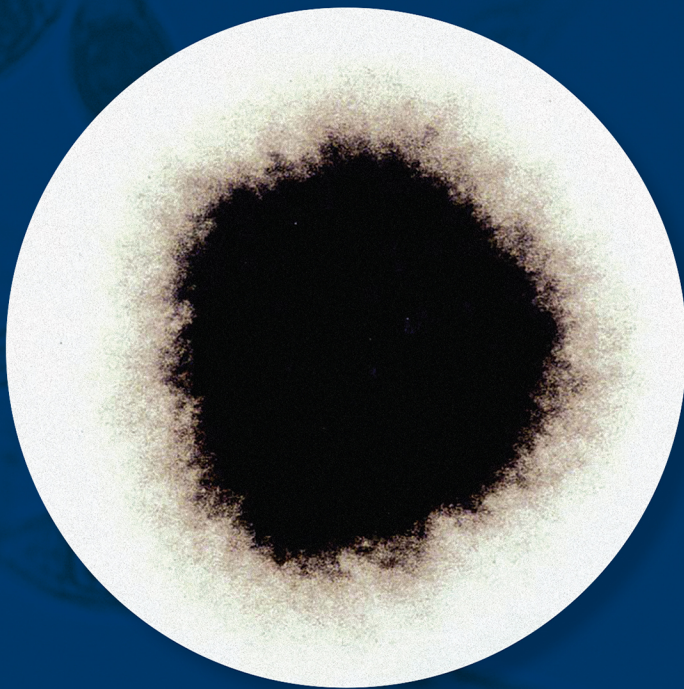


7th EDITION

Larone's

MEDICALLY
IMPORTANT
FUNGI

A GUIDE TO
IDENTIFICATION



Lars F. Westblade
Eileen M. Burd
Shawn R. Lockhart
Gary W. Procop



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Founding Author

Davise H. Larone, MT(ASCP), PhD, D(ABMM), F(AAM)

Weill Cornell Medicine
New York, New York

Lars F. Westblade, PhD, D(ABMM)

Weill Cornell Medicine
New York, New York

Eileen M. Burd, PhD, D(ABMM)

Emory University Hospital
Emory University School of Medicine
Atlanta, Georgia

Shawn R. Lockhart, PhD, D(ABMM), F(AAM)

Centers for Disease Control and Prevention
Atlanta, Georgia

Gary W. Procop, MD, MS

American Board of Pathology
Tampa, Florida
Cleveland Clinic Lerner College of Medicine
Cleveland, Ohio

With

Thomas J. Walsh, MD, PhD (hon), F(IDSA), F(AAM), F(ECMM), F(AAAS)

Center for Innovative Therapeutics and Diagnostics
Richmond, VA



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Dedicated with love
To Angela, Henry, and Elaine. (LFW)

Dedicated with love
To Rebekah and Larisa. All my heart. (EMB)

Dedicated with love
To my wife Kathleen and to my parents Bob and Dotti for enabling me to
become a scientist. (SRL)

In loving memory of Delonda B. Procop (née MacDonald), Mom –
When Dad passed too soon, you bore the mantle of mother and father. Thank you
for the moral compass, the blue-ribbon baking, making our house a home, and
so much more. (GWP)

Dedicated with love
With all my heart to Marie, Emma, and Laura Walsh, and with loving
memory of John, Frances, and Margaret Walsh. (TJW)

Dedicated with love
To Ronit, Jessie, and Beth, and with loving memory to John D. Lawrence. (DHL)

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Preface to the Seventh Edition

Every edition of *Larone's Medically Important Fungi: A Guide to Identification* has been written with the needs of the reader foremost in mind so that the identification of fungi encountered in the clinical laboratory is logical, understandable, and enjoyable for all medical mycologists and those interested in this fascinating field. The goal has never been to compete with larger texts, but to present information in a format so arranged that a medical mycologist can reach a possible identification knowing only the colony and microscopic morphology of an isolated organism. This format, which has proven so successful, is maintained in this edition. Further, with each new edition a major accompanying goal is to expand the reader's knowledge and provide contemporary information regarding emerging fungal pathogens and their associated properties.

