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Beyond Building Tissues: The Future of Regenerative Medicine

Jennifer H. Elisseeff, Ph.D.
Morton Goldberg Professor
Director, Translational Tissue Engineering Center, Department of Biomedical Engineering, Wilmer Eye Institute
Johns Hopkins University

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66-110

Abstract:
Biomaterial implants have a long history in the clinic but regenerative biomaterials and regenerative medicine therapies in general have been slow to reach patients. Clinical translation provides a unique and critical opportunity to investigate the primary drivers of therapeutic efficacy. A key outcome of our clinical translation experiences in orthopedics and plastic surgery was defining the importance of the adaptive immune system in regenerative and biomaterial responses. We are now mapping the immune and stromal/senescence responses across diverse tissues and in response to biomaterials to determine profiles associated with tissue repair and fibrosis. These results are informing the design of regenerative immunotherapies with applications in tissue repair in addition to age-related tissue dysfunction and cancer.