Dear alumni, academic colleagues, clinical partners, and industry partners:

It is my pleasure to update you on news from the Institute for Biological Interfaces of Engineering (IBIOE) at Clemson University. As many of you already know, the mission of IBIOE is to develop bench top tissues that may be used in drug discovery, basic research, therapeutic, and diagnostic applications. IBIOE represents a new type of research unit at Clemson University – one that spans disciplines and is not housed within a department, program, or college. IBIOE is built around a core of permanent research faculty members who provide a consistent base of operation for tenured and tenure-track faculty and industry collaborators. This unique model is less constrained by the discipline “walls” that can limit research avenues. The development and translation to clinical and industrial use of bench top tissue requires input from a wide range of disciplines including business, life sciences, physical sciences, engineering, and the humanities. It includes the technical endeavors as well as the related challenges of linking the resulting technologies to the “real world”, i.e. through policy, regulation, intellectual property, and economic development. IBIOE is uniquely positioned to integrate these diverse fields.

I am particularly pleased to announce the launch of the Call Me Doctor™ fellowship program, a program geared toward increasing the number of minority students completing doctoral programs. Doctoral candidates applying to the Clemson University Departments of Bioengineering, Biological Sciences, Business, Electrical and Computer Engineering, Mechanical Engineering, with interest in biomedical research and a strong commitment to diversity are especially encouraged to consider this fellowship opportunity. Please read below for more detailed information.

Many thanks for your interest in and support of IBIOE.

Best wishes from Clemson,

Karen J.L. Burg
Director
IBIOE Provides a Unique Research Operational Model

Traditional cell culture is based on 2-D cellular arrangements or cells distributed in 3-D gels that have limited relevance to tissues found in the human body. Diagnostic test systems are engineered heterotypic tissues built with cells and biomaterials to provide spatially relevant 3-D arrangements – more like those found in the body – and allow the end user to predict disease behaviors and progression as well as efficacy of therapies, vaccines or new medical implants. Development of these systems for clinical and industrial use requires robust, collaborative relationships with business and medical partners.

Accordingly, the core IBIOE research is conducted by permanent research faculty members who provide a consistent base of research operation. This unique model allows continuity, reliability, and productivity in designing diagnostic test systems. The pairing possibilities for IBIOE collaborations seem endless. A research and development group could include a professor from the Department of Electrical and Computer Engineering and an IBIOE cancer cell biology research faculty member — both working in conjunction with a cancer surgeon. This corporate-type core model is unique in a university setting. Read More ...

IBIOE Involves Graduate Students in Community Engagement and Training Programs

What do empty paper towel rolls, a stuffed animal, squirt bottles filled with water, black acrylic paint, yellow hair gel, Band-Aids®, cork stops, Styrofoam™ balls and snack-size plastic baggies have in common? These items make one of IBIOE’s many community engagement biomedical demonstrations possible. With IBIOE community engagement projects, researchers can transfer their work from the lab to real-world applications for others to see firsthand. It’s a win-win dynamic for all involved.
IBIOE researchers, in conjunction with high school and middle school teachers, have developed half a dozen classroom-friendly modules that convey complex biological ideas that teachers can convey in the classroom. The modules explain complicated scientific concepts such as stem cells, drug delivery process, chronic inflammation and encapsulation – all on a level that 10-year olds can understand. Read More …

IBIOE is Proud to Announce its Call Me Doctor™ Training Program

The CMD™ program partners underrepresented IBIOE engineering and science doctoral fellows with education doctoral students and faculty members to deliver cutting-edge science and engineering concepts to the community and K-12 classrooms. The goal of the program is to leverage the skills and interests of the fellows, exciting and informing the public about cutting edge research. The fellows enhance their communication skills and gain a broader learning experience than they would in a traditional research environment. Read More …

IBIOE…Linking research, production, and clinical application to engineer tissue systems for design and testing of new medical solutions. Where innovation occurs at the boundaries of disciplines.