



SOCIETY *for*
NEUROSCIENCE

CONVENING

to SPARK discovery

FY 2023 ANNUAL REPORT





Table of Contents

Donor Spotlight	1
Message From the President	2
Advancing Scientific Exchange	4
<i>Neuroscience 2022</i>	5
<i>SfN Journals</i>	6
Supporting the Neuroscience Community	12
Educating and Engaging the Public	20
Advocating for the Field	26
Financial and Organizational Highlights	28
Donors	30
Photo Credits	34
SfN Leadership	36
SfN Staff	38
Audited Financial Report	I

SfN Mission

ADVANCING SCIENTIFIC EXCHANGE

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.

SUPPORTING THE NEUROSCIENCE COMMUNITY

Provide professional development activities, information, and educational resources for neuroscientists at all stages of their careers, including undergraduates, graduates, and postdoctoral fellows, and increase participation of scientists from diverse cultural, ethnic, and geographic backgrounds.

EDUCATING AND ENGAGING THE PUBLIC

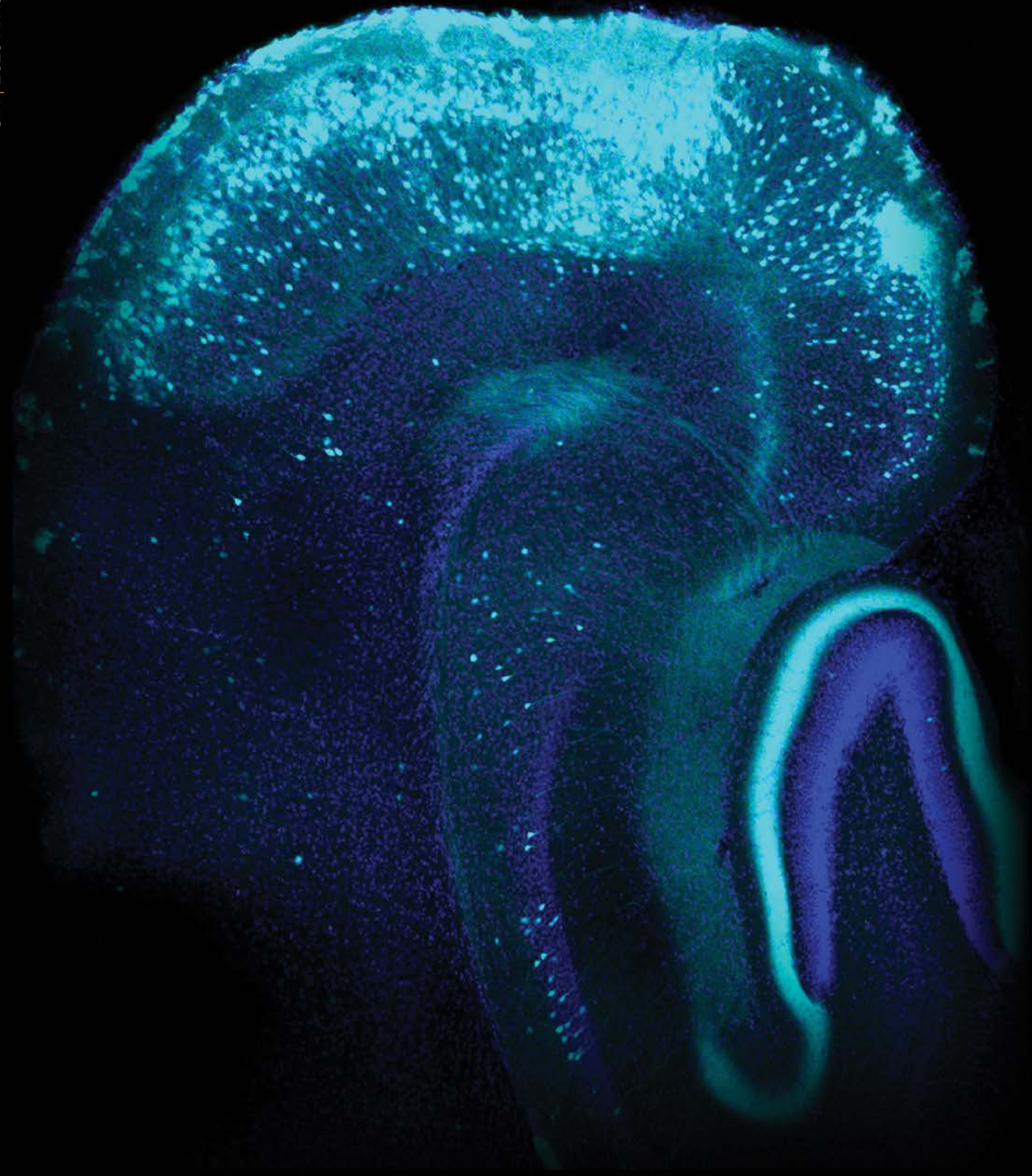
Promote public information and general education about the nature of scientific discovery and the results and implications of the latest neuroscience research. Support active and continuing discussions on ethical issues relating to the conduct and outcomes of neuroscience research.

ADVOCATING FOR THE FIELD

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

Science in Progress

Stable Yet Plastic: The Brain's Balancing Act	8
Snoozing Drosophila Are a Model Animal for Insight Into Human Sleep	16
Researchers Investigate Targeted Psychoactive Therapies Without the Trip	22



Donor Spotlight:

Kristen M. Harris

Professor of Neuroscience, University of Texas at Austin



I have been a member of SfN since my first year in graduate school. SfN has been the mainstay of my professional journey, enabling me to present new work in vibrant poster sessions; organize symposia; serve on SfN Council and committees; and generally learn how to be a friend, colleague, and professional academic scientist.

I had always planned to leave SfN funding in my will to establish a prize in ultrastructural neuroscience. Then a tragedy happened in 2021 — my beloved former postdoc, Jennifer Bourne, was killed in a car accident. Once again I turned to SfN, this time to help me manage my deep grief. Together, we honored Jen's work and memory through the founding of the [Jennifer Bourne Prize in Brain Ultrastructure](#).

I remain indebted to the marvelous community of neuroscientists that is SfN.

Message from the President



The value of convening, collaborating, and fostering human connections has never been clearer.

Even months afterward, we feel the excitement from Neuroscience 2022, our Society's first in-person gathering since 2019. That joyful reunion with old friends and collaborators — and first face-to-face introductions with colleagues only previously seen through a screen — reinforced why the in-person meeting is irreplaceable.

At the same time, the time of virtual-only meetings taught us a lot about how to provide valuable scientific content in a virtual format for those who, for one reason or another, are unable to attend in person. Even more, the [Neuroscience 2022 Virtual Component](#) allowed me personally to catch up on things that I didn't have time to attend — real value added!

This Annual Report offers the clearest window into how the Society for Neuroscience (SfN) has restored much of its coronavirus-impacted programming and improved upon it. These efforts — your efforts — have built a Society that is well positioned to support the needs of our neuroscience community moving forward.

Our Society is expanding its reach and impact in many ways. SfN Council, private organizations, and individual donors raised a record-setting sum, presenting over 270 [Trainee Professional Development Awards](#) (TPDAs) to neuroscience trainees to participate in Neuroscience 2022. [BrainFacts.org](#) continues to reach new audiences, most recently through major educational platforms supporting online learning. Our flagship journal, [JNeurosci](#), welcomed new Editor-in-Chief Sabine Kastner and implemented its first “read-and-publish” funding agreement. SfN's NeuroAdvocates resumed lab tours with their representatives, building relationships to support strong federal funding for neuroscience research.

The value of convening, collaborating, and fostering human connections has never been clearer. I can't wait to renew my sense of connection — of community! — with all of you at [Neuroscience 2023](#).

Oswald Steward

SfN President



A Joyful Reunion

Being the first in-person annual meeting since 2019, Neuroscience 2022 reunited an exuberant 24,359 attendees from 72 countries in San Diego, November 12–16.

EXCEEDING EXPECTATIONS

The eagerness to be back in person was evident throughout the San Diego Convention Center. The Presidential Special Lectures (PSLs) drew huge crowds each evening, starting with a winner of the 2021 Nobel Prize in Physiology or Medicine Ardem Patapoutian. The number of exhibitors was well beyond expectations, creating a bustling Exhibit Hall. Annual meeting sponsorships also exceeded expectations, with two Platinum (Abcam, Elsevier), six Gold, one Silver, and two Bronze level sponsors.

With lessons learned from the past several years, Neuroscience 2022 improved upon the traditional in-person annual meeting experience and introduced several new features to increase accessibility. Foremost of these new features was the Neuroscience 2022 Virtual Component, which offered virtual access to select sessions of the annual meeting’s in-person scientific programming. For example, all lectures and select symposia and minisymposia were livestreamed. These sessions offered moderated, live Q&A through the Neuroscience 2022 Mobile App which enabled both in-person and virtual attendees to submit questions. The virtual component also hosted virtual posters, allowing all abstract authors to upload both a video presentation and PDF description of their work; attendees could leave a question for a poster presenter that could be answered at a later time. All virtual component content was accessible for

30 days after the conclusion of the in-person programming.

SPARKING DISCOVERY THROUGH COMMUNITY BUILDING

Neuroscience 2022 provided multiple ways for community members to find each other. In addition to the traditional SfN-Sponsored Socials, Neuroscience 2022 introduced Neuroscience Meet-Ups. These new networking events offered an opportunity to gather at an offsite venue with a group of meeting attendees who share a particular interest or community. Neuroscience 2022 also introduced a pronoun sticker bar, where meeting attendees could affix small stickers with pronouns to their meeting badge. Finally, the return of satellite, advocacy, and outreach events offered over 100 opportunities for meeting attendees to gather over a shared interest or cause.

HIGH-IMPACT NEWS COVERAGE

The 11 press conferences of the Neuroscience 2022 press program helped create thousands of news stories that introduced the meeting to a global audience. High-impact stories were produced by the [BBC](#), [Scientific American](#), [NPR](#), [Spectrum News](#), and [Knowable Magazine](#). The 132 registered media attendees from 15 countries continued to produce stories months after the meeting had adjourned.



“That’s how science progresses — through collaboration and networking and meeting and learning about other people’s science.”

Phil Newsome, research fellow,
National Institute of Mental Health

72
Countries

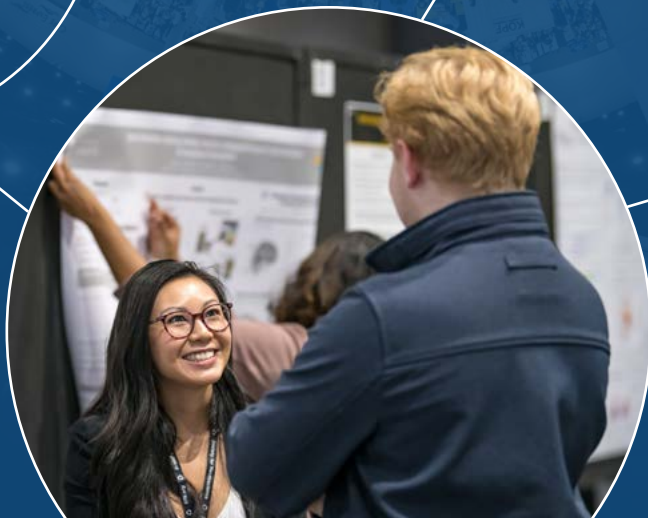
428
Exhibiting
companies

24,359
Attendees

854
Scientific
sessions

12,125
Abstract
presentations

23,945
Mobile app
downloads





SfN Journals Adapt to a Changing Landscape

SfN's journals are constantly evolving to best support the neuroscience community. JNeurosci welcomed new Editor-in-Chief (EiC) [Sabine Kastner](#), a professor at Princeton University's Princeton Neuroscience Institute. Meanwhile, eNeuro is finding new ways to promote statistical integrity and provide learning opportunities for researchers.

SPACES FOR IDEA EXCHANGE

Since its launch in 2022, [Neuro Current: An SfN Journals Podcast](#) has provided an additional platform to broadcast [SfN Journals: In Conversation](#) webinars — a series where authors and editors discuss exciting new research published in the SfN journals. Now, the podcast is offering listeners a new perspective on the evolution of neuroscience as a field through thought-provoking, original content. In [one such episode](#), former *JNeurosci* EiC Marina Picciotto and current EiC Sabine Kastner recount their entry into neuroscience, offer advice for women researchers, and discuss how their involvement in the peer review process improved their own science. Kastner also outlined her vision to maximize the benefits of peer review and boost early career scientists through new initiatives, which she also announced in her [inaugural editorial](#). In another original episode, [The History of Neuroscience in Autobiography: Science as a Human Endeavor](#), Larry Squire and Tom Albright share behind-the-scenes snippets of their efforts to spotlight the past and present titans of neuroscience.

At *eNeuro*, EiC Christophe Bernard underscored the need for constant scientific reflection in a poignant editorial, [Stop Reproducing the Reproducibility Crisis](#). Through careful observation and collaboration with colleagues, Bernard offered practical solutions to an insidious issue.



→ Click above to listen to the EiC podcast.

“Enhancing transparency in scientific publishing is an important topic. Marina and her board have made great progress on that. I think we can take that even a step further.”

Sabine Kastner, editor-in-chief, JNeurosci



SPECIAL ATTENTION TO STATISTICAL ANALYSIS

As Bob Calin-Jageman and Geoff Cumming [wrote in 2019](#), statistical inference “is at the heart of the scientific method.” It’s what allows researchers to make sense of their data. In the spirit of supporting the highest standard of statistical analysis, *eNeuro* is announcing a new statistics-focused editor position on its advisory board, which will be filled by Calin-Jageman. In this role, he will serve as a resource for reviewing editors with questions about statistical analysis, advise the EiC on journal policies related to statistics, and offer educational insights through written editorials and webinars.

