



UNIVERSITY OF  
**SOUTH CAROLINA**  
School of Medicine

**Blueprint for Academic Excellence  
in the University of South Carolina  
School of Medicine (SOM)**

**2012-2013**

26 March 2012

## I. Executive Summary

- A. Identify the universities in the U.S. which have the top 10 colleges in your discipline and the five colleges at other U.S. universities which are considered to be your peers.

Top 10 Medical Schools (*Primary Care*) **2012 US News & World Report**: University of Washington, University of North Carolina-Chapel Hill, Oregon Health Sciences University, University of Minnesota, University of California-San Francisco, University of Colorado – Denver, University of Nebraska Medical Center College of Osteopathic Medicine, University of Pennsylvania, University of Massachusetts-Worcester, University of Iowa-Carver.

5 Peer Institutions (*Teague-Cranston Act Medical Schools*): East Carolina, East Tennessee State, Marshall, Texas A&M, Wright State

- B. Describe your college's top strengths and important accomplishments achieved in the last five years.

### Strengths

- Strong, fully-accredited educational programs.
- Largest physician and provider practice in the Midlands.
- Faculty who are dedicated and committed to the educational programs.
- Very good facilities (classrooms, laboratory, instrumentation resource facility, research and clinical space).

### Important Accomplishments

- M.D. program received a full 8-year accreditation by the LCME in 2009, and Masters in Nurse Anesthesia program received a full 10-year accreditation and expanded to a second primary training site in Greenville, SC.
- Established an Inter-professional Seminar and small group experiences with the School of Pharmacy as well as a vertical curriculum in patient safety and quality..
- Hosted the First World Congress on Ultrasound in Medical Education with over 400 attendees from 26 nations, 46 medical schools, and global organizations such as the WHO. Numerous contacts and relationships were established with societies and vendors that hold great promise.
- Focused growth in research (neuroscience, inflammation, cardiovascular, healthcare delivery, and ultrasound). Extramural funding increased from \$26M in 2005 to \$41 million in 2011, and NIH research funding increased from \$6 million in 2005 to \$12 million in 2011. Increased number of VA-eligible investigators accompanied by additional submissions of VA Merit awards - one award received.
- National NIH Center for Inflammation established.

- Moved to web-based testing for National Board Subject Exams in the clinical years.
- Initiated roll-out of an Electronic Health Record with Palmetto Health (PH).
- Increased support for minority scholarships through \$200,000 contribution from The Regional Medical Center of Orangeburg and Calhoun Counties for two minority scholarships.
- Established the first NCQA recognized Patient Centered Medical Home practice in South Carolina.
- The Office of Continuous Professional Development and Strategic Affairs along with Palmetto Health received the 2012 Alliance for Continuing Medical Education award for Outstanding Educational Collaboration.
- Department of Neurology faculty were instrumental in helping Palmetto Health establish the first Joint Commission accredited Primary Stroke Center in the Midlands.

C. Discuss your college's weaknesses and your plans for addressing those weaknesses.

#### Weaknesses

- Loss of financial support from the state.
- Lack of minority faculty members and students

#### Plans to address weaknesses

- Develop an integrated clinical practice with PH, continue to pursue new revenue streams (i.e., corporate medicine, international medicine (Saudi Arabia), expand/develop revenue generating clinical practices).
- Develop revenue generating graduate programs, such as Certificate Program and Physician Assistant (PA) Program.
- Seeking additional endowments for minority scholarships and institutional support through donors, grateful patients, and health systems.
- Have established a Faculty Affairs committee that is developing a plan to increase the number of minority faculty members.

## II. **Goals**

- A. Each goal should be in concert with the Provost's vision and mission statements and the Provost's goals, and address the goals of Focus Carolina and Academic Dashboard goals.
- B. State your college's long-term, five-year goals and describe your five-year plans for each, either by writing a short paragraph or bulleted list for each goal.

## Five-Year Goals

Goal 1. **Focus Carolina Goals: Focus on Educational Quality, Focus on Diversity, and Focus on Leadership**

Form an integrated clinical practice with PH.

A strategic planning group of high level administrators from the SOM and PH has been formed and is meeting regularly. A facilitator has been engaged to help move the process forward. An integration model should be determined this summer (2012) as well as an implementation plan.

Goal 2. **Focus Carolina Goal: Focus on Educational Quality**

Establish a Master's in Physician Assistant Program

Plan to establish a Master's in Physician Assistant program with a target date of summer 2013 for the first entering class. A search is underway for a program director which should be completed in March 2012. Internal and state approval for the program is underway. A site visit by the Accreditation Review Commission on Education for the Physician Assistant is scheduled for October 2012.

Goal 3. **Focus Carolina Goal: Focus on Innovation**

Develop a progressive interdisciplinary research agenda as part of SOM Strategic Plan.

SOM faculty will collaborate with researchers across the university, the state, the nation, and globally in targeted areas of strength, need, and funding promise such as inflammation, stroke, heart disease, regenerative medicine, neuropsychiatric diseases, technology in medicine, and health care delivery. Faculty will actively pursue funding opportunities such as COBRE and USAID.

Goal 4. **Focus Carolina Goals: Focus on Innovation and Focus on Community Engagement**

Pursue new clinical opportunities that align service, education, and research.

The SOM will actively pursue new practice opportunities centered around the Medical Home Concept, multidisciplinary teaching/learning experiences and outcomes research. Discussions are underway with developers (i.e., Bull Street development).

- C. Enumerate your college's short-term goals for the upcoming academic year in writing, either in a short paragraph or bulleted list, identifying progress (if it is a goal continuing from previous years) or plans for the upcoming year.

### **2012-2013 Academic Year Goals**

Goal 1. **Focus Carolina Goals: Focus on Educational Quality and Focus on Innovation**

Establish a stronger financial base and infrastructure in the SOM.

Move forward with PH in clinical integration and the PA Program.  
Complete implementation of a uniform electronic health record.

Goal 2. **Focus Carolina Goal: Focus on Educational Quality**

Collaborate with other health science schools to expand interprofessional education.

An interprofessional seminar was established between medical students and college of pharmacy students. Exploring ways to expand this seminar through collaboration with other health profession schools at USC.

Goal 3. **Focus Carolina Goal: Focus on Global Competitiveness**

SOM is one of 9 US medical schools and 15 international medical schools in the Global Health Learning Opportunities (GHLO) pilot program sponsored by the AAMC.

Through the GHLO pilot program, the SOM will accept 20 international medical students from medical schools around the world in early 2013 for a clinical elective experience. The program will also allow our students to rotate through clinical electives being offered by other international pilot program schools.

Goal 4. **Focus Carolina Goal: Focus on Leadership**

Complete several key searches in the SOM.

Recruit an Associate Dean for Research and Graduate Studies, Associate Dean for Administration and Finance, Chief Medical Officer/Associate Dean for Medical Affairs, and Chairs for the Departments of Family Medicine, Ophthalmology, and Surgery.

Goal 5. **Focus Carolina Goal: Focus on Innovation**

Foster research with SOM Research Development Fund as vehicle for dispersal of seed grant funds to faculty and promote collaborations and interdisciplinary research.

The SOM will continue to fund 5-6 faculty members' innovative and exploratory grant applications as well as provided bridge funds up to \$90,000 to promote research and collaborations between basic science and clinical faculty this coming year. Last year's RDF funding of 5 investigators has yielded 10 grant applications for external funding.

Organize additional strategic planning meetings to promote research collaborations, enable additional VA eligibility for SOM faculty, and continue efforts to provide material available from the VA hospital to Basic Science faculty. A SOM investigator with VA joint appointment was hired, which should enhance collaborative efforts, and an NIH R01 grant submitted based on VA-based materials has been funded.

**Proposed Academic Dashboard Measures for the SOM**

1. Pass rate for USMLE Step 1 and Step 2 Examinations.
2. AAMC Graduation Questionnaire response to graduate satisfaction with their medical education.
3. GRE scores for graduate school students.

## Unit Statistical Profile

1. Number of entering freshman for classes Fall 2008, Fall 2009, Fall 2010, and Fall 2011 and their average SAT and ACT scores. **Not applicable to SOM.**
2. Freshman retention rate for classes entering Fall 2008, Fall 2009, and Fall 2010. **Not applicable to SOM.**
3. Sophomore retention rate for classes entering Fall 2007, Fall 2008, and Fall 2009. **Not applicable to SOM.**
4. Number of majors enrolled in Fall 2008, Fall 2009, Fall 2010, and Fall 2011 by level (headcount and FTE; undergraduate, certificate, first professional, masters, doctoral).

	Headcount				FTE			
	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2008	Fall 2009	Fall 2010	Fall 2011
Certificate	6	13	33	35	0	0	0	0
First Professional	319	329	327	347	319	329	327	347
Masters	106	125	144	173	106	125	144	173
Doctoral	56	74	61	56	56	74	61	56
<b>Total</b>	<b>487</b>	<b>541</b>	<b>565</b>	<b>611</b>	<b>481</b>	<b>528</b>	<b>532</b>	<b>576</b>

5. Number of entering first professional and graduate students Fall 2008, Fall 2009, Fall 2010, and Fall 2011 and their average GRE, MCAT, LSAT, scores etc.

	Fall 2008		Fall 2009		Fall 2010		Fall 2011	
	Number	MCAT	Number	MCAT	Number	MCAT	Number	MCAT
First Professional	83	28.2	79	28.1	90	27.4	92	28.3

	Fall 2008		Fall 2009		Fall 2010		Fall 2011	
	Number	GRE	Number	GRE	Number	GRE	Number	GRE
Doctoral	26	1173	17	1205	15	1178	15	1153

6. Number of graduates in Fall 2010, Spring 2011, and Summer 2011 by level (undergraduate, certificate, first professional, masters, doctoral) and placement of terminal masters and doctoral students.

	Fall 2010	Spring 2011	Summer 2011
Certificate	0	14	0
First Professional	1	79	1
Masters	1	41	0
Doctoral	4	2	0
<b>Total</b>	<b>6</b>	<b>136</b>	<b>1</b>

Placement	Fall 2010	Spring 2011	Summer 2011
Terminal Masters	1	41	0
Terminal Doctoral	4	2	0
<b>Total</b>	<b>5</b>	<b>43</b>	<b>0</b>

7. Four-, Five, and Six-Year graduation rates for the three most applicable classes (undergraduate only). **Not applicable to SOM.**

8. Total credit hours generated by your unit regardless of major for Fall of 2010, Spring 2011, and Summer 2011.

	Fall 2010	Spring 2011	Summer 2011
Credit Hours	2,033	2,437	390

9. Percent of credit hours by undergraduate major taught by faculty with a highest terminal degree. **Not applicable to the SOM.**

10. Percent of credit hours by undergraduate major taught by full time faculty. **Not applicable to SOM.**

11. Number of faculty by title (tenure-track by rank, non-tenure track (research or clinical research by rank, etc.), as of Fall 2009, Fall 2010, and Fall 2011.

	Fall 2009	Fall 2010	Fall 2011
<b>Tenure-Track Faculty</b>			
Professor	23	27	28
Associate Professor	22	24	23
Assistant Professor	9	10	10

	Fall 2009	Fall 2010	Fall 2011*
<b>Research Faculty</b>			
Professor	2	6	4 (26)
Associate Professor	7	4	5 (4)
Assistant Professor	17	5	22 (10)
Instructor		1	1 (1)

	Fall 2009	Fall 2010*	Fall 2011*
<b>Clinical Faculty</b>			
Professor	25	83	20 (149)
Associate Professor	41	199	47 (158)
Assistant Professor	69	658	83 (566)
Instructor	8	48	11 (42)

\*Includes all salaried and (unsalaried) faculty. 2009 numbers reflect salaried faculty only.

12. Current number and change in the number of tenure-track and tenured faculty from underrepresented minority groups from FY 2010.

FY2010	Currently
17	17



## Scholarship, Research, and Creative Accomplishments

1. The total number and amount of external sponsored research proposal submissions by agency for FY2011.

	TOTAL	Federal NIH	Federal NSF	Federal OTHER	State	Local	Foundation	Commercial
Number of Applications	212	108	1	39	14	-	35	15
<b>Amount</b>	<b>\$44,434,993</b>	<b>\$27,853,746</b>	<b>\$87,781</b>	<b>\$4,595,153</b>	<b>\$6,909,353</b>	<b>\$1,355,436</b>	<b>\$2,519,113</b>	<b>\$1,114,411</b>

2. Summary of external sponsored research awards by agency for FY2011.

Number Grant Applications Awarded	Federal NIH	Federal NSF	Federal OTHER	State	Local	Foundation	Commercial
156	51	-	36	11	1	23	34

3. Total extramural funding processed through Sponsored Awards Management (SAM) in FY FY2011, and Federal extramural funding processed through SAM in FY2011.

Total Extramural Funding	Total Federal Extramural Funding	Total NIH Funding
FY 2011	FY 2011	FY 2011
\$40,613,301	\$23,202,455	\$12,125,625

\*\* Includes funding from PHR

4. Amount of sponsored research funding per faculty member in FY2011 (by rank, type of funding; e.g., federal, state, etc., and by department if applicable).

