

Faculty of Women for Art, Science and Education

# Laboratory Diagnosis of Rifampicin Resistant Pulmonary Tuberculosis through Molecular Techniques

A Thesis submitted for PhD degree in science (Microbiology)

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#### **Approval Sheet**

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#### LIST OF ABREVIATIONS

AFB Acid fast bacilli

AK Amikacin

AM-A Amplification mix A

AM-B Amplification mix B

BAL Bronchoalveolar lavage

BCG Bacillus of Calmette and Guerin

CAP Capreomycin

CDC Centers for disease control and prevention

CI Confidence interval

CON-C Conjugate concentrate

CON-D Conjugate buffer

CXR Chest X-ray

DEN Denaturation solution

DNA Deoxyribonucleic acid

DST Drug susceptibility testing

Eis Enhanced intracellular survival protein

ELISA Enzyme linked Immunosorbent assay

EMB Ethambutol

FASII Fatty acid synthase type II

FDA Food and Drug Administration

FQ Fluoroquinolones

\_\_\_\_

FRET Fluorescence resonance energy transfer

GX Gene xpert MTB/RIF

HIV Human immunodeficiency virus

HRM High-resolution melting

HYB Hybridization buffer

IL-12 Interleukin 12

INH Isoniazid

ISS Induced sputum specimen

KAN Kanamycin

LAM Lipoarabinomannan

LAMP Loop mediated isothermal amplification

LED Light-emitting diode

LJ Löwenstein-Jensen

LPAs Line probe assays

LPS Lipopolysaccharide

LTBI Latent TB infection

MDR-TB Multiple drug resistant tuberculosis

MTB Mycobacterium tuberculosis

MTBC Mycobacterium tuberculosis complex

MyD88 Myeloid differentiation primary response 88

NAAT Nucleic acid amplification test

NAD Nicotinamide group of nicotinamide adenine dinucleotide

NTM Non-tuberculosis mycobacteria

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PCC Probe Check Control

PCR Polymerase chain reaction

PPD Purified protein derivative

PTB Pulmonary tuberculosis

QFT-G Quantiferon-TB gold test

RIF Rifampicin

RIN Rinse solution

RRDR Rifampicin resistance determining region

rRNA Ribosomal RNA

RT-PCR Real time PCR

SDA Strand displacement amplification

SM Streptomycin

SPC Specimen processing control

STR Stringent wash solution

SUB-C Substrate concentrate

SUB-B Substrate buffer

TB Tuberculosis

TLR Toll-like receptors

TNF- Tumor necrosis factor-

TST Tuberculin skin test

WHO World health organization

bp Base pair