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Descrizione fisica	1 online resource (XI, 265 p. 34 illus., 8 illus. in color.)
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Genetics and epigenetics: a Historical Overview -- The DNA methylation machinery -- Methylcytosine and its oxidised derivatives -- The role of nucleosomes in epigenetic gene regulation -- Circular RNAs in human health and disease -- The role of histone variants in cancer -- DNA methylation and carcinogenesis: Current and future perspectives -- Dysregulation of cis-regulatory elements in cancer -- Germline epigenetic testing of imprinting disorders in a diagnostic setting -- Cancer methylation biomarkers in circulating cell-free DNA -- The clinical utility of epigenetics.
Sommario/riassunto	In genetic pathology, epigenetic testing is rare and under utilised. In this book, we introduce epigenetics to a non-expert scientific audience and describe current and future clinical utility of epigenetic testing. By focussing on epigenetics in human disease this book will guide professionals (scientists and clinicians) to understand how epigenetics is relevant in a clinical context, and to implement epigenetic testing in

diagnostic laboratories. The book begins with a historical perspective of genetics and epigenetics and describes the work of pioneers who have helped shape these fields. The various mechanisms by which epigenetics can regulate the function of the genome is described. These include DNA methylation, histone modifications, histone variants, nucleosome positioning, cis-regulatory elements, non-coding RNAs and the three-dimensional organisation of chromatin in the nucleus. These are discussed in the context of embryological development, cancer and imprinting disorders, and include examples of epigenetic changes that can be used in diagnosis, prediction of therapeutic response, prognostication or disease monitoring. Finally, for those wishing to implement epigenetic testing in a diagnostic setting, the book includes a case study that illustrates the clinical utility of epigenetic testing.
