

# South Carolina Spinal Cord Injury Research Fund Fiscal Year 2017 (FY17) 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 at least 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 three awards in FY17 with two awardees beginning work in FY17 and one starting in FY18. Five of our grantees concluded their work in FY17. As of the end of FY17 we have 15 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 FY17 were \$656,872.40 with an average monthly collection of \$54,739.37.

We look forward to the upcoming year and are pleased to present this FY17 Annual Report.

*South Carolina Spinal Cord Injury Research Fund*  
*Catherine Leigh Graham, MEBME – Executive Director*  
*Phone: 843-614-1756*  
*Email: [grahacat@musc.edu](mailto:grahacat@musc.edu)*  
*Website: [www.scscirf.org](http://www.scscirf.org)*

# INDEX

	<u>Page</u>
Executive Summary	1
Index	3
Letter from Executive Director and Board Chair	4
Letter from Scientific Directors	5
<b>PART I: Overview</b>	<b>7</b>
<b>PART II: New Awards/Extensions</b>	<b>9</b>
<b>PART III: Active Awards</b>	<b>11</b>
<b>PART IV: Requests for Proposals</b>	<b>13</b>
<b>PART V: Awards Closed</b>	<b>14</b>
<b>PART VI: Income</b>	<b>15</b>
<b>PART VII: Cash Analysis</b>	<b>16</b>
<b>PART VIII: Directors</b>	<b>17</b>
<b>PART IX: Research Overview</b>	<b>21</b>

**State of South Carolina**  
**Spinal Cord Injury Research Fund Board**

**BOARD**

*Kevin W. Kopera, MD*  
Chair

*Jeremy S. Chapman*  
*M. Noreen Herring, MD*  
*Sherron M. Jackson, MD*  
*Stephen E. Rawe, MD*  
*Abhay K. Varma, MD*  
*Heather W. Walker, MD*



**STAFF**

*Catherine Leigh Graham, MEBME*  
Executive Director

*James S. Krause, PhD*  
Scientific Director

*Naren L. Banik, PhD*  
Associate Scientific Director

Dear Friends and Supporters:

On behalf of the Board of Directors, Scientific Directors and Executive Director, it is our pleasure to present the FY17 Report. This report highlights the progress and accomplishments in implementing the legislative mandate of promoting SCI research throughout South Carolina from July 1, 2016-June 30, 2017.

The SCIRF continued 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 three new grant awards as well as three no cost extensions. Two of these new awardees began their research in FY17 while one awardee will begin their research in FY18. Five awardees concluded their research in FY17. As of the end of FY17, the SCIRF had 15 active grantees including our Administrative and Research Cores. The ongoing technical progress reports and final reports for each grantee can be viewed on the SCIRF website.

The SCIRF continues to receive DUI collections on a monthly basis. The monthly average and yearly collection for FY17 are \$54,739.37 and \$656,872.40, respectively.

We are pleased to provide this annual report for FY17.

Respectfully submitted,

Handwritten signature of Kevin W. Kopera in blue ink.

Kevin W. Kopera, MD  
Board Chair

Handwritten signature of Catherine Leigh Graham in blue ink.

Catherine Leigh Graham, MEBME  
Executive Director

# State of South Carolina Spinal Cord Injury Research Fund Board

## BOARD

*Kevin W. Kopera, MD*  
Chair

*Jeremy S. Chapman*  
*M. Noreen Herring, MD*  
*Sherron M. Jackson, MD*  
*Stephen E. Rawe, MD*  
*Abhay K. Varma, MD*  
*Heather W. Walker, MD*



## STAFF

*Catherine Leigh Graham, MEBME*  
Executive Director

*James S. Krause, PhD*  
Scientific Director

*Naren L. Banik, PhD*  
Associate Scientific Director

## Letter from the Scientific Directors

This past year has witnessed continued growth and development of diverse research studies, all of which contribute to the further development of SCI research in the state of South Carolina. We have continued to modify and develop grant mechanisms that reach investigators throughout the state and provide the seed funding for continued research development. The ultimate goal of our research program is to improve the lives of those with SCI, with an emphasis on those in South Carolina. The work within our state lays the foundation for helping those with SCI well beyond our state borders, yet our work continues to be focused on improvement of function and the reduction of costly secondary health conditions which both burden the healthcare system and may affect the quality-of-life and even the longevity of those with SCI.