CHANGING WITH THE PUBLICATION LANDSCAPE

Last year, some of the largest research funders in the United Kingdom (U.K.) announced policies that would prohibit their funding from being used to cover publication fees in any subscription journal. In response, *JNeurosci* implemented a read-and-publish model (available only in the U.K. at this time) in which U.K. institutions pay a single, annual fee to cover both the subscription and publication fees for that year. This move will allow U.K. researchers to continue to publish in *JNeurosci*.

5,000+

Listens to Neuro Current podcast

12

“In Conversation” webinars

Stable Yet Plastic: The Brain's Balancing Act

A fundamental concept of neuroscience was also, at one point, one of its biggest paradoxes. When two neurons send messages, or fire, at the same time, the connection between them strengthens. In turn, the neurons become more likely to fire again. And increased firing, or excitability, makes the connection stronger still. Theoretically, this dynamic would charge forward until every connection in the brain reached a maximum strength, and no new information could be encoded: a conundrum called runaway excitation. But that's not what happens. Gina Turrigiano has spent her career figuring out why.

[Turrigiano](#), the Joseph Levitan Professor of Vision Science at Brandeis University and past Society for Neuroscience (SfN) president, is one of a few pioneers who opened the field of homeostatic [plasticity](#), the study of how neurons tweak their own excitability to balance out circuit-wide changes in connection strength. Over the last three decades, Turrigiano has picked apart the mechanisms keeping neurons and circuits in check. Her work could one day reveal why brain function goes awry in diseases ranging from epilepsy to Alzheimer's disease — and how to make it right again.

THE PATH TO HOMEOSTATIC PLASTICITY

Turrigiano didn't start her career intent on studying [homeostasis](#). "I kind of serendipitously stumbled on a phenomenon that turned into an enormous research question that has driven my work ever since — this idea of self-regulation or homeostasis," she says. As a graduate student and postdoctoral researcher, Turrigiano

studied how the same neural circuit could act in different ways and initiate different behaviors in response to long-lasting neurochemicals called neuromodulators. In one experiment as a postdoc at Brandeis University in 1994, she examined how the electrical properties of neurons in a feeding circuit changed in response to different [neuromodulators](#). In the course of these experiments, she removed lobster neurons from their circuit and placed them in a cell culture dish to make them easier to study than when they are intact in a cluster of nerves. "And then weird stuff started to happen," Turrigiano says.

In an intact circuit, the neurons fire together in a rhythmic pattern that depends on which neuromodulators are present. Isolated neurons don't fire in the same pattern. But somehow, the single neurons in the dish [began to fire](#) in the same rhythmic patterns, without input from the rest of the circuit. "The individual

neuron gained the ability to compensate for the things that it was missing," she says. This looked a whole lot like a model of activity-dependent self-regulation that another postdoc in the lab was studying, leading her to try a key experiment demonstrating that biological neurons can monitor their own activity levels and adjust their electrical properties to maintain a constant firing pattern.

After Turrigiano finished her postdoc, she started her own lab at Brandeis and pivoted to studying a new research question: how the synaptic connections between neurons avoid becoming too strong or too weak as neural circuits change during development and learning. In her newly formed lab, Turrigiano started to dig into whether neurons could homeostatically regulate synaptic properties, and if this self-regulation could explain the paradox of runaway excitation. Turrigiano turned to computational neuroscience for inspiration. Computational neuroscientists build artificial networks in which synaptic strengths can change in response to experience to store new information, but the artificial networks fall victim to runaway excitation.

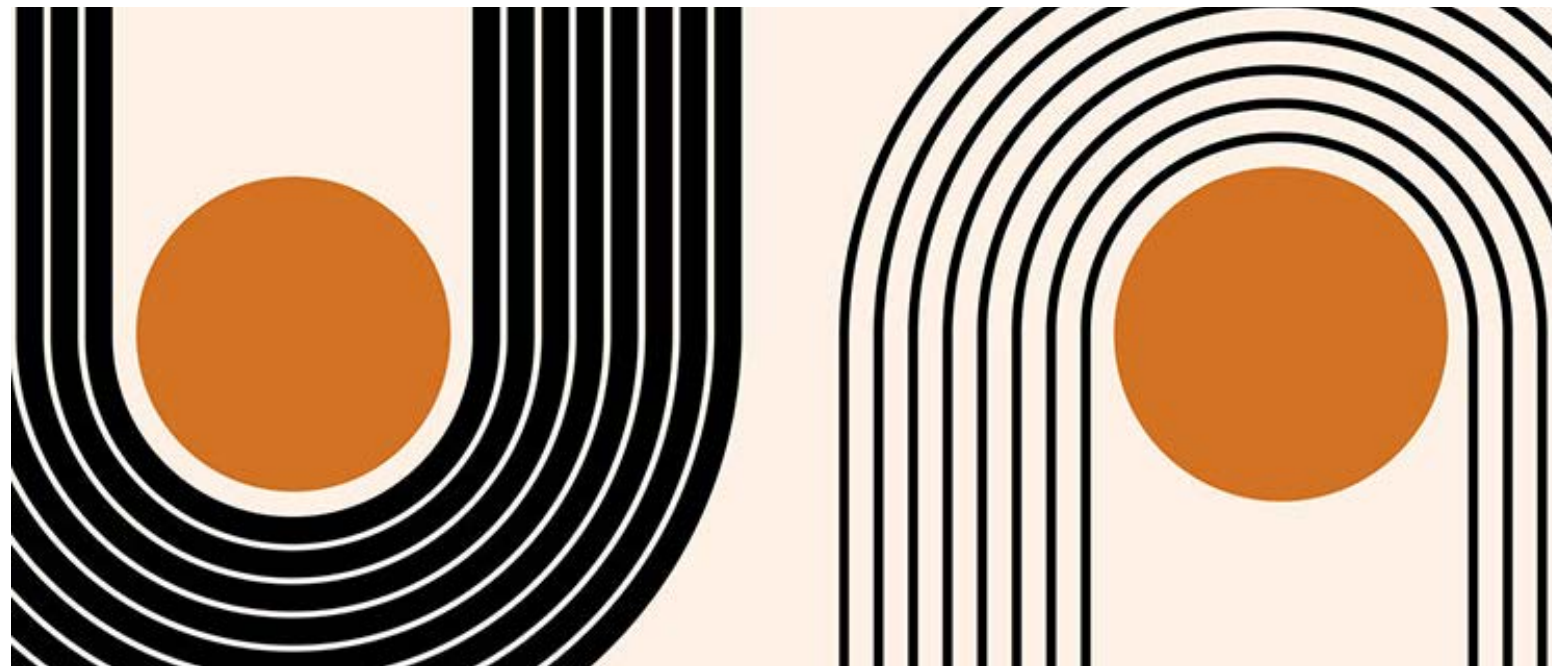
After a few rounds of sending messages, every connection in the network reached maximum strength and the system overloaded. The computational neuroscientists had to build in limits to the network, but it was unclear how biologically plausible these limits were.

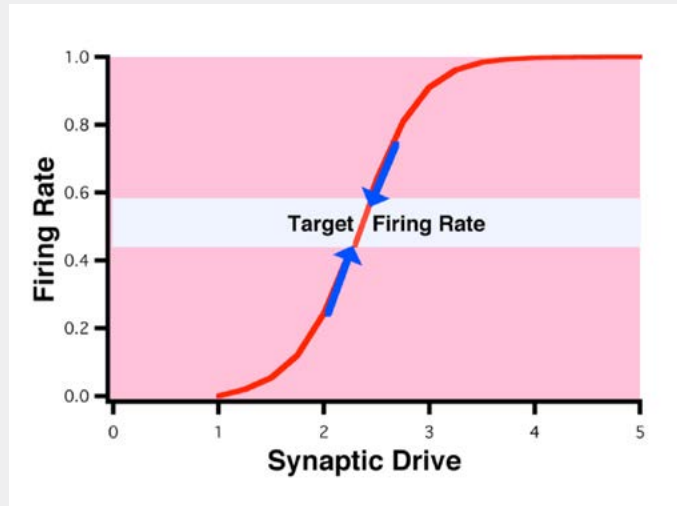
Turrigiano wondered if a simple homeostatic rule allowing neurons to adjust synaptic strengths up or down to compensate for changes in firing could serve this stabilizing function. In a [formative 1998 paper](#), Turrigiano and colleagues bathed cell cultures in a toxin that makes it harder for neurons to fire. If her theory was right, the neurons would ramp up the strength of each synapse to compensate for the decreased activity. That's exactly what happened.

The neurons adjusted all of their excitatory synaptic strengths based on their firing rates, a phenomenon Turrigiano and her coauthors called synaptic scaling. The neurons behaved like a thermostat: They preferred a specific firing range and adjusted themselves when they strayed from range. "That became the first paper on synaptic scaling," says [Eve Marder](#), a biology professor at Brandeis University and Turrigiano's postdoc advisor. "And that is what revolutionized the field."

"That became the first paper on synaptic scaling and that is what revolutionized the field."

Eve Marder, biology professor at Brandeis University and Turrigiano's postdoc advisor





As the connection strength between synapses changes, homeostatic plasticity mechanisms keep firing rates in the target range (center band). This means that as synapses get stronger and fire more, the overall strength decreases across the board to bring the firing rate back down (down arrow). The opposite is true for synapses that are too weak (up arrow).

A RICH VEIN

The paper made quite a splash: Computational and theoretical neuroscientists were excited, while synaptic plasticity researchers were doubtful. “There was definitely skepticism and pushback,” Turrigiano says. “And then, you know, I think what happened was people went in and they reproduced it.”

When different labs perform the same study and get the same results, scientists become more confident the results are accurate and not a fluke. Studies of homeostatic plasticity exploded across the field. “My lab realized what a rich vein this was,” Turrigiano says. Many labs joined Turrigiano’s in the quest to understand more specific mechanisms involved in synaptic scaling. “The whole synaptic strength field just jumped on this,” Marder says. Turrigiano and her collaborator Sacha Nelson compiled the nascent field’s major findings into an [influential review](#) in 2004, which drummed up even more excitement.

“Her seminal papers really built up and created the field,” says [Richard Huganir](#), a neuroscience professor at Johns Hopkins University. “Just do a search on homeostatic plasticity, and you’ll be impressed.”

Turrigiano then dug into a new question: Did behavioral state play a role in this type of plasticity? She didn’t think it would: They saw synaptic scaling in cell cultures, where there’s no such thing as being asleep or awake. But a [2016](#) and [2020](#) study in rats proved the hypothesis wrong. Downward regulation, or decreasing the firing rate, occurred only during sleep; upward regulation occurred only during wake.

Turrigiano is still exploring why the two directions of regulation are separated this way. “We can see the phenomenon, and I think that gives us a window into figuring out how to explain why,” she says, “but the ‘why’ is not completely clear.”



Gina Turrigiano delivers remarks as the moderator for a Presidential Special Lecture at Neuroscience 2022 in San Diego.

FIXING FIRING GONE ASTRAY

As Turrigiano and other laboratories in the field of homeostatic plasticity learn more about how neurons regulate their firing, the potential applications draw nearer. If homeostatic mechanisms are impaired during development, it can unbalance brain activity over time. A circuit could eventually become hyperactive or hypoactive, which could contribute to autism spectrum disorder, or an out-of-whack firing range for a neuron could also lead to brain diseases like epilepsy and Alzheimer’s disease. “If we can understand the mechanisms, we could maybe figure out how to restore them in disease states,” Turrigiano says. “You could end up helping brain circuits get back in balance, even possibly in brains after they’ve already developed.”

Homing in on different cellular mechanisms could also help answer questions about how brain circuits remain stable as they change during learning, as well as how they remain flexible enough to do multiple jobs — the exact question Turrigiano studied as a graduate student.

“It’s sort of circling all the way back around to that question that motivated me at the very beginning of our research,” she says, “and we now understand enough that we can really begin trying to tackle it.”



Fulfilling the Desire for Connection

With virtual offerings and the return of in-person events, SfN facilitates engagement throughout the diverse global neuroscience community.

IN-PERSON TRAINING AND NETWORKING

Demonstrating the desire to return to in-person learning, the Responsible Conduct of Research Short Course, held the day before Neuroscience 2022, saw a record-breaking 245 attendees. Funded by the [Foundations of Rigorous Neuroscience Research](#) (FRN) grant from the National Institute of Neurological Disorders and Stroke (NINDS), the course was titled “Tackling Challenges in Data Management, Collection, and Sharing.” SfN’s annual meeting also hosted six Professional Development Workshops, each offering an opportunity for attendees to talk with each other about issues such as writing and asking for recommendation letters, supporting LGBTQ+ trainees and colleagues, and work-life balance. These training opportunities were complemented by several in-person networking opportunities in San Diego, such as the lively Graduate School Fair, where undergraduates connected with neuroscience graduate programs.



“It’s just awesome that someone believed in me, believed in my story, and believes that I’m going to do something great in the future. I think the TPDA is an awesome opportunity that’s going to allow me to continue to improve.”

Chinonso Nwakama, undergraduate research assistant, University of Minnesota – Twin Cities

COHORTS CONVENE IN SAN DIEGO

Breaking another record, the Trainee Professional Development Award (TPDA) program raised \$323,000 to provide 272 neuroscience trainees from around the world with complimentary registration and award funds to offset expenses to participate in Neuroscience 2022. Other TPDA recipient benefits included a dedicated poster session at Neuroscience 2022, a year-long virtual professional development program after the annual meeting, four live chats, and tailored quarterly email resources. Organizations that contributed \$25,000 or more to the 2022 TPDA program included the Burroughs Wellcome Fund, Lilly, and the Rainwater Charitable Foundation; each contribution was matched by SfN Council. In addition, individual SfN members and other donors to the [Friends of SfN Fund](#) contributed over \$30,000 to support TPDAs, which was also matched by SfN Council.

