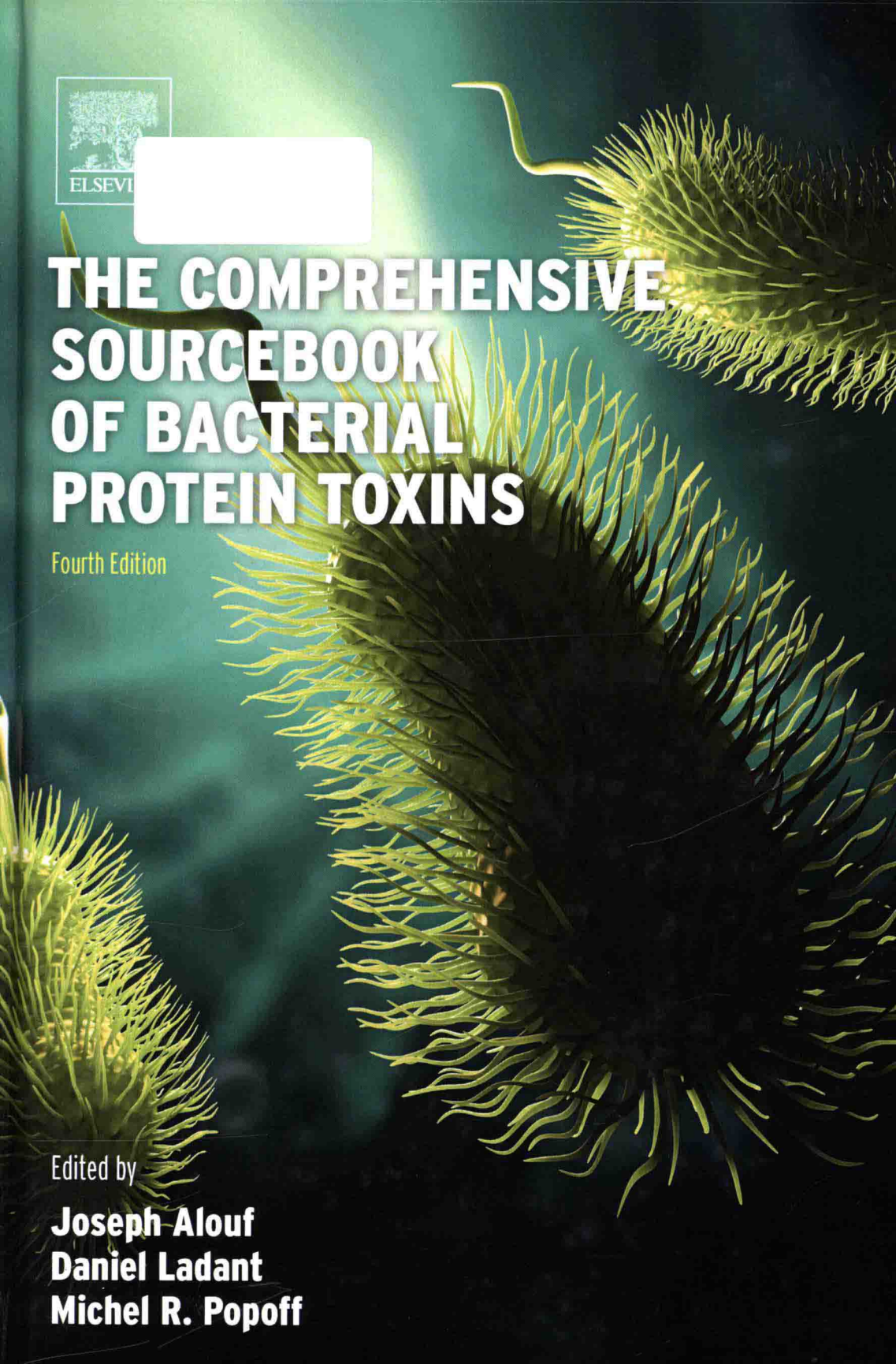
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THE COMPREHENSIVE SOURCEBOOK OF BACTERIAL PROTEIN TOXINS
Fourth Edition
Edited by
Joseph Alouf
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# The Comprehensive Sourcebook of Bacterial Protein Toxins

*Fourth Edition*


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# Introduction to the Fourth Edition