When the work began more than a decade ago, we balanced our focus between basic and applied sciences. We are pleased to that the work is not simply fall into one of these two categories, but we now look at a more wide spectrum of research. Basic science research continues to be important for helping us to understand the underlying mechanisms of injury and provides opportunities for understanding potential benefits of treatments which are not advanced sufficiently to be conducted with people. Translational research now bridges the gap between the basic sciences and the more applied sciences. Applied research now includes clinical trials and rehabilitative interventions to improve outcomes. Epidemiologic research further helps us to have a broad foundation for understanding the issues faced by those with SCI and the factors that put them at high risk for adverse outcomes. Combining all types of research enables those with SCI in South Carolina to have access to interventions and services through research that might otherwise not be available. Research is essential for promoting the health, quality-of-life, and longevity of those with SCI.

How much has been accomplished? Without question, the funds allocated through the SCI research fund have provided the seeds for several accomplishments. Funding from federal agencies continues to grow as we continue to support research through its developmental stages. These funds allow investigators to qualify for federal funds development of their research program. The development of research brings experts into the state and this carries over to clinical service. The service in turn provides the opportunity to implement new interventions for people in South Carolina. Some funded

activities identify individuals and their health challenges, so that we may identify those who potentially can benefit from interventions and offer them the opportunity to participate in these interventions. We maintain a close relationship with the statewide SCI Association as this brings research to individuals with SCI in South Carolina and those individuals participation furthers the research.

As we move into the future, we will maintain our steadfast commitment to improving the lives of people with SCI through research, discovery, recruitment, translation of research, and through sharing of information. We will continue biannual scientific conferences to ensure that we are both bringing experts into the state of South Carolina so that they may share their knowledge enhance research and practice South Carolina, as well as to share the basic findings from SCI fund research. We will continue to develop postdoctoral candidates and provide them experiences that will encourage them to develop and maintain a focus in SCI research. Maintaining a wide range of research grant mechanisms is essential to this process.

As scientific directors, we have committed our professional lives to research with SCI. We published our first SCI research in 1987 and 1980 respectively, one in applied sciences and the other in basic sciences. We are grateful for the opportunity to provide leadership and vision to the SCI RF and to utilize our experiences, knowledge, and resources to develop future generations of investigators. It is only through this continued commitment to reach out across the state and to pull together SCI investigators through a wide array of mechanisms, that we will be able to enhance the lives of those with SCI in South Carolina.



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: NEW AWARDS/EXTENSIONS

### New awards made in FY16 but started in FY17

- **#2016 SI-02 SC Traumatic SCI Surveillance & Registry**  
Anbesaw Selassie, Dr. PH – Medical University of South Carolina  
Special Initiative Award  
(7/1/2016-6/30/2021 for \$249,125)
- **#2016 I-03 Neuron-specific Enolase and SCI**  
Azizul Haque, PhD – Medical University of South Carolina  
Investigator Initiated Research Award  
(7/1/2016-6/30/2018 for \$150,000)
- **#2016 SI-03 Basic Science Research Initiative**  
Naren Banik, PhD – Medical University of South Carolina  
Special Initiative Award  
(7/1/2016-6/30/2021 for \$723,310, supplement \$52,500)

### New awards made in FY17 and started in FY17

- **#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)
- **#2016 PD-01 State-of-the-Art Measurement in Monitoring Long-term Outcomes**  
Craig A. Velozo, PhD, OTR/L – Medical University of South Carolina  
Postdoctoral Research Fellowship Award  
(2/1/2017-1/30/2018 for \$64,450)

### New awards made in FY17 but starting in FY18

- **#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)

### No Cost Extensions in FY17

- **#2014 I-01 Community-based Virtual Reality Group Exercise Training in Persons with SCI**  
Jennifer Trilk, PhD – University of South Carolina School of Medicine Greenville  
Investigator Initiated Research Award  
(12/1/2014-11/30/2016 for \$79,954, extension 11/30/2017)

- **#2015 I-01 Novel combination therapy for neuroprotection in spinal cord injury**  
Swapan K. Ray, PhD – University of South Carolina School of Medicine  
Investigator Initiated Research Award  
(7/1/2015-6/30/2017 for \$80,000, extension 6/30/2018)
- **#2016 SI-01 Prospective Study Registry of Individuals in SC with SCI**  
Kevin K. Kopera, MD – Greenville Hospital System/Roger C. Peace Rehabilitation Hospital  
Pilot Award  
(6/1/2016-5/31/2017 for \$33,389, extension 11/30/2017)

## PART III: ACTIVE AWARDS (as of the end of FY17)

All Technical Progress Report and Final Reports can be found on the website under each respective Grant #.

