

Supplementary Material

Table S1: qRT-PCR primers

Name	Sequence (5' -> 3')
LCLEUSF	GCTGGATGCTGGTATTGCTT
LCLEUSR	ATCACGCAGTTTGCCTTCAT
LCRECGF	CGTAGCGTGATTCTGGTGAC
LCRECGR	TTCCAAAGATTGCTGCTTCA
LSEI_0143F	ATCACCAAATCGCCGTAGTC
LSEI_0143R	GTCATTGAAGCCAACAACCTG
LSEI_0219F	CGGTAAGGAAGCCATTACTAA
LSEI_0219R	CAACATCCATCCCAGACATATTA
LSEI_0220F	TCGCAGTGAAGAAGAGCTACTC
LSEI_0220R	TGGTCGATTTAACCTTGGTGTA
LSEI_0221F	CAGGTGGCACAACATTTACTG
LSEI_0221R	CGCATCACTGGTTCCTTAC
LSEI_0223F	CGGCTGCTATTATTGGTGCT
LSEI_0223R	CGGCAACTTTCGTATGCTCC
LSEI_0233F	GACTGGTGGATTGCTTTGGT
LSEI_0233R	GGCTACCCGTCACATTACC
LSEI_0234F2	CTGGAAGTGGGCAGCAGTTA
LSEI_0234R2	TGTTAGCGGAATCTGGCGAA
LSEI_0236F	CTCAAAGAAGCACGGACGAG
LSEI_0236R	ATGACGACTGAATGCCAAGC
LSEI_0249F	CCGTAACCCAAACCAGACC
LSEI_0249R	CGACAGAAACAACCACCAAC
LSEI_0251F	CCAAAGGCGATTTAGTTGCTT

LSEI_0251R	CAATGAGATCCCAGCCACG
LSEI_0281F	GCCTGGTGATTTGCTCTTCT
LSEI_0281R	CTGGTTGTGGTGCCTGAATC
LSEI_0314F	GCCGTCAGTGTCTTGCTTT
LSEI_0314R	GGAACCGCCCACAATCTC
LSEI_0393F	GTAATGGCAGCAGATGTGGA
LSEI_0393R	GCTTTGACCGTTTGGAGAAA
LSEI_0435F	GACGCCTCTATGTCGAGCTT
LSEI_0435R	GCCGTTTACCCTTCAAACAA
LSEI_0539F	AATTTGGAGCAGATGCCAGT
LSEI_0539R	CTTCGCTTCGGTAATGATGG
LSEI_0708F	GGTCCTGTTCAATCATCTGCT
LSEI_0708R	TCGCTTACTCAAGGCTGTCA
LSEI_0799F2	GGAAATGACCGCTGAAGAAA
LSEI_0799R2	CATCCGTTTGCCTCCAAC
LSEI_0810F	AAGTGCGGCTTGTATTGGAA
LSEI_0810R	CGGTTTATTCGGCGGCTAT
LSEI_0906F	GCGACGAGGAAAGAAACAAT
LSEI_0906R	AAATCGGCAAATACCTGTGG
LSEI_1003F	CGCCACCTTTACGCTCAA
LSEI_1003R	AAGACCGACCCGCAAGAAG
LSEI_1072F	CCAAGTGTTGCTGATGGGTA
LSEI_1072R	CTGCTCGTTGTCGGCTTCT
LSEI_1089F	GGCGATCCATCAACTAGGC
LSEI_1089R	TAACACAAATAGACTCAGGGC
LSEI_1110F	CCTTACCAAACGAGCGAGAA
LSEI_1110R	TTCAAGCGACGATACCCTTC
LSEI_1116F	GTATGACAACGACAGTGAATCG
LSEI_1116R	TCCTTAGCGGCACGAACT
LSEI_1152F3	TTCCCACACACAACCACTTT