The [Neuroscience Scholars Program](#) (NSP), a two-year training program open to under-represented graduate students and postdoctoral researchers, gathered the 2020–2022 NSP Fellows in San Diego to interact in person for the first time. The NSP Fellows attended a mentoring event, poster session, diversity reception, and more. Supported by a multiyear grant from NINDS, the program offers participants monthly live chats featuring NSP alumni, as well as their own private community on [Neuronline](#), SfN’s home for learning and discussion. This year, SfN was awarded a two-year, \$200,000 grant from the Chan Zuckerberg Initiative to further expand the program’s activities.

ACCESSIBLE VIRTUAL PROGRAMMING

SfN continues to offer year-round programming accessible to its global membership. With support from the FRN grant, a series of toolkits were produced and made available to address common issues related to scientific rigor and reproducibility. Several professional development webinars were offered throughout the year, including [Enhancing the Utility of Basic Research for Advancing CNS Therapeutics](#) and [Navigating the Postdoc-PI Relationship](#).

51

NSP Fellows at Neuroscience 2022

84

Graduate Fair booths



TPDA recipients at annual meetings

Funding of TPDA awards at annual meetings

272

2022

\$323K

394*

*virtual-only meeting

2021

\$160K

193

2019

\$240K

261

2018

\$297K

Top contributing organizations to Neuroscience 2022 TPDA awards:

- SfN (SfN Council, Friends of SfN Fund)
- Burroughs Wellcome Fund
- Eli Lilly and Company Foundation
- Rainwater Charitable Foundation

Snoozing *Drosophila* Are a Model Animal for Insight Into Human Sleep



For fruit flies living in test tubes, researchers are the fly on the wall. Provided a steady supply of food resembling mashed banana, the flies eat, court, mate, procreate, and sleep in their miniature homes inside a light- and temperature-controlled lab. This is where molecular biologist and chronobiologist [Amita Sehgal](#) investigates fly genetics to reveal the secrets of slumber.

Fundamentally, sleep in flies resembles sleep in humans: We share sleep-regulating genes and

respond to sleep drugs similarly. For example, caffeinated flies are awake and active, while antihistamines make them drowsy. The similarities allow scientists to study [sleep disorders](#).

“We have used flies to dissect mechanisms underlying circadian rhythms. Flies are a great model for that,” says Sehgal, the John Herr Musser Professor in the Perelman School of Medicine at the University of Pennsylvania.

Circadian rhythms, such as the 24-hour sleep-wake cycle, are produced by endogenous biological clocks. Research on flies shows the quantity of circadian proteins called period (*per*) and timeless (*tim*) rises and falls following a fixed time pattern. This innate biological clock compels flies to sleep at night, even when kept in constant darkness. Sehgal’s postdoctoral mentor, Michael W. Young, was one of three scientists awarded the Nobel Prize in 2017 for revealing the molecular clock mechanism.

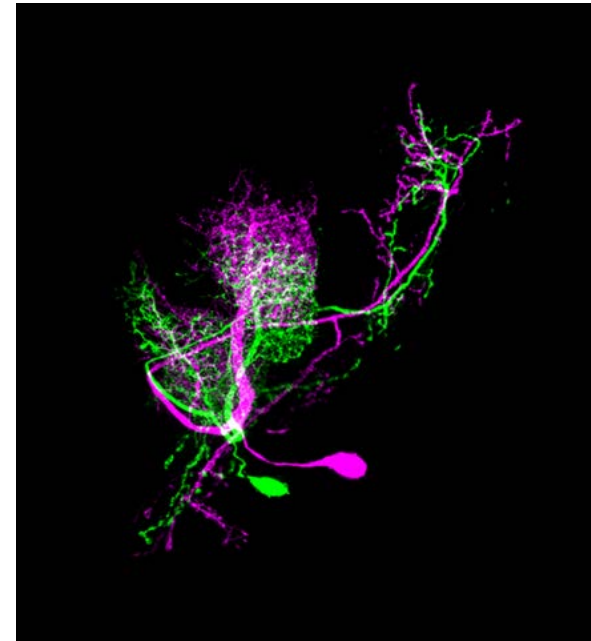
In her lab, Sehgal strives to uncover additional mysteries of sleep at the neural and molecular levels. In a career spanning more than three decades, she has focused on *Drosophila melanogaster*, the common fruit fly, to gain insight into why humans sleep, what happens if we don’t sleep enough, and how circadian clocks drive behavior.

ARE YOU ASLEEP?

Scientists deploy different strategies to identify the genes responsible for sleep. One, forward genetic screening, involves creating random mutations in the flies and looking for a specific trait outcome. By analyzing the genomes of the mutant flies with a desired trait, scientists can identify the genes responsible. However, studying sleep mutations in *Drosophila* presents a challenge: How can researchers differentiate between sleeping and resting flies?

Sleep in animals is behavioral inactivity that is reversible, and when disrupted, it leads to compensatory sleep called homeostatic rebound. It is regulated by the circadian clock and associated with physiological and molecular changes. A sleeping animal has a higher arousal threshold and ignores trivial sensory stimuli such as irrelevant visuals or smells. Because *Drosophila* meets all these criteria, Sehgal and her colleagues maintain that flies are a near-perfect model to study sleep. On a practical level, researchers consider flies asleep if they appear immobile for over five minutes.

Sehgal and her colleagues sorted through more than 12,000 *Drosophila* lines looking for sleep-inducing genes. They found one gene and named it [nemuri](#), meaning sleep in Japanese.



Lateral antennal lobe tract projection neuron 4 in male (magenta) and female (green) fruit flies.

“We have used flies to dissect mechanisms underlying circadian rhythms. Flies are a great model for that.”

Amita Sehgal, John Herr Musser Professor in the Perelman School of Medicine at the University of Pennsylvania



The common fruit fly,
Drosophila melanogaster

Nemuri is an immune system-related antimicrobial molecule. “It is induced [by] sleep deprivation. But it is also induced with sickness,” Sehgal says. When we are sick, we sleep more; flies do too. If you infect flies, the *nemuri* gene turns on, and the protein encoded by the gene makes the sick fly sleep for 17 to 20 hours a day, which helps the fly recover. Although the human equivalent of *nemuri* is still unknown, this finding in flies supports our lived experience of how sleeping during sickness appears to help fight off infections.

DID I WAKE YOU?

Sleep also affects metabolism. When Sehgal and colleagues disrupted sleep in flies by periodically shaking their test-tube homes, flies with reduced sleep had trouble processing waste — disrupted [nitrogen metabolism](#) turned proteins toxic and lipid metabolites accumulated within cells. The accumulation of [lipid metabolites](#) in the brain increases the need for sleep. To process the lipids, flies must sleep.

Sehgal’s work has influenced many researchers. “Anything that people work on related to sleep in flies now, [Sehgal] has touched at least some aspect of it,” says [Budhaditya Chowdhury](#), an early career researcher at the City University of New York. His [research](#) has shown that constant shaking to disrupt sleep can induce sleep-independent stress in flies, challenging the induced sleep-loss studies. After accounting

for sleep-independent stress, Chowdhury’s team showed that the effects of sleep disruption differ based on sleep stages. Brain recordings reveal that flies, like humans, have [sleep stages](#): quiet (or deep) sleep and active (or light) sleep. Chowdhury says, “[After sleep disruption] when flies pay back sleep, they pay back the deep sleep [debt] much faster and at a much higher rate.” So the deep sleep stage, when the brain quiets down as neurons fire less, is essential and paid off first in the case of sleep debt. Sehgal’s research linking sleep and metabolism was affirmed when [Bruno van Swinderen](#), who studies fruit fly cognition at the Queensland Brain Institute, showed that deep sleep is associated with metabolic waste clearance in a [study](#) in collaboration with the Ravi Allada Lab at Northwestern University.

HOW’D YOU SLEEP?

During active sleep, the animal disconnects from the outside world, but its brain remains active with neurons firing as if the animal were awake. That is when humans dream. And, while we may wonder whether flies dream too, that’s the wrong question according to van Swinderen, because we cannot ask flies about their dreams. A more relevant question is, “What function does active sleep achieve?” Our dreams are a byproduct of brain activity during the active stage. He speculates the function of active sleep is to “create [virtual worlds](#) to help make predictions about its changing environment.”

If that’s true, flies might replay memories during active sleep and optimize their predictions about the world such as how visual objects move when a fly moves. Because flies have smaller brains with well-understood neural circuitry, the theory can be tested.

Flies’ brain sizes also enable Sehgal to understand why sleep is important. The next frontier in sleep, she says, is revealing the mechanisms of “how the circadian clock [interacts](#) with the sleep homeostat [which pays off or accumulates sleep debt].” For instance, when you are jet-lagged, your sleep need and circadian clock are out of sync, disrupting your sleep routine until the homeostat resets. Fly research offers the opportunity to understand how the circadian clock drives behavior and physiology, and at a molecular and neural level, what constitutes a sleep homeostat.

“Flies can sleep whenever they want. They do not have the pressures of society,” Sehgal says and chuckles. “But we are encouraged that the molecules we are finding that are affecting sleep in flies are also getting implicated in human sleep.”

“Flies can sleep whenever they want. They do not have the pressures of society.”

Amita Sehgal



Amita Sehgal delivers remarks as a Presidential Special Lecture speaker on “The Basis of Sleep: What We Are Learning From Small Animal Models” at Neuroscience 2022 in San Diego.



Serving the Brain-Curious Public

SfN connects neuroscience research with its potential impact on daily life through in-person engagement and the ever-popular [BrainFacts.org](#).

TEN YEARS OF ONLINE ENGAGEMENT

Over the past decade, *BrainFacts.org* has emerged as a trusted resource for educators, students, and the general public. To celebrate the milestone, [a timeline](#) reviewed the website's history and growth. The most popular feature of the website is the [interactive 3D human brain](#), modeling more than 50 neuroanatomical structures with lay-friendly descriptions. Much of the referral traffic to the 3D Brain comes from educational resources, such as Google Classroom; Nearpod, a site designed for distance learning; and Project Lead the Way (PTLW), an educational nonprofit organization. Other popular content includes the site's Core Concepts — [eight fundamental touchstones](#) that every person should know about the brain and nervous system. A new feature of the site, “Brain Futures” are periodic perspective pieces from invited experts addressing topics at the intersection of neuroscience and society. *BrainFacts.org* Editor-in-Chief Richard Wingate launched this new content stream with a piece titled [Brain Capital: An Investment in Equity](#). Rebecca M. Shansky, a *BrainFacts.org* editorial board member, contributed [Let's Talk About Sex as a Biological Variable](#).

With its 10-year history, *BrainFacts.org* has gathered a diverse following. In 2022, 56%

of the website's visitors were from outside of the United States, with the top five countries represented being the United States, the United Kingdom, India, Australia, and Canada. Due in part to the strategic effort to develop accessible content, *BrainFacts.org* continues to see robust international engagement in countries where English is not the primary language, including the Philippines, Brazil, South Africa, and Pakistan. The site's social media followers continue to grow each year on Facebook, X (formerly known as Twitter), Instagram, and YouTube.

CONNECTING THE PUBLIC WITH NEUROSCIENCE

Through contests, quizzes, and in-person events, SfN and the *BrainFacts.org* team bring neuroscience to those eager to learn about the brain. The annual Brain Awareness Video Contest saw many excellent submissions, with the winning video titled [Neuroscience for Kids: How Does Our Brain Create Flavor?](#) For Brain Awareness Week in March, *BrainFacts.org* social media channels quizzed their audiences on neuroscience related to human senses. At Neuroscience 2022, the Brain Awareness Campaign Event (BACE) focused on introducing neuroscience to the next generation of diverse neuroscientists.

“Watching [a member of the public’s] face as they see a fluorescent zebrafish nervous system for the first time reminds PhD students that what they do is totally amazing.”

Leigh Wilson, public engagement manager, King’s College London



LEADERS GUIDE THE WAY

BrainFacts.org has a nine-member editorial board led by Editor-in-Chief Richard Wingate and Associate Editor Charles Yokoyama. New to the board this year is Grace Lindsay, an assistant professor of psychology and data science at New York University.

Funding for SfN's outreach efforts and *BrainFacts.org* comes from multiple partners. The site was originally established by its Founding Partners: The Gatsby Charitable Foundation, The Kavli Foundation, and SfN. It was subsequently joined by several Supporting Partners over the years, including the Dana Foundation and The Lundbeck Foundation – The Brain Prize. The Dana Foundation approved a new, three-year grant to provide core support to *BrainFacts.org* for 2023–2025. SfN and the Editorial Board are actively working to identify and engage new prospective funding partners.



→ Click above for the Brain Awareness Video Contest winner.

Researchers Investigate Targeted Psychoactive Therapies Without the Trip

Scientists are working out how psychoactive substances can be utilized and altered to assist with therapies in clinical settings.

The drug takes about ten minutes to kick in. “Then it’s like a rocket ship taking off,” says Mark M., whose depression interferes with his enjoyment of life. “For me, time and sound get very distorted. I like to listen to music, and a song that’s two or three minutes long feels like it goes on forever.”

If this experience sounds like a hallucinogenic trip, it was. But it took place in a psychiatrist’s office, where Mark spritzed a pharmaceutically formulated dose of ketamine into each nostril.

