounts payable and accrued liabilities	226,339	285,919
Deferred revenue	127,875	58,061
Tenants deposits	-	17,584
Net cash provided by operating activities	1,152,432	3,302,123
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchase of investments	(27,164,115)	(2,277,651)
Proceeds from sale of investments	26,012,001	2,084,598
Purchase of property, furniture and equipment	(2,288,909)	(33,553,979)
Net cash used by investing activities	(3,441,023)	(33,747,032)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from notes payable	-	20,000,000
Proceeds from bonds payable	-	12,000,000
Proceeds from line of credit	1,030,556	-
Net cash provided by financing activities	1,030,556	32,000,000
Net increase (decrease) in cash and cash equivalents	(1,258,035)	1,555,091
Cash and cash equivalents at beginning of year	1,899,137	344,046
CASH AND CASH EQUIVALENTS AT END OF YEAR	$641,102	$1,899,137
SUPPLEMENTAL INFORMATION		
Interest Paid	$1,676,741	$544,009

See accompanying notes to consolidated financial statements.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION

Organization

The Society for Neuroscience is a nonprofit organization, incorporated in the District of Columbia. The primary purposes of the Society for Neuroscience are to advance the understanding of the nervous systems, including the part they play in determining behavior, by bringing together scientists of various backgrounds and by facilitating the integration of research directed at all levels of biological organization; to promote education in the field of neuroscience; to inform the general public on the results and implications of current research in this area.

The 1121 Properties, LLC (the LLC) is a limited liability company, incorporated in the District of Columbia on July 7, 2005. The primary purpose of the Company is to engage in the business of performing services as directed by the Society for Neuroscience for leasing and maintaining the leases of offices and other retail space in the premises known as 1121 14th St., NW, Washington, D.C. 20005.

The accompanying consolidated financial statements reflect the activity of the Society for Neuroscience and the LLC (collectively the Society) as of June 30, 2007. The financial statements of the two organizations have been consolidated because they are under common control. All intercompany transactions have been eliminated during consolidation.

Basis of presentation

The accompanying financial statements are presented on the accrual basis of accounting, and in accordance with Statement of Financial Accounting Standards No. 117, "Financial Statements of Not-for-Profit Organizations".

The financial statements include certain prior year summarized comparative information in total but not by net asset class. Such information does not include sufficient detail to constitute a presentation in conformity with generally accepted accounting principles. Accordingly, such information should be read in conjunction with the organization's financial statements for the year ended June 30, 2006, from which the summarized information was derived.

Cash and cash equivalents

The Society considers all cash and other highly liquid investments with initial maturities of three months or less to be cash equivalents.

At times during the year, the Society maintains cash balances at financial institutions in excess of the Federal Deposit Insurance Corporation (FDIC) limits. Management believes the risk in these situations to be minimal.

Investments

Investments are recorded at market value. Realized and unrealized gains and losses are included in investment income in the Consolidated Statement of Activities and Change in Net Assets.

Property, furniture, equipment and improvements

Property, furniture, equipment and improvements are stated at cost. Property, furniture, equipment and improvements are depreciated on a straight-line basis over the estimated useful lives of the related assets, generally three to ten years. The building and building costs are recorded at cost and are depreciated over 39 years. Expenditures for major repairs and improvements with useful lives greater than one year and in excess of $500 are capitalized, and expenditures of lesser amounts for minor and maintenance costs are expensed when incurred.

Income taxes

The Society for Neuroscience is exempt from federal income taxes under Section 501(c)(3) of the Internal Revenue Code. Accordingly, no provision for income taxes has been made in the accompanying financial statements. The Society for Neuroscience is not a private foundation.

For the purpose of corporate tax reporting for the LLC, all financial transactions are reported under the Society's filing status.

Net asset classification

The net assets of the Society are reported in two self-balancing groups as follows:

Unrestricted net assets include unrestricted revenue and contributions received without donor-imposed restrictions. These net assets are available for the operation of the Society and include both internally designated and undesignated resources.

Temporarily restricted net assets include revenue and contributions subject to donor-imposed stipulations that will be met by the actions of the Society and/or the passage of time. When a restriction expires, temporarily restricted net assets are reclassified to unrestricted net assets and reported in the Consolidated Statement of Activities and Change in Net Assets as net assets released from restrictions.

