Interdisciplinary approaches through contributions from chemistry, biology, materials science, physics, engineering, and medicine offer a new generation of therapeutic methods, which can be used for the early diagnosis and treatment of many diseases and injuries that ail human population today. This book aims to provide a general perspective about nanomaterials and their use for therapeutic purposes for scientists, clinicians, patients, students, and novices in the field. It also provides detailed information on types of nanomaterials and their biomedical application areas for experts in nanosciences. Here we discussed how nanomaterials can be used for biomedical applications in addition to understanding side effects of these materials to humans and environment, and we also cautioned the lawmakers to make the necessary regulations.

This book discusses new materials for treatments of different types of tissues and organs. In addition to therapy, new methods for diagnosing diseases are briefly described. Main treatment methods were discussed under regeneration of tissues in situ. With the increase in aging population in the world, especially in developed countries, there is also an increased prevalence of degenerative disorders. Both degenerative disorders and accidental injuries can cause detrimental changes in various tissues, which result in not only deterioration of life quality of patients and caregivers but also a considerable amount of financial burden on the health systems of individual countries. Current treatment options for many of these injuries are insufficient. We believe that new generation of therapeutic materials
will be utilized extensively in the regenerative medicine field. Although there are many species that can perfectly regenerate the injuries in their tissues, *Homo sapiens* is not one of them. Therefore, when humans get injured, they need external help for repair of their injuries, with the fact in mind that they cannot fully regenerate. The deficiency of tissue repair mechanisms is more evident in some tissues like brain or cartilage, and the ability to repair is known to decrease with age.

**Mustafa O. Guler and Ayse B. Tekinay**