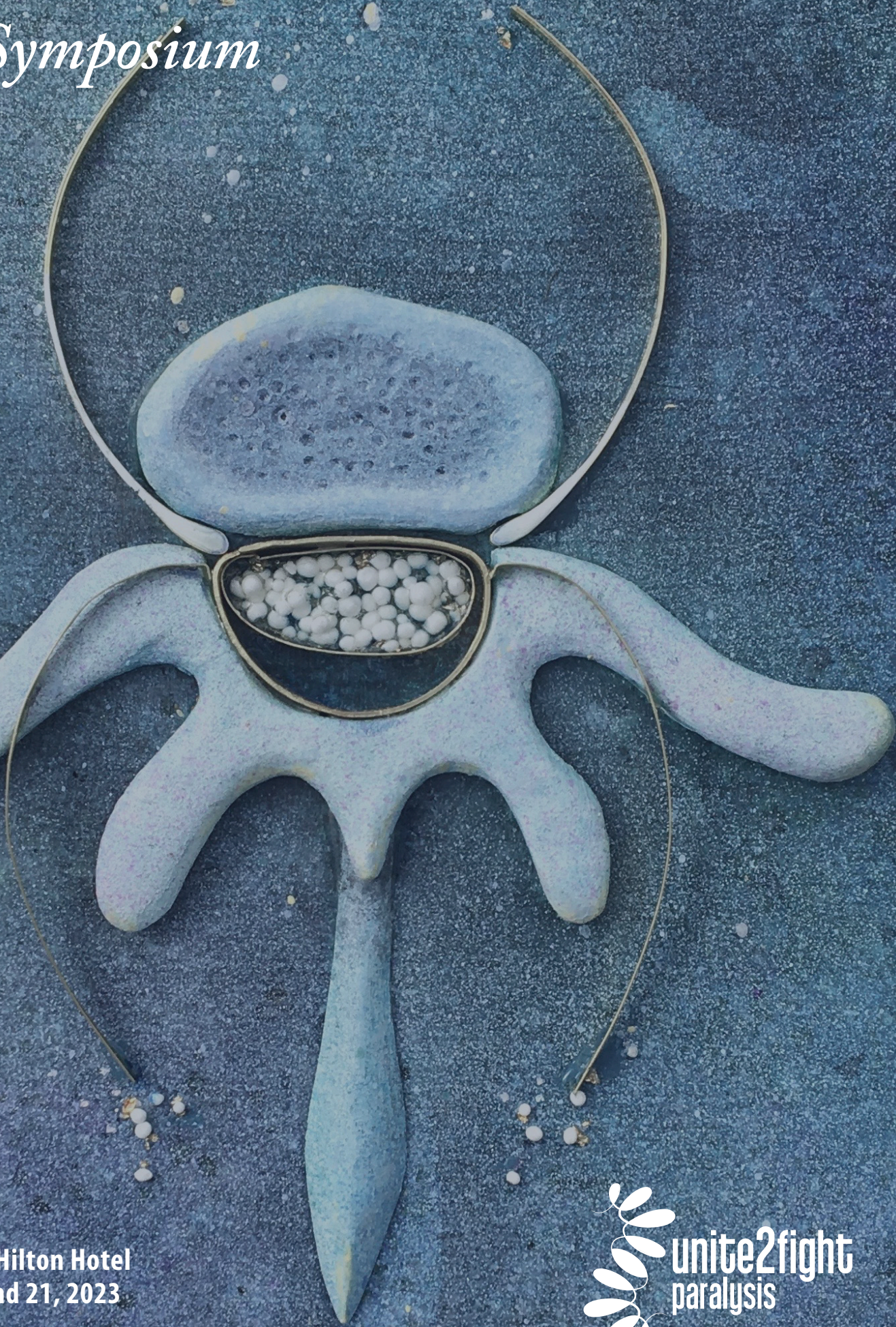


18th Annual  
**Science+Advocacy**  
*Symposium*



Minneapolis Hilton Hotel  
October 20 and 21, 2023



# Thank You

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# Welcome

Welcome to Unite 2 Fight Paralysis' 18th Annual Science and Advocacy Symposium. It's great to be hosting this year's symposium here in our hometown of Minneapolis! We look forward to facilitating meaningful exchanges with all those engaged in our shared work. Your attention to the following areas will help us maximize our time together:

**Interactive Program.** Like last year, we have streamlined our printed program to save paper while utilizing QR codes to create what we hope will be a more convenient way for all attendees to access key information about our speakers, U2FP staff and organizational history, along with resources for the SCI community.



Scan here to download a digital version of this program and/or use the QR codes provided on the following pages.

**Format.** Each day of the Symposium will contain presentations from our all-star lineup of scientists and advocates. Moderated question and answer sessions will follow each grouping of 2-3 presenters. Use this program to educate yourself on what's coming up so that you can prepare to engage effectively. This is a fantastic opportunity to pose your questions directly to the presenters and enrich the experience for all.

**Context.** Please read Sam Maddox's "Navigating U2FP's Science & Advocacy Symposium" in the following pages. It's a great summary and highlights the salient points that connect the various researchers to the cure enterprise. Providing context helps us all think more strategically. It also helps us explore ways to have an increasingly effective voice toward expediting curative treatments for SCI. As you listen to each presenter, keep these questions at the forefront of your mind: What is happening here? Where does it go next? Who can take it there? How can we help?

**Sponsors.** We are extremely grateful to our sponsors this year. Please take some time to visit their exhibiting booths and/or talk to their representatives to discover the great work they are doing in our community. Lastly, take a few minutes to fill out our survey at the end of the symposium. We very much want to hear your impressions. And if you have any questions, reach out to us at [unite@u2fp.org](mailto:unite@u2fp.org).

Thanks for joining us this year!

A handwritten signature in black ink that reads "MATTHEW". The signature is written in a cursive style with a long, sweeping underline that loops back to the right.

