The Chemical Biology of Long Noncoding RNAs [

Jurga, Stefan.,
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Barciszewski, Jan.,
editor.
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Monografía

This book offers a comprehensive and detailed overview of various aspects of long non-coding RNAs. It discusses their emerging significance in molecular medicine, ranging from human cancers to cardiovascular and metabolic diseases. Transcriptomic studies have demonstrated that the majority of genomes found in complex organisms are expressed in highly dynamic and cell-specific patterns, producing huge numbers of intergenic, antisense and intronic long non-protein-coding RNAs (lncRNAs). Thousands of lncRNAs have been identified, and unlike mRNA, they have no protein-coding capacity. A large repertoire of ncRNAs, actively transcribed from the mammalian genome, control diverse cellular processes, both in terms of development and diseases, through a variety of gene regulatory mechanisms. IncRNAs have emerged as a new paradigm in epigenetic regulation of the genome. Given its scope, the book will be of particular interest to molecular, chemical, cell and developmental biologists, as well as specialists in translational medicine involved in disease-oriented research. It also offers a valuable resource for in silico experts seeking a deeper understanding of lncRNA expression and function through computational analysis of the NGS data

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Contenido: Long Non-Coding RNAs Diversity in Form and Function - from Microbes to Humans -- Evolving Roles of Long Noncoding RNAs -- Biogenesis and Function of the Noncoding Isoform-Type LncRNAs -- Long Non-Coding RNAs in a Single Cell Type: Function and Subcellular Localization -- Long Non-Coding RNAs as Scaffolds for Multiprotein Signalling Complexes -- Landscape of Long Non-Coding RNA Genes, Pseudogenes and Protein Genes in Segmental Duplications in the Critical Human Chromosomal Region 22q11.2 -- Long Non-Coding RNAs and Cancer Cells' Drug Resistance: an Unexpected Connection -- Long Noncoding RNAs as Drivers of Acquired Chemoresistance in Hepatocellular Carcinoma -- Single Cell Analysis May Shed new Lights on the Role of LncRNAs in Chemo-Resistance in Gastrointestinal Cancers -- LncRNAs in the Development, Progression, and Therapy Resistance of Hormone-Dependent Cancer -- Tumorigenesis-Related Long Non-Coding RNAs and their Targeting as Therapeutic Approach in Cancer -- Long Non-Coding RNAs in Non-Small Cell Lung Cancer: State of the Art -- Long Non-Coding RNAs in Cardiovascular Diseases -- Long Non-Coding RNAs in Cardiovascular Development and Diseases.-Long Noncoding RNAs as Players in Breast Tumorigenesis -- Drosophila Models to Study Long Non-Coding RNAs Related to Neurological Disorders -- Regulatory Roles of Long Non-Coding RNAs in Skeletal Muscle Differentiation, Regeneration, and Disorders -- Long Noncoding RNAs in Substance Use Disorders -- The Multifaceted Roles of LncRNAs in Diabetic Complications: a Promising, yet Perplexing Paradigm -- Long Non-Coding RNAs in Diabetes and (Sb(B-cell Regulation

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Autores: Jurga, Stefan., editor. edt. http://id.loc.gov/vocabulary/relators/edt Barciszewski, Jan., editor. edt. http://id.loc.gov/vocabulary/relators/edt

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