SLU SCHOOL OF SCIENCE AND ENGINEERING MAR 2025

SLU BIOMEDICAL ENGINEERING NEWSLETTER

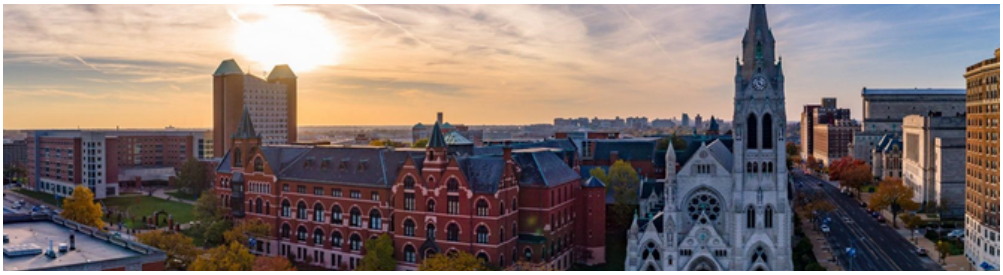
SAINT LOUIS UNIVERSITY

DEPARTMENT OF BIOMEDICAL ENGINEERING

IN THIS ISSUE

- Reiter Lab Grant
- Garg Lab Grants
- Garg - Forum Editor
- Publications
- Faculty Mentoring Panel
- SLU Career Trek - Houston
- Bausch and Lomb Visit
- BME Seminar
- UG Exp. Learning App
- SSE Mentor Collective
- Alumni Questionnaire
- BME Newsletter Access

Follow us on Social Media by clicking the icons below!



SLU BME PROFESSOR AWARDED DOD GRANT

BME Assistant Professor**, Alex Reiter**, **Ph.D.**, received a 4-year Department of Defense grant of approximately $1.5 million for his project titled, "Assessment of Tendon Loading for Enhancing the Treatment of Achilles Tendon Rupture." Dr. Reiter's lab will characterize tendon loading with a wearable sensor system in Achilles tendon rupture patients and determine if the measures predict clinical outcomes. A better understanding of tendon loading during recovery and its relation to patient outcomes are likely to lead to improvements in rehabilitation and return-to-activity protocols. The long-term goal of the research is getting patients back to performing at the same level prior to injury on a shorter recovery timeline. Learn more about Dr. Reiter's Musculoskeletal Biomechanics Lab **here**.

CDMRP

GARG LAB AWARDED MULTIPLE GRANTS

NIH NIAMS GRANT

Koyal Garg, **Ph.D.**, Associate Professor of Biomedical Engineering, received a National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) R01 grant for nearly $1.1M for the project titled, “An Intelligent Biorobot for the Regenerative Rehabilitation of Volumetric Muscle Loss Defects.” This research, in collaboration with Cleveland State University, will run from 2026 to 2030, with Dr. Garg (Co-Investigator) serving as the SLU site Principal Investigator.

KOYAL GARG, PH.D.

SAINT LOUIS UNIVERSITY
Institute for Drug and Biotherapeutic Innovation

Additionally, Dr. Garg received two grants from SLU’s Institute for Drug and Biotherapeutic Innovation.

SLU IDBI INNOVATION SEED GRANT

The first grant awarded was a $10,000 Innovation Seed grant for her project titled, “Enhancing Myoblast Proliferation for Muscle Regeneration Following Trauma.” Dr. Garg is the Co-Investigator for this project and Fran Sverdrup, Ph.D., Associate Professor of Biochemistry and Molecular Biology within Saint Louis University’s School of Medicine, is the Principal Investigator.

FRAN SVERDRUP, PH.D.

SLU IDBI GRANT

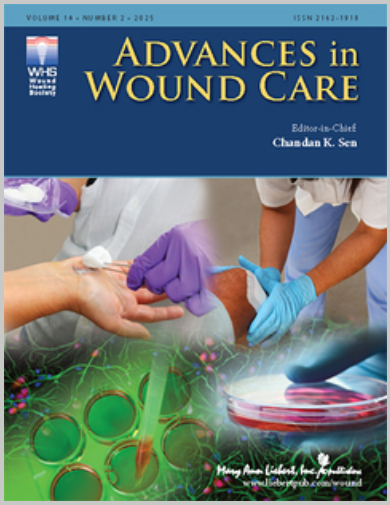
The second IDBI grant awarded was a $10,000 grant with Dr. Garg as the Principal Investigator for her research project titled, “Zebrafish-Inspired Treatments for Large-Scale Muscle Injuries.” Dr. Garg's Co-Investigators for this study are Dr. Aaron Johnson and Dr. Gretchen Meyer from Washington University in St. Louis.

GRETCHEN MEYER, PH.D.

AARON JOHNSON, PH.D.

