

South Carolina Spinal Cord Injury Research Fund Fiscal Year 2020 (FY20) Annual Report EXECUTIVE SUMMARY

Spinal cord injury (SCI) is a serious and usually irreversible cause of disability. The consequences of SCI are often severe and include paralysis, loss of sensation, loss of control over movement and bodily functions, chronic pain, metabolic disorders, and complications such as uncontrolled blood pressure and frequent infections. People with SCI may face extraordinary demands due to the costs of medical care and rehabilitation and the absence of environmental support. Family members of people with SCI are also affected.

The South Carolina Spinal Cord Injury Research Fund (SCIRF) was established by Amendment (Bill S54 44-38-510) of the SC Code ratified on July 20, 2000. The SCIRF is provided from a \$100 surcharge on each Driving Under the Influence (DUI) conviction throughout the state. The monies collected are used to finance SCI research in South Carolina as well as cover the basic operation costs. The SCIRF is governed by a seven member Board of Directors (BOD) appointed by the Governor upon recommendation of the President of the Medical University of South Carolina (MUSC) and is attached to MUSC for administrative purposes.



The long-term goal of the SCIRF is to minimize the risk and incidence of SCI, interrupt or reverse the process of such injuries, and improve the health and quality of life for residents of South Carolina who have an SCI.

The SCIRF BOD is charged with promoting research to develop better understanding of causes and effective treatment strategies for paralysis, sensory loss and other consequences of spinal cord injury and disease with the primary objective of advancing knowledge of SCI repair and regeneration within the South Carolina research community by encouraging physicians and scientists to apply expertise to the SCI field.

The BOD includes 2 medical doctors from MUSC, 2 medical doctors specializing or significantly engaged in the treatment of SCI, 2 people with an SCI or a family member with an SCI and 1 medical doctor at large who is a member of the South Carolina Medical Association. The SCIRF has a full time Executive Director, part time Scientific Director and part time Associate Scientific Director. Board meetings are held two times per year in various locations throughout South Carolina.

The SCIRF BOD had seven open Requests for Proposals (RFPs) in order to solicit proposals from physicians, scientists and researchers throughout the state related to Primary Research, Care/Access/Delivery, Career Development, Pilot Projects, Research Result Dissemination, Student Research Internship, Bridge Funding, Recruitment/Seed Funding, Postdoctoral Research, and Conference/Education/Training. All RFP details can be found on the website.

The SCIRF made four awards in FY20 and seven no cost extensions. Six of our grantees concluded their work in FY20. As of the end of FY20 we had 14 active grantees including our Administrative and Research Cores.

The SCIRF supports a variety of research activities that include basic science, clinical, epidemiologic, rehabilitative, and translational studies. Examples of the range of research include: 1) “bench science” to identify injury and recovery mechanisms 2) animal interventions that can be translated into 3) clinical trials in humans. Before clinical trials in humans 4) participant identification must occur as well as 5) a more complete understanding of health care access and health outcomes after SCI.

SCIRF supported activities have increased the number of clinicians and scientists in South Carolina that are focused on SCI research. Surveillance and outcome research projects are currently underway that enhance our understanding of the nature and scope of issues impacting the health of those with SCI. Key findings from studies have been presented at national and international conferences and have been widely published in scientific journals where they may be used to promote better outcomes. SCIRF funded activities have also seeded federal research grants, bringing in millions of dollars to the state of South Carolina.

The SCIRF income derived from the DUI surcharge is collected on a monthly basis. The total collections for FY20 were \$426,184.71 with an average monthly collection of \$35,515.39 which is a 13% decrease from the previous fiscal year.

The SCIRF and several of the grantees were impacted by the Coronavirus pandemic. Many universities, medical institutions and research laboratories were closed to personnel for the last quarter of the FY20 fiscal year. The SCIRF maintained close contact with grantees during this time and made multiple no cost extensions to provide additional time for grantees to complete their work. The pandemic also closed many courtrooms and municipalities which resulted in a decrease in DUI collections during the last two months of the FY20 fiscal year.

