| 1. | Record Nr. | UNINA9910583324303321 |
|----|-------------------------|---|
| | Autore | Ignarro Louis J |
| | Titolo | Nitric Oxide : Biology and Pathobiology |
| | Pubbl/distr/stampa | San Diego : , : Elsevier Science & Technology, , 2017 ©2017 |
| | Edizione | [3rd ed.] |
| | Descrizione fisica | 1 online resource (436 pages) |
| | Altri autori (Persone) | FreemanBruce |
| | Disciplina | 572/.53 572.53 |
| | Soggetti | Nitric oxide - Physiological effect Nitric oxide - Pathophysiology |
| | Lingua di pubblicazione | Inglese |
| | Formato | Materiale a stampa |
| | Livello bibliografico | Monografia |
| | Nota di contenuto | Cover Title Page Copyright Page Contents Contributors Introduction and Overview Chapter 1 - A Concise History of the Discovery of Mammalian Nitric Oxide (Nitrogen Monoxide) Biogenesis Introduction NO and NOx Prior to 1986 Ancient Human/NOx, NO Relationships The Discovery of NO and 19th-Century Studies 20th-Century NO Prior to 1986 1986-88: Convergence of the Discovery of Endogenous NO in the Immune, Cardiovascular, and Nervous Systems NO in the Immune System Prior to 1986-88 NO in the Cardiovascular System Prior to 1986-88 NO in the Nervous System Prior to 1986-88 The Convergence: 1986-88 Conclusions References Chapter 2 - An Integrated View of the Chemical Biology of NO, CO, H2S, and O2 Introduction Nitric Oxide Carbon Monoxide Hydrogen Sulfide Dioxygen Superoxide Hydrogen Peroxide Hydroxyl Radical Chemical Biology of NO, CO, H2S, and O2 Interactions Interactions at Metal Centers: Heme Proteins The Effect of O2 and Derived Species on the Chemical Biology of NO, CO, and H2S Interaction of NO and H2S Thiols/Thiol Proteins and NO, CO, O2, and H2S Chemical Biology Summary References Chapter 3 - Detection of Nitric Oxide and Peroxynitrite in Biological Systems: A State-of-the-Art Review Detection of Nitric Oxide Introduction Detection of Nitrate and |

Nitrite -- Griess Reaction -- Chemiluminescence Detection of Nitrite/-Nitrate -- Other Methods for Nitrite/Nitrate -- Probes for NO Detection -- Nitronyl Nitroxides -- Iron Dithiocarbamates -- Diaminofluorescein (DAF) -- S-Nitrosothiol Detection -- Detection of Liberated Nitrogen Oxides From S-Nitrosothiols -- Saville Reaction -- Chemiluminescence -- Detection of Protein S-Nitrosothiols -- Biotin Switch Assay -- Other Methods -- Detection of Peroxynitrite Using Boronate-Based Probes. Introduction -- Oxidation of Boronates by Peroxynitrite and Other Biologically Relevant Oxidants -- Free Radical Pathway for the Reaction Between Boronates and ONOO -- Real-Time Monitoring of ONOO Formed In Situ in Cell-Free Systems -- Differentiation Between Different Oxidants Using Boronic Probes -- Detection of Peroxynitrite in Cellular -Systems -- Perspectives for In Vivo Detection of Peroxynitrite -- Acknowledgment -- References -- Chapter 4 - S-Nitrosothiols and Nitric Oxide Biology -- Introduction -- RSNO Biochemistry: How Do RSNOs Relate to NO -- S-Nitrosothiol Levels and Targets In Vivo -- SNO Antibody -- RSNO Metabolism -- RSNO Formation -- Transnitrosation -- Denitrosation -- RSNO Transport --Emerging Modulators of RSNO: Hydrogen Sulfide and Reactive Sulfur Species -- Biological Effects of RSNOs-Evidence and Interpretation --RSNO Therapeutics -- RSNO as NO