

Biodegradable Polymers

in

Drug Delivery and Tissue Engineering

Editors



Prof. Dr. Ajay Pal Singh

Akriti Singh

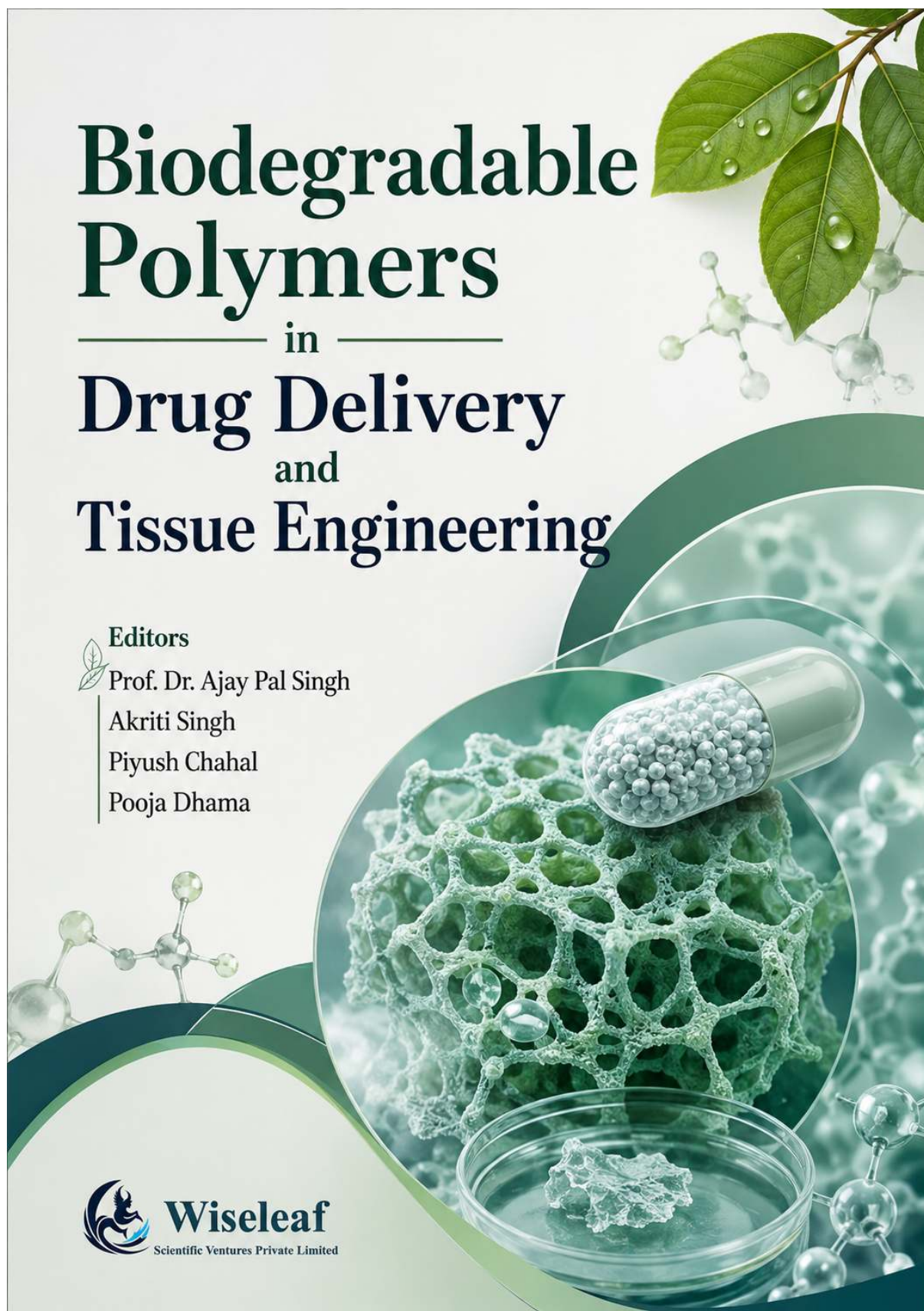
Piyush Chahal

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Biodegradable Polymers in Drug Delivery and Tissue Engineering

Edited by: Prof. Dr. Ajay Pal Singh, Akriti Singh, Piyush Chahal, Pooja Dhama

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Preface

The growing demand for safer, more effective, and patient-oriented therapeutic approaches has increased interest in biodegradable polymers as versatile materials for modern biomedical applications. Their biocompatibility, controlled degradation, and ability to be tailored for specific applications have made them increasingly important in drug delivery and tissue engineering.

Biodegradable Polymers in Drug Delivery and Tissue Engineering provides a concise and systematic overview of the fundamentals, properties, types, and biomedical applications of biodegradable polymers. The book discusses natural and synthetic biodegradable polymers, their degradation mechanisms, polymer–drug interactions, and their role in designing advanced drug delivery systems such as nanoparticles, microspheres, hydrogels, films, and implants.

The book also explores the application of biodegradable polymers in tissue engineering, particularly in the development of scaffolds, hydrogels, and composite biomaterials that support cell growth and tissue regeneration. Emerging approaches, including smart polymeric systems, nanotechnology, 3D printing, and regenerative medicine, are also introduced to highlight the future potential of these materials.

Designed for students, researchers, academicians, and professionals in pharmaceutical sciences, pharmaceuticals, biotechnology, biomedical engineering, and related fields, this book aims to provide a clear understanding of the principles and applications of biodegradable polymers. It is hoped that this work will serve as a useful academic and reference resource while encouraging further research and innovation in advanced drug delivery and tissue regeneration.

Editors

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