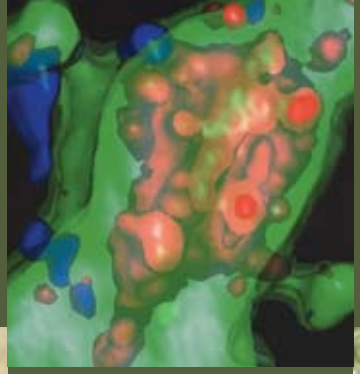
BUILDING *for the* FUTURE

FY 2005 ANNUAL REPORT

SOCIETY FOR NEUROSCIENCE



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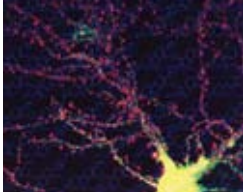


OUR MISSION

TO 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.

TO 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 a diversity of cultural and ethnic backgrounds.

TO 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.

TO INFORM legislators and other policymakers about new scientific knowledge and recent developments in neuroscience research and their implications for public policy, societal benefit, and continued scientific progress.

CONTENTS

MESSAGE *from the* PRESIDENT

During the past year, the Society for Neuroscience focused on fulfilling our mission to advance the field and on building for the future. In this report, I am pleased to highlight progress on three important areas in support of this mission: steps toward acquiring an SfN headquarters building, progress in crucial areas of exciting neuroscience research, and our programs and activities that sustain and nurture the field.

The Society's first-ever headquarters building in downtown Washington, DC, scheduled for completion in early 2006, symbolizes the emergence of the Society as a prominent, visible scientific organization, and will help us ensure our programs and financial security for years to come.

Articles on three crucial areas of research describe science in progress and the prospects for understanding brain disorders and improving treatments. They focus on neurodegenerative disorders, mental illness, and stem cell research. Neuroscientists and the public are excited by these areas of investigation, and we all understand the need to balance promise with reality — that advances to help patients take much time and dedicated hard work.

Throughout the year, we emphasized our core mission areas of scientific excellence, professional development, science advocacy, and public education. Improvements to our annual meeting and *The Journal of Neuroscience* strengthened those important venues for the exchange of the highest quality research findings. Our professional development activities increased and expanded to include more scientists from around the world. Science advocacy efforts included a special event on Capitol Hill explaining the importance of mental health parity legislation. Public education included several high-profile Brain Awareness Week events, and the updating and expansion of *Brain Facts*, our primer on the brain and nervous system for lay audiences.

The venue for the presentation of the latest results in all areas of neuroscience is our annual meeting, which in San Diego in 2004 was the largest ever with more than 31,500 attendees, 16,054 abstract presentations, a new format known as minisymposia of which there were 27, and 611 exhibitors — the most ever. The SfN meeting continues to be *the* place for the presentation of the latest cutting-edge research spanning the field of neuroscience. Neuroscience 2004 was also the venue for the unveiling of the National Institute of Health's Neuroscience Blueprint that outlined new initiatives for sharing resources in advancing the research enterprise.

Under the leadership of SfN President Anne Young, a new feature in 2004 was the introduction of four patient videos shown before talks at the Presidential Symposium and Public Lecture. These videos on Alzheimer's disease, Parkinson's disease, Huntington's disease, and amyotrophic lateral sclerosis put a human face on these devastating disorders for our members, many of whom have little contact with patients. These videos were also were utilized in SfN's educational and advocacy activities.

Throughout the year, the Program Committee and SfN staff worked to prepare for Neuroscience 2005. This year, the video series will focus on how basic research on the understanding of neural systems has or is leading to treatments for brain disorders. Another video will focus on the healthy brain and the factors important for aging well. They will illustrate a redefinition of translational neuroscience, emphasizing basic research in the quest to overcome disease and promote healthy brain functioning throughout our lives.

*The SfN meeting continues to be **the** place for the presentation of the latest cutting-edge research spanning the field of neuroscience.*

The Society's other primary source for the exchange of the latest science — *The Journal of Neuroscience* — witnessed a significant increase in content and visibility, ranking first in total citations in its category. *The Journal* also took a significant step in January, 2005 to ensure public access to scientific research by making complete archives freely available from issues published 12 months earlier.

In February, SfN leaders made the scientific case for mental health parity at a briefing on Capitol Hill. Sponsored by SfN in conjunction with the office of Rep. Patrick Kennedy (D-RI), the briefing showed high-level congressional staffers how mental health disorders have a biological basis and often coexist and interact with other illnesses, and urged policymakers to mandate that insurance companies give mental disorders the same weight in coverage as other illnesses.

To sustain continued growth in the field, the Society launched several professional development initiatives. In one, SfN's International Affairs Committee helped organize a course on epilepsy at Rhodes University in Grahamstown, South Africa. In April, I had the opportunity to address the seventh biannual conference of the Society of Neuroscientists of Africa in Cape Town, South Africa. This was a wonderful opportunity to support and validate neuroscience research conducted in developing countries, and

to encourage international collaboration. These activities are important opportunities to build bridges with scientists in other countries; and represent one of the best ways to help our colleagues in developing nations build, foster, and maintain neuroscience institutions of excellence.

Also in the spring, the Society played a role in sponsoring Brain Awareness Week events. In Washington, DC, Society leaders and SfN staff hosted an event at Francis Junior High School. I spoke with students there about how the brain learns and remembers. Members of our Potomac chapter engaged students in brain puzzles and games. In videotaped messages, Sen. Mitch McConnell (R-KY) and Rep. Ben Chandler (D-KY) welcomed participants to a BAW event sponsored by the Bluegrass chapter in Kentucky and discussed statistics on the prevalence of various brain disorders.

Among important items on the radar screen for the development of SfN's next strategic plan are providing for students and neuroscientists in developing nations and finding new ways to advance public understanding of neuroscience in support of biomedical research funding. Other issues include membership growth, professional development, diversity, the annual meeting, open access publishing, establishing a reserve fund for *The Journal*, science policy issues, public education, and SfN committee restructuring. While the four mainstays of our overall mission will remain, new and existing challenges will require new solutions. Council has already begun discussing these challenges and our goals. I am confident that continuing progress can be achieved with the leadership of President-Elect Stephen Heinemann and the SfN Council, and with your support.

Making wise decisions in these strategic areas will be vital to the continued growth of SfN's membership and programs. Our membership has grown by 30 percent during the past few years — a phenomenal rate that will be a challenge to sustain. I am encouraged by these statistics because they indicate that the Society offers value to its members, and if we continue to stay focused, this trend will continue in the years ahead.

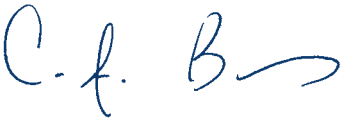
I am also encouraged by the knowledge that the Society's finances are sound thanks to the prudent decisions made by previous SfN leaders. As you can see from the financial statements in this report, for the second straight year we have in reserves a sum in excess of one year's budget. Our favorable financial status made it possible for the Society to initiate the process of purchasing a headquarters building that will provide an additional revenue stream that will allow us to further strengthen and expand our programs. The new building also will provide the Society's staff with a pleasant, productive, and environmentally responsible place to work, and our committees and the staff with adequate meeting space.

Acquiring the new building clearly marks a milestone in the maturity of neuroscience as a field and the Society as a scientific organization. We soon will have a visible, physical symbol in our nation's capital that represents — and is the result of — the many achievements of our members during the 35 years since the Society's founding. It is an accomplishment of which we all can be very proud.

The new headquarters building represents a work in progress, and is emblematic of the Society's programs and research progress described throughout this report that are important as SfN and the field of neuroscience build for the future. All of these activities are connected. They help to enable neuroscientists and the field to uncover the experimental pathways that will help us to understand the underlying mechanisms of how the brain and nervous system function, and help us to craft better treatments for disease. The more we are able to decipher these systems, the closer we are to lifting the burden of neurological and psychiatric illnesses. We must do all we can to speed this effort and to enlist the support of society as a whole to continue the extraordinary progress of neuroscience research.

Along with my colleagues on the SfN Council, and the neuroscience leaders who chair our committees, I invite you to examine this record. And I encourage you to think about ways that you can participate in this important enterprise to ensure an extended and healthy lifespan for people everywhere.

Sincerely,



Carol A. Barnes, *President*
SOCIETY FOR NEUROSCIENCE

Neurodegenerative Disorders

The explosion of new findings in basic neuroscience research in recent years has driven the development of better treatments for the most devastating neurodegenerative disorders. Advances in understanding how these disorders arise are also leading to the development of even newer lines of therapies.

With a greater understanding of how these disorders develop, scientists are building a better future for patients by widening the arsenal of urgently needed treatment possibilities. New therapies may include drugs, vaccines, surgery, electrical stimulation, stem cells, and gene therapy in the search for effective treatments.

These research efforts are the result of a deep commitment to understand these disorders that hijack the brain and nervous system and create a financial burden of more than $150 billion annually in treatment and lost wages. Once the causes have been fully understood, effective treatments should soon be a reality.

Accumulating evidence suggests that chronic neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease, Huntington's disease, and amyotrophic lateral sclerosis are caused by a combination of events that impair the normal function of nerve cells, or neurons.

Increasingly, scientists have come to believe that the prime culprits may include brain cell death, the formation of abnormal clumps of proteins, abnormal genes, and environmental toxins. Strategies that use a combination of therapies to attack these factors and help to re-establish normal neuron functioning may prove to be beneficial treatments.

One of the most frightening and devastating of all neurological disorders is the dementia from Alzheimer's disease (AD) that occurs in the elderly. This disorder affects an estimated 4 to 5 million people and kills 100,000 annually in the United States. By the year 2040, experts estimate that it will affect approximately 14 million individuals in the United States.

Advances thus far have led to treatments that improve some symptoms of AD, such as agitation, anxiety, unpredictable behavior, sleep disturbances, and depression. There are currently three drugs to treat cognitive symptoms in patients with mild to moderate AD. These agents improve memory deficits temporarily and modestly in less than one quarter of patients. Several other approaches, such as antioxidants, anti-inflammatories, and estrogens, are being tested.

An exciting new area of research is the ability to test potential therapies through the use of approaches in which genes are introduced into mice. These mice, which are carrying mutant genes linked to inherited AD, develop behavioral abnormalities as well as some of the cellular changes that occur in humans. They may prove very useful in the study of the mechanisms of AD and the testing of novel therapies.

In recent years, Parkinson's disease (PD) research has advanced to the point that halting the progression of PD, restoring lost function, and even preventing the disease are all now realistic goals.

During the late 1950s, neuroscientists studying the circuitry of movement found a decrease in the brain chemical dopamine in a part of the brain called the substantia nigra. This led to the idea that dopamine replacement could be an effective therapy for PD. In the 1960s, PD was successfully treated by the administration of the drug levodopa, which is changed to dopamine in the brain.

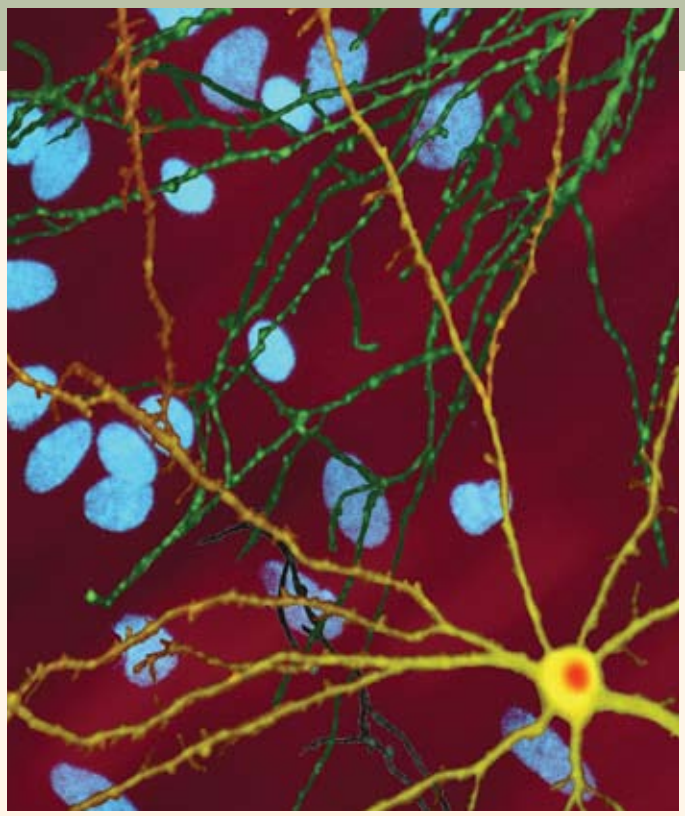
The successful treatment of PD by this replacement therapy is one of the greatest success stories in all of neurology. Levodopa is now combined with another drug, carbidopa,

which reduces the breakdown of levodopa, allowing greater levels to reach the brain and reducing side effects. Also playing an important role are newer drugs such as ropinerole and pramipexole that act directly on dopamine receptors and other drugs that block the breakdown of dopamine.

A major insight came from the discovery during the 1970s that a designer drug contained a chemical substance called MPTP that created Parkinson-like symptoms in humans. This finding stimulated intensive research on the causes of the disorder. MPTP was found to be converted in the brain to a substance that destroys dopamine neurons. PD is now being studied in primate MPTP models.

During the past five years, researchers have made substantial advances in understanding the biology of PD. They are beginning to decipher how the interplay of genes and environment can lead to the disease. Each abnormal gene or environmental factor that is identified provides another clue to help solve the mystery of PD. Scientists now believe that heredity may render some individuals more vulnerable to environmental influences such as pesticides.

Scientists have found that the surgical destruction of overactive brain areas, known as pallidotomy, in some PD patients can greatly reduce symptoms. Another surgical technique, deep brain stimulation — a surgically implanted electrode to control shaking and trembling — also aids many patients. These techniques are highly successful in treating patients who have experienced significant worsening of symptoms and are troubled by the development of medication-related involuntary movements. The past decade has also seen further attempts to treat such patients with surgical implantation of special cells, such as fetal cells, capable of producing dopamine. Replacement therapy with potentially potent stem cells also is being explored.



Other possible treatments include fetal tissue transplants and ways to reverse overstimulation of cells, defective energy metabolism, oxidative stress that produces toxic compounds, and the use of growth factors to protect against cell death.

One of the great triumphs in the study of disease was the 1993 discovery of the defective gene that causes Huntington's disease (HD), one of the most common inherited brain disorders. It affects some 30,000 Americans, with another 150,000 at risk. This movement disorder, which killed folk singer Woody Guthrie in 1967, kills neurons and progresses slowly over a 10- to 20-year period. Eventually it robs the affected individual of the ability to walk, talk, think, and reason.

Thanks to the discovery of the gene, a simple diagnostic test is now possible. However, the ethical issues of testing must be considered and the individual adequately

informed, because there is still no effective treatment or cure.

Researchers determined that the gene codes for a protein called huntingtin. The huntingtin protein, whose normal function is still obscure, is widely distributed in the brain and appears to be associated with the transport of proteins.

Investigations using electronic and other technologies enable scientists to see what the defective gene — and the protein it produces — does to various structures in the brain and how it affects the body's chemistry and metabolism. Laboratory animals are being bred with the defective gene in the hope of duplicating the clinical features of HD so that researchers can learn more about the symptoms and progression as well as the response to novel therapies. Many researchers hope that transplanted or resident stem cells may one day be able to replace the neurons that have been lost to the disease.