Matthew Rodreck  
Executive Director, Unite 2 Fight Paralysis

## THURSDAY, OCTOBER 19, 2023 – ARRIVAL DAY

# SCHEDULE of Events

5:00 - 7:00 pm

Early Registration & Check-In  
Marquette Prefunction

## FRIDAY, OCTOBER 20, 2023

7:30 - 9:00 am

Registration & Continental Breakfast – Exhibitor Visits  
Marquette Prefunction

9:00 - 9:15 am

Opening Remarks & Welcome  
Matthew Rodreck | Unite 2 Fight Paralysis

### **SESSION 1: SCI RESEARCH FUNDING STRATEGIES: CHALLENGES AND OPPORTUNITIES**

9:15 - 9:30 am

The Spinal Cord Injury Research Program - Funding Impactful Research for  
and in Partnership with the SCI Community  
Melissa Miller, PhD | United States Department of Defense

9:30 - 9:45 am

Spinal Cord Injury Research with NIH  
Linda Bambrick, PhD | National Institute of Neurological Disorders and Stroke (NINDS)

9:45 - 10:00 am

A New Era in Spinal Cord Injury Research: Christopher & Dana Reeve Foundation  
Marco Baptista, PhD | Christopher & Dana Reeve Foundation

10:00 - 10:15 am

Wings for Life: A Commitment to Curing SCI  
Sam Maddox | Wings for Life; Unite 2 Fight Paralysis

10:15 - 10:40 am

Panel Discussion with Question & Answer Session

**10:40 - 11:20 am**

**BREAK - Exhibitor Visits**

### **SESSION 2: SPINAL CORD STIMULATION: MECHANISMS AND MECHANICS**

11:20 - 11:40 am

Characterizing Sensorimotor Activity during Spinal Stimulation in Humans  
Peter J. Grahn, PhD | Mayo Clinic

11:40 - 12:00 pm

One Center's Road from Investigator-centric Academic Research  
toward Participant-oriented Rehabilitation Progress  
Noam Y. Harel, MD, PhD | Bronx VA Neurorecovery Research  
Jill Wecht, EdD | Mount Sinai Spinal Cord Injury Model System

12:00 - 12:20 pm

Autonomic Dysfunction after Spinal Cord Injury: Characterizing the Deficits  
and Understanding the Effects of Spinal Cord Stimulation  
Ryan Solinsky, MD | Mayo Clinic

12:20 - 12:40 pm

Panel Discussion with Question & Answer Session

**12:40 - 1:40 pm**

**LUNCH - Exhibitor Visits**

	<b>SESSION 3: SPINAL CORD STIMULATION: TRANSLATION TO APPLICATION</b>
1:40 - 2:00 pm	Industry and Academic Collaboration for Developing Epidural Stimulation Systems for Spinal Cord Injury: Past, Present, and Future Nathan Torgerson   Medtronic
2:00 - 2:20 pm	Translational Medicine: Epidural Spinal Cord Stimulation from Research to the Clinic Elizabeth Koch, DPT   Minneapolis VA Medical Center Ann Goding Miller, DPT   Minneapolis VA Medical Center
2:20 - 2:40 pm	Clinical Application of Epidural Stimulation In Outpatient Rehabilitation Sakina Valika, PT, DPT, NCS, MSCS   TryAbility Neurorecovery Center
	<b>SESSION 4: SCI PARTICIPANT EXPERIENCE</b>
2:40 - 3:40 pm	Stim Participant Stories with Panel Discussion Jerod Neider, Shelley Hayes, Zach Wagner, Ajay Shenoy, Curtis Johnson, David Tarro
3:40 - 4:10 pm	<b>BREAK - Exhibitor Visits</b>
	<b>SESSION 5: DESIGN: DATA, CLINICAL TRIALS AND EMERGING TECHNOLOGIES</b>
4:10 - 4:30 pm	Data Sharing and Reuse For Improved Translation of Spinal Cord Injury Research J. Russell Huie, PhD   University of California, San Francisco
4:30 - 4:50 pm	Innovative Clinical Trial Designs Leslie Morse, DO   University of Minnesota Department of Rehabilitative Medicine
4:50 - 5:10 pm	Restoring Upper Extremity Function in SCI with Neuroprosthetics Megan Moynahan, MS   Institute for Functional Restoration - Case Western Reserve University
5:10 - 5:30 pm	Panel Discussion with Question & Answer Session
5:30 - 7:30 pm	Networking Reception - Opening Remarks by ANEUVO Orchestra Ballroom

## SATURDAY, OCTOBER 21, 2023

7:30 - 9:00 am	Registration & Continental Breakfast – Exhibitor Visits Marquette Prefunction
9:00 - 9:10 am	Opening Remarks / U2FP Introduction Matthew Rodreck   Unite 2 Fight Paralysis
	<b>SESSION 6: EVERYONE KNOWS WE NEED COMBINATORIAL TREATMENTS FOR SCI?</b>
9:10 - 9:30 am	Biominerals for Therapeutic Delivery to the Injured Spinal Cord Bill Murphy, MS, PhD   Forward BIO Institute - University of Wisconsin
9:30 - 9:50 am	Implementing Principles of Neuroanatomy, Neuroontogenesis, and Neuroplasticity in Integrative Therapies for Spinal Cord Injury Igor Lavrov, MD, PhD   Mayo Clinic

9:50 - 10:10 am	Charting the SCI-Specific Serotonergic Psychedelic Risk Landscape: Initial Insights from Self-Report David McMillan, PhD   The Miami Project
10:10 - 10:30 am	Panel Discussion with Question & Answer Session
10:30 - 11:00 am	<b>BREAK - Exhibitor Visits</b>
	<b>SESSION 7: ACTIVISM TO COLLABORATION</b>
11:00 - 11:10 am	Intro and History of MN SCI TBI Research Grant Program Matthew Rodreick   Unite 2 Fight Paralysis
11:10 - 11:25 am	SCI/TBI Minnesota Research Grant Program Update Nekey Oliver, MEd   Minnesota Office of Higher Education
11:25 - 11:45 am	Minnesota SCI Advisory Council Presentation Mark Gormley, MD; Uzma Samadani, MD, PhD, FACS, FAANS; Matthew Rodreick; Rob Wudlick; Nekey Oliver, MEd
11:45 - 12:05 pm	Panel Discussion with Question & Answer Session
12:05 - 1:05 pm	<b>LUNCH - Exhibitor Visits</b>
1:05 - 1:45 pm	MN State Funded Research Poster Session
1:45 - 2:00 pm	From Passion to Action Jason Stoffer   U2FP
	<b>SESSION 8: WHAT IS REGENERATION AND WHERE IS IT?</b>
2:00 - 2:20 pm	What is the Optimism that Regeneration Strategies (Clinical) can be Designed and Implemented to Restore Lost Functions after Spinal Cord Injury? Alexander "Sasha" Rabchevsky, PhD   University of Kentucky College of Medicine
2:20 - 2:40 pm	Regeneration Panel Murray Blackmore, PhD; Ann Parr, MD, PhD; Ricardo Battaglino, PhD
2:40 - 3:00 pm	Panel Discussion with Question & Answer Session
3:00 - 3:30 pm	<b>BREAK – Exhibitor Visits</b>
	<b>SESSION 9: GROUP DISCUSSION</b>
3:30 - 5:00 pm	Breakout Session A Risk vs. Benefit: Right to Try / Good Enough to Try
3:30 - 5:00 pm	Breakout Session B Community Research Partnerships: What Does this Look Like?
3:30 - 5:00 pm	Breakout Session C Advocacy Opportunities: What Can I Do?
5:00 - 5:15 pm	Wrap Up & Closing Remarks Matthew Rodreick   Unite 2 Fight Paralysis

**END OF CONFERENCE**



**PRESENTER PROFILES**

Scan here to view our speaker line-up.  
Then click on a speaker's name or image to  
access their abstract and bio.