And Mark is not alone. Many people suffering from mental health issues attempt to self-medicate to boost their mood or relieve stress. But, attempts to self-medicate have led to sometimes-devastating results. Even so, psychoactive substances such as ketamine, psilocybin, and even cannabis are showing therapeutic promise in clinical trials and in animal models for anxiety, migraines, obsessive-compulsive disorder, and treatment-resistant depression.

These consciousness-altering compounds operate on distinct neural circuits and through different neurotransmitter systems. However, researchers are finding they all strengthen



neuronal connectivity. Pinpointing how they do so could lead to more targeted and effective therapeutics — perhaps even producing clinical benefits while circumventing the reality-warping sojourn.

PROBING PLASTICITY

The recreational and ritualistic use of psychedelics is as old as humankind. But interest in the therapeutic potential of these substances ignited in 2016, when a pair of placebo-controlled trials showed that a single dose of psilocybin, the active ingredient in “magic mushrooms,” curbed depression and anxiety in individuals with life-threatening cancers. The effects were not only immediate, but the majority of volunteers continued to benefit six months after the treatment. Similar results have been seen with other psychedelics and with ketamine, a non-psychedelic hallucinogen.

“I was in the room,” says Natasha Mason, an assistant professor at Maastricht University.

Mason and colleagues at Maastricht study the effects of a psychedelic naturally found in toad venom on individuals with treatment-resistant depression. “Some seemed like a whole new person. And most were still [in remission a week later](#)” — the duration of the initial, proof-of-concept study.

The persistence of therapeutic benefits long after these drugs have been cleared from the body appears to be tied to their ability to enhance [neuroplasticity](#), promoting the growth of neuronal connections. Using a technique for live brain imaging in mice, Alex Kwan, associate professor at the Meinig School of Biomedical Engineering at Cornell University, discovered a single dose of psilocybin [boosts the density of synapses](#) in the frontal cortex. “When we go back a month later,” he says, “some of those new connections are still there.” And [studies](#)

demonstrate, in the case of ketamine, selectively eliminating these drug-induced connections quashes the antidepressant activity.

Understanding the mechanisms by which drugs like ketamine and psilocybin — and even the antidepressants currently on the market — regulate neuroplasticity and mood could uncover common molecular targets or pathways that could lead to the development of more effective, longer lasting treatments. “Perhaps ketamine could be used to initiate the cascade, but another drug that targets a downstream component of the pathway could sustain the effects,” says Lisa Monteggia, professor of pharmacology and Barlow Family director of the Vanderbilt Brain Institute at Vanderbilt University in Nashville.

Such reinforcement doesn’t even have to be pharmaceutical. It could come from something

Psilocybin, the hallucinogenic active ingredient in “magic mushrooms” pictured below, and other psychedelics like ketamine have gained traction for study as some scientists found they can assist patients during certain therapies in clinical settings.



like transcranial magnetic stimulation, or even cognitive behavioral training, or talk therapy applied during the period in which neural plasticity continues to be elevated. “We could capitalize on that window of opportunity to enhance the therapeutic potential of these substances,” says Mason.

PASSAGE WITHOUT THE TRIP

But not everyone is keen on a hallucinogenic odyssey — much less an ongoing series of them. “It can be an amazing experience,” says Gitte Moos Knudsen, a translational neurobiologist and clinical neurologist at the University of Copenhagen, who notes it’s often quite exhausting. “It’s not something you want to repeat too often.”

Knudsen’s work finds psychedelics disrupt the normal communication circuits within the [cerebral cortex](#), an action that may contribute to the feeling of detaching from oneself and transcending time and space.

For those considering a psychoactive therapy, the question then becomes: Can these drugs provide clinical benefits without the mind-altering experience? It’s possible a change in perspective actually facilitates the therapeutic

process, allowing individuals to abandon obsessive rumination and establish healthier patterns of thinking and behaving.

At the same time, a growing number of studies suggest the trip may not always be required. In research presented at [Neuroscience 2022](#), Katherine Nautiyal, assistant professor of psychology and brain sciences at Dartmouth College, finds psilocybin’s ability to relieve certain depressive behaviors in mice may depend on its ability to interact with a subtype of serotonin receptor not known to be involved in the chemical’s hallucinogenic effects. Although Nautiyal is ultimately agnostic about the potential for decoupling psychedelics’ clinical and consciousness-altering effects, she stresses that “understanding the changes that are occurring in the brain to support their long-term therapeutic benefits could open up new avenues for understanding how to treat depression.”

Others are using the powers of chemistry to design molecules that interact with the serotonin receptor associated with psychedelic effects, but by inducing plasticity without triggering hallucinations. Using a computational approach, Bryan Roth, the Michael Hooker Distinguished Professor of Pharmacology at

the University of North Carolina, Chapel Hill, has screened trillions of novel molecules for their ability to interact with the psychedelic serotonin receptor. Of those, Roth says, [two show antidepressant-like activity, but no psychedelic action in mice](#). “Of course, we also discovered tons of new psychedelics,” he adds. “But we don’t feel like the world needs more of those right now.”

These non-psychedelic psychedelics may engage different downstream signaling pathways than their classical counterparts, says Roth. But how they work remains to be seen. “Over the last few years, several labs reported about a dozen new compounds that supposedly activate these receptors without indicating a trip,” Kwan says, noting they have been studied in cell lines and animals, and it will take two or three years for them to be tested in the clinic. “We just have to wait and see whether they cause a trip and whether they have benefits in treating depression.”

If they function as anticipated, Roth says these substances have the potential to revolutionize neuropsychiatric treatment. “We don’t have any treatments where you take one dose and then you’re fine for six months,” he notes. “So this could transform how we treat mental disorders.”

As it stands, for psychedelics to be used safely, they must be administered in a clinic under the supervision of one or more healthcare professionals. “If we can decouple the hallucinogenic effects from the plasticity-promoting effects, maybe these drugs could be made available as a medicine you

take home from the local pharmacy,” says David Olson, director of the Institute for Psychedelics and Neurotherapeutics at the University of California, Davis and co-founder of [Delix Therapeutics](#), whose chemically rejiggered psychedelic was recently administered to 100 people in a [phase I clinical trial](#). The compound so far shows no signs of producing hallucinations. “That would drastically increase the number of patients that could be helped.”

That could be good news for people like Mark M., who tried ketamine therapy for his depression. “I’ve had some mild benefits,” he says, although nothing life-changing. “But after six weeks, I think I’m going to pull the plug on this experiment. Because for me the cost-benefit isn’t there.” Although he might consider a different type of trip. “It’s possible that Oregon is in my future.”

“We could capitalize on that window of opportunity to enhance the therapeutic potential of these substances.”

Natasha Mason, assistant professor at Maastricht University



Some research on psychedelics and depression includes toad venom, or 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT). This psychedelic substance is in various plant species and the glands of the Colorado River toad (*Incilius alvarius*).



NeuroAdvocates Gather to Support the Field

The future of neuroscience relies on robust funding, support for ethical animal research and other key policy issues, and NeuroAdvocates willing to engage policymakers on both funding and policy.

NEUROADVOCATES MOVE THE NEEDLE

SfN's third online [Hill Days](#) in March enabled 40 attendees to meet with 73 different Congressional offices representing 27 states. SfN attendees included the current and incoming SfN president, members of the Government and Public Affairs Committee and Committee on Animals in Research, select local advocacy leaders, as well as the 2023 class of [Early Career Policy Ambassadors](#) (ECPAs). Hill Days messaging focused on budget increases for federal research agencies and programs, marshaling support for animals in research, and raising visibility of important neuroscience-relevant congressional caucuses.

NeuroAdvocates pursued year-round efforts to build policymaker and public support for neuroscience. Most ECPAs followed up on their online Hill Days asks by meeting with their representatives during July's ECPA Congressional Days. Five former ECPAs hosted lab tours for a member of Congress or their staff, providing a hands-on experience while showcasing their research. At Neuroscience 2022, the Advocacy Forum offered attendees tips on how to navigate difficult advocacy discussions by leveraging the use of data and emotion to influence the decision-making process. Also at the annual meeting, members of the past three ECPA classes gathered for a poster session to share their advocacy work and network in person with their colleagues.

“It is important to me to... discuss the importance of federal and state support for neuroscience research — particularly related to substance use disorders — with legislatures, colleagues, and communities in New Mexico.”

Montserrat Orozco, 2023 ECPA and graduate student, University of New Mexico School of Medicine

CHAMPIONING THE RESPONSIBLE USE OF ANIMALS IN RESEARCH

Neuroscience advocacy involves advocating for responsible and ethical animal research practices while emphasizing the critical role animals play in scientific progress. SfN and its partner organizations proactively submitted report language supporting animals in research, specifically highlighting the importance of nonhuman primates (NHPs) and their role in mental health research. Additional efforts are underway to identify a long-term champion for animal research on Capitol Hill. At the same time, SfN is working with NIH to support researchers targeted by animal-rights activists. SfN provided first- and second-hand accounts of harassment encountered by members, the impact harassment has on members' careers, and consequences to the field. In the public sphere, SfN helped [organize an op-ed](#) highlighting the need for research with NHPs to understand, and eventually treat, long COVID-19. At Neuroscience 2022, the Animals in Research Panel, supported by the National Primate Research Centers, discussed the benefits and limitations of alternatives to animal models and why neuroscientists still need animal models to conduct their research.

BOLSTERING FEDERAL BUDGETS

Engagement from advocates across the biomedical research community helped ensure neuroscience-supporting federal agencies received bumps to their budgets in FY 23. The BRAIN Initiative was allocated \$620 million, which falls under the larger NIH budget of \$47.5 billion. NSF received a budget increase to \$9.5 billion, as did the Veterans Affairs Medical and Prosthetic Research program to \$916 million.



40
Hill Day attendees



73
Congressional offices



27
States

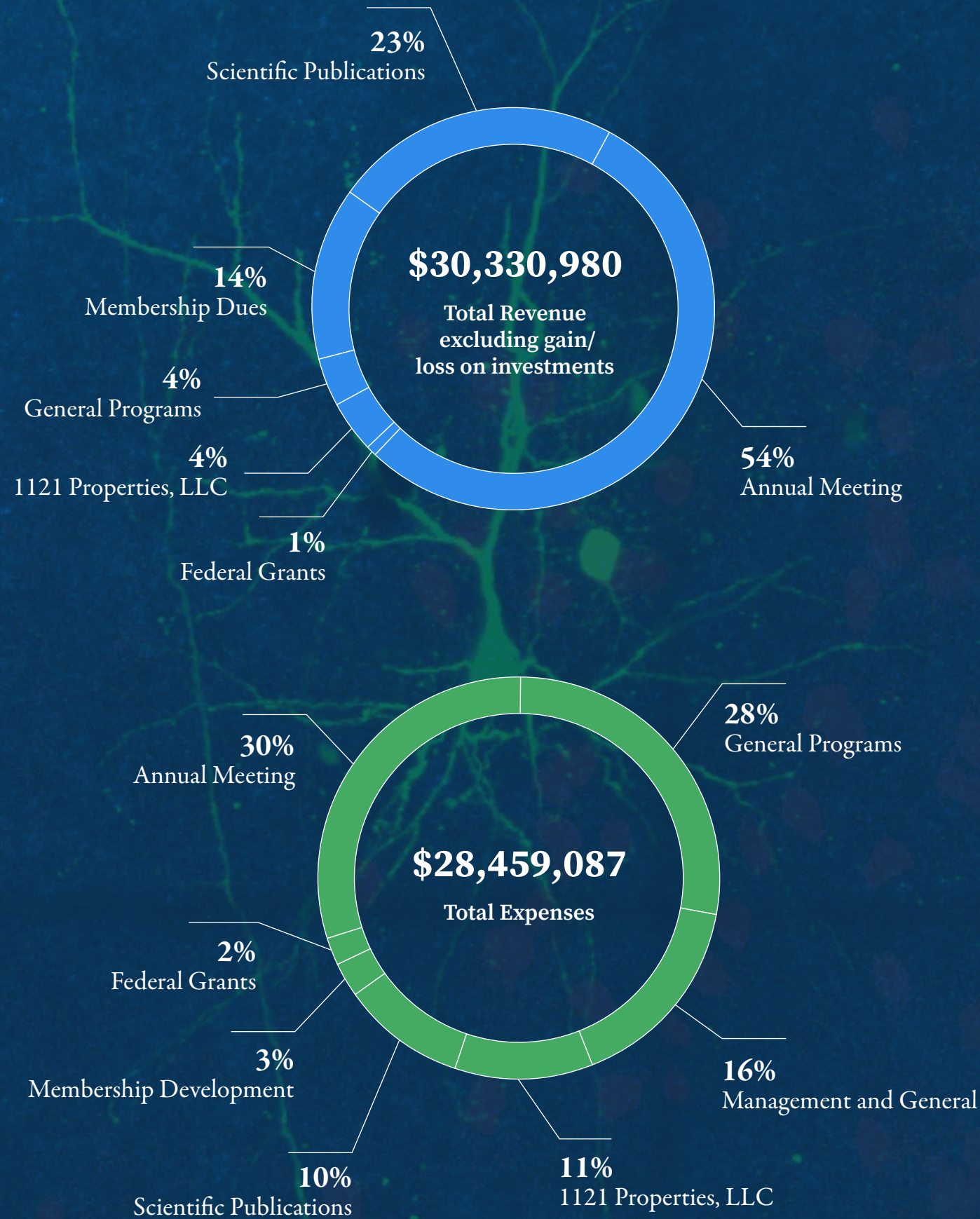


\$620M
BRAIN Initiative budget

\$47.5B
NIH budget

\$9.5B
NSF budget

\$916M
VAMPR budget



Return to Financial Stability

With stronger than expected participation in Neuroscience 2022 and membership building back to pre-pandemic levels, SfN ended the fiscal year at a break-even position for the first time since 2019.

