

# **The University of Missouri Biodesign Program**

## **“Training Tomorrows Entrepreneurs Today”**

Dale P<sup>1</sup>, Scheller G<sup>2</sup>, Jahnsen M<sup>1</sup>, McGowan D<sup>1</sup>

University of Missouri School of Medicine<sup>1</sup>, University of Missouri School of Engineering<sup>2</sup>, Missouri Technology Corporation (MTC)

### Introduction:

The MU Biodesign and Innovation Program (MUBIP) is focused on improving health care through invention and implementation of new medical technologies. The focus of the program is formal educational training of three fellows with a focus on biodesign and innovation. Additionally, the program is dedicated to the development and facilitation of interdisciplinary collaboration between faculty and students to increase innovation at the University of Missouri.

### Background:

With the financial support of the Department of Surgery, the School of Engineering and the Missouri Technology Corporation (MTC) the MUBIP is in its 3<sup>rd</sup> successful year. The program brings the brightest young minds with an M.D. degree, an engineer with a masters or PhD, and a business professional with an MBA together as a design team. The fellowship year structure is divided into three phases. Phase 1 is clinical immersion; Phase 2 engineering design and development, finishing with Phase 3, business practices. Each phase is approximately 4 months with overlap throughout the year. In addition to observation and hands on training in each phase the fellows attend lectures related to the biodesign process. Lectures are presented by faculty and staff from the Department of Surgery, College of Engineering, entrepreneurs, angel fund investors, venture capitalists, industry leaders, founders from startup companies, and other successful biodesign related individuals from the community and nationwide.

### Results:

The MUBIP Fellowship had the first group of fellows enter in July of 2007. The 2007-2008 fellows identified over 200 needs during their clinical immersion phase. After filtering the solutions, a novel hernia mesh design was chosen by the fellows as the main focus for the engineering phase resulting in a provisional patent application was filed and is currently undergoing investigation for commercialization. The second year, 2008-2009, team identified over 200 needs and identified fifteen for innovation. MUBIP comprised 1/8 of all 2009 inventions disclosed at the Columbia Campus. These innovations consisted of 9 minimally invasive devices, 3 real time patient monitoring devices, 2 minimally invasive cosmetic devices, and 1 laparoscopic trainer, many of which are in different phases of development and commercialization. Our current fellows completed their clinical immersion phase and identified over 200 needs; each fellow has identified a “pet” project and a group project. The addition of a “super-fellow” this year has allowed for continuing innovation. This fellow focuses on the development and commercialization of the prior year’s fellowship projects. The super-fellow has increased undergraduate, graduate and faculty collaboration with the School of Engineering and the School of Medicine.

#### Conclusion:

The MUBIP is a nationally recognized premier program focused on a team approach of educating physicians, engineers, and business graduates on the process of biodesign and becoming successful entrepreneurs. Our early results indicate continued success and growth of the MUBIP.