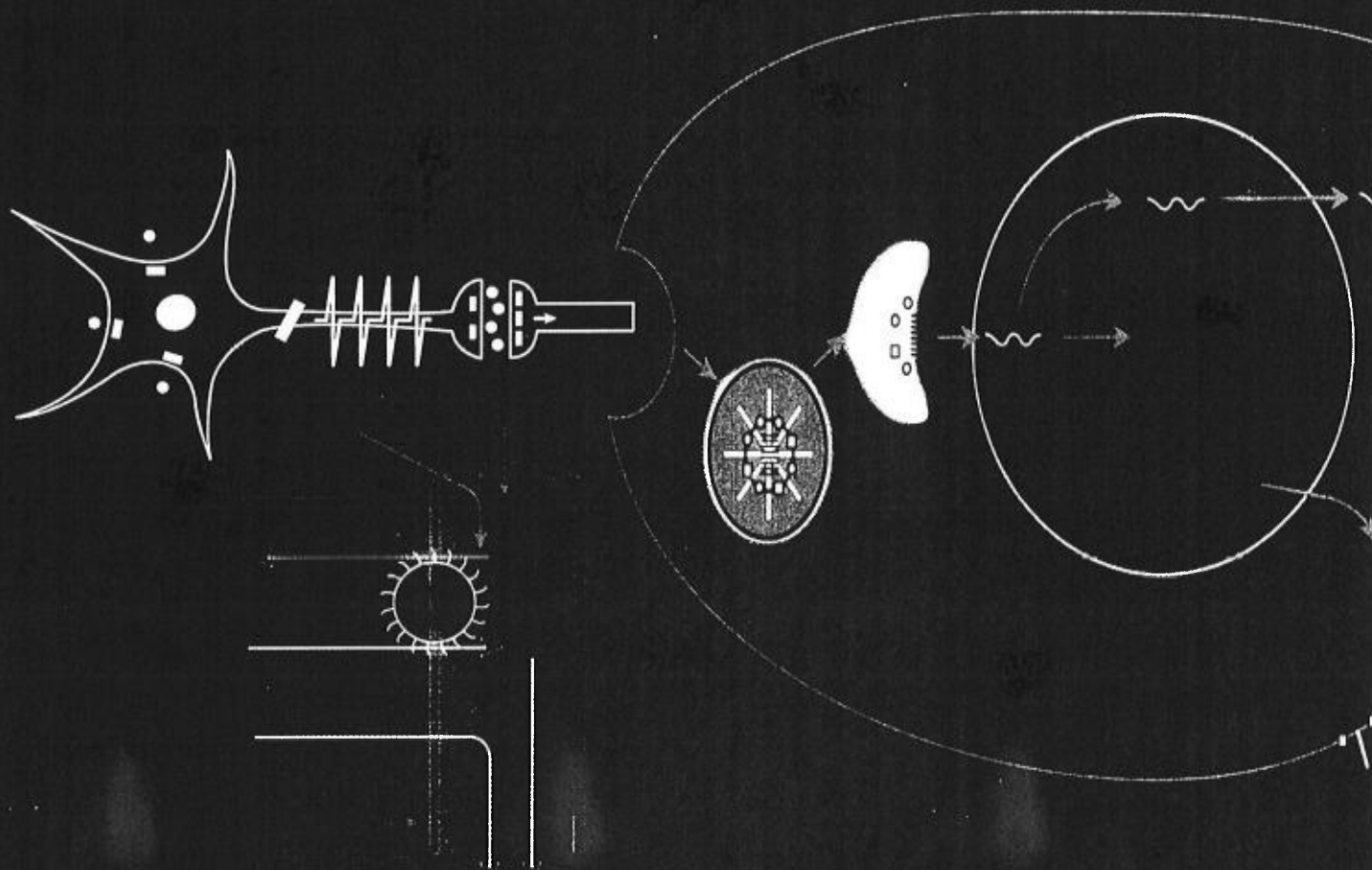


SIXTH EDITION

# MODERN PHARMACOLOGY

## with Clinical Applications

VISIT  
[connection.lww.com/go/craigandstitzel](http://connection.lww.com/go/craigandstitzel)  
for student and instructor ancillaries



Charles R. Craig • Robert E. Stitzel

CELGENE 2075



THE LIBRARY  
OF  
THE UNIVERSITY  
OF TEXAS  
AT  
AUSTIN

AUG 19 2004

**6<sup>TH</sup>**  
EDITION

# **MODERN PHARMACOLOGY** with Clinical Applications

**6<sup>TH</sup>**  
**EDITION**

# **MODERN PHARMACOLOGY with Clinical Applications**

**EDITED BY**

**Charles R. Craig, PhD**

PROFESSOR OF NEUROBIOLOGY AND ANATOMY  
*West Virginia University School of Medicine*  
*Morgantown, West Virginia*

**Robert E. Stitzel, PhD**

PROFESSOR AND ASSOCIATE CHAIRMAN OF BIOCHEMISTRY AND MOLECULAR PHARMACOLOGY  
*West Virginia University School of Medicine*  
*Morgantown, West Virginia*



LIPPINCOTT WILLIAMS & WILKINS  
A Wolters Kluwer Company

**DOCKET  
ALARM**

Find authenticated court documents without watermarks at [docketalarm.com](http://docketalarm.com).



Editor: Betty Sun  
Managing Editor: Rebecca Kerins  
Marketing Manager: Joseph Schott  
Production Editor: Jennifer Ajello  
Designer: Doug Smock  
Compositor: Graphic World  
Printer: Quebecor World-Dubuque

Copyright © 2004 Lippincott Williams & Wilkins

351 West Camden Street  
Baltimore, MD 21201

530 Walnut Street  
Philadelphia, PA 19106

All rights reserved. This book is protected by copyright. No part of this book may be reproduced in any form or by any means, including photocopying, or utilized by any information storage and retrieval system without written permission from the copyright owner.

The publisher is not responsible (as a matter of product liability, negligence, or otherwise) for any injury resulting from any material contained herein. This publication contains information relating to general principles of medical care that should not be construed as specific instructions for individual patients. Manufacturers' product information and package inserts should be reviewed for current information, including contraindications, dosages, and precautions.

04 05 06 07 08

1 2 3 4 5 6 7 8 9 10

Printed in the United States of America

#### Library of Congress Cataloging-in-Publication Data

Modern pharmacology with clinical applications / edited by Charles R. Craig, Robert E. Stitzel.—6th ed.

p. ; cm.

Includes index.

ISBN 0-7817-3762-1

1. Clinical pharmacology. I. Craig, Charles R. II. Stitzel, Robert E.

[DNLM: 1. Pharmacology. 2. Drug Therapy. QV 4 M6898 2003]

RM301.28.M63 2003

615'.1—dc21

*The publishers have made every effort to trace the copyright holders for borrowed material. If they have inadvertently overlooked any, they will be pleased to make the necessary arrangements at the first opportunity.*

To purchase additional copies of this book, call our customer service department at (800) 638-3030 or fax orders to (301) 824-7390. International customers should call (301) 714-2324.

#### Visit Lippincott Williams & Wilkins on the Internet:

<http://www.LWW.com>. Lippincott Williams & Wilkins customer service representatives are available from 8:30 am to 6:00 pm, EST.

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.