In amyotrophic lateral sclerosis (ALS), researchers have identified one mechanism of death of motor neurons that occurs in this disorder. An inherited form of ALS is caused by mutation in superoxide dismutase (SOD1), an enzyme that normally protects brain cells. Genetic methods in mice have revealed that neuronal death requires mutant SOD1 within neighboring non-neuronal cells, raising the possibility of a therapy through stem cell replacement of non-neuronal cells. These models may provide new ideas for treatment strategies.

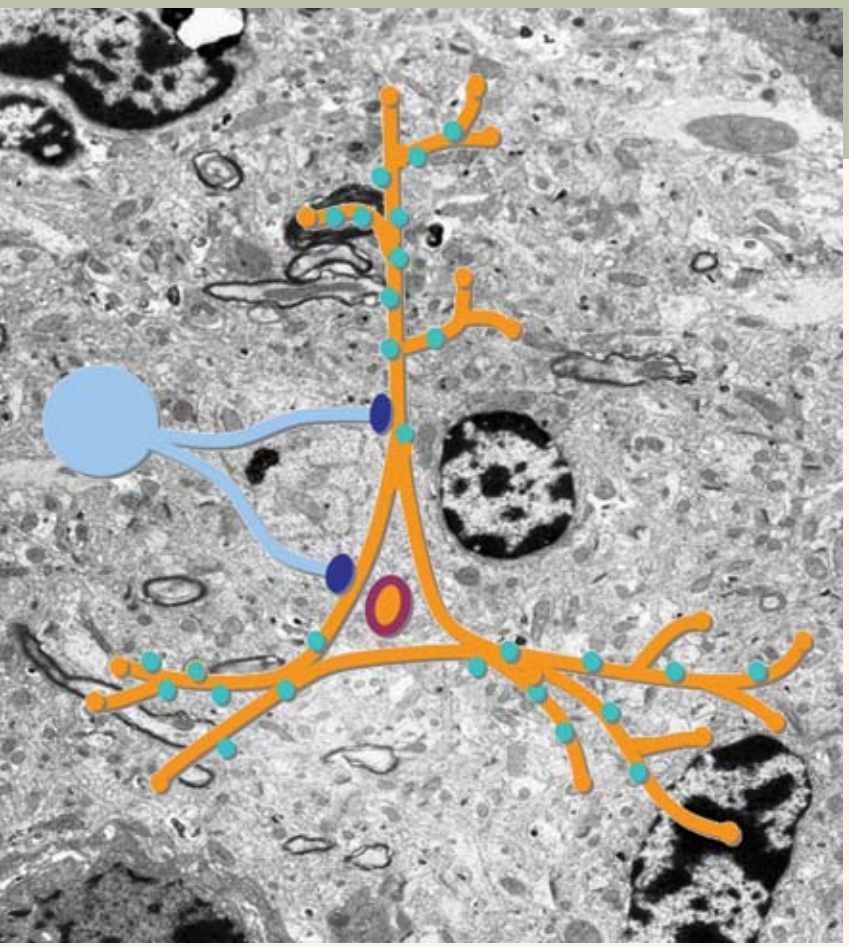
Already, scientists have introduced riluzole, a drug based on research that indicates that the neurotransmitter glutamate has a role in ALS cell damage. This medication, however, only modestly aids patients. It prolongs life by about three months.

Researchers suspect that they may be able to improve treatment with additional techniques, including the use of growth factors. These special substances normally reside in the body and appear to offer cell protection. Large studies are under way to assess the potential benefits of growth factors in the disease.

VEGF is another growth factor that holds promise. In the past, scientists thought this growth factor aided blood vessels, not nerve cells. But recent evidence indicates that it can enhance cell survival. What's more, researchers determined that mice with abnormally low levels of VEGF develop nerve cell degeneration that resembles ALS. Soon after, they discovered that humans with low VEGF levels have an increased risk of ALS.

To aid the delivery of growth factors, researchers are examining techniques such as

"This is a time of accelerating hope in the battle against brain disease," notes the strategic plan developed by the National Institute of Neurological Disorders and Stroke, which was updated in 2005.



gene therapy. In this method, a special system delivers growth factor-producing genes to needy cells. The cells then incorporate the genes and can produce their own supply of protective factors.

Recent studies revealed that gene therapy techniques involving either IGF-1 or VEGF greatly increased the survival of animal models of ALS, possibly equaling years in human life. Human studies, however, are needed to confirm results. Plans are under way to start a patient study of the IGF-1 gene therapy technique in 2005.

In more preliminary work, scientists are examining the use of stem cell transplants that may aid ALS patients in two ways. First, the transplants may be able to rebuild damaged nerve cell networks in ALS, similar to how new bricks can rebuild a damaged bridge. In addition, research indicates that the cells naturally produce growth factors, which could help protect cells under assault by ALS. Some researchers also are testing the use of stem cells altered to produce excess growth factors to see if they can further boost benefits.

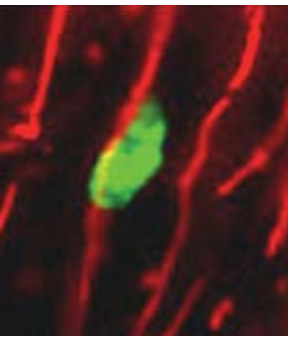
While progress in all four of these disorders — AD, PD, HD, and ALS — has been steady, much work lies ahead. "This is a time of accelerating progress and increasing hope in the battle against brain disease," notes the strategic plan developed by the National Institute of Neurological Disorders and Stroke (NINDS), which was updated in 2005. "Advances in understanding the nervous system are beginning to pay off in the form of treatments for previously intractable problems."

Moving forward, extra emphasis will focus on how the nervous system develops and continues to change throughout life. This strategy will include the development of stem cell biology to repair the injured nervous system. NINDS plans to promote discovery of new drugs and systems that deliver agents to specific locations within the central nervous system.

Fortunately, increasing evidence shows that similar mechanisms may operate across several nervous system disorders. So weapons successfully developed for one disorder will hopefully lead to successes in others, making them reality for millions of patients sooner, rather than later.

CHAPTER 1

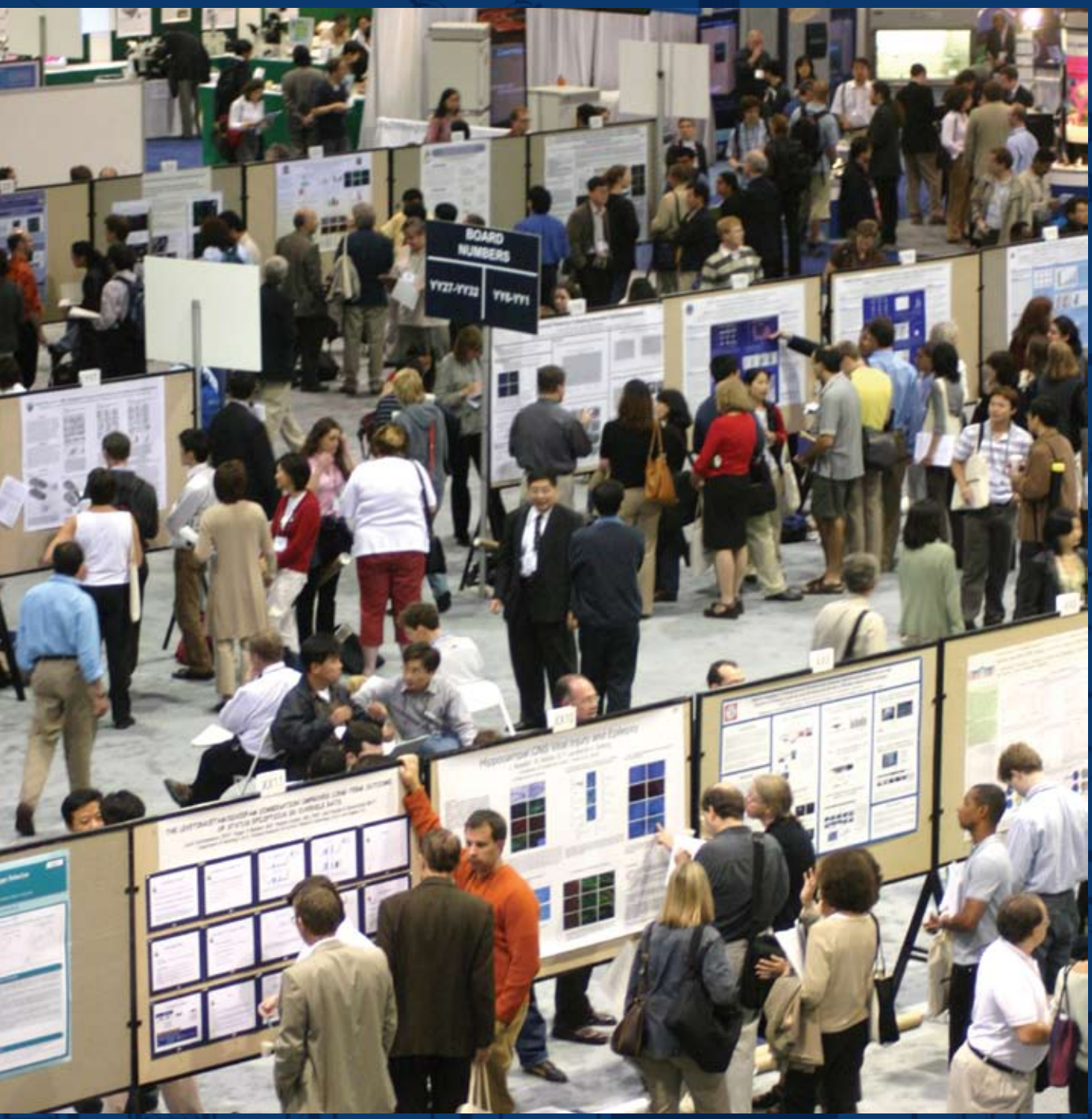
ADVANCING SCIENTIFIC EXCELLENCE



Throughout the year, the Society consistently pursued its goal of advancing scientific excellence in the pages of its publications, the sessions at its annual meeting, and through an active public presence and partnerships with like-minded organizations. By carrying out this important mission, the Society is helping to build a better future for people everywhere by improving their prospects to live full and healthy lives.

A highlight of 2004 was the award of the Nobel Prize in Physiology or Medicine to neuroscientists Linda Buck of the Howard Hughes Medical Institute and the Hutchinson Cancer Research Center in Seattle, and Richard Axel of Columbia University, for groundbreaking work on odorant receptors and the organization of the olfactory system.

SfN hosted the release of the National Institutes of Health (NIH) Neuroscience Blueprint at Neuroscience 2004. A model for collaboration in neuroscience research for the next decade, the Blueprint represents a planning effort by fourteen NIH institutes that are concerned with neuroscience. Initiatives in 2005 include plans for expanded neuroscience training opportunities and a global inventory of neuroscience databases and resources to help better manage an ever increasing volume of scientific data.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SfN hosted its largest meeting ever at Neuroscience 2004 in San Diego. Nearly 31,500 attendees chose from among 16,054 abstracts (up from 15,549 in 2003) to attend sessions focusing on the latest findings in neuroscience. A few years ago, SfN's leaders created a theme-based layout for meeting hall sites that helped organize more effective communication between scientists in such a large setting. This layout helped communication both within and between scientific specialties.

In a further testament to the growth of neuroscience, Neuroscience 2004, held October 23-27, featured more exhibitors of scientific products than any previous meeting: 611 companies exhibited in 1,019 booths in 2004, compared with 559 companies exhibiting in 916 booths in 2003.

The first Peter Gruber Foundation Prize in Neuroscience was awarded at Neuroscience 2004 to Seymour Benzer of the California Institute of Technology. Noting that neuroscience has "the potential to dominate the century," the Peter Gruber Foundation established the $200,000 unrestricted prize to "shine light on a field that has much to contribute."

To promote the work of young investigators, the Society introduced the popular minisymposium presentation format at Neuroscience 2004. Carefully reviewed and selected by the Society's Program Committee from among 168 submissions, each of the 27 minisymposia featured 6 speakers, giving new visibility to young scientists in diverse cutting-edge areas of research.

Also of interest to young scientists was the opportunity to attend two short courses sponsored by SfN's Education Committee: "RNAi in the Brain: From Biology to Therapeutics" and "Visualizing Large-Scale Patterns of Activity in the Brain: Optical and Electrical Signals."

The meeting featured lectures and sessions of interest to all medical specialties concerned with treating nervous system disorders, including neurology, psychiatry, and neurosurgery. Events of clinical interest included sessions on autism, Alzheimer's disease, schizophrenia, stroke, mood disorders, and Tourette's syndrome.

The Society's public lecture each year is a venue for scientists and members of the public to hear the latest advances in an area of neuroscience research. Rudy Tanzi of Massachusetts General Hospital and Harvard Medical School gave the public lecture on Alzheimer's disease at Neuroscience 2004.

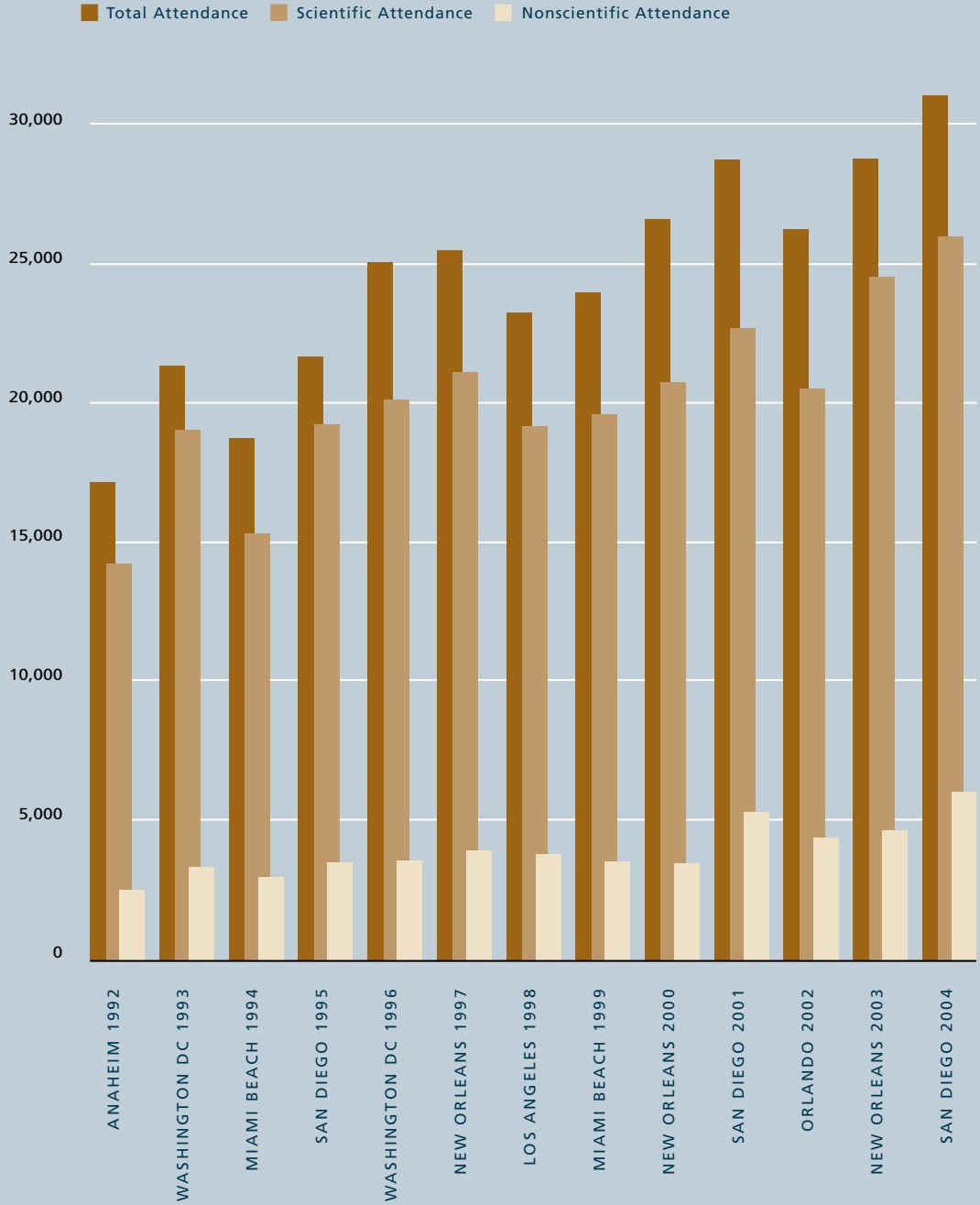
The presidential symposium featured J. Timothy Greenamyre of Emory University on Parkinson's disease, Don Cleveland of the University of California, San Diego, on the role of neuronal death in amyotrophic lateral sclerosis, and Elena Cattaneo of the University of Milan on Huntington's disease. Videos demonstrating the devastating impact of these neurological disorders on patients and families were aired before each session of the presidential symposium. The patient videos are the first in a series to be issued by the Society designed to add a human face to the importance of neuroscience research.