# CONFERENCE **T**ips


## **SPONSOR EXHIBITORS**

Our sponsors help make U2FP's Annual Symposium possible - they also provide a tremendous array of resources, services and products for the SCI Community. Sponsors will be available at several exhibit tables in the Marquette Prefunction Lobby area outside of the Marquette Ballroom. Please take a moment to stop by and learn more about their unique offerings for our community.

## **GET CONNECTED**


**WIRELESS NETWORK:** Hilton-meetings

**PASSWORD:** U2FP2023

 X (formerly Twitter): @U2FP\_CureSCI (#U2FPsymposium23)

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 Instagram: @u2fp

 LinkedIn: company/unite-2-fight-paralysis

 TikTok: @unite2fightparalysis

## **A WELCOMING SPACE**

Unite 2 Fight Paralysis is committed to creating a welcoming event. We seek to create an environment where everyone feels encouraged to participate. Help us nurture a space where we all feel included and where civility grows. Please let the U2FP staff know if you hear or see anything that needs our attention. Thank you!

## **ABOUT U2FP**

Use the links provided below to learn more about our:

- Leadership Team
- Scientific Advisory Board
- History & Founders

# Navigating

## U2FP's SCIENCE & ADVOCACY SYMPOSIUM Sam Maddox

Welcome to the 2023 Annual Unite 2 Fight Paralysis Science and Advocacy Symposium. This is a wide-angle overview of the two-day gathering, offering background and context. Our goal this year, as it is every year, is twofold:

- To get you current on the state of spinal cord injury treatment development, considering the scientific and medical parts, but also the roles played by government and charity funding agencies, doctors and clinical trial professionals, industry and commercial folks, government regulators, and of course the people (and loved ones) living with the injury.
- To demonstrate the power of the community voice and motivate you to come aboard as part of the process.

This year we're in Minneapolis, U2FP's hometown. We have had the good fortune to draw upon a rich population of scientists, clinicians, and advocates from this area. In the past five or ten years, the city and region have become a powerhouse hub of SCI research, medical care, device manufacturing, and community resources. The Minnesota Regional Spinal Cord Injury Model System, one of just 18 such elite rehab collaborations in the U.S., came into being in 2021. Recent spinal cord stimulation studies at the University of Minnesota and Mayo Clinic have established Minnesota as a world leader in this technology and its application.

The state's emergent stature in SCI is not by chance: U2FP-led advocates helped get a major SCI funding bill passed in the Minnesota legislature – now supporting \$6 million every two years for research. This bill led directly to the ESTAND epidural stim trial and numerous other studies, and it has encouraged alliances among the state's educational, medical, rehab, SCI community institutions, and most importantly, the voice of SCI community advocates. We're here to celebrate the home state, and if we may be so ever humble to brag a little, our role supporting the community voice along with our partners; Get Up Stand Up 2 Cure Paralysis, MN SCI Association, and the MN PVA.

### PLEXed

The days of passive community observation are gone. There is a welcome recent movement to include people with lived experience (there's an acronym: PLEX) not just as money raisers but as research facilitators – helping sort out what science should focus on. This is good for the community to understand the realities of the research process but it creates a two-way benefit: labs welcome the input. It helps scientists target outcomes, more mindful of PLEX priorities. U2FP has been at the forefront of this effort with a program called Lab Rats, placing dozens of individuals with spinal cord injuries as consultants in SCI labs across the U.S.

This Symposium is participatory, by design. This is more than a science show-and-tell. It's interactive, with opportunities built-in to the agenda so all stakeholders can share their stories, their wishes and goals, and frustrations. A highpoint of the Symposium will be the breakout session on Saturday that addresses PLEX-centric themes, including assessing risk, getting involved in a lab, and Advocacy 101 – there is a role for everyone (more on that below).

Got a thought to share? Ask for the microphone. Don't be shy, ask any question of any participant – including the esteemed scientists. Tell them what matters most to you, remind them of the urgency for treatments.

### Setting Up the Agenda

Day 1 starts off with presentations about research funding, with four presenters representing government and non-profit agencies. There are many factors that determine whether a grant proposal gets funded: Does the team have skills? Is there a reasonable chance they could succeed? Is the idea relevant as a possible therapy? We've asked each funder to tell us about the SCI projects they support, and why, and what the challenges are for parsing out money.

**Melissa Miller**, Ph.D., heads the Spinal Cord Injury Research Program (SCIRP), a part of the Congressionally Directed Medical Research portfolio within the U.S. Department of Defense. This is a big program, indeed, at \$40 million (FY2023) it's the second largest federal funder of SCI research behind the NIH. SCIRP deserves major kudos for being the first large funder to require involvement of PLEX consultants in planning, reviewing, and running SCI studies.

**Linda Bambrick**, Ph.D., is the Program Director at the Division of Neuroscience in Extramural Programs at National Institute of Neurological Disorders and Stroke (NINDS) managing a portfolio for spinal cord injury, peripheral nerve injury and axonal regeneration. The SCI budget is around \$100 million a year, a lot of money but a tiny fraction of the \$45 billion annual NIH budget.

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The state's emergent stature in SCI is not by chance: U2FP-led advocates helped get a major SCI funding bill passed in the Minnesota legislature – now supporting \$6 million a year for research.



**Marco Baptista**, Ph.D., directs the science program for the Christopher and Dana Reeve Foundation (CDRF). CDRF has underwritten \$140 million for SCI research in the 40 years since its founding (as American Paralysis Association). In recent years the foundation has taken equity investments in SCI-related startups. CDRF is collaborating with the U.K. based International Spinal Research Trust, together funding \$1.2 million for four grants to Canadian research groups.