Grant #	Title	PI	Institution
Admin. Core	SCIRF Administrative Core Services	Graham	N/A
Research Core	SCIRF Research Core Services	Krause	N/A
09-001	Measuring Outcomes after SCI throughout SC: A System of Tracking, Research, & Referral	Krause	MUSC CHP
12-004	Cooperative Agreement between SCIRF and SCSCIA	Newman/ Crawford	SCSCIA
2014 I-01	Community-based Virtual Reality Group Exercise Training in Persons with SCI	Trilk/Kopera	USCSOM Gvl, RCP
2014 R-01	Modulation of Stretch Reflexes during Walking in People after SCI	Thompson	MUSC CHP
2015 I-01	Novel combination therapy for neuroprotection in SCI	Ray	USCSOM
2015 I-03	Formoterol, an FDA-approved drug, stimulates mitochondrial biogenesis as a novel therapeutic strategy for SCI	Tomlinson	MUSC
2015 I-02	Establishment of cellular model systems to investigate & manipulate the hostile environment produced by thrombin following SCI	Turgeon	Furman
2016 SI-01	Prospective Study Registry of Individuals in SC with SCI	Kopera	GHS/RCP
2016 SI-02	SC Traumatic SCI Surveillance & Registry	Selassie	MUSC
2016 I-03	Neuron-specific Enolase and SCI	Haque	MUSC
2016 SI-03	Basic Science Research Initiative	Banik	MUSC

2016 I-01	Lower-Limb (Ankle) Stretching Device via the Vittori Device	DuBose	GHS
2016 PD-01	Application of State-of-the-Art Measurement in Monitoring Long-term Outcomes of SCI in SC	Veloza	MUSC

## PART IV: REQUESTS FOR PROPOSALS

The SCIRF has maintained a focus on building research infrastructure, expertise and capacity throughout South Carolina. In order to accomplish this task, the SCIRF BOD posted throughout FY17 and can be found on the website under [Request for Proposals](#).

### **RFP 2015-P (Pilot)**

Status: Open

### **RFP 2016-S (Student Research Internship)**

Status: Open

### **RFP 2016-I REV (Investigator Initiated Research)**

Status: Recurring Deadlines of January 15<sup>th</sup> and August 15<sup>th</sup>

### **RFP 2015-B (Bridge Funding)**

Status: Open

### **RFP 2016-R (Recruitment/Seed Funding)**

Status: Open

### **RFP 2015-CET (Conference/Education/Training)**

Status: Open

### **RFP 2017 PD (Postdoctoral Research)**

Status: Open

## PART V: AWARDS CLOSED (In Order of Date Awarded)

- **#2014 P-01 Geographic Disparities in Access to Outpatient Rehabilitation Services after Spinal Cord Injury**  
Nathaniel Bell, PhD – University of South Carolina  
Pilot Award  
(12/1/2014-11/30/2015 for \$28,478; extension 11/30/2016)
- **#2014 I-02 Neuron-specific Nanotherapeutics for Axonal Regeneration after Spinal Cord Injury**  
Jeoung Soo Lee, PhD – Clemson University  
Ken Webb, PhD – Clemson University  
Investigator Initiated Research Award  
(1/1/2015-12/31/2015 for \$39,500; extension 12/31/2016)
- **#2015 P-02 Development & Evaluation of Multimedia & Technology-enhanced Components of Telehealth SCI Self-management Intervention**  
Susan Newman, PhD – Medical University of South Carolina  
Pilot Award  
(10/1/2015-9/30/2016 for \$28,029)
- **#2015 CET-02 2016 SCIRF Scientific Conference**  
Catherine Leigh Graham, MEBME – Executive Director, SCIRF  
Conference/Education/Training Award  
(1/1/2016-12/31/2016 for \$15,957)
- **#2016 S-01 Mechanisms of oligodendrocyte damage and survival in SCI**  
Naren Banik, PhD – Medical University of South Carolina  
(Student: Jared Totaro – College of Charleston)  
Student Award  
(6/1/2016-8/10/2016 for \$5,430)

## 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 FY17. The total collected was \$656,872.40 with a monthly average of \$54,739.37.

