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Nota di contenuto	Frontmatter -- Contents -- Contributors -- 1. Introduction -- 2. A Brief History of the Term and Concept Epigenetics -- 3. Heuristic Reductionism and the Relative significance of Epigenetic Inheritance in evolution -- 4. The Epigenetics of Genomic Imprinting: Core Epigenetic Processes are conserved in Mammals, Insects, and Plants -- 5. Methylation Mapping in Humans -- 6. Asexuality and Epigenetic Variation -- 7. Epigenesis, Preformation, and the Humpty Dumpty Problem -- 8. A Principle of Developmental Inertia -- 9. The Role of Epigenetics in Nervous System Development -- 10. Morphogenesis of Pigment Patterns: Experimental and Modeling Approaches -- 11. Epigenetic Interactions of the Cardiac Neural Crest -- 12. Epigenetics in Bone and cartilage Development -- 13. Muscle-Bone Interactions and the Development of skeletal Phenotype: Jaw muscles and the skull -- 14. Evolution of the Apical Ectoderm in the Developing Vertebrate Limb

-- 15. Role of Skeletal Muscle in the Epigenetic Shaping of Organs, Tissues, and Cell Fate Choices -- 16. Epigenetic Integration, Complexity, and Evolvability of the Head: Rethinking the Functional Matrix Hypothesis -- 17. Epigenetic Interactions: The Developmental Route to Functional Integration -- 18. Epigenetic Contributions to Adaptive Radiation: Insights from Threespine Stickleback -- 19. Learning, Developmental Plasticity, and the Rate of Morphological Evolution -- 20. Epigenetics: Adaptation or Contingency? -- 21. The Epigenetics of Dymorphology. Craniosynostosis as an Example -- 22. Epigenetics of Human Disease -- 23. Epigenetics: The Context of Development -- Index

Sommario/riassunto

Illuminating the processes and patterns that link genotype to phenotype, epigenetics seeks to explain features, characters, and developmental mechanisms that can only be understood in terms of interactions that arise above the level of the gene. With chapters written by leading authorities, this volume offers a broad integrative survey of epigenetics. Approaching this complex subject from a variety of perspectives, it presents a broad, historically grounded view that demonstrates the utility of this approach for understanding complex biological systems in development, disease, and evolution. Chapters cover such topics as morphogenesis and organ formation, conceptual foundations, and cell differentiation, and together demonstrate that the integration of epigenetics into mainstream developmental biology is essential for answering fundamental questions about how phenotypic traits are produced.
