School of Medicine Update

William P. Fay, MD
Senior Associate Dean for Research, School of Medicine
NIH Awards & SOM Ranking\(^a\) (FFY06 – 17)

\(^a\) BRIMR (Federal Fiscal Year)
Strategy: Invest in Space and Research Infrastructure

- Research lab construction/renovation: 33,286 gsf
- Center for Biomedical Informatics: 3,430 gsf
- Vivarium renovation (ongoing): 20,000 gsf
- Total SOM space/infrastructure investment: $31M

FY18 research expenditures: $229/sq.ft.
Research Goals (FY19 – 23)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>FY23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Expenditures*</td>
<td>$33,586,172</td>
<td>$67,553,789</td>
</tr>
<tr>
<td>Phase I Research Expenditures*</td>
<td>$17,906,716</td>
<td>$36,016,802</td>
</tr>
<tr>
<td>Phase II Research Expenditures*</td>
<td>$1,682,658</td>
<td>$3,384,427</td>
</tr>
<tr>
<td>Proposals Submitted</td>
<td>411</td>
<td>827</td>
</tr>
<tr>
<td>Value of Proposal Submitted *</td>
<td>$221,104,015</td>
<td>$444,719,150</td>
</tr>
<tr>
<td>Faculty Awards**</td>
<td>1</td>
<td>4-5</td>
</tr>
</tbody>
</table>

* Source: Office of Research (Baseline is FY16-18 Average)
** Source: Academic Analytics (Baseline is FY12-16 Average)
Current Research Strengths

- Biomedical informatics and health outcomes
- Cardiovascular
- Oncology
- Reproductive biology
- Virology and microbiology

<table>
<thead>
<tr>
<th>Strengths</th>
<th>FY14-FY18 Total Awards</th>
<th>Estimated T/TT Hires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
<td>$38,318,690.60</td>
<td>5</td>
</tr>
<tr>
<td>Oncology</td>
<td>$22,624,215.00</td>
<td>5</td>
</tr>
<tr>
<td>Biomedical Informatics/Outcomes (caregiver engagement)</td>
<td>$37,881,887.88</td>
<td>5</td>
</tr>
<tr>
<td>Virology/Microbiology/Influenza (gene editing)</td>
<td>$38,050,882.58</td>
<td>5</td>
</tr>
<tr>
<td>Reproductive Biology</td>
<td>$3,342,080.70</td>
<td>5</td>
</tr>
</tbody>
</table>
## Emerging Strengths

<table>
<thead>
<tr>
<th>Emerging Strength</th>
<th>FY14-18 Total Awards</th>
<th>Estimated T/TT Hires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroscience</td>
<td>$20,192,834</td>
<td>3</td>
</tr>
<tr>
<td>Traumatic brain injury</td>
<td>*$176,995</td>
<td>3</td>
</tr>
<tr>
<td>Orthopaedic Surgery/Anatomy</td>
<td>$15,918,030</td>
<td>3</td>
</tr>
<tr>
<td>Sleep medicine</td>
<td>$466,130</td>
<td>3</td>
</tr>
<tr>
<td>Clinical and pragmatic trials</td>
<td>$10,619,595</td>
<td>3</td>
</tr>
</tbody>
</table>

*FY19 - $4M award
Genetic Therapy for Dystrophic Cardiomyopathy

McDonald, Kerry
Duan, Dongsheng
Yao, Gang
Krenz, Maike
Baines, Christopher
Domeier, Timothy

Informatics to Facilitate Caregiver Engagement in Advanced Cancer Care

Parker-Oliver, Debbie
Popescu, Mihail
Koopman, Richelle
Kruse, Robin
Washington, Karla
McCrae, Christina
Alexander, Greg
Demiris, George
Halpern, Scott
Meghani, Salimah

Heart Failure with Preserved Ejection Fraction (HFpEF)