## In memory of J. E. Alouf (1929–2014)

The first edition of the *Comprehensive Sourcebook of Bacterial Protein Toxins* was published by J. E. Alouf and J. H. Freer in 1991, for the purpose of collecting in a book accessible to scientists, biologists, teachers, and students the basic knowledge of the fascinating world of the bacterial protein toxins. Indeed, these molecules produced by pathogenic and environmental bacteria are extremely diverse in terms of their composition, structure, size, biochemical properties, and mode of interaction with target cells. During the last several decades, numerous bacterial toxins have been described exhibiting characteristics like recognition of novel receptors, novel enzymatic activity, novel mode of entry into cells, or novel intracellular targets. In the first edition, J. E. Alouf and J. H. Freer not only gave detailed descriptions of individual toxins, but also presented pertinent reviews pointing out the common structural and functional aspects of toxin families, as well as the genetic mechanisms regulating toxin expression. Each of the previous editions of this book have included the most recent advances of this rapidly moving world of toxins. This edition, coming out nine years after the last one, is in keeping with this series, with the main objective to update recently acquired knowledge on both previously known and newly discovered toxins, to describe their common features which allow a better understanding of their evolution and their role in the pathogenesis, and to highlight novel applications that have emerged over the past decade. Indeed, the multifaceted aspects of bacterial toxins are the object of multidisciplinary approaches from microbiology, cell biology, molecular biology, genetics, biochemistry, biophysics, and structural biology; and this book discusses multiple applications, including therapeutic tools, development of inhibitors, and countermeasures.

J. E. Alouf was the main force behind the writing of *Comprehensive Sourcebook of Bacterial Protein Toxins*. His encyclopedic formation and education, as well as his interactions with many scientists in the domain of toxins (notably through the organization of the European Workshop on Bacterial Toxins) facilitated the involvement in this project of many of the most eminent specialists in the fields of toxin studies and bacterial pathogenesis. The idea of organizing high-standard scientific workshops in Europe devoted to bacterial toxins was evoked by several scientists and resulted in the creation in 1981 of a steering committee where J. E. Alouf was an active member. He organized the first ETOX meeting in Seillac, France, a small town about 200 km from Paris. The site was very pleasant and quite appropriate for interactive discussions between senior scientists and young students. The first ETOX meeting was a

great success largely due to the selection of the site and organization by J. E. Alouf, as well as the participation of many expert scientists in the toxin field with high standard presentations. The prototype of having a scientific, interactive meeting on toxins with a restricted number of participants allowed frank and open discussions on basic toxin concepts was adopted in the following ETOX meetings, which were organized every two years in different European places. The ETOX meetings remain among the most successful and popular meetings on the topic of bacterial toxins in the world.

The proceedings of the first meetings were published in special issues of *Zentralblatt für Bakteriologie* and then in *International Journal of Medical Microbiology*. However, these publications only discussed the recent advances in toxins, and J. E. Alouf planned to elaborate a book with a wider scope that would collect both basic concepts and recent developments in the bacterial toxin field. He selected the term "Sourcebook" to specify the importance of having basic reference documents that would provide not only an in-depth understanding of each individual toxins, but also comprehensive aspects on their common properties and modes of action. J. E. Alouf was familiar with teaching and wanted to share with other biologists and students the fundamental knowledge in his domain. Indeed, he was the director of a special course on general immunology at the Pasteur Institute, Paris, from 1974 to 1994, in which he included specific modules on bacterial toxins. This course was very appreciated by the students, and J. E. Alouf was very selective when choosing the candidates. He was on the frontier of two scientific domains, toxinology and immunology. He has characterized various bacterial hemolysins, but he was also interested in the antigenic properties of toxins, notably the superantigen activity of streptococcal toxins.

The first edition of the *Comprehensive Sourcebook* was published in 1991, as mentioned, and J. E. Alouf actively participated to the second and third editions. At the beginning of 2013, J. E. Alouf asked us whether we could help him prepare a new edition for Elsevier, even though he had been retired for six years. It was difficult to decline this kind invitation, and until the autumn of 2013, we worked together on the selection of chapters and author invitations. His health declined, but he was always interested in the progress of the book. Unfortunately, he passed away on March 20, 2014, but his contribution to science will continue.

We are very grateful to all the authors who kindly accepted to provide excellent reviews to this fourth edition, allowing the continuity on this exciting adventure in toxins. We also thank the Elsevier staff for their professionalism and patience.

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