Funding FY 2011	Total Tenured/Tenure-Track Faculty FY 2011	Funding per Tenured/Tenure-Track Faculty FY 2011
\$ 15,522,172	67	\$231,674

**SOM FY 2011**

**ASSISTANT PROFESSOR:**

BY DEPT	TOTAL FUNDED		Total Funding	FED NIH	FED OTHER	STATE	LOCAL	FDTN	COMM	TOTAL check	TOTAL	% FACULTY	AMOUNT FUNDED
	IN RANK	RANK									# FACULTY IN RANK*	IN RANK WITH RESEARCH	IN DEPARTMENT PER RANK
CBA	4	Assistant Professor	939,863	708,863	-	-	-	231,000	-	939,863	8	50%	234,966
PMI	3	Assistant Professor	476,766	418,838	-	-	-	57,928	-	476,766	11	27%	158,922
FAMILY MED	1	Assistant Professor	222,537	-	97,537	-	-	125,000	-	222,537	13	8%	222,537
INTERNAL MED	4	Assistant Professor	-	-	-	-	-	-	-	-	17	24%	-
NEUROPSYCHIATRY	3	Assistant Professor	-	-	-	-	-	-	-	-	13	23%	-
OB/GYN	1	Assistant Professor	-	-	-	-	-	-	-	-	5	20%	-
PEDIATRICS	3	Assistant Professor	-	-	-	-	-	-	-	-	27	11%	-
<b>Total</b>	<b>19</b>		<b>1,639,166</b>	<b>1,127,701</b>	<b>97,537</b>	-	-	<b>413,928</b>	-	<b>1,639,166</b>	<b>117</b>	<b>16%</b>	<b>86,272</b>

\*Of the 117 Assistant Professors, 10 are on tenure-track.

Spreadsheet has been collapsed to only show those funded.

**ASSOCIATE PROFESSOR:**

BY DEPT	TOTAL FUNDED		Total Funding	FED NIH	FED OTHER	STATE	LOCAL	FDTN	COMM	TOTAL check	TOTAL	% FACULTY	AMOUNT FUNDED
	IN RANK	RANK									# FACULTY IN RANK*	IN RANK WITH RESEARCH	IN DEPARTMENT PER RANK
CBA	5	Associate Professor	1,157,562	1,157,562	-	-	-	-	-	1,157,562	10	50%	231,512
PMI	1	Associate Professor	-	-	-	-	-	-	-	-	4	25%	-
PPN	7	Associate Professor	1,131,104	796,612	23,524	-	-	-	535,848	1,355,984	10	70%	161,586
FAMILY MED	2	Associate Professor	99,997	-	99,997	-	-	-	-	99,997	11	18%	49,999
INTERNAL MED	4	Associate Professor	-	-	-	-	-	-	-	-	12	33%	-
NEUROPSYCHIATRY	1	Associate Professor	-	-	-	-	-	-	-	-	3	33%	-
OB/GYN	1	Associate Professor	-	-	-	-	-	-	-	-	2	50%	-
OPHTHALMOLOGY	1	Associate Professor	-	-	-	-	-	-	-	-	1	100%	-
PEDIATRICS	2	Associate Professor	-	-	-	-	-	-	-	-	13	15%	-
RADIOLOGY	1	Associate Professor	-	-	-	-	-	-	-	0	2	50%	-
SURGERY	1	Associate Professor	-	-	-	-	-	-	-	-	2	50%	-
<b>Total</b>	<b>27</b>	<b>Associate Professor</b>	<b>2,388,663</b>	<b>1,954,174</b>	<b>123,521</b>	-	-	-	<b>535,848</b>	<b>2,613,543</b>	<b>76</b>	<b>36%</b>	<b>88,469</b>

\*Of the 76 Associate Professors, 22 are on tenure-track or tenured.

Spreadsheet has been collapsed to only show those funded.

**PROFESSOR:**

BY DEPT	TOTAL FUNDED		Total Funding	FED NIH	FED OTHER	STATE	LOCAL	FDTN	COMM	TOTAL check	TOTAL	% FACULTY	AMOUNT FUNDED
	IN RANK	RANK									# FACULTY IN RANK*	IN RANK WITH RESEARCH	IN DEPARTMENT PER RANK
CBA	4	Professor	672,497	610,456	-	-	-	62,041	-	672,497	7	57%	168,124
PMI	7	Professor	4,719,762	4,647,803	-	80,000	-	(8,041)	-	4,719,762	6	117%	674,252
PPN	3	Professor	494,848	494,848	-	-	-	-	8,700	503,548	3	100%	164,949
FAMILY MED	2	Professor	2,063,085	282,522	300,000	45,331	-	1,435,232	-	2,063,085	5	40%	1,031,543
GENETICS	1	Professor	65,802	-	-	65,802	-	-	-	65,802	1	100%	65,802
INTERNAL MED	8	Professor	3,257,801	-	-	-	-	3,257,801	-	3,257,801	9	89%	407,225
NEUROLOGY	1	Professor	141,581	60,249	-	-	-	81,332	-	141,581	2	50%	141,581
NEUROPSYCHIATRY	3	Professor	54,000	-	-	-	-	-	54,000	54,000	7	43%	18,000
ORTHOAEDICS	1	Professor	-	-	-	-	-	-	-	-	2	50%	-
PEDIATRICS	4	Professor	-	-	-	-	-	-	-	-	6	67%	-
SURGERY	1	Professor	-	-	-	-	-	-	-	-	4	25%	-
<b>Total</b>	<b>35</b>	<b>Professor</b>	<b>11,469,376</b>	<b>6,095,878</b>	<b>300,000</b>	<b>191,133</b>	-	<b>4,828,365</b>	<b>62,700</b>	<b>11,478,076</b>	<b>56</b>	<b>63%</b>	<b>327,696</b>

\*Of the 56 Professors, 28 are on tenure-track or tenured.

Spreadsheet has been collapsed to only show those funded.

LIBRARIAN BY DEPT	TOTAL FUNDED		Total Funding	FED NIH	FED OTHER	STATE	LOCAL	FDTN	COMM	TOTAL check	TOTAL	% FACULTY	AMOUNT FUNDED
	IN RANK	RANK									# FACULTY IN RANK*	IN RANK WITH RESEARCH	IN DEPARTMENT PER RANK
LIBRARY	1	Librarian	24,967	24,967	-	-	-	-	-	24,967	7	14%	24,967
<b>Total</b>	<b>1</b>	<b>Librarian</b>	<b>24,967</b>	<b>24,967</b>	-	-	-	-	-	<b>24,967</b>	<b>7</b>	<b>14%</b>	<b>24,967</b>

\*All Librarians are on tenure-track or tenured.

<b>TOTAL SOM FY2011</b>	<b>84</b>	<b>TOTAL SOM</b>	<b>15,522,172</b>	<b>9,202,720</b>	<b>521,058</b>	<b>191,133</b>	-	<b>5,242,293</b>	<b>598,548</b>	<b>15,785,752</b>	<b>256</b>	<b>33%</b>	<b>184,788</b>
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5. Total sponsored research expenditures per tenured/tenure-track faculty for FY2011, by rank and by department, if applicable.

Assistant Professors:

Department	Funding FY2011	Total Tenured/Tenure Track Faculty FY2011	Funding per Tenured/Tenure Track Faculty FY2011
Cell Biology & Anatomy	\$939,863	3	\$313,288
Pathology, Microbiology & Immunology	\$476,766	4	\$119,192
Pharmacology, Physiology & Neuroscience	\$0	1*	\$0
Family Medicine	\$222,537	1	\$222,537

\*1 Assistant Professor added however their grants were not transferred during FY 2011.

Associate Professors:

Department	Funding FY2011	Total Tenured/Tenure Track Faculty FY2011	Funding per Tenured/Tenure Track Faculty FY2011
Cell Biology & Anatomy	\$1,157,562	8	\$144,695
Pathology, Microbiology & Immunology	\$0	3	\$0
Pharmacology, Physiology & Neuroscience	\$1,131,104	8	\$141,388
Family Medicine	\$99,997	1	\$99,997
Pediatrics	\$0	1	\$0

Professors:

Department	Funding FY2011	Total Tenured/Tenure Track Faculty FY2011	Funding per Tenured/Tenure Track Faculty FY2011
Cell Biology & Anatomy	\$672,497	5	\$134,499
Pathology, Microbiology & Immunology	\$4,719,762	5	\$943,952
Pharmacology, Physiology & Neuroscience	\$494,848	2	\$247,424
Family Medicine	\$2,063,085	4	\$515,771
Neuropsychiatry	\$54,000	1	\$54,000
Ophthalmology	\$0	1	\$0
Internal Medicine	\$3,257,801	2	\$1,628,901
Surgery	\$0	2	\$0
Genetics	\$65,802	1	\$65,802
Neurology	\$141,581	1	\$141,581

Librarian:

Department	Funding FY2011	Total Tenured/Tenure Track Faculty FY2011	Funding per Tenured/Tenure Track Faculty FY2011
Medical Library	\$24,967	7	\$3,567

6. Number of patents, disclosures, and licensing agreements in fiscal years 2009, 2010, and 2011.

Fiscal Year	Invention Disclosures	Provisional Patent Applications	Non-Provisional Patent Applications	Issued patents
2009	13	8	2	0
2010	1	5	4	1
2011	5	4	3	4

\*Non-provisional patent applications include only newly filed US Utility and PCT applications.

**Please verify the information provided by the Office of Continuing Education:**

Total continuing education units (standard University CEUs and Institutional CEUs) and continuing education activity generated for Fall 2010, Spring 2011, and Summer 2011.

	Fall 2010	Spring 2011	Summer 2011
CME	265.5	356	253.25

## Appendix 1

Please provide the following statistical information as an appendix to your Blueprint:

1. Placement of graduate students, terminal masters, and doctoral students for the three most recent applicable classes.

Placement	Fall 2010	Spring 2011	Summer 2011
Terminal Masters	1	41	0
Terminal Doctoral	4	2	0
<b>Total</b>	<b>5</b>	<b>43</b>	<b>0</b>

2. Number of undergraduate and graduate credit hours in Fall 2010, Spring 2011, and Summer 2011, stated separately, taught by tenured and tenure-track faculty, by instructors, by non-tenure-track faculty (clinical and research), by temporary faculty (adjuncts), by full-time faculty, and faculty with terminal degrees.

	Tenured/Tenure-Track	Instructors	Non-tenure track	Temporary
Credit Hours	1,329	2	3,374	121

## Appendix 2

Please address the questions in the following sections as an appendix to your Blueprint.

### Student Retention

1. Have you assessed your retention methods and activities to determine their effectiveness in retaining freshman and sophomores?
  - a. Which retention methods are effective and why do you believe that they work?
  - b. What retention methods have you tried that are ineffective?

Not applicable to the SOM

2. Describe the advising in your college. How do you determine the effectiveness of your college's advising. Are there any additional advising activities needed to provide students the assistance they need to navigate through the Carolina Core and major to graduate on time?

All incoming M.D. degree students are assigned faculty advisors and peer advisors; others are chosen as they progress through the program. Graduate program students choose their advisors as part of their dissertation advising committee and the program directors of the two certificate programs serve as their student advisors. Student advising is assessed as part of the AAMC annual graduation questionnaire. The Carolina Core is not applicable to graduate and professional students in the SOM.

3. What types of student support do you find to be the most beneficial to your students in terms of retention and successful progress toward their degrees?

While across the SOM retention rates are high and most students receive their degrees on time, for those that do not, given the highly specialized requirements for these degrees, individual advising seems to work best.

## Student Graduation and Placement

1. Have you assessed your degree programs to determine if program requirements are reasonable in terms of time toward graduation?
    - a. What changes have you made?
    - b. What further changes are needed?
- **Ph.D. in Biomedical Sciences Program:** The Biomedical Science Ph.D. is highly rated in terms of time to degree and in terms of placement of our students into desired positions following graduation. Currently our students take, on average, just under five years to complete the Ph.D. degree requirements. The students who graduated during the 2011 calendar year obtained their Ph.D. at 4.7 years (includes individuals who graduated Spring 2011, Summer 2011 and Fall 2011). We are striving to assist our students in efficiently progressing through the Ph.D. program. We are developing specific timelines for completion of milestones within the Ph.D. program, including coursework, committee selection, comprehensive exams, Ph.D. proposal approval, and dissertation defense. The staff of the Biomedical Science Graduate Office monitors the progression of each student and sends reminders of important milestones. We have also modified our required curriculum in the Biomedical Science Program to allow more flexibility in meeting didactic course requirements. This should help our students meet these requirements in a timely manner while maintaining the rigor of our program.
  - **Biomedical Sciences Ph.D. Program:** A curriculum committee chaired by Lawrence Reagan has met to revise the curriculum requirements for students entering into the SOM's program. This committee designed and received approval for additional course offerings and added components such as professional development to the curriculum.
  - **M.S. in Biomedical Science Program:** The M.S. in Biomedical Science Program is designed to be a two-year program whose foundation is a series of didactic courses and a thesis covering significant laboratory or library research. Our students typically complete this program in four to five semesters. We closely track the progression of our students in this program. We have established a series of milestones that should be accomplished for efficient progression through the program including: 1) completion of 15 to 19 hours of didactic core courses during the first two semesters, 2) selection of a thesis mentor and thesis advisory committee during the first year in the program, 3) completion of didactic elective courses during the third semester, 4) submission of a thesis proposal by the middle of the third semester, and 5) completion of the thesis and thesis defense during the fourth semester. These are guidelines and we continue to adjust them as necessary for the diverse students who enter the M.S. program. For instance, we have admitted several individuals from Iraq

associated with the Higher Committee for Education Development (HCED) initiative. These individuals will be on a slightly different trajectory.

