

Special Issue on

***In Vivo, in Vitro* and *in Silico* Characterization of Permanent and Biodegradable Implants**

May-June, 2025

Guest Editors:

Mike Barbeck, Ole Jung, Rumen Krastev, Meike Stiesch, Frank Walther



This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

©2025 The Author(s). Anticancer Research is published by the International Institute of Anticancer Research.

Preface

The advancement of permanent and biodegradable implants relies on a comprehensive approach that integrates in vivo, in vitro, and in silico characterization to enhance their performance and biocompatibility. This collection of studies explores key aspects of implant development, from surface modifications that improve protein adsorption and osteoblast adhesion to the effects of sandblasting parameters on roughness and wettability, ultimately influencing osseointegration. Investigations into the mechanical and electrochemical behavior of additively manufactured titanium alloys provide valuable insights into fatigue resistance and corrosion performance, while alternative biocompatibility testing methods, such as the chick chorioallantoic membrane model, offer promising strategies for early-stage evaluation. By addressing both fundamental material properties and preclinical assessment methodologies, these studies contribute to the ongoing innovation in implant technology, paving the way for improved clinical outcomes and more sustainable biomaterial testing approaches.

Mike Barbeck,
*Clinic and Policlinic for Dermatology and Venereology,
University Medical Center Rostock*