Revenue recognition

Membership dues and journal subscription revenues are recorded as revenue in the year to which the revenue is related. Contributions and grants are recorded as revenue in the year notification is received from the donor. Contributions and grants are recognized as unrestricted support only to the extent of actual expenses incurred in compliance with the donor-imposed restrictions and satisfaction of time restrictions.

Contracts and grants received from departments or agencies of the United States Government are considered to be exchange transactions (as opposed to contributions) and are not recorded as revenue until related costs are incurred.

Use of estimates -

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Accordingly, actual results could differ from those estimates.

Functional allocation of expenses -

The costs of providing the various programs and other activities have been summarized on a functional basis in the Consolidated Statement of Activities and Change in Net Assets. Accordingly, certain costs have been allocated among the programs and supporting services benefited.

Reclassification -

Certain amounts in the prior year's financial statements have been reclassified to conform to the current year's presentation.

2. INVESTMENTS

Investments consisted of the following at June 30, 2007:

	Cost	Market Value
U.S. Government obligations	$3,222,489	$3,173,290
Fixed Income	1,405,992	1,349,961
Equities	22,723,795	26,275,121
Cash	1,250,444	1,250,444
Total long term investments	**$28,602,720**	**$32,048,816**

Included in investment income are the following:

Interest and dividends	$770,481
Unrealized gain	1,879,080
Realized gain	1,626,330
Total investment income	**$4,275,891**

The investment management fees expense was $179,554 for the year ended June 30, 2007.

Included in equities are alternative investments with an estimated market value of $2,054,791. The sale of these investments is subject to certain conditions. At August 31, 2007, the market value of long-term investments was $30,969,185.

NOTES TO FINANCIAL STATEMENTS

The Society has resolved to use available funds and future earnings thereon to establish a strategic reserve pool that represents at least one year of expense budget. Based upon the intent of the Society, assets of the strategic reserve pool are classified as long term.

3. TEMPORARILY RESTRICTED NET ASSETS

Temporarily restricted net assets consisted of the following at June 30, 2007:

Julius Axelrod Prize	$650,000
Grass Traveling Scientist Award	33,176
	$683,176

4. LEASE COMMITMENTS

During fiscal year 2007, the LLC entered into three new agreements with tenants to lease office space within its premises. Subsequent to year-end, the Society entered into one additional lease agreement with a tenant. The LLC currently has a total of six tenants leasing office space within its premises. The period of the leases range from August 14, 2006 to September 30, 2017. Rental income from these leases is included in the accompanying Statement of Activities and Change in Net Assets in property management revenue.

The following is a schedule of future minimum rental payments to be received by the LLC:

Year Ended June 30,	Tenants
2008	$1,236,551
2009	1,570,511
2010	1,609,774
2011	1,529,823
2012	1,250,217
Thereafter	6,132,182
	$13,329,058

5. PROPERTY, FURNITURE, EQUIPMENT AND IMPROVEMENTS

At June 30, 2007, property, furniture, equipment and improvements consisted of the following:

Land	$7,150,400
Building	22,769,095
Building Improvements	3,782,787
Furniture	1,103,570
Computer equipment	1,190,136
Other	695,136
	36,691,124
Accumulated depreciation and amortization	(2,389,569)
Total	**$34,301,555**

Depreciation expense was $1,246,750 for the year ended June 30, 2007.

6. DEFINED CONTRIBUTION PENSION PLAN

The Society maintains a defined contribution plan for employees meeting certain eligibility requirements. Eligible employees may contribute a percentage of their salary subject to the maximum contribution as per the applicable IRS regulation. The Society contributes 8% to 16% of a participating employee's salary depending upon the percentage of contribution made by the employees. The Society's contributions to the plan for the year ended June 30, 2007 totaled $525,757.

7. NOTE PAYABLE

On February 1, 2006, the Society entered into an agreement to purchase the property at 1121 14th Street, NW, Washington D.C. The purchase was financed through a $20 million note payable from Bank of America, N.A. The note calls for interest only payments until the building reaches stabilization of tenant income or once a period of eighteen months has elapsed since the closing. As of August 1, 2007, the latter criteria was met. The Society entered into a swap agreement to artificially fix the interest rate. The swap fixes the interest rate at 5.68% for the term of the note.