- **Graduate Certificate in Biomedical Science (GCBS) Program:** The GCBS Program provides broad-based interdisciplinary training in Biomedical Science to individuals who wish to expand or change their educational background and training to fulfill personal, pre-professional, or other career advancement goals. In particular, the GCBS is designed to help students wishing to enter professional school (medical, dental, veterinary) improve their credentials. During the three years of the program, we have achieved the following:
  - Increased the student population from eight to twenty.
  - We now provide all the courses on SOM campus by offering alternative core courses (Molecular Biology & Biochemistry) and new electives (Immunology & Gross Anatomy)
  - Fifty percent of our students have been successful in being admitted to Medical Schools (in-state and out of state).
  
- **Masters in Nurse Anesthesia Program:** Degree requirements are consistent with accreditation standards. Courses are offered regularly so that students complete the degree in 27 months, which is typical compared to other US programs for this degree.
  - To address latest accreditation requirements, a new course in *Health Assessment in Anesthesia* was proposed to, and approved by, Graduate Council in fall 2011. Beginning the summer of 2012, this course will be offered in summer of year 1 of the program curriculum so that the total time to degree would not be increased. Credit hours for other courses have been adjusted so that the total credits hours required by the program also remain unchanged.
  - The program will need to convert to a professional doctoral program by 2020 (e.g., Doctorate in Nurse Anesthesia Practice) to meet national accreditation requirements. This will likely increase the total time to degree and require additional coursework centered on research competence and a capstone project. Clinical faculty will be required to hold a doctorate degree. Several of the current clinical faculty with a Masters degree have begun doctoral programs so that they will be eligible to continue when this new standard becomes operational. There will be a variety of challenges in converting to a doctoral program that run the gamut from political to fiscal to faculty manpower.
  
- **Medical Doctor Degree Program:** The curriculum of the M.D. degree program is monitored by the M.D. Curriculum Committee and largely determined by LCME accreditation requirements. The curriculum committee periodically assesses the requirements towards graduation and revises the curriculum as necessary.

2. Outline what measures you have put in place to assist students with intern placement and job placement.



- **Ph.D. in Biomedical Sciences Program:** Students who complete the Biomedical Science Ph.D. Program generally go on to become postdoctoral fellows, teach at undergraduate institutions or move to positions in industry. Our program is small enough that we can tailor some of the training aspects towards specific career goals. The faculty in our Pharmacology, Physiology, and Neuroscience Department have developed a series of courses focused on survival skills for Ph.D.s including a course discussing career paths in the biomedical science field. Realizing that networking is a critical aspect of career development, we encourage our students to meet with seminar speakers and to attend scientific conferences. We have recently instituted policies to utilize funds obtained from the Provost's Office to support student travel to such conferences.
  
- **M.S. in Biomedical Sciences Program:** Students in the M.S. in Biomedical Science program take a variety of career paths including matriculation into professional school (primarily medical school), progression into Ph.D. programs or obtaining various positions in the biomedical field. The SOM Graduate Office plays an important role in advisement of students as often the students are in the M.S. program because they are not sure where they want to go career-wise. We assist them in evaluating their career options and put them into contact with individuals in the medical admissions office if their desire is to advance into professional school. We have also streamlined the process for progress from the M.S. to the Ph.D. in Biomedical Sciences.
  
- **Graduate Certificate in Biomedical Science (GCBS) Program:** The GCBS Program is considered a preparatory program for entry into health professional schools, so several aspects of the program are designed to achieve placement in such programs:
  - Dr. Joshua Thornhill, Associate Dean for Medical Education and Academic Affairs, has been providing a comprehensive series of lectures to help students in the preparation of an application to the SOM and navigate through the interview process.
  - The Director of Admissions for the Virginia College of Osteopathic Medicine was invited to brief the students on the application and selection process for the osteopathic medical schools.
  - We also offer counseling on a one-on-one basis to ensure students are making contacts to shadow doctors/dentists while in the GCBS program.
  
- **Masters in Nurse Anesthesia (NA) Program:** NA students gain clinical experience at a number of sites throughout the state. Credit hours are earned for this training in the Practicum for Nurse Anesthesia (PHPH 775) course. The clinical training sites provide an excellent opportunity for students to demonstrate their skills for future employment. NA graduates are > 95% successful in finding jobs within six months of completing their degree.
  
- **Medical Doctor Degree Program:** Fourth year medical students participate in a match process that determine their placement for internship and residency. They are counseled through this process by the Office of Student and Career Services and their faculty advisors.

3. Outline the measures that you use to track graduates with baccalaureate, masters, and doctoral degrees.
  - **Biomedical Sciences Ph.D. and M.S. Programs:** We maintain a database that includes information about our recent M.S. and Ph.D. recipients. We contact them within the first few months after graduation to provide them an opportunity to provide feedback regarding the Biomedical Science Program. Individuals in the SOM alumni office also maintain contact with students and receive periodic updates regarding their professional advancement.
  - **Graduate Certificate in Biomedical Science (GCBS) Program:**
    - We contact the students within the first few months of completion of the program and give them an opportunity to provide feedback regarding the Certificate Program.
    - We keep in contact with the past students regarding their academic as well as professional advancement and maintain a computerized database which includes all the relevant information regarding the current and past students.
  - **Masters in Nurse Anesthesia Program:** Similar to the M.S. and Ph.D. programs, the NA Program tracks all graduates immediately after graduation and periodically during their careers. Updates regarding their professional advancement are monitored and contact information retained.
  - **Medical Doctor Degree Program:** All graduates and their program directors are surveyed one year after graduation to determine the adequacy of the curriculum as well as the graduates performance in their internship. The alumni office tracks where graduates establish their practices.

### **Distributed Learning**

1. Outline your college's involvement with distributed learning.
  - We currently do not utilize distributed learning in the Biomedical Science Ph.D. and M.S. programs.
  - **Graduate Certificate in Biomedical Science (GCBS) Program:** We currently do not utilize distributed learning in GCBS Program, although the GCBS Program students attend a course on Physiology (PHPH 701) which is available as a distance education course to satellite campuses.
  - **Masters in Nurse Anesthesia Program:** In 2009, the anesthesia program received approval from the Council on Accreditation for Greenville Hospital System (GHS) as a primary clinical site, in addition to PH Richland Hospital in Columbia. Starting in spring 2010, students enrolled in the program with their primary location either in Columbia or

Greenville. Three of the required courses in the program are now offered in a distributed learning/distance education format with two-way, interactive high-definition videoconferencing; these courses have more than 51% of their content originating in Columbia due to the availability of faculty there. All other didactic courses also use two-way, interactive high-definition videoconferencing, but the origin of faculty content is more equally shared between Greenville and Columbia locations.

- **Medical Degree Program:** A large portion of the interprofessional education program is done through Blackboard with students and faculty commenting on and reviewing comments on presented cases. Both the Pediatrics and Family Medicine clerkships utilize computerized cased-based modules.
2. What measures have you taken to expand the availability of distributed learning courses in your college?
- **Masters in Nurse Anesthesia Program:** Classrooms at GHS and SOM– Columbia VA and Richland campuses have been outfitted with equipment for two-way, interactive high-definition videoconferencing. Faculty have been trained for teaching in this modality. Student feedback is regularly solicited and carefully considered regarding learning opportunities in a distributed education format. All classes have adopted a system to record classroom distributed learning presentations for asynchronous use by students within the program. Lecture recordings are secured and distributed via the course management system (Blackboard).
  - **Medical Degree Program:** The pilot program in interprofessional education this semester was our first effort in using asynchronous learning through the use of Blackboard to bring students from different schools together to work on a common project.
3. What measures have you taken to ensure the quality of distributed learning courses?
- **Masters in Nurse Anesthesia Program:** As noted, to deal with episodic internet or equipment failures, lecture capture technology (Echo360) is now routinely used so that recorded class content is available via Blackboard to students who have experienced a technical problem during the real-time course session. This system also allows students to download classroom presentations to facilitate focused review and improve learning.
  - **Medical Degree Program:** Faculty monitor student comments and participation with both the cased-based modules in the clinical clerkships and the student comments in the interprofessional seminar on Blackboard.
4. If applicable, describe the challenges your college has faced in taking distributed learning courses to scale. Have you participated in offering virtual laboratories? What measures do you use to ascertain their success?
- **Masters in Nurse Anesthesia Program:** Technical equipment and staff support have presented challenges in expense and operational stability. We have not used virtual

laboratories. Student surveys have been used to identify problems and assess improvement. A school-wide Distance Education Task Force was convened in 2010-11 by the dean to assess the current resources and recommend future directions. The Dean endorsed the recommendations of the task force and has taken positive steps to improve the quality and reliability of distributed learning services.

## **USC Connect and Community Engagement**

1. Outline the measures your college will take to encourage use of USC Connect.

The nature of the professional and graduate programs in the SOM already requires our students to integrate their course work with first hand learning experiences outside the classroom. Except for the Biomedical Sciences program; the M.D., Nurse Anesthesia, and Rehabilitation all have extensive clinical experiences in the community and throughout the state.

2. Describe the college's plans to support faculty use of reflection in the classroom and develop expertise in integrated learning.

As noted above the SOM degree programs already fully integrate classroom teaching with real world experience and students bring those experiences back into their small groups and classrooms for discussion. In addition the M.D. program is moving ahead with an interprofessional curriculum to further integrate learning across disciplines.

3. How many of your classes involved service learning? Undergraduate research? And international experiences?

Medical students are required to volunteer in the local free medical clinic as part of their Introduction to Clinical Medical course. Many student groups involve community service into their programs. Undergraduate research does not apply to the SOM. Approximately one-quarter of our medical students have some type of international experience or elective during their four years.

- a. Has the number increased with time?

No, the number has remained fairly constant.

- b. Is the number appropriate for your discipline?

Yes, it is appropriate.

4. What additional opportunities does your college plan to provide for engaging students beyond the classroom?

As noted above the SOM already has a full range of experiences beyond the classroom and will continue to explore other opportunities as necessary.

## Faculty Hiring/Retention and Ph.D. Programs

1. Number of faculty hired and lost for AY2009, AY2010, and AY2-11 (by department if applicable, and by rank). Give reason for leaving if known.