We look forward to the upcoming year and are pleased to present this FY20 Annual Report.

South Carolina Spinal Cord Injury Research Fund
Catherine Leigh Graham, MEBME – Executive Director
Phone: 843-614-1756
Email: grahacat@musc.edu
Website: www.scscirf.org

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LETTER FROM THE EXECUTIVE DIRECTOR AND BOARD CHAIR

Dear Friends and Supporters:

On behalf of the Board of Directors, Scientific Directors and Executive Director, it is our pleasure to present the FY20 Report. This report highlights the progress and accomplishments in implementing the legislative mandate of promoting SCI research throughout South Carolina from July 1, 2019-June 30, 2020.

The SCIRF continues to receive monthly DUI collections and saw an annual decrease of 13% from FY19. The monthly average and yearly collections for FY20 were \$35,515.39 and \$426,184.71, respectively. The SCIRF is encouraged when DUI collections decrease in the hopes that it correlates to a decrease in drunk driving in South Carolina. We continue to judiciously award grants as funds allow, while working to promote SCI research and its translation within the state of South Carolina.

The SCIRF is as a source of research funding for any South Carolina entity that responds to the public RFP announcements. In the past year, the SCIRF promoted and supported SCI research through seven RFPs. Applications were reviewed for both scientific merit, often involving outside scientific reviewers knowledgeable with the topic, and for relevance to the mission of SCIRF.

The SCIRF made four new awards in FY20 and seven no cost extensions. Six awardees concluded their research in FY20. As of the end of FY20, the SCIRF had 14 active grantees including our Administrative and Research Cores.

The SCIRF and several grantees were impacted by the Coronavirus pandemic. Many universities, medical institutions and research laboratories were closed to personnel for the last quarter of the FY20 fiscal year. The SCIRF maintained close contact with grantees during this time and made multiple no cost extensions to provide additional time for grantees to complete their work. The pandemic also closed many courtrooms and municipalities which resulted in a decrease in DUI collections during the last two months of the FY20 fiscal year.

We are pleased to provide this annual report for FY20.

Respectfully submitted,



Kevin W. Kopera, MD
Board Chair



Catherine Leigh Graham, MEBME
Executive Director

LETTER FROM THE SCIENTIFIC DIRECTORS

The SCIRF is a critical resource to people with SCI in South Carolina, working to promote the highest quality and most relevant research in SCI. This requires several levels of research that range from basic science designed to lead to a greater understanding of SCI mechanisms and recovery to applied research and education for people with SCI in South Carolina. Our funding has helped us to bring SCI investigators into the state of South Carolina, facilitate their career development, and to build research programs. SCIRF grants have provided seed monies that have led to larger federally funded studies to further expand SCI research in South Carolina.

We have developed several mechanisms to fund the full range of SCI research and training activities necessary to build research within the state. Support for the SCI surveillance registry has allowed us to identify people with SCI injured within the state and to track their outcomes. It has helped to identify participants for additional research studies and to create opportunities for people with SCI in South Carolina. Support for the statewide SCI Association has helped to bring research to additional people with SCI in South Carolina.

Grant mechanisms include core funding for investigators through smaller pilot grants which help investigators involved in new areas of study, as well as investigator-initiated grants that are two-year projects that build upon more established work. Another mechanism helps institutions to bring in new investigators and to get their research going, while a bridge mechanism helps established investigators who are experiencing a time limited lapse in funding.

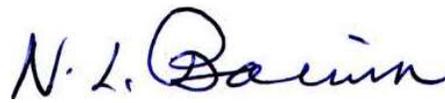
Other mechanisms support mentorship. One mechanism is specific to postdoctoral fellows who have completed their core training but require focused mentorship to establish the basis for a career in SCI research. The goal is to build work in South Carolina either through the development of postdoctoral fellows who may assume faculty or research positions within the state, or support of investigators laboratories that are enhanced by the work of the fellows. On an even more basic level, grants are available to investigators to support students who may be deciding on career directions and who may consider SCI as a result of their specific training experiences in an established SCI laboratory.