The neuroscience community's eagerness to return to in-person meetings resulted in stronger than expected revenue for the Society. Meeting attendance was above original budget estimates, as was the number of exhibitors participating in the Exhibit Hall. A new expense for Neuroscience 2022 was hosting the virtual component. SfN carefully balanced the programming it made accessible through the online platform with its expenses related to the virtual platform technology to provide annual meeting content to remote participants. This balancing act will continue for future annual meetings. For past cancelled annual meetings, SfN agreed to and received partial payment from its insurance provider for the canceled Neuroscience 2020. The Society is still in negotiations with the insurance companies for the remainder of its 2020, and all of its 2021, annual meeting insurance claims.

Strong annual meeting participation was not the only driver of SfN's steady fiscal performance. Membership revenue is returning to pre-pandemic levels. SfN's journals,

JNeurosci and *eNeuro*, saw stable revenue and remained profitable. The SfN headquarters building in Washington, D.C., is adapting its leasing strategy to market conditions by offering short-term, non-renewable leases at lower rates. Taking advantage of the strong performance of its Strategic Reserve Fund, SfN Council approved increasing the annual draw from the Fund to support operations by a quarter million dollars, to \$2.25 million in FY 2023 and to \$2.5 million in FY 2024. SfN has also scaled down its use of the line of credit established during the pandemic to handle cash needs in low-cash moments by paying down most of the balance from available funds.

As SfN's membership and programming return to pre-pandemic levels, several steps have been taken to ensure the Society operates smoothly. For example, staff positions in both programmatic and administrative areas that were frozen since the pandemic are being selectively opened for hiring. Strategic investments in technology infrastructure were made to increase system security and data privacy.

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The Society for Neuroscience (SfN) gratefully acknowledges the generous contributions to SfN from the following organizations and individuals in FY 2023 (July 1, 2022 – June 30, 2023).

Donations to the Friends of SfN Fund support the Society's mission of advancing the understanding of the brain and nervous system. Visit [SfN.org/donate](https://www.sfn.org/donate) or contact development@sfn.org to learn more about the Fund and becoming a donor.

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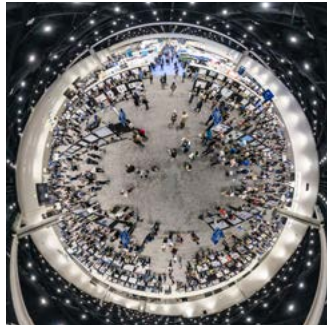
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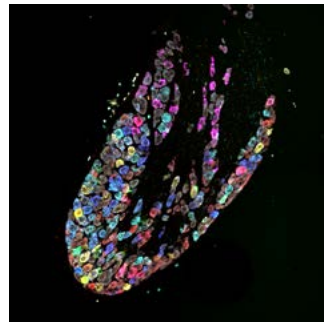


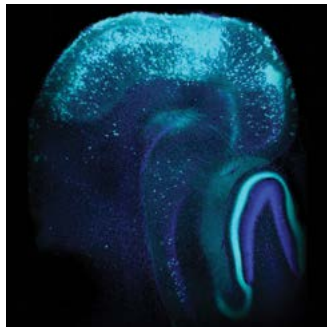
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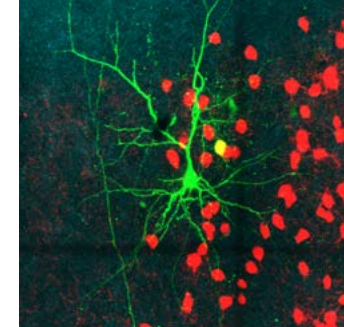
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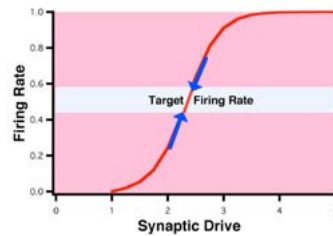
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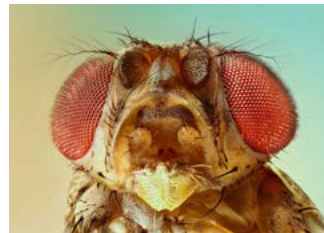
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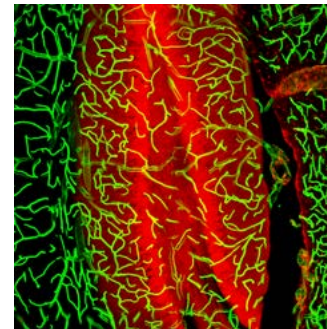
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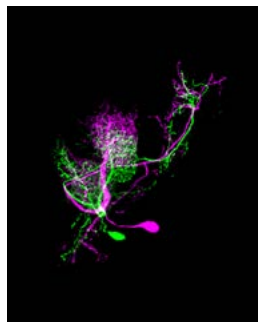


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Page 17
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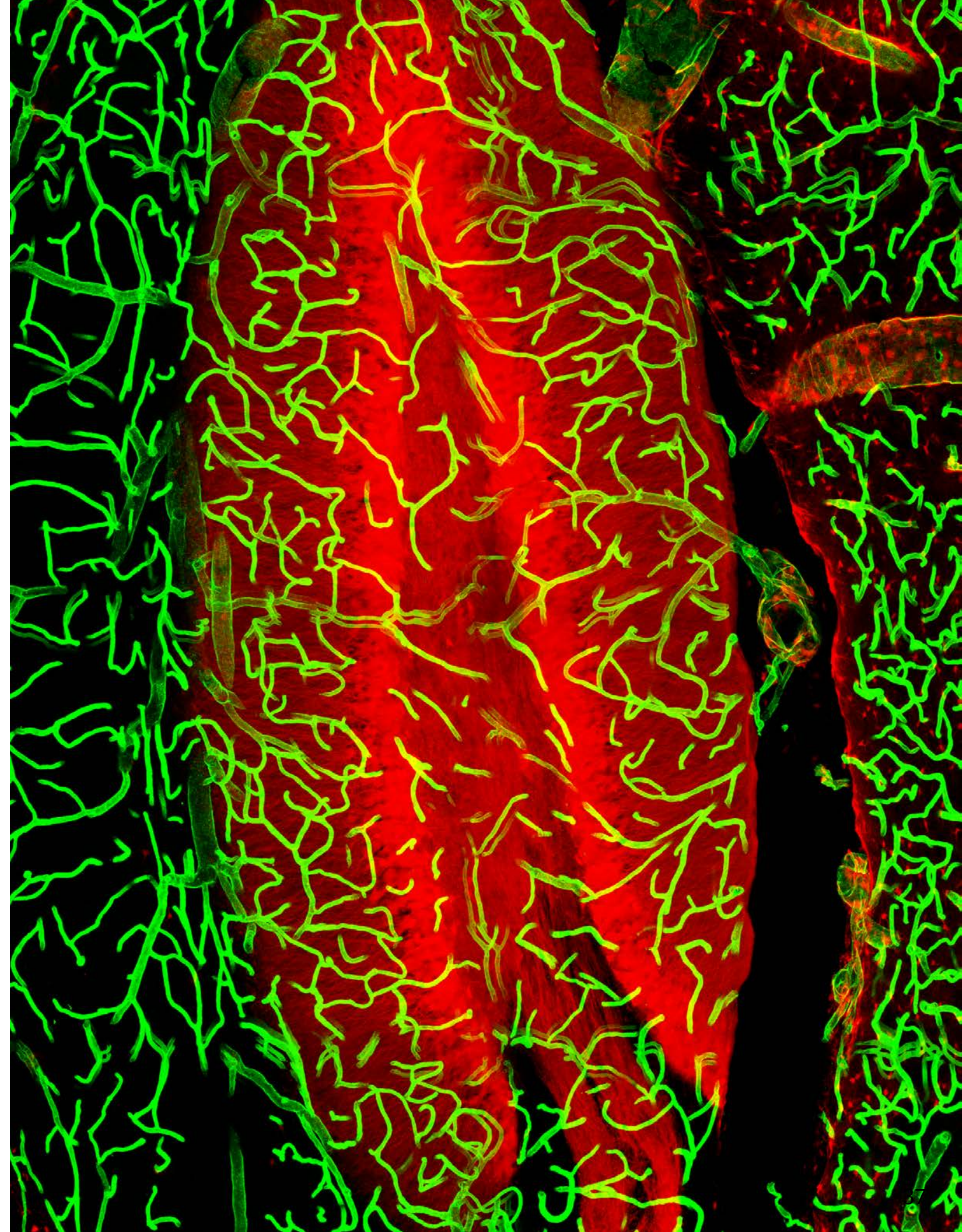
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CONSOLIDATED FINANCIAL STATEMENTS



**FOR THE YEAR ENDED JUNE 30, 2023
WITH SUMMARIZED FINANCIAL
INFORMATION FOR 2022**

SOCIETY FOR NEUROSCIENCE

CONTENTS

	Page
INDEPENDENT AUDITOR'S REPORT	III
EXHIBIT A - Consolidated Statement of Financial Position, as of June 30, 2023, with Summarized Financial Information for 2022	V
EXHIBIT B - Consolidated Statement of Activities and Change in Net Assets, for the Year Ended June 30, 2023, with Summarized Financial Information for 2022	VI
EXHIBIT C - Consolidated Statement of Functional Expenses, for the Year Ended June 30, 2023, with Summarized Financial Information for 2022	VII
EXHIBIT D - Consolidated Statement of Cash Flows, for the Year Ended June 30, 2023, with Summarized Financial Information for 2022	XI
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS	XII



INDEPENDENT AUDITOR'S REPORT

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

Opinion

We have audited the accompanying consolidated financial statements of the Society for Neuroscience (SfN), 1121 Properties, LLC (the LLC) and SfN Asset Holdings, LLC, collectively the Society, which comprise the consolidated statement of financial position as of June 30, 2023, and the related consolidated statements of activities and change in net assets, functional expenses and cash flows for the year then ended, and the related notes to the consolidated financial statements.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Society as of June 30, 2023, and the consolidated change in its net assets and its consolidated cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are required to be independent of the Society and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Society's ability to continue as a going concern within one year after the date that the consolidated financial statements are available to be issued.

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MEMBER OF THE AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS' PRIVATE COMPANIES PRACTICE SECTION

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards will always detect a material misstatement when it exists.

The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements, including omissions, are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the consolidated financial statements.

In performing an audit in accordance with generally accepted auditing standards, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Society's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Society's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

Report on Summarized Comparative Information

We have previously audited the Society's 2022 consolidated financial statements, and we expressed an unmodified audit opinion on those audited consolidated financial statements in our report dated October 12, 2022. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2022, is consistent, in all material respects, with the audited consolidated financial statements from which it has been derived.

October 11, 2023

SOCIETY FOR NEUROSCIENCE
CONSOLIDATED STATEMENT OF FUNCTIONAL EXPENSES
FOR THE YEAR ENDED JUNE 30, 2023
WITH SUMMARIZED FINANCIAL INFORMATION FOR 2022

	2023				
	Program Services				Total Program Services
	General Programs	Annual Meeting	Scientific Publications	Grants	
Salaries	\$ 4,203,816	\$ 1,901,889	\$ 644,846	\$ 213,813	\$ 6,964,364
Fringe benefits	1,086,048	513,245	181,650	55,764	1,836,707
Professional fees	152,550	236,697	12,168	-	401,415
Property management expense	-	-	-	-	-
Casual labor and consulting fees	470,875	439,197	181,808	42,894	1,134,774
Addressing, mailing and shipping	1,218	62,614	600	1,978	66,410
Printing and composition	25,495	87,247	705,650	7,492	825,884
Audio visual	77,370	823,502	9,329	16,226	926,427
Computer and web page production	342,389	667,918	90,260	-	1,100,567
Insurance	-	111,453	-	-	111,453
Professional dues and subscriptions	26,359	34,423	58,746	2,029	121,557
Electronic publishing (journal)	-	-	243,457	-	243,457
Meeting management	37,457	952,261	5,867	10,078	1,005,663
Telephone and fax	35,447	201,450	4,034	1,070	242,001
Utilities	-	-	-	-	-
Cleaning	-	-	-	-	-
Hospitality and meetings	125,189	640,139	9,590	44,963	819,881
Hotel and travel	146,281	476,281	66,864	52,679	742,105
Honoraria, stipend, travel awards	28,545	330,093	467,260	155,100	980,998
Equipment, rental, repair and maintenance	-	-	-	-	-
Contributions	187,271	5,699	3,102	47,500	243,572
Depreciation and amortization	690,049	9,434	9,116	-	708,599
Bank processing fees	154,047	287,095	56,814	-	497,956
Interest expense	-	-	-	-	-
Real estate taxes	-	-	-	-	-
Security and transportation	2,495	712,912	-	7,869	723,276
Training and seminars	15,421	1,405	5,158	-	21,984
Other direct costs	37,467	164,597	8,077	833	210,974
Bad debt expense	-	-	-	-	-
TOTAL	\$ 7,845,789	\$ 8,659,551	\$ 2,764,396	\$ 660,288	\$ 19,930,024

See accompanying notes to consolidated financial statements.

