

1. Record Nr.	UNINA9910961199403321
Titolo	Apolipoproteins : regulatory functions, health effects and role in disease // Adrik D. Sidorov and Misha Y. Nikitin, editors
Pubbl/distr/stampa	New York, : Nova Biomedical, 2012
ISBN	1-62257-498-2
Edizione	[1st ed.]
Descrizione fisica	1 online resource (166 p.)
Collana	Protein biochemistry, synthesis, structure and cellular functions Protein science and engineering
Altri autori (Persone)	SidorovAdrik D NikitinMisha Y
Disciplina	572/.6
Soggetti	Apolipoproteins Apolipoproteins - Health aspects
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	Intro -- APOLIPOPROTEINS: REGULATORY FUNCTIONS, HEALTH EFFECTS AND ROLE IN DISEASE -- APOLIPOPROTEINS: REGULATORY FUNCTIONS, HEALTH EFFECTS AND ROLE IN DISEASE -- Library of Congress Cataloging-in-Publication Data -- Contents -- Preface -- Chapter I: Macrophages, Lipo (APO) Proteins, Steroid Hormones, and Molecular Mechanisms of Cell Proliferation -- Abstract -- 1. Introduction -- 2. Material and Methods -- 2.1. The Model of Investigation -- 2.2. Biochemical Methods -- 2.3. Analysis of HDL and Cortisol Effects on Chromatin Activity in the Liver Cell Nuclei -- 2.4. Preparation of the Fraction of Acidic Nonhistone Proteins of the Nuclei Isolated from Various Tissues -- 2.5. Isolation of Lipoproteins, Production of Apolipoprotein A-I -- 2.6. Isolation of Liver Cells, Analysis of DNA and Protein Synthesis in Hepatocytes -- 2.7. Determination of Lipoprotein Binding Ability of the Cells -- 2.8. Choice of Interaction Sites between THC-ApoA-I Complex and DNA -- 2.9. Small-Angle X-Ray Scattering (SAXS) -- 3. Results -- 3.1. Mechanisms of Cell Proliferation after PLR and Their Relation with the Activity of Resident Macrophages -- 3.2. The Effect of Resident Macrophages on Protein and Apolipoprotein Biosynthesis in a Regenerating Liver -- 3.3. The Effect of Cortisol (THC) -ApoA-I Complex on In Vitro Biosynthesis of Protein and DNA in the Liver Cells -- 3.4. Molecular Mechanisms of DNA Reduplication during