Conference grants support the translation of SCI research to people with SCI or to professionals who work in SCI clinical settings. Some grants support specific areas of infrastructure development that create other opportunities within the state of South Carolina, including surveillance, outcomes measurement, and basic science.

We truly are grateful for the opportunity to serve the state of South Carolina and people with SCI in South Carolina by providing vision and oversight of mechanisms for project review. We look forward to continuing to help build research in South Carolina to enhance the lives of people with SCI. We are proud of the accomplishments that have taken place throughout the years and look forward to continued success.



James S. Krause, PhD
Scientific Director



Naren L. Banik, PhD
Associate Scientific Director

PART I: OVERVIEW

PURPOSE/CHARGE

Promoting research to develop better understanding of causes and effective treatment strategies for paralysis, sensory loss, and other consequences of SCI and disease.

NEED

SCI is a serious and usually irreversible cause of disability. The consequences of SCI are often severe and include paralysis, loss of sensation, loss of control over movement and bodily functions, chronic pain, metabolic disorders, and complications such as uncontrolled blood pressure and frequent infections. People with SCI may face extraordinary demands due to the costs of medical care and rehabilitation and the absence of environmental support. Family members of people with SCI are also affected. The long-term goal of the SCIRF is to minimize the risk and incidence of SCI, interrupt or reverse the process of such injuries, and improve the health and quality of life for residents of South Carolina who have an SCI.

LEGISLATIVE BACKGROUND

The South Carolina SCIRF was established by the South Carolina General Assembly in 2000 by amendment (Bill S54 44-38-510) to Section 2, Chapter 38, Title 44 of the 1976 S.C. Code as signed by the Governor on July 20, 2000. The legislation calls for a \$100 surcharge to be levied on every South Carolina "Driving Under the Influence" conviction. The proceeds from this surcharge go to the SCIRF and are used to finance SCI research in South Carolina as well as cover basic operation and administrative costs for the SCIRF.

GOVERNANCE

The SCIRF is governed by a seven-member Board of Directors (BOD) appointed by the Governor upon the recommendation of the President of the Medical University of South Carolina (MUSC). It is comprised of two medical doctors from MUSC; two medical doctors specializing or significantly engaged in the treatment of people with SCI in South Carolina; two members who have an SCI or have a family member with an SCI; and one at large medical doctor who is a member of the South Carolina Medical Association.

ADMINISTRATION/SCIENTIFIC DIRECTORS

The SCIRF is attached to MUSC for administrative purposes. The SCIRF has a full time Executive Director, Catherine Leigh Graham, MEBME, a part time Scientific Director, James S. Krause, PhD, and a part time Associate Scientific Director, Naren L. Banik, PhD.

The Scientific Directors are involved in all aspects of all research development and implementation including setting goals, developing project invitations to meet goals, and making recommendations based on their reviews to the SCIRF BOD of all such projects received.

PRIMARY OBJECTIVES

Advance knowledge of SCI repair and regeneration within the South Carolina research community by encouraging physicians and scientists to apply expertise to the SCI field.

Foster collaborative interdisciplinary approaches to SCI research among South Carolina hospitals, rehabilitative centers, research universities, and interested organizations.

Nurture next generation of SCI researchers through support of young scientists and post-doctoral fellows.

Improve the well-being and quality of life of individuals with SCI by research programs that prevent or treat the secondary conditions and consequences of SCI.

Set budgets and administer funds for SCI research as mandated by the South Carolina Legislative Act and assure highest quality of research and commitment by investigators.

PART II: REQUESTS FOR PROPOSALS (RFP)

The SCIRF has maintained a focus on building research infrastructure, expertise and capacity throughout South Carolina. In order to accomplish this task, the SCIRF posted seven RFP's throughout FY20 which can be found on the website under [Request for Proposals](#).

