Spring 2016
Biomedical Engineering
As chair of Case Western Reserve University’s Department of Biomedical Engineering, I’m daily reminded of the power of collaboration. We’re mere steps away from leading hospitals, including Cleveland Clinic, University Hospitals and the Louis Stokes Cleveland VA, in which our students regularly interface with physicians, explore research labs, and gain firsthand experience of clinical challenges. I think it’s the secret sauce to our program’s growth and diversity of specialties: imaging, prosthetics, materials and drug delivery, to name a few. I’m pleased to share recent highlights of hands-on, multidisciplinary collaborations in this issue.

Sincerely,

Robert F. Kirsch, PhD
Allen H. and Constance T. Ford Professor
Chair of Biomedical Engineering
Case Western Reserve University
New at BME

CWRU and Microsoft collaborate on Hololens for Medical Education
CWRU and Cleveland Clinic aim to create anatomy curriculum that takes advantage of Microsoft’s HoloLens, which would allow students to study life-size holograms of the body and its organs.

CWRU Awarded NCI Grant to Build Digital Pathology Platform
CWRU researchers are building digital pathology tools to predict cancer outcomes.

CWRU Researcher Lands Grant to Build Stealthy Brain Tumor Treatment
Combining nanotechnology with traditional chemotherapy drug and resistance-inhibitors.

New Contrast Agent Spotlights Tiny Tumors and Micrometastases
Considered a step toward earlier detection and treatment.

Read full stories at BME.case.edu/inthenews
Faculty Highlights

Case Western Reserve University, Louis Stokes Cleveland VA teams won $6.9 million from Department of Defense for prosthetic limb work. Dustin Tyler, associate professor of biomedical engineering, leads a team of researchers that recently was awarded $4.4 million.

The Government of India selected Pallavi Tiwari, assistant professor in biomedical engineering and in the Center for Computational Imaging and Personalized Diagnostics, as one of the 100 Women Achievers of India.

Professor of Biomedical Engineering Hunter Peckham received the 2015 Lifetime Achievement Award from American Spinal Injury Association.

Gerald Saidel, professor of biomedical engineering, is a co-author of a new textbook, Biomedical Mass Transport and Chemical Reaction: Physicochemical Principles and Mathematical Modeling. The book includes material Saidel has taught at both the undergraduate and graduate level during his 49-year career.

A research team from Case Western Reserve and Cleveland Clinic, led by Anirban Sen Gupta, associate professor of biomedical engineering, received two consecutive five-year R01 grants totaling $3.8 million from the NIH to develop injectable artificial platelets (SynthoPlate technology) for treating bleeding complications and to further refine the platelet-mimetic technology for thrombolytic nanomedicine.
Three biomedical engineering faculty, Eben Alsberg, Cameron McIntyre and Horst Von Recum, were elected to the 2016 Class of AIMBE College of Fellows. They were inducted at a ceremony during the AIMBE’s 25th annual meeting at the National Academy of Sciences Great Hall in Washington, D.C., April 4.

Nicole Steinmetz, assistant professor of biomedical engineering, won a $500,000 National Science Foundation grant to create tiny sensors capable of detecting insecticides in Lake Erie — as well as determining subtypes of human cancers.

Nicole Seiberlich, assistant professor of biomedical engineering, has been elected to the Board of Trustees of the International Society for Magnetic Resonance in Medicine (ISMRM). Seiberlich has been an active member of the association for 11 years, taking on various roles, including planning and moderating scientific and educational sessions, delivering invited talks and working with society journals.

The Prayers from Maria Foundation announced a $250,000 grant to fund the research of James P. Basilion, professor of radiology and biomedical engineering.

Another highlight for Basilion is that Akrotome Imaging Inc., a Case Western Reserve biomedical engineering start-up, has received a major award from the NIH to complete development and commercialization of its leading-edge imaging platform.
Student Accomplishments

Graduate Student Punkaj Ahuja with Apollo Medical Devices created a rapid analysis blood test.

As a biomedical engineering graduate student at CWRU, Punkaj Ahuja was working in 2010 on applications for a core sensor his team was developing. Then the idea for a rapid blood test using the same technology came to him. They plan to bring the product to market by 2017.

Graduate student Anna Dikina received the Baxter Young Investigator Award.

Anna Dikina, a graduate student in the lab of biomedical engineering professor Eben Alsberg, has been selected as a Baxter Young Investigator for her research entitled “Engineering Cartilaginous Tracheal Replacements: Vascular Tissue Incorporation and Epithelialization.”

Reviewer's Choice Award

Jacob Antunes, a biomedical engineering undergraduate student, was awarded the Reviewer's Choice Award from the Biomedical Engineering Society conference for his poster, titled Identifying PET/MRI Parameters for Early Treatment Response in Renal Cell Carcinoma.

Program Showcase

Case-Coulter Translational Research Partnership

The Case-Coulter Translational Research Partnership has announced more than $1 million in funding and support for the 2015 cycle. This includes six full biomedical engineering projects, — from an affordable and easy method to screen for Barrett's esophagus, to synthetic life-saving blood platelets, to a technology that reduces pain after joint-replacement surgery.

Learn more at BME.case.edu/CCTRP
Alumni Spotlight

Ravindra Manjeshwar, PhD

Ravindra Manjeshwar, PhD (GRS ’00, biomedical engineering) was recently named chief scientist of CT and Advanced Molecular Imaging and senior director of Global Advanced Technologies at Philips Healthcare. Manjeshwar has returned to Cleveland after several years at GE Global Research, where he managed a molecular imaging team and led activities including the creation of GE’s PET/MRI prototype. Dr. Manjeshwar is serving on the advisory board of BME’s NIH PhD student, T32 training grant on Biomedical Imaging.

Mike Jenkins, PhD

Mike Jenkins, PhD (CWRU ’04, GRS ’08, biomedical engineering) won the H.W. Mossman Award in Developmental Biology from AAA, an annual Young Investigator award.

Welcome New Faculty

Sam Senyo, PhD

Sam Senyo joined the biomedical engineering faculty in January 2016. Senyo’s laboratory seeks to elucidate factors that regulate basal tissue injury response and early development to devise effective strategies for therapeutic regeneration, particularly in the heart. This goal is approached at several levels by integrating information derived from cross-disciplinary techniques of molecular biology, biophysics, polymer chemistry and biomimicry.

Pallavi Tiwari, PhD

Pallavi Tiwari joined the biomedical engineering faculty in February, 2016. Her research focuses on computerized decision support methods for evaluating disease presence and treatment response of radiotherapy and laser ablation therapy for neurological applications, including brain tumors, epilepsy and cancer pain. She also studies novel automated algorithms to analyze and integrate multi-modal imaging data for disease diagnosis, prognosis and treatment evaluation.
The department's newly created research overview videos showcase current high-potential projects underway in the labs. View all of the new videos on our YouTube channel, or the individual faculty profiles on the website.

*Cover photo: New undergraduate laboratory*