The presidential special lectures provided a clear demonstration of how a focus on fundamental biological questions potentially can lead to a better understanding of behavior and the development of disease. Brenda Bass of the University of Utah spoke on the relation of RNA editing enzymes to behavior. Pasko Rakic of Yale University addressed how neurons migrate within the nervous system. And Charles Wilson of the University of Texas, San Antonio, spoke about the connections between neurons in the basal ganglia and their role in procedural learning and movement.

The Social Issues Roundtable was titled: "Suicide and Depression: Biological and Social Factors, Ethical and Policy Implications." Speakers included William Bunney of the University of California, Irvine; Victoria Arango of Columbia University; J. John Mann of Columbia University; and Kay Jamison of Johns Hopkins University. SfN Social Issues

SOCIETY FOR NEUROSCIENCE ANNUAL MEETING

PREVIOUS NEUROSCIENCE ANNUAL MEETING ATTENDANCE



Committee Chair Stephanie Bird moderated the roundtable.

Protein misfolding in dementias and other neurodegenerative diseases was the topic of the 2004 Neurobiology of Disease workshop.

The annual meeting generated 106 original news stories and nearly 600 reprints in print and electronic publications throughout the world. Sixteen press conferences were organized by the Public Information Committee. Topics included how parenthood permanently changes the brain, the biological basis of creativity, and research on monkeys that moved prosthetic devices using only electronic signals from their brains.

The Society is dedicated to pursuing the most efficient ways to organize and make available the massive amounts of scientific data available in any form, presented at its annual meetings, and published in the pages of *The Journal of Neuroscience*.

SfN's Neuroscience Database Gateway (NDG) project, a searchable online database of neuroscience resources on the Internet, currently lists more than 100 neuroscience databases, software tools, and other scientific resources of interest to neuroscientists. Under the stewardship of SfN's Neuroinformatics Committee, the NIH-funded NDG has expanded to include new neuroscience and bioinformatics resources. During the past year, the committee began to develop neuroscience terminology lists to facilitate searching across NDG resources. Plans for a project to demonstrate the system's potential are under development.

Like the annual meeting, *The Journal of Neuroscience* witnessed a significant increase in scientific content in 2004 and 2005 under the leadership of Editor-in-Chief Gary Westbrook and *The Journal* editorial board. Submissions continued to grow, reflecting the continuing growth of neuroscience. A total of 5,287 manuscripts were submitted in 2004, compared with 5,040 in 2003.

The Journal of Neuroscience took significant steps to better ensure public access to scientific research. The complete archives from issues published 12 months earlier or more were made available to the public on January 1, 2005, allowing anyone to view articles from *The Journal*. Previously, only SfN members and journal subscribers had access to journal articles.

The Journal of Neuroscience also revised its copyright agreement to permit authors to comply with a new NIH policy for open access to research findings. The May 2, 2005 policy requests authors of papers funded in part or in whole by NIH to submit their research to the U.S. Government's PubMed Central database upon acceptance for publication.

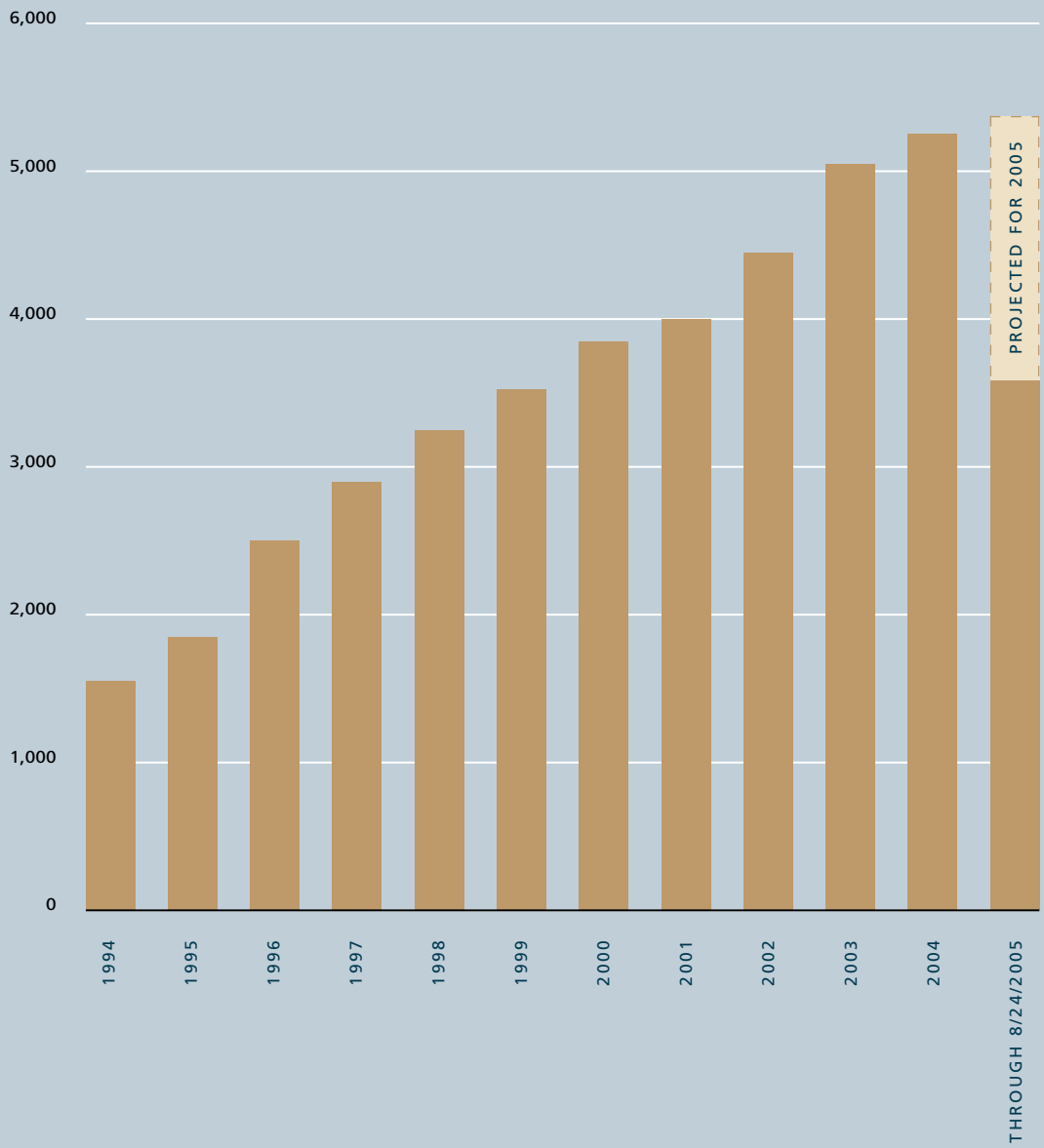
To allow for greater comparisons between neuroscience topics covered in *The Journal* and those presented at the annual meeting, the themes and topics for both now match. This information may help uncover publishing trends in areas of neuroscience research and identify emerging areas and underrepresented topics.

The Journal is committed to publishing papers of the highest scientific impact. The 2004 ISI impact factor was 7.91 and *The Journal* was ranked 12th out of 198 journals in impact factor in the neurosciences category. *The Journal* continues to rank first in total citations in its category. Online usage of *The Journal* continued to increase. Full-text downloads of articles increased by 1.8 million to more than 4 million in 2004, and PDF downloads increased by 600,000 to 2.7 million.

The Society for Neuroscience is committed to supporting and sustaining scientific excellence through all its programs. In this way, SfN contributes to the rapid translation of research to improve health and cure disease and to enhance our basic understanding of human behavior and cognition.

THE JOURNAL OF NEUROSCIENCE

TOTAL NUMBER OF MANUSCRIPT SUBMISSIONS 1994–2005



Neuroscience *of* Mental Illness

The neurobiology of mental disorders is at a turning point. Science has done remarkably well in recent years in defining many key features of complex behaviors and brain disorders and is beginning to understand their underlying neural mechanisms. Even for truly complex functions, advances in scientific tools now available have begun to fuel exciting progress. This has led to effective treatments for some mental disorders and to the hope that some of those most difficult to treat may soon be overcome.

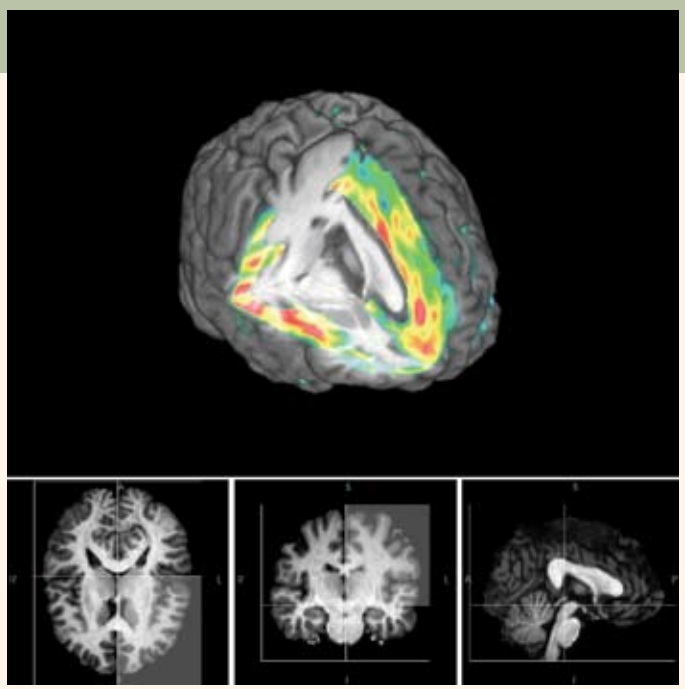
The field has clearly arrived as a major force in science. "…The neuroscience of mental health — a term that encompasses studies extending from molecular events to psychological, behavioral, and societal phenomena — has emerged as one of the most exciting areas of scientific inquiry and human inquiry," said David Satcher in *The Surgeon General's Report on Mental Health*, issued in 1999. "Indeed, one of the foremost contributions of contemporary mental health research is the extent to which it has mended the destructive split between 'mental' and 'physical' health."

This is an important development given the devastating toll of mental disorders. In the United States, an estimated 22 percent of the population ages 18 and older, roughly 44 million people, suffer from a diagnosable mental disorder in a given year. In developed countries, 4 of the 10 leading causes of disability are mental disorders — major depression, bipolar disorder, schizophrenia, and obsessive-compulsive disorder. The annual economic toll in the United States of mental illness was conservatively estimated by the President's New Freedom Commission on Mental Health in 2003 at $79 billion for lost productivity and $69 billion for care, treatment, and rehabilitation.

Research is starting to help lift the tremendous burden of mental illness, building for a future that offers a wider and wider array of treatments. During the past several decades, treatments have been developed for some of the most troubling mental disorders. Medications that act on serotonin — a brain chemical that affects mood — cognitive behavior therapy, or a combination of these are now the first-choice treatments for most anxiety disorders, which occur in response to stress. Other antidepressants are also effective for many anxiety disorders.

"The neuroscience of mental health…has emerged as one of the most exciting areas of scientific inquiry and human inquiry," said The Surgeon General's Report on Mental Health.

The recent discovery of brain receptors for a certain class of antianxiety drugs has sparked research to identify the brain's own antianxiety chemical messengers. This finding may lead to



even better ways to correct the possible defects that occur in anxiety disorders.

The antidepressants that act on serotonin — clomipramine, sertraline, and paroxetine — also are effective in treating obsessive compulsive disorder, which is characterized by recurrent, unwanted thoughts and repetitive behaviors and affects some 3.8 million Americans.

Several drugs known as antipsychotics also are now available that can successfully treat hallucinations and thought disorder that occur in schizophrenia. Clozapine acts somewhat differently from other antipsychotic drugs, and treats the approximately 30 percent of patients who are not helped by conventional medications.

More than 2 million American adults, or about 1 percent of the population age 18 and older in any given year, have bipolar disorder, also known as manic-depressive illness, a serious medical illness that causes shifts in a person's mood, energy, and ability to function. Lithium and anticonvulsants help treat bipolar disorder. Major depression affects approximately 19 million American adults at any given time and an estimated 6 percent of children ages 9 to 17.

Fortunately, several types of antidepressant medications may be used to treat depressive disorders. Those that act on serotonin, and other newer medications that affect the brain chemicals dopamine or norepinephrine, generally have fewer side effects than earlier drugs.

At the same time, however, the World Health Organization (WHO) in its report *Global Burden of Disease* finds that even with advances in treatment, major depression and bipolar disorder are, respectively, the first- and sixth-ranked causes of years lived with disability for people in the developed world. "…These disorders are not only a clinical and public health challenge but also a threat to the economic well-being of the global community," notes the preface to *Breaking Ground, Breaking Through*, the National Institute of Mental Health's strategic plan for mood disorders research, dated July 2002.

To address the cost of treating mental illness, SfN leaders and Rep. Patrick Kennedy (D-RI) sponsored a briefing on Capitol Hill in February 2005, titled "Building the Case for Mental Health Parity." At this session for Kennedy's House colleagues and their staff, Huda Akil of the University of Michigan, a past-president of SfN, discussed the physiological components of mental illness. She pointed out how a combination of developmental events, vulnerability genes, gender, hormones, and life stressors can lead to neural remodeling and depressive episodes. She also discussed the success of medication and even physical and mental exercises as methods to treat these disorders.

The powerful effects of co-morbidity were also a briefing topic. Mahlon DeLong of Emory University noted that depression often occurs but is frequently overlooked in disor-

ders such as stroke, Alzheimer's disease, and Parkinson's disease, making the disease burden even greater. Yet, Delong noted, patients do respond well when treated. Guy McKhann of Johns Hopkins University said that depression was the strongest risk factor for repeat angina in patients having undergone coronary bypass surgery. Kennedy promised to take this story to his House colleagues and to others to gain support for mental health parity legislation that would eliminate disparities in the coverage of mental health benefits.

