**Molecular diagnosis, genetic diversity and drug sensitivity patterns of *Mycobacterium tuberculosis* strains isolated from tuberculous meningitis patients at a tertiary care hospital in South India**

Krishnapriya Krishnakumariamma1¶, Kalaiarasan Ellappan1¶, Muthaiah Muthuraj2, Kadhiravan Tamilarasu3, Saka Vinod Kumar4, Noyal Mariya Joseph1\*

1Department of Microbiology, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India

2Intermediate Reference Laboratory, Government Hospital for Chest Diseases, Pondicherry, India

3Department of Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India

4Department of Pulmonary Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India

¶These authors contributed equally to this work.

**\*Corresponding author**

E-mail: noyaljoseph@yahoo.com **(NMJ)**

**Table of Contents**

S1 Table**.** Detailed results obtained including demographic, drug resistance, diagnostic performance of GeneXpert for respective CSF samples and 24 loci MIRU-VNTR from 22 Mtb strains isolated from CSF samples in south India………………………………Page 3

S1 Fig. Amplification of *rpoB* gene (305bp) from H37Rv, GC6 and GC16 strains. L1: 100bp ladder, L2: H37Rv, L3: GC6 (Xpert RIF resistant, MGIT RIF sensitive, LPA RIF sensitive and no mutation in RRDR), L4: GC16 (Xpert Mtb not detected, MGIT RIF sensitive, LPA RIF resistant and mutation in RRDR(D516F))…………………………………………………………………………………………..Page 4

S2 Fig. Electropherogram of amplified RRDR sequence ……………………………………………………………………..……………..Page 5

S3 Fig. Mutational analysis in RRDR sequence …………………………………………………………………………………..……………Page 6

