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Nota di contenuto	Part I. Germline Syncytia, Evolution, Function, and Structure -- Chapter 1. The Ancient Origin and Function of Germline Cysts -- Chapter 2. Female Germline Cysts in Animals: Evolution and Function -- Chapter 3. Germline and Somatic Cell Syncytia in Insects -- Part II. Syncytia in Embryogenesis and Development -- Chapter 4. Reshaping the Syncytial Drosophila Embryo with Cortical Actin Networks: Four Main Steps of Early Development -- Chapter 5. Cell-Mediated Branch Fusion in the Drosophila Trachea -- Chapter 6. Trophoblast Syncytialization: A Metabolic Crossroads -- Chapter 7. Early Syncytialization of the Ovine Placenta Revisited -- Chapter 8. Syncytia in Utricularia: Origin and Structure -- Part III. Fungal and Somatic Cell Syncytia and Genomic View of Extremophiles as the Ancestral Precursors of Eukaryotic Syncytia -- Chapter 9. Syncytial Assembly Lines: Consequences of Multinucleate Cellular Compartments for Fungal Protein Synthesis -- Chapter 10. Ancestors in The Extreme: A Genomics View of Microbial

Diversity in Hypersaline Aquatic Environments -- Chapter 11. Somatic Cell Fusion in Host Defense and Adaptation -- Chapter 12. Osteoclasts at Bone Remodeling: Order from Order -- Chapter 13. Muscle Progenitor Cell Fusion in the Maintenance of Skeletal Muscle -- Part IV. Virus- and Parasite- Induced Syncytia -- Chapter 14. Virus-Induced Cell Fusion and Syncytia Formation -- Chapter 15. HIV-1 Induced Cell-to-Cell Fusion or Syncytium Formation -- Chapter 16. Relevance of the Entry by Fusion at the Cytoplasmic Membrane vs. Fusion After Endocytosis in the HIV and SARS-Cov-2 Infections -- Chapter 17. Mathematical Modeling of Virus-Mediated Syncytia Formation: Past Successes and Future Directions -- Chapter 18. Syncytium Induced by Plant-Parasitic Nematodes -- Part V. Cell Fusion and Syncytia in Cancer -- Chapter 19. Mechanisms of Cell Fusion in Cancer -- Chapter 20. Cell Fusion and Syncytia Formation in Cancer -- Chapter 21. The Hallmarks of Circulating Hybrid Cells.

Sommario/riassunto

This book gives a current overview on the development, origin, structure, and functions of germline and somatic cell syncytia during embryogenesis and organogenesis. It also reviews pathogen-induced syncytia and the role of syncytial cells in cancer development. The book covers the following topics: germline syncytia, evolution, function and structure; syncytia in embryogenesis and development; the role of somatic cell fusion in fungi, specialized somatic tissues, host defense and adaptation; syncytia induced by viruses and parasites; syncytia and circulating hybrid cells in cancer and other pathological conditions; It also discusses how the genomic adaptations of microorganisms to extreme habitats can prompt the evolution of mononuclear and multinucleate/syncytial cells. The book offers a fresh outlook on syncytia's role in various processes: embryogenesis, organogenesis, adaptation, host defense, and development of specialized tissues. It highlights the importance of syncytia under physiological and pathological conditions.