Future minimum principal payments are as follows:

Year Ended June 30,	
2008	$425,000
2009	483,333
2010	512,500
2011	537,500
2012	563,334
Thereafter	17,478,333
	20,000,000
Less: Current Portion	(425,000)
Non-Current Portion	**$19,575,000**

8. BONDS PAYABLE

On February 1, 2006, the District of Columbia agreed to issue its Variable Rate Revenue Bonds (Society for Neuroscience Issue) Series 2006 in the aggregate principal amount of $12,000,000 for the benefit of the Society through Bank of America, N.A. in order to finance a portion of the costs of acquiring, constructing, and furnishing the office building, including parking garage, located at 1121 14th Street, NW, Washington D.C. The Society agreed to pay the principal or purchase price of and interest on the bonds. The bonds carry a fluctuating rate of interest per annum that approximates the BMA index (a national index of seven-day floating tax-exempt rates). As of June 30, 2007, the interest rate was 4.0%. Principal payments shall begin March 1, 2030.

9. LINE OF CREDIT

The Society has a line of credit with Citigroup Global Market, Inc. in the amount of $5,000,000, with a fixed interest rate based on the applicable floating rate, LIBOR plus 50 basis points (6% at June 30, 2007). As of June 30, 2007, the line of credit had borrowings in the amount of $1,030,556. The line of credit is collateralized by investments held by Citigroup.

10. REVOLVING CREDIT NOTE

The Society has a Revolving Credit Note with Bank of America, NA in the amount of $1,000,000, with an interest rate per annum equal to the applicable floating daily rate of the British Bankers Association (BBA), LIBOR plus 75 basis points. As of June 30, 2007, the Revolving Credit Note had no borrowings.

Photography *Credits*

Cover: A chemical reaction catalyzes change within the inner environment (the "glow") of neurons in the mouse hippocampus, a brain structure important for learning and memory. The neuronal "glow" diminishes as injury causes an increase in the levels of chloride inside the cells, resulting in degeneration of the neurons and memory deficits.

Courtesy of Thomas Kuner, with recognition for the work of George Augustine and Guoping Feng. See also Pond et al, "The Chloride Transporter NKCC-1 Contributes to Intracellular Chloride Increases After In Vitro Ischemia."

Inside Front Cover, Far Left: A trace of calcium activity in the thermosensory AFD neuron in *Caenorhabditis elegans*, recorded while the freely moving worm navigated a spatial temperature gradient. The trace itself follows the worm's crawling motion on the gradient, and the color indicates instantaneous calcium activity: red is active, blue is inactive.

Courtesy, with permission: D. Clark et al; *The Journal of Neuroscience* 2007, 27(23):6083-6090.

Inside Front Cover, Far Right: Rapid retraction of presynaptic motor axon terminals after postsynaptic protein synthesis inhibition. A cell-impermeant protein synthesis inhibitor is injected along with a fluorescent dextran near the neuromuscular junction of a muscle fiber in a living adult mouse. Three days later, the motor axon (yellow-green) innervating the injected muscle fiber (magenta) has become thin and has retracted from postsynaptic acetylcholine receptors (red), whereas surrounding motor axons (cyan) show normal caliber and full occupation of receptor sites.

Courtesy, with permission: C. McCann et al; *The Journal of Neuroscience* 2007, 27(22):6064-6067.

Page 1: Immunofluorescence image reflecting the expression of the CB1 cannabinoid receptor (blue) in nestin-positive mouse hippocampal progenitors (green) that coexpress GFAP (red). In addition, CB1 is also present in differentiated astrocytes nestin–GFAP+ and other double-negative cells is shown.

Courtesy, with permission: T. Aguado et al; *The Journal of Neuroscience* 2006, 26(5):1551-1561.

Page 2: Confocal optical section through a *Frizzled6-/-* mouse organ of Corti immunostained for *Frizzled3*. Inner hair cells are at the bottom of the image and outer hair cells are at the top. The cuboidal pillar cells can be seen sandwiched between the inner hair cells and the first row of outer hair cells. *Frizzled3* is localized asymmetrically in a small zone of plasma membrane in both the hair cells and pillar cells.

Courtesy, with permission: Y. Wang et al; *The Journal of Neuroscience* 2006, 26(8):2147-2156.

Page 5: Fibroblast growth factor (FGF) receptor 1 is highly expressed in calbindin-negative dopaminergic neurons in adult ventral midbrain. The image shows the immunostaining of tyrosine hydroxylase (red), FGF receptor 1 (green), and calbindin (blue), supporting the result that FGF-20 is preferentially acting on calbindin-negative dopaminergic neurons, which are known to be at most risk in Parkinson's disease. The image has been processed to provide a watercolor effect.