**Sam Maddox**, yours truly, writes about neuroscience for U2FP and sits on the board of directors for Wings for Life US. Wings, based in Austria with an office in Santa Monica, CA, marks its 20th anniversary next year, having funded about 300 projects. There are 62 active projects and trials, including the 40-participant NervGen clinical trial, hoping to unblock functional nerve growth, enabled in large part by a \$3.2 million Wings grant.

## The Stim Section

Everyone feels it, even the scientists: The pace of discovery moves very slowly. There are many points of friction in therapy development, many baked into the system of academic science and ROI driven investment. In at least one area of research, neuromodulation, there is momentum. Over the last decade there have been dozens of encouraging human studies and an SCI-specific neuromodulation device may be approved next year, with others in the queue.

We know that rehab – in the form of physical therapy and training – facilitates recovery and helps the body relearn movement patterns, with minimal input from the brain. Certain forms of activity (e.g., stepping on a treadmill) have been shown to awaken dormant nerve circuits in the spinal cord, unlocking some degree of function. Expanding the idea of waking up spinal circuits, spinal cord stimulation has been shown to significantly improve voluntary recovery of function. It doesn't work the same for everyone, but recovery may include the ability to stand, cardiovascular health benefits, and recovery of bladder and even sexual function.

**Peter Grahn**, Ph.D., wasn't planning on being a neuroscientist, not until he got a cervical spinal cord injury and wondered why no therapies were available. After finishing undergrad work in biology and chemistry, he joined the Mayo Clinic to pursue research. He'll describe the range of studies he's been involved with, especially his approach to SCS. He's been a co-author on the Mayo team's numerous epidural stim studies, and he's now experimenting with placing individual spinal cord electrodes percutaneously instead of the electrode array paddles used in epidural stim.

**Norm Harel**, M.D., Ph.D., and **Jill Wecht**, Ed.D., are professors at the Icahn School of Medicine at Mount Sinai, and work at the James J. Peters

VA in New York. Harel is a neurologist/scientist whose primary interests include exercise, electrical stim, repurposed drugs, and other ways to reanimate nerve circuits to improve motor outcomes in SCI. Wecht is specialized, as she puts it, as a "cardio-autonomic physiologist," studying the effects of SCI on autonomic dysfunction and the consequences of poor blood pressure management on cognitive function (low BP = low brain output). Harel and Hecht work in a center they call the APEX – one of those cobbled up acronyms standing for Augmenting rehab with Plasticity, Electricity and eXercise. Here they discuss their patient-oriented research approach, developing stronger partnerships with researchers, clinicians, and PLEX, thus aligning study goals with community priorities.

**Ryan Solinsky**, M.D., is a physical medicine doctor with a strong research background in SCI. Here he will talk about the autonomic nervous system, which regulates things we don't have to think about, (e.g., blood pressure, bladder and bowel control) and what happens during spinal cord stimulation. Hint of caution from Solinsky's most recent publication: Transcutaneous spinal cord stimulation, he reports, does not improve autonomic regulation after SCI; it may actually invite trouble by lowering the threshold for autonomic dysreflexia.

Following lunch, the next group features a device manufacturer engineer, three physical therapists who work with people to optimize stimulator implants, and the stim participant PLEX group, six people with stories to share.

**Nate Torgerson** is a Senior Distinguished Systems Engineer at Medtronic, with over 30 years of experience in the development of implantable neurostimulation systems, including the ones used in spinal cord injury. He's a central pioneering figure in the history of epidural SCS, having been a key team member in the operating room and later hands-on with device optimization, in dozens of epidural implants at the University of Louisville and Mayo Clinic.



**Ann Goding Miller** and **Elizabeth Koch** are physical therapists at the Minneapolis VA Spinal Cord Injury and Disorders Center. Both are neurologic specialist certified and have been working with SCI for many years, recently with patients who have received epidural spinal cord stim

implants -- available now in Minneapolis at the VA and in the clinic of Uzma Samadani (attending the Symposium and speaking on a panel Saturday morning). Getting the device installed is one thing, getting it to work optimally for each individual is another.

**Sakina Valika** is a physical therapist and clinical director of TryAbility Neuro Rehab, a community activity-based rehab practice in the Chicago area. She also works with several of Samadani's patients, helping to configure each device for that individual's therapy goals. Valika will discuss optimization but also getting SCS covered by insurance.

**The SC Stim Panel:** meet **Jerod Nieder, Shelley Hayes, Zach Wagner, Ajay Shenoy, Curtis Johnson** and **David Tarro**. Four panelists have implanted epidural spinal cord stim devices (Nieder and Tarro, Medtronic devices; Hayes and Wagner, Abbott devices). Shenoy uses a skin-surface stim device from SpineX, and Johnson uses a transcutaneous device from Aneuvo. Each will describe their experience and field questions from the audience. Was it worth it? Were there trade-offs?

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In at least one area of research, neuromodulation, there is momentum. Over the last decade there have been dozens of encouraging human studies and an SCI-specific neuromodulation device may be approved next year, with others in the queue.

data sharing platform. Here he will highlight the benefits of organizing and sharing commonly defined metrics to sift out hidden patterns and detail in incredibly complex datasets.

**Megan Moynahan** will talk about the challenges of commercialization for neuroprosthetic devices and will describe the latest in FES development. She is the Executive Director of the non-profit Institute for Functional Restoration (IFR), based at Case Western. IFR hopes to create a business model that can make and deliver neuromodulation systems, but also get them paid for. She will describe the Networked Neuroprosthesis, a multi-function system now in a clinical trial; and KeyGrip, a simple two-electrode system designed for commercialization, coming to trial next year.

The final session on Friday covers the role of big data management in SCI research, the latest evolution of functional electrical stimulation (FES), and the formation of the Minnesota Model Systems center, a collaboration between several area hospital and rehab systems.

**J. Russell Huie**, Ph.D., is a researcher with the Brain and Spinal Injury Center in the Department of Neurosurgery at the University of California, San Francisco. He helped develop the NIH-endorsed Open Data Commons for Spinal Cord Injury, a community-driven

**Leslie Morse**, DO, is head of the Department of Rehabilitation Medicine at the University of Minnesota and is project director for the state's Regional Spinal Cord Injury Model System. This is one of 18 federally funded SCI centers of excellence in medical research and comprehensive patient services. Morse has studied bone health and fracture prevention, as well as the effect of a mindfulness technique (Qigong) on pain. She will discuss clinical trial design, and its adaptations.

