Curriculum Vitae

Jennifer Elisseeff

Morton Goldberg Professor, Ophthalmology
Johns Hopkins University

Educational Background & Professional Experience

Undergraduate

1991.9–1994.5 Honors Bachelor of Science in Chemistry, Carnegie Mellon University, University and Departmental Honors, Polymer Science Option

Doctoral/Graduate

1994.9–1999.5 Ph.D. in Medical Engineering, Harvard–MIT Division of Health Sciences and Technology, Advisor: Robert S. Langer, Dissertation: Transdermal Photopolymerization of Hydrogels for Cartilage Tissue Engineering, Coursework: Standard MIT organic chemistry and Harvard Medical School 1st and 2nd year curriculum

Postdoctoral

1999–2001 Postdoctoral Fellowship (PRAT), Developmental Biology, Advisor: Yoshi Yamada, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda Maryland

Research Interests

I am the Morton Goldberg Chair, Professor of Ophthalmology, Biomedical Engineering, Orthopedic Surgery, Chemical Engineering and Materials Science and the Founding Director of the Translational Tissue Engineering Center(TTEC) at Johns Hopkins University. For the first 10 years, my group developed a systematic approach to probe cell and tissue responses to biomaterial scaffolds to explore gaps in biomaterials design. We engineered biomaterial scaffolds (specifically hydrogels) with highly controlled physical and biological properties in which cells could be encapsulated and cell–biomaterial interactions could be interrogated. Using the resulting knowledge, we engineered biomaterial technologies amenable to translation and designed to guide and stimulate endogenous tissue repair. Several of these technologies developed in the lab translated to clinical testing. The results of early translational and clinical experience with biomaterials led to the recognition of the immune system and its critical role in regenerative medicine. This shift ultimately led to the discovery of the role of Th2 T cells and the adaptive immune system in scaffold–enhanced tissue (muscle) repair and new nontraditional immune responses to synthetic materials and the foreign body response.

Today, my research is centered on the concept of Regenerative Immunology and engineering systems to exploit the power of the immune system in regeneration. We are mapping the immune–stromal networks in tissues in homeostasis and after damage to design regenerative solutions. Relevant to clinical translation,