RFP P (Pilot)

Pilot Research grants are to support investigators who need to collect pilot data to position themselves for extramural grants.

RFP S (Student Research Internship)

Student Research Internship grants support the mentor of a student in medicine, nursing, health professions, epidemiology, neuroscience or other related fields that apply to basic, clinical or translational research with spinal cord injury or spinal cord disease.

RFP I (Investigator Initiated Research)

Investigator Initiated Research grants support clinicians, therapists, educators, and scientists in South Carolina researching aspects of spinal cord injury in an effort to develop a better understanding and ultimately treatment for paralysis and other consequences of spinal cord injury and spinal cord disease.

RFP B (Bridge Funding)

Bridge Funding grants provide an investigator, with a research program in spinal cord injury with a research grant whose federal competing continuation application was not funded, an opportunity to obtain one year of bridge support.

RFP R (Recruitment/Seed Funding)

Recruitment/Seed Funding grants promote the recruitment/seed funding for scientists and clinician scientists, who specialize in the area of spinal cord injury, to the state of South Carolina.

RFP CET (Conference/Education/Training)

Conference/Education/Training grants support entities that will improve the knowledge of people with SCI in South Carolina and/or health care professionals that provide care for people with spinal cord injuries in South Carolina.

RFP PD (Postdoctoral Research)

Postdoctoral Research grants increase the number of individuals with doctorates who seek postdoctoral training in SCI, working with a mentor who has an independent program of research in SCI.

PART III: NEW AWARDS/EXTENSIONS

New Awards in FY20

2019 CET-01 Spinal Cord Injury Association WIND Conference

Angela Rodriguez, MSW, Executive Director - SC Spinal Cord Injury Association
Conference/Education/Training Award

(8/1/2019-7/31/2020 for \$24,801, *extensions 1/31/2021 and 7/31/2021 due to COVID)

2019 PD-01 Investigation of corticospinal and spinal plasticity that drives motor function recovery in people with chronic incomplete SCI

Aiko K. Thompson, PhD, Associate Professor - Department of Health Science and Research,
Medical University of South Carolina

Post Doc Award

(11/1/2019-10/31/2020 for \$67,205)

2019 PD-02 Targeting Axonal Stress Granules to Improve Axon Regeneration

Jeffery L. Twiss, MD, PhD, Professor - University of South Carolina

Post Doc Award

(2/1/2020-1/31/2021 for \$67,500)

2020 S-01 Examine whether calpain-2 activity inhibition attenuates inflammation and improves function in SCI

Naren L. Banik, PhD, Professor - Medical University of South Carolina

Student Research Award

(7/1/2020-6/30/2021 for \$10,000)

No Cost Extensions in FY20

2016 I-04 The Indirect costs of SCI in SC due to lost earnings: Relationships with secondary conditions and medical expenses

Yue Cao, PhD – Medical University of South Carolina

Investigator Initiated Research Award

(10/1/2017-9/30/2019 for \$142,973, *extension 9/30/2020)

2017 B-01 Multifunctional nanotherapeutics for Spinal Cord Injury Repair

Jeoung Soo Lee, PhD, Assistant Professor – Clemson University

Bridge Funding Award

(4/1/2018-3/31/2019 for \$66,000, *extension 3/31/2020, *extension 9/30/2020 due to COVID)

2017 I-01 Targeting neuronal NOS/peroxynitrite/calpain system as a therapeutic strategy for the treatment of spinal cord injury

Investigator Initiated Research Award

Mushfiquddin Khan, PhD, Associate Professor – Medical University of South Carolina

(7/1/2018-6/30/2020 for \$150,000, *extension 5/31/2021 due to COVID)

2018 I-01 Nanoparticle Delivery of ENOblock and Recovery of Function in SCI

Azizul Haque, PhD, Associate Professor of Microbiology and Immunology - Medical University of South Carolina