Friday end of day: mix and mingle at the Networking Reception.

## Saturday

Resist the idea of SCI treatments as a single drug or device. The research field generally agrees that a combination of therapies will yield the best results. These presenters blend various approaches:

**Bill Murphy**, Ph.D., is a scientist/entrepreneur and Professor of Orthopedics & Rehabilitation at the University of Wisconsin. His research group has developed new classes of biomaterials to create new medical devices, human cells, and human tissues. Of particular interest here is his work with chase (chondroitinase ABC), a scar-eating enzyme that's been shown to help animals recover from SCI. He's discovered a method to deliver chase using mRNA coated microparticles – this is a one-dose system, as opposed to repeated injections needed in other models.

**Igor Lavrov**, M.D., Ph.D., is a neurologist/neuroscientist from the Mayo Clinic in Minnesota. He is focused on repairing neuronal circuits, with a focus on spinal cord stimulation in combination with regenerative therapies. For example, Lavrov has published studies combining SCS with umbilical cord cell transplants plus gene therapies and growth factors. He's a proponent of using large animal models to effectively model human spinal cord injury and potential interventions.

**David McMillan**, Ph.D., is an assistant professor at the University of Miami School of Medicine, Department of Neurological Surgery, and Director of Education and Outreach for the Miami Project to Cure Paralysis. He will discuss recent work with psychedelic substances. Having cast his nets into the SCI community, McMillan found many people with SCI who've been self-experimenting with psychedelic substances. They frequently report increased spasticity and hyperthermia but also meaningful changes in muscle strength and neuropathic pain. He did a survey of 29 users, the results of which he will discuss here.

Next up is a discussion about the Minnesota experience with direct funding of spinal cord injury research. The Minnesota State Traumatic Brain and Spinal Cord Injury Research Program is administered by the state Office of Higher Education (OHE). Representing OHE is **Nekey Oliver**, Director; Public Policy Liaison and Community Engagement. She has played a key role overseeing the funding of competitive grants for spinal cord injury and traumatic brain injury research.

Members of the Minnesota State Traumatic Brain and Spinal Cord Injury Research Program are on hand to discuss the program, its priorities, and successes. These include:

**Rob Wudlick**, from the Minneapolis area, has been a quadriplegic since 2011. He helped advance the legislation to fund Minnesota spinal cord injury research and has worked with advocates from other states to assist them with similar efforts. Rob is currently a Clinical Trial Research Project Manager in the Rehabilitation Medicine Department.

**Uzma Samadani**, M.D., Ph.D., FACS, FAANS is a private-practice neurosurgeon in Minneapolis and researcher at the University of Minnesota. She was a Principal Investigator and the primary neurosurgeon for the epidural SCS Estand trial at the University of Minnesota. Samadani has also performed numerous epidural spinal cord stimulation surgeries in people who traveled from seven states to Minneapolis. Many of her SCI patients have recovered spontaneous volitional movement; several can now walk with assistance or assistive devices.

**Mark E. Gormley, Jr.**, M.D., is medical director of pediatric rehabilitation medicine at Gillette Children's in Minneapolis. He treats children and adolescents who have cerebral palsy, brain injuries, spinal cord injuries, neuromuscular disorders, and other conditions, with a special interest in spasticity management.

**Matthew Rodreick** is the chair of the Minnesota State Traumatic Brain and Spinal Cord Injury Research Program's Advisory Council. He is Executive Director of U2FP and was the primary advocate/instigator for creating the Minnesota SCI funding bill. His son Gabriel has a cervical spinal cord injury.

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Bringing all of us together in one room toward one shared purpose is a necessary step to navigate our way forward and ultimately realize U2FP's vision: Every person has equal access to treatments that will restore health and independence after spinal cord injury.

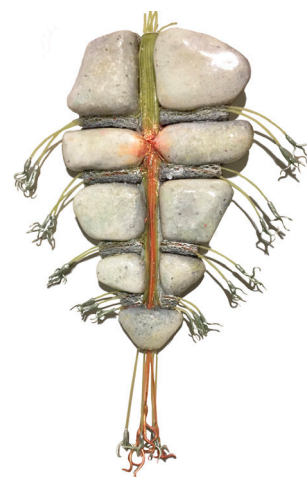
## Posters

For the first time, U2FP presents a poster session, after lunch on Saturday. These are work-in-progress studies from the University of Minnesota, Health Partners Neuroscience Center, Hennepin Healthcare Research Institute, Minneapolis VA, and Mayo Clinic. If you're not familiar with a poster, it's a 3 ft. by 5 ft. display that uses short narrative, graphs, and illustrations to describe a scientific study. They are a feature

of all scientific meetings. The basic format states the hypothesis – what is being looked at and for what purpose – and sets forth an experimental design, data capture, analysis, and results. Each poster author will attend the session – a great chance to speak directly with the scientists about their work.

**Jason Stoffer**, co-director for the U2FP Cure Advocacy Network (CAN) will talk about why he advocates for change and why it is important to stay in the fight. He will make a pitch for involvement in CAN as it becomes a more comprehensive advocacy effort based on the experiences of people living with SCI.

*(Quick digression, apropos Jason. He is co-host for the U2FP CureCast podcast. During this year's Symposium, he and producer Julie Censullo will be working the room, with microphone, to tape Symposium participants for a future podcast. Look for them, speak your piece!)*



## Regeneration, What's the Holdup?

**Sasha Rabschevsky**, Ph.D., lives with SCI, is a professor and spinal cord injury scientist at the University of Kentucky, and chairs U2FP's Board of Directors. He asks these questions: what do we mean by spinal cord regeneration, do we agree it's feasible, and if so, why is it not seeming to work?

Helping to answer or speculate on regeneration are the following panelists:

**Murray Blackmore**, Ph.D., is a scientist at Marquette University in Milwaukee. He works with the genes that turn spinal cord nerve growth on and off. He thinks we remain a long way from effective long-distance axon reconnection, but Blackmore believes the code can be cracked, given a comprehensive long-term approach with a high tolerance for failure along the way.

**Ricardo Battaglino**, Ph.D., is a Professor and Vice Chair of Research in the Department of Rehabilitation Medicine at the UMN Medical School. He's an expert in bone biology and gene and biomarker discovery and has modeled SCI in animal studies and with PLEX.

