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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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MM03, 3rd ed.  
February 2015  
Replaces MM03-A2

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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 quantification 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.

Clinical and Laboratory Standards Institute (CLSI). *Molecular Diagnostic Methods for Infectious Diseases*. 3rd ed. CLSI report MM03 (ISBN 1-56238-997-1 [Print]; ISBN 1-56238-998-X [Electronic]). Clinical and Laboratory Standards Institute, 950 West Valley Road, Suite 2500, Wayne, Pennsylvania 19087 USA, 2015.

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### **Suggested Citation**

CLSI. *Molecular Diagnostic Methods for Infectious Diseases*. 3rd ed. CLSI report MM03. Wayne, PA: Clinical and Laboratory Standards Institute; 2015.

### **Previous Editions:**

March 1994, December 1995, April 2005, February 2006

### **Archived:**

January 2020

ISBN 1-56238-997-1 (Print)  
ISBN 1-56238-998-X (Electronic)  
ISSN 1558-6502 (Print)  
ISSN 2162-2914 (Electronic)

Volume 35, Number 5

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### Acknowledgment

CLSI, the Consensus Committee on Molecular Methods, and the Working Group on Molecular Diagnostic Methods for Infectious Diseases gratefully acknowledge the authors of the previous edition of MM03 (*Molecular Diagnostic Methods for Infectious Diseases; Approved Guideline—Second Edition*), which has been minimally revised by the working group to develop this report:

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## Contents

Abstract.....	i
Committee Membership.....	iii
Foreword.....	vii
Chapter 1: Introduction.....	1
1.1    Scope.....	1
1.2    Background.....	1
1.3    Standard Precautions.....	2
1.4    Terminology.....	2
Chapter 2: Applications.....	9
2.1    Utility of Molecular Diagnostic Tests for Infectious Diseases.....	9
2.2    Screening or Initial Testing.....	10
2.3    Confirmatory and Supplemental Testing.....	11
Chapter 3: Specimen Collection, Transport, and Processing.....	13
Chapter 4: Contributors to False-Negative Results and Controls.....	15
4.1    Detection of Inhibitors and Interfering Substance.....	16
4.2    Inhibitory Samples.....	17
Chapter 5: Methods.....	19
5.1    Physical and Chemical Methods for Nucleic Acid Detection.....	19
5.2    Detection Formats.....	20
5.3    Nucleic Acid Amplification Technologies.....	23
5.4    Real-Time Polymerase Chain Reaction Instruments.....	26
Chapter 6: Selection and Qualification of Nucleic Acid Sequences.....	29
6.1    Target Region.....	29
6.2    Polymerase Chain Reaction Primer Sequence Selection.....	29
6.3    Hybridization Probe Sequence Selection.....	30
6.4    Fluorescence Resonance Energy Transfer Probes.....	31
6.5    Probe and Primer Forms and Purity.....	33
Chapter 7: Establishment and Evaluation of Performance Characteristics of Molecular Diagnostic Tests.....	35
7.1    Limit of Detection (Analytical Sensitivity).....	35
7.2    Analytical Specificity.....	36
7.3    Precision.....	36
7.4    Cutoff Values.....	36
7.5    Diagnostic Sensitivity.....	37
7.6    Diagnostic Specificity.....	37
7.7    Predictive Values.....	38
7.8    Diagnostic Accuracy.....	38
7.9    Diagnostic Value.....	38
7.10    Test Limitations.....	39
7.11    Implementation of US Food and Drug Administration–Cleared Tests.....	39
Chapter 8: Quality Assurance.....	41

**Contents (Continued)**

8.1	Laboratory Design and Practices .....	41
8.2	Instruments.....	43
8.3	Quality Assurance During Development of Molecular Diagnostic Tests.....	43
8.4	Control Materials .....	44
8.5	Selecting Organism Strains for Analytical Studies.....	46
8.6	Preparing Nucleic Acid Controls .....	46
8.7	Types of Testing During Assay Development.....	47
8.8	Quality Assurance for Implementation of Molecular Diagnostic Tests.....	54
8.9	Trend Analysis.....	55
8.10	Proficiency Testing.....	55
8.11	Controlling False-Positive Nucleic Acid Target Amplification Reactions.....	55
Chapter 9: Reporting of Results.....		61
9.1	Organism and Nucleic Acid Target .....	61
9.2	Equivocal Results .....	61
9.3	Reference Range .....	61
9.4	Critical Results.....	61
9.5	Test Limitations .....	61
9.6	Interpretation.....	62
9.7	Clarifying Statements .....	62
Chapter 10: Recommendations for Manufacturers and Clinical Laboratories.....		63
10.1	Regulatory Requirements .....	63
10.2	Recommendations to Assay Developers.....	63
10.3	Recommendations for Clinical Laboratories .....	64
10.4	Selection of Referral Laboratories .....	64
Chapter 11: Conclusion.....		66
Chapter 12: Supplemental Information.....		66
References.....		67
Additional References.....		73
Appendix. Nucleic Acid Amplification Technologies.....		74
The Quality Management System Approach.....		90
Related CLSI Reference Materials .....		92

## 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.

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## 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