**S1 Table.** **Detailed results obtained including demographic, drug resistance, diagnostic performance of GeneXpert for respective CSF samples and 24 loci MIRU-VNTR from 22 Mtb strains isolated from CSF samples in south India**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Patients****(MGIT culture)**  | **Year**  | **Sex** | **Age** | **MIRU-VNTR profile** | **Lineage** | **Distance** | **MGIT960 culture DST**  | **LPA** | **GeneXpert from CSF samples** |
| ETR-A, ETR-B, ETR-C, ETR-D, ETR-E, MIRU 2, MIRU 10, MIRU 16, MIRU 20, MIRU 23, MIRU 24, MIRU 26, MIRU 27, MIRU 39, MIRU 40, Mtub04, Mtub21, QUB-11b, Mtub29, Mtub30, Mtub34, Mtub39, QUB-26, QUB-4156 | S | I | R | E | INH | RIF | Mtb status  | RIF |
| GC1 | 2018 | F | 51 | 8 4 2 6 5 2 4 3 2 6 2 2 3 1 3 - 10 3 4 2 3 9 4 2 | EAI | 0.34 | s | s | s | s | s | s | Mtb detected | s |
| GC2 | 2018 | M | 24 | 6 1 4 7 4 2 5 4 2 6 2 3 3 3 4 1 6 3 3 1 3 4 4 1  | EAI | 0.29 | s | s | s | s | s | s | Mtb detected | s |
| GC3 | 2018 | M | 55 | 6 1 4 6 5 2 5 3 2 6 2 2 3 4 4 3 7 3 3 1 3 4 5 2  | EAI | 0.33 | s | s | s | s | s | s | Mtb detected | s |
| GC4 | 2018 | M | 38 | 2 2 4 3 3 2 3 1 2 7 1 5 3 2 4 3 2 4 4 2 2 5 5 2  | S family  | 0.29 | s | s | s | s | s | s | Mtb detected | s |
| GC5 | 2018 | F | 49 | 6 4 4 10 6 3 5 4 3 6 3 2 3 4 2 6 6 4 3 1 3 4 7 2  | EAI | 0.54 | s | s | s | s | s | s | Mtb detected | s |
| GC6 | 2018 | F | 25 | 6 4 4 6 5 2 5 4 2 7 2 2 3 2 2 2 6 3 3 1 2 4 6 1  | EAI | 0.33 | s | r | s | s | r | s | Mtb detected | r |
| GC7 | 2018 | F | 30 | 6 – 4 6 – 2 5 3 – 6 2 2 3 4 3 1 3 – 2 1 3 3 8 1 | EAI | 0.35 | s | s | s | s | s | s | Mtb detected | s |
| GC8 | 2018 | M | 21 | 2 2 4 3 3 2 – 1 2 7 1 5 3 2 4 2 2 4 4 2 2 5 - 2 | S family  | 0.31 | s | s | s | s | s | s | Mtb not detected | - |
| GC9 | 2018 | M | 26 | 9 5 2 6 5 2 4 3 2 6 2 2 3 1 3 3 10 3 3 2 3 5 4 1  | EAI | 0.33 | s | s | s | s | s | s | Mtb not detected | - |
| GC11 | 2018 | F | 28 | 5 6 4 3 5 2 4 3 3 6 2 2 3 3 3 2 4 5 3 2 3 4 6 2 | EAI | 0.29 | s | s | s | s | s | s | Mtb detected | s |
| GC12 | 2018 | F | 40 | 3 2 – 3 6 3 3 3 3 5 1 7 3 3 3 4 5 4 4 4 3 4 8 2  | BEIJING | 0.34 | s | s | s | s | s | s | Mtb detected | s |
| GC13 | 2019 | M | 65 | 4 2 2 3 5 2 5 5 2 5 1 3 3 3 3 5 4 2 4 2 3 3 8 5  | DELHI/CAS | 0.25 | s | r | s | s | r | s | Mtb detected | s |
| GC14 | 2019 | F | 46 | 6 1 4 6 4 2 4 3 2 5 2 2 3 2 3 1 6 3 3 1 3 4 6 1  | EAI | 0.25 | s | s | s | s | s | s | Mtb not detected | - |
| GC15 | 2019 | F | 30 | 6 1 4 6 4 2 5 4 3 – 3 2 3 4 4 3 6 3 3 2 3 4 5 1  | EAI | 0.34 | s | s | s | s | s | s | Mtb detected | s |
| GC16 | 2019 | F | 25 | 7 3 4 – 4 2 6 5 – 7 3 2 3 4 3 3 6 10 4 2 3 4 6 1  | EAI | 0.54 | s | r | s | s | r | r | Mtb not detected | - |
| GC17 | 2019 | M | 44 | 6 1 4 6 4 1 4 3 2 7 2 2 3 3 4 2 6 3 3 1 – 4 4 1 | EAI | 0.17 | s | s | s | s | s | s | Mtb detected | s |
| GC18 | 2019 | M | 45 | 4 2 4 3 5 2 2 2 2 5 1 6 3 3 1 4 7 5 4 3 – 3 8 2  | BEIJING | 0.34 | s | s | s | s | s | s | Mtb detected | s |
| GC19 | 2019 | M | 64 | 4 4 4 6 6 2 4 3 2 10 3 2 3 3 3 2 10 3 3 1 3 6 7 2  | EAI | 0.37 | s | s | s | s | s | s | Mtb detected | s |
| GC20 | 2019 | M | 53 | 6 1 4 5 4 2 4 4 2 6 2 2 4 4 4 2 4 3 3 1 3 4 4 2 | EAI | 0.29 | s | s | s | s | s | s | Mtb not detected | - |
| GC22 | 2019 | F | 26 | 4 3 4 3 5 2 – 2 2 4 1 5 4 4 3 3 3 5 4 4 3 3 8 2 | BEIJING | 0.34 | s | s | s | s | s | s | Mtb detected | s |
| GC23 | 2019 | F | 35 | 9 5 4 1 5 2 4 3 1 6 2 2 3 3 3 2 6 – 3 2 3 4 5 1 | EAI | 0.26 | s | s | s | s | s | s | Mtb detected | s |
| GC24 | 2019 | F | 62 | 6 1 4 6 4 2 5 4 2 6 2 – 3 4 5 2 6 3 3 1 3 2 6 1  | EAI | 0.26 | s | s | s | s | s | s | Mtb not detected | - |
| H37Rv | Lab Strain | 3 3 4 3 3 3 3 2 2 6 1 3 3 2 1 2 2 5 4 2 3 5 5 2  | H37rv | 0.08 | s | s | s | s | s | s | Mtb detected | s |



**S1 Fig. Amplification of *rpoB* gene (305bp) from H37Rv, GC6 and GC16 strains. L1: 100bp ladder, L2: H37Rv, L3: GC6 (Xpert RIF resistant, MGIT RIF sensitive, LPA RIF sensitive and no mutation in RRDR), L4: GC16 (Xpert Mtb not detected, MGIT RIF sensitive, LPA RIF resistant and mutation in RRDR(D516F)).**



**S2 Fig. Electropherogram of amplified RRDR sequence**



**S3 Fig. Mutational analysis in RRDR sequence**