Donors -- Summary -- References -- Chapter 5 - Cooperative Interactions Between NO and H2S: Chemistry, Biology, Physiology, Pathophysiology -- Chemical Aspects of the NO/H2S Cross-Talk -- Introduction -- Basic Chemical Properties of Sulfide as Compared to NO -- Bioactive Intermediates of the Reaction Between NO and Sulfide (and its Various Metabolites): S/N Hybrid Molecules and Poly... -- HSNO/ONS -- ONSS -- Polysulfides -- SULFI/NO -- Regulation of NOS Activity by H2S -- Regulation of PIP3/AKT/eNOS by Sulfide -- Regulation of eNOS Activity Via H2S-Mediated Sulfhydration -- Inhibitory Effect of H2S on NOS Activity --Inhibitory Effect of NO on CBS Activity -- Regulation of NOS Expression by H2S -- Regulation of eNOS Expression by H2S -- Regulation of iNOS Expression by H2S -- Regulation of nNOS Expression by H2S --Regulation of CBS, CSE, or 3-MST by NO -- Support of the NO/cGMP/PKG Signaling Axis by H2S -- H2S, a Redox Reactivator of Soluble -Guanylate Cyclase. H2S, an "Endogenous Viagra": Inhibition of PDE Activity by H2S --Direct Reaction of H2S With cGMP: Formation of 8-SH-cGMP --Oxidative Activation of Protein Kinase G by Sulfide-Derived Polysulfides -- Support of NO Signaling Through H2S/ROS Interactions --Implications -- Implications of the NO/H2S Cooperative Interactions for the Regulation of Vascular Tone, Vascular Growth, and Remodeling --Potential Cooperative Actions of NO and H2S in the Central and Peripheral Nervous System -- Potential Cooperative Actions of NO and H2S in Cancer -- On the Interdependence of NO and H2S Signaling and Cytoprotection -- Outlook: Future Therapeutic Directions -- References -- Chapter 6 - Heme Protein Metabolism of NO and Nitrite --Introduction -- NO Inactivation by Reaction With Heme Proteins -- NO Reactions With Ferrous Hemoglobins to Form Iron-Nitrosyl Complexes [Fe(II)-NO] -- Effects of Red Blood Cell Compartmentalization of Hemoglobin on NO Reaction Rates -- NO Generation by Reaction of Nitrite With Deoxygenated Heme Proteins -- Conclusions --Acknowledgments -- References -- Chapter 7 - Cross-Regulation Between iNOS/NO and Wnt/-Catenin Signaling Pathways -- List of Abbreviations -- Introduction -- NO-Induced Posttranslational Modification of Wnt/-Catenin Signaling Proteins -- iNOS-Derived NO Promotes -Catenin -Phosphorylation -- iNOS-Derived NO Induces Nitration and S-Nitrosation of Proteins Related to Wnt/-Catenin

Signaling Pathway -- iNOS/NO Induces Genetic Changes of Wnt/-Catenin Pathway-Related Components -- Mutation of -Catenin --Loss of APC Heterozygosity -- iNOS/NO Regulates Wnt/-Catenin Signaling -- iNOS/NO Targets Wnt/-Catenin Signaling -- iNOS/NO Inversed DKK1 Expression -Upregulated Wnt/-Catenin Pathway -iNOS/NO Regulates Both -Catenin/TCF and NF-kB Transcriptional Functions -- iNOS Physically Interacts With -Catenin. Wnt/-Catenin Signaling Regulates iNOS/NO Pathway -- iNOS is a Targeted Gene of Wnt/-Catenin Pathway -- Wnt/-Catenin Regulated NF-kB Depending on the Induction of iNOS -- Conclusions --References -- Chapter 8 - Regulation and Physiological Functions of NO-Sensitive Guanylyl Cyclase -- Introduction -- Isoforms and Molecular Properties of NO-Sensitive GC -- Activation of NO-GC by NO -- Novel Activators of NO-GC -- NO-GC Sensitizers and Heme-Mimetics in Clinical