**Ann M. Parr, M.D., Ph.D.**, a Minneapolis neurosurgeon, and researcher at the University of Minnesota. She has studied neural stem cells, including implanting 3-D bioprinted scaffolds seeded with stem cells induced from patients' skin cells. She targets chronic spinal cord injury. Parr also has experience with spinal cord neuromodulation as Principal Investigator for the ESTAND clinical trial.

Finally, the whole room gets involved. We have three rotating topics up for discussion; each attendee will be able to participate in each discussion.

### **Risk/Benefit Discussion**

- What would you risk in receiving a procedure, treatment, surgery to regain functions lost to paralysis?
- How do you assess and prioritize functional gains? I.e., bowel/bladder, hand, sexual function, movement, pain, etc.
- Right To Try: taking unapproved drugs. When is it appropriate? When not? When is an experimental therapy ready to try? When is it 'good enough'?

### **SCI Community and Research Partnerships Discussion**

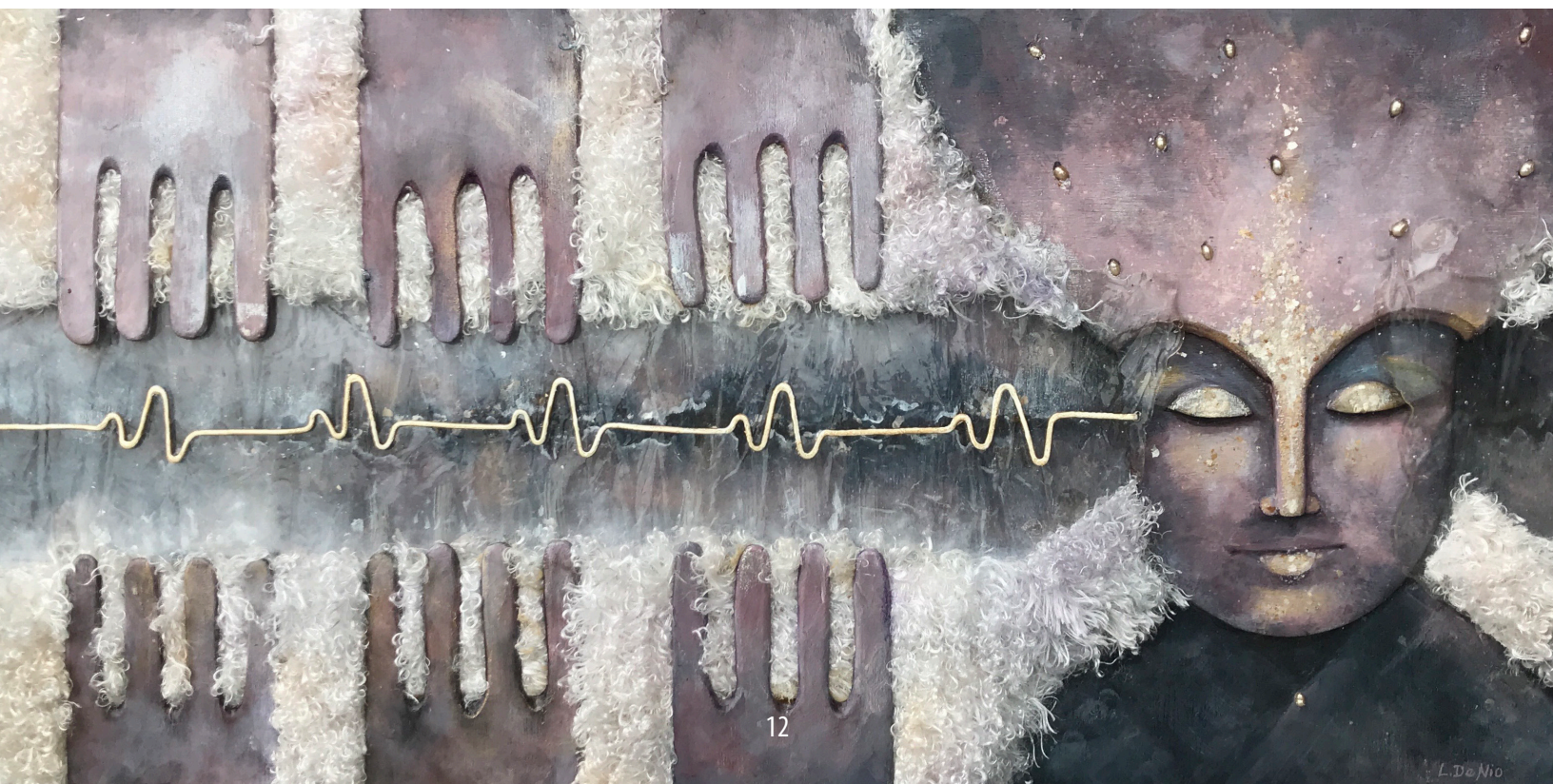
What does being involved in research look like? How does it work? What if you haven't taken a biology class for 15 years? We will have folks in the room who have experiences to share from both the community side and the research side.

### **Advocacy Opportunities Discussion**

There are roles for SCI folk, researchers, clinicians, caregivers. We will discuss some of the ways to get involved in a variety of advocacy efforts, both locally and nationally. We will share resources that will motivate you to become more involved.

### **Not The End**

Bringing all of us together in one room toward one shared purpose is a necessary step to navigate our way forward and ultimately realize U2FP's vision: *Every person has equal access to treatments that will restore health and independence after spinal cord injury.* If you have any questions please reach out to any U2FP staff on hand, or to one of our Board of Directors. To reach out after the conference email Matthew Rodreck at [matthewrodreck@u2fp.org](mailto:matthewrodreck@u2fp.org)



# Poster SESSION

## **Development of an Individualized Computational Model for Real-time Visualization of Spinal Stimulation Electrical Fields and Downstream Functional Outputs**

Anders Asp and Kate Fernandez  
*Mayo Clinic*

## **Neuromodulation Therapies for Female Sexual Dysfunction following Spinal Cord Injury**

Elizabeth Bottoroff  
*University of Minnesota*

## **Manufacturing iPSC-derived Cells for Clinical Therapies at the University of Minnesota**

James Dutton  
*University of Minnesota*

## **Intranasal Insulin Improves Recovery in a Mouse Model of Cervical Spinal Cord Injury**

Jared M Fine and Leah Hanson  
*HealthPartners Neuroscience*

## **User Experience and Functional Outcomes During Short-term Spinal Stimulation for Individuals with Spinal Cord Injury**