Courtesy, with permission: S. Murase et al; *The Journal of Neuroscience* 2006, 26(38):9750-9760.

Page 6: The illustration shows an artistically modified two-photon fluorescence image of a dendrite and a synaptic spine of a cortical layer 2/3 pyramidal neuron. The Ca2+ dependence of the synaptic modifications for spike-timing-dependent plasticity induction protocols was investigated in spines on basal dendrites. It was found that the peak Ca2+ transient amplitude alone is not sufficient to account for the direction of the change in synaptic efficacy. It determines the magnitude, but the direction of the change is controlled via a metabotropic glutamate receptor-coupled signaling cascade, which acts in conjunction with voltage-dependent calcium channels and phospholipase C as a sequence coincidence detector that detects post-before-presynaptic action potentials resulting in long-term depression. Long term potentiation is induced by activation of NMDA receptors. Thus, presumably two different coincidence detectors in spines control the induction of spike-timing-dependent synaptic plasticity.

Courtesy, with permission: T. Nevian et al; *The Journal of Neuroscience* 2006, 26(43):11001-11013.

Page 10: Bob Woodruff (center) and Secretary of Veteran's Affairs, Jim Nicholson (left), visited the rehabilitation facility at the Washington DC VA Medical Center and spoke with active duty soldiers undergoing rehabilitation for injuries sustained while fighting in Iraq. Courtesy with permission: ABC/Donna Svennevik

Page 13: Clusters of cortical neurons were maintained in culture for 21 days, by which time they had formed axonal bundles between them. Axons were transected by microscalpel and immunohistochemistry performed against the cytoskeletal elements tau (red) and β–tubulin green to observe reactive changes following injury. By 2 hours post injury several reactive axonal processes were observed entering the injury tract.

Courtesy, with permission: Roger Chung.

Page 14: GABAergic innervation of Purkinje cells in the cerebellum, as visualized by double-immunofluorescence staining for the vesicular GABA transporter (yellow) and calbindin (blue) in a 10-d-old mouse.

Courtesy, with permission: J. M. Fritschy et al; *The Journal of Neuroscience* 2006, 26(12):3245-3255.

Page 15: (From left to right) David Goldman, Patrick Kennedy, Ting-Kai Li, and Christopher Lawford met to discuss the genetics of alcoholism. Photo courtesy of Joe Shymanski, copyright Society for Neuroscience

Page 17: Section of adult rat hippocampal CA1 and dentate gyrus immunoperoxidase stained using anti-KChIP1 potassium channel NeuroMab K55/7 and nickel-enhanced diaminobenzidine.

Courtesy, with permission: K. J. Rhodes et al; *The Journal of Neuroscience* 2006, 26(31):8017-8020.

Page 18: Large numbers of retinal ganglion cells (red) project aberrantly to the opposite eye in developing mutant mouse embryos lacking the heparan sulfotransferase enzyme Hs6st1.

Courtesy, with permission: T. Pratt et al; *The Journal of Neuroscience* 2006, 26(26):6911-6923.

Page 21: A side view of the trunk of a 24-hour-old transgenic zebrafish embryo in which motor neurons express green fluorescent protein under the motor neuron specific promotor hb9 is shown. False colors code for relative depths of green fluorescent protein positive somata and axons from deep (blue) to superficial (yellow), indicating rows of ventral motor axons on the left and right side of the trunk. In this embryo, plexinA3 expression has been reduced by morpholino injection resulting in aberrant growth of some motor axons (far left and right).

Courtesy, with permission: J. Feldner et al; *The Journal of Neuroscience* 2007, 27(18):4978-4983.

Page 22: Confocal image of a cerebellar slice showing recorded Purkinje and stellate cells (biocytin labeling; green). Immunoreactivity for NOS-1 (blue) is mainly located in the molecular layer. Blood vessels are immunolabeled for laminin (red).

Courtesy, with permission: A. Rancillac et al; *The Journal of Neuroscience* 2006, 26(26): 6997-7006.

