

## One Day One Genome

# *Bacillus sp.*

*Demonstrate biotherapeutic and probiotic potential*

### Isolation

From stool of patient after six months of anti-TB antibiotic treatment

### Genomics

Whole genome sequencing (WGS) to investigate the impact of prolonged antibiotic exposure on gut microbiota

### Insights

Resistance to two different classes of antibiotics



**Quality of Genome Assembly and Annotation:**

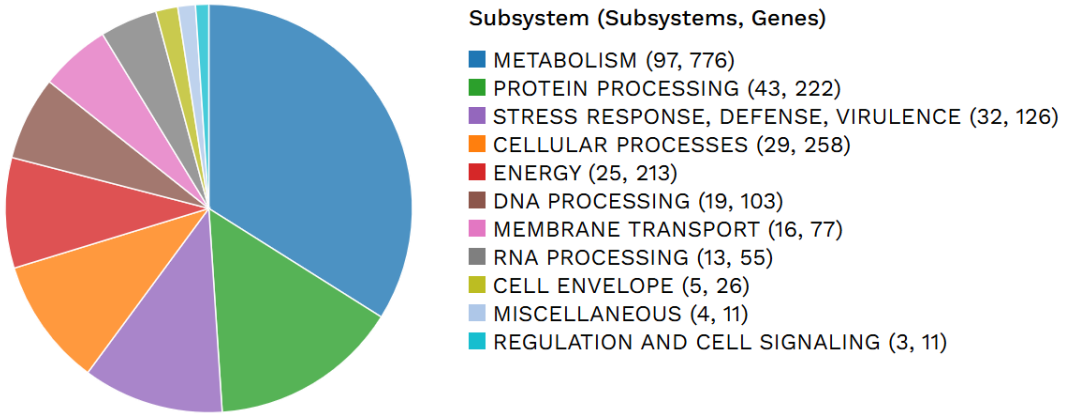
Results from indigenously developed **BHARAT** analysis pipeline:  
(**B**acterial **H**ybrid genome **A**ssembly and **R**apid **A**nnotation **T**oolset)

| Table 1: Assembly Details |              |
|---------------------------|--------------|
| Contigs                   | 24           |
| GC Content                | 43.57        |
| Contig L50                | 2            |
| Genome length             | 4,179,687 bp |
| Contig N50                | 1,082,378    |

| Table 2: Annotated Genome Features |       |
|------------------------------------|-------|
| CDS                                | 4,369 |
| tRNA                               | 71    |
| Repeat Regions                     | 0     |
| rRNA                               | 3     |

| Table 3: Antimicrobial Resistance Genes                            |                                                                                                                        |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| AMR Mechanism                                                      | Genes                                                                                                                  |
| Antibiotic target in susceptible species                           | Alr, Ddl, dxr, EF-G, EF-Tu, folA, Dfr, folP, gyrA, gyrB, inhA, fabI, Iso-tRNA, kasA, MurA, rho, rpoB, rpoC, S10p, S12p |
| Efflux pump conferring antibiotic resistance                       | BceA, BceB, EbrA, EbrB, Lmr(B), YkkCD                                                                                  |
| Protein altering cell wall charge conferring antibiotic resistance | GdpD, MprF, PgsA                                                                                                       |
| Regulator modulating expression of antibiotic resistance genes     | BceR, BceS, LiaF, LiaR, LiaS                                                                                           |
| Antibiotic target protection protein                               | BcrC                                                                                                                   |
| Antibiotic target modifying enzyme                                 | RlmA(II)                                                                                                               |

**Subsystem Analysis**



**Genome Assembly**