Megan Gill and Daniel Veith  
*Mayo Clinic*

## **Epidural Spinal Cord Stimulation to Improve Motor, Sensory, and Autonomic Function in Patients with Transverse Myelitis**

Rishabh Gupta  
*University of Minnesota Twin Cities Medical School*

## **Exoskeleton to Enable Muscle-Powered Walking Exercise After a Spinal Cord Injury**

Kimberly Gustafson  
*University of Minnesota*

## **Charting Recovery: Electromyography for Quantifying Muscle Activity After Spinal Cord Injury**

Emily Haag  
*University of Minnesota*

## **The Effect of an Adaptive Exercise Program on Chronic Inflammation in Spinal Cord Injury**

Amanda Herman  
*Healthpartners Institute*

## **Location, Location, Location: Utilizing Regional Specificity in Cell Transplantation Therapeutics**

Anne Huntemer-Silveira  
*University of Minnesota*

## **Autologous Gene-modified Leucoconcentrate and Spinal Cord Stimulation for Restoration after Spinal Cord Injury**

Igor Lavrov  
*Mayo Clinic*

## **Spatiotemporal Restoration of Motor Function in Chronic Complete Spinal Cord Injury using Spinal Cord Stimulation**

Ahmed Ramadan  
*University of Minnesota*

## **In Vivo NeuroD1-Mediated Cell Reprogramming for Functional Recovery after Spinal Cord Injury in Rats**

Alex Roman  
*University of Minnesota*

## **PulseShare: A Novel Method for Rapid Dissemination of Clinically Relevant Data**

Afsar Sandozi  
*University of Minnesota and US Neurosurgery Associates*

## **Assessing the Effects of Epidural Spinal Cord Stimulation on Bowel & Bladder Function in SCI Patients**

Srinidhi Satish and Tara Nash  
*Hennepin Healthcare Research Institute*

## **Switching Off the Thrombin Receptor to Improve Stem Cell Regenerative Therapy for Chronic Spinal cord Injury**

Isobel Scarisbrick  
*Mayo Clinic*

## **Pharmacologic Targeting of the Thrombin Receptor to Improve Outcomes for Chronic Spinal Cord Injury**

Isobel Scarisbrick  
*Mayo Clinic*

## **A Pilot Clinical Trial of Cognitive Multisensory Rehabilitation for Sensory and Motor Recovery in Adults with Spinal Cord Injury**

Ann Van de Winckel  
*Division of Physical Therapy, Division of Rehabilitation Science, Department of Rehabilitation Medicine, University of Minnesota*

# Resources

Scan here to view all of the below information with direct links to each of these resources.



The NASCIC Research Advocacy Course is designed to educate and empower individuals with spinal cord injury, researchers and clinicians, and caregivers who wish to become more involved with Clinical Research relating to SCI at all levels.



The goal of the SCITrialsFinder.net website is to allow individuals with spinal cord injury (SCI), their families and health care professionals to get common language information about clinical trials as developed by experienced clinical investigators. apply to clinical trials quickly and directly in the web site.



SciTrials.org provides the community with a way of finding clinical trials that are relevant to each individual in the fastest way possible by enabling individuals to search via location and injury details; receive email updates on new trials of interest to them; find answers for the most common questions about trials; access clinical information distilled into everyday language; apply to clinical trials quickly and directly in the web site.



The MSKTC works closely with researchers in the 14 Spinal Cord Injury (SCI) Model System Centers to develop resources for people living with spinal cord injury and their supporters. These user-friendly resources are grounded in evidence and available in a variety of formats such as printable PDF documents, videos, and slideshows.



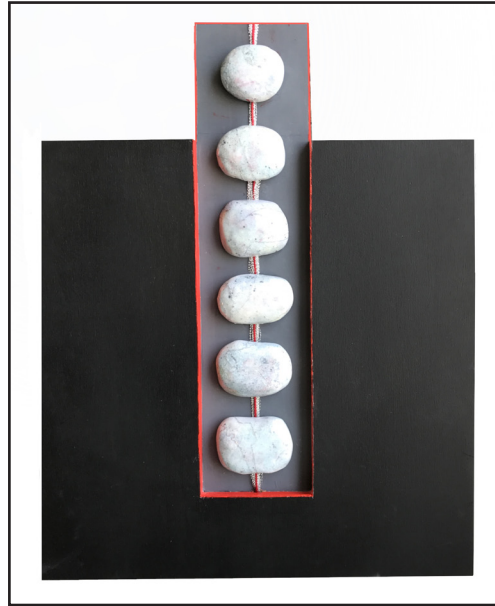
STEM CELL FACTS is a useful publication for understanding the basics of stem cells. It is put out by the International Society for Stem Cell Research (ISSCR). The ISSCR is an independent, nonprofit organization providing a global forum for stem cell research and regenerative medicine



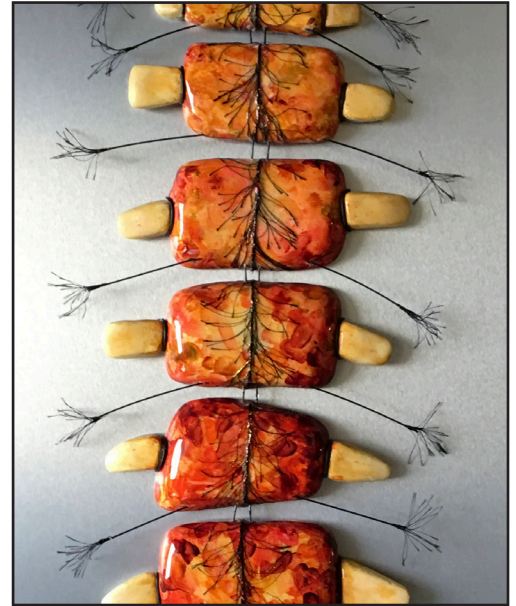
This data sheet is a quick reference on demographic and condition statuses for 35,675 persons with SCI in the United States. Data were collected through 2021 by federally funded SCI Model Systems and five Form II (follow up) centers and entered into the National SCI Database.

# ABOUT **the Art**

*Spine Art, by Lynne DeNio*



**ALIGNMENT**



**INFLAMED**



**SUTURE SAMPLE**



**LUMBAR VERTEBRAE**



The works displayed in the following pages were inspired by the artist's direct experience with her husband's spinal cord injury. Scan to view all 16 pieces in this collection, which is for sale to the right buyer. Please email [unite@u2fp.org](mailto:unite@u2fp.org) for more details and pricing.