DR. GARG SERVES AS FORUM EDITOR FOR TOP-RANKED JOURNAL

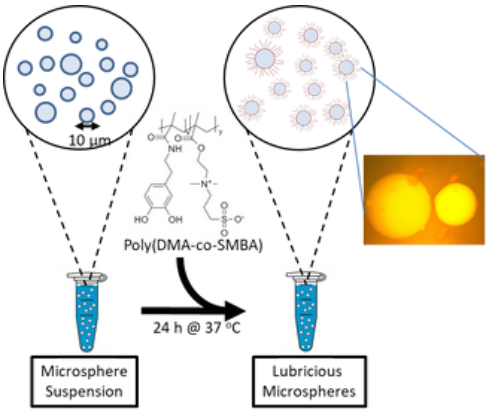
Dr. Koyal Garg served as the Forum Editor for the topic of Volumetric Muscle Loss (VML) for the journal, Advances in Wound Care. As a journal of the Wound Healing Society, Advances in Wound Care is the top-ranked journal in the discipline of wound care, with an impact factor of 5.8 and a CiteScore of 12.1. Dr. Garg invited leading experts in the field of volumetric muscle loss to contribute their work and enthusiastically participated in the peer-review process. The forum features six publications in volume 14, issues 2-3 of the journal released in Feb-March 2025. Click **here** for more info.



PUBLICATIONS

BME Professor, **Silviya Zustiak, Ph.D.**, and lab members collaborated with SLU's Chemistry department and WashU's department of Orthopaedics. Together they published an article titled, "Super-Lubricous Polyethylene Glycol Hydrogel Microspheres for Use in Knee Osteoarthritis Treatments" in npj Biomedical Innovations, Nature publishers.

Full Author List: **Samuel Stealey Ph.D.**, **Ether Dharmesh**, Maitreyi Bhagat (SLU Chemistry), Abdul Malik Tyagi (SLU Chemistry), **Andrew Schab**, Mellissa Hong (SLU Chemistry), Damon Osbourn (SLU Chemistry), Yousef Abu-Amer Ph.D. (WashU Orthopaedics), and Paul A. Jelliss, Ph.D. (SLU Chemistry), **Silviya Petrova Zustiak**

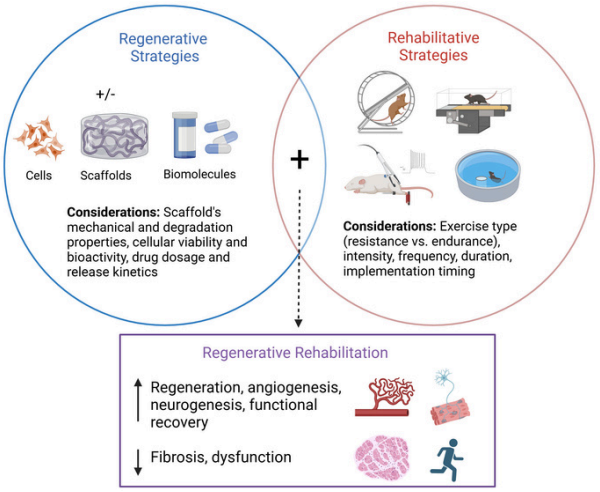


This article explores the development and testing of super-lubricious hydrogel microspheres. These microspheres have shown significant potential in reducing joint friction, a key symptom of progressive osteoarthritis, which could ultimately help reduce the need for total knee replacement surgeries. Click **here** for the full article.

ZUSTIAKLAB.COM

PUBLICATIONS CONTINUED

Current and former BME students working in **Dr. Koyal Garg**'s lab collaborated with Dr. Christopher McAndrew (Associate Professor, Orthopaedic Surgery, WashU), **Dr. Alex Reiter** (Assistant Professor, SLU Biomedical Engineering), and Johnny Owens (Founder, Owens Recovery Science) to publish a review article titled, "Regenerative Rehabilitation: Navigating the Gap Between Preclinical Promises and Clinical Realities for Treating Trauma-Induced Volumetric Muscle Loss (VML)" in the Journal of Physiology. This article examines the alignment and divergence of preclinical and clinical studies in regenerative rehabilitation for volumetric muscle loss, highlighting recent advancements and exploring future directions for the field. Both undergraduate and graduate students from Dr. Garg's **Musculoskeletal Tissue Engineering lab** in BME worked on different sections of the article that Dr. Garg compiled into a comprehensive review. For the full article click **here**.

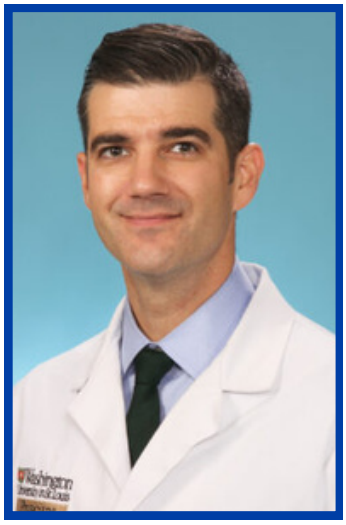


Garg Lab Students: David Johnson, Ph.D., Ryan Mueller, Julia Brockhouse, Gerard Pena, and Amelia Ridolfo

KOYAL GARG, PH.D.