Cell Division -- 3.5. Contribution of Macrophages to the Mechanism of Intracellular Regeneration of Various Organs and Tissues -- Conclusion -- References -- Chapter II: Current Concepts on the Formation of Discoidal Apolipoprotein A-I Lipid Bound Complexes: From Picket Fences to a Double-Belt Model via Inter-Ring Rotation of Apolipoprotein A-I Monomers -- Abstract -- I. Introduction. I.1. The Structural Arrangement for Apolipoprotein A-I Discoidal Pucks, Competing Models Picket-Fence and Double-Belt -- I.2. Disease Specific Mutants of ApoA-I (Paris and Milan) Point to Double-Belt Model for Remodeling Complexes -- II. Methods Used in Modeling the Dynamic Motion of the Double Belt Models -- II.1. Revisiting the Methods in Detail from the MdMD Method for Biasing -- III. A Discussion of the Current Understanding of the Inter-Ring Rotation of the Double Belt Model via MD Biasing -- III.1. Rotation of the Monomer Rings of ApoA-I is Possible with a Biasing Potential -- I.2. 'Ring Rotation' Has an Independent Feature -- III.3. The Effect of Using MdMD for Biasing the Rotation of the Monomer Rings of ApoA-I -- III.4. Implications for HDL Structure as a Result from the Remodeled Complexes Found in Molecular Dynamics -- III.5. Interactions between the Two Protein Monomers during Rotation Intervals -- III.6. Detailed Analysis of the Conformations -- Concluding Remarks on the Findings from MdMD Biasing Methods for Probing ApoA-I Structural Arrangement during Dynamic Remodeling Events -- References -- Chapter III: Understanding the Role of Apolipoprotein E in Cardiovascular and Renal Diseases -- Abstract -- Introduction -- Apolipoprotein E and Atherosclerosis -- Apolipoprotein E and Diabetes -- Apolipoprotein E and Kidney Diseases -- Conclusion -- References -- Chapter IV: Role of Functional Variants and Mutations of the Apolipoprotein A5 Gene in Human Pathology -- Abstract -- Discovery of Apolipoprotein A5 -- Structure and Molecular Interactions of Apolipoprotein A5 -- Apolipoprotein A5 Mouse Models and Metabolic Experiments -- Apolipoprotein A5 Molecular Mechanism and Mode of Action -- Common Polymorphisms in ApoA5 -- g.-1131T> C (rs662799) -- g.IVS3+476G> A (rs2072560) -- g.1259T> C (rs2266788) -- c.56C> G (p.Ser19Trp, rs3135506) -- Haplotypes -- Naturally Occurring Rare Functional Variants and Mutations -- Conclusion -- Acknowledgment -- References -- Chapter V: Mechanism of Antiinflammatory Action of the High Density Lipoproteins and Apolipoprotein A-I -- Abstract -- Introduction -- Materials and Methods -- Results -- Analysis of Interaction of Blood Plasma Lipoproteins with Bacterial and Yeast Polysaccharides -- Transfer LPS Complexed with apoA-I into Hepatocytes -- Influence of Lipoproteins and Lipoproteins-bound Polysaccharides on IL-1 Production by Tumor-associated Macrophages -- Conclusion -- References -- Chapter VI: Apolipoprotein A-I Motifs in Discoidal High Density Lipoproteins Influence Lecithin: Cholesterol Acyltransferase Activity -- Abstract -- Abbreviations -- 1. Introduction -- 2. Materials and Methods -- 2.1. Materials -- 2.2. Methods -- 2.2.1. Preparation and Characterization of Apolipoprotein/DPPC/Chol Complexes -- 2.2.2. rHDL-LCAT Binding Assay -- 2.2.3. Kinetic Model -- 2.2.4. The Influence of Altered ApoA-I Structure on LCAT Activity -- 3. Results -- 3.1. Influence of ApoA-I Structure on LCAT Activity -- 3.2. LCAT Binding to rHDL with Plasma and D139-170 apoA-I -- 3.3. LCAT Activity with Native and D139-170 Apolipoproteins -- Discussion -- Conclusion -- References -- Chapter VII: Regulation by FGF-1 of apoE/HDL Generation in Astrocytes -- Abstract -- Introduction -- 1. HDL Generation Mediated by Endogenous apoE and Exogenous apoA-I in Astrocytes -- 2. Regulation

by FGF-1 of apoE/HDL Generation -- 3. FGF-1 Release from Astrocytes
-- 4. Brain Protection from Injury and Stress by FGF-1 and apoE/HDL
-- 5. Production and Function of FGF-1 and apoE/lipoproteins in
Alzheimer's Disease -- References -- Index.

Sommario/riassunto

Apolipoproteins are proteins that bind lipids (oil-soluble substances such as fat and cholesterol) to form lipoproteins. They transport the lipids through the lymphatic and circulatory systems. Apolipoproteins also serve as enzyme cofactors, receptor ligands, and lipid transfer carriers that regulate the metabolism of lipoproteins and their uptake in tissues. In this book, the authors present current research in the study of the regulatory functions, health effects and role in disease of apolipoproteins. Topics include macrophages, apolipoproteins, steroid hormones and molecular mechanisms of cell proliferation; formation of discoidal apolipoprotein A-1 lipid bound complexes; the role of apolipoprotein E in cardiovascular and renal disease; the functional variants and mutations of the apolipoprotein A5 gene in human pathology; and regulation of FGF-1 of ApoE/HDL generation in astrocytes.