This edition introduces four new authors: Lars F. Westblade, Eileen M. Burd, Shawn R. Lockhart, and Gary W. Procop. Each brings a unique perspective and area of expertise, and all have worked in close collaboration to honor the work of Davise H. Larone, the founding author, while striving to update this important diagnostic resource.

Both Part I, "Direct Microscopic Examination of Clinical Specimens", and Part II, "Identification of Fungi in Culture", are expanded to include several new organisms. In addition, many organism descriptions have been updated, and some organisms have been regrouped to better reflect their biology. The various reference sections in previous editions are now consolidated into a single reference section, and references for many organisms are updated. Part III, the "Basics of Molecular Methods for Fungal Identification" section, and Part IV, the "Laboratory Technique" section have also been carefully reviewed and revised to ensure information is current and universally applicable to the practicing medical mycologist.

Due to the flurry of molecular taxonomic studies applied to medically important fungi, taxonomy and nomenclature adjustments continue to be hotly debated topics in medical mycology. These changes can cause confusion especially when viewed by patient-facing colleagues. We have endeavored to provide clarity by

highlighting the name suggested for clinical reporting in the banner heading associated with each organism description. We have also included additional taxonomic and nomenclature information in a newly introduced feature, “Taxonomy Notes,” that is associated with organism descriptions as needed. The information presented in “Taxonomy Notes” provides continuity with earlier names and presents revised names. We are mindful that for those organisms whose names have been revised, yet not adopted for clinical reporting in this edition, eventual accumulation of data that may lead to improved diagnosis and treatment of our patients may warrant acceptance of the revised names.

As this edition goes to press we are already considering the next! As such, we seek feedback from readers and all comments, suggestions, or requests aimed at fulfilling the needs of the readership will be most appreciated.

February, 2023

Preface to the First Edition

More than ever, clinical laboratory personnel with limited experience in mycology must culture and identify fungi isolated from clinical specimens. Even after attending a course in the subject, technologists often need guidance in identifying the great variety of organisms encountered in the lab. With the advent of proficiency testing by local and national organizations, technologists have a need and opportunity to practice and increase their skills in the medical mycology laboratory.

Most classic texts, though rich in information, are arranged according to the clinical description of the infection; the textual discussion of any particular fungus can be located only from the index or table of contents. Since the technologist doesn't know the name of an unidentified fungus and usually has little or no knowledge of the clinical picture, these texts are at best difficult to use effectively. The unfortunate result is the all-too-common practice of flipping through an entire mycology textbook in search of a picture that resembles the organism under examination. Such a practice may make the more accomplished mycologist's hair stand on end, but it is a fact to be acknowledged.

This guide is not meant to compete with these large texts, but to complement them. The material here is so arranged that the technician can systematically reach a possible identification knowing only the macro- and microscopic morphology of an isolated organism. Reference can then be made to one of the classic texts for confirmation and detailed information.

Many possible variants of organisms are found under several categories of morphology and pigment. The outstanding characteristics are listed on the page(s) apportioned to each organism, and references are suggested for further information and confirmation (see How To Use the Guide).

Medically Important Fungi avoids the jargon so commonly and confusingly used in most mycology books. Drawings are used wherever possible to illustrate organisms described in the text. To ensure clarity, a glossary of terms is included, as well as a section on laboratory techniques for observing proper morphology. Another section includes use of the various media, stains, and tests mentioned in the book.

The actinomycetes, although now known to be bacteria rather than fungi, are included because they are frequently handled in the mycology section of the clinical laboratory.

It is believed that this guide will enable students and medical technologists to culture and identify fungi with greater ease and competency and in so doing to develop an appreciation of the truly beautiful microscopic forms encountered.

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