1321 milk samples with clinical mastitis 344 coliform strains Serotype of 344 strains was determined LD₅₀ of 9 E.coli strains was determined in 6-week-old Balb/C mice Others (081, 086, 021, etc.) 0111 (162, 47.1%) Virulence of 3 E.coli strains was Biological characters of 7 strains were assayed assayed in 3-year-old Holstein cows GalE of CH-O111-1 strain was deleted LZ06 strain I CH-O111-1/ AgalE strain (Z9) Characters of LZ06 were assayed Characters of Z9 strain were assayed The primary passage P3 The primary passage P3 The mast passage P6 The mast passage P6 The working seed passage P7 The working seed passage P7 Supplementary Fig.1.