

INTROL® TB PANEL M114plus INSTRUCTIONS FOR USE

INTENDED USE:

INTROL® TB Panel M114plus is intended for use as a quality control to monitor the nucleic acid detection of *M. tuberculosis* (MTB) and the mutations associated with multi-drug resistant MTB (MDR-TB) on the GeneXpert® System.

The World Health Organization (WHO) reports that about 1.7 billion people, 23% of the world's population, are estimated to have a latent TB infection, and are thus at risk of developing active TB disease during their lifetime.¹ There has been major progress in subsequent years – more than 60 million people have been documented as treated and cured since 2000, and case and death rates have fallen steadily. Nevertheless, worldwide, around 10 million people still fall ill with the disease each year (more adults than children, and more men than women), and TB is one of the top 10 causes of death. It is also the leading cause of death from a single infectious agent, ranking above HIV/AIDS.²

INTROL® TB Panel M114plus is provided for Research Use Only (RUO). It cannot be cloned, sold, or transferred without the explicit written consent of MMQCI.

PRODUCT SUMMARY and PRINCIPLE:

INTROL® TB Panel M114plus is composed of 3 positive controls and 1 negative control. The positive controls consist of non-infectious, synthetic MTB DNA encapsulated in bacterial cells. The MTB DNA does not include the entire MTB genome. MTB gene segments present among the positive controls are: IS6110, IS1081, hsp65, 16S rRNA, 23S rRNA, inhA, katG, and rpoB. Drug resistance mutations are incorporated in segments inhA, katG, and rpoB, as indicated in Table 1. Not all mutations listed are detected by Xpert MTB assays on the GeneXpert System. The negative control contains buffer and preservative only.

Best practice is to establish a quality control program for every assay performed by the laboratory.^{3,4} Routine use of quality controls that are consistent lot to lot and monitor the entire assay assists the laboratory in identifying shifts, trends, and increased frequency of random errors caused by variations in the test system, such as failing reagents and pipetting errors. Early investigation can prevent failed assay runs.

COMPOSITION:

INTROL® TB Panel M114plus is comprised of three bottles each of INTROL® TBWT-04, INTROL® TBMDR1-04, INTROL® TB1081MDR2, and INTROL® TBNEG, 1.0 mL each. INTROL® TBWT-04 and INTROL® TBMDR1-04 contain the following MTB gene segments: IS6110, hsp65, 16S rRNA, 23S rRNA, inhA, katG, and rpoB. INTROL® TB1081MDR2 contains MTB gene segments: IS1081, hsp65, 16S rRNA, 23S rRNA, inhA and rpoB. The MTB gene segments consist of non-infectious, synthetic MTB DNA encapsulated in chemically fixed and killed laboratory bacterial cells suspended in buffer and preservatives. INTROL® TBNEG contains buffer and preservative only. The presence or absence of drug resistance mutations is specified for each bottle in Table 1.

Table 1. Drug Resistance Mutations* found in INTROL® TB Panel M114plus

Control	Drug Resistance Mutation
INTROL® TBWT-04	no mutations/ wildtype (H37Rv)
INTROL® TBMDR1-04	rpoB: F505L, L511P, D516V, H526Y inhA: -I5 katG: S315T (AGC> ACC)
INTROL® TB1081MDR2	rpoB: S522L, H526D, S531L inhA Mutant: -8T>C
INTROL® TBNEG	No MTB DNA, no cells

*References citing the mutations can be found at www.tbdreamdb.com

PRECAUTIONS AND WARNINGS:

INTROL® TB Panel M114plus has been tested on the GeneXpert® System only. It cannot be cloned, sold, or transferred without the explicit written consent of MMQCI. This product does not contain any biological material of human origin or infectious microorganisms. Do not freeze.

STORAGE and STABILITY:

Upon receipt and after opening, the material should be stored at 2° – 8°C. Do not freeze.

Unopened controls are stable through the expiration date printed on each bottle when stored at 2° – 8°C. Opened material tightly capped and returned to the refrigerator (2° – 8°C) shortly after use is stable for thirty (30) days from the date of opening.

INSTRUCTIONS FOR USE ON THE GeneXpert® System:

- Each bottle contains 1.0 mL of control material.
- Allow controls to come to room temperature.
- Thoroughly mix controls by vigorously inverting several times immediately before use.
- Before opening bottle, shake down or tap bottle on hard surface to be sure all liquid is out of cap.
- Add 2.0 mL Sample Reagent to each control vial.
- Mix by inverting the vial 10 times.
- Let the vial sit at room temperature for 15 minutes. Invert several times half way through incubation period as you would for a sputum sample.
- Open the Xpert® MTB/RIF cartridge lid and transfer 2.0 mL of respective Sample Reagent treated control, using a sterile transfer pipette. Close lid.
- Transfer cartridge to the GeneXpert system.
- Scan cartridge, enter sample ID and start the run.

LIMITATIONS:

INTROL® TB Panel M114plus is designed for use with MTB amplification assays that target one or more of the following MTB gene segments: IS6110, IS1081, hsp65, 16S rRNA, 23S rRNA, inhA, katG, and rpoB. Only those segments are present in INTROL® TB Panel M114plus.

EXPECTED VALUES:

Control	Xpert MTB/RIF Expected result
INTROL® TBWT-04	MTB DETECTED Rif Resistance NOT Detected
INTROL® TBMDR1-04	MTB DETECTED Rif Resistance DETECTED
INTROL® TB1081MDR2	MTB DETECTED Rif Resistance DETECTED
INTROL® TBNEG	MTB NOT DETECTED

REFERENCES:

- WHO report 2018:
https://www.who.int/tb/publications/global_report/en/
- “Ten Facts About Tuberculosis,” WHO, September 2018:
<http://www.who.int/features/factfiles/tuberculosis/en/index.html>
- ISO 15189: Medical laboratories – Particular requirements for quality and competence.
- CAP Molecular Pathology Checklist; Commission on Laboratory Accreditation, Laboratory Accreditation Program, Mol.20000

ORDERING INFORMATION:

INTROL® TB Panel M114plus

Part Number: M114plus

Kit Contains: 12 bottles x 1.0mL
3 each TBWT-04, TBMDR1-04, TB1082MDR2,
& TBNEG