YEAST PANEL Multiplex PCR Assay for Identification of Invasive Yeast Pathogens: Novel Diagnostic Strategy, Useful for Developing Countries

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Introduction

The majority of invasive fungal infections (IFIs) are attributable to pathogenic yeast species. Identification of pathogenic yeasts in developing countries are mainly performed by phenotypic and biochemical assays, which are time-consuming and inaccurate (1). This could lead to inaccurate epidemiological results and hence establishment of wrong empirical therapies, higher mortality rate, and emergence of resistant yeast pathogens (2). In order to solve this problem and due to the widespread use of PCR even in developing countries, a panel of three multiplex PCR assays (YEAST PANEL Multiplex PCR assay) targeting the most clinically important yeast pathogens were designed.

Materials and methods

Figure 1. Shows the validation strategy utilized for YEAST Panel multiplex PCR assay

Results

Figure 2. A) Demonstrates the Step-wise strategy of YEAST Panel multiplex PCR assay, and B) Illustrates the workflow of YEAST Panel multiplex PCR assay, starting with yeast colonies, followed by PCR and running on the gel electrophoresis.

References

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Results

Figure 3. Illustrates the three involved multiplex PCR assays targeting the most clinically important yeast species.

Conclusion

This assay targets 99,6% of causative agents of candidiasis and 95% of infections caused by yeast species. Due to high accuracy and encompassing the wide range of pathogenic yeasts included, this assay could be successfully used for clinical diagnostic purposes and epidemiological studies. Additionally, compared to phenotypic assays, our assay is less expensive, more time-saving and highly specific.