CLINICAL AND LABORATORY STANDARDS INSTITUTE®

3rd Edition

MM03

Molecular Diagnostic Methods for Infectious Diseases

This report addresses topics relating to clinical applications, amplified and nonamplified nucleic acid methods, selection and qualification of nucleic acid sequences, establishment and evaluation of test performance characteristics, inhibitors, and interfering substances, controlling false-positive reactions, reporting and interpretation of results, quality assurance, regulatory issues, and recommendations for manufacturers and clinical laboratories.

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Molecular Diagnostic Methods for Infectious Diseases

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Abstract

Nucleic acid methods for the detection and characterization of microorganisms in clinical specimens are now firmly established in laboratory medicine. These methods offer opportunities for clinical laboratories to provide more rapid and accurate results, and have changed the practice of clinical microbiology and infectious diseases. Clinical and Laboratory Standards Institute document MM03—*Molecular Diagnostic Methods for Infectious Diseases* addresses topics relating to clinical applications, amplified and nonamplified nucleic acid methods, selection and qualification of nucleic acid sequences, establishment and evaluation of test performance characteristics, inhibitors, and interfering substances, controlling false-positive reactions, reporting and interpretation of results, QA, regulatory issues, and recommendations for manufacturers and clinical laboratories.

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Foreword

MM03 was originally published as an approved guideline in 1995. It was the first of what was to become many CLSI molecular diagnostics guidelines, and the first molecular microbiology consensus guideline published. Molecular microbiology is the application of nucleic acid methods to the diagnosis and management of patients with infectious diseases. The field has advanced enormously since the publication of the first approved edition of MM03 and is now an integral part of laboratory medicine.

Overview of Changes

With the change in format and category definitions for all CLSI documents, MM03 has been recategorized as a report and replaces MM03-A2. Although MM03 has been revised for the purpose of keeping information current, the revisions do not significantly affect the scope or purpose of the document, nor do they change the methodology used. Revisions to the document include:

- Formatting and template design have been updated to reflect current CLSI style.
- References to most trademarked products have been deleted.
- CLSI references have been updated to reflect current document numbers and editions.
- International Organization for Standardization definitions and references have been updated to reflect current editions.
- New test descriptions and figures have been added to the text and the appendix in order to reflect current technology.

Note that the trade name TaqMan® is included as a reference to Figure 1 of this document. It is Clinical and Laboratory Standards Institute's policy to avoid using a trade name unless the product identified is the only one available, or it serves solely as an illustrative example of the procedure, practice, or material described. In this case, the working group and consensus committee believe the illustration derived from the published reference is an important descriptive adjunct to the document. In such cases, it is acceptable to use the product's trade name when the illustration is being reprinted from a referenced publication. It should be understood that information on this product in this document also applies to any equivalent products.

Key Words

Development, implementation, infectious disease, molecular methods, molecular microbiology, nucleic acid amplification, quality assurance, reporting, validation, verification

Molecular Diagnostic Methods for Infectious Diseases

Chapter 1: Introduction

This chapter includes:

- Document scope and applicable exclusions
- Background information pertinent to the document content
- Standard precautions information
- "Note on Terminology" that highlights particular use and/or variation in use of terms and/or definitions
- Terms and definitions used in the document
- Abbreviations and acronyms used in the document

1.1 Scope

This document describes general principles for the development, evaluation, and application of tests designed for direct detection of microorganisms in clinical specimens and for identification of microorganisms grown in culture. The document provides evidence-based recommendations, where appropriate.

The following content areas are addressed:

- Clinical applications
- Amplified and nonamplified nucleic acid methods
- Selection and qualification of nucleic acid sequences
- Establishment and evaluation of test performance characteristics, inhibitors, and interfering substances
- Controlling false-positive reactions
- Reporting and interpretation of results
- QA
- Regulatory issues
- Recommendations for manufacturers and clinical laboratories

This document is intended for use by clinical laboratories, test developers and manufacturers, and regulatory agencies. It is not intended to be a compilation of successful protocols for