Many in the field still believe that it is time to step up the Society's efforts to better understand the science and support social policies that aid the mentally ill.

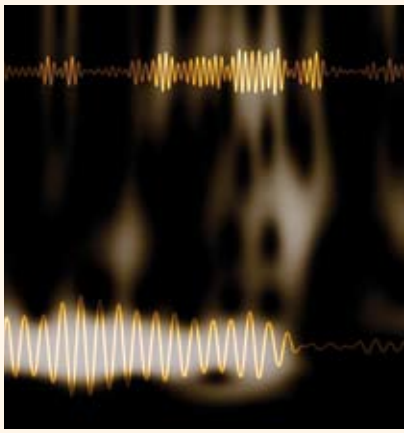
NIMH's strategic plan notes that "evidence from neuroscience, genetics and clinical investigation has demonstrated unequivocally that the brain is the primary organ affected in depression and bipolar disorder." The plan outlines several promising avenues of research that should soon help to improve prospects for patients with mental disorders.

Neuroscientists can routinely identify how some brain cells and circuits function to enable cognition, emotion, and behavior. Brain imaging techniques now have the capability to track function throughout development in order to reveal the exact brain regions that go awry in depression and bipolar disorder.

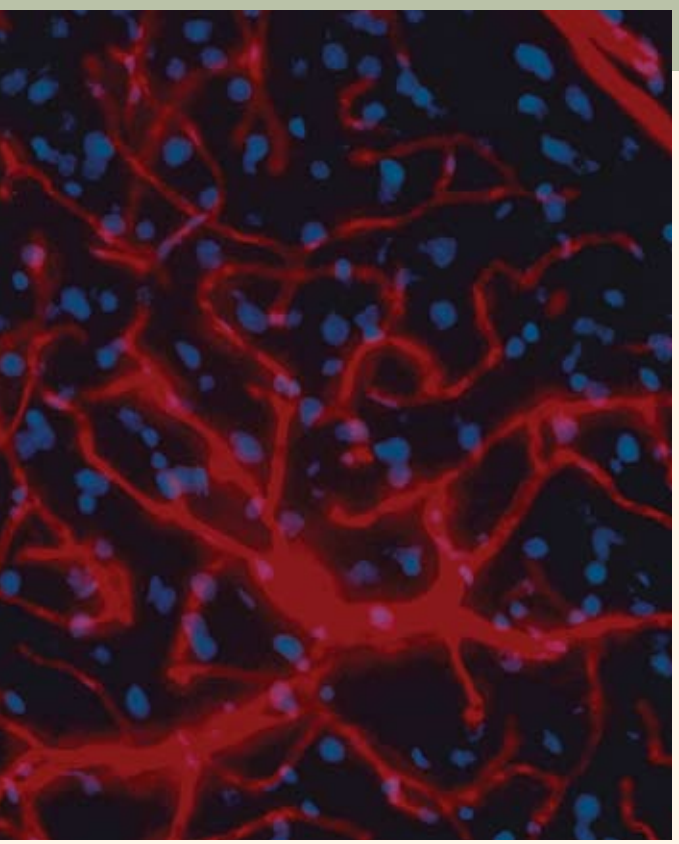
The completion of the draft sequence of the human genome represents an enormous step forward in identifying the genes responsible for vulnerability and resilience to depression and bipolar disorder. Combined with knowledge about how genes are inherited and environmental influences, prospects for better treatments are greatly enhanced.

This new knowledge has informed scientists about how specific behaviors are directed and modified by genes and environmental influences, how behavior can modify the brain, and how behavioral therapies for mental disorders can be strengthened.

In the last year or two, scientists have developed technology to examine the genetic differences between individuals across their entire genome, rather than studying one gene at a time. The approach takes advantage of the fact that groups of genes are inherited in blocks called haplotypes, and these blocks are being identified across the genome in what is known as the HapMap. Tracking a single member of the block can track the whole group of genes that travel together, making it possible to scan very broadly and discover differences in genes that cause vulnerability to illness. This approach will help researchers discover markers for disorders at a level of specificity never before possible. Identifying these genetic variations can provide clues as to how a particular disorder might be prevented, and which combinations of therapies might work best — all based on an individual person's genetic makeup. Several research groups are currently poised to undertake such genome-wide analyses of thousands of individuals who have been diagnosed with severe psychiatric disorders.



In addition, imaging technologies such as magnetic resonance imaging or positron emission tomography can help identify brain regions that are involved in mood disorders. The ability to observe blood flow in the brain and patterns of brain metabolism during specific tasks and events is enabling researchers to recognize alterations in particular brain



regions that are associated with illness. This will allow them to better understand how existing medications work and, in turn, help them devise new targets for better treatments. Also, a greater understanding of the neurotransmitter systems involved in these disorders is providing important clues pointing to the neurochemical targets that may result in improved therapies.

As these lines of research advance, the ability to prevent and effectively treat mental disorders will vastly improve. As the capacity for treatment improves, it will need to take into consideration socially important issues such as women and depression, the special needs of children and the elderly, the powerful effect of co-morbidity — for example, depression accompanying neurological disorders — and the influences of race, ethnicity, and culture on access to care.

This endeavor will also attack mental illness worldwide. The numbers show that patients and families of those with mental illnesses are in great need of improved treatments and access to care. "The burdens of mental illnesses…have been seriously underestimated by traditional approaches that take account only of deaths and not disability," notes WHO's *Global Burden of Disease*. "While psychiatric conditions are responsible for little more than one percent of deaths, they account for almost 11 percent of disease burden worldwide."

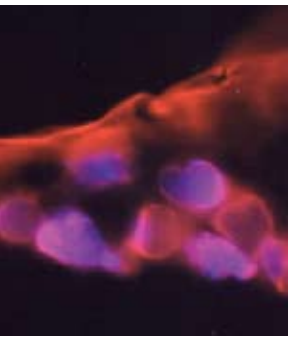
The WHO study developed a single measure to allow comparison of the burden of disease across many different conditions by including both death and disability. The measure calculates lost years of healthy life regardless of whether the years were lost to premature death or disability. Major depression was found to be the leading cause of disability — measured by the number of years lived with a disabling condition — worldwide among persons age five and older.

Indeed, the urgency of addressing the global burden of mental health disorders and substance abuse, as well as their social consequences, is a primary goal of the National Institutes of Health's Fogarty International Center, NIMH, and the National Institute on Drug Abuse. Fogarty fosters research partnerships between U.S. scientists and foreign counterparts through international training grants, research grants, and fellowships.

We often think of mental health as a domestic issue, in terms of the social problems it raises in our own society, notes Fogarty director Sharon Hrynkow. But, in fact, mental health problems occur globally, and with greater movement across borders — whether by choice or by displacement — mental health disorders may not be rooted in any one particular region but may affect others as well.

CHAPTER 2

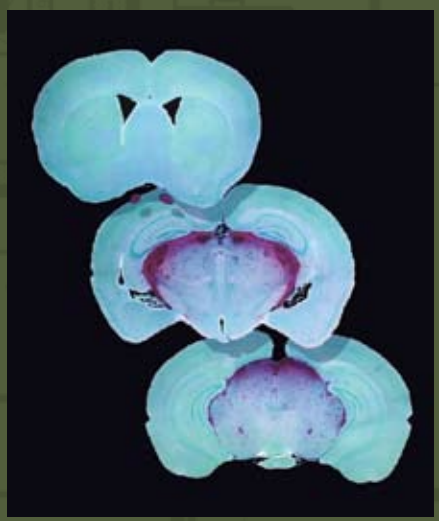
SCIENCE ADVOCACY



Working with health advocacy groups, coalitions in support of biomedical research funding, and other like-minded organizations, the Society for Neuroscience communicated the message of the benefits and potential of neuroscience research to policymakers in person, in print, and online during 2004 and 2005. At a time when science programs received little or no increase in Federal funding, the Society kept a high profile, building for a future in which policymakers more clearly understand the importance of providing appropriate levels of funding to the research enterprise, in order to improve public health and well-being.

In addition to a strong presence by SfN leaders on Capitol Hill, SfN members volunteered in grassroots efforts that conveyed the powerful message of neuroscience's benefits to society. The Society's legislative advisory firm, Caravocchi Ruscio Dennis, guided the Society throughout fiscal year 2004 on how to keep ahead of the curve on policy issues affecting biomedical research. One-on-one and group meetings of SfN leaders with key legislators on Capitol Hill were a critical part of the Society's advocacy strategy.

In February 2005, SfN hosted a breakfast briefing titled "Building the Case for Mental Health Parity" for members of the House Appropriations



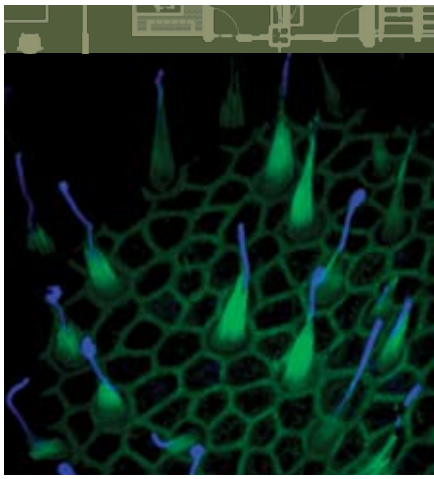
Subcommittee on Labor, Health and Human Services, Education and Related Agencies (LHHS), which funds the National Institutes of Health (NIH). The breakfast was co-sponsored by Rep. Patrick Kennedy (D-RI), 2002 recipient of the SfN Public Service Award, and LHHS subcommittee member. Moderated by SfN President Carol Barnes, the speakers included Past-President Huda Akil on the biological and chemical basis of mood disorders; Mahlon DeLong, on the co-incidence of depression with other neurological disorders, and Guy McKhann on how depression can be fatal when it coexists with heart disease. Barnes also submitted written testimony to the House LHHS subcommittee highlighting recent accomplishments in neuroscience achieved through federal science funding, including her own research on aging and the brain. Rep. Kennedy made moving remarks about the effect on families and society of a teen suicide, emphasizing the importance of research and prevention.

The Society distributed *Brain Research Success Stories* presenting the recent successes and future potential of neuroscience research to every member of Congress, to more than 400 patient advocacy groups, and to leaders of other scientific societies. *Brain Research Success Stories* cover the spectrum of neurological and mental health disorders, including bipolar disorder, insomnia, pain, phobia, alcoholism, epilepsy, hearing loss, memory impairment, spinal cord injury, and vision loss. They describe what good came from doubling the NIH budget and what good will come from continued adequate funding.

Strong coalitions with groups such as the Joint Steering Committee for Public Policy (JSC) and the Campaign for Medical Research (CMR) enhanced the Society's advocacy efforts during fiscal year 2005.

JSC hosted monthly science briefings for legislators featuring prominent scientists speaking on topics ranging from stem cells and Parkinson's disease to sign language in infants. JSC's legislative alerts and updates informed Society members of legislation affecting neuroscience. As part of the Capitol Hill Day program, committee members met with elected officials on the Hill to discuss the value of biomedical research and the need for continued adequate funding.

Together with the Federation of American Societies for Experimental Biology and other health groups, SfN worked with CMR to keep biomedical research funding on lawmakers' agendas.



Throughout the year, CMR met with key funding committee leaders and appropriations committee staff about how best to make the case for sustained NIH funding. CMR also worked closely with Sen. Arlen Specter (R-PA) to prepare an amendment that would allow for increased funding for NIH by shifting funds into the government's overall health account. Sens. Specter and Tom Harkin (D-IA) introduced the amendment on March 16, 2005, providing an additional $1.5 billion NIH increase, far more than the President's $196 million increase.

The health community rallied to push for passage of the amendment, activating grassroots groups to make calls, send faxes, and meet with senators. SfN produced 1,878 faxes to senators through CapWiz, the Society's online legislative action center. The Senate approved the amendment by a vote of 63-37, sending a strong message about the importance of NIH funding.

With the American Academy of Neurology, the Society in 2004 launched the American

Animal rights groups are making increasing inroads at the level of county and state courts, where they can have a great impact on the conduct of science.

Brain Coalition (ABC), an alliance of neurological and psychiatric organizations that represent patients, families, and professionals. ABC aims to collectively advocate for increased support of research that will lead to better treatment, services, and support for those with neurological and psychiatric diseases. The coalition's activities continued apace in 2005, with membership drives, designation of legislative priorities, and distribution of marketing materials.

The American Epilepsy Society, the American Neurological Association, and the Parkinson's Disease Foundation joined the ABC as sustaining members. Associate members include the Child Neurology Society, Consortium of Multiple Sclerosis Centers, Traumatic Brain Injury Technical Assistance Center, International Essential Tremor Foundation, National Alliance for the Mentally Ill, Orange Grove Center, Inc., Rett Syndrome Research Foundation, Stop Calling Us Mentally Ill, Tremor Action Network, American Academy of Child and Adolescent Psychiatry, American Society of Neurorehabilitation, the National Endowment for Alzheimer's Research, American Headache Society, Dystonia Medical Research Foundation, Spinal Muscular Atrophy Foundation, and Professors of Child Neurology. The National Institute of Neurological Disorders and Stroke joined as an observer member in the government agency category of membership.

The animal rights movement heated up considerably in 2004 and 2005. The Society strengthened its ties with other influential scientific groups seeking to fight animal activists' attempts to confer "personhood," or legal rights, upon animals used in research.

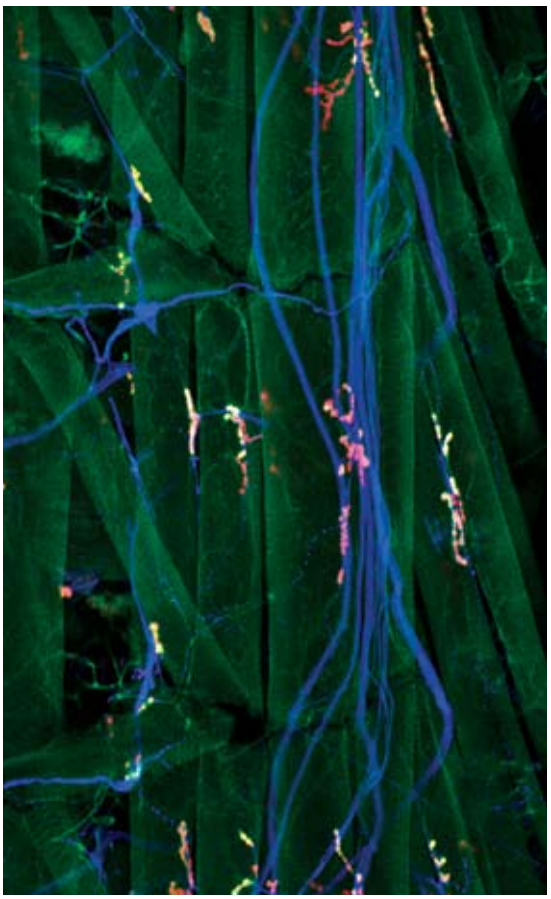
The National Association for Biomedical Research (NABR) convened a steering committee to consider ways to counter these efforts. More than 35 law schools now offer classes in animal law, with some prominent legal scholars backing the movement.

The overarching argument being made is that animals are individuals who deserve legal rights. Animal rights groups claim, for example, that chimpanzees are at the same cognitive level as children with mental disabilities without the same legal protection. The groups are making increasing inroads at the level of county and state courts, where they can have a great impact restricting the conduct of important scientific research.