<b>Month (2016-2017)</b>	<b>Amount (\$)</b>
Jul	36,733.22
Aug	72,582.65
Sep	57,635.49
Oct	49,923.70
Nov	57,631.41
Dec	52,699.43
Jan	40,170.78
Feb	51,036.75
Mar	64,852.26
Apr	53,948.77
May	71,018.24
Jun	48,639.70
<b>FY17 TOTAL</b>	<b>656,872.40</b>
<b>Monthly Average</b>	<b>54,739.37</b>

**PART VII: CASH ANALYSIS**  
**March 2001 - June 2017**

<b>Income</b>	DUI \$ 3/2001-6/2017	\$	12,752,395.20	
				<b>12,752,395.20</b>
<b>Expenditures</b>	Active Accounts	\$	(1,458,855.70)	
	Inactive Accounts	\$	(5,513,627.93)	
	ADMIN CORE	\$	(977,988.51)	
	RESEARCH CORE	\$	(605,134.90)	
				<b>(8,555,607.04)</b>
<b>Commitments</b>	Active Grants thru 2021	\$	(1,370,943.30)	
	ADMIN Core thru FY17	\$	(39,134.49)	
	RESEARCH Core thru FY17	\$	(373,944.10)	
	FY18 ADMIN Core	\$	(136,785.00)	
	FY18 RESEARCH Core	\$	(23,146.26)	
				<b>(1,943,953.15)</b>
<b>Est. CORE thru FY21</b>	ADMIN CORE	\$	(547,140.00)	
	RESEARCH CORE	\$	(92,585.05)	
				<b>(639,725.05)</b>
<b>Set Aside 2 each RFP</b>	Investigator Initiated	\$	(300,000.00)	
	Pilot	\$	(60,000.00)	
	Student Research	\$	(20,000.00)	
	Bridge	\$	(150,000.00)	
	Recruitment/Seed	\$	(250,000.00)	
	Conference/Ed/Training	\$	(60,000.00)	
	Post Doctoral	\$	(135,000.00)	
				<b>(975,000.00)</b>
				<b>BALANCE</b>
				<b>638,109.96</b>



## PART VIII: DIRECTORS (as of end of FY17)

### Board of Directors



**Jeremy S. Chapman**  
Pelzer, SC  
(Category C)  
Agent with New York Life Co.  
Email: jroc153@msn.com



**M. Noreen Herring, MD**  
Charleston, SC  
(Category A)  
Specialist in Physical Medicine & Rehabilitation, Assistant Professor at MUSC  
Neuroscience Department  
W: 843-792-3221



**Sherron M. Jackson, MD**  
Charleston, SC  
(Category C)  
Associate Professor of Pediatrics at MUSC  
W: 843-792-2406



**Kevin W. Kopera, MD, MPH - CHAIR**  
Greenville, SC  
(Category B)  
Board Certified in Physical Medicine and Rehabilitation. Medical Director Roger C.  
Peace Rehabilitation Hospital  
W: 864-455-3754



**Stephen E. Rawe, MD**  
Charleston, SC  
(Category D)  
Board Certified Neurosurgeon - Retired



**Abhay K. Varma, MD, MBBS**  
Mt. Pleasant, SC  
(Category A)  
Associate Professor of Neurosurgery at MUSC  
W: 843-792-1308



**Heather W. Walker, MD**  
Mount Pleasant, SC  
(Category B)  
PM& R, SCI Medicine, Program Director of Neuroscience Services  
HealthSouth Rehabilitation Hospital  
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 Neuroscience, MUSC  
W: 843-792-7594  
Email: baniknl@musc.edu

# Terms

The Board is comprised of the following Categories:

- A. Two medical doctors from MUSC;
- B. Two medical doctors at large specializing or significantly engaged in the treatment of people with an SCI;
- C. Two members who have an SCI or have a family member with an SCI; and,
- D. One at large medical doctor who is a member of the South Carolina Medical Association.

**Category A.** Two medical doctors from MUSC

**M. Noreen Herring, MD** – first term (2018)

**Abhay K. Varma, MD** – first term (2019)

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

**Heather W. Walker, MD** – initial term (2017)

\*recommended for first full term (2021)

**Kevin W. Kopera, MD, MPH** – first term (2017)

\*recommended for second full term (2021)

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

**Jeremy S. Chapman** – first term (2018)

**Sherron M. Jackson, MD** – first term (2019)

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

**Stephen E. Rawe, MD** – first term (2020)

## Passing of the Gavel

The SCIRF BOD re-elected Dr. Kevin W. Kopera as the Board Chair at the fall Board meeting in 2016 and he began serving his third year as Chair in March of 2017.

