Editorial

Outstanding Articles in Cellular and Molecular Bioengineering Selected from the 2010 Biomedical Engineering Society Meeting

The Biomedical Engineering Society (BMES) Annual Meeting continues to grow and prosper, as evidenced by the vitality of the recent meeting in Austin, Texas. In all there were over 2200 presentations and over 3100 attendees, making it the best-attended BMES meeting ever. Within the meeting were strong contributions in the area of Cellular and Molecular Engineering, which continues to represent an important emerging area of the field.

As in years past, we, the Co-Editors-in-Chief, have dedicated a Special Issue of CMBE to recognize the outstanding research presented at the BMES meeting. We would like to thank the Cellular and Molecular Engineering Track Session Chairs, who nominated contributions from their respective sessions. Also, we thank meeting chair Christine Schmidt (University of Texas) and program chair Krish Roy (University of Texas), as well as Track Co-Chairs Andres Garcia (Georgia Tech) and Laura Segatori (Rice University), for their support of our efforts.

In this issue are three outstanding papers that describe cutting edge research presented at the 2010 BMES meeting in the area of cellular and molecular bioengineering:

Nazgul Tuleuova and Alexander Revzin (University of California, Davis) describe their development of a FRET-based microfluidic approach to detect nanomolar concentrations of IFN- γ using DNA aptamer beacons in a microarrayed format. This methodology

will potentially be useful for real-time detection of cytokine secretion, and high-throughput screening.

Ansuya Das, Doug Lauffenburger, Harry Asada, and Roger Kamm (Massachusetts Institute of Technology) describe a decision tree analysis approach to modeling the combined effects of VEGF and Ang 1 on endothelium sprouting. Their integration of microfluidic control over cell-matrix organization with quantitative measurement of angiogenic activity allowed them to identify predictive models for complex signaling environments.

Yue Geng, Srinivas Narasipura, Gail Seigel, and Michael King (Cornell University) describe the interaction between retinoblastoma cells and neutrophils, which may lead to invasiveness and metastasis of the tumor cells. They find that an ICAM-1 mediated linkage allows a subpopulation of tumor stem cell-like cells to use neutrophils as mediators of their adhesion to *in vitro* mimics of inflamed endothelium. The results suggest new therapeutic strategies based on targeting of the cancer stem cell-immune cell interaction.

We hope that you will enjoy reading these Outstanding Papers from the 2010 BMES Meeting.

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