At a time when science programs received little or no increase in Federal funding, the Society kept a high profile, building for the future in which policymakers more clearly understand the importance of providing appropriate levels of funding to the research enterprise, in order to improve public health and well-being.

SfN provided a strong voice for the responsible use of animal models in research through *Brain Research Success Stories*, the lay language series *Brain Briefings*, and grassroots lobbying.

The Society is committed to providing members with the information and tools needed to advocate on behalf of neuroscience. The Society issued to all members a wallet card illustrating the positive benefits of animal research. The card, which lists 12 neuroscience findings that have led to clinical applications, is a quick tool for countering anti-animal research messages.



SfN's *Guide to Public Advocacy*, updated in 2005, and is available to all online in downloadable PDF format. The *Guide* outlines the most effective methods for communicating with elected officials and for providing tools, information, and tips on how to be a strong public advocate.

To further encourage scientists to move the message of neuroscience beyond their laboratories and into the community, the Society invited local chapters to offer advocacy training. The new initiative seeks to provide scientists with easy "how-to's" for meeting with elected officials.

SfN's commitment to advocating for biomedical research will help ensure sustained government funding and support for research, necessary building blocks for scientists to pursue intellectually compelling lines of inquiry and for applying knowledge gained to improve individual and public health.

Stem Cell Research

Significant advances in stem cell research have pointed the way toward possible treatments for spinal cord injury, diseases of aging, and brain tumors. This research has great potential for helping to build a future with vastly improved health care for millions. At the same time, concern about the ethics of using discarded embryos for research has put the use of stem cells high on the agenda for scientists, policymakers, and the public.

Legislation at both the state and federal levels sought to, in effect, modify President Bush's August 2001 policy limiting federal funding of human embryonic stem cell research to the few cell lines derived before the policy went into effect. The advocacy efforts of public figures such as the late Christopher Reeve, Nancy Reagan, and Michael J. Fox gave a human face to stem cell research.

And public support for research using human embryonic stem cells remained high. According to a July 2005 poll by Research! America, many Americans — 58 percent of those surveyed — support the research.

Yet many scientists are quick to caution against promising too much too soon from stem cell research, noting that its greatest potential in the near term may lie in uncovering mechanisms of disease, and in the use of stem cells to screen drugs for their effectiveness in treating a variety of disorders.

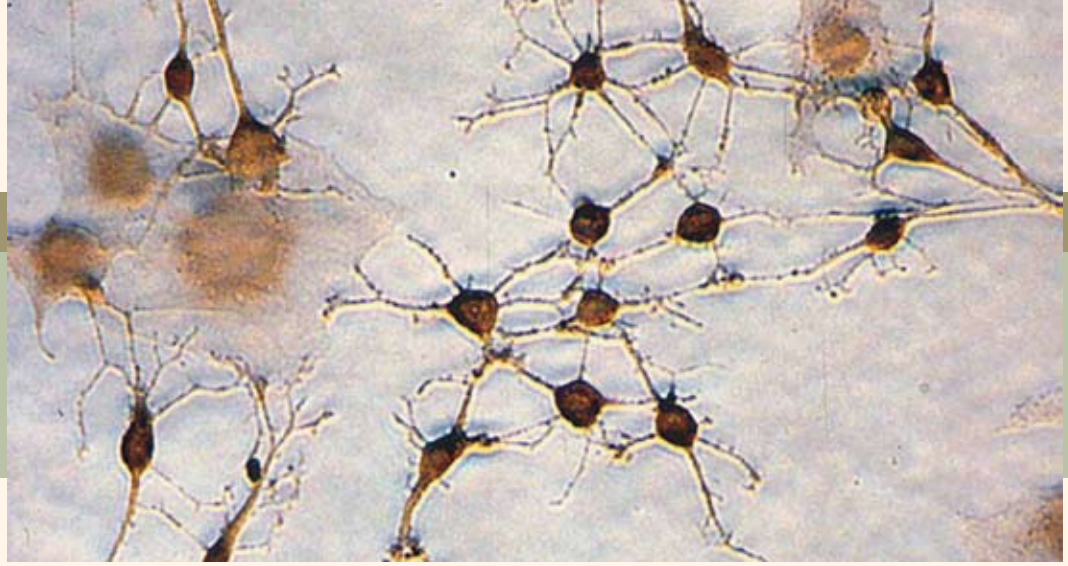
The isolation of stem cells from bone marrow in the 1960s ushered in this whole new area of research. During the intervening decades, scientists have identified and isolated many other types of adult and fetal stem cells, which have proven useful in treating some cancers. Human embryonic stem cells, on the other hand, were isolated and successfully cultured for the first time only seven years ago. Although adult and fetal stem cells may be restricted in the types of cells to which they can give rise, embryonic stem cells can give rise to almost any cell type, making them good candidates for replacing damaged cells or tissue.

Scientists in South Korea made the stunning announcement in May 2005 that they had refined a technique called somatic cell nuclear transfer, for producing human stem cells from embryos. In this technique, scientists remove the nucleus — containing genetic material — from eggs provided by a healthy donor. Nuclei from skin cells are then injected into the enucleated donor eggs, which divide and become early-stage embryos called blastocysts. The hope is that these stem cells could later be removed and used to help fight disease in the patient. These cells can also be used to screen for drugs to correct cellular manifestations of defective genotypes *in vitro*.

Both adult and embryonic stem cells hold promise for treating neurological disorders and as a source to screen for the effectiveness of new drugs.

Diseases such as multiple sclerosis and spinal cord injury that involve the destruction of neurons or of support cells called glia may be prime candidates for treatment by stem cell transplantation. If multipotent stem cells — those than can give rise to several other cell types — could be successfully encouraged to migrate to areas of damaged or dead neurons and to replace them with new and healthy cells, disease symptoms might improve. Much research has focused on Parkinson's disease, in which dopamine-secreting cells are lost, leading to the disorder's characteristic tremors.

Scientists showed recently that human embryonic stem cells could possibly replace the degenerated dopamine neurons in experimental Parkinson's disease. They found that human embryonic stem cells, when coaxed into becoming neural progenitor cells in a laboratory dish, can be transformed into dopamine neurons when transplanted into the brains of a rat model of Parkinson's disease, causing partial recovery.



Embryonic stem cells have been shown to improve movement after paralysis in rats with injured spinal cords. Recent work has shown that human embryonic stem cells have the potential to integrate into the injured spinal cord and participate in remyelination of neurons, a finding that could pave the way for clinical trials.

For stem cells to be useful clinically, it will be important to show not only that they can lay down roots in the injured or degenerating central nervous system, but also that they can establish long-distance axonal connections with other neurons already present. Some stem cells have been shown to do just that, allowing scientists to identify factors important for reestablishing circuitry in the complex environment of the injured brain.

Although many scientists predict that much more laboratory work will be needed before stem cells can be used to safely and reliably replace damaged cells and tissue in humans, several clinical opportunities other than transplanting cells directly already exist.

Researchers recently found that stem cells can be used as carriers to aid delivery of factors that can protect the cells that remain after an injury or neurodegenerative disease. Glial cell line-derived neurotrophic factor (GDNF) obtained from neural stem cells, for example, appears to protect the dopamine-secreting cells lost in Parkinson's disease, as well as the motor neurons destroyed in amyotrophic lateral sclerosis, also known as Lou Gehrig's disease. Neural stem cells have also been shown to aid delivery of factors that can help treat brain tumors in mice.

Despite these advances, within the United States, the debate over research with human embryonic stem cells hinged on the ethical question of whether cells derived from discarded human embryos should be used for medical research. The U.S. House of Representatives in June 2005 gave a strong "yes" in answer to that question when it passed a bill that would allow federal funding for research on newly derived human embryonic stem cell lines. The Senate was poised to take up debate on the bill, which the president vowed to veto if it passed.

With federal funding for research on new embryonic stem cell lines derived from humans in question, several states took up the cause. In November 2004, California passed legislation establishing an institute to oversee grants for stem cell research for 10 years. The $3 billion in funds — in the form of tax-free state bonds — will enable California to recruit leading investigators, initiate new research efforts, and develop the facilities needed to carry out the research.

Massachusetts, Connecticut, Maryland, and Illinois also passed legislation allowing embryonic stem cell research. Blueprints for the Stem Cell Institute of New Jersey are underway. Such initiatives will allow scientists to use stem cell lines beyond those made available through the Bush administration's policy on embryonic stem cell research.

These state efforts will allow scientists to press ahead with efforts to use human embryonic stem cells to regrow and screen for compounds or replace damaged cells and may put more pressure on the federal government to ease its restrictive stem cell policy. In the meantime, most scientists agree that reports of stem cells' value in maintaining the health of sick and injured neurons will help pave the way for support for the larger goal of replacing damaged tissue. They also look forward to the use in of stem cells in helping them gain a much broader understanding of the basis of human disease and to screen new drugs.

CHAPTER 3

EDUCATION & PROFESSIONAL DEVELOPMENT

With a keen focus on strengthening the foundation of its public education and building professional development activities, the Society embarked on a series of new initiatives in 2005. Exhibits at science teacher meetings, plans for a Web-based neuroscience education portal, and renewed efforts to convey positive messages about the benefits of animal research were among the Society's many education efforts. Professional development milestones included launching a year-round job bank; expanded programs for mentoring; and training programs for women, minorities, and neuroscientists from underdeveloped countries.

Strong committee leadership directed the Society's public education efforts in 2004 and 2005. The Committee on Neuroscience Literacy developed a strategic plan that will guide SfN's education efforts for the next three years.

The Society's popular lay language series *Brain Briefings* and *Brain Research Success Stories* reach high school educators and the public with news of important advances in neuroscience. The book *Brain Facts*, now in its fifth edition, is available year-round to those who request or download it and is a resource for the International Brain Bee competition, which gauges high school students' knowledge of neuroscience. The CD *Neuroscience*

Resources for the Classroom combines all these resources, plus additional neuroscience materials appropriate for every grade level.

Exhibits at science teacher meetings allow SfN to prominently display all these publications and resources as well as to foster one-on-one communication among teachers, SfN staff, and scientists. In 2004, the Society moved its exhibit booth to a "research zone," alongside the booths of other scientific institutes and the National Institutes of Health (NIH). This zone provides one-stop shopping for educators to explore materials available from the scientific community at annual meetings of the National Science Teachers Association (NSTA) and the National Association of Biology Teachers.

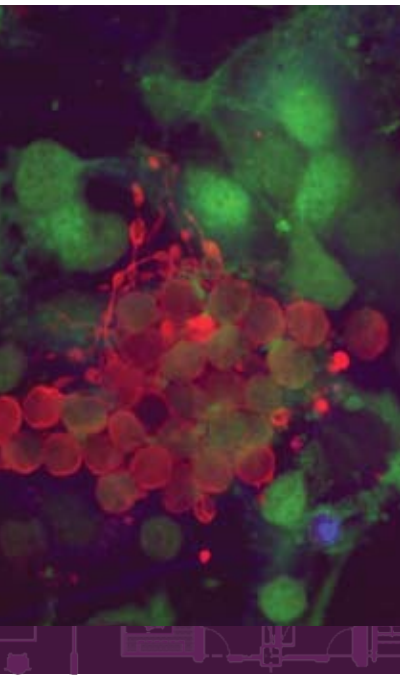
Scientists from Kentucky to Turkey to Washington, DC, provided students, teachers, and neighbors a glimpse into the exciting world of neuroscience during the tenth annual Brain Awareness Week (BAW), March 14 – 20, 2005. Sponsored by SfN and the Dana Alliance for Brain Initiatives, thousands of organizations held BAW events around the world, hosting laboratory tours, classroom visits, exhibits, and public lectures. Public service announcements promoting BAW aired on radio stations in New York City; Washington, DC; Raleigh, North Carolina; and Tucson, Arizona.

In Washington, DC, Society leaders and SfN staff hosted an event at Francis Junior High School. SfN President Carol Barnes talked with students about how the brain learns and remembers. Students solved brain puzzles and tossed tennis ball "neurotransmitters" during a neuroscience relay game organized by postdoctoral fellows and graduate students from the NIH and Uniformed Services University of the Health Sciences, who volunteered on behalf of the Potomac chapter of SfN.

High school students from several countries competed in local Brain Bee competitions during BAW to qualify for the seventh annual

Through the dual efforts of informing educators and the public about neuroscience and nurturing the development and professional needs of scientists, SfN has set in place key building blocks for its future, and for the continued progress of neuroscience as a discipline.

International Brain Bee, held in Baltimore. The winner, John Liu of Troy High School, in Troy, Michigan, and mentor Rebecca Johns will be guests at Neuroscience 2005. Liu's win was no stroke of luck: AP biology teacher Johns was recognized last year for excellence in incorporating neuroscience concepts in the classroom. Johns and four others received SfN Teacher Travel Awards to attend Neuroscience 2004 in San Diego.



A new criterion for the 2005 Neuroscientist-Teacher Travel Awards will foster enhanced partnerships between neuroscientists and teachers. Awards will be given to teachers who have established effective relationships with SfN neuroscientists to help them teach neuroscience in the classroom. These neuroscientist-teacher pairs will be invited to participate in a workshop at Neuroscience 2005 that will culminate in plans for a summer institute bringing neuroscientists and teachers together to identify successful models for neuroscience education in grades kindergarten through 12.

To recognize outstanding efforts to bridge the gap between neuroscience and education, the 2004 Science Educator Award was awarded to Rochelle Schwartz-Bloom of Duke University. Her groundbreaking achievements have brought education resources about the brain and neurobiology of drug addiction to teachers, health practitioners, journalists, and state legislators.

The Society's annual meeting, Neuroscience 2004, offered a wealth of opportunities for fostering scientific excellence in schools. Hands-on neuroscience workshops allowed K-12 teachers to dig into neuroscience activities and take them back to their classrooms. The Workshop to Bring Together K-12 Teachers and Neuroscientists partnered 30 teachers and 30 neuroscientists at a daylong program in the laboratories of the Salk Institute in La Jolla, California.

The Society was at the forefront of efforts to convey balanced, accurate messages about the benefits of animal research in 2004 and 2005. Working with other biomedical research organizations and professional societies, SfN began crafting a compelling, simple message about the positive benefits of animals in research. Meetings with these stakeholders — including the American Association for the Advancement of Science, States United for Biomedical Research, and the American Veterinary Medical Association — were held at the 2005 NSTA convention in Dallas and in May 2005 in Washington, DC.

SfN's Committee on Animals in Research (CAR) in 2004 formulated a wallet card listing translational neuroscience accomplishments to show the positive benefits of animal research. The wallet card was distributed to teachers and is available to neuroscientists and others on the SfN Web site.

To make neuroscience information more widely available to all, the Society — under the guidance of its Public Education Working Group — began developing a Neuroscience Education Portal. This Web-based navigational tool will provide easy access for educators to neuroscience topics and links to related scientific content. It will serve as SfN's gateway to neuroscience educational materials.

A first phase in the portal's development identified gaps in current Web site content and site navigation challenges. The second phase, continuing through 2005, will culminate with

the launch of a prototype that demonstrates the potential capabilities of a full-scale portal.

Through these efforts, SfN has made great progress toward reaching its goals of educating teachers and the public about neuroscience and helping to foster a pro-research environment in classrooms. With the strategic insight of the Committee on Neuroscience Literacy, the Society will fine-tune these initiatives to help sustain and nurture public interest in neuroscience in the years to come.