LSEI_1152R3	GTCATCAACGCCTGTTTCAG
LSEI_1153F	GCGACTGTAAGGCGTAAACC
LSEI_1153R	TGGATTTGGGACGGCAAT
LSEI_1269F	CGTGACTCGCTTGTTGAAGA
LSEI_1269R	GGGTGATACTTGCCACTTTGA
LSEI_1270F	TGTTGGCAGTGGTTGCTATC
LSEI_1270R	CTGGCTGTTTCGGTGACATAA
LSEI_1271F	GATTATCACTGAACCCGAGTT
LSEI_1271R	ATCAAGCCAATCAGCGTGGT
LSEI_1272F	TGCCCCAAAGTCTAACGAAACA
LSEI_1272R	TCTTCCATCAAGGTCACAACC
LSEI_1314F	ACTTTCGGCTAAGGCAGATG
LSEI_1314R	CCACGACCAATGTAATCAAGA
LSEI_1351F	AAACGCATCCAGTCAATCGTG
LSEI_1351R	CAGAGTCGCCAATAGCAGTG
LSEI_1481F	GTGATGCCGAACTCCAACA
LSEI_1481R	GGTCCAAACCGAAATGACTC
LSEI_1536F	TGACCAACCTTCGCAATG
LSEI_1536R	TGACCGCATACCAATCATCT
LSEI_1554F	GGCAAGAACCAGTCGGTATT
LSEI_1554R	CGCAGCATCTCCTGTTATGA
LSEI_1662F	ACCTGCGTTTGACTCTTGGA
LSEI_1662R	TGGCTATGCTCGGAATGAC
LSEI_1711F	CGTGGAAGTAAGCATCAAAGC
LSEI_1711R	TTATGGGATTAGTGACCGTGA
LSEI_1725F	GCTTCTTCGTTGTTAGCGTCA
LSEI_1725R	CGGGTTCTCTGCTTGGTTTA
LSEI_1802F	CTGTGTGCTTCAGGTTGAGC
LSEI_1802R	CGTGTTACTTGCTGGTGTGA
LSEI_1805F	CGTCAGAAAGCGAAGCACTC
LSEI_1805R	GGACAGGCAAGCAAGTTACC
LSEI_1909F	GTAGGTCTTGCCGCTGTCA

LSEI_1909R	TGCTGGTGGACTTGATGGTA
LSEI_2029F	CGGTGCTGGTTGAAGAAGTAG
LSEI_2029R	AAAGATAAGTTGGCTCAGTTGG
LSEI_2137F	AAGTTATGGGTGTGCGTCAG
LSEI_2137R	GGGATTGTGCGTCAAGTTAC
LSEI_2226F	TAGCAGCAACGCCACTGTAG
LSEI_2226R	ACGACACAACCAACCCAAAG
LSEI_2550F2	CTGGATGCCGATTGATTACA
LSEI_2550R2	GTCTGGTGGGTTGTTGACG
LSEI_2553F	GTTGCCAGTTTGTGTTGTCG
LSEI_2553R	TTTGTGGTTGATAGAGCGATAG
LSEI_2560F	GCACGATAGGTCACACCGTA
LSEI_2560R	GATTCCAACCACACCGTTTC
LSEI_2563F2	CAATCCGTGACTCGCTTTC
LSEI_2563R2	GCACTATTATCCGCTTGATGA
LSEI_2570F	GTGTTCAATTGCTGACGGAAG
LSEI_2570R	TAGGGCGGTTTGGTAAAGC
LSEI_2677F	CTAAGCGGGTTTGAATCGTAT
LSEI_2677R	GATGATGAGTCTGGGCGTCA
LSEI_2773F	TGGGCATCAGGGACATCT
LSEI_2773R	CATAGGCTCGTTGGTCAGC

Table S2. Tested genes in transcriptomic analysis and corresponding annotation in *L. paracasei* ATCC 334 genome.

gene	function
LSEI_0020	surface antigen
LSEI_0143	D-alanine-D-alanine ligase and related ATP-grasp enzymes
LSEI_0223	UDP-N-acetylmuramyl tripeptide synthase
LSEI_0233	Glycosyltransferases involved in cell wall biogenesis
LSEI_0234	Glycosyltransferases involved in cell wall biogenesis
LSEI_0236	Lysozyme M1 (1,4-beta-N-acetylmuramidase)
LSEI_0249	Cell wall-associated hydrolase
LSEI_0251	Glycosyltransferases involved in cell wall biogenesis
LSEI_0281	Cell wall-associated hydrolases (invasion-associated proteins)
LSEI_0314	Cell division protein FtsI/penicillin-binding protein 2
LSEI_0393	Lysozyme M1 (1,4-beta-N-acetylmuramidase)
LSEI_0435	Beta-lactamase class C and other penicillin binding proteins
LSEI_0539	Cell wall-associated hydrolases (invasion-associated proteins)
LSEI_0599	1,4-beta-N-acetylmuramidase
LSEI_0708	Glycosyltransferases involved in cell wall biogenesis
LSEI_0799	Xanthosine triphosphate pyrophosphatase
LSEI_0810	Membrane carboxypeptidase (penicillin-binding protein)
LSEI_0906	Uncharacterized bacitracin resistance protein
LSEI_1003	UDP-N-acetylmuramate dehydrogenase
LSEI_1072	Lysozyme M1 (1,4-beta-N-acetylmuramidase)
LSEI_1089	Glycosyltransferases involved in cell wall biogenesis
LSEI_1110	Glycosyltransferases involved in cell wall biogenesis
LSEI_1116	Muramidase (flagellum-specific)
LSEI_1152	Beta-lactamase class C and other penicillin binding proteins
LSEI_1153	UDP-N-acetylmuramyl tripeptide synthase
LSEI_1269	Cell division protein FtsI/penicillin-binding protein 2

