ΩTB® Genome Analysis Report

Sample Summary

Sample ID	#######	Client ID	###########	Test ID	###########
Sample Type	gDNA	Sample Receipt Date	*ddmmyyyy*	Sample Temperature on Receipt	Xyz^{0}C
Sample Source	Culture	Sample QC Date	*ddmmyyyy*	Sample QC	260/280 = 1.8 Concentration = 28 ng/µl

Genome Sequencing Summary

Library Type	Whole Genome. PE x 150	Library Date	*ddmmyyyy*	Library QC	Good (4nm)
Genome Sequencer	Illumina NextSeq 500	Run Date	*ddmmyy*	Machine ID Lane ID	########### $$$$$$$$$$$$

Genomic Analysis Application Summary

Application	ΩTB *ver 2.0.1*	Run Date	*ddmmyyyy*	QC check	Pass	Application Run By	

Clinical summary

Mycobacterium tuberculosis detected	Yes	**Coverage**	**0.99**
Lineage	Beijing	**% of genome covered**	**99.24**

Drug susceptibility profile

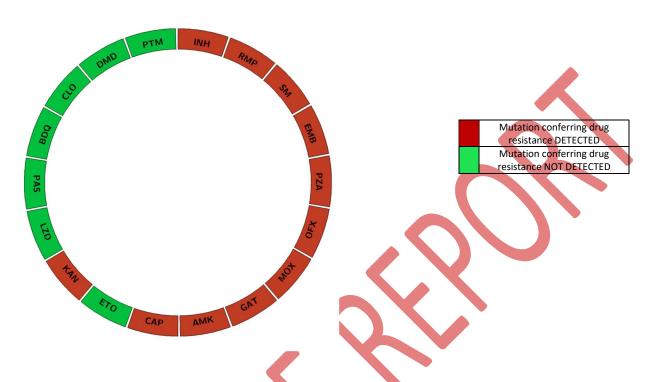| Antibiotic	Presence of Drug-Resistant Mutation
Rifampicin (RMP)	**Detected**
Isoniazid (INH)	**Detected**
Ethambutol (EMB)	**Detected**
Pyrazinamide (PZA)	**Detected**
Streptomycin (SM)	**Detected**
Capreomycin (CAP)	**Detected**
Kanamycin (KAN)	**Detected**
Amikacin (AMK)	**Detected**
Moxifloxacin (MOX)	**Detected**
Ofloxacin (OFX)	**Detected**
Gatifloxacin (GAT)	**Detected**
Ethionamide (ETO)	Not Detected
Linezolid (LZD)	Not Detected
Para-aminosalicylic acid (PAS)	Not Detected
Bedaquiline (BDQ)	Not Detected
Clofazimine (CLO)	Not Detected
Delamanid (DMD)	Not Detected
Pretomanid (PTM)	Not Detected

Clinical Recommendation

- **Tuberculosis antibiotic profile:** Extremely Drug Resistant Tuberculosis (XDR-TB)[a]
- **Mixed infection:** Heterozygous calls detected
- **Other pathogens:** NA

Disclaimer: This is an automated report. The data reported here is based on statistical prediction of variants in the whole genome of the sample processed here. This report is not a phenotypic test of drug resistance. The variants used to predict antibiotic resistance and strain classification are based on genomic variants reported in peer reviewed publications.

HaystackAnalytics

Antibiogram

🟥	Mutation conferring drug resistance DETECTED
🟩	Mutation conferring drug resistance NOT DETECTED

RIF: Rifampicin, INH: Isoniazid, EMB: Ethambutol, PZA: Pyrazinamide, STR: Streptomycin, CAP: Capreomycin, KAN: Kanamycin, AMK: Amikacin, MOX: Moxifloxacin, OFX: Ofloxacin, GAT: Gatifloxacin, ETO: Ethionamide, LZD: Linezolid, PAS: Para-aminosalicylic acid, BDQ: Bedaquiline, CLO: Clofazimine, DMD: Delamanid

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List of variants used to call resistance

Position	Ref allele	Alternate allele	Type	Frequency	Coverage	Substitution	Gene Symbol	Gene Name	Drug	Pubmed ID	Mutation Confidence
781687	A	G	SNP	**99.17**	113	Lys43Arg (aag/aGg)	Rv0682	rpsL	SM	22646308	Yes
761155	C	T	SNP	**100.00**	51	Ser450Leu (tcg/tTg)	Rv0667	rpoB	RMP	7759399	Yes
2288847	C	G	SNP	**100.00**	44	Gly132Ala (ggt/gCt)	Rv2043c	pncA	PZA	25336456	Yes
155168	C	G	SNP	**100.00**	81	Ser315Thr (agc/aCc)	Rv1908c	katG	INH	8878604	Yes
7564	G	C	SNP	**100.00**	42	Gly88Ala (ggc/gCc)	Rv0006	gyrA	FQ	24055765	Yes
7570	C	T	SNP	**98.90**	48	Ala90Val (gcg/gTg)	Rv0006	gyrA	FQ	21300839	Yes
247429	A	G	SNP	**100.00**	102	Met306Val (atg/Gtg)	Rv3795	embB	EMB	21300839	Yes
1473246	A	G	SNP	97.60	49	-	Rvnr01	-	AMK,KAN,CAP	21300839	Yes

Mutation confidence: Confidence of mutation for calling drug resistance as per WHO guidelines
Pubmed ID: Identification of peer reviewed study demonstrating mutation associated with drug resistance

ΩTB Drug resistance classification criteria	
Multidrug resistant tuberculosis (MDR-TB)	Tuberculosis caused by *Mycobacterium tuberculosis* strains that is resistance to at least Isoniazid and Rifampicin.
Pre-extensively drug-resistant tuberculosis (Pre-XDR-TB)	Tuberculosis caused by *Mycobacterium tuberculosis* strains that fulfil the definition of MDR/Rifampicin Resistant-TB and that are also resistant to any Fluoroquinolones
Extensively drug-resistant tuberculosis (XDR-TB)	Tuberculosis caused by *Mycobacterium tuberculosis* strains that fulfil the definition of MDR/Rifampicin Resistant-TB and that are also resistant to any Fluoroquinolones and at least one additional Group A drug (The Group A drugs are currently Levofloxacin or Moxifloxacin, Bedaquiline and Linezolid)
Drug resistance detected	Tuberculosis caused by *Mycobacterium tuberculosis* (*M. tuberculosis*) strains that is resistant to anti-TB drugs and do not fall in the above-mentioned categories
Not Drug Resistant	No resistance to the anti-TB drugs detected

Mixed infection classification criteria
>25% showing heterozygous calls

Co-infection classification criteria
>20% coverage of genome mapping to co-infected pathogen

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