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An Overview of the Applicable Biomarkers Used for Invasive Candidiasis Diagnosing

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ADMINISTRATIVE INFORMATION

Support - "Carol Davila" University of Medicine and Pharmacy Bucharest.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 8 October 2025 and was last updated on 8 October 2025.

INTRODUCTION

Review question / Objective Which biomarkers have been evaluated for the diagnosis of invasive candidiasis? What types of studies and populations have investigated these biomarkers? What evidence exists on clinical applicability and diagnostic accuracy? What are the key gaps and priorities for future research?

Rationale Invasive candidiasis is an important cause of mortality, especially in immunocompromised patients and those in intensive care. Diagnostic delay is common, and multiple biomarkers have been proposed to support earlier and more accurate diagnosis. This scoping review will summarize available evidence on biomarkers used for diagnosing invasive candidiasis and try to identify knowledge gaps to guide future research.

Condition being studied Invasive candidiasis and biomarkers used to aid the diagnosis.

METHODS

Participant or population No direct participants are involved. The scoping review relies on published data.

Intervention No intervention is performed. The scoping review relies on published data.

Comparator No comparator was applied.

Study designs to be included The review will include clinical and diagnostic studies of any design that evaluate biomarkers for the diagnosis of invasive candidiasis. Eligible study designs include observational studies (prospective and retrospective cohorts, case–control studies, cross-sectional studies), diagnostic accuracy studies, guideline documents, and narrative or systematic reviews. Case reports and animal studies will be excluded.

Eligibility criteria Population: Human patients of any age with suspected or confirmed invasive candidiasis.
• Concept: Evaluation of biomarkers used for the diagnosis of invasive candidiasis, including serologic, molecular, antigenic, culture-based biomarkers.
• Context: Clinical and diagnostic studies, diagnostic accuracy studies, observational studies, clinical guidelines, and narrative or systematic reviews.
• Language: English.
• Publication period: 1987–2025.
• Setting: Hospital, intensive care, or other clinical settings where invasive candidiasis may occur.

Exclusion criteria:
• Animal studies, in vitro studies, and case reports.
• Studies not reporting diagnostic data or biomarker evaluation.
• Non-English publications.
• Conference abstracts without full text available.

Information sources PubMed/MEDLINE, Scopus, Web of Science, Embase, Cochrane, plus international guidelines (ESCMID, IDSA, EORTC/MSG, FUNDICU, ECMM, ISHAM, ASM).

Main outcome(s) The expected outcome of this project is to provide a comprehensive overview of existing biomarkers, highlight their clinical applicability and diagnostic performance, and identify current gaps and priorities for future research in this field.

Quality assessment / Risk of bias analysis The reviewers will independently screen titles and abstracts, followed by full-text assessment of potentially relevant articles. Data will be extracted, including biomarker name, assay type, study design, population, sample size, key outcomes (sensitivity, specificity, predictive values when available), and study limitations.

Strategy of data synthesis Extracted data will be summarized narratively.

Subgroup analysis summarize data according to biomarkers, performance, and limitations.

Sensitivity analysis For each included study, we will extract reported sensitivity values for the diagnostic biomarkers evaluated for invasive candidiasis.

Language restriction Only English language publication will be retained.

Country(ies) involved Romania.

Keywords invasive candidiasis; candidemia; deep-seated candidemia; candida biomarker; 1-3-Beta-D-Glucan; Mannan Antigen; Anti-mannan antibodies; T2Candida; PCR Candida; serology.

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