Launching of a year-round job bank; expanded programs for mentoring; and training programs for women, minorities, and neuroscientists from underdeveloped countries marked the Society's professional development milestones. Providing professional development activities for neuroscientists from all backgrounds, at all stages of their careers, is a challenge as the global neuroscience community expands. The Society continues to meet this challenge by providing opportunities for collaboration and career development in the United States and around the world.

A "Meet the Expert" series, sponsored by the Society's Education Committee, will debut as part of Neuroscience 2005. Three sessions will focus on new techniques in neuroscience and is designed to facilitate the interaction of graduate students and postdoctoral fellows with the scientists who have developed these techniques. This promises to present accomplishments in a close-up format while raising the visibility of promising young investigators.

Diversity, networking, and global neuroscience were bywords for the Society's professional development programs in FY 2004, and expanding chapter representation is one signpost of global collaboration. Sixteen of the Society's 115 chapters, or 14 percent, are located outside the United States, among them chapters in Canada, Chile, Australia, Mexico, Turkey, and the United Kingdom. In 2005, SfN began offering reduced membership dues to neuroscientists in many developing countries.

In the United States, SfN gained five chapters — the Snake River Chapter of Pocatello, Idaho; the Riverside/Inland Empire Chapter of Riverside, California; the Silicon Valley Chapter in Santa Clara, California; the San Francisco Bay Chapter; the Dallas Area Neuroscience Group — and the North Florida Neuroscience Group was reactivated. The Society awarded 28 small grants to chapters to support a variety of activities, from chapter meetings to Brain Awareness Week events. Awards ranged from $500 to $2,000.

In 2004, Eli Lilly supported 43 travel awards, the Burroughs Wellcome Fund supported 12, and SfN supported 2 postdoctoral travel awards. These awards support travel expenses and cover meeting registration fees for outstanding graduate and postdoctoral students nominated by their local chapters. For 2005 and beyond, the SfN Council agreed to provide 25 postdoctoral student travel awards in the amount of $1,000 each.

In FY2004, 26 new scholars were selected for the Neuroscience Scholars Program (NSP), bringing total enrollment to 42. The NSP, overseen by the Minority Education, Training, and Professional Advancement Committee (METPAC) and funded through the National Institute of Neurological Disorders and Stroke, is a three-year fellowship program providing SfN membership benefits, mentoring, career enrichment, and networking opportunities for pre- and postdoctoral minority students in neuroscience.

The Minority Neuroscience Fellowship Program, supported by a grant from National Institute of Mental Health with additional support from the National Institute of Neurological Disorders and Stroke, provided 11 predoctoral and six postdoctoral fellows with a monthly stipend, enrichment activities, travel to the SfN meeting, and mentoring in 2004. While this program is being phased out due to a reduction in NIH training funds, SfN is continuing to seek new ways to promote diversity in neuroscience.

The Mentor Program is another way SfN helps neuroscientists advance at all stages of their careers. In 2004, more than 400 individuals of all ages were matched with mentors, more than doubling the participation during the program's first two years. A meet-and-greet reception with funding support from Aventis Pharmaceuticals gave participants an opportunity to connect in person at Neuroscience 2004.

The newly expanded Committee on Women in Neuroscience (C-WIN) offered leadership training and professional development activities in 2004 and 2005. C-WIN also worked closely with METPAC to ensure adequate representation of women and minorities for SfN awards given at the annual meeting.

In its inaugural year, the Ricardo Miledi Program for Neuroscience Training offered a short course to 15 top neuroscience students from Mexico, South America, and the Caribbean. The course on neurotransmission was held August 16 – September 10, 2004 at the Instituto de Neurobiologio, Juriquilla, Queretaro, Mexico. More than 40 students applied for the 15 slots in the 2004 program; and more than 90 students have applied for the 15 slots in 2005. The program is funded under a three-year grant from The Grass Foundation.

The Society's International Affairs Committee (IAC) helped organize a course at Rhodes University in Grahamstown, South Africa, in conjunction with the U.S. National Academies and the American Epilepsy Society. Thirty-five practicing clinicians and scientific professionals from across sub-Saharan Africa took part in the workshop, titled "Neurobiology of Epilepsy." The IAC serves as the U.S./Canadian National Committee to the International Brain Research Organization (IBRO).

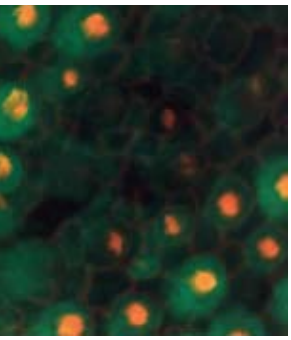
IBRO and SfN also sponsored travel fellowships for 15 students from developing countries to travel to Neuroscience 2004, and for 15 North American students to present their work at the Federation of European Neuroscience Societies Forum in Lisbon, Portugal, in July 2004

IAC supports a Web site, www.iac-usnc.org, as part of its mission to disseminate knowledge and promote research and training for neuroscientists in underdeveloped countries. A portal for neuroscientists around the world, the site operates at low band-width to maximize access by users in resource-restricted areas.

Through the dual efforts of informing educators and the public about neuroscience and nurturing the development and professional needs of scientists, SfN has set in place key building blocks for its future, and for the continued progress of neuroscience as a discipline.

CHAPTER 4

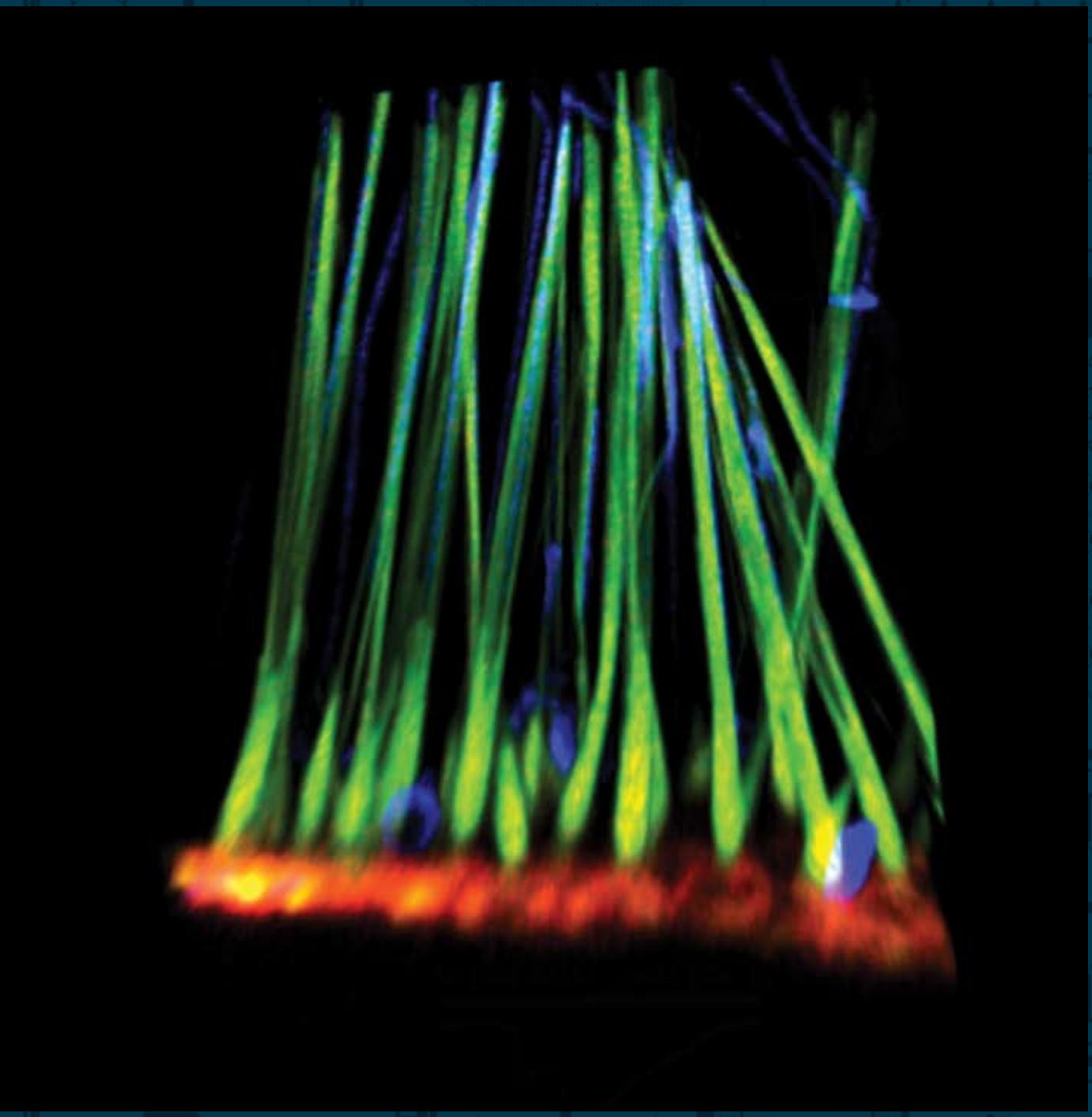
YEAR IN REVIEW



Society initiatives support and nurture scientific collaborations around the globe. The Society is very committed to broadening access to science for all, including women and underrepresented minorities. Also important are the infrastructure needs of the Society itself and of its scientist members.

During the 2005 fiscal year, the Society took several important steps to guide its growth and security as well as to build for the future. The new headquarters building, planned for occupancy in early 2006, will give the Society an added revenue stream, providing financial security and protecting its programs during a time of federal budget deficits and reduced funding for biomedical research. The SfN Council looked anew at the Society's planning assumptions and goals, with an eye toward developing a new set of strategic planning initiatives based on key areas identified as affecting neuroscientists and the entire field now and in the future. And SfN continued to make impressive strides toward increased membership, expanded chapter reach, and enhanced communication strategies.

In August 2004, SfN agreed to purchase upon completion from DRI Partners an 11-story, 84,000-square-foot building in downtown Washington, DC, that will serve as the Society's new home, starting early in 2006. SfN will



occupy the top three floors of the building and the remaining space will be rented to tenants to produce revenue to support the Society's programs. The building will include lobby display space to showcase neuroscience achievements to the public as well as conference rooms to hold staff, Council, and SfN committee meetings, which will reduce ongoing expenses for hotel meeting space.

To design SfN's office space in the new building, the Real Estate Committee chose Envision Design, a 20-person firm in Washington, DC, specializing in sustainable architecture, so-called "green" design, which incorporates principles and materials that seek to provide environmentally sensitive, healthy, and productive workplaces. This work has been done in keeping with principles of neuroscience and architecture.

Financing of $32 million to purchase the building and construct SfN's space is being provided by Bank of America. The financing package will include the use of low rate tax-exempt bonds issued by the District of Columbia and repaid by SfN, along with a standard commercial mortgage. This hybrid mechanism is commonly used by nonprofit organizations when purchasing a building in Washington, DC, to reduce their borrowing costs.

Ownership of a building is part of the long-range strategy of the Society to ensure the excellence of its programs. By making us less reliant on other revenue sources, the Society will be in a better position to control the costs of membership, annual meeting fees, and *The Journal*, and will be able to devote more resources to new projects that members wish to initiate. By having a new revenue source that is independent of membership fees or annual meeting attendance, the Society can make its financial picture more predictable and stable.

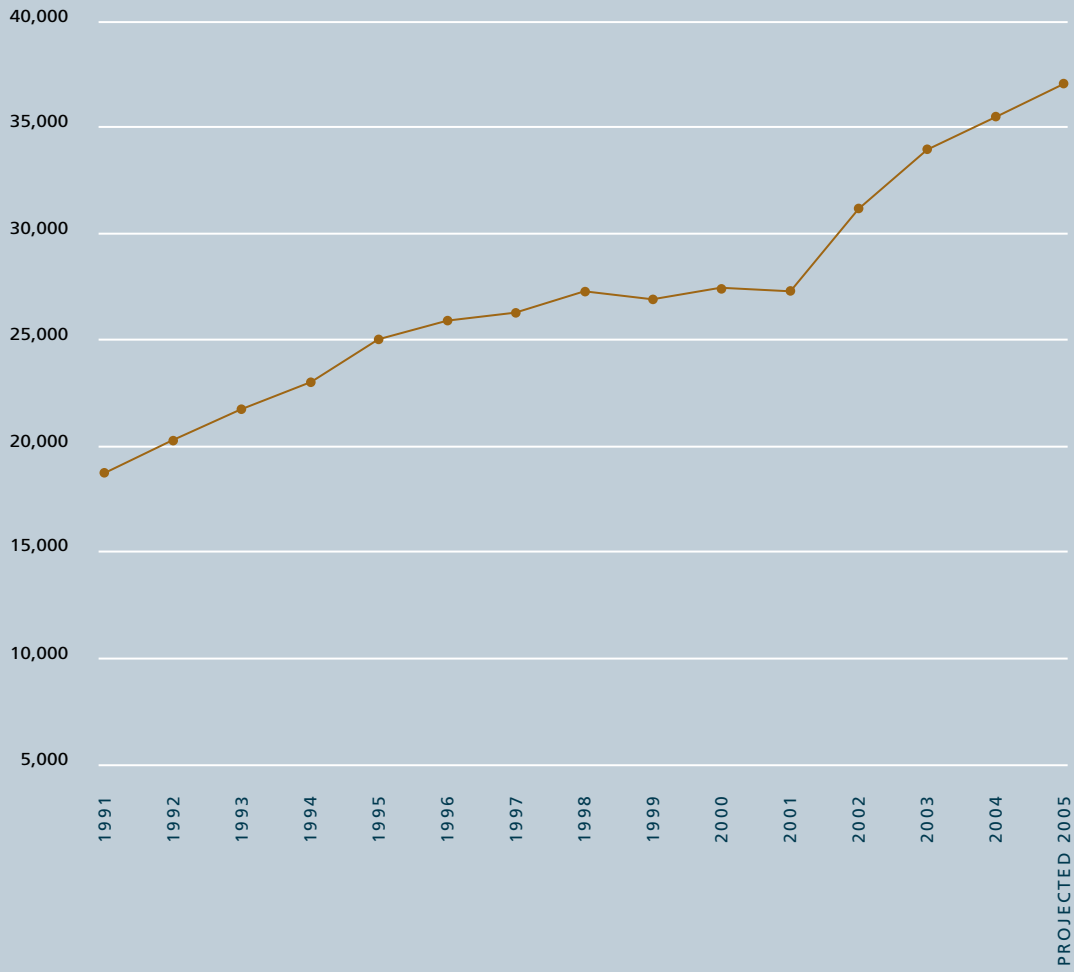
In 2004 the Society continued to gain members, with 5,442 new members joining for a total of 36,183, marking the third year in a row that membership has reached an all-time high. Membership growth was up 5.75 percent for 2004, and 2005 is trending toward an additional 3 percent growth over 2004. Overall membership is up nearly 30 percent since 2001 after four years of being flat at about 28,000.

This unprecedented growth — not experienced by many other associations in any field — is a reflection of the vitality and dynamism of the field of neuroscience, and the valued services and products the Society provides to its members. Through a collaborative effort by the SfN Council, Society committees

The new headquarters building, planned for occupancy in early 2006, will give the Society an added revenue stream, providing financial security and protecting its programs during a time of federal budget deficits and reduced funding for biomedical research

SOCIETY FOR NEUROSCIENCE MEMBERSHIP

MEMBERSHIP GROWTH 1991–2005



and volunteer leaders, and central office staff, membership continues to increase.