Investigator Initiated Research Award

(1/1/2019-12/31/2020 for \$150,000, *extension 6/21/2021 due to COVID)

2019 P-01 Regulation of retrograde transport in adult neurons a role in nerve regeneration

Deanna Smith, PhD, Associate Professor - Department of Biological Sciences, University of South Carolina

Pilot Research Award

(6/1/2019-5/31/2020 for \$26,843, *extension 8/15/2020, *extension 2/15/2021 due to COVID)

PART IV: AWARDS CLOSED in FY20

2015 I-02 Establishment of cellular model systems to investigate and manipulate the hostile environment produced by thrombin following spinal cord injury

Victoria L. Turgeon, PhD, Associate Professor – Furman University

Investigator Initiated Research Award

(2/1/2016-1/30/2018 for \$79,568, No Cost Extensions 1/30/2019, 1/30/2020)

2016 I-01 Lower-Limb (Ankle) Stretching Device via the Vittori Device

Elizabeth DuBose, DPT, CBIS – Greenville Hospital System/Roger C. Peace Rehabilitation Hospital

Investigator Initiated Research Award

(10/1/2016-9/30/2018 for \$150,000, No Cost Extension 9/30/2019)

2017 SI-01 SCIA Cooperative Agreement

Angela Rodriguez, MSW, Executive Director – South Carolina Spinal Cord Injury Association

Special Initiative Award

(11/1/2017-10/30/2019 for \$46,321)

2018 PD-01 Targeting axonal stress granules to improve axon regeneration

Jeffery L. Twiss, MD, PhD, Professor – University of South Carolina

Postdoctoral Research Award

(7/1/2018-6/30/2019 for \$67,500)

2018 SpecReq-01 MUSC Research Laboratory

Naren L. Banik, PhD, Professor – Medical University of South Carolina

Special Request Award

(7/1/2018-6/30/2019)

2018 P-01 Using the State Databases to Assess Opioid Use in Persons Living with Spinal Cord Injury in SC

David E. Murday, PhD, Research Associate - Arnold School of Public Health, University of South Carolina

Pilot Research Award

(1/1/2019-12/31/2019 for \$26,601)

PART V: ACTIVE AWARDS (as of the end of FY20)

Grant #	Title	PI	Institution
Admin. Core	SCIRF Administrative Core Services	Graham	N/A
Research Core	SCIRF Research Core Services	Krause	N/A
2016 SI-02	SC Traumatic SCI Surveillance & Registry	Selassie	MUSC
2016 SI-03	Basic Science Research Initiative	Banik	MUSC
2016 I-04	Indirect Costs of SCI in SC due to lost earnings	Cao	MUSC
2017 B-01	Multifunctional nanotherapeutics for Spinal Cord Injury Repair	Lee	Clemson
2017 I-01	Targeting neuronal NOS/peroxynitrite/calpain system as a therapeutic strategy for the treatment of SCI	Khan	MUSC
2017 SI-02	Measuring Outcomes after SCI throughout South Carolina: Statewide Outcomes Database	Krause	MUSC
2018 I-01	Nanoparticle Delivery of ENOblock and Recovery of Function in SCI	Haque	MUSC
2018 I-05	Harnessing the Mesenchymal Stem Cell Secretome for the Treatment of SCI	Jabbarzadeh	USC
2019 P-01	Regulation of retrograde transport in adult neurons a role in nerve regeneration	Smith	USC
2019 CET-01	SC SCI Association WIND Conference	Rodriguez	SCIA
2019 PD-01	Corticospinal & spinal plasticity	Thompson	MUSC
2019 PD-02	Axonal Stress Granules to Improve Axon Regen.	Twiss	USC

PART VI: INCOME

The income to the SCIRF comes exclusively from revenue attributed to a \$100 fee levied on every "Driving Under the Influence" (DUI) conviction in South Carolina. MUSC is the legislated administrator of these collected funds and is the state agency responsible for their oversight.

