METADATA

Title: Hemoglobin diseases

Other Titles: From molecular biology to clinical management

Language: Greek

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ISBN: 978-618-228-192-5

Subject: MEDICINE AND HEALTH SCIENCES, LIFE SCIENCES, BIOLOGICAL SCIENCES

Keywords: Hemoglobin / structure and function / genes / transcription and translation / Mutations and gene deletions

Bibliographic Reference: Loukopoulos, D., Traeger-Synodinos, J., & Makis, A. (2024). Hemoglobin diseases [Other kind of textbook]. Kallipos, Open Academic Editions. http://dx.doi.org/10.57713/kallipos-426

Abstract

Hemoglobin is the red protein of erythrocytes which, through its highly specialized structure, transports the oxygen of the air from the lungs to the tissues and organs.Each hemoglobin molecule consists of two α- and 2 non-α chains. The information for the synthesis of hemoglobin is contained in the respective genes. There are different types of hemoglobin. The globin genes can suffer various damages that bring about either a reduction in synthesis or various variations of its structure accompanied by new properties, often harmful to the organism.These situations are important both for the patients and for the Health Service Delivery System. Consequently, they are an important chapter in the Medical Curriculum. The proposed book is intended to assist in the teaching of hemoglobinopathies by systematically covering in 15 chapters (a) the structure and function of the various types of hemoglobin, (b) the genes that direct its synthesis, and (c) the molecular disorders that result in morbid situations (Chapters 1-3). In the following chapters, the pathophysiology and the clinical picture that characterizes each of them are described in detail. In particular, chapters 4-10 deal with the thalassemias, where the damage results in a reduction of α- or β-chains resulting in severe, chronic and incurable anemia, while chapters 11-14 cover sickle cell disease, another severe hemoglobinopathy characterized by unbearable pain for life. Each set includes information about the symptoms and findings of the respective pathological conditions, the imposed conventional treatment, as well as the efforts made for radical treatment utilizing recent technological advances. Finally, chapter 15 refers to other variations of hemoglobin, which give it strange, sometimes beneficial, sometimes harmful and sometimes indifferent functional properties.

The Project is funded by the National Development Programme 2021-2025 of the Ministry of Education and Religious Affairs and implemented by the Special Account for Research Funds of the National Technical University of Athens and the Hellenic Academic Libraries Link.