

David I. Shreiber

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David I. Shreiber, PhD, joined the faculty at Rutgers in 2002. His research spans a broad array of fields including neural tissue engineering and regenerative medicine, brain and spinal cord injury biomechanics, acupuncture, and electroporation. He has received numerous awards from private foundations and state and federal agencies, such as the Whitaker Foundation, the NIH, the CDC, and the NSF, including the prestigious NSF CAREER award for Young Investigators, and he currently leads the NSF-REU site in Cellular Bioengineering at Rutgers. In 2012, he was a recipient of the inaugural Rutgers School of Engineering Outstanding Faculty Award, which recognizes excellence in scholarship, teaching, and service to the Rutgers Engineering Community and beyond.

Research Interests:

Dr. Shreiber's Group is interested in understanding Central Nervous System injury, repair, and regeneration. We study the tissue and cellular biomechanics associated with traumatic injury using in vivo, in situ, and computational models. We attempt to dictate cell migration and axon regeneration by imposing spatial patterns of mechanical properties and bioactivity in collagen gels using BioMEMS. Finally, we use in vitro and computational models to investigate mechanotransduction as a mechanism underlying the response to acupuncture. Our current research foci include the multi-scale analysis of CNS injury mechanics; biomaterial, tissue, and cellular engineering approaches for repair and restoration of neural functions; development of ultra-flexible neural probes for brain-computer interfaces; a biophysical analysis of traditional acupuncture; and the development of technology for electroporation that is grounded in electrohydrodynamic theory.