Page 33: A high-powered view of the optic chiasm of a 72 h zebrafish larva that is mutant for the axonal guidance receptor robo2. Loss of robo2 makes retinal axons insensitive to slits, repellents that help guide them across the midline and to their targets. Anterior is to the top, and the eyes are out of frame on either side. Retinal axons are color coded depending on their dorsal-ventral position in the brain, with cool colors indicating ventral levels near the chiasm and warm colors indicating more dorsal levels. Retinal axons sweep towards the center, cross at the ventral midline, travel to the contralateral side of the brain, and then extend dorsally. A variety of profound axonal pathfinding errors can be seen, including ectopic retinal commissures at both ventral and dorsal levels. This projection image was made on a Leica DMIRE2 confocal microscope of a fish in which retinal axons were visualized by GFP expression driven by the Brn3C promoter (a kind gift from the Baier laboratory, University of California, San Francisco).

Courtesy, with permission: S. H. Chalasani et al; *The Journal of Neuroscience* 2007, 27(5):973-980.

Page 34: Cerebrovascular amyloid angiopathy (CAA)-affected vessel in the Tg2576 mouse model of amyloid deposition. Representative example of CAA in a vessel segment of a living Tg2576 mouse imaged with multiphoton microscopy. Vascular and parenchymal Aβ deposits are identified by fluorescence from systemically administered methoxy-XO4 (red pseudocolor). Fluorescent angiograms with Texas Red dextran were performed to identify fiduciary markers (blue pseudocolor). The serial imaging of individual segments of CAA-laden leptomeningeal vessels allowed detection of clearance of CAA after treatment with anti-Aβ antibody.

Courtesy, with permission: C. M. Prada et al; *The Journal of Neuroscience* 2007, 27(8):1973-1980.

Page 36: The hippocampal neuroepithelium of embryonic day 14.5 embryos was electroporated *in utero* with pCAG-RFP plasmid. Confocal images of the hippocampus were acquired 2 months later (on postnatal day 60). Transfected pyramidal neurons (red) were found in the CA3 and CA1 regions of this hippocampus. Cell nuclei were labeled with Hoechst dye (blue).

Courtesy, with permission: Navarro-Quiroga et al; *The Journal of Neuroscience* 2007, 27(19):5007-5011.

Page 38: Layer III pyradimal cell of cerebral cortex of mouse from an original preparation of Santiago Ramón y Cajal impregnated with the Golgi method (P80001). Z-projection (32 sections; z-step, 2.072 µm). Objective, 20×; numerical aperture, 0.75 (ImageJ).

Courtesy, with permission: P. García-López et al; *The Journal of Neuroscience* 2006, 26(44): 11249-11252.

Page 40: Courtesy, with permission: Marty Saggese, copyright Society for Neuroscience.

Page 42: In vivo intracortical imaging of astrocytic calcium dynamics during spreading depression using two-photon microscopy (160 µm below the cortical surface of a rat). Astrocytes were loaded with SR-101 (red) and the calcium indicator Fluo-4-AM (green). The vascular compartment was loaded with FITC dextran (green). The projected shadows of major surface vessels are clearly seen.

Courtesy, with permission: J. Chuquet et al; *The Journal of Neuroscience* 2007, 27(15):4036-4044.

Page 43: Rendered images of neurons labeled by the juxtacellular method in the central lateral nucleus (red) and parafascicular nucleus (blue) of the intralaminar thalamus. Example dendrites are also shown at higher resolution. The distinct dendritic architectures of these thalamic neurons are mirrored by fundamentally different firing properties *in vivo*.

Courtesy, with permission: C. J. Lacey et al; *The Journal of Neuroscience* 2007, 27(16):4374-4384.

General Photography: Joe Shymanski, copyright Society for Neuroscience

Society for Neuroscience Annual Report

Dever Designs
Art Direction & Design

Printed by Good Printers Inc., an FSC certified printer.

This annual report is printed with vegetable inks on FSC-certified Mohawk Smooth Cool White Cover and Monadnock Astrolite Text. By using this paper, SfN saved the following resources:

- **18.19** fully grown trees
- **52.52** pounds waterborne waste not created
- **7.728** gallons of water
- **855** pounds solid waste not generated
- **1,684** pounds net greenhouse gases prevented
- **12,866.000** BTUs energy not consumed

Recycled
Supporting responsible use of forest resources
www.fsc.org Cert no. SW-COC-1635
© 1996 Forest Stewardship Council
100%

Sustaining Associate Members

The Society for Neuroscience gratefully acknowledges the generous support of its Sustaining Associate Members:

Platinum Sustaining Associate Member

Lundbeck Research USA

Gold Sustaining Associate Members

BD Biosciences
David Kopf Instruments
Elsevier
Hamamatsu Photonic Systems
Immuno-Biological Laboratories, Inc. (IBL-America)
Microimaging Applications Group
Novartis Institutes for BioMedical Research
Olympus America, Inc.
sanofi-aventis
Sigma-Aldrich
Sutter Instrument Company
Wiley-Blackwell
Wyeth Research

Silver Sustaining Associate Members

Abbott Laboratories
AbD Serotec
Aculight Corporation
Bristol-Myers Squibb
F. Hoffman-La Roche, Ltd.
Fine Science Tools, Inc.
Nikon Instruments, Inc.
Pfizer, Inc.