Several changes in Society membership policies contributed to these increases. Since December 2001, international regular membership has grown by 29 percent due to the early 2003 implementation of a bylaws change eliminating the disparity between North American and international regular members, the 2004 reduction in annual meeting fees for members, and the 2005 reduction in membership dues for members residing in developing countries.

The total number of international regular members as of June 30, 2005 was 7,930 including 293 members living in developing countries. Student membership has increased by nearly 56 percent from 5,151 in December 2001 to 8,021 as of June 30, 2005. International student membership has increased by about 60 percent from 1,030 in December 2001 to 1,647 as of June 30, 2005.

With increased membership also came increased participation by members in the affairs of the Society. Use of online voting and nominating tools has made it easier for members to vote in elections and referenda, and suggest candidates for committee service. During the 2005 election, members voted for two new officers and the final results included 4,409 completed ballots from 26,795 eligible members — a participation rate of 16.5 percent.

Chapters are an integral part of the Society, serving as worldwide testaments to the importance of neuroscience, both in America and abroad. Expanding chapter representation is

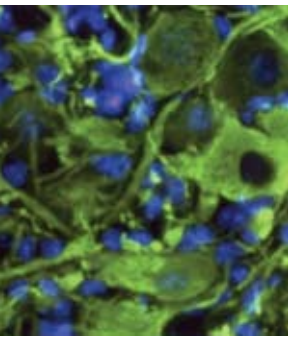
one signpost of global collaboration. Sixteen of the Society's 117 chapters, or 14 percent, were located outside the United States, in Canada, Chile, Australia, Mexico, Turkey, the United Kingdom, and other countries. Bringing neuroscience national exposure, SfN chapters hosted 32 lectures through the Grass Traveling Scientist Program in 2004, with an additional 19 scheduled for 2005. Funding is provided by a grant from The Grass Foundation.

The forethought and strategic planning of past Society leaders has enabled SfN to undertake many of the exciting initiatives described in this brief look at the 2005 fiscal year. With the continued guidance of Society Council, SfN is continuing to build for the future by identifying the "radar screen" of key issues, opportunities, and challenges that the Society and the field will face in the coming years. The next stage of this planning effort, in late 2005, will develop a set of strategies and action plans to take advantage of the opportunities and mitigate the risks ahead. This effort, as part of a philosophy that utilizes iterative and continuous planning by SfN's leaders, will help ensure that the benefits and potential of neuroscience research are realized for individuals and for society as a whole.

SfN is continuing to build for the future by identifying the "radar screen" of key issues, opportunities, and challenges that the Society and the field will face in the coming years.

CHAPTER 5

FINANCIAL HIGHLIGHTS



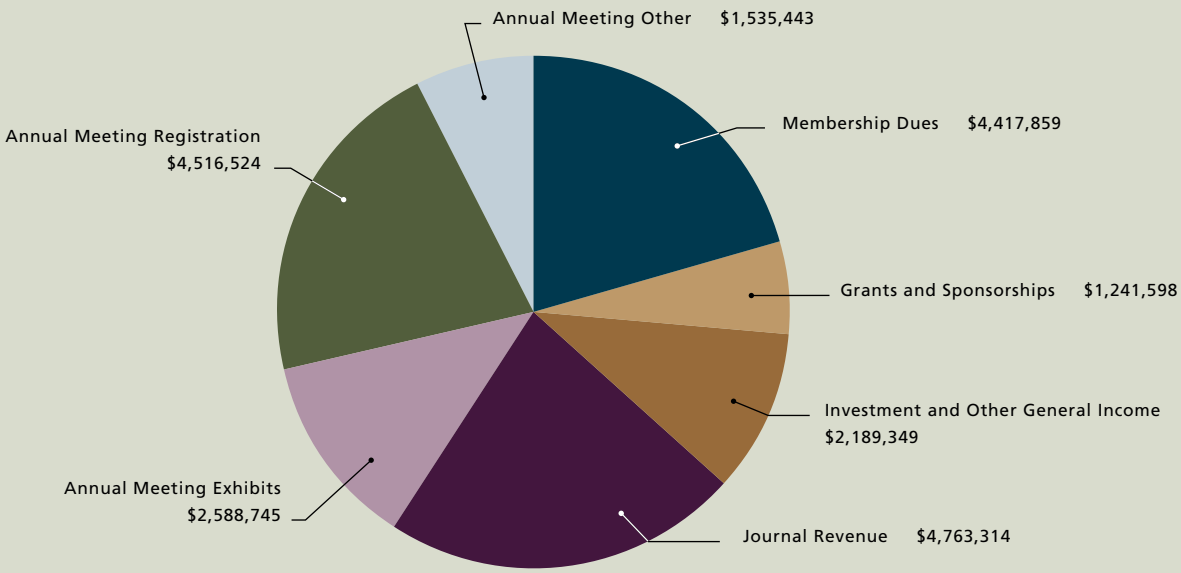
Despite uncertain economic times for much of the nonprofit sector, the Society for Neuroscience remains fiscally strong, with growth in its reserves and a surplus of revenues over expenditures in 2004–2005.

The Society continues to make the necessary changes and improvements to its internal financial controls and systems, to ensure that it follows current best practices for nonprofit financial management. The Society's auditors, PricewaterhouseCoopers, have audited the financial operations for the fiscal year beginning July 1, 2004, and ending June 30, 2005. Their opinion letter and the audited financial statements are included later in this section.

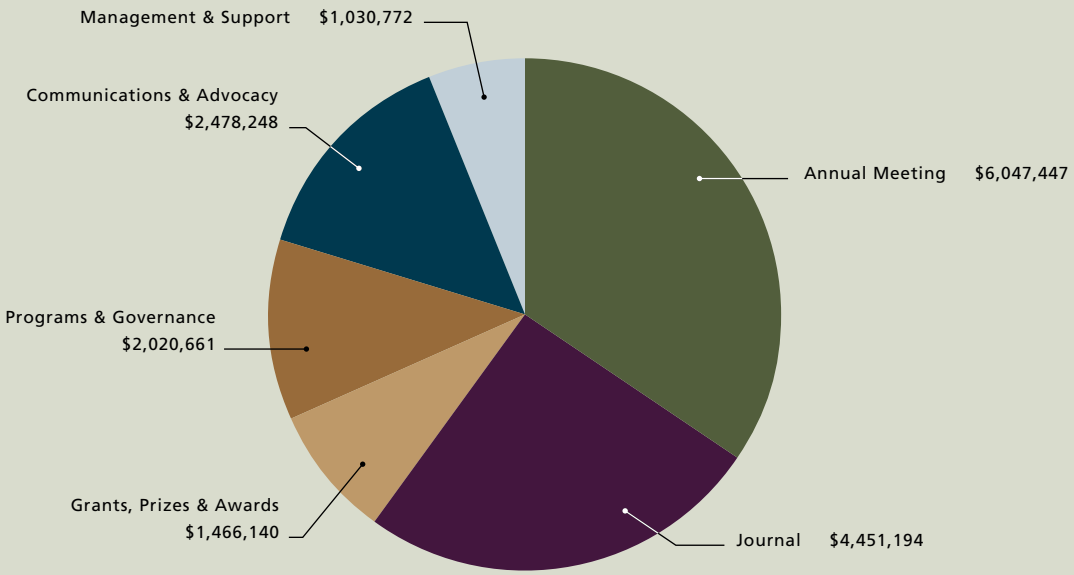
Fiscal year 2005 represents the first fiscal year cycle covering the period between July 1 and June 30. The new fiscal year timing places the annual meeting closer to the beginning of the year and, as anticipated, has greatly assisted staff in more accurately forecasting both expenditures and revenues. The result is improved cash flow forecasting and a better ability to plan for future programs and expenditures.

Maintaining a strong financial position in future years while simultaneously creating long-term stability will require ongoing oversight from the SfN Council and management; however, there are several reasons to remain

FY2005 REVENUE BY FOCUS AREA ($21,252,832)



FY2005 EXPENSES BY FOCUS AREA ($17,494,462)



optimistic about the organization's financial future. Society membership reached all-time highs in both FY2005 and again in FY2006, reaching 37,000 members in October 2005. The recent numbers continue SfN's unprecedented growth over the last four years, with membership up 30 percent since 2001. The loyal and growing membership represents SfN's greatest strength as an organization. As abstract submissions continue to grow, reaching approximately 16,600 in 2005, the vital and dynamic nature of neuroscience as a field makes it very likely that the SfN annual meeting will continue to draw substantial scientific attendance. Neuroscience 2004 attracted more than 31,500 attendees and there is a strong likelihood of again attracting a record number of attendees and a large exhibitor presence at Neuroscience 2005 in Washington, DC.

While about 45 percent of SfN's total revenues come from the annual meeting, registration fees, exhibitor fees, and other annual meeting revenues such as abstract submission fees provide diverse and somewhat independent revenue streams even within the annual meeting revenues. The other major revenue sources for the Society include membership dues and journal revenues, primarily from institutional subscriptions and author page, submission, and reprint charges.

The surplus from FY2005 and prior fiscal years has been used by the Society, with the advice of its Finance and Investment Committees, to build up its reserve funds. The Society has met its goal for the reserve fund to grow to an amount equal to or greater than the expected operating expenses of the coming year. Investment reserves totaled $26.2 million at the end of FY2005, exceeding the goal and providing the additional funds necessary to cover the $5 to $6 million in upfront costs required for the purchase of the new building. Maintaining reserve funds at this level is considered prudent in the nonprofit world, and some continuing augmentation of the reserves, based on anticipated new financial risks to the Society, is planned in the coming years, subject, of course, to market fluctuations. Increased reserves will serve to protect SfN from the volatile economic climate currently facing the nonprofit community as a whole. Fortunately, the actions of past Councils have helped ensure our financial stability. Our current investment management strategy, which has been in place since 2002, utilizes a flexible, sector-based approach that allows the Society to support its activities, sensibly manage its reserves, and navigate the ups and downs of the economic environment. Ongoing oversight by the Investment Committee and outside experts, as well as input by the SfN Council, is critical to the continuing successful management of the reserves.

As described earlier in this report, in May 2004, the Society's Council voted to acquire a new headquarters building under construction in Washington, DC, located just south of Thomas Circle. A "Letter of Intent" was signed by the Society in June 2004, and a binding purchase agreement was executed in August 2004. Closing is scheduled upon completion of the 11-story, 84,000-square-foot building in January 2006, with move-in scheduled for February 2006. In future fiscal years this report will include updates on both the expenditures and revenues related to this new aspect of SfN's investment portfolio.

During FY2005 the Society also took the prudent steps of crafting a comprehensive plan to ensure continued business operations during any potential disruptive incident affecting SfN, the Washington, DC metropolitan area, or an annual meeting venue. Such a business continuity plan will guide the Society's actions during a disaster — whether natural or man-made — and allow recovery and restoration of critical business processes and member services.

Over the last year, SfN has continued its strong relationships with public, private and corporate entities. The National Institutes of

Health (NIH), for instance, has continued to be instrumental in supporting our diversity and education outreach programs through support of training, travel and workshop activities available to our members. Specifically, the Minority Neuroscience Fellowship Program received continued funding in FY2005 by the National Institute of Mental Health (NIMH) and the National Institute of Neurological Disorders and Stroke (NINDS); the Neuroscience Scholars Program also received continued funding from NINDS. SfN spent a total of approximately $680,634 in FY2005 on the minority training grant programs funded by NIH.

SfN's Neuroscience Database Gateway (NDG) project, which received $111,339 in funding from NIMH, NINDS, and the National Institute on Drug Abuse (NIDA) in FY2005, focuses on fully developing a user-friendly comprehensive Web portal as the gateway to neuroscience-related databases and tools. The Neurobiology of Disease Workshop, held each year the day before the annual meeting, introduces young neuroscientists to current concepts about the etiology and pathogenesis of disorders of the nervous system, received $55,978 in funding from NINDS during FY2005.

SfN recognizes the importance of industry within the field of neuroscience and at our annual meeting. All corporate sponsorship received by SfN adheres to the standards of the Accreditation Council for Continuing Medical Education. SfN has entered agreements with several corporations and non-profit organizations, including AstraZeneca, sanofi aventis, Bristol-Myers Squibb, Eli Lilly, Elsevier Science, Johnson & Johnson Pharmaceutical Research and Development, Merck, Novartis, Pfizer, and the Association of Neuroscience Departments and Programs to sponsor educational activities at the annual meeting. SfN is grateful to each of these organizations for providing funding in the form of education grants to support presidential and special lectures as well as a number of awards, prizes, and receptions delivered at the Society's annual meeting. Foundations, in particular The Burroughs Wellcome Fund, The Philanthropic Collaborative at Rockefeller Philanthropy Advisors, and the Grass Foundation, have helped to build a framework for local and regional chapter activity by providing travel support and other awards for neuroscientists.

Society membership reached all-time highs in both FY2005 and again in FY2006, reaching 37,000 members in October 2005. The loyal and growing membership represents SfN's greatest strength as an organization.

PRICEWATERHOUSECOOPERS

PricewaterhouseCoopers LLP
1751 Pinnacle Drive
McLean VA 22102-3811
Telephone (703) 918 3000
Facsimile (703) 918 3100

Report of Independent Auditors

To the Council of the
Society for Neuroscience

In our opinion, the accompanying balance sheets and the related statements of activities and cash flows present fairly, in all material respects, the financial position of the Society for Neuroscience (the Society) as of June 30, 2005 and the changes in its net assets and its cash flows for the year ended June 30, 2005 in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Society's management; our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit of these statements in accordance with auditing standards generally accepted in the United States of America, which 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, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

FPO

PricewaterhouseCoopers LLP

September 9, 2005

BALANCE SHEET

AS OF JUNE 30, 2005

ASSETS

Current assets	
Cash and cash equivalents	$344,046
Accounts receivable, net of allowance for doubtful accounts of $55,000	788,038
Prepaid expenses	969,446
Total current assets	2,101,530
Non-current assets	
Long term investments	26,206,139
Property, plant and equipment, net	337,895
Deposits	23,833
Other assets	685,410
Total non-current assets	27,253,277
Total assets	$29,354,807

LIABILITIES AND NET ASSETS

Current liabilities	
Accounts payable and accrued expenses	$1,915,147
Deferred revenue	5,029,056
Total current liabilities	6,944,203
Total liabilities	6,944,203
Net assets	
Unrestricted	22,410,604
Total net assets	22,410,604
Total liabilities and net assets	$29,354,807

The accompanying notes are an integral part of these financial statements.

STATEMENT OF ACTIVITIES

FOR THE YEAR ENDED JUNE 30, 2005

	Unrestricted	Temporarily Restricted	Total
REVENUE AND SUPPORT			
Membership dues	$4,417,859	$ –	$4,417,859
Journal of Neuroscience	4,763,314	–	4,763,314
Annual meeting	8,756,201	–	8,756,201
Grant revenue	793,803	196,225	990,028
Bank interest income	242,876	–	242,876
Net investment Gain	1,767,984	–	1,767,984
Miscellaneous	314,570	–	314,570
Net assets released from restriction	196,225	(196,225)	–
Total revenue and support	21,252,832	–	21,252,832
EXPENSES			
Program expenses			
Journal of Neuroscience	4,467,084	–	4,467,084
Annual meeting	6,750,460	–	6,750,460
Grants	1,111,140	–	1,111,140
Total program expenses	12,328,684	–	12,328,684
Supporting services			
General and administrative	4,806,379	–	4,806,379
Membership development	359,399	–	359,399
Total supporting services	5,165,778	–	5,165,778
Total expenses	17,494,462	–	17,494,462
Change in net assets	3,758,370	–	3,758,370
Net assets, beginning of year	18,652,234	–	18,652,234
Net assets, end of year	$22,410,604	$ –	$22,410,604

The accompanying notes are an integral part of these financial statements.