## Meetings

The BOD holds in-person meetings, usually 2-3 per year, to address the organization of the SCIRF as well as directional goals. Meeting dates, locations and select photos are included below. The BOD is responsible for approving all grants awarded as well as budgets for Administrative and Research Core functions.

### December 9, 2016 – MUSC, Charleston



Back Row: Steve Rawe, Abhay K. Varma, Naren Banik,  
M. Noreen Herring, Heather Walker, Kevin W. Kopera  
Front Row: Catherine Leigh Graham, James S. Krause, Jeremy Chapman  
Via Phone: Sherron M. Jackson

### April 21, 2017 – MUSC, Charleston – No picture available

## PART IX: RESEARCH OVERVIEW

During the past year, the SCIRF funded several types of activities that included: (1) basic science research, (2) rehabilitation or clinical studies, (3) epidemiologic or outcomes research, (4) and infrastructure, stakeholder involvement, and training. These are essential areas to supporting the range of activities required to meet the SCIRF mission.

We are funding a new special initiative on *basic science* research under the leadership of the associate scientific director, Dr. Naren Banik. This initiative ensures we will continue to focus on the most basic studies to help us understand SCI and develop interventions to minimize its consequences. In addition to this new five-year initiative, other important basic science studies include an investigation of the role of neuron-specific enolase (NSE) in the alterations of inflammatory processes following SCI in rats (Haque) and the effects of formoterol on inflammation and the role of complement in the inflammatory process (Tomlinson, Schnellman). These studies are important for future interventions targeting the inflammatory process. Other studies target the cellular model system to examine the effect of thrombin and in mixed glial cell cultures (Turgeon) and combination therapy using micro-RNAs miR-96 and bororetinoid BIT-5 to improve motor function following SCI (Ray). In a different type of project, Dr. Supriti Samantaray from MUSC investigated the correlation between gait dynamics and molecular markers of repair and regeneration in rat SCI at different times to identify predictors of functional recovery. Dr. Jeoung Soo Lee from Clemson University is investigating the axonal regeneration in SCI using neuron-specific neurotherapeutics in a rat model. Lastly, funds also provided an opportunity for a College of Charleston student (Totaro) to work in Dr. Naren Banik's laboratory to investigate the mechanisms of oligodendrocyte damage and survival.

During the past year we have continued to support state-of-the-art research on rehabilitative interventions. Dr. Aiko Thompson from MUSC continues her innovative research on the modulation of stretch reflexes during walking after SCI, utilizing these reflexes to improve gait and function. A second study has witnessed new progress in the use of virtual-reality exercise training, conducted at Roger C Peace by Dr. Jennifer Trilk. Dr. Susan Newman from MUSC continues to develop a self-management intervention to reduce the likelihood of secondary health conditions.

There are three related initiatives to enhance our understanding of the *epidemiology* and the *outcomes* of SCI in South Carolina. These initiatives also identify individuals with SCI who may choose to participate in research studies, or who may benefit from knowledge of new research that helps to improve their function or outcomes. These initiatives include: (1) continuation of the SCI registry, for which we identify the changing trends in the causes of injuries and demographics, including how they are dispersed across the state of South Carolina (Selassie); (2) ongoing data collection for the statewide outcomes database (Krause); and (3) collection of clinical data from newly injured individuals and outpatients in the Greenville Hospital System (Kopera). These resources have also been utilized to successfully link to other state administrative records to help us better understand secondary health conditions and causes of costly hospitalizations. This infrastructure has also allowed investigators to successfully compete for federal funding. Therefore, these activities meet multiple needs within the state of South Carolina.

The fourth major category of funding activities is essential to the translation of knowledge from research activities. Translating research findings into usable information that promotes better outcomes is a necessary step in the process of improving outcomes. We conducted several important activities that included a scientific conference that brought together investigators, clinicians, and students. Keynote speakers were brought in from other areas of the country to share their expertise

and to facilitate research activities in South Carolina. We also worked with the South Carolina SCI Association, as a means of bridging the activities of investigators with those with SCI in the state. The SCI Association also recruits individuals for research studies. Continuing these activities is necessary to ensure the long-term viability of SCI research in the state of South Carolina and to promote the best possible outcomes among those with SCI.

In summary, this has been another strong year, with multiple opportunities created through SCIRF funding. We will continue to review and implement all possible means to promote the best possible outcomes for those with SCI in the state of South Carolina, by supporting 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](mailto:grahacat@musc.edu)***  
***Website: [www.scscirf.org](http://www.scscirf.org)***