

Rapid Molecular Assays for the Diagnosis of Drug-Resistant Tuberculosis [Corrigendum]

Nandlal L, Perumal R, Naidoo K. *Infect Drug Resist.* 2022;15:4971–4984.

The authors have advised that there is an error in Table 2 on pages 4975 and 4976. The text “\$1240” in the Cost Per Test column for the TRUENAT MTB-RIF Dx (Molbio) 2020 row should read “\$12.40”.

This error was introduced by the Editorial staff during the publication process. The correct Table 2 is shown below.



Table 2 Performance of WHO-Endorsed Molecular Diagnostics for Drug-Resistant TB Diagnosis and Drug-Susceptibility Testing

Assay (Manufacturer) Year	Mtb and Drug Resistance (Sensitivity, Specificity) %	DR-TB Category	Cost Per Test	Time to Result	Specimen Types	Benefits	Limitations
GeneXpert assays							
XPRT MTB/RIF (Cepheid) 2010	Mtb: (85, 98) Drug resistance: RIF (96, 98)	RR-TB	\$10	2 hours	Raw sputum Concentrated sputum sediments	<ul style="list-style-type: none"> • One-step process- automated • Results available in <2 hours • Requires fewer biosafety measures than culture/LPA, so can be used in lower level Laboratories • High sensitivity and specificity • Multi-platform: can be used for HIV, hepatitis C diagnosis and viral load monitoring • Can be used on extrapulmonary TB samples 	<ul style="list-style-type: none"> • Reliant on electricity • Expensive • Cannot be used to track treatment progress • Requires annual calibration
XPRT MTB/RIF Ultra (Cepheid) 2017	Mtb (90, 96) Drug resistance: RIF (94, 98)	RR-TB	\$10	2 hours	Raw sputum Concentrated sputum sediments		
XPRT MTB/XDR (Cepheid) 2021	Mtb: none Drug resistance: INH (94.2, 98); FQ (93.1, 98.3); AMK (86.1, 98.9); ETH (98, 99.7); KAN (98.1, 97); CAP (70, 99.7)	RR-TB; MDR-TB; Pre-XDR-TB;	N/A	1.5 hours	Raw sputum Concentrated sputum sediments		
Truenat assay							
TRUENAT MTB-RIF Dx (Molbio) 2020	Mtb: none Drug resistance: RIF (84, 97)	RR-TB	\$12.40	1 hour	Sputum Extrapulmonary body fluids	<ul style="list-style-type: none"> • Results available in <1 hour • Multi-platform: can be used for hepatitis C, Human Papillomavirus, SARS-CoV2 	<ul style="list-style-type: none"> • Several manual steps that need to be performed by skilled personnel

Moderate complexity automated NAATs							
RealTime MTB RIF (Abbott) 2019	<i>Mtb</i> : none Drug resistance: RIF (94.8, 100); INH (88.3, 94.3)	RR-TB; MDR-TB	N/A	10.5 Hours	Raw sputum Bronchial alveolar lavage NALC sediment of sputum or bronchial alveolar lavage	<ul style="list-style-type: none"> • High sample throughput • Each assay has specific multi-platform benefits for HIV-1, HBV, HCV, HPV, SARS-CoV2 	<ul style="list-style-type: none"> • Reliant on electricity • Expensive equipment and specialised training required
BD MAX MDR-TB (Becton Dickson) 2021	<i>Mtb</i> : none Drug resistance: RIF (90, 95); INH (82, 100)	RR-TB; MDR-TB	N/A	4 hours	Raw sputum Concentrated sputum sediments		
Cobas MTB-RIF/INH (Roche) 2021	<i>Mtb</i> : none RIF (97.2, 98.6); INH (96.9, 99.4)	RR-TB; MDR-TB	N/A	4.5 hours	Raw sputum Sputum sediment Bronchoalveolar lavage		
FluoroType MTBDR (Hain) 2021	<i>Mtb</i> : none Drug resistance: RIF (98.9, 100); INH (91.7, 100)	RR-TB; MDR-TB	N/A	3 hours	Decontaminated sputum		
Line probe assays							
GenoType MTBDR _{plus} (Hain) 2008	<i>Mtb</i> : none Drug resistance: RIF (98.2, 97.8); INH (95.4, 98.8)	RR-TB; MDR-TB	\$7.50	5 hours	Decontaminated sputum Cultured material (solid/ liquid medium)	<ul style="list-style-type: none"> • Can be performed from pulmonary specimen and from culture material • Results are obtained in 5hrs • Fast detection of INH and RIF resistance- allows early, appropriate treatment, which reduces transmission and spread of MDR-TB. 	<ul style="list-style-type: none"> • Cannot fully replace methods like conventional cultures • Not as fast as Xpert • Requires complex laboratory infrastructure and expensive equipment • Requires well-trained staff • Requires BSL3 • High number of uninterpretable results is high • Target coverage is limited to the main mutations
GenoType MTBDR _{s/l} (Hain) 2016	<i>Mtb</i> : none Drug resistance: FLQ (100, 98.9); AMK (93.8, 98.5); CAP (86.2, 95.9)	RR-TB; MDR-TB	\$7.50	5 hours	Decontaminated sputum Cultured material (solid/ liquid medium)		

Abbreviations: HIV, human immunodeficiency virus; *Mtb*, Mycobacterium tuberculosis; TB, tuberculosis; RR-TB, rifampicin-resistant tuberculosis; MDR-TB, multidrug-resistant tuberculosis; N/A, not applicable; RIF, rifampicin; INH, isoniazid; FLQ, fluoroquinolone; AMK, amikacin; KAN, kanamycin; ETH, ethionamide; CAP, capreomycin.

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