1321 milk samples with clinical mastitis

344 coliform strains

Serotype of 344 strains was determined

Others (O81, O86, O21, etc.) O111 (162, 47.1%)

Biological characters of 7 strains were assayed

GalE of CH-O111-1 strain was deleted

CH-O111-1/ ΔgalE strain (Z9)

Characters of Z9 strain were assayed

The primary passage P3

The mast passage P6

The working seed passage P7

LD₅₀ of 9 E.coli strains was determined in 6-week-old Balb/C mice

Virulence of 3 E.coli strains was assayed in 3-year-old Holstein cows

LZ06 strain

Characters of LZ06 were assayed

The primary passage P3

The mast passage P6

The working seed passage P7

Supplementary Fig.1.