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For 70 years, the University of Minnesota Medical School's Department of Rehabilitation Medicine has set a gold standard for PM&R care, education, and research. What makes us different?

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- Our unique interdisciplinary concussion clinic provides the latest in highly individualized care for those with mild to moderate traumatic brain injury.
- Our learners work in a highly collaborative environment at five unique sites across the Twin Cities, ensuring access to unique patient populations and a mastery of the clinical components of PM&R.
- We are ranked ninth in the nation for PM&R research with portfolios in spinal cord injury, performance validity measures in neuropsychology, cognitive and emotional factors associated with varied neurological and physiological conditions, human physiology, and rehabilitation across all systems.
- We recently were awarded funding to be the prime site for a spinal cord injury Center for Excellence. The Minnesota Spinal Cord Injury Model System (MN SCIMS) is a multidisciplinary continuum of care partnership among Courage Kenny Rehabilitation Institute, Mayo Clinic, Regions Hospital, and the University of Minnesota.

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Neilsen Foundation funding is dedicated to supporting both programs and scientific research to improve the quality of life for those affected by and living with spinal cord injury.

[www.chnfoundation.org](http://www.chnfoundation.org)





# IMPACTING LIVES THROUGH EDUCATION: Funding Projects to Improve Life After SCI/D

## FY2024 GRANT CYCLE OPENS SEPTEMBER 1

Paralyzed Veterans of America Spinal Cord Injury Education Foundation funds projects, conferences and symposia to improve the lives of individuals living with spinal cord injury/disease (SCI/D).

Awards will be made in May 2024 for the grant period of June 1, 2024–May 31, 2025. The FY24 awards amounts are:

- Maximum of \$75,000 for project grants
- Maximum of \$20,000 for in-person or hybrid Conference & Symposia grants
- Maximum of \$10,000 for virtual Conference & Symposia grant

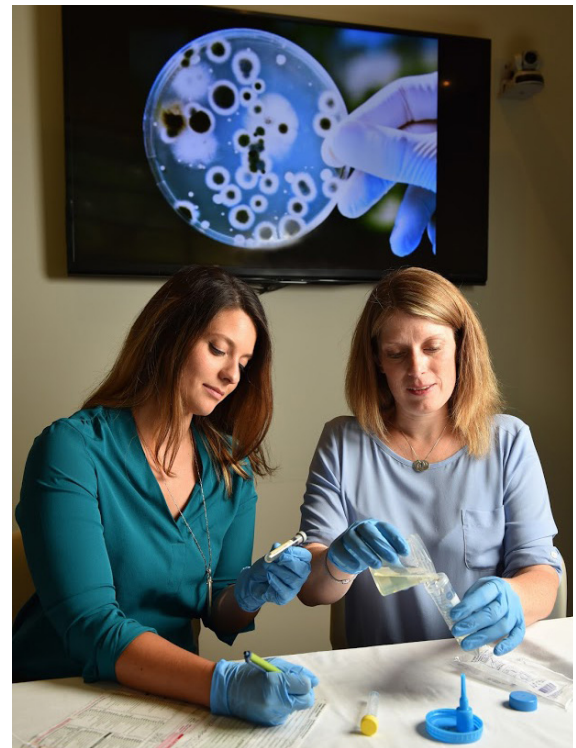
## FOUR TYPES OF FUNDED PROJECTS

- |   |  |
|---|--|
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|---|--|

All applications must be submitted online by **December 1, 2023**.

**Apply at: <https://pva.aibs-scores.org>**

*Late applications will not be accepted.*



**For additional information, contact:  
Lindsay Perlman | 202.416.7611 • [LindsayP@pva.org](mailto:LindsayP@pva.org)**

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# CURECAST



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***The podcast feeding the movement  
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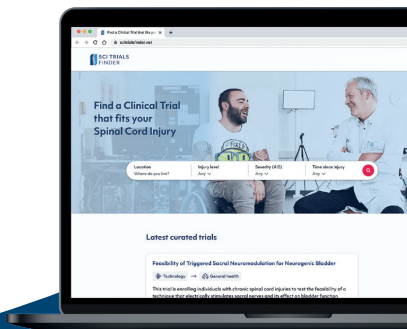
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We are actively recruiting a landmark Phase 1b/2a proof-of-concept clinical trial in individuals with spinal cord injury at Shirley Ryan AbilityLab in Chicago.



We are grateful for a grant from Wings for Life to help support this study.

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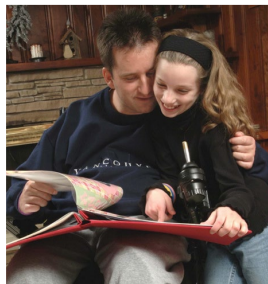
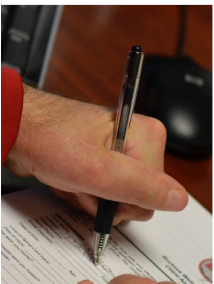
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The Spinal Cord and Brain Injury Research Center (SCoBIRC) is a state-supported research center at the University of Kentucky. Our mission is to promote functional repair of the injured spinal cord and brain through advances in basic and clinical research, facilitated collaborative efforts across health-related disciplines, endorsement and support of patient advocacy, and the development of programs of excellence in education and training.

For more information see <https://medicine.uky.edu/centers/scobirc>

# ROAD TO CURES



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**Lab Rats** U2FP places individuals with an injury into SCI research labs. This innovative placement strategy is a win-win for the Scientific & SCI Communities.



## ENGAGE

**U2FP's Annual Science & Advocacy Symposium** Meet the major stakeholder groups in curative treatments while we center the voice and perspective of the SCI Community.



## EVALUATE

**Scientific Advisory Board (SAB)** Our elite panel of SCI scientists independently evaluates research proposals so funders can be confident in their research investments.



## GET PHYSICAL

**Team U2FP** Accelerate SCI cures while pushing yourself physically in a race or challenge of your choice. Your fundraising efforts drive our legislative advocacy work (CAN), bringing more power to the SCI Community.



## ADVOCATE

**Cure Advocacy Network (CAN)** \$31.3M of SCI Research funding passed in four states over the last seven years. And we're just getting started. All funding awards are chosen by a panel of SCI Community members & Scientists.



## DIVE DEEPER

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## INNOVATE

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