

#OneDayOneGenomeInitiative

Mammaliicoccus lentus

Causes **mastitis** i.e. inflammation (pain, redness, and swelling) in the udder of cows, also contaminating the milk they produce.

Isolated from



Milk of affected cows



Genomic Analysis



Revealed genes coding efflux pumps conferring **resistance** to norfloxacin, disinfectants, and antiseptics! Potentially, resistance to vancomycin, lincosamide, and streptogramins, too.

Insights



The genomic analysis tells about its capacity to **stick** (adherence) and **survive** in the cells (intracellular survival) of the cow's udder!

Application



Genetic information can help design better drugs, thus ensuring animal health and consequently, milk quality, food security and even public health!



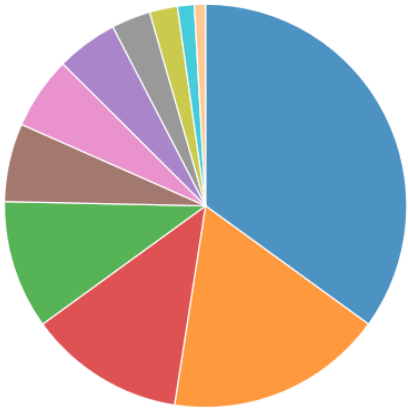
Mammaliicoccus lentus (K169) GCA_018967945.1

Quality of Genome Assembly and Annotation:

Results from indigenously developed BHARAT analysis pipeline: (Bacterial Hybrid genome Assembly and Rapid Annotation Toolset)

Table 1: Assembly Details	
Contigs	54
GC Content	31.71
Contig L50	10
Genome Length	2,848,578 bp
Contig N50	77,871

Table 2: Annotated Genome Features	
CDS	2,833
tRNA	28
rRNA	3



- Subsystem (Subsystems, Genes)
- METABOLISM (78, 463)
 - PROTEIN PROCESSING (39, 205)
 - STRESS RESPONSE, DEFENSE, VIRULENCE (28, 99)
 - ENERGY (23, 180)
 - DNA PROCESSING (14, 56)
 - RNA PROCESSING (13, 51)
 - CELLULAR PROCESSES (11, 59)
 - MEMBRANE TRANSPORT (7, 29)
 - MISCELLANEOUS (5, 14)
 - REGULATION AND CELL SIGNALING (3, 10)
 - CELL ENVELOPE (2, 7)

Table 3: Antimicrobial Resistance Genes	
AMR Mechanism	Genes
Antibiotic inactivation enzyme	BlaZ family, FosB, Mph(C) family
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
Antibiotic target protection protein	Sal(A)
Efflux pump conferring antibiotic resistance	BceA, BceB, NorA
Gene conferring resistance via absence	gidB
Protein altering cell wall charge conferring antibiotic resistance	GdpD, MprF, PgsA
Regulator modulating expression of antibiotic resistance genes	BceR, LiaF, LiaR, LiaS

Genome Assembly

