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Biography

Dr. Mooney received his B.S. in Chemical Engineering from the University of Wisconsin, and Ph.D. in Chemical Engineering from MIT. His laboratory designs biomaterials to make cell and protein therapies effective and practical approaches to treat disease. He is a member of the National Academy of Engineering, the National Academy of Medicine, and the National Academy of Inventors. He has won numerous awards, including the Clemson Award from the SFB, MERIT award from the NIH, Distinguished Scientist Award from the IADR, Phi Beta Kappa Prize for Excellence in Undergraduate Teaching, and the Everett Mendelsohn Excellence in Mentoring Award from Harvard College. His inventions have been licensed by over 14 companies, leading to commercialized products. He has founded two companies, and is active on industrial scientific advisory boards.

Abstract

“Biomaterial-based T cell therapies”

Dysfunction of the immune system underlies many diseases, and results from certain cancer therapies. However, strategies to effectively accelerate return of immune function and program disease-specific immune responses by manipulating stem cells and immune cells are at an early stage. We are creating biomaterials capable of concentrating, interrogating, and manipulating stem and immune cells ex vivo and in the body by controlling, in space and time, the interaction of the cells with various cues. The utility of this concept in the cancer T cell-based therapies will be highlighted.