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Nota di contenuto	Erythropoietin; Preface; Contents; 1 Introduction and History; 1.1 Early Observations; 1.2 Carnot and Deflandre: A Humoral Factor that Stimulates Erythropoiesis; 1.3 Reissmann, Erslev, Jacobson and Stohlman: The Kidney as the Likely Source; 1.4 More Evidence for the Kidney . . . Erythrogenin?; 1.5 Early Assays for Erythropoietin; 1.6 Standardization: What is a "Unit" of Erythropoietin?; 1.7 References; 2 Developmental Biology of Erythropoiesis and Erythropoietin Production; 2.1 Introduction; 2.2 Yolk Sac Hematopoiesis; 2.2.1 The Role of Erythropoietin in Yolk Sac Erythropoiesis 2.2.2 Genes Essential to Primitive Erythropoiesis 2.3 Fetal Liver and Bone Marrow (Definitive) Erythropoiesis; 2.4 Genes Essential for Definitive Erythropoiesis; 2.5 Erythropoietin Production; 2.6 References; 3 Regulation of the Erythropoietin Gene: A Paradigm for Hypoxia-dependent Genes; 3.1 The Structure of the Erythropoietin Gene; 3.2

Tissue-specific Expression; 3.3 Mechanism of Hypoxic Regulation - Identification of Transcription Factors and Other Regulatory Proteins; 3.3.1 Is the Oxygen Sensor a Heme Protein? 3.3.2 The 3' Flanking Region of the Erythropoietin Gene Contains Important Regulatory Sequences 3.3.3 Identification of the Hypoxia-inducible Factor - Hypoxia Regulates More Than the Erythropoietin Gene; 3.3.4 Other Interacting Proteins and the Regulation of HIF-1; 3.3.5 The von Hippel-Lindau Protein, Proline Hydroxylation and the Oxygen Sensor; 3.3.6 Modulation of HIF-1 Activity by Other Signals; 3.3.7 A Final Word on the Heme Protein Hypothesis; 3.4 References; 4 Physiology and Metabolism of Erythropoietin; 4.1 The Kidney as the Site of Production 4.2 The Liver as a Site of Erythropoietin Production 4.3 Erythropoietin Produced in the Bone Marrow; 4.4 Metabolism and Clearance of Erythropoietin; 4.5 Erythropoietin and the Maternal/Fetal Circulation; 4.6 References; 5 Biochemistry and Protein Structure; 5.1 Naturally Occurring Epo; 5.1.1 Difficulties in Purifying the Hormone; 5.1.2 The Purification of Human Urinary Epo; 5.1.3 Biochemical Properties of Human Urinary Epo; 5.1.4 Some Biochemical Properties of Human Serum Epo; 5.2 Recombinant Human Epo; 5.2.1 Cloning the Human Epo Gene; 5.2.2 Glycosylation of Epo 5.2.3 Physicochemical Properties of Epo 5.3 Structure-activity Relationships; 5.3.1 Antibody Studies; 5.3.2 Mutagenesis Studies; 5.4 The Tertiary Structure of Epo; 5.5 References; 6 Receptor Biology and Signal Transduction; 6.1 Receptor Biology; 6.1.1 Identification of the Erythropoietin Receptor; 6.1.2 The Erythropoietin Receptor Gene; 6.1.3 The Structure of the Erythropoietin Receptor: A Member of the Cytokine Receptor Superfamily; 6.1.4 The Extracellular Portion of the Erythropoietin Receptor; 6.1.5 The Cytoplasmic Portion of the Erythropoietin Receptor; 6.2 Signal Transduction Pathways 6.2.1 Phosphorylation of the Erythropoietin Receptor

## Sommario/riassunto

The use of Epo in medical practice is increasing constantly. It has revolutionized how we think of blood transfusion in medicine and surgery. Moreover, it has become widely known to scientists, physicians, biotech and pharmaceutical executives and the general public. Additionally, the past ten years have seen important advances in our knowledge and understanding of its action both within and outside of the hematopoietic system. Until now, there has been no single source that contains up-to-date information on Epo addressing the array of subjects that this book presents. The book