LSEI_1270	UDP-N-acetylmuramyl pentapeptide phosphotransferase/UDP-N-acetylglucosamine-1-phosphate transferase
LSEI_1271	UDP-N-acetylmuramoylalanine-D-glutamate ligase
LSEI_1272	UDP-N-acetylglucosamine:LPS N-acetylglucosamine transferase
LSEI_1314	Bacterial cell division membrane protein
LSEI_1351	Predicted acyltransferases
LSEI_1481	Membrane carboxypeptidase (penicillin-binding protein)
LSEI_1536	N-acetylmuramoyl-L-alanine amidase
LSEI_1554	N-formylglutamate amidohydrolase
LSEI_1662	Cell division protein FtsI/penicillin-binding protein 2
LSEI_1711	UDP-N-acetylmuramate-alanine ligase
LSEI_1725	Membrane carboxypeptidase (penicillin-binding protein)
LSEI_1802	Beta-lactamase class C and other penicillin binding proteins
LSEI_1805	Beta-lactamase class C and other penicillin binding proteins
LSEI_1909	1,4-beta-N-acetylmuramidase
LSEI_2029	Cell wall-associated hydrolases (invasion-associated proteins), surface antigen
LSEI_2137	Beta-lactamase class C and other penicillin binding proteins
LSEI_2226	Cell wall-associated hydrolase
LSEI_2550	Uncharacterized protein conserved in bacteria
LSEI_2553	hypothetical protein
LSEI_2560	Alanine racemase
LSEI_2563	UDP-N-acetylmuramyl pentapeptide synthase
LSEI_2570	UDP-N-acetylglucosamine enolpyruvyl transferase
LSEI_2677	Glycosyltransferases involved in cell wall biogenesis
LSEI_2773	Beta-lactamase class C and other penicillin binding proteins

Table S3 GenBank number of the species used for comparison of the organization in different *Lactobacillus* species.

<i>Lactobacillus</i> species	GenBank number
<i>Lactobacillus casei</i>	NC_010999.1
<i>Lactobacillus paracasei</i>	NC_008526.1
<i>Lactobacillus buchneri</i>	NC_018610.1
<i>Lactobacillus brevis</i>	NC_008497.1
<i>Lactobacillus fermentum</i>	NC_010610.1
<i>Lactobacillus plantarum</i>	NC_004567.2
<i>Lactobacillus rhamnosus</i>	NC_013198.1
<i>Lactobacillus ruminis</i>	NC_015975.1
<i>Lactobacillus amylovorus</i>	NC_015214.1
<i>Lactobacillus amylolyticus</i>	NZ_CP020457.1
<i>Lactobacillus acidophilus</i>	NC_006814.3
<i>Lactobacillus crispatus</i>	NC_014106.1
<i>Lactobacillus delbrueckii</i>	NC_008054.1
<i>Lactobacillus gasseri</i>	NC_008530.1
<i>Lactobacillus helveticus</i>	NZ_CP012383.1
<i>Lactobacillus iners</i>	NZ_GG700801.1
<i>Lactobacillus jensenii</i>	NZ_CP018809.1
<i>Lactobacillus johnsonii</i>	AE017198.1
<i>Lactobacillus reuteri</i>	NC_009513.1
<i>Lactobacillus salivarius</i>	NC_007929.1
<i>Lactobacillus vaginalis</i>	GCF_000159435.1

