

Biochemistry of Antimicrobial Action

BIOCHEMISTRY OF ANTIMICROBIAL ACTION

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in collaboration with

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Preface

The rapid advances made in the study of the synthesis, structure and function of biological macromolecules in the last fifteen years have enabled scientists concerned with antimicrobial agents to achieve a considerable measure of understanding of how these substances inhibit cell growth and division. The use of antimicrobial agents as highly specific inhibitors has in turn substantially assisted the investigation of complex biochemical processes. The literature in this field is so extensive however, that we considered an attempt should be made to draw together in an introductory book the more significant studies of recent years. This book, which is in fact based on lecture courses given by us to undergraduates at Liverpool and Manchester Universities, is therefore intended as an introduction to the biochemistry of antimicrobial action for advanced students in many disciplines. We hope that it may also be useful to established scientists who are new to this area of research.

The book is concerned with a discussion of medically important antimicrobial compounds and also a number of agents that, although having no medical uses, have proved invaluable as research tools in biochemistry. Our aim has been to present the available information in a simple and readable way, emphasizing the established facts rather than more controversial material. Whenever possible, however, we have indicated the gaps in the present knowledge of the subject where further information is required. We have avoided the use of literature references in the text; instead we have included short lists of key articles and books for further reading at the end of each chapter.

We have drawn on the work of many scientists and we are especially pleased to express our thanks to those who have given us permission to reproduce their original diagrams and photographs. We are also grateful to the Pharmaceuticals Division of Imperial Chemicals Industries Ltd, for providing the necessary facilities for the preparation of this book.

Abbreviations used without definition for common biochemical substances are those recommended by the *Biochemical Journal* (1970).

T. J. FRANKLIN
G. A. SNOW

June 1970

Preface to the fourth edition

The decision to prepare a fourth edition was prompted by developments in a number of areas. Interest in the β -lactam drugs has been sustained by further ingenious exploitation of the potential of this group of drugs to provide evermore powerful treatments of bacterial infections. The bacteria themselves, however, have proved resourceful in deploying new modes of resistance to recently devised β -lactams. There has been a resurgence of interest in quinolone antibacterials in recent years and closer attention is being paid to the chemotherapy of fungal and viral infections, prompted largely by the AIDS epidemic. Knowledge of the permeability barriers of the Gram-negative outer membrane and of the biology of drug-resistance plasmids has expanded dramatically. We have dealt with these and many other new developments within the limited space available to us. In the interests of logical presentation we have rearranged the distribution of some material in Chapters 2 and 6. Over the years we have received many helpful comments and criticisms which have influenced subsequent editions. We hope that our readers will continue to let us know their views.

December 1987

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