Nonprofit Sustaining Associate Members

Cambridge University Press
CurePSP - Society for Progressive Supranuclear Palsy
Dana Alliance for Brain Initiatives
Dystonia Medical Research Foundation
FightSMA
Montreal Neurological Institute
National Institute on Drug Abuse/NIH/DHHS
Oxford University Press
Parent Project Muscular Dystrophy
Parkinson's Disease Foundation
University of Georgia, Biomedical & Health Sciences Institute
University of Miami, The Miami Project

Society for Neuroscience Staff

Marty Saggese
Executive Director

Robert M. Doucette
Deputy Executive Director

Joseph Carey
Senior Director, Public Information

Mona Miller
Senior Director,
Communications & Public Affairs

Lara Moninghoff
Senior Director, Planning & Finance/CFO

Barbara Goldman, PhD
Senior Director, Scientific Programs

Tom Benton
Chief Information Officer

Eun-Joo Chang
Senior Director,
Education & Member Development

Administration

Bettie Biehn
Director of HR & Administration

Betsy Schultz
Office Manager

Paul Troxell
Procurement Manager

Kristin Svendsen
Procurement Coordinator

Juanita Young
Receptionist

Annual Meeting Program

Melissa Garcia
Director of Annual Meeting Program

Liz Rumsey
Program Manager

Cynthia Cheatham
Program Assistant

Jessica Ippolito
Program Assistant

Professional Development & Special Programs

Charyl Delaney
Director of Professional
Development & Special Programs

Katie Hoffman
Professional Development
& Special Programs Manager

Claire MacDonald
Professional Development
& Special Programs Coordinator

Andrew Wallace
Prof. Dev. & Special Programs Assistant

Public Education

Colleen McNerney, EdD
Director of Public Education

Corinne Dreskin
Project Manager

Nadine Costello
Public Education Coordinator

Finance

Nina Anlauf
Controller

Matthew Barager
Assistant Controller

Janice Ford
Accounting Manager

Craig Reed
Budget & Financial Systems Manager

Robert Hayes
Staff Accountant - Accounts Receivable

Rena James
Staff Accountant - Payroll & Benefits

Brian McMichael
Staff Accountant - Accounts Payable