Yeh, Edward
Bysani, Chandrasekar
Liu, Zhenguuo
Pulakat, Lakshimi
Chang, Hui-Ming

Immunotherapies to Cure Hepatocellular Carcinoma

Staveley-O’Carroll, Kevin
Li, Guangfu
McKarns, Susan
Teixeiro, Emma
Hahm, Bumsuk
Gil Pages, Diana

Vascular Stiffening in Type 2 Diabetes

Martinez-Lemus, Luis
Padilla, Jaume
Lastra, Guido
Manrique, Camila
Bysani, Chandrasekar
Vascular Stiffening in Type 2 Diabetes

Martinez-Lemus, Luis
Padilla, Jaume
Lastra, Guido
Manrique, Camila
Bysani, Chandrasekar
Clinical Research Revamp

• External consultants
• Research committees
  • Research Infrastructure Committee (RIC)
    • Improve pace, quality, and quantity of clinical research projects
  • Clinical Research Committee (CRC)
    • Revise CRC as needed to better meet needs of the MU research community
  • Managers Committee
• Faculty and staff survey
• 1-on-1 meetings with 21 department chairs in SOM
Director I of Research Operations and Planning

• Oversight of SOM clinical trials/research activities and infrastructure

• Key responsibilities
  • Point person for physicians planning clinical research trial
  • Oversee training of investigators and coordinators
  • Receive and review study offers from sponsors/CROs
  • Write proposals/IRB submissions
NIH-funded, investigator-initiated human studies

NIH R01 DK113701
Parks, Rector, Ibdah, PIs
05/01/17 - 04/30/22
Title: "Nutrient overload, insulin resistance, and hepatic mitochondrial dysfunction"
Total award: $3,870,197

NIH R01 DK101513
J. A. Kanaley, PI
04/01/16 - 03/31/20
Title: "Dawn Phenomena: Lowering impaired fasting glucose levels with exercise (LIFE)"
Total award: $2,389,361

NIH R01 HL137769
J. Padilla, PI
09/01/17 - 08/31/22
Title: "Restoring vasodilator actions of insulin in patients with type 2 diabetes"
Total award: $2,604,751

NIH R21 DK116081
C. Manrique, PI
09/18/18 - 08/31/21
Title: "Sex related differences in arterial stiffness in type 2 diabetes: role of uric acid"
Total award: $581,250

NIH R01 HL142770 pending – scored below payline
C. Manrique, PI
04/01/19 - 12/31/23
Title: "Estrogen receptor alpha signaling in endothelial cells exacerbates arterial stiffening via upregulation of the epithelial sodium channel in insulin resistant females."
Total award: $3,517,396

Scored and resubmitted
NIH R01 HL142770
J. Padilla, L. Martinez, Staveley-O’Carrol, PIs
06/01/19 - 05/30/24
Title: "Role of ADAM17 in mediating microvascular insulin resistance in type 2 diabetes"
Total award: $3,487,482

In 2013 there were none
GROW Scholars Program

- **Grant Writing in Outcomes Research Workshop**
- 9-month junior faculty development program
  - Department of Family and Community Medicine
  - Junior faculty accepted in the program attend bi-weekly classes
  - Curriculum includes:
    - Clinical research methods
    - Human subjects protections
    - Grant writing skills
    - NIH-style mock review and professional editing of completed proposal
    - Peer mentoring
Biomedical engineering collaborations

Noninvasive blood glucose measurement

- ideally suited for clinicians
- scientific & commercial potential

A. Upendran, S. Mukherjee, U. Khan and R. Kannan
National Swine Resource and Research Center

Providing high quality biomedical swine models

News and Events

April 2017

Conference Announcements

14th Congress Advancing Xenotransplantation Science
Worldwide 6th Swine in Biomedical Research
Conference

November 1, 2016

Updated Publications

October 1, 2016

Publication release
TPMC

- Recruiting
- Human tissues bank
- Clinician engagement
Thank you