### Number of Faculty Hired

Department	Rank	AY2009	AY2010	AY2011
Cell Biology & Anatomy	Assistant Professor Research Assistant Professor Research Associate Professor Professor	1	1	1 1 1
Family & Preventive Medicine	Assistant Professor of Clinical Instructor of Clinical Professor	1	2 1	1 2 1
Internal Medicine	Assistant Professor of Clinical Associate Professor of Clinical Instructor of Clinical	2	1 2	4 1
Medical Library	Instructor/Affiliate Web Services Librarian	1 1		
Neurology	Professor Assistant Professor of Clinical		1	1
Neuropsychiatry & Behavioral Science	Assistant Professor of Clinical Associate Professor of Clinical Instructor of Clinical		4 1	2 1
Neurosurgery	Assistant Professor of Clinical		1	1
Obstetrics & Gynecology	Assistant Professor of Clinical Associate Professor of Clinical Instructor of Clinical	1 1		2
Ophthalmology	Assistant Professor of Clinical	1	1	1
Orthopaedic Surgery	Assistant Professor of Clinical	1		1
Pathology, Microbiology, & Immunology	Assistant Professor Clinical Assistant Professor		2 1	
Pediatrics	Assistant Professor of Clinical Instructor of Clinical	1	2	3 1
Pharmacology, Physiology, & Neuroscience	Assistant Professor Research Assistant Professor			1 1
Surgery	Assistant Professor of Clinical	1		1

## Number of Faculty Lost

Department	Rank/Reason	AY2009	AY2010	AY2011
Cancer Research Center	<b>Research Assistant Professor</b> termination of temporary contract	2		
Cell Biology & Anatomy	<b>Assistant Professor</b> moved out of job area <b>Distinguished Professor Emeritus</b> early retirement <b>Research Assistant Professor</b> moved out of job area <b>Research Associate Professor</b> personal	1	1	1 1
Clinical Affairs	<b>Associate Professor of Clinical</b> transfer to another state agency	1		1
Clinical Research & Special Projects	<b>Distinguished Professor Emeritus</b> full retirement		1	
Family & Preventive Medicine	<b>Associate Professor of Clinical</b> better opportunity, non-state personal <b>Assistant Professor of Clinical</b> better opportunity, non-state <b>Instructor of Clinical</b> personal	1	1 1 1	1 1
Genetics	<b>Research Assistant Professor -</b> personal			1
Internal Medicine	<b>Assistant Professor of Clinical</b> better opportunity, non-state transfer to another state agency personal returned to school moved out of job area termination of temporary contract <b>Associate Professor of Clinical</b> personal <b>Instructor of Clinical</b> moved out of job area <b>Research Professor</b> full retirement <b>Professor of Clinical</b> moved out of job area full retirement personal	2      1 1 1	1 1 1      1 2	2 1 1 1

Department	Rank/Reason	AY2009	AY2010	AY2011
Legal Affairs	<b>Assistant Director</b> different job with state, different agency <b>Associate Professor of Clinical</b> full retirement <b>Assistant Professor of Clinical</b> personal	1	1	1
Neurology	<b>Assistant Professor of Clinical</b> better opportunity, non-state <b>Professor</b> full retirement		1	1
Neuropsychiatry & Behavioral Science	<b>Assistant Professor of Clinical</b> moved out of job area better opportunity, non-state transfer to another state agency personal <b>Instructor of Clinical</b> termination of temporary contract personal <b>Associate Professor of Clinical</b> personal <b>Distinguished Professor Emeritus</b> full retirement <b>Professor of Clinical</b> full retirement transfer to another state agency early retirement	1 1 1	1 1 1	1 2 1 1 1 2 1
Neurosurgery	<b>Professor of Clinical</b> personal			1
Obstetrics & Gynecology	<b>Assistant Professor of Clinical</b> moved out of job area <b>Associate Professor of Clinical</b> moved out of job area <b>Professor</b> personal <b>Research Assistant Professor</b> job eliminated	1		1 1 1 1
Office of the Dean	<b>Distinguished Professor</b> full retirement <b>Research Assistant Professor</b> deceased		1 1	

Department	Rank/Reason	AY2009	AY2010	AY2011
Ophthalmology	<b>Associate Professor of Clinical</b> moved out of job area <b>Professor</b> moved out of job area <b>Assistant Professor of Clinical</b> moved out of job area	1 1		2
Pathology, Microbiology, & Immunology	<b>Professor</b> moved out of job area different job with state, same agency <b>Distinguished Professor Emeritus</b> full retirement <b>Professor Emeritus</b> full retirement <b>Research Assistant Professor</b> moved out of job area	1	1 1 1 1	
Pediatrics	<b>Assistant Professor of Clinical</b> better opportunity, non-state personal <b>Professor of Clinical</b> personal	2	1	1 1 1
Pharmacology, Physiology, & Neuroscience	<b>Professor Emeritus</b> full retirement <b>Associate Professor</b> personal <b>Research Assistant Professor</b> full retirement different job with state, same agency	1		1 1 1
Surgery	<b>Assistant Professor of Clinical</b> moved out of job area personal <b>Professor</b> full retirement <b>Associate Professor of Clinical</b> different job with state, different agency	1 1		1 1
University Primary Care	<b>Associate Professor of Clinical</b> full retirement			1



2. Number of post-doctoral scholars (Ph.D., non-faculty hire) in FY2009, FY2010, and FY2011.

FY2009	FY2010	FY2011
14	15	15

3. Anticipated losses of faculty by year for the next five years. Supply reasons for departure, if known; e.g., TERA period end, conventional retirement, resignation, etc. Describe planned hiring over the next five years (by department, if applicable).

It is anticipated that 4 faculty members will be lost over the next five years due to TERA period end.

4. Outline your college's actions to improve graduate education, to improve its NRC and other rankings.

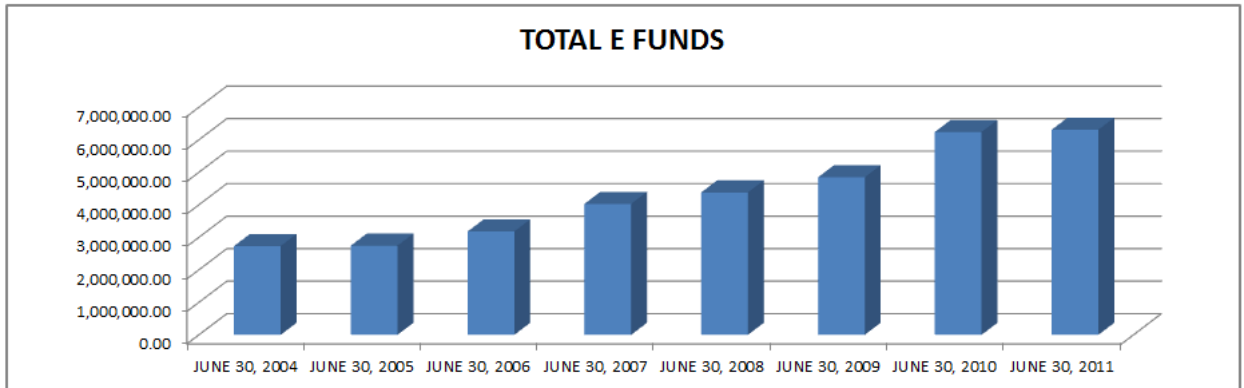
- We are taking a multifaceted approach to continually improving the Biomedical Science Ph.D. Program from recruitment of the best students to training/development while they are in the program.
- **Recruitment:** Five years ago, the SOM spearheaded the formation of the university-wide Integrated Biomedical Science Ph.D. Program. This has developed into an outstanding recruitment tool as aspiring Ph.D. students are very attracted to the integrated nature of the program. The number of applicants to this program has risen each year to now well over 100 applicants each year. The quality of the applicants matriculating into the program has also improved each year. Students entering into the program in the Fall 2011 semester had an average GRE of over 1200 and an average GPA of over 3.5. Two of our students received Presidential Recruitment Fellowships.
- We have also expanded our efforts to attract high-quality minority students into our program. Due in part to the PREP program run by Dr. Bert Ely and Dr. Richard Hunt, the Biomedical Science Ph.D. Program has a relatively large proportion of minority students (approximately 30%). We have increased our recruitment efforts the past two years by sending recruitment materials to numerous undergraduate institutions that have large numbers of minority students. Representatives from the Biomedical Science Program also participated in recruitment efforts at the Annual Biomedical Research Conference for Minority Students this past fall. At present, almost 50% of our current US applicants for Fall 2012 admission are minorities.
- **Fellowships and Funding:** A major obstacle impeding the growth of the Biomedical Science Ph.D. Program is funding, including that of student stipends and research support. The program provides stipend support for all first-year students and tuition support for each year the students are in the program. We are encouraging students to submit applications for independent fellowship support, and several of our students have been successful in obtaining predoctoral fellowships from NIH and other organizations. We routinely advertise fellowship opportunities and deadlines to our students. As the quality of our matriculants improves (GRE scores, undergraduate GPA, etc.), we will

position ourselves to be competitive for an institutional training grant. Obtaining such a grant would greatly enhance the effectiveness and prestige of the Biomedical Science Ph.D. Program.

- **Presentations and Publications:** Important measures of productivity of Ph.D. students is the number of presentations given at scientific conferences and peer-reviewed publications. We have begun a program to provide financial support to students presenting data at scientific conferences. This will hopefully alleviate some of the financial burden faculty mentors face in trying to send students to conferences and allow the students to attend more conferences during their Ph.D. training. The Biomedical Science Graduate Program has also begun to publicize manuscripts published by our Ph.D. students.
5. Describe your methods for placing your Ph.D. and other terminal degree students in tenure-track positions at high-ranking institutions.
- Students graduating from the Biomedical Science Ph.D. Program are generally very competitive for desired post-graduate positions including postdoctoral and faculty positions. Productivity as a graduate student is an important parameter used to evaluate applicants for faculty positions. From orientation onward, we emphasize to our students the importance of research productivity in their future competitiveness in the job market. As mentioned above, the Biomedical Science Program provides funds to support student travel to scientific conferences. This provides the students opportunities to network with potential future employers. The graduate program also sponsors a number of seminar speakers during the academic year. Students are invited to have lunch with speakers to discuss career issues and job opportunities. The Department of Pharmacology, Physiology and Neuroscience has developed a series of courses focused on survival skills in the biomedical science area. Students are encouraged to take these to better equip themselves for the job market.

## Funding Sources

1. "E" fund balances, by account, as of 30 June 2009, 2010, and 2011.



	<u>JUNE 30, 2009</u>	<u>JUNE 30, 2010</u>	<u>JUNE 30, 2011</u>
<b>TOTAL E FUNDS</b>	<b>4,845,803.95</b>	<b>6,238,528.95</b>	<b>6,307,822.35</b>

*\*PER USC ACCOUNTING INTRANET*

See attached Financial Report (Attachment 1).

2. Gifts and pledges received in FY2011.

Per the SOM Development Office, the gifts and pledges received in FY2010-2011 was \$2,311,534.

## Research

1. Describe the interdisciplinary research that is ongoing in your college.

### Cell Biology and Anatomy

#### Dr. Daping Fan

- Collaborate with Dr. Walden Ai in Pathology, Microbiology, and Immunology to study the effects of dyslipidemia on cancer metastasis. Plan to submit an R01 to NIH in October 2012.
- Collaborate with Dr. Angela Murphy in Pathology, Microbiology, and Immunology to study the role of miR155 in macrophage function, adipose tissue inflammation and colon cancer development. We have submitted an R21 to NIH.
- Collaborate with individuals at Vanderbilt and University of regarding lipoprotein metabolism and atherosclerosis).
- Collaborate with Dr. Tianyi Wang at University of Pittsburg to investigate the anti-HCV activity of a lipid-modifying apoE-derived peptide. Published a paper in Hepatology and submitted an R01 grant application to NIH (not funded, plan to resubmit).

#### Dr. Charles Blake

- Tissue samples have been collected for future analysis and other data have been collected for collaborative studies with researchers at two different universities, SUNY Upstate and the University of Nebraska Medical Center.

#### Dr. Sue Lessner

- Ongoing collaboration with Mike Sutton in Mechanical Engineering (multiple joint publications). Co-PI on current NSF grant CMMI-0926301 “Novel Experimental and Theoretical Approaches to Understand Biomechanics of Atherosclerotic Plaque Rupture.” Have also shared several GEAR grants through the NSF EPSCoR RII program.
- Xiaomin Deng in Mechanical Engineering is also a Co-PI on the new NSF grant submitted in October 2011, NSF 1200358 “Biomechanics of arterial tissue failure at multiple length scales.”
- Ongoing collaboration with Dr. Stephane Avril and his group at ENSM-SE in St. Etienne, France (1 joint publication to date). Efforts under way to establish a joint degree program in Biomechanics/Biomedical Engineering with ENSM-SE
- Summer REU program in Biomedical Engineering with Melissa Moss in Chemical Engineering (I am co-PI), NSF EEC-1005138, “REU Site: Biomolecular and Biomechanical Interactions” (PI: Moss).
- Ongoing collaboration with Dr. Bruce Gao in Bioengineering at Clemson through the SC BioMat COBRE grant, involving use of his multiphoton-SHG microscope for data collection

- Collaboration with Dr. Rich Goodwin on my current GEAR grant, “Mechanical and Histological Characterization of Cell-induced Remodeling of Vascular Constructs”
- Currently establishing new collaboration with Dr. Michelle Bendeck at University of Toronto, involving sharing of apoE collagen-8 triple knockout mice

Dr. Richard Goodwin

- NIH RO1 with Dr. John Weidner who is Professor and Chair of Chemical Engineering at USC.
- Submitted an RO1 with Ehsan Jabbarzadeh and Dr. Jay Blanchette both Assistant Professors in Chemical Engineering at USC.
- Submitted an ASPIR grant with Dr. Melissa Moss, Associate Professor, and Mark Uline, Assistant Professor, in Chemical Engineering at USC and Dr. Tarek Shazley an Assistant Professor in Mechanical Engineering at USC.
- Published and submitted an RO1 with Dr. Bruce Gao who is an Associate Professor in Bioengineering at Clemson.
- Submitted a manuscript and a RO1 with Dr. Delphine Dean who is an Assistant Professor in Bioengineering at Clemson University.
- Submitted an NSF proposal with Dr. Arash Kheradvar who is an Assistant Professor at the University of California Irvine. We also are preparing to submit a manuscript.
- Working with Dr. Roger Sawyer who is Executive Dean & Senior Associate Dean for Graduate Education, College of Arts and Sciences at USC.

Dr. Jay Potts

- Collaborations and papers and grants with Dr. Qian Wang from the College of Pharmacy.
- Collaborations and papers and grants with Dr. Walden Ai in Pathology, Microbiology, and Immunology.
- Collaborations and papers and grants with Dr. Robert Gourdie at the MUSC.
- Collaborations and papers and grants with Dr. Jenny Amos at University of Illinois.
- Collaborations and papers and grants with Dr. Russel Norris from MUSC.
- Collaborations and papers and grants with Dr. Roger Markwald from MUSC.
- Collaborations and papers and grants with Dr. Mike Yost from MUSC.