Arvind Lemuel
Financial Analyst

Government & Public Affairs

Erica Froyd
Director of Government & Public Affairs

Bradley Keelor
Government & Public Affairs Manager

Mimi Moll
Government & Public Affairs Assistant

Information Technology

Sherry Martin
Director of Information Technology

Marco Bovo
Web Development Manager

Zevi Mehlman
Network Manager

Scott Moore
Information Systems Manager -
Applications Development

Rigo Espinosa
Junior Web Developer

Edgar Enaje
Help Desk Support

Journal

Alexander Collery
Production Manager

Maisha Fleming
Editorial Manager

Lionel Megino
Subscriptions Coordinator

Sola Yu
Production Coordinator

Tiffany Barnes
Editorial Assistant

Alina Foo
Editorial Assistant

Micaela Kimball
Editorial Assistant

Keith Layson
Editorial Assistant

Meeting Services

Paula Kara
Director of Meeting Services

Elvia Gonzalez
Assistant Director, Meeting Services

Allison Burns
Exhibits Manager

Dawn Keane
Housing Manager

Sharon Kerley-Bowles
Satellite Event Manager

Ramona Sawyer
Registration Manager

Stephanie Embrey
Meetings Coordinator

Member Communications & Creative Services

Lisette Bassett
Director of Member Communications
& Creative Services

Yamile Chontow
Creative Services Manager

Jessica Arabski
Staff Writer/Editor

Sara Graham
Proofreader/Editorial Assistant

Nicole Abushaikha
Senior Graphic Designer

Beryl Roda
Junior Graphic Designer

Membership & Chapters

Marlene Poole
Director of Membership & Chapters

Francine Johnson
Membership Manager

Monica DiBella
Membership Coordinator

Danah Stewart-Harrod
Membership Assistant

Planning & Governance

Kate Hawker
Director of Operations and Governance

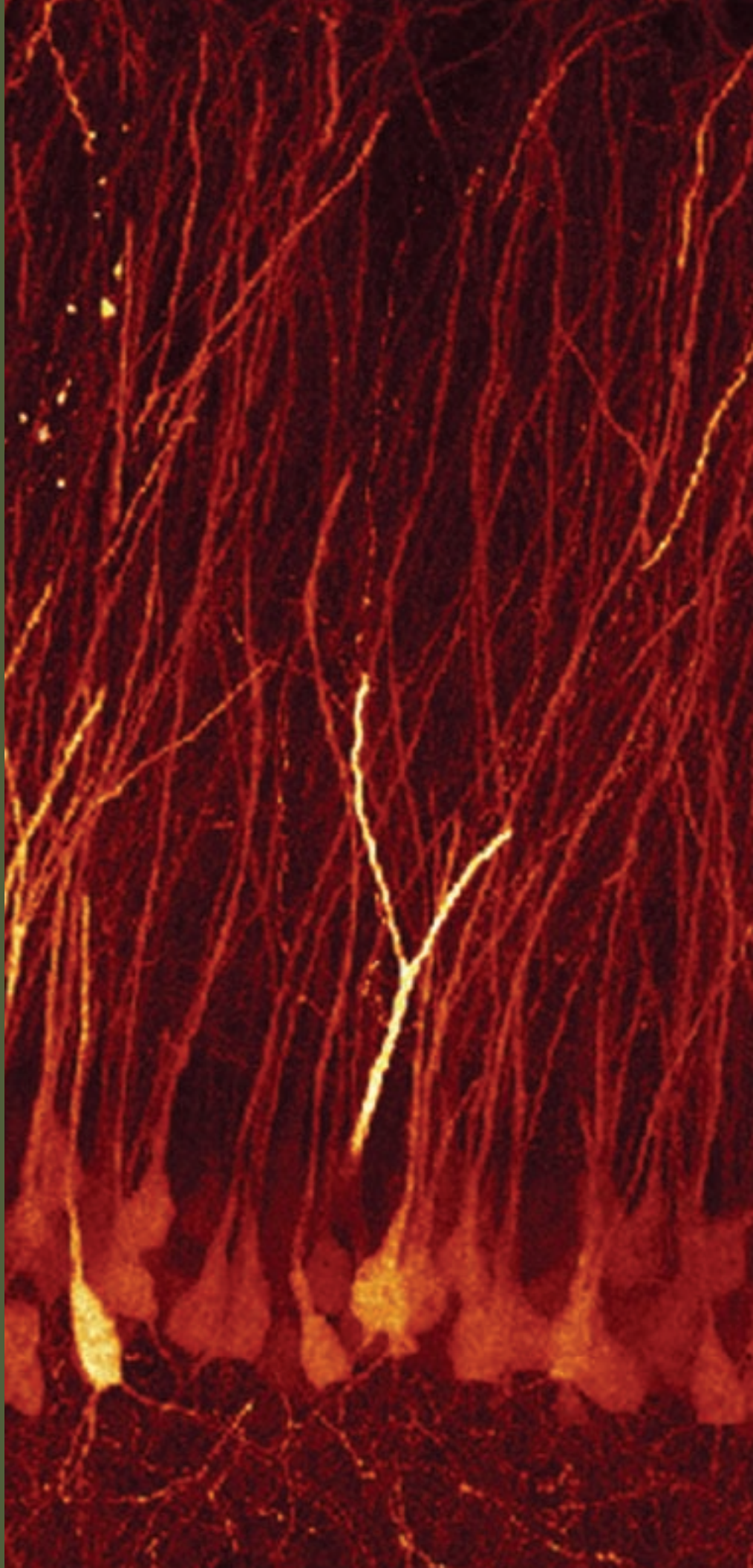
Beth Farrell
Planning & Governance Manager

Michele Anastasia
Planning & Governance Assistant

Public Information

Sara Harris
Senior Staff Writer/Editor

DeeDee Clendenning
Staff Writer/Editor



SOCIETY FOR NEUROSCIENCE

1121 14th Street, NW
Suite 1010
Washington, DC 20005

Telephone: 202.962.4000
Fax: 202.462.9740
www.sfn.org