ALEX REITER, PH.D.

JOHNNY OWENS, MPT



CHRISTOPHER MCANDREW, MD

SAINT LOUIS UNIVERSITY
DEPARTMENT OF BIOMEDICAL ENGINEERING

OWENS RECOVERY SCIENCE CERTIFIED

WashU

FACULTY MENTORING SERIES PANEL WITH DR. KOYAL GARG

On March 6, 2025, **Koyal Garg**, **Ph.D.**, joined other SLU senior tenured faculty researchers and served on a faculty mentoring series panel hosted by SLU's Department of Diversity and Innovative Community Engagement. Dr. Garg shared insights about the challenges and wins of building a research career. Events like these demonstrate SLU's strong commitment to mentorship, guiding and inspiring young academics on their professional journeys.

SLU CAREER TREK SPRING BREAK TRIP

BME Junior, **Esha Pattan,** participated in SLU's 2025 Houston Career Trek over spring break. Organized by SLU Career Services, attendees gained valuable insights into various industries and career opportunities. The trip included visits to the NASA Johnson Space Center, KBR (technology and engineering solutions company), ENGIE (electric utility company), and BP (oil and gas company), where students explored internships, project management, renewable energy, and career development. Highlights included touring NASA's Mission Control Center, attending a Houston Rockets basketball game, and networking with SLU alumni and professionals.

"The Houston 2025 Career Trek was transformative in expanding my view on what career options are out there for me as someone with a biomedical engineering degree. I used to think that getting a BME degree meant my career options were limited to specific engineering paths, but meeting representatives at companies like ENGIE and BP showed me that there are so many more opportunities out there. Hearing from professionals across industries showed me how the skills I learn in my degree program can be applied beyond traditional biomedical roles, expanding my career possibilities."

Esha Pattan, BME Junior

BMES - BAUSCH AND LOMB SPEAKER EVENT

On March 28th, Bausch + Lomb (B+L) visited Saint Louis University for a special Biomedical Engineering Society (BMES) meeting, featuring a panel of SLU BME alumni who are now working at B+L. The panel included Nicole St. Clair (BME '21), Julianna Schneider (BME '19), and a representative from the B+L systems engineering team. They shared insights into their career paths, discussed the transition from SLU to the medical device industry, and highlighted the diverse opportunities available with a BME degree. The event provided an excellent opportunity for students to network, explore career options, and learn more about B+L's work in the eye care industry.

BAUSCH + LOMB

BME SPRING SEMINAR - APRIL SCHEDULE

The BME department hosts a weekly seminar that features invited speakers from academia and industry as well as SLU biomedical engineering graduate students. The seminar is a great opportunity to learn about the latest research taking place broadly in the biomedical engineering field and the amazing work our graduate students are performing at SLU. Sign up **here** to receive BME Seminar announcements for upcoming speakers. This is separate from our newsletter distribution list.

Coming Up:

4/2 No seminar
4/9 Jason Longhurst, Ph.D., Assistant Professor, Physical Therapy and Athletic Training, SLU
4/16 Michael Borovik and James Baker, Graduate Students, Biomedical Engineering, SLU
4/23 Kristina Pinkham and Annelise Le, Graduate Students, Biomedical Engineering, SLU
4/30 No seminar

CALLING ALL UNDERGRADUATES!

Are you eager to collaborate with professors and graduate students on impactful research? Want to gain hands-on experience that's advancing healthcare? Looking to develop lab skills and boost your resume? Apply for the BME Research and Experiential Learning Opportunities for Undergraduates! This program offers a unique chance to immerse yourself in meaningful research and practical applications. Don't miss out! Click **here** to fill out the application and then submit your resume to biomed@slu.edu.

THE MENTOR COLLECTIVE FOR UNDERGRADUATES AND ALUMNI!

We're calling on valued members of our community to serve in Saint Louis University's School of Science and Engineering Mentor Collective Alumni Network! This program matches undergraduate sophomores, juniors, and seniors with mentors like you who have been in their shoes and know first-hand what it's like to learn at SLU. Click **here** to sign up to be a mentor.

ATTENTION BME ALUMNI

Are you a SLU BME Alumni? If so, we'd like to invite you to fill out the form below to give us your updated contact information (email) and tell us where you have landed after graduation. With your permission, we would love to highlight your career achievements and stay connected with you in the future!

BME ALUMNI FORM

BME NEWSLETTER ACCESS

Did someone forward you this newsletter? Click **here** to be added to our distribution list.

Receiving this newsletter for the first time? Click **here** to read news from previous months.