Dr. Robert Price

- Collaborations with the Center for Colon Cancer Research and COBRE grant.
- Equipment grants and a large number of collaborations with Public Health, Biology, Chemistry, Bioengineering, etc., through the IRF.

Dr. Frank Spinale

Institutional Collaborations within the SOM

- Interstitial myocardial measurements of bioactive peptides and enzymes. A large NIH subcontract developed and awarded to Dr. Gregory Brower.
- Gold nanoparticles for the treatment of cardiovascular disease. Two initiatives have been developed with Dr. Edie Goldsmith; one in thoracic aneurysms and one in myocardial infarction.
- VA Research Initiatives. Facilitating multiple faculty with VA eligibility and funding.

Inter-Institutional Collaborations

- College of Engineering. Establishing partnerships in technology development in microfluidics and fluorescence.
- MUSC. Have developed several funded NIH initiatives and plan on an inter-institutional NIH grant submission in the spring of 2012.
- University of Pennsylvania. A collaborative NIH funded project on the use of polymer chemistry for localized drug delivery in cardiovascular disease.
- Yale University. A collaborative NIH funded project for developing novel imaging agents to detect early development of cardiovascular disease.

Dr. Joseph Janicki

- Medical College of Wisconsin. A collaborative effort to examine the regulatory pathway of estrogen in cardiac mast cells.

Dr. Taixing Cui

- Shandong China – Collaborative research regarding the role of Nrf2 in adverse myocardial remodeling secondary to chronic increases ventricular wall stress and/or ischemic damage. This collaboration has led to eight Chinese graduate students completing their dissertation research in my laboratory during the past.

Dr. Holly LaVoie

- Last year, began a collaboration with the department of Ob/Gyn. We had a joint IRB protocol approved in August 2011 to obtain human ovarian biopsies for my research.

## **Family and Preventive Medicine**

### **Dr. Kevin Bennett**

- Office of Rural Health Policy, Health Resources and Services Administration; South Carolina Rural Health Research Center. 2005-2012. Co-Investigator, 50% effort (Public Health).
- Agency for Healthcare Research and Quality. Researching Implementation and Change while Improving Quality (R18). The Organizational Assessment of Change (OAC). Role: Principal Investigator, 40%. Submitted September 2011. \$840,709 (Public Health, PH).
- Agency for Healthcare Research and Quality Small Research Grant Program (R03). Bridging the Quality Gap. Role: Co-Investigator, 10% effort. Resubmission, September 2011. \$97,284. (SCHA, Clemson).

### **Dr. Suzanne McDermott and Dr. Josh Mann**

- Interdisciplinary collaborations across specialties (with Obstetrics and Gynecology) and disciplines/schools (Biostatistics in Public Health and Economics in Business).

### **Dr. Scott Strayer**

- Has been meeting with faculty from various Departments (Psychiatry, School of Public Health) to identify interdisciplinary research opportunities.
- Has connected with Jim Thrasher at School of Public Health regarding common research area in smoking cessation. This has led to meeting with statewide smoking cessation leaders at DHEC and MUSC, and he now participates in the South Carolina Tobacco Research Interest Group (SC TRIG) led by Matt Carpenter and Michael Cummings at MUSC.
- Have hired an RA with extensive experience in School of Public Health, with potential to connect us better with opportunities for collaborative proposals.

## **Internal Medicine**

### **Inter-USC**

- NIH Application submitted partnering SOM/Infectious Diseases with faculty from Public Health/Epidemiology “Women’s Interagency HIV Study” \$16,346,004 total.
- NSF Application submitted partnering SOM/Infectious Diseases with faculty from Computing and Engineering “From Theory to Practice: Meeting the Information Assurance Needs of the 21st Century” unknown total.
- Defense Advanced Research Projects Agency (DARPA) Application submitted partnering SOM/Infectious Diseases with faculty from Computing and Engineering “Cyber Terrorism” unknown total.

- US Department of Defense Application pending submission (09 March 2012) partnering SOM/Infectious Diseases with faculty from Computing and Engineering “Defense HIV/AIDS Prevention Program Web Presence Development” \$300,000 total.
- Defense Advanced Research Projects Agency (DARPA) Application pending submission (31 March 2012) partnering SOM/Infectious Diseases with faculty from Computing and Engineering “Modeling Risk for Estimating Risk of a Successful Cyber Attack” \$600,000 estimated project total.

#### Inter-Institutional/Domestic

- NIH Application submitted partnering SOM/Endocrinology with MUSC faculty “South Carolina Diabetes Initiative: CMMI Health Care Innovations” \$930,676 total.
- NIH Application submitted partnering SOM/Infectious Diseases with faculty from Claflin University “Expressions of Specific GBV-C Genes and miRs Allow Removal of ARV” \$1,191,920 total.
- NIH Application awarded partnering SOM/Endocrinology with faculty from Wake Forest University “Systolic Blood Pressure Intervention Trial (SPRINT)” \$648,632 total.

#### Inter-Institutional/International

- NIH Application submitted partnering SOM/Infectious Diseases with medical faculty at the Estonian National Institute for Health Development “The Acquisition and Transmission Risk of HIV: Sexual Behaviors, Cognition and Drug Use among Ethnic Minorities” \$330,117 total.
- Memorandum of Agreement for Biomedical Research Collaboration between SOM/Infectious Diseases faculty with medical faculty at the Estonian National Institute for Health Development.
- US Department of Defense application awarded partnering SOM/Infectious Diseases with medical faculty at the Estonian National Institute for Health Development “Estonian Defence STI Program” \$675,000 total.
- US Department of Defense application pending submission (30 June 2012) partnering SOM/Infectious Diseases with medical faculty at the Estonian National Institute for Health Development for “Humanitarian assistance in NE Estonia” \$200,000 total.
- Family Health International/360 application pending submission (30 April 2012) partnering SOM/Infectious Diseases with medical faculty from the University of Tartu and the Estonian National Institute for Health Development “Technical Assistance for Program Development in NE Estonia” Estimate not available.
- Gates Foundation application pending submission (30 June 2012) partnering SOM/Infectious Diseases with Family Health International/ 360 staff and Estonian Ministry of Social Affairs; US Embassy in Estonia; US Office of Defense Cooperation for “Medical Education and Training Program in NE Estonia”, \$750,000 estimated total.



## Neuropsychiatry and Behavioral Science

### Inter- Institutional

- Alcoholism and Schizophrenia: Alcohol Abuse and Alcoholism Translational Treatment Trial  
NIAAA, R21 (Collaboration with Dartmouth)  
2011-2013 (NOA start date October 2011)  
**Amount:** \$112,262  
**Brief Description:** This study will explore the efficacy of adding desipramine to risperidone in a double blind placebo controlled study design in treating comorbid schizophrenia and alcohol use disorder. PI: Alan Green, M.D. Co-PI: Meera Narasimhan, M.D.
- Stimulant Reduction Intervention using Dosed Exercise (STRIDE)  
NIDA, Clinical Trials Network 0037, 5-U10-DA020024-04S1  
2010-2013  
Amount: \$400,000/ year one (3 year grant)  
**Brief Description:** This study explores outcomes in individuals abusing stimulants who are randomized to receive either dosed exercise or health promotion intervention. Clinical Trials Network National Institute of Drug Abuse, National Institute of Health, Program Grant (U-10) Principal Investigator: Meera Narasimhan, M.D., CTN PI: Kathleen Brady, M.D. M.D., MUSC, Arnold School of Public Health and University of Texas South Western.
- Clinical and Policy Implications of a Statewide Emergency Telepsychiatry Program  
NIH, Ro1 MH086239  
2009-2012  
**Amount: \$1.048 million** (\$368,298 X3y)  
**Brief Description:** This study explores outcomes from a cutting-edge telemedicine initiative in emergency departments across the state of South Carolina called “Partners in Behavioral Health Emergency Services” that delivers care to some of the most vulnerable patients’ at the most vulnerable point in the course of their treatment. She is the Principal Investigator for a statewide telehealth initiative (a public, private, academic partnership) South Carolina Hospital Association, Department of Mental Health, Department of Health and Human Services which has demonstrated how the use of technology in healthcare can improve, access, affordability, quality care while making a strong business case. PI: Meera Narasimhan, M.D.
- Sustenna Use in Real World Clinical Practice: A Retrospective Analysis of Pooled Data comparing Sustenna to Other Antipsychotics  
Johnson and Johnson  
2010-2012  
**Amount: \$183,000**  
**Brief Description:** The primary outcome of this study is to compare the utilization of paliperidone palmitate versus other antipsychotics on health care utilization. Office of Research and Statistics, Department of Mental Health. PI: Meera Narasimhan, M.D.

- Predictors of response to Augmentation with Ziprasidone (Geodon®) in Major Depressive Disorder: A 13-week, Double-Blind, Placebo-Controlled, Cross-Over Trial III, Pfizer  
2009-2012  
**Amount: \$88,980**  
**Brief Description:** The primary outcome of this study is to determine if predictors of response can select a population of patients with MDD that is effectively treatable by augmentation with ziprasidone. PI: Meera Narasimhan, M.D. (Tufts Medical Center, Boston, Duke University Medical Center; University of South Carolina).
- A Phase 2, Multicenter, Randomized, Double-blind, Placebo-controlled Study of the Safety and Efficacy of OPC-34712 as Adjunctive Therapy in the Treatment of Patients with Major Depressive Disorder  
Otsuka Pharmaceuticals  
2009-2011  
**Amount: \$ 57,000**  
**Brief Description:** The aim of this study is to evaluate the efficacy and safety of an investigational drug as an adjunctive treatment in patients with Major Depressive Disorder. PI: Meera Narasimhan, M.D.
- A Phase 2, Multicenter, Open-Label Study to Assess the Safety and Tolerability of Oral OPC-34712 as Adjunctive Therapy in Adult Patients with Major Depressive Disorder  
Otsuka Pharmaceuticals  
2010-2012  
**Brief Description:** The aim of this study is an extension of study 211 to evaluate the safety and tolerability of an investigational drug as an adjunctive treatment in patients with Major Depressive Disorder. PI: Meera Narasimhan, M.D.
- Assessment of Hospital Readmission Rates in Patients with Schizophrenia Disorder Treated with INVEGA SUSTENNA or Other Antipsychotic.  
2009-2011  
PI: Meera Narasimhan, M.D.
- A Multicenter, Randomized, Double-blind, Active-Controlled Study of the Efficacy and Safety of Flexibly-Dosed BMS-820836 in Patients with Treatment Resistant Major Depression  
2011-2013  
PI: Shilpa Srinivasan, M.D.
- Biomarkers in Autism of Aripiprazole and Risperidone Treatment (BAART)  
NIH/ NICHD PI USC: Ruth Abramson, Ph.D., Craig Stuck, M.D., MUSC and Greenville

## International Collaborations

- **Global Health Care Summit.** Global Association of Physicians of Indian Origin. Co - Chair Meera Narasimhan. Deomnstartion Projects: **Integrated Clinics.** Mental Health into Primary Care Clinics. Project sites Madurai and Jaipur. PI: Meera Narasimhan, M.D.
- **International Academic Partnership.** Partneship awarded by the International Institute of Education to the University of South Carolina in 2010 to establish linkages with institutions in India, with a focus on public health. Co PI Meera Narasimhan, M.D. (USC School of Engineering and Arts and Science).
- USC Inter-School and Departmental Collaboration
- Stimulant Reduction Intervention using Dosed Exercise (STRIDE)  
NIDA, Clinical Trials Network 0037, 5-U10-DA020024-04S1  
2010-2013  
Amount: \$443,000/ year one (3 year grant)  
**Brief Description:** This study explores outcomes in individuals abusing stimulants who are randomized o receive either dosed exercise or health promotion intervention.  
Clinical Trials Network National Institute of Drug Abuse, National Institute of Health, Program Grant (U-10) Principal Investigator: Meera Narasimhan, M.D. CTN PI: Kathleen Brady, M.D. Ph.D., MUSC, Arnold School of Public Health., Steve Blair and University of Texas South Western.
- Development of Adverse Events in Children and Adolescents Newly Prescribed Second Generation Antipsychotics using a Private Claims Data Base: A Retrospective, Cohort Study. NPSY PI: Jeanette Jerrell, Ph.D., Pediatrics: James Stallworth, M.D.  
Pending:
- Meaning of Medication Adherence in Depression  
USC and MUSC School of Pharmacy  
PI: Richard Schulz, Co I Kenneth Phelps, Ashley Jones., Consultant: Meera Narasimhan (Ro3 AHRQ and ASPIREII).
- Impact of Advantage/Disadvantage Analysis on CPAP Adherence  
USC Clinical Incentives Grant  
Collaborators: NPSY: Suzanne Hardeman, PMHNP, Kenneth Phelps Ph.D.  
Pulmonology: Imran Iftikhar, M.D. and Antoinette Williams, M.D.
- Collaborative Care Using Telepsychiatry to Improve Patient Services (CUTIPS)  
Duke Endowment  
Collaborators:NPSY: Meera Narasimhan, M.D., Suzanne Hardeman, PMHNP and Kenneth Phelps, Ph.D., DFM: Libby Baxley, M.D. and Matt Orr, Ph.D.

