1. Record Nr. UNINA9910136389803321

Autore	Alejandro Garcia Carranca
Titolo	Epigenetic modifications and viral infections / / edited by Silvia Carolina Galvan, Alejandro García Carrancá, Félix Recillas-Targa and Jiuzhou Song
Pubbl/distr/stampa	Frontiers Media SA, 2015 Switzerland : , : Frontiers Media SA, , 2015
ISBN	9782889195879 (ebook)
Descrizione fisica	1 online resource (111 pages) : illustrations
Collana	Frontiers Research Topics
Soggetti	Epigenetics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Sommario/riassunto	Epigenetics is defined as the study of modifications of the genome, heritable during cell division that does not involve changes in DNA sequences. Up to date, epigenetic modifications involve at least three general mechanisms regulating gene expression: histone modifications, DNA methylation, and non-coding RNAs (ncRNAs).For the past two decades, an explosion in our interest and understanding of epigenetic mechanisms has been seen. This mainly based on the influence that epigenetic alterations have on an amazing number of biological processes, such as gene expression, imprinting, programmed DNA rearrangements, germ line silencing, developmentally cued stem cell division, and overall chromosomal stability and identity.It has become also evident that the constant exposure of living organisms to environment factors affects their genomes through epigenetic mechanisms. Viruses infecting animal cells are thought to play central roles in shaping the epigenetic scenario of infected cells. In this context it has become obvious that knowing the impact that viral infections have on the epigenetic control of their host cells will certainly lead to a better understanding of the interplay viruses have with animal cells.In fact, DNA viruses use host transcription factors as well as epigenetic regulators in such a way that they affect epigenetic control of gene

expression that extends to host gene expression. At the same time, animal cells employ mechanisms controlling transcription factors and epigenetic processes, in order to eliminate viral infections. In summary, epigenetic mechanisms are involved in most virus-cell interactions.We now know that some viruses exhibit epigenetic immune evasion mechanisms to survive and propagate in their host; however, there is still much ambiguity over these epigenetic mechanisms of viral immune evasion, and most of the discovered mechanisms are still incomplete. Other animal viruses associated to cancer often deregulate cellular epigenetic mechanisms, silencing cellular tumor-suppressor genes and/or activating either viral or host cell oncogenes. In addition, in several cancers the down-regulation of tumor suppressor protein-coding genes and ncRNAs with growth inhibitory functions, such as miRNAs, have been closely linked to the presence of cell CpG island promoter hypermethylation.The goal of the aforementioned Research Topic is to bring together the key experimental and theoretical research, linking state-of-the-art knowledge about the epigenetic mechanisms involved in animal virus-cell interactions.