SOCIETY FOR NEUROSCIENCE

CONSOLIDATED STATEMENT OF FUNCTIONAL EXPENSES
FOR THE YEAR ENDED JUNE 30, 2023
WITH SUMMARIZED FINANCIAL INFORMATION FOR 2022

	2023 (Continued)				2022	
	Management and General	Property Management Expenses	Membership Development	Total Supporting Services	Total Expenses	Total Expenses
Salaries	\$ 1,998,294	\$ -	\$ 487,648	\$ 2,485,942	\$ 9,450,306	\$ 8,733,721
Fringe benefits	660,056	-	97,611	757,667	2,594,374	2,400,514
Professional fees	321,356	3,125	-	324,481	725,896	851,516
Property management expense	-	114,225	-	114,225	114,225	105,303
Casual labor and consulting fees	354,986	-	105,132	460,118	1,594,892	1,540,255
Addressing, mailing and shipping	4,330	-	-	4,330	70,740	16,878
Printing and composition	613	-	423	1,036	826,920	910,864
Audio visual	-	-	-	-	926,427	10,880
Computer and web page production	166,376	-	-	166,376	1,266,943	1,304,283
Insurance	116,265	35,407	-	151,672	263,125	174,181
Professional dues and subscriptions	21,942	-	-	21,942	143,499	143,096
Electronic publishing (journal)	-	-	-	-	243,457	265,000
Meeting management	2,481	-	3,819	6,300	1,011,963	286,122
Telephone and fax	36,930	13,601	2,585	53,116	295,117	100,699
Utilities	-	93,373	-	93,373	93,373	86,275
Cleaning	-	220,009	-	220,009	220,009	195,437
Hospitality and meetings	598	-	-	598	820,479	341,996
Hotel and travel	2,343	17	14,068	16,428	758,533	74,307
Honoraria, stipend, travel awards	-	-	-	-	980,998	407,529
Equipment, rental, repair and maintenance	10,717	374,142	-	384,859	384,859	376,781
Contributions	5,211	-	-	5,211	248,783	325,606
Depreciation and amortization	223,900	795,958	-	1,019,858	1,728,457	2,034,313
Bank processing fees	556,332	-	-	556,332	1,054,288	471,525
Interest expense	-	920,405	-	920,405	920,405	1,119,304
Real estate taxes	-	479,540	-	479,540	479,540	500,573
Security and transportation	17,814	160,903	-	178,717	901,993	190,458
Training and seminars	27,892	-	269	28,161	50,145	25,206
Other direct costs	65,804	2,278	10,285	78,367	289,341	1,044,719
Bad debt expense	-	-	-	-	-	75,000
TOTAL	\$ 4,594,240	\$ 3,212,983	\$ 721,840	\$ 8,529,063	\$ 28,459,087	\$ 24,112,341

See accompanying notes to consolidated financial statements.

EXHIBIT D

SOCIETY FOR NEUROSCIENCE
CONSOLIDATED STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED JUNE 30, 2023
WITH SUMMARIZED FINANCIAL INFORMATION FOR 2022

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

	<u>2023</u>	<u>2022</u>
CASH FLOWS FROM OPERATING ACTIVITIES		
Change in net assets	\$ 23,405,860	\$ (12,246,964)
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Depreciation and amortization	1,728,458	2,034,313
Realized loss (gain) on investments	567,149	(1,634,502)
Unrealized (gain) loss on investments	(8,397,894)	13,845,672
Unrealized loss on investment in RHYTHMQ	48,781	-
Perpetual with donor contributions	(1,025,589)	-
Change in discount	33,442	(2,641)
Loss on disposal of fixed assets	-	56,733
Change in allowance	-	75,000
Extinguishment of debt, net of accrued interest	(2,000,000)	(2,191,748)
Decrease (increase) in:		
Pledges receivable	-	3,213,750
Grants receivable	(214,500)	250,000
Accounts receivable	(89,563)	(10,820)
Prepaid expenses	(415,867)	(35,104)
Deferred lease receivable	99,056	45,446
(Decrease) increase in:		
Accounts payable and accrued liabilities	(527,894)	646,830
Deferred revenue	427,554	347,543
Tenants deposits	(47,827)	-
Net cash provided by operating activities	<u>13,591,166</u>	<u>4,393,508</u>
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchase of investments	(38,148,108)	(26,338,164)
Proceeds from sale of investments	34,948,695	24,844,305
Purchase of fixed assets	<u>(647,284)</u>	<u>(363,223)</u>
Net cash used by investing activities	<u>(3,846,697)</u>	<u>(1,857,082)</u>
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from line of credit	6,435,813	4,618,363
Payments on line of credit	(20,632,085)	(2,750,321)
Payments on note payable	(1,365,312)	(1,305,255)
Payments on Federal loan payable	-	(116,428)
Perpetual with donor contributions	<u>1,025,589</u>	<u>-</u>
Net cash (used) provided by financing activities	<u>(14,535,995)</u>	<u>446,359</u>
Net (decrease) increase in cash and cash equivalents	(4,791,526)	2,982,785
Cash and cash equivalents at beginning of year	<u>6,184,256</u>	<u>3,201,471</u>
CASH AND CASH EQUIVALENTS AT END OF YEAR	<u>\$ 1,392,730</u>	<u>\$ 6,184,256</u>
SUPPLEMENTAL INFORMATION:		
Interest Paid	<u>\$ 1,260,181</u>	<u>\$ 1,119,304</u>

See accompanying notes to consolidated financial statements.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION

Organizations -

The Society for Neuroscience (SfN) is a non-profit organization, incorporated in the District of Columbia. The primary purposes of SfN are to advance the understanding of the brain and nervous system, including the part it plays 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.

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

SfN Asset Holdings, LLC (SAH) is a limited liability company, incorporated in the District of Columbia on March 26, 2020. The primary purpose of the LLC is to engage in the business of performing professional services as directed by SfN.

The accompanying consolidated financial statements reflect the activity of the Society for Neuroscience, 1121 Properties, LLC and SfN Asset Holdings, LLC (collectively, the Society) as of June 30, 2023. The financial statements of the two LLCs have been consolidated in accordance with FASB ASC 958-810, *Not-for-Profit Entities, Consolidation* because they are under common control, and SfN has an economic interest in the LLCs. All intercompany transactions have been eliminated during consolidation.

Basis of presentation -

The accompanying consolidated financial statements are presented on the accrual basis of accounting, and in accordance with Financial Accounting Standards Board (FASB) Accounting Standards Update (ASU) 2016-14, *Presentation of Financial Statements of Not-for-Profit Entities*. As such, net assets are reported within two net asset classifications: without donor restrictions and with donor restrictions.

Descriptions of the two net asset categories are as follows:

- **Net Assets Without Donor Restrictions** - Net assets available for use in general operations and not subject to donor restrictions are recorded as "net assets without donor restrictions". Assets restricted solely through the actions of the Board are referred to as Board designated and are also reported as net assets without donor restrictions.
- **Net Assets With Donor Restrictions** - Net assets may be subject to donor-imposed stipulations that are more restrictive than the Society's mission and purpose. Some donor imposed restrictions are temporary in nature, such as those that will be met by the passage of time or other events specified by the donor. Donor imposed restrictions are released when the restriction expires, that is, when the stipulated time has elapsed, when the stipulated purpose for which the resource was restricted has been fulfilled, or both. Other donor imposed restrictions are perpetual in nature, where the donor stipulates that resources be maintained in perpetuity. Gifts of long-lived assets and gifts of cash restricted for the acquisition of long-lived assets are recognized as revenue without donor restrictions when the assets are placed in service.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION
(Continued)

Basis of presentation (continued) -

The consolidated financial statements include certain prior year summarized comparative information in total but not by net asset class; such information does not include sufficient detail to constitute a presentation in conformity with generally accepted accounting principles. Accordingly, such information should be read in conjunction with the Society's consolidated financial statements for the year ended June 30, 2022, from which the summarized information was derived.

New accounting pronouncements adopted -

On June 30, 2022, the Society adopted ASU 2019-01, *Leases* (Topic 842), which changed the accounting treatment for operating leases by lessees by requiring recognition of a lease asset and lease liability at the present value of the lease payments in the Combined Statement of Financial Position and disclosure of key information about leasing arrangements. The accounting for the LLC, the lessor, did not significantly change under the ASU. Therefore, the ASU did not have a significant impact on the Society's financial statements.

Cash and cash equivalents -

The Society considers all cash and other highly liquid investments with maturities of three months or less to be cash equivalents, excluding money market funds held by investment managers in the amount of \$2,795,308 for the year ended June 30, 2023.

Bank deposit accounts are insured by the Federal Deposit Insurance Corporation ("FDIC") up to a limit of \$250,000. At times during the year, the Society maintains cash balances in excess of the FDIC insurance limits. Management believes the risk in these situations to be minimal.

Investments -

The Society invests in shares of individual securities or shares held in investment funds, which include bonds, stocks, money market funds held for investment purposes, and limited partnerships. Investment fund managers trade in various domestic and foreign financial markets, which carry a certain amount of risk of loss.

Investments are stated at their readily determinable fair value, based on quoted market prices at the reporting date, or in absence of such quoted market price, a reasonable estimate of fair value as approved by management.

Realized and unrealized gains and losses are included in investment (loss), net which is presented net of investment expenses paid to external investment advisors in the Consolidated Statement of Activities and Change in Net Assets.

The fair value of financial instruments is determined by reference to various market data and other valuation techniques as appropriate. Credit risk from financial instruments relate to the possibility that invested assets within a particular industry segment may experience loss due to market conditions. The Society has diversified its financial instruments to help ensure that no one industry segment represents a significant concentration of risk.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION
(Continued)

Investments (continued) -

Although management uses its best judgment at estimating fair value of the underlying assets for its investments, there are inherent limitations in any valuation technique. Therefore, the value is not necessarily indicative of the amount that could be realized in a current transaction. Future events will also affect the estimates of fair value, and the effect of such events on the estimates of fair value could be material.

Grants and accounts receivable -

Grants receivable that are expected to be collected in future years are recorded at fair value, measured as the present value of their future cash flows. The discounts on these amounts are computed using risk-adjusted interest rates applicable to the years in which the promises are received. Amortization of the discounts is included in general program revenue. Accounts receivable are recorded at their net realizable value, which approximates fair value. The allowance for doubtful accounts is determined based upon an annual review of account balances, including the age of the balance and the historical experience with the customer and donor.

Fixed assets -

Fixed assets includes property, furniture, equipment and improvements which are stated at cost. Furniture and equipment are depreciated on a straight-line basis over the estimated useful lives of the related assets, generally three to ten years.

Building is recorded at cost and are depreciated over thirty-nine years.

Expenditures for major repairs and improvements with useful lives greater than one-year and in excess of \$3,000 are capitalized, and expenditures of lesser amounts for minor and maintenance costs are expensed when incurred. Depreciation and amortization expense was in the amount of \$1,728,458 as of June 30, 2023.

Income taxes -

The Society is exempt from Federal income taxes under Section 501(c)(3) of the Internal Revenue Code. In addition, the Society qualifies for the charitable contribution deduction under Section 170(b)(1)(A) and has been classified as an organization that is not a private foundation under Section 509(a)(2) of the Code. Accordingly, no provision for income taxes has been made in the accompanying consolidated financial statements.

The Society is required to report unrelated business income to the Internal Revenue Service and the appropriate state taxing authorities. Unrelated business income consists primarily of debt financed rental income, advertising in the Journal, and a jobs board.

The Society leases office space to several unaffiliated tenants. The activity is considered to be unrelated business activity under Internal Revenue Service regulations. Defined net income from the operations is taxable. As of June 30, 2023, there has been a loss from unrelated business activities.

As of June 30, 2023, there were net operating loss (NOL) carryforwards of approximately \$2,568,715. No deferred tax asset has been recognized due to uncertainty of realization. \$686,151 of the NOL is from fiscal year June 30, 2018 and prior.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION
(Continued)

Income taxes (continued) -

Net operating losses for fiscal years ending June 30, 2012 and 2013 totaling approximately \$557,882, will expire in 2032 and 2033. NOL carryforwards from June 30, 2019 forward are siloed and can only be used against the same source that generated NOL. At June 30, 2022, the Society has NOL of \$233,918 related to the Journal, \$1,597,888 related to debt financing, and \$50,758 related to the web. The Society can use 80% of these NOLs against future income with no expiration date.

For the year ended June 30, 2023, the Society has documented its consideration of FASB ASC 740-10, *Income Taxes*, that provides guidance for reporting uncertainty in income taxes and has determined that no material uncertain tax positions qualify for either recognition or disclosure in the consolidated financial statements.

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

Revenue -

Contracts classified as exchange transactions follow ASU 2014-09, *Revenue from Contracts With Customers*, and record revenue when the performance obligations are met. The Society has elected to opt out of all (or certain) disclosures not required for nonpublic entities. The revenue is recorded directly to without donor restrictions and the transaction price is based on expenses incurred in compliance with the criteria stipulated in the grant or contract agreements. Contracts receivable represents amounts due from funding organizations for reimbursable expenses incurred in accordance with the grant and contract agreements.

Membership dues -

Membership dues includes general member benefits that are a series of distinct obligations. The revenue is recognized ratably over the membership period. There are several benefits received that are individual distinct obligations such as discounted rates to conferences and meetings; however, they are immaterial in nature to the contract and thus are included with the general member benefits.

Scientific publications -

The Society distributes various journals throughout the year. Included in Scientific publications are subscriptions, advertising, and royalty revenue for the publications. Revenue for these journals are recognized when the performance obligations are met, typically at the time of publication. The transaction price is determined based on the cost or sales price. Any amounts received in advance are recorded as deferred revenue within the Consolidated Statement of Financial Position.

Annual meeting -

Annual meeting revenue includes registration fees, booth revenue, and sponsorships. Registration fees and booth revenue are recorded as revenue when the performance obligation is met which is when the related event has occurred. The transaction price is determined based on the cost or sales price. Any amounts received in advance are recorded as deferred revenue within the Consolidated Statement of Financial Position. Funding received in advance of incurring the related expenses is recorded as deferred revenue.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION
(Continued)

Revenue (continued) -

Annual meeting (continued)-

Most of the Society's contracts with customers have initial terms of one year or less.

