

1. Record Nr.	UNINA9910840955203321
Autore	Dee Kay C
Titolo	An introduction to tissue-biomaterial interactions [[electronic resource] /] / Kay C. Dee, David A. Puleo, Rena Bizios
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Liss, c2002
ISBN	1-280-36664-8 9786610366644 0-470-30736-6 0-471-46112-1 0-471-27059-8
Descrizione fisica	1 online resource (250 p.)
Altri autori (Persone)	PuleoDavid A BiziosRena
Disciplina	610.28 610/.28
Soggetti	Biomedical materials Biocompatibility
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	An Introduction To Tissue-Biomaterial Interactions; Contents; Preface; Acknowledgments; Introduction; 1 Biomaterials; 1.1 Introduction; 1.1.1 Definition; 1.2 Metallic Biomaterials; 1.2.1 Basis of Structure-Property Relationships; 1.2.2 Corrosion; 1.2.3 Mechanical Properties; 1.3 Ceramic and Glass Biomaterials; 1.3.1 Basis of Structure-Property Relationships; 1.3.2 Degradation; 1.3.3 Mechanical Properties; 1.4 Polymeric Biomaterials; 1.4.1 Basis of Structure-Property Relationships; 1.4.2 Degradation; 1.4.3 Mechanical Properties; 1.5 Choice of Materials for Biomedical Applications 1.6 Biomaterials for Implantable Devices: Present and Future Directions 1.7 Summary; 1.8 Bibliography/Suggested Reading; 1.9 Quiz Questions; 1.10 Study Questions; 2 Proteins; 2.1 Introduction; 2.2 Primary Structure; 2.3 Secondary Structure; 2.4 Tertiary Structure; 2.5 Quaternary Structure; 2.6 Importance of Conformation; 2.7 Examples; 2.7.1 Collagen; 2.7.2 Elastin; 2.7.3 Fibronectin; 2.7.4 Fibrinogen; 2.8 Summary; 2.9 Bibliography/Suggested Reading; 2.10 Quiz Questions;

2.11 Study Questions/Discovery Activities; 3 Protein-Surface Interactions; 3.1 Introduction
 3.2 Important Protein and Surface Properties
 3.2.1 Protein Properties;
 3.2.2 Surface Properties; 3.3 Adsorption and Desorption; 3.4 Conformational Changes; 3.5 Multicomponent Solutions; 3.5.1 Example-Blood-Surface Interactions; 3.6 Summary; 3.7 Bibliography/Suggested Reading; 3.8 Quiz Questions; 3.9 Study Questions/Discovery Activities; 4 Blood-Biomaterial Interactions and Coagulation; 4.1 Introduction; 4.2 The Blood Cell Source: Marrow and Stem Cells; 4.3 Red Blood Cells; 4.3.1 Formation and Function; 4.3.2 Deformation and Blood Flow; 4.4 Platelets; 4.4.1 Formation and Function
 4.4.2 Platelet Aggregation and the Process of Coagulation
 4.5 The Coagulation Cascades; 4.5.1 Mechanisms; 4.5.2 Control Points; 4.6 Anticoagulants and Fibrinolysis; 4.7 Biomaterials, Devices, and Thrombosis; 4.8 Summary; 4.9 Bibliography/Suggested Reading; 4.10 Study Questions; 4.11 Discovery Activities; 5 Inflammation and Infection; 5.1 Introduction; 5.2 Historical Observations: Inflammation and Infection; 5.3 Nonlymphatic Leukocytes; 5.4 Inflammation and Leukocyte Functions; 5.4.1 Chemotaxis and Cell Migration; 5.4.2 Phagocytosis; 5.4.3 Diapedesis
 5.5 Physiological Explanations for the Cardinal Signs
 5.6 Infection; 5.7 Summary; 5.8 References; 5.9 Bibliography/Suggested Reading; 5.10 Study Questions; 5.11 Discovery Activities; 6 The Immune System and Inflammation; 6.1 Introduction; 6.2 Lymphocytes; 6.3 Immunogens, Antigens, and Antibodies; 6.4 Cell-Mediated Immunity; 6.4.1 T Cell Subpopulations and Functions; 6.4.2 Antigen-Presenting Cells; 6.5 Humoral Immunity; 6.5.1 B Cell Subpopulations and Functions; 6.5.2 The Complement System; 6.6 Generating Specificity; 6.6.1 Clonal Selection Theory; 6.6.2 "Self" Versus "Non-self"?
 6.7 Summary

Sommario/riassunto

An Introduction to Tissue-Biomaterial Interactions acquaints an undergraduate audience with the fundamental biological processes that influence these sophisticated, cutting-edge procedures. Chapters one through three provide more detail about the molecular-level events that happen at the tissue-implant interface, while chapters four through ten explore selected material, biological, and physiological consequences of these events. The importance of the body's wound-healing response is emphasized throughout. Specific topics covered include: Structure and properties of biomaterials