

Apoptosis, or cell death, can be pathological, a sign of disease and damage, or physiologic, a process essential for normal health. This pathological dysregulation of cell death can be characterized by either too much loss of essential cells in the heart, brain, and other tissues with little regenerative capacity or too little cell turnover in self-renewing tissues, giving rise to cancer and other maladies. This is a process of fundamental importance for development and normal health, which is altered in many disease conditions. This book, with contributions from experts in the field, provides a timely compilation of reviews of mechanisms of apoptosis. The book is organized into three convenient sections. The first section explores the different processes of cell death and how they relate to each other. The second section focuses on organ-specific apoptosis-related diseases. The third section explores cell death in nonmammalian organisms that have served as popular models for research. This comprehensive text is a must-read for all researchers and scholars interested in apoptosis and cell death.

John C. Reed is Chief Executive Officer of the Sanford-Burnham Medical Research Institute. Dr. Reed is also Professor and Donald Bren Executive Chair at Sanford-Burnham, with adjunct professor appointments at several universities. Dr. Reed and his research team have contributed more than 800 research publications to the literature. Their work is among the most highly cited in all of science worldwide. Dr. Reed is the recipient of numerous awards and honors and has been awarded more than eighty research grants for his work. He is a named inventor for nearly 100 patents and the founder or cofounder of four biotechnology companies. Dr. Reed has served on the editorial boards of numerous journals; as an advisor to numerous public, private, and governmental organizations; and on the boards of directors of several public and private biotechnology companies and life-sciences organizations.

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Cover image: Cancer cell apoptosis. Colored scanning electron micrograph (SEM) showing programmed cell death, or apoptosis, being induced in a cancer cell. The cell (at center left) is becoming surrounded by large vesicles, known as blebs or apoptotic bodies, a characteristic sign of apoptosis. Apoptosis in this case is being induced by a chemical, an alkaloid derivative from the poppy, greater celandine (*Chelidonium majus*). This chemical, known as "UKRAIN" can induce apoptosis specifically in malignant human cancer cells without affecting normal cell growth. It is therefore a potentially useful new form of cancer therapy. Magnification: unknown. Dr. Andrejs Liepins / Photo Researchers, Inc.

Cover design by David Levy

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UNIVERSITY PRESS
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ISBN 978-0-521-88656-7



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