Testing -- NO-GC Inhibitors -- The NO/cGMP Signaling Cascade -- NO/cGMP-Induced Physiological Functions as Deduced From Genetic Deletion -- Blood Pressure Control --Significance of NO-GC in Platelets -- Modulation of Synaptic Transmission -- LTP Is Lost in Both NO-GC KOs -- NO/cGMP in Glutamatergic Neurons -- NO/cGMP in GABAergic Neurons --References -- Chapter 9 - Uncoupling of eNOS in Cardiovascular Disease -- Synthesis and Function of Endothelial NO -- The Phenomenon of eNOS Uncoupling -- Molecular Mechanisms of eNOS Uncoupling -- Uncoupling of eNOS in Cardiovascular Disease --Hypertension -- Diabetes -- Atherosclerosis -- Pharmacological Prevention of eNOS Uncoupling -- Conclusions -- References --Chapter 10 - Synthesis, Actions, and Perspectives of Nitric Oxide in Photosynthetic Organisms -- Nitric Oxide Synthesis in Photosynthetic Organisms -- Structure, Diversity, and Occurrence of Nitric Oxide Synthases (NOS) in Photosynthetic Organisms: Canonical NOS Is Absent i... -- Photosynthetic Organisms Do Not Synthetize the Biopterin Cofactor Required by NOS: The Role of Tetrahydrofolate -- Plants Possess Alternative Sources for NO Production -- Actions and Targets of NO in Photosynthetic Organisms -- NO as a Bioactive Signaling Molecule of Stress Responses in Land Plants -- Implications of NO in the Stress Responses of the Aquatic Photosynthetic Microorganisms. NO Is a Key Player in Auxin-Mediated Processes Leading to Root Growth and Development -- Targets and Molecular Mechanisms Underpinning NO Actions in Photosynthetic Organisms -- The Potential of NOS to Improve the Fitness of Crop Plants -- Concluding Remarks and Perspectives -- References -- Chapter 11 - Mitochondria and Nitric Oxide -- Introduction -- Sources of NO of Relevance to Mitochondria -- NO Inhibition of Cytochrome c Oxidase -- S-Nitrosation of Respiratory Complex i and Other Mitochondrial Proteins -- Mitochondrial Generation and Effects of Nitrated Fatty Acids --Mitochondrial Generation and Effects of Peroxynitrite -- Cellular NO Signaling Regulation of Mitochondrial Dynamics and Number --Summary and Integration of Concepts -- Acknowledgments --References -- Chapter 12 - Nitric Oxide Formation From Inorganic Nitrate -- Introduction -- Sources of Nitrate and Nitrite -- The Enterosalivary Circulation of Nitrate -- Dietary Nitrate and Gastric Cancer -- Intragastric Generation of Nitric Oxide -- Interactions Between Nitrite and Other Dietary Compounds -- Systemic NO Generation From Nitrite -- Nitrite as a Vasodilator -- Mechanisms of Nitrite Reduction -- Dietary Nitrate and Cardiovascular Function --Blood Pressure -- Pulmonary Hypertension -- Leukocyte and Platelet Activation -- Diabetes and Metabolic Syndrome -- How Is Inorganic Nitrate Bioactivated? -- Ergogenic Effects of Dietary Nitrate --

Nutritional Aspects -- References -- Chapter 13 - Biochemistry of Molybdopterin Nitrate/Nitrite Reductases -- Introduction -- Microbial Nitrate Reductases -- Eukaryotic Nitrate and Nitrite Reductases --Xanthine Oxidoreductase -- Nitrate/Nitrite and Reducing Substrates --Microenvironmental pH -- O2 Concentration -- Immobilization of XO on the Endothelial Glycocalyx -- Isoform of XOR -- Aldehyde Oxidase -- Sulfite Oxidase. Mitochondrial Amidoxime Reducing Component.