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Nota di contenuto	Cell Membrane; Contents; Preface; Foreword; Acknowledgments; 1 Introduction: History of Red Cell Membrane Research; 1.1 Invention of Optical Microscopes and Their Application to Hematology; 1.2 Discovery of Hereditary Spherocytosis by Light Microscopy; 1.3 The Dawn of Red Cell Membrane Research; 1.4 Commencement of Membrane Protein Biochemistry: Introduction of Sodium Dodecyl Sulfate-Polyacrylamide Gel Electrophoresis; 1.5 Elucidation of the Pathogenesis of Red Cell Membrane Disorders; 1.6 Genotypes of Red Cell Membrane Disorders 1.7 Reevaluation of Molecular Electron Microscopy for Phenotypes 2 Composition of Normal Red Cell Membranes; 2.1 Introduction; 2.2 Membrane Lipids; 2.2.1 The Contents and Nature of Membrane Lipids; 2.2.2 Asymmetry of the Membrane Lipid Bilayer; 2.2.3 Membrane Fluidity; 2.2.4 Renewal of Membrane Lipids; 2.2.5 Interactions Between Membrane Lipids and Proteins; 2.2.6 Membrane Lipids as a Determinant of Red Cell Shape; 2.3 Membrane Proteins; 2.3.1 Separation and Identification of Membrane Proteins; 2.3.2 Membrane Proteins and Membrane Structure; 2.3.3 Membrane Proteins in the Red Cell Surface 2.3.4 Membrane Proteins and Membrane Functions 2.3.4.1 Red Cell

Morphology and Shape Change; 2.3.4.2 Red Cell Deformability; 2.3.4.3 Membrane Transport and Permeability; 3 Stereotactic Structure of Red Cell Membranes; 3.1 Historical Background to Membrane Models; 3.2 Ultrastructure of Red Cell Membranes; 3.2.1 Introduction; 3.2.2 Evaluation of the Cytoskeletal Network; 3.2.2.1 Electron Microscopy With the Negative Staining Method; 3.2.2.2 Electron Microscopy With the Quick-Freeze Deep-Etching (QFDE) Method; 3.2.2.3 Electron Microscopy With the Surface Replica (SR) Method
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3.2.4 Visualization of Glycophorins by Field Emission Scanning Electron Microscopy; 4 Skeletal Proteins; 4.1 - and -Spectrins; 4.1.1 Introduction; 4.1.2 Structure of Red Cell Spectrins; 4.1.3 Functions of Red Cell Spectrins; 4.1.4 Erythroid and Nonerythroid Spectrins; 4.2 Protein 4.1; 4.2.1 Structure of Protein 4.1; 4.2.2 Binding to Other Membrane Proteins; 4.2.3 Extensive Alternative Splicings; 4.2.4 Nonerythroid Protein 4.1 Isoforms; 4.3 Actin; 4.4 Other Minor Skeletal Proteins; 4.4.1 The p55 Protein
4.4.2 Adducin
4.4.3 Dematin (Protein 4.9); 4.4.4 Tropomyosin; 4.4.5 Tropomodulin; 4.4.6 Other Membrane Proteins; 5 Integral Proteins; 5.1 Band 3; 5.1.1 Structure of Band 3; 5.1.2 Functions of Band 3; 5.1.2.1 Membrane Protein Binding by the Cytoplasmic Domain of Band 3; 5.1.2.2 Binding to Glycolytic Enzymes by the Cytoplasmic Domain of Band 3; 5.1.2.3 Binding to Hemoglobin by the Cytoplasmic Domain of Band 3; 5.1.2.4 Anion Exchange Channel by the Transmembrane Domain of Band 3; 5.1.2.5 Lateral and Rotational Mobility of Band 3; 5.1.2.6 Blood Type Antigens and Band 3
5.1.3 Band 3 in Nonerythroid Cells

Sommario/riassunto

This publication presents the structure and function of biological membranes to improve the understanding of cells in both normal and pathogenic states. Recently, vast amounts of new information have been accumulated, especially about pathological conditions, and there is now much evidence correlating genotypes and phenotypes in normal and disease states. This book surveys the most recent findings in research on the molecular biology, biochemistry, and genetics of the membranes of human red blood cells.