STATEMENT OF CASH FLOWS

FOR THE YEAR ENDED JUNE 30, 2005

CASH FLOWS FROM OPERATING ACTIVITIES:

Change in Net Assets	$3,758,370
Adjustments to reconcile change in net assets to net cash and cash equivalents provided by operating activities	
Loss on disposal of equipment	351
Depreciation and amortization	287,091
Net realized & unrealized gain on investments	(1,318,823)
Increase in accounts receivable	(98,477)
Increase in prepaid expenses	(475,591)
Increase in other assets	(685,410)
Increase in accounts payable and accrued expenses	1,031,363
Increase in deferred revenue	578,465
Net cash provided by operating activities	3,077,339

CASH FLOWS FROM INVESTING ACTIVITIES:

Purchases of investments	(19,006,548)
Proceeds from sales of investments	16,196,233
Payments for capital expenditures	(207,158)
Net cash used in investing activities	(3,017,473)

CASH FLOWS FROM FINANCING ACTIVITIES: —

Increase in cash and cash equivalents	59,866
Cash and cash equivalents, beginning of period	284,180
Cash and cash equivalents, end of period	$344,046

SUPPLEMENTAL CASH FLOW DISCLOSURE:

Retirement of property, plant and equipment	47,430
Interest paid on line of credit	3,459

The accompanying notes are an integral part of these financial statements

1. ORGANIZATION

The Society for Neuroscience (the Society) is a non-profit, non-stock corporation. The primary purposes of the Society 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; and to inform the general public on the results and implications of current research in this area.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of presentation

The accompanying financial statements have been prepared on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America.

Net assets

Unrestricted

Unrestricted net assets represent resources that are not restricted, either temporarily or permanently, by donor-imposed stipulations. They are available for support of all organizational operations and services.

Temporarily restricted

Temporarily restricted net assets represent contributions and other inflows of assets whose use is limited by donor-imposed stipulations. These restrictions are temporary in that they either expire by the passage of time or by the fulfillment of certain actions of the Society pursuant to those stipulations.

Management estimates and uncertainties

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 and disclosure of contingent assets and liabilities at the date of the financial statements and reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Reclassifications

Certain amounts in the prior year financial statements were reclassified to conform to the current year financial statement presentation.

Cash and cash equivalents

Cash and cash equivalents consist of short term, highly liquid investments that are readily convertible into known amounts of cash with maturities of three months or less when purchased, except for any such investments purchased with funds held by the investment managers.

Investments

The fair value of investments is based on quoted market prices with realized and unrealized gains and losses included in the Statement of Activities.

Concentration of credit risk

The Society maintains its cash and cash equivalents with financial institutions which are federally insured under the Federal Depository Insurance Corporation Act (FDICA). Total deposits at these institutions at times exceed the FDICA insurance limits and therefore, bear the risk of loss. The Society also invests certain of its excess cash and cash equivalents in repurchase agreement accounts with a major bank. The repurchase agreements are collateralized by U.S. Government Securities, and bear minimal risk. The Society has not experienced any losses to date on its cash and cash equivalents.

Concentrations of credit risk with respect to accounts receivable are limited due to the majority of receivables being from members and the federal awarding agencies. Management does not believe significant risk exists in connection with the Society's concentrations of credit at June 30, 2005.

Property, plant and equipment

Property, plant, and equipment are recorded at cost and are depreciated using the straight-line method over the estimated useful lives of three to five years. Leasehold improvements are amortized using the straight-line method over the shorter of the estimated lives of the assets or the lease term. Gains and losses on the disposition of property, plant and equipment are recorded at the time of the disposition.

Compensated absences

The Society records a liability for amounts due to employees for future absences which are attributable to services performed in the current and prior periods.

Revenue recognition

Membership dues and journal subscription revenues are recorded as revenue in the year to which the revenues related.

Contracts and grants received from departments or agencies of the United States Government considered to be exchange transactions (as opposed to contributions) are not recorded as revenue until related costs are incurred. These revenues are subject to audit by government auditors. A receivable is recorded to represent expenditures incurred prior to year-end for which cash reimbursement has not been received.

Real Estate

On August 20, 2004, the Society executed a binding Purchase and Sale Agreement (P&SA) with DRI Partners, Inc. for a new building to be built at 1121 14th St., NW, Washington, DC. The 11-story, 84,000 square foot building will serve as the Society's new headquarters location when the current extended lease ends on February 28, 2006. The purchase will close upon completion of the building, which is scheduled for Dec. 31, 2005. The Society is expected to move in early in 2006. Financing of up to $35 million to purchase the building and construct Society's space will be provided by Bank of America. The financing package will include the use of low rate tax-exempt bonds issued by the District of Columbia and repaid by Society, along with a standard commercial mortgage.

In January 2005, using forward swap rates, the Society locked in a rate of 4.33% (including spread and remarketing fee) for an $11.25 million tax-exempt loan and a rate of 5.87% (including spread) for a $14.6 million taxable loan. In June 2005 the Society locked in a rate of 5.23% (including spread) for an additional $6.15 million taxable loan, bringing the total loan amount to $32 million. Exact amounts of both tax exempt and taxable debt will be determined at closing.

Income taxes

The Society is exempt from Federal and state income taxes under Section 501(c)(3) of the Internal Revenue Code and the applicable state income tax regulations, except for taxes on unrelated business income. Since the Society had no material unrelated business income for the period ended June 30, 2005, no provision for income taxes has been made in the accompanying financial statements.

3. INVESTMENTS

Investments as of June 30, 2005, are set forth below at cost and fair value by investment type:

	2005	
	Cost	Fair Value
US Government obligations	$3,093,095	$3,097,846
Fixed Income	2,184,715	2,214,555
Equities	18,746,263	20,309,058
Cash	584,679	584,679
Total long term investments	$24,608,752	$26,206,139

The components of net investment income (loss) for the period ended June 30, 2005 are as follows:

	2005
Dividends and interest	$684,130
Net realized Gain	596,455
Net unrealized Gain	725,827
Net investment income	$2,006,411

Investment management fees expense was $180,452 for the period ended June 30, 2005.

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

4. ACCOUNTS RECEIVABLE

Accounts receivable as of June 30, 2005 consisted of the following:

	2005
Products and services	$549,820
Grants and contracts	240,499
Accrued interest	49,383
Accrued dividends	730
Employees	2,606
	843,038
Allowance for doubtful accounts	(55,000)
	$788,038

5. PROPERTY, PLANT, AND EQUIPMENT

As of June 30, 2005, property, plant and equipment consist of the following:

	2005
Furniture	$111,063
Equipment	1,046,202
Leasehold Improvements	224,350
Renovation in Progress	
	1,381,615
Accumulated depreciation	(1,043,720)
	$337,895

Depreciation expense was $287,091 for the period ended June 30, 2005.

6. TEMPORARILY RESTRICTED NET ASSETS

Net assets were released from donor restrictions when expenses were incurred to satisfy the restricted purpose or by occurrence of other events as specified by donors as follows for the year ended June 30, 2005:

	2005
Annual meeting	$90,000
Training & Development	76,080
Lectures	30,145
	$196,225

7. DEFINED CONTRIBUTION PENSION PLAN

The Society maintains a defined contribution pension 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 participating employee's salary depending upon the percentage of contribution made by the employees. The Society's contributions to the plan totaled $443,180 for the period ended June 30, 2005.

8. COMMITMENTS AND CONTINGENCIES

The total and present value of future minimum payments related to non-cancelable operating leases with terms in excess of one year are as follows:

		Fiscal years
From July 1, 2005 – June 30, 2006	12 months	$503,809
From July 1, 2006 – June 30, 2007	12 months	20,629
		$524,438

Total rental expense included in operations for the period ended June 30, 2005 and was $911,973.

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Inside front cover: 3D reconstruction of immunofluorescence of RNA binding protein ZBP1 (Red) localized beneath active dendritic spines labeled with Actin (Green) and presynaptic bouton stained with synaptophysin (blue).

Courtesy, with permission: D. Tiruchinapalli, Y. Oleynikov, S. Shenoy, et al., *The Journal of Neuroscience* 2003; 23: 3251.

Page 2: This picture shows a hippocampal neuron labeled with two different cell membrane dyes, a red dye that specifically labels lipid-rafts (cholesterol-rich membrane compartments) and a green dye specific for non-raft membranes. Extraction of the cell with a cold non-ionic detergent specifically removed the non-raft component of the neuronal cell membrane revealing cholesterol-enriched, lipid rafts in patches along the dendrites.

Courtesy, with permission: H. Hering, M. Sheng, C-C. Lin, *The Journal of Neuroscience* 2003; 23: 3262.

Page 9: The yellow neuron is a medium spiny striatal neuron that contains mutant huntingtin and an inclusion body (red).

Courtesy of Steven M. Finkbeiner, used with permission.

Page 11: The pathological cortical local neuronal circuitry in Huntington's disease mice consisting of an inhibitory interneuron and a pyramidal neuron.

Courtesy of William Yang and Xiaohong Lu, used with permission.

Page 12: Bone Marrow Stromal Stem Cells transplanted into the embryonic rat brain (green) migrate along the nestin-positive fibers (red) and disperse widely throughout the brain.

Courtesy, with permission: I. Black, D. Woodbury, A. Marcus, et al., *The Journal of Neuroscience* 2004; 24:4585-4595.

Page 19: PET study investigating 5HT1A receptor density in individuals with major depression using the selective 5HT1A receptor antagonist radiotracer [11C]WAY-100635. Regions in which severely functionally impaired MDD patients as classified by the SCID (n = 5) display significantly decreased 5HT1A receptor density compared to moderately functionally impaired MDD patients (n = 12). Regions depicted in red are the most significant, i.e., the areas in which more severe functional impairment in MDD is associated with reductions in 5HT1A receptor concentrations.

Courtesy of Jon-Kar Zubieta, used with permission.

Page 20: Time-frequency analysis of ongoing activity in a human magneto-encephalogram reveals intermittent É¤(~10Hz) and É¡(~30-40 Hz) oscillations.

Courtesy, with permission: J. Matias, S. Palva, K. Kaila, *The Journal of Neuroscience* 2005; 25: 3962-3972.

Page 21: Imaging the bloodfirst described by Paul Ehrlich (1885), the reach blood supply of the brain is characterized by the presence of a structural and functional barrier. Red, Albumin- Evans blue complex limited to the blood vessels; blue, stained nuclei (DAPI staining).

Courtesy, with permission: E. Seiffert, J. Dreier, S. Ivens, et al., *The Journal of Neuroscience* 2004; 24: 7829-7836.

Page 22: Retinal ganglion cells (blue) transduced with a TrkB (red)-encoding viral vector.

Courtesy, with permission: A. Di Polo, L. Cheng, P. Sapieha, et al., *The Journal of Neuroscience* 2002; 22: 3977-3986.

Page 23: The lysosomal enzyme beta-glucuronidase (red) is transported axonally from the retina, through the optic nerves (upper section), lateral geniculate nucleus (middle section), and finally into the superior colliculus (lower section) of mice with the lysosomal storage disease MPS VII following intravitreal injection of a recombinant AAV2 vector.

Courtesy, with permission: A. Hening, M. Sands, B. Levy, et al., *The Journal of Neuroscience* 2003; 23: 3302.

Page 24: The mechanosensitive hair cells of the developing mouse utricle, an organ of balance, become functional the week prior to birth; the hair bundles, stained for actin (green) and tubulin (blue), project 8-10 microns above the surface of the sensory epithelium.

Courtesy, with permission: G. Geleoc, J. Risner, J. Holt, *The Journal of Neuroscience* 2004; 24: 11148-11159.

Page 27: Three segments of a dissected thirdinstar Drosophila larva. Green muscles are stained with anti-Discs large, red synapses are stained with anti- DVGLUT (Drosophila vesicular glutamate transporter), and blue nerves are stained with anti-HRP (horseradish peroxidase).

Courtesy, with permission: R. Daniels, C. Collins, M. Gelfand, et al., *The Journal of Neuroscience* 2004; 24: 10466-10474.

Page 29: Treated Bone Marrow Stromal Stem Cells (MSCs) display neural morphologies (dark stain) and form networks in the culture dish. Large flat cells (light stain) that did not respond to the treatment protocol reflect the morphology of the original bone marrow cells.

Courtesy, with permission: I. Black, S. Thakker-Varia, J. Alder, et al., *The Journal of Neuroscience* 2001; 21: 6782-6790.

Page 30: 3-D projection of a confocal image of a hippocampal neuron stained with monochlorobimane to measure intracellular glutathione levels [GSH]. [GSH] was found to be significantly depressed in neurons following exposure to beta-amyloid peptides.

Courtesy, with permission: A. Abramov, L. Canevari, M. Duchen, *The Journal of Neuroscience* 2003; 23: 5088-5095.

Page 33: From a cell culture of mouse subventricular zone, using a new method that favors the large scale generation of neuronal precursor cells from this indigenous stem/progenitor cell population. The red cells, immature neurons stained for Beta III tubulin, arise a nestin+ (green) stem cell population within these cultures.

Courtesy of Bjorn Scheffler and Dennis Steindler, used with permission.

Page 36: Frog saccular hair cells internalize FM1-43 (green) through channels at the tips of the hair bundles. Cells in the middle of the field have had their hair bundles, labeled with phalloidin (red), removed using nitrocellulose, and do not internalize FM1-43, demonstrating the necessity for the hair bundle in this vital labeling.

Courtesy, with permission: J. Meyers, R. MacDonald, A. Duggan, et al., *The Journal of Neuroscience* 2003; 23: 4054-4065.

Page 37: Side-view hair cells from the semicircular canal demonstrating the presence of the TRPA1 channel on the mechanosensory bundles of stereocilia. The kinocilia, which presumably are not mechanosensory, are labeled in blue (for É¤-tubulin). TRPA1, labeled in red, is detected in the apical side of the epithelium (a presumed repository or transduction component) and also in the mechanosensory stereocilia (labeled in green for actin). The bottom part of these very long bundles, which contain the tips of numerous shorter stereocilia, labels somewhat more strongly for TRPA1 (yellow), which is also detected on the longer stereocilia, as can be more clearly seen in Figure 3n of the manuscript. Thus the localization of TRPA1 is consistent with the occurrence of transduction at the tips of stereocilia. Accordingly, TRPA1 displays channel properties of the hair cell transducer and probably forms its pore. In addition, TRPA1 is present in most nociceptors and is thought to play a parallel role in pain transduction.

Courtesy, with permission: K. Nagata, A. Duggan, G. Kumar, et al., *The Journal of Neuroscience* 2005; 25: 4052-4061.

Page 42: Image shows large motor neurons (stained in green for phosphorylated neurofilaments, nuclei of surrounding cells in blue) in slice cultures (six days in vitro) derived from newborn mice.

Courtesy, with permission: W. Rakowicz, C. Staples, E. Johnson, et al., *The Journal of Neuroscience* 2002; 22: 3953-3962.

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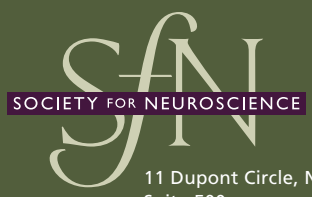

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