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This book deals with the emerging concept that certain pathogenic bacteria and viruses while infecting cancer patients actively fight tumors, allowing their regression. Although such observations go back more than 100 years, use of specific bacterial strains or viruses has gained ground in recent years. These microbes and their protein or peptide products are usually genetically modified with known anticancer drugs, and they allow significant cancer regression in clinical trials with stage III/IV cancer patients and even in pediatric brain tumor patients, often without any demonstration of toxicity. The book comprises 12 chapters written by pioneers in microbial, biotechnological, and cancer research and covers the emerging roles of various microorganisms and their products in cancer therapy. It highlights the benefits of using conventional cancer treatments (such as chemo- and radiotherapies) with microbial-based therapies. Such combinatorial therapies have gained attention as a strategy to overcome drug resistance, and the readers of the book will discover their impact on fundamental research and promising results from clinical trials.



Ananda M. Chakrabarty is a distinguished university professor of microbiology and immunology at the University of Illinois College of Medicine, Chicago, USA, and advises senior officials in the United States and abroad on policies relating to biotechnology and associated technology transfer. As a consultant to the United Nations, he was on the advisory committee that brought about the creation of the International Center for Genetic Engineering and Biotechnology, Trieste, Italy. In 1980, Prof. Chakrabarty's genetically modified *Pseudomonas* bacteria became the first genetically engineered organism to be patented. He continues to undertake pioneering biotechnology research into the therapeutic potential for protein products of bacteria at two biotechnology start-ups engaged in clinical cancer research: the University of Illinois at Chicago on behalf of CDG Therapeutics, USA, and Amrita Therapeutics, India. He has more than 280 research publications to his credit and has received many notable international awards for his contributions to biotechnology.



Arsénio M. Fialho is associate professor in the Bioengineering Department of Instituto Superior Técnico and principal investigator in the Biological Science Research Group, Institute for Bioengineering and Biosciences, at the University of Lisbon, Portugal. His research interests include molecular and cellular biology and study of bacterial proteins/peptides as novel drug candidates for cancer therapy. He aims to elucidate the cellular and molecular effects of treating cancer cell models with the protein azurin and its fragment, known as p28, which is a cell-penetrating peptide of 28 amino acids. Prof. Fialho is also interested in the development of nanocarriers for anticancer drugs and study of trimeric autotransporter adhesins as novel and key virulence determinants in members of the *Burkholderia cepacia* complex. He serves as an expert for several national and international funding agencies and organizations. He has authored 75 articles in peer-reviewed scientific journals, 2 books, and 13 book chapters and holds 8 US patents.



PAN STANFORD PUBLISHING

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V655
ISBN 978-981-4774-86-4

A standard linear barcode representing the ISBN number.

9 789814 774864