Deferred revenue consisted of the following as of June 30, 2023:

Annual Meeting	\$ 3,361,992
Publications	2,062,850
Member dues	1,840,012
Other	<u>122,260</u>

TOTAL DEFERRED REVENUE **\$ 7,387,114**

General program revenue and annual meeting sponsorships -

General program revenue and annual meeting sponsorships includes contributions and grants and are recognized in the appropriate category of net assets in the period received in accordance with ASU 2018-08, Not-for-Profit Entities (Topic 958): *Clarifying the Scope and Accounting Guidance for Contributions Received and Contributions Made*.

The Society performs an analysis of the individual contribution and grant to determine if the revenue streams follow the contribution rules or if they should be recorded as an exchange transaction depending upon whether the transactions are deemed reciprocal or nonreciprocal. For contributions and grants qualifying under the contribution rules, revenue is recognized upon notification of the award and satisfaction of all conditions, if applicable. Conditional promises to give are not recognized until the conditions on which they depend are substantially met.

Contributions and grants qualifying as contributions that are unconditional that have donor restrictions are recognized as "without donor restrictions" only to the extent of actual expenses incurred in compliance with the donor-imposed restrictions and satisfaction of time restrictions; such funds in excess of expenses incurred are shown as net assets with donor restrictions in the accompanying consolidated financial statements.

Grant agreements qualifying as conditional contributions contain a right of return and a barrier. Revenue is recognized when the condition or conditions are satisfied. These transactions are nonreciprocal and recognized as contributions when the revenue becomes unconditional.

Funds received in advance of the incurrence of qualifying expenditures are recorded as deferred revenue unless they are from the United States Government which is then recorded as a refundable advance. For contributions and grants treated as contributions, the Society had does not have any unrecognized conditional awards as of June 30, 2022.

Property management revenue -

Property management revenue is recognized over the life of the lease. The leases may for lease abatement and/or annual lease payment escalations. The difference between lease income received and lease income recognized on the straight-line basis is recorded as deferred rents receivable in the accompanying Consolidated Statement of Financial Position. Deferred revenue is recognized for lease payments received in advance of the period earned.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION
(Continued)

Use of estimates -

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

Functional allocation of expenses -

The costs of providing the various programs and other activities have been summarized on a functional basis in the Consolidated Statement of Activities and Change in Net Assets. Accordingly, certain costs have been allocated among the programs and supporting services benefited. Expenses directly attributed to a specific functional area of the Society are reported as direct expenses to the programmatic area and those expenses that benefit more than one function are allocated on a basis of estimated time and effort or other reasonable basis.

Risks and uncertainties -

The Society invests in various investment securities. Investment securities are exposed to various risks such as interest rates, market and credit risks.

Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the accompanying consolidated financial statements.

Fair value measurement -

The Society adopted the provisions of FASB ASC 820, *Fair Value Measurement*. FASB ASC 820 defines fair value, establishes a framework for measuring fair value, establishes a fair value hierarchy based on the quality of inputs (assumptions that market participants would use in pricing assets and liabilities, including assumptions about risk) used to measure fair value, and enhances disclosure requirements for fair value measurements. The Society accounts for a significant portion of its financial instruments at fair value or considers fair value in their measurement.

The Society follows the disclosure provisions of accounting Standards Update (ASU) No. 2015-07, *Fair Value Measurement* (Topic 820): Disclosure for Investment in Certain Entities that Calculate Net Asset Value Per Share (or Its Equivalent). The ASU removes the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient.

New accounting pronouncement not yet adopted -

Accounting Standard Update (ASU) 2016-13, *Financial Instruments – Credit Losses* (Topic 326) replaces the incurred loss impairment methodology in current U.S. GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The ASU is effective for the Society for the year ending June 30, 2024. The ASU can be applied at the beginning of the earliest period presented using a modified retrospective approach.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND GENERAL INFORMATION
(Continued)

New accounting pronouncement not yet adopted (continued) -

The Society plans to adopt the new ASU at the required implementation date and management is currently in the process of evaluating the adoption method and the impact of the new standard on its accompanying consolidated financial statements.

2. INVESTMENTS

Investments consisted of the following at June 30, 2023:

	<u>Fair Value</u>
Money Market Funds	\$ 2,795,308
Corporate Fixed Income	3,209,498
Exchange Traded Funds and Closed-end Funds (ETF and CEFs)	6,111,576
U.S. Government Obligations	8,097,871
Mutual Funds	14,274,625
Equities	32,572,589
Alternative Investments	<u>22,259,064</u>
TOTAL LONG-TERM INVESTMENTS	\$ <u>89,320,531</u>

Deferred Compensation Investments:

Equities	\$ 534,846
Corporate Fixed Income	459,399
Short-Term Mutual Funds	<u>8,847</u>

TOTAL DEFERRED COMPENSATION INVESTMENTS **\$ 1,003,092**

Included in investment income are the following at June 30, 2023:

Interest and dividends	\$ 1,728,074
Realized loss on investments	(567,149)
Unrealized gain on investments	8,397,894
Management fees	<u>(369,567)</u>

TOTAL INVESTMENT INCOME, NET **\$ 9,189,252**

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

3. INVESTMENT IN RHYTHMQ INC.

On April 21, 2021, the Society purchased 1,000 Class A Preferred Shares of RHYTHMQ INC. (RQ) for \$1,500,000. RQ was formed June 9, 2011 in Ontario, Canada as a technology and marketing company that provides management for online form submission programs and helps build brand or program awareness. At the time of the purchase, the Society had all of the Class A Preferred Shares in RQ. RQ had 2,500 common shares issued and outstanding at the time of the Society's purchase of its shares. The Class A Preferred Shares accrue dividends at a rate of 8% of the original issue price. Both types of shares have equal voting rights.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

3. INVESTMENT IN RHYTHMQ INC. (Continued)

The Society records their investment in RQ using the equity method. The Society's basis in RQ at June 30, 2023 was \$1,500,000. As of June 30, 2023, the adjusted value of the investment of RQ under the equity method was \$1,451,219.

4. GRANTS RECEIVABLE

As of June 30, 2023, the Society has received promises to give totaling \$589,500. Grants due in more than one year have been recorded at the present value of the estimated cash flows, using a discount rates ranging from 1.37% to 5.42%.

Grants are due as follows at June 30, 2023:

Less than one year	\$ 77,500
One to five years	<u>512,000</u>
Total	589,500
Less: Allowance to discount balance to present value	<u>(41,752)</u>
GRANTS RECEIVABLE, NET	<u>\$ 547,748</u>

5. FIXED ASSETS

At June 30, 2023, fixed assets consisted of the following:

Building	\$ 23,372,589
Land	7,150,400
Building improvements	6,858,155
Computer equipment	5,738,160
Furniture	1,568,718
Leasing commissions	868,653
Other	<u>843,640</u>
	46,400,315
Less: Accumulated depreciation and amortization	<u>(23,317,941)</u>
PROPERTY, FURNITURE, EQUIPMENT AND IMPROVEMENTS, NET	<u>\$ 23,082,374</u>

6. LINES OF CREDIT

The Society has a line of credit in the amount of \$20,000,000, with a variable interest rate based on the applicable floating rate, which was 2.1% at June 30, 2023. The outstanding balance on the line of credit as of June 30, 2023 was \$1,197,152, with interest expense totaling \$355,813. The line of credit is collateralized by investments held by Morgan Stanley.

During 2022, the Society signed an additional line of credit agreement with Truist in the amount of \$5,000,000 with a maturity date of December 31, 2022. The line of credit was not renewed during the year.

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

7. FEDERAL LOANS PAYABLE

On March 8, 2021, the Society also entered into a five-year promissory note agreement in the amount of \$2,000,000 under the Paycheck Protection Program. The promissory note called for monthly principal and interest payments amortized over the five-year term of the promissory note. Under the Coronavirus Aid, Relief, and Economic Security Act (CARES Act), the promissory note qualified for forgiveness by the Small Business Administration in whole or in part. During the fiscal year ending June 30, 2023, the Society applied for loan forgiveness, and on November 3, 2022 the note was forgiven in full.

8. NOTE PAYABLE

On February 1, 2006, the Society entered into an agreement to purchase the property at 1121 14th Street, N.W., Washington, D.C. The original purchase was financed through a \$20,000,000 note payable from Bank of America, N/A. To minimize the effect of changes in the variable rate, the Society had entered into an interest rate swap agreement. On August 1, 2011, the Society entered into an agreement to refinance the notes payable, resulting in a \$17,949,167 note payable from PNC Bank. In addition, the Society refinanced the swap agreement with PNC Bank to artificially fix the interest rate and was to mature on February 1, 2019.

On November 15, 2018, the Society entered into an agreement to refinance the note payable, resulting in an \$18,498,204 note payable from Truist Bank (formerly known as BB&T). At the time of refinancing, the swap which was valued at \$4,307,601 was terminated and included within principal value of the note. The interest rate on the note payable as of June 30, 2023 was 3.24%. The agreement, among other provisions, require the Society to meet certain financial covenants. The Society was out of compliance on two covenants and received a waiver for the covenants through December 31, 2022.

Financing costs related to the refinancing of the note in the amount of \$275,400, were capitalized and are being amortized over the life of the note. At June 30, 2023, accumulated amortization for the financing costs totaled \$109,405.

As of June 30, 2023, the outstanding balance of the note payable is as follows:

Note principal payable	\$ 12,540,227
Less: Deferred financing costs, net of accumulated amortization	<u>(165,995)</u>
NET NOTE PAYABLE	<u>\$ 12,374,232</u>

Future minimum principal payments are as follows at June 30, 2023:

<u>Year Ending June 30,</u>	
2024	\$ 1,420,644
2025	1,480,803
2026	1,542,131
2027	1,605,961
2028	1,671,809
Thereafter	<u>4,652,884</u>
	12,374,232
Less: Current portion	<u>(1,420,644)</u>
NON-CURRENT PORTION	<u>\$ 10,953,588</u>

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023**8. NOTE PAYABLE (Continued)**

Total interest expense related to the note payable for the year ending June 30, 2023 was \$537,155.

9. BOND PAYABLE

On February 1, 2006, the District of Columbia agreed to issue its Variable Rate Revenue Bond (Society for Neuroscience Issue) Series 2006 in the aggregate principal amount of \$12,000,000, for the benefit of the Society through Bank of America, N.A., in order to finance a portion of the costs of acquiring, constructing and furnishing the office building, including parking garage, located at 1121 14th Street, N.W., Washington, D.C. as well as entered into an interest rate swap agreement to minimize the effect of changes in the variable rate.

The Society agreed to defer the payment of the principal and pay the interest on the bond. The bond carried a fluctuating rate of interest per annum that approximates the BMA index (a national index of seven-day floating tax-exempt rates).

On August 1, 2011, the Society signed an agreement to transfer the District of Columbia Variable Rate Revenue Bond to PNC Bank and terminated the interest rate swap agreement.

On November 15, 2018, the Society signed an agreement to transfer the District of Columbia Variable Rate Revenue Bonds to Truist Bank (formerly known as BB&T). As of June 30, 2023, the interest rate was 0.67%. Principal payments shall begin February 1, 2030. The bond agreement, among other provisions, require the Society to meet certain financial ratio tests. The Society was out of compliance on two covenants and received a waiver for the covenants through December 31, 2022.

Total interest expense related to the bond payable for the year ending June 30, 2023 was \$383,250.

10. NET ASSETS WITH DONOR RESTRICTIONS

Net assets with donor restrictions consist of the following at June 30, 2023:

Subject to expenditure for specified purpose:	
Animals in Research Panel	\$ 12,972
Brain Ultrastructure	43,582
BrainFacts.org	150,000
David Kopf Lecture on Neuroethics	49,329
Nemko Prize in Cellular or Molecular Neuroscience	7,500
Neuroscience Scholars Program	200,000
Peter and Patricia Gruber Award	176,218
Science Educator Award	20,000
Sponsorships - Annual Meeting	47,500
Trainee Professional Development Award	138,222
Trubatch Career Development Awards	23,176
Accumulated investment earnings	242,141
Endowment to be invested in perpetuity	<u>7,469,339</u>
TOTAL NET ASSETS WITH DONOR RESTRICTIONS	\$ <u>8,579,979</u>

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023**11. NET ASSETS RELEASED FROM RESTRICTIONS**

The following temporarily restricted net assets were released from donor restrictions by incurring expenses, which satisfied the restricted purposes specified by the donors:

Purpose restrictions accomplished:	
BrainFacts.org	\$ 542,419
David Kopf Lecture on Neuroethics	25,000
Elsevier Dialogues Series Support	49,329
Latin American Training Program	105,009
Leadership Development Program	85,530
Meet the Expert Series Support	5,000
Neuroscience Scholars Program	10,000
Peter and Patricia Gruber Award	80,000
Trubatch Career Development Award	11,865
Appropriations from Endowment	<u>301,404</u>
TOTAL NET ASSETS RELEASED FROM RESTRICTIONS	\$ <u>1,215,556</u>

12. LIQUIDITY AND AVAILABILITY

Financial assets available for use for general expenditures within one year of the Consolidated Statement of Financial Position date comprise the following:

Cash and cash equivalents	\$ 1,392,730
Accounts receivable	393,352
Grants receivable	<u>77,500</u>
FINANCIAL ASSETS AVAILABLE TO MEET CASH NEEDS FOR GENERAL EXPENDITURES WITHIN ONE YEAR	\$ <u>1,863,582</u>

The Society is supported by restricted contributions. Because a donor's restriction requires resources to be used in a particular manner or in a future period, the Society must maintain sufficient resources to meet those responsibilities to its donors. Thus, financial assets may not be available for general expenditure within one year. As part of the Society's liquidity management, it has a policy to structure its financial assets to be available as its general expenditures, liabilities, and other obligations come due.