- Non-intrusive and Objective Measurement of Positive and Negative Affect Using Multimodal Information Collection and Analysis  
National Science Foundation SHB: Type I (EXP)  
Collaborators: NPSY: Suzanne Hardeman, PMHNP and Shalon Howard, M.S.  
College of Engineering and Computing Yan Tong, Ph.D. and Song Wang, Ph.D.
- Predicting Wellbeing Utilizing Multimodal Measurement and Analysis of Affect  
Office of the Vice President for Research, ASPIREII  
Collaborators: NPSY: Suzanne Hardeman, PMHNP and Shalon Howard, M.S.  
College of Engineering and Computing Yan Tong, Ph.D. and Song Wang, Ph.D.

### **Pathology, Microbiology, & Immunology**

#### **Dr. Mitzi Nagarkatti**

- Nagarkatti, P., Nagarkatti, M., Hofseth, L. Department of Biomedical and Pharmaceutical Sciences, USC College of Pharmacy. Center for CAM Research on Autoimmune and Inflammatory Diseases. (NIH P01AT003961).
- Nagarkatti, P.S., Ginsberg, J., Zhou, J. and Nagarkatti, M. Immunopathological Basis of PTSD (NIH R01 MH094755); Collaboration with Department of Clinical Psychology, Dorn VA Medical Center.
- Gluck, L.W., Nagarkatti, P., Nagarkatti, M., Edenfield, W.J., Fanning, S.R., Martin, J.C. and Stephenson, J.J. A Phase I Open-Label Dose-Escalation and Pharmacokinetic Study of Oral tetrahydrocannabinol in patients with acute Myeloblastic and Acute Lymphoblastic Leukemia. (This is bench-to-bedside research based on our basic research finding that THC induces apoptosis in tumor cells from patients with hematologic malignancies; Collaboration between Division of Oncology, Greenville Health System)
- Nagarkatti, M., Lessey, B. A, and Faleabas, A. T. 3-dimensional culture of endometrium for determination of the therapeutic efficacy in female infertility (UH2/UH3 Proposal entitled “3D culture of endometrium and toxicity testing in human health and disease” submitted to NIH RFA Integrated microphysiological systems for drug efficacy and toxicity testing in human health and disease; Multiple P.I.; Collaboration between Department of Obstetrics and Gynecology, Greenville Health System and Department of Obstetrics, Gynecology and Reproductive Biology, Michigan State University)
- Chaudhry, H., Zhou, J., Zhong, Y., Morales, J., Owens, W., Ali, M.M., Perkins, L.A., McGuire, F., Nagarkatti, P.S., Nagarkatti, M. Characterization of immune cells and cytokines in patients with severe sepsis and septic shock. (Presentation at AAI Meeting and 2 manuscripts submitted; Collaboration with Division of Pulmonary and Critical Care, Department of Internal Medicine, SOM)
- Guan, H., Nagarkatti, P., Mrelashvili, D., and Nagarkatti, M. Immunological studies in patients with multiple sclerosis (Collaboration with Department of Neurology, SOM; NIH K01 grant submitted; manuscript under preparation).
- Sen, S. and Nagarkatti, M. Development of tissue repository with focus on stroke patients to test epigenetic changes related to inflammation. (Submitted ASPIRE III grant proposal to establish Tissue Repository at SOM and examine blood, carotid

- endarterectomy and urine for epigenetic dysregulation; Collaboration with Department of Neurology, USC)
- Nagarkatti, M., Gray, K.M, McRae-Clark, A., Haque, A., Nagarkatti, P.S. Immunomodulatory activity of cannabinoids in patients abusing drugs. (Currently supported through MUSC CTSA; NIH PO1 to be submitted in 2012; Collaboration with Depts. of Psychiatry, as well as Microbiology and Immunology, MUSC).
  - Gregg, A., Mann, J., McDermott, S., Browne, P., Zhou, J., Nagarkatti, P. and Nagarkatti, M. Inflammation and role of methylation in maternal blood, amniotic fluid and umbilical cord blood. (Collaboration with Department of Obstetrics and Gynecology, Family and Preventive Medicine at SOM; Submitted Clinical Incentive Pilot Proposal)
  - Zhou, J., Zhang, J.W. and Nagarkatti, M. Epigenetic regulation of phenotype of tumor-infiltrating lymphocytes from melanoma patients undergoing Phase I trial. (Submitted ASPIRE I grant proposal; Collaboration with Carolinas Dermatology Group).
  - Tang, C., Nagarkatti M., Zhou, J., Decho, A.W., and Ebalunode, J.O. Hydrocarbon natural product-derived antimicrobial compounds and polymers. R01 submitted to NIAID. (Collaboration with Department of Chemistry and Biochemistry, Department of Environmental health Sciences and Center for Research Computing, USC). Published a paper:
  - Wang J, Chen YP, Yao K, Wilbon PA, Zhang W, Ren L, Zhou J, Nagarkatti M, Wang C, Chu F, He X, Decho AW, Tang C. Robust antimicrobial compounds and polymers derived from natural resin acids. Chem Commun (Camb). 48:916-918, 2011.
  - Guan, H., Daping Fan, Nagarkatti, P. and Nagarkatti, M. Department of Cell and Developmental Biology, SOM. Role of microRNA let-7e in induction of anti- versus pro-inflammatory cytokines. Manuscript in preparation
  - Nagarkatti, M., Lee, A., Wang, Q. Department of Chemistry and Biochemistry. Targeted delivery of nanoparticles to T cells and their use in EAE.
  - Lee, A, Wang, Q. Vaccine for melanomas Phase 0 proposal submitted by Aqnano, LLC and Department of Chemistry and Biochemistry to SC EPSCOR- Consultant.
  - Lee, A, Wang, Q. SBIR Phase I:Vaccine nanocarriers for treatment of melanomas. Proposal submitted by Aqnano, LLC and Department of Chemistry and Biochemistry-Consultant.
  - Wilson, MA., Fadel, JR, Youngsteadt, S., Nagarkatti, M., Ginsberg, J., Reagan, L. Validating rodent models of PTSD for developing biomarkers of resilience, risk and treatment outcomes. ASPIRE II grant proposal submitted. Collaboration with the Department of Pharmacology, Physiology and Neuroscience (SOM), Department of Exercise Science (School of Public Health) and Department of Clinical Psychology, Dorn VA Medical Center.
  - Booze, R., Reagan, L, Moss, M., Aksenov, M., Mactutus, C., Nagarkatti, M. Brain Inflammation: Diet-induced obesity and novel anti-inflammatory therapeutics ASPIRE II grant proposal submitted. (Collaboration with the Department of Pharmacology, Physiology and Neuroscience (SOM), Department of Biomedical Engineering (College of Engineering), Department of Exercise Science (School of Public Health).

### Dr. Karen Fox and Dr. Alvin Fox

- Drs. Karen Fox and Dr. Alvin Fox are working with Dr. Kim Creek (School of Pharmacy), John Rose (Computer Science, Engineering) to implement complementary technology in proteomics, genomics and bioinformatics. The group has been funded previously from the NIH Human Genome Project and currently from NSF. Prior and current seeds funds from USC have been extremely helpful in moving this collaboration forward. Additional support from SOM would be extremely helpful. Our intent is to submit an NIH grant for the next dead-line.
- An information theoretic approach to de novo peptide sequencing. P.I. J. Rose, K. Fox, Co-PI, A. Fox, Co-I. March 2010-March 2013 (\$643,747) Agency: NSF
- Microarrays: exploring bacterial transmission in indoor air. P.I., A. Fox, Co-I, K. Creek and K. Fox. July 2011-July 2012 (\$10,000) Agency: SC EPSCOR

### Dr. Kevin Carnevale

- Co-PI in a grant from the American Orthopedic Foundation with Dr Esmail Jabbari from Department of Chemical Engineering at USC looking at a biodegradable bone regeneration scaffold as a synthetic source of bone replacement. Dr Xiaoming Yang, a researcher from the Dorn VA campus, is also involved in the project.
- Work with researchers from The Department of Pharmacy USC main campus (Drs Jim Chapman and Kim Creek), Department of Chemistry at USC (Stephen L. Morgan, and William E. Brewer), and James Hébert who is Health Sciences Distinguished Professor and Director of the South Carolina Statewide Cancer Prevention and Control Program Hollings Cancer Center Medical University of South Carolina on epidemiologic, infectious, and chemical risk factors in squamous cell carcinoma of the esophagus.
- Look at slides from animals studies done through The Center for Colon Cancer Research (CCCR) at USC main campus, Department of Cell Biology and Anatomy, (Drs Scott Supowitz, Michael Yost, and Jay Potts), and Department of Plastic Surgery at the Cleveland Clinic Foundation on many different projects.
- Work on micro RNA 155 in atherosclerosis with Dr Daping Fan in the Department of Cell Biology and Anatomy at SOM, and Dr Hall in the Department of Cardiovascular Medicine at Providence Hospital.
- Work with investigators at the Cleveland Clinic Foundation- Dr Martha Cathcart on the role of phospholipases and eicosinoids in monocyte migration to CCR2, and Dr Stan Hazen on the different forms of HDL that are atheroprotective
- Co-PI AO Foundation Biodegradable Inductive Load-Bearing Bone Regeneration Scaffold 1/01/11-12/31/13 (\$150,000)

### Dr. James Catroppo

- In the spirit of the USConnect Integrated Learning initiative in the University's Quality Improvement Plan (QEP), and as a reflection of "interdisciplinary" activity and medical education research:
  - Ms. Kathleen Clardy, who has a particular interest in forensic pathology and bone pathology, and who obtained her Bachelor's degree in Anthropology from

USC and is currently pursuing her Master's degree in Biology at USC on the main campus, has for two days a week for the past year been collaborating with Dr. Catroppo and Dr. Kevin Carnevale in efforts to develop a virtual microscopy "slidebox" of digital teaching slides. She has been "breaking glass", so to speak, converting our glass slide teaching sets into digital data, as well as researching open-access software solutions (in collaboration with Mr. Shaun Riffle, Office of Curricular Affairs and Media Resources) for rendering the finished product seamlessly accessible to our medical students in an engaging, interactive fashion so as to promote active learning on their part, as well as "appetizing" and accessible to our pathology teaching colleagues so that they may decide to incorporate such "virtual" resources into their own teaching modules. Ms. Clardy has been invited to present the results of her efforts at next year's Winter Meeting of the Group for Research in Pathology Education (GRPE), the collaborative group of medical school pathology educators.

#### Dr. Swapan Ray

- Collaborating with the investigators at USC Electrical Engineering Department for developing nano-sensor based strategies for finding molecular targets for treatment of brain tumor.
- Dr. Swapan Ray (Co-I) NIH. Extra-nigral neurodegeneration in experimental Parkinson's disease (R01 NS-62327) 2009-2014 (\$331,184) (Dr. Banik, MUSC)
- Dr. Swapan Ray (Co-I) NIH. Inflammation and degeneration of optic nerve in EAE (R01 NS-65456) 2009-2014 (\$321,000) (Dr. Banik, MUSC)

#### Dr. Lucia Pirisi-Creek

- Dr. Pirisi-Creek's research is funded by a highly collaborative, interdisciplinary grant involving two universities (USC and Claflin) and three colleges/schools within USC: The ASPH, the SCCP and the SOM. Her project within this center grant is an interdisciplinary collaboration with MUSC (Natalie Sutkowski, basic science, and Marion Boyd Gillespie, otolaryngology), and she also has in the works a collaboration with Paul Weinberger, otolaryngologist at Georgia Health Sciences University for the same program. The second project on which Dr. Pirisi-Creek serves as co-PI, within this center grant, represents an interdisciplinary collaboration with Dr. Kim Creek (SCCP, basic science) and Dr. Lisa Spiryda (Obstetrics/Gynecology, clinician/scientist, SOM)
- SC INBRE represents a network of ten institutions across the state: USC, MUSC, Clemson, Claflin, the College of Charleston, Francis Marion, Furman, SC State, USC Beaufort and Winthrop University. SC INBRE is almost entirely focused on collaboration between and across institutions, and at USC specifically supports the highly-collaborative and interdisciplinary Biomedical Engineering Program, spanning the SOM and the College of Engineering and Computing.
- The R21 of Dr. Lisa Spiryda, to whom Dr. Pirisi-Creek is Convestigator and mentor, spans across the departments of Pathology and Obstetrics and Gynecology at the SOM, and the SCCP.

