

EDITORIAL

EBM Goes BME

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The boundaries of biomedical engineering (BME) are expanding rapidly, fueled in part by new knowledge generated in the biological and engineering sciences, all the while driven by the need for innovative technologies in medicine and health care. BME blends engineering practicality with biological insights to create novel medical interventions. The highly interdisciplinary nature of biomedical engineering combined with its integrated approach for problem solving makes it one of the most dynamic disciplines. This field is striking not only in its multifaceted approach but also in its growth. According to the American Society for Engineering Education, a steady 15%–20% growth rate exists in biomedical engineering enrollments nationally, marking the fastest growth among all engineering disciplines. New departments of biomedical engineering are formed in many teaching and research universities, thanks to the infusion of top-notch talent from a variety of disciplines in engineering sciences, chemistry, biology, and medicine.

Experimental Biology and Medicine (EBM) has a long tradition of publishing multidisciplinary and interdisciplinary research in the biomedical sciences. This vision synergizes tremendously with that of biomedical engineering. Dr. Steven Goodman, the new Editor-in-Chief of *EBM*, has now designated BME as one of its new interdisciplinary categories in the hope of capturing the excitement of this emerging field. As the newly appointed Associate Editor of BME, my mission is to establish *EBM* as an enabling platform to publish high-impact discoveries at the cutting edge of biomedical engineering. My own research has benefited greatly from integrating expertise in materials science, molecular imaging, and cancer biology to establish multifunctional nanomedicine platforms for early detection and intervention of cancer. To accomplish this mission, an editorial board of the new BME section has been assembled that includes leaders and experts in diverse areas of biomedical engineering. The editorial board members

include Dr. Ravi Bellamkonda (Georgia Tech), whose lab is using integrated molecular and engineering approaches for peripheral and central nerve regeneration and neural interfacing; Dr. David A. Boothman (UT Southwestern Medical Center), who is fusing novel cell stress targets with cancer nanomedicine platforms to achieve targeted therapy of cancer; Dr. Mark Pagel (Case Western Reserve), who is developing responsive molecular imaging agents for early diagnosis of diseases such as cancer; Dr. Justin Hanes (Johns Hopkins), whose lab has successfully established various drug delivery systems from nano to macroscopic scales; Dr. Jianghong Rao (Stanford), who is developing self-illuminating quantum dots and other novel imaging probes as diagnostic agents; Dr. Glen Kwon (University of Wisconsin), who is establishing amphiphilic polymeric micelles for drug solubilization and delivery; Dr. Rolf Brekken (UT Southwestern Medical Center), who is integrating ultrasound imaging and intervention in the development of cancer-targeted therapeutics; Dr. David Putnam (Cornell), who is developing novel biopolymers for gene and siRNA delivery; Dr. Samir Mitragoti (UC Santa Barbara), who is building novel strategies involving the use of external forces (ultrasound, chemicals) as well as newly fabricated biomaterials for applications in drug delivery; and Dr. Fan Yuan (Duke), whose lab is elucidating the fundamental mechanisms of drug transport to aid the development of cancer therapeutics that can overcome barriers and drug resistance. One of the common themes for all editorial board members is that they have truly embraced the interdisciplinary nature of biomedical engineering research by enlisting multimodality methods and techniques in their research program.

As the newly appointed Associate Editor of biomedical engineering, my goal is to work closely with the editorial board to foster a new and exciting culture of BME within *EBM*. Together, we will work toward the ultimate goal of publishing BME research in high quality and quantity, and expanding the *EBM* readership in Engineering Sciences, Biology, and Medicine.