The \$100 per DUI surcharges are received monthly throughout each fiscal year. Below is the table of monthly collections for FY20. The total collected was \$426,184.71 with a monthly average of \$35,515.39. This amount is a decrease of 13% from the previous fiscal year.

Month	2019-2020
Jul	37,220.67
Aug	41,532.80
Sep	30,502.19
Oct	45,809.46
Nov	37,891.61
Dec	25,763.72
Jan	42,734.11
Feb	24,667.07
Mar	50,712.75
Apr	45,846.85
May	22,430.20
Jun	21,073.28
FY TOTAL	426,184.71
Monthly Average	35,515.39

PART VII: FINANCIAL OVERVIEW (March 2001 - June 2020)

Income (DUI Surcharges)	\$ 14,253,143.74
Expenditures	\$(10,997,341.75)
Committed Funds	<u>\$ (2,002,140.01)</u>
BALANCE	\$ 1,253,661.98

PART VIII: DIRECTORS (as of end of FY20)

Board of Directors



M. Noreen Herring, MD

Charleston, SC

(Category A) – Medical Doctor from MUSC

Specialist in Physical Medicine & Rehabilitation, Assistant Professor at MUSC
Neuroscience Department

W: 843-792-3221



Kevin W. Kopera, MD, MPH - CHAIR

Greenville, SC

(Category B) – Medical Doctor specializing in treatment of people with SCI

Board Certified in Physical Medicine and Rehabilitation. Medical Director Roger C.
Peace Rehabilitation Hospital

W: 864-455-3754



Stephen E. Rawe, MD, PhD

Charleston, SC

(Category D) – At large medical doctor, member of the SC Medical Association
Board Certified Neurosurgeon - Retired



Sherwood L. Toatley

Chapin, SC

(Category C) – Person with an SCI

911 Telecommunicator with the City of Columbia

Email: toatley@musc.edu



Victoria L. Turgeon, PhD

Greenville, SC

(Category C) – Family member with an SCI

Professor, Furman University



Abhay K. Varma, MD, MBBS

Mt. Pleasant, SC

(Category A) – Medical doctor from MUSC

Associate Professor of Neurosurgery at MUSC

W: 843-792-1308



Heather W. Walker, MD

Mount Pleasant, SC

(Category B) – Medical Doctor specializing in treatment of people with SCI

PM& R, SCI Medicine, Program Director of Neuroscience Services

Encompass Health Rehabilitation Hospital of Charleston

W: 843-820-7634

Executive Director



Catherine Leigh Graham, MEBME

Executive Director

W: 843-614-1756

Email: grahacat@musc.edu

Scientific Directors



James S. Krause, PhD

Scientific Director

Associate Dean for Clinical Research College of Health Professions, MUSC

W: 843-792-1337

Email: krause@musc.edu



Naren L. Banik, PhD

Associate Scientific Director

Professor, Department of Neurology and Neurosurgery, MUSC

W: 843-792-7594

Email: baniknl@musc.edu

Terms

Category A. Two medical doctors from MUSC

M. Noreen Herring, MD – (2022)
Abhay K. Varma, MD – (2023)

Category B. Two medical doctors at large specializing or significantly engaged in the treatment of people with an SCI

Heather W. Walker, MD – (2021)
Kevin W. Kopera, MD, MPH – (2021)

Category C. Two members who have an SCI or a family member with an SCI

Victoria L. Turgeon, PhD – (2022)
Sherwood L. Toatley – (2023)

Category D. One at large medical doctor who is a member of the SC Medical Association

Stephen E. Rawe, MD – (2024)

Passing of the Gavel

The SCIRF Board of Directors re-elected Dr. Kevin W. Kopera as the Board Chair at the fall Board meeting in 2019 and he began serving his fifth year as Chair in March of 2020.

