

Preface

While our understanding of stem cells has advanced tremendously since the seminal work of Till and McCulloch in the 1960s, our ability to translate this knowledge to the clinical setting for tissue repair and restoration of function following injury and disease lags behind. Significant efforts have been made to mimic tissue and organ architecture in cell cultures, with some encouraging but generally small-scale results, but achieving true 3D complex organ structures has been elusive. Thus, the development of 3D bioprinting technologies for repair or even replacement of tissues and organs has been an exciting new approach to the problem.

To provide a comprehensive and state of the art summary of 3D printing for tissue engineering, I have attempted to recruit several outstanding groups who are actively involved in moving this field forward. I am extremely grateful for their willingness to contribute chapters that cover the fundamentals of the technology and its utility with stem and other cells to demonstrate how it may accelerate the ultimate goal of restoring function of damaged tissues and organs.

I would like to acknowledge Aleta Kalkstein for helping me get this project off the ground and her encouragement during its completion.

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