The Society invests cash in excess of daily requirements in short-term investments. Of the Society's investment portfolio, approximately \$59,000,000 is in active markets and are not restricted in perpetuity in which could be drawn upon in the event of an unanticipated liquidity need. The Society also could draw upon the approximately \$25,000,000 of availability on the lines of credit (as further discussed in Note 6).

13. LEASE INCOME

The LLC currently has a total of five tenants leasing office space within its premises. The periods of the leases range from January 24, 2008 to November 30, 2031. Lease income from these leases totaled \$1,033,076 for the year ended June 30, 2023, and is included in the accompanying Consolidated Statement of Activities and Change in Net Assets in property management revenue. Property management revenue totaled \$1,149,541 for the year ended June 30, 2023, and includes income for garage and storage leasing fees and operating expense recoverables.

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023**13. LEASE INCOME (Continued)**

The difference between lease income received and lease income recognized on the straight-line basis is recorded as deferred rent receivable in the accompanying Consolidated Statement of Financial Position. As of June 30, 2023, the deferred rents receivable totaled \$645,943. The following is a schedule of future minimum lease payments to be received by the LLC:

<u>Year Ending June 30,</u>	<u>Tenants</u>
2024	\$ 975,514
2025	1,000,543
2026	950,365
2027	500,052
2028	473,390
Thereafter	<u>79,873</u>
	<u>\$ 3,979,737</u>

14. PROCEEDS FROM INSURANCE REFUND CLAIM

During June 30, 2021, the Society filed an insurance claim to recover its losses as a result of the 2020 annual meeting event cancellation. During the year ended June 30, 2023, the Society signed an agreement with the insurance companies on the undisputed portion of the insurance claim and the Society received proceeds in the amount of \$10,361,163 for coverage related to 2020 in-person meetings. The Society is continuing to seek damages and has begun litigation related to the rest of the requested claim for the 2020 meeting and for the full claimed amount related to the cancelled in-person 2021 meeting.

15. RETIREMENT PLANS

The Society maintains two defined contribution plans for employees meeting certain eligibility requirements. The 403(b) Retirement Plan allows for eligible employees to contribute a percentage of their salary, subject to the maximum contribution as per the applicable IRS regulation. For the 403(b) Retirement Plan, the Society will match up to 4% of a participating employee's salary, depending upon the percentage of contribution made by the employees.

The 401(a) Retirement Plan provides a non-matching employer contribution of 4% to all eligible employees (members of senior management receive a 8% nonmatching contribution).

The Society's contributions to the Plan for the year ended June 30, 2023 totaled \$799,735, with contributions to the 403(b) plan totaling \$291,100 and contributions to the 401(a) plan totaling \$447,593 and are included in fringe benefits in the accompanying Consolidated Statement of Functional Expenses. The Society also has a deferred compensation plan under Section 457 of the Internal Revenue Code for certain executive level employees. Contributions to this plan totaled \$67,044 for the year ended June 30, 2023 and are included in fringe benefits in the accompanying Consolidated Statement of Functional Expenses.

16. COMMITMENTS

The Society has executed lease agreements for conference space in 2023, and 2025. Letters of intent have been executed for the 2024, 2026 – 2035 and 2037 annual meetings. The total commitment under the agreements is not determinable, as it depends upon attendance and other unknown factors. There is a cancellation penalty that would be due if the agreement was canceled prior to the event date. The amount of the cancellation penalty increases as the event dates become closer.

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023**17. FAIR VALUE MEASUREMENT**

In accordance with FASB ASC 820, *Fair Value Measurement*, the Society has categorized its financial instruments, based on the priority of the inputs to the valuation technique, into a three-level fair value hierarchy. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). If the inputs used to measure the financial instruments fall within different levels of hierarchy, the categorization is based on the lowest level input that is significant to the fair value measurement of the instrument.

Investments recorded in the Consolidated Statement of Financial Position are categorized based on the inputs to valuation techniques as follows:

Level 1. These are financial instruments where values are based on unadjusted quoted prices for identical assets in an active market the Society has the ability to access.

Level 2. These are financial instruments where values are based on quoted prices in markets that are not active or model inputs that are observable either directly or indirectly for substantially the full-term of the investments.

Level 3. These are financial instruments where values are based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement. These inputs reflect assumptions of management about assumptions market participants would use in pricing the investments. These investments include non-readily marketable securities that do not have an active market.

Following is a description of the valuation methodology used for investments measured at fair value. There have been no changes in the methodologies and there were no transfers between levels in the fair value hierarchy during the year ended June 30, 2023. Transfers between levels are recorded at the end of the reporting period, if applicable.

- *Money Market Funds* - The money market fund is an open-end fund that is registered with the Securities and Exchange Commission (SEC) and is deemed to be actively traded.
- *Corporate Fixed Income and U.S. Government Obligations* - Fair value is based upon current yields available on comparable securities of issuers with similar ratings, the security's terms and conditions, and interest rate and credit risk.
- *Mutual Funds* - Valued at the daily closing price as reported by the fund. Mutual funds held by the Society are open-end mutual funds that are registered with the SEC. These funds are required to publish their daily value and to transact at that price. Mutual funds held by the Society are deemed to be actively traded.
- *Equities, Exchange Traded Funds and Closed-end Funds (ETF and CEFs)* - Valued at the closing price reported on the active market in which the individual securities are traded.
- *Alternative Investments - Interests in Hedge Funds and Private Equity Funds* - The Society follows the disclosure provisions of accounting Standards Update (ASU) No. 2015-07, *Fair Value Measurement* (Topic 820): Disclosure for Investment in Certain Entities that Calculate Net Asset Value (NAV) Per Share (or Its Equivalent). The NAV is used as a practical expedient to estimate fair value.

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

17. FAIR VALUE MEASUREMENT (Continued)

- *Alternative Investments - Interests in Hedge Funds and Private Equity Funds (continued)* - The NAV is based on the fair value of the underlying investments held by the fund less its liability. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV. The ASU removes the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient; however, the fair value amounts presented in the tables are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the Consolidated Statement of Financial Position.

The table below summarizes, the investments measured at fair value on a recurring basis, by level within the fair value hierarchy and those invested and measured at NAV as a practical expedient as of June 30, 2023.

	Level 1	Level 2	Level 3	Total
Asset Class - Investments:				
Money Market Funds	\$ 2,795,308	\$ -	\$ -	\$ 2,795,308
Corporate Fixed Income	3,209,498	-	-	3,209,498
Exchange Traded Funds and Closed-end Funds (ETF and CEFs)	6,111,576	-	-	6,111,576
U.S. Government Obligations	8,097,871	-	-	8,097,871
Mutual Funds	14,274,625	-	-	14,274,625
Equities	32,572,589	-	-	32,572,589
Deferred Compensation				
Equities	534,846	-	-	534,846
Corporate Fixed Income	459,399	-	-	459,399
Mutual Funds	8,847	-	-	8,847
Sub-total	\$68,064,559	\$ -	\$ -	68,064,559

Alternative investments measured at NAV, per practical expedient

22,259,064

TOTAL INVESTMENTS **\$90,323,623**

The following is a summary of the investments valued using NAV as a practical expedient and the related unfunded commitments and redemption restrictions associated with each major category at June 30, 2023:

Investment Type	Net Asset Value	Uncalled Commitments	Liquidity
Multi-Strategy Hedge Funds (a)	\$ 5,288,408	\$ 1,026,683	Quarterly with 90 days prior notice
Private Equity Funds (b)	10,718,842	5,518,829	None until dissolution or transfer to another party
Private Equity Funds (b)	6,251,814	6,287,437	No liquidity with out prior consent of feeder fund general partner
	\$ 22,259,064	\$ 12,832,949	

(a) Multi-Strategy Hedge Funds - This category includes direct investments in multi-strategy hedge funds that invest in both fixed income and equity investments. The managers of these funds have the flexibility to adjust their allocations between fixed income and equity investments based on their particular strategy (event-drive, relative value, directional) and view of the market. These funds have various redemption and notice of redemption requirements that generally limit the ability to liquidate them in a short period of time.

SOCIETY FOR NEUROSCIENCE

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

17. FAIR VALUE MEASUREMENT (Continued)

- **(b) Private Equity Funds** - This category includes investments in private equity funds, generally through limited partnerships. The funds may invest in private equity, credit, real estate, infrastructure projects, and natural resources. These investments are illiquid and long-term in nature. Distributions from each fund will be received as the underlying investments and fund are liquidated. It is estimated that the underlying assets of the funds will be liquidated over the next one to ten years.

18. ENDOWMENT

The Society's endowment consists of donor-restricted endowment funds. As required by GAAP, net assets associated with endowment funds are classified and reported based on the existence or absence of donor-imposed restrictions. The Council is subject to the Uniform Prudent Management of Institutional Funds Act (UPMIFA) and, thus classifies amounts in its donor-restricted endowment funds as net assets with donor restrictions because those assets are time restricted until the governing Council appropriates such amounts for expenditures. Most of those net asset also are subject to purpose restrictions that must be met before reclassifying those net assets to net assets without donor restrictions. The governing Council has interpreted UPMIFA as not requiring the maintenance of purchasing power of the original gift amount contributed to an endowment fund, unless a donor stipulates the contrary.

As a result of this interpretation, when reviewing its donor-restricted endowment funds, the Society considers a fund to be underwater if the fair value of the fund is less than the sum the (a) the original value of initial and subsequent gift amounts donated to the fund and (b) any accumulations to the fund that are required to be maintained in perpetuity in accordance with the direction of the applicable donor gift instrument. The Society has interpreted UPMIFA to permit spending from underwater funds in accordance with the prudent measures required under the law.

Additionally, in accordance with UPMIFA, the Society considers the following factors in making a determination to appropriated or accumulate donor-restricted endowment funds:

- The duration and preservation of the fund;
- The purpose of the organization and the donor-restricted endowment fund;
- General economic conditions and the possible effect of inflation and deflation;
- The expected total return from income and the appreciation of investments; and
- Investment policies of the organization.

Endowment net asset composition by type of fund as of June 30, 2023:

	Without Donor Restrictions	With Donor Restrictions	Total
Donor-Restricted Endowment Funds:			
Original donor-restricted gift amount and amounts required to be maintained in perpetuity by donor	\$ -	\$ 7,469,339	\$ 7,469,339
Accumulated investment earnings	-	242,141	242,141
TOTAL ENDOWMENT FUNDS	\$ -	\$ 7,711,480	\$ 7,711,480

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

18. ENDOWMENT (Continued)

Changes in endowment net assets for the year ended June 30, 2023:

	Without Donor Restrictions	With Donor Restrictions	Total
Endowment net assets, beginning of year,	\$ -	\$ 7,531,876	\$7,531,876
Investment loss, net	-	(544,581)	(544,581)
Pledged contributions in perpetuity	-	1,025,589	1,025,589
Appropriation of endowment assets for expenditure	-	(301,404)	(301,404)
ENDOWMENT NET ASSETS, END OF YEAR	\$ -	\$ 7,711,480	\$7,711,480

Funds with Deficiencies -

From time to time, the fair value of assets associated with individual donor-restricted endowment funds may fall below the level that the donor or UPMIFA requires the organization to retain as fund of perpetual duration. Deficiencies of this nature did not exist as of June 30, 2023. These deficiencies resulted from unfavorable market fluctuations that occurred after the investment of new contributions for donor-restricted endowment funds and continued appropriates for certain programs that was deemed prudent by the Council.

Return Objectives and Risk Parameters -

The Society has adopted investment and spending policies for endowment assets that attempt to provide a predictable stream of funding to programs supported by its endowment while seeking to maintain the purchasing power of the endowment assets. Endowment assets include those assets of donor-restricted funds that the organization must hold in perpetuity or for a donor-specified period(s) as well as Board designated funds.

Under this policy, as approved by the Council, the endowment assets are invested in a manner that is intended to produce results that exceed the price and yield results of the S&P 500 index while assuming a moderate level of investment risk. The Society expects its endowment funds, over time, to provide an average rate of return of approximately 5.0% annually. Actual returns in any given year may vary from this amount.

Strategies Employed for Achieving Objectives -

To satisfy its long-term rate-of-return objectives, the Society relies on a total return strategy in which investment returns are achieved through both capital appreciation (realized and unrealized) and current yield (interest and dividends). The Society targets a diversified asset allocation that places a greater emphasis on equity-based investments to achieve its long-term return objectives within prudent risk constraints.

Spending Policy and How the Investment Objectives Relate to Spending Policy -

The Society has a policy of appropriating for distribution each year a sum equal to the amount required to execute the program supported by the endowment, including an annual prize, as well as travel support for the prize winner and the allocable portion of the awards reception. In establishing this policy, the Society considered the long-term expected return on its endowment. Accordingly, over the long-term, the Society expects the current spending policy to allow its endowment to grow each year. This is consistent with the Society's objective to maintain the purchasing power of the endowment assets held in perpetuity as well as to provide additional real growth through investment returns, such that the amount of the prize can increase at some point in the future.

SOCIETY FOR NEUROSCIENCE
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
JUNE 30, 2023

19. SUBSEQUENT EVENTS

In preparing these consolidated financial statements, the Society has evaluated events and transactions for potential recognition or disclosure through October 11, 2023, the date the consolidated financial statements were issued.



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