Meetings

The BOD holds in-person meetings, usually 2 per year, to address the organization of the SCIRF as well as directional goals. Meeting dates and locations are listed below. The BOD is responsible for approving all grants awarded as well as budgets for Administrative and Research Core functions.

November 8, 2019 – Encompass Health, Charleston

May 1, 2020 – Virtual via WebEx due to COVID

PART IX: RESEARCH OVERVIEW

A great deal of progress has been achieved in SCI research over the past year, despite the effects of the pandemic and the need to close access to research laboratories across the state. This has affected all projects in terms of unplanned delays and needs to identify new ways of conducting some types of research relevant to neurodegeneration and protection. The effects were greatest in basic science laboratories and with rehabilitation intervention research. The good news is that the investigators around the state remain committed to SCI research and all have been able to resume their research. We are proud of the efforts of our investigators and trainees to do all that is necessary to continue their work to improve the lives of people with SCI in South Carolina.

There have been many accomplishments over the past year, as listed in this annual report. We have four newly funded projects; projects funded during previous years have continued, and other projects have been concluded. The new projects include the conference grant to the SCI Association, who has identified an outstanding group of presenters. Three other projects focus on basic science and rehabilitation science generating preliminary data that have been used to submit grants for federal agencies on SCI and other debilitating diseases. We are pleased to state that our investigators have been successful in receiving funding.

Ongoing applied and rehabilitation research includes the SCI surveillance and registry with Dr. Selassie at the Medical University of South Carolina (MUSC), one of relatively few such registries across the country. Dr. Krause (MUSC), continues to identify outcomes of people with SCI, which is particularly important to track over time with major events, such as the pandemic. Other research includes identification of indirect costs of SCI related to lost employment and lost earnings by Dr. Cao (MUSC). Rehabilitation research by Dr. Thompson (MUSC) is investigating cortical spinal and spinal plasticity to identify mechanisms for promoting recovery. Applied research projects concluding during the past year have included the outreach from the SCI Association to help bridge the gap between investigators and the SCI community, as well as a pilot study by Dr. Murday at the University of South Carolina (USC), that successfully used billing data to identify elevated numbers of opioid prescriptions among people with SCI in direct response to the opioid epidemic.

In the basic sciences, the investigators have made excellent progress during the project funding period. Dr. Twiss and colleagues (USC) have dissected the mechanisms and components involved in axon growth/regeneration in PNS and CNS. Dr. Khan (MUSC), developed an excellent project that was highly mechanistic and well thought out with significant translational potential for treatment of individuals with SCI. The project has found attenuation of different factors involved in SCI dysfunction. Harnessing the mesenchymal stem cell for the treatment of SCI is innovative and translationally significant and use of biomaterials generated may be good for repairing damaged spinal cords. To this end, the PI, Dr. Jabbarzadeh (USC), has generated much preliminary data from his work supported by the SCIRF during the funding period. Dr. Haque (MUSC), PI on the application entitled "Nanoparticle delivery of EnoBlock in SCI and Recovery of Function" has made a seminal contribution from his earlier work using EnoBlock (Eno) in SCI. The current proposal has expanded the use Eno using site directed delivery with Eno-embedded nanoparticle (NP) gel patch for treatment of SCI animals. Work in the Basic Science Research Initiative, Dr. Banik (MUSC), has continued, despite interruption from the pandemic, which limited access to the laboratories. The work started on fast release NP-estrogen (E2) in SCI has resulted in the production of data that demonstrated protection of cells and preservation of the axon-myelin structural unit which will aid in improvement of bladder function, gait, and motor function.

In summary, despite the unparalleled challenges presented by the pandemic, this has been another outstanding year with many accomplishments. We look forward to having an even better year as we rebound from pandemic restrictions and as we continue to promote the best possible outcomes for people with SCI through research, training, and knowledge translation.

South Carolina Spinal Cord Injury Research Fund
Executive Director: Catherine Leigh Graham, MEBME
Phone: 843-614-1756
Email: grahacat@musc.edu
Website: www.scscirf.org