



The *Quinolones* THIRD EDITION

Edited by

VINCENT T. ANDRIOLE

THE QUINOLONES

Third Edition

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VINCENT T. ANDRIOLE
Yale University School of Medicine



ACADEMIC PRESS

San Diego

London


Boston

New York

Sydney

Tokyo

Toronto

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Academic Press

a Harcourt Science and Technology Company

525 B Street, Suite 1900, San Diego, California 92101-4495

<http://www.academicpress.com>

Academic Press Limited

Harcourt Place, 32 Jamestown Road, London NW1 7BY, UK

Library of Congress Catalog Card Number: 00-106606

International Standard Book Number: 0-12-059517-6

PRINTED IN UNITED STATES OF AMERICA

02 03 04 05 SB 9 8 7 6 5 4

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B07021

BAY-0021

12/01

*To my family
who have supported and
encouraged me always
and in everything.*

*To my colleague, Susan Marino,
who has assisted me in
all professional activities.*

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PREFACE

Substantial progress has been made in the development of newer quinolones since the last edition of *The Quinolones* was published. This progress occurred because the quinolone class of antibacterial agents has captured the interest of chemists, microbiologists, pharmacologists, and clinicians. Recent progress in molecular biology has provided new information and a better understanding of structure–activity relationships of the quinolone nucleus and its radicals. This progress has resulted in the approval of a few new compounds with improved mechanism of action and the potential for delaying the development of resistance by specific bacterial pathogens. A few of the newest quinolones developed recently—moxifloxacin, gatifloxacin, and gemifloxacin—provide a more potent spectrum of activity that includes penicillin-resistant pneumococci as well as good activity against anaerobes and decreased susceptibility to the development of resistance by some bacterial species. Trovafloxacin was the first quinolone that demonstrated improved penetration into the central nervous system and cerebrospinal fluid, and early clinical studies demonstrated excellent efficacy in pediatric patients with bacterial meningitis. The newest quinolones—moxifloxacin, gatifloxacin, and gemifloxacin—broaden the clinical utility of this class of antimicrobial agents as we enter an era of increasing bacterial resistance to the previously recommended “standard therapy.” During this same period, we have learned much about quinolone toxicity as it relates to quinolone chemical structure and pharmacokinetics/pharmacodynamics in treated patients. Hopefully this knowledge will provide safer molecules for use in patients.

The excellent and very recent progress that has occurred warranted an update on the quinolones. This edition is intended to provide the newest and most cogent information on the quinolones—all of it readily available in one volume.

Once again, I am much indebted to my colleagues, each of whom contributed thorough reviews on the history, chemistry, and mechanism of action, *in-vitro* properties, mechanisms of bacterial resistance, pharmacokinetics, clinical overview (described in nine separate chapters, including pediatrics), toxicity, adverse effects and drug interactions, and the future prospects of the newer quinolones.

Clearly, our hope is that this work will serve as a ready resource for new and helpful information, and, in so doing, the efforts of my colleagues most certainly will have been worthwhile.

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