- The SCTR Pilot Project on which Dr. Pirisi-Creek serves as a Co-Investigator and mentor is a collaboration between her and Dr. Jennifer Young-Pierce, a Gynecologic Oncologist at MUSC.
- Collaboration with Dr. Arezue Boroujerdi at Claflin University. Dr. Pirisi-Creek is a basic cancer researcher and Dr. Boroujerdi is an expert in NMR spectroscopy and metabolomics, hence our activities are also interdisciplinary. This is in its infancy and has not yielded grants or publications, yet, but it is a new initiative.
- Co-PI or Project 2 Coordinating Center of Excellence in Social Promotion of Health Equity Research 2P20 MD001770-06. 7/1/2010-2/28/2015 (\$1,350,097).
- Co-I R21 application (Spiryda, PI) resubmission of PAR-09-160. 7/01/2011-6/30/2013 (\$125,000)
- Co-I Racial differences in HPV type associated with cervical cancer and biomarkers of HPV persistence – MUSC 10/1/2011-9/30/2012 (\$50,000)

#### Dr. Jennifer Nyland

- Collaborating with investigators in Canada, Amazonian Brazil, Johns Hopkins University, State University of New York Stony Brook, and MUSC. Also with investigators at SOM in departments of Cell Biology and Anatomy and Pathology, Microbiology, and Immunology. This is either in existing NIH R00 or new grants being submitted.
- Dr. Jennifer Nyland (Co-PI/Sub Award) NIH. R21ES021227: Interactions of dietary MeHg, POPs, and n-2-fatty acids in autoimmunity and SLE. (\$439,150).

#### Dr. Ugra Singh

- Submitted 2 collaborative R01s in the past 4 months-
  - From Resveratrol to RhoA and Rac1: PI: Ugra Singh; Co-Investigator: Holly LaVoie (Cell Biology and Anatomy).
  - Impairments in retinoic acid signaling in ethanol toxicity; PI: Ugra Singh; Co-Investigator: Holly LaVoie (Cell Biology and Anatomy); Co-Investigator: Taxing Cui (Cell Biology and Anatomy).

#### Dr. Udai Singh

- Co-I Monocyte microRNA-155 and atherosclerosis. NHLBI-R-2101-01-11 to 11/30/2013 (275,000).

#### Dr. Angela Murphy

- Collaborations across three different colleges/schools at USC including the SOM, the Arnold School of Public Health and the College of Arts and Sciences. Funded by an NIH R21 and an American Institute of Cancer Research grant that involves collaborations from faculty in the Department of Exercise Science, School of Public Health (Drs. Mark Davis & James Carson) and Department of Biological Sciences, College of Arts and Sciences (Drs. Franklin Berger & Marj Pena).



- Co-Investigator on two NIH funded grants awarded to Dr. James Hebert in the Department of Epidemiology and Biostatistics and Cancer Prevention and Control Program.
- Actively involved with several workgroups across the University including the Complementary and Alternative Medicine Center (CAM), the Cancer Prevention and Control Program (CPCP) and the Center for Colon Cancer Research (CCCR) that has allowed me to network with faculty in various different disciplines.
- Dr. Angela Murphy (Co-PI) Soldier Health Promotion to Examine and Reduce Health Disparities (SHPERHD). Department of the Army – USAMRAA 10/01/08 – 09/30/11 (\$321,027).
- Dr. Angela Murphy (Co-I) Diet and Activity Community Trial: High Risk Colon Cancer Polyps. NIH/NCI. 07/01/08 – 06/30/13 (\$390,950).
- Dr. Angela Murphy (Co-I) South Carolina Cancer Disparities Community Network-II NIH/NCI. 09/01/10-08/31/15 (\$300,333).
- Dr. Angela Murphy (Co-PI) Benefits of the Dietary Flavonoid Quercetin on Inflammatory Biomarkers and Quality of Life Measures in Cancer Patients. IAHC (Institute for Advancement of Health Care) 09/01/11-08/31/12 (\$29,980).

Dr. Cory Robinson

- Collaboration with the Department of Obstetrics and Gynecology whereby they supply Dr. Robinson's laboratory with umbilical cord blood to investigate the involvement of interleukin-27 in neonatal immune responses. This is a deviation from the primary focus of his laboratory, immune responses during tuberculosis. However, he does not think it quite qualifies under the definition of interdisciplinary research.
- Collaborated with Dr. Paul Christopher Browne (Obstetrics and Gynecology) NIH–NIAID. The impact of elevated interleukin-27 production by neonates on immune responses 1R01AI100055-01. 5/01/12 – 04/30/17 (\$1,712,500).
- Collaborated with Dr. Gregory Brower Interleukin-27 represents a therapeutic target to promote resolution of tuberculosis 1R21AI102159-01. 07/01/12-06/30/17 (\$1,598,650).

**Pharmacology, Physiology & Neuroscience**

- M Wilson (PPN), Shawn Youngstedt (Public Health) and J Ginsberg (Dorn VA Hospital): Validation of an animal model of PTSD
- LP Reagan (PPN) and S Woods (Univ. of Cincinnati Department of Psychiatry): Insulin and CNS Control of Body Weight and Food Intake
- LP Reagan (PPN) and C Greenwood (University of Toronto): Insulin signaling, obesity and cognitive function
- J Fadel (PPN) and JA Burk (College of William and Mary, Department of Psychology): Aging, orexin/hypocretin neuropeptides and cognition
- J Fadel (PPN) and M Moss (Chemical Engineering): Amyloid beta and brain dysfunction
- SP Wilson (PPN) and Y Hurd (Mt. Sinai School of Medicine): Lentivirus approaches to investigate neurobiological substrates of drug addiction

- DD Mott (PPN) and L Malaiyandi (Francis Marion University): Faculty mentor (Mott), South Carolina IDeA Network of Biomedical Research Excellence

a. What measures are being taken to increase interdisciplinary research?

- Meetings with various groups to investigate interdisciplinary research opportunities:
  - Other health sciences departments: e.g., School of Public Health
  - Researchers at Carolinas Healthcare System to get acquainted and explore collaborative opportunities
  - Dr. Chakraborty, Director of Health Sciences Research Core.
- One department hired an RA with extensive experience in School of Public Health, with potential to connect us better with opportunities for collaborative proposals.
- Internal Medicine hired a Ph.D. level epidemiologist in a clinical department to oversee research activities
- Received Faculty replenishment hire for a joint appointment in a basic science and clinical department (PPN & Neuropsychiatry); this was a cluster hire with an additional clinical faculty member (Neurology) and junior hire in Psychology.
- Several additional faculty are now VA eligible, and are seeking out VA-based collaborators to provide access to clinical samples and serve as collaborators on grants.

b. What measures should be taken to promotion interdisciplinary research?

- Continue applying for faculty replenishment funds to hire jointly appointed individuals in diverse departments.
- Continue hiring dedicated folks to oversee research program and build interdisciplinary relationships.
- Grant writing and grant management support
- Provide Statistical support for grant proposals and for pilot study analyses for clinically-based faculty
- We would like to see the Research Consortium on Children and Families (RCCF) be supported by the Provost- Drs. Mann and McDermott have met a lot of people through this venue and we have received invaluable service from the one paid staff person there.

## Attachment 1

### Funding Sources – “E” fund balances, by account, as of June 30, 2009, 2010, and 2011

#### 30 June 2011

	<b>Life to Date Actual</b>
18000E000 MEDICAL SCHOOL-SPEC OPER DEPOSITS	
18000E101 SUPPORT/REIMB-AFFILIATES	32,565.97
18000E150 RESEARCH INCENTIVE	931,220.67
18000E151 RESEARCH IDC CLEARING (MED SCHOOL)	18,657.14
18000E999 RENOVATION FEE REVENUE	15,043.94
18010E150 RESEARCH INCENTIVE-CELL BIOLOGY & NEUROS	
18020E150 RESEARCH INCENTIVE-DEV BIOLOGY & ANATOMY	614,244.16
18020E151 CARV MODULE UPGRADE	274,543.26
18020E153 RESEARCH INCENTIVE ACCOUNT	84,920.67
18020E156 COLLABORATIVE RDF 2004/2005	34,766.22
18020E158 CELL CULTURE FACILITY	9,178.70
18020E159 AMERICAN GINSENG	129.4
18020E160 CAM CENTER COLLABORATIVE PROJECT	12,856.23
18020E161 CARDIOVASCULAR RESEARCH	7,179.18
18020E162 DYNAMIC ORGAN CULTURE SYSTEM FOR MYOCARD	
18020E163 MACROPHAGE MICRORNA-155 & ATHEROSCLEROSI	107.31
18020E164 RDF AWARD	30.23
18020E165 RDF AWARD	-311.59
18020E166 PLASTINATION	800
18020E170 CVCTRC	24,082.66
18060E150 RESEARCH INCENTIVE-MICROBIOLOGY	689,498.72
18060E151 RESEARCH DEVELOPMENT	277,984.88
18060E153 RESEARCH INCENTIVE	
18060E157 VP RESEARCH START-UP	290,021.00
18060E158 VP RESEARCH START-UP	895.84
18060E161 CAM CENTER SUPPORT	179,490.99
18060E162 USC SOM RESEARCH DEVELOPMENT AWARD	24,462.38
18060E163 USC SOM RESEARCH DEVELOPMENT AWARD	1,251.54
18060E164 USC SOM RESEARCH DEVELOPMENT AWARD	
18060E165 RESEARCH OPPORTUNITY PROGRAM	10,728.80
18060E166 PILOT STUDY FOR CAM & INFLAMMATORY RESEA	

18060E167 NYLAND RESEARCH START-UP	105,476.69
18060E168 NEW FACULTY RESEARCH START-UP FUNDS	245,169.42
18060E169 RAY RESEARCH START-UP FUNDS	48,637.26
18060E170 ROBINSON RESEARCH START-UP FUNDS	255,286.96
18060E171 INFLAMMATION AND ANTI-TUMOR IMMUNITY	10,000.00
18060E201 NIH CENTER START-UP FUNDS	120,000.00
18080E150 RESEARCH INCENTIVE-PHARMACOLOGY	455,498.25
18080E160 PPN CHAIR POSTDOC FUND	33,409.08
18080E161 AUGUSTINE RESEARCH INCENTIVE FUNDS	5,000.00
18080E162 BUGGY RESEARCH INCENTIVE FUNS	15,482.00
18080E163 FADEL RESEARCH INCENTIVE FUND	21,763.89
18080E164 FISHER RESEARCH INCENTIVE FUND	12,431.51
18080E165 HOUSLEY RESEARCH INCENTIVE FUND	12,799.00
18080E166 MOTT RESEARCH INCENTIVE FUND	41,522.09
18080E167 MCDONALD RESEARCH INCENTIVE FUND	19,117.00
18080E168 PEDIGO RESEARCH INCENTIVE FUND	5,000.00
18080E169 REAGAN RESEARCH INCENTIVE FUND	26,375.00
18080E170 SWEITZER RESEARCH INCENTIVE FUND	58,343.33
18080E171 B WILSON RESEARCH INCENTIVE FUND	5,000.00
18080E172 M WILSON RESEARCH INCENTIVE FUND	32,926.82
18080E173 S WILSON RESEARCH INCENTIVE FUND	7,236.32
18080E174 VIRUS LAB RESEARCH INCENTIVE FUND	49,350.31
18080E175 WALSH RESEARCH INCENTIVE FUND	1,427.18
18080E176 STARTUP RESEARCH INCENTIVE FUND	250,000.00
18080E177 RDF AWARD	-110.63
18080E178 MOTT-FISHER PIRA	19,840.75
18110E150 RESEARCH INCENTIVE-OB/GYN	391.86
18120E150 RESEARCH INCENTIVE-NEUROPSYCHIATRY	163,313.13
18130E150 RESEARCH INCENTIVE-FAMILY&PREVENTIVE MED	79,856.40
18130E160 PRO-INFLAMMATORY CYTOKINE POLYMORPHISMS	34,725.43
18140E150 RESEARCH INCENTIVE FUNDS	66,820.90
18140E151 RESEARCH INCENTIVE - PEDIATRICS	7,802.59
18140E900 NATIONAL SYMPOSIUM ON INFO TECHNOLOGY	4,935.09
18150E150 RESEARCH INCENTIVE-OPHTHALMOLOGY	14,881.25
18160E150 RESEARCH INCENTIVE-ORTHOPAEDICS	1,981.34
18180E150 RESEARCH INCENTIVE-RADIOLOGY	38,888.34
18190E150 RESEARCH INCENTIVE-INTERNAL MEDICINE	112,933.11
18200E150 RESEARCH INCENTIVE-SURGERY	22,903.90
18200E151 TISSUE ENGINEERING	10,376.73
18200E154 SURGERY RESEARCH INCENTIVE	499.97
18260E103 ELECTRON MICROSCOPY-CONTRACTUAL SVCES	28,245.18

18260E107 MED SCHOOL ANIMAL RESOURCES-CONTR SVCS	-26,173.11
18260E110 IRF SUPPLY CENTER	-412.24
18280E106 USC SCHOOL OF MEDICINE LIBRARY	82,639.27
18280E150 RESEARCH INCENTIVE MEDICAL LIBRARY	1,200.68
18300E150 RESEARCH INCENTIVE-SCCC	40,935.89
18360E150 RESEARCH INCENTIVE	5,516.29
18370E901 CONTINUING MEDICAL EDUCATION PROGRAMS	821.93
18400E150 DEAN'S START-UP & SPECIAL PROJECTS FUND	70,760.86
18400E155 NEW DEAN STARTUP FUNDS & SPECIAL PROJECT	88,068.02
18400E156 PROJECT A	362.54
18400E157 PROJECT B	3,505.61
18400E158 PROJECT C	21,731.90
18400E159 PROJECT D	662.34
18400E160 VP FOR MEDICAL AFFAIRS SPECIAL PROJECTS	5,355.00
18400E161 SINGH FUNDS	32,588.22
18400E162 SUPOWIT FUNDS	71.21
18400E200 CLINICAL TRIALS DISTRIBUTION FUND	0
18450E150 NEUROLOGY DEPT RESEARCH INCENTIVE ACCOUN	302.19
33 MEDICAL SCHOOL	6,307,822.35

### 30 June 2010

	<b>Life to Date Actual</b>
18000E000 MEDICAL SCHOOL-SPEC OPER DEPOSITS	
18000E101 SUPPORT/REIMB-AFFILIATES	62,595.23
18000E150 RESEARCH INCENTIVE	1,133,438.02
18000E151 RESEARCH IDC CLEARING (MED SCHOOL)	-378.77
18010E150 RESEARCH INCENTIVE-CELL BIOLOGY & NEUROS	
18020E150 RESEARCH INCENTIVE-DEV BIOLOGY & ANATOMY	544,725.41
18020E151 CARV MODULE UPGRADE	361,051.49
18020E153 RESEARCH INCENTIVE ACCOUNT	147,959.11
18020E156 COLLABORATIVE RDF 2004/2005	1,046.80
18020E158 CELL CULTURE FACILITY	4,820.41
18020E159 AMERICAN GINSENG	4,063.49
18020E160 CAM CENTER COLLABORATIVE PROJECT	13,809.51
18020E161 CARDIOVASCULAR RESEARCH	9,738.36
18020E162 DYNAMIC ORGAN CULTURE SYSTEM FOR MYOCARD	33,172.92
18020E163 MACROPHAGE MICRORNA-155 & ATHEROSCLEROSI	45,000.00
18060E150 RESEARCH INCENTIVE-MICROBIOLOGY	153,251.97

18060E151 RESEARCH DEVELOPMENT	293,529.40
18060E153 RESEARCH INCENTIVE	819.54
18060E154 COLLABORATIVE RDF 2004/2005	
18060E157 VP RESEARCH START-UP	290,500.00
18060E158 VP RESEARCH START-UP	2,109.70
18060E160 VP RESEARCH START-UP	
18060E161 CAM CENTER SUPPORT	121,849.81
18060E162 USC SOM RESEARCH DEVELOPMENT AWARD	65,000.00
18060E163 USC SOM RESEARCH DEVELOPMENT AWARD	13,000.00
18060E164 USC SOM RESEARCH DEVELOPMENT AWARD	12,605.39
18060E165 RESEARCH OPPORTUNITY PROGRAM	7,401.28
18060E166 PILOT STUDY FOR CAM & INFLAMMATORY RESEA	6,232.48
18060E167 NYLAND RESEARCH START-UP	25,000.00
18060E168 NEW FACULTY RESEARCH START-UP FUNDS	400,000.00
18060E169 RAY RESEARCH START-UP FUNDS	50,000.00
18060E170 ROBINSON RESEARCH START-UP FUNDS	350,000.00
18060E201 NIH CENTER START-UP FUNDS	80,000.00
18080E150 RESEARCH INCENTIVE-PHARMACOLOGY	356,011.16
18080E160 PPN CHAIR POSTDOC FUND	92,955.00
18080E161 AUGUSTINE RESEARCH INCENTIVE FUNDS	5,000.00
18080E162 BUGGY RESEARCH INCENTIVE FUNS	15,482.00
18080E163 FADEL RESEARCH INCENTIVE FUND	22,818.75
18080E164 FISHER RESEARCH INCENTIVE FUND	13,863.37
18080E165 HOUSLEY RESEARCH INCENTIVE FUND	12,799.00
18080E166 MOTT RESEARCH INCENTIVE FUND	25,845.00
18080E167 MCDONALD RESEARCH INCENTIVE FUND	19,117.00
18080E168 PEDIGO RESEARCH INCENTIVE FUND	5,000.00
18080E169 REAGAN RESEARCH INCENTIVE FUND	26,375.00
18080E170 SWEITZER RESEARCH INCENTIVE FUND	38,355.00
18080E171 B WILSON RESEARCH INCENTIVE FUND	5,000.00
18080E172 M WILSON RESEARCH INCENTIVE FUND	32,276.00
18080E173 S WILSON RESEARCH INCENTIVE FUND	19,799.00
18080E174 VIRUS LAB RESEARCH INCENTIVE FUND	17,950.00
18080E175 WALSH RESEARCH INCENTIVE FUND	2,444.00
18080E176 STARTUP RESEARCH INCENTIVE FUND	250,000.00
18110E150 RESEARCH INCENTIVE-OB/GYN	128.35
18120E150 RESEARCH INCENTIVE-NEUROPSYCHIATRY	125,727.89
18130E150 RESEARCH INCENTIVE-FAMILY&PREVENTIVE MED	62,943.85
18140E150 RESEARCH INCENTIVE FUNDS	62,023.75
18140E151 RESEARCH INCENTIVE - PEDIATRICS	45,486.61
18140E900 NATIONAL SYMPOSIUM ON INFO TECHNOLOGY	7,209.68

18150E150 RESEARCH INCENTIVE-OPHTHALMOLOGY	20,592.99
18160E150 RESEARCH INCENTIVE-ORTHOPAEDICS	1,981.34
18180E150 RESEARCH INCENTIVE-RADIOLOGY	45,672.13
18190E150 RESEARCH INCENTIVE-INTERNAL MEDICINE	63,066.48
18200E150 RESEARCH INCENTIVE-SURGERY	10,691.45
18200E151 TISSUE ENGINEERING	18,490.87
18200E154 SURGERY RESEARCH INCENTIVE	2,255.97
18260E103 ELECTRON MICROSCOPY-CONTRACTUAL SVCS	65,847.13
18260E105 TISSUE CULTURE LABY	
18260E107 MED SCHOOL ANIMAL RESOURCES-CONTR SVCS	-39,339.06
18260E110 IRF SUPPLY CENTER	-5,202.64
18280E106 USC SCHOOL OF MEDICINE LIBRARY	52,774.69
18280E150 RESEARCH INCENTIVE MEDICAL LIBRARY	1,097.84
18300E100 SCCC- POPULATION STUDIES	
18300E150 RESEARCH INCENTIVE-SCCC	63,630.54
18300E151 RESEARCH INCENTIVE - SCCC	
18300E152 RESEARCH START-UP WADDELL	
18360E150 RESEARCH INCENTIVE	795.08
18370E901 CONTINUING MEDICAL EDUCATION PROGRAMS	1,887.98
18400E150 DEAN'S START-UP & SPECIAL PROJECTS FUND	129,803.87
18400E155 NEW DEAN STARTUP FUNDS & SPECIAL PROJECT	130,000.00
18400E156 PROJECT A	8,686.46
18400E157 PROJECT B	47,588.63
18400E158 PROJECT C	60,000.00
18400E160 VP FOR MEDICAL AFFAIRS SPECIAL PROJECTS	30,000.00
18400E161 SINGH FUNDS	-3,239.42
18400E162 SUPOWIT FUNDS	34,494.66
18400E200 CLINICAL TRIALS DISTRIBUTION FUND	
33 MEDICAL SCHOOL	6,238,528.95

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	<b>Life to Date Actual</b>
18000E000 MEDICAL SCHOOL-SPEC OPER DEPOSITS	
18000E101 SUPPORT/REIMB-AFFILIATES	58,327.22
18000E150 RESEARCH INCENTIVE	876,438.79
18000E151 RESEARCH IDC CLEARING (MED SCHOOL)	-884.05
18010E150 RESEARCH INCENTIVE-CELL BIOLOGY & NEUROS	
18020E150 RESEARCH INCENTIVE-DEV BIOLOGY & ANATOMY	480,663.78

18020E151 CARV MODULE UPGRADE	470,985.67
18020E152 ROLE OF ADAMS IN HEART MYOCYTE DEVEL	
18020E153 RESEARCH INCENTIVE ACCOUNT	38,751.68
18020E154 RESEARCH INCENTIVE	
18020E155 COLLABORATIVE RDF 2004/2005	
18020E156 COLLABORATIVE RDF 2004/2005	5,738.57
18020E157 COLLABORATIVE RDF 2004/2005	
18020E158 CELL CULTURE FACILITY	3,303.21
18020E159 AMERICAN GINSENG	14,675.40
18060E150 RESEARCH INCENTIVE-MICROBIOLOGY	494,707.81
18060E151 RESEARCH DEVELOPMENT	603,768.36
18060E153 RESEARCH INCENTIVE	3,603.48
18060E154 COLLABORATIVE RDF 2004/2005	25.63
18060E155 MICROARRAY	
18060E158 VP RESEARCH START-UP	2,454.28
18060E160 VP RESEARCH START-UP	7,354.95
18060E161 CAM CENTER SUPPORT	118,212.22
18060E162 USC SOM RESEARCH DEVELOPMENT AWARD	2,908.89
18060E163 USC SOM RESEARCH DEVELOPMENT AWARD	1,551.25
18060E164 USC SOM RESEARCH DEVELOPMENT AWARD	5,873.37
18060E165 RESEARCH OPPORTUNITY PROGRAM	9,081.22
18060E201 NIH CENTER START-UP FUNDS	40,000.00
18070E150 RESEARCH INCENTIVE-PATHOLOGY	
18080E150 RESEARCH INCENTIVE-PHARMACOLOGY	710,682.65
18080E151 RESEARCH DEVELOPMENT	
18080E152 RESEARCH DEVELOPMENT	
18080E153 RESEARCH DEVELOPMENT	
18080E160 PPN CHAIR POSTDOC FUND	46,245.00
18090E150 RESEARCH INCENTIVE	
18110E150 RESEARCH INCENTIVE-OB/GYN	128.35
18120E105 SPECIAL EDUCATION PROGRAM	
18120E150 RESEARCH INCENTIVE-NEUROPSYCHIATRY	97,357.09
18120E400 RESIDENT PARTICIPATION-ADOLESCENT DEPRES	
18130E150 RESEARCH INCENTIVE-FAMILY&PREVENTIVE MED	59,741.33
18130E151 MEDICAL & ENVIRONMENTAL EXPOSURES	
18130E152 RESEARCH INCENTIVE ACCOUNT	0
18140E150 RESEARCH INCENTIVE FUNDS	75,937.43
18140E151 RESEARCH INCENTIVE - PEDIATRICS	45,435.90
18140E900 NATIONAL SYMPOSIUM ON INFO TECHNOLOGY	9,880.67
18150E150 RESEARCH INCENTIVE-OPHTHALMOLOGY	17,462.68
18150E151 VP RESEARCH START-UP	



18160E150 RESEARCH INCENTIVE-ORTHOPAEDICS	1,981.34
18180E150 RESEARCH INCENTIVE-RADIOLOGY	50,471.63
18190E150 RESEARCH INCENTIVE-INTERNAL MEDICINE	56,729.40
18200E150 RESEARCH INCENTIVE-SURGERY	6,997.21
18200E151 TISSUE ENGINEERING	34,311.26
18200E153 COLLABORATIVE RDF 2004/2005	
18200E154 SURGERY RESEARCH INCENTIVE	29,473.48
18260E103 ELECTRON MICROSCOPY-CONTRACTUAL SVCES	15,531.29
18260E105 TISSUE CULTURE LABY	
18260E107 MED SCHOOL ANIMAL RESOURCES-CONTR SVCS	-9,860.06
18260E110 IRF SUPPLY CENTER	21,003.29
18280E106 USC SCHOOL OF MEDICINE LIBRARY	76,123.43
18280E150 RESEARCH INCENTIVE MEDICAL LIBRARY	966.03
18300E100 SCCC- POPULATION STUDIES	-63,320.59
18300E150 RESEARCH INCENTIVE-SCCC	72,230.28
18300E151 RESEARCH INCENTIVE - SCCC	47.9
18300E152 RESEARCH START-UP WADDELL	162.78
18360E150 RESEARCH INCENTIVE	1,129.40
18370E901 CONTINUING MEDICAL EDUCATION PROGRAMS	2,212.98
18400E150 DEAN'S START-UP & SPECIAL PROJECTS FUND	142,870.55
18400E200 CLINICAL TRIALS DISTRIBUTION FUND	106,329.52
33 MEDICAL SCHOOL	4,845,803.95