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9 High Endogenous Levels of Phosphorylated H2A.X Are Characteristic of Early Embryos10 Barr Body-Deficient H2A: H2A.B; References; DNA Methylation Reprogramming in Preimplantation Development; 1 Epigenetic Profiles in Mature Gametes; 2 DNA Methylation Reprogramming in the Zygote; 3 The Mechanisms of DNA Demethylation; 4 DNA Methylation Reprogramming in Further Preimplantation Development; 5 Roles of Dnmts in Regulating DNA Methylation in Early Embryos; 5.1 Dnmt1; 5.2 Dnmt3a, Dnmt3L and Dnmt3b; 6 DNA Methylation Reprogramming in SCNT-Derived Embryos 7 Histone Modifications and DNA Methylation Crosstalk

Sommario/riassunto

The ability of a single genome to give rise to hundreds of functionally distinct cell type programs is in itself remarkable. Pioneering studies over the past few decades have demonstrated that this plasticity is retained throughout development, a phenomenon of epigenetic programming and reprogramming that remains one of the most fascinating areas of modern biology, with major relevance to human health and disease. This book presents the basic biology involved, including key mechanistic insights into this rapidly growing field.