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Nota di contenuto	Cover; Cell Death; Copyright Page; Contents; Contributors; Preface; The Siren's Song: This Death That Makes Life Live; References; Further Reading; The Origin and Evolution of Programmed Cell Death; Introduction; Origins: From the Question 'When' to the Question 'How'; From Predator/Prey Coevolution to Symbioses: A 'Red Queen' Hypothesis in the Bacteria World; A Stable Evolutionary Strategy despite High Individual Costs; The 'Original Sin' Hypothesis: Self-destruction as an Unavoidable Consequence of Life; <i>C. elegans</i> Model: From Paradigm to Paradox; Walking Around the Evolutionary Bush From the Origins of Programmed Cell Death to the Origins of Ageing'There is Grandeur in This View of Life...'; References; Further Reading; Cell Death in <i>C. elegans</i> ; <i>ced-3</i> , <i>ced-4</i> , <i>ced-9</i> and <i>egl-1</i> are Conserved Genes Essential for Programmed Cell Death in <i>C. elegans</i> ; Regulation of Cell Death during Somatic Development; Engulfment of Dying Cells; Germline Apoptosis; DNA Damage-induced Germline Apoptosis; Conclusion; References; Further Reading; Caspases and Cell Death; History and Classification; Structure and Active Site; Substrate Recognition and Mechanism of Action; Sequence of Action

Substrates during ApoptosisInhibitors; Caspase Knockouts; Pathological Implications; Therapeutic Outlook; References; Further Reading; The Apoptosome: The Executioner of Mitochondria-mediated Apoptosis; Introduction; The Apoptosome Structure: Its Components and Its Assembly; Apaf1; Apoptosome assembly; Caspase-9; Cytochrome c; Modulation of the Apoptosome Formation; Apoptosome-like Complexes in Evolution. Is the Mitochondrial Pathway of Apoptosis Conserved?; *Caenorhabditis elegans*; *Drosophila melanogaster*; The Role of the Apoptosome in Mammalian Development; Caspase-9 knockout; Apaf1 knockout
Cytochrome c deficiencyFinal Remarks; References; Further Reading; Caspases, Substrates and Sequential Activation; Introduction; Caspases Classification and Structure; Pathways That Lead to Caspase Activation; Extrinsic pathway; Granzyme B pathway; Intrinsic pathway; Effectors of demolition; Demolition Phase of Apoptosis; Detachment, rounding and blebbing; Nuclear fragmentation, DNA condensation and degradation; Undermining cell physiology; Immune Clearance and Immune Tolerance of Apoptotic Cells; Conclusions; Acknowledgements; References; Further Reading; Dismantling the Apoptotic Cell
IntroductionCaspases: Regulators of the Apoptotic Process; Activation of the apoptotic caspases; Effect of caspase-mediated cleavage on target substrates - gain- or loss-of-function; Cleavage of caspase substrates leads to key morphological changes during apoptosis; Cytoskeletal events and membrane blebbing; Nuclear events; Changes in the Golgi apparatus; Caspases alter the transcriptional and translational machinery; Survival pathways are targeted during apoptosis; The apoptotic cell calls for its own disposal; Caspase-independent cell death; Concluding Remarks; References; Further Reading
The BCL-2 Family Proteins - Key Regulators and Effectors of Apoptosis

Sommario/riassunto

This book on cell death contains 29 self-contained, peer-reviewed articles written by leading scientists in each field. It features overview articles aimed at undergraduates and non-specialists, which present basic information and provide entry into the following advanced articles. These advanced articles are written for postgraduate students and research workers, containing detailed information and key references allowing the reader to investigate a specific area in more depth. The book is an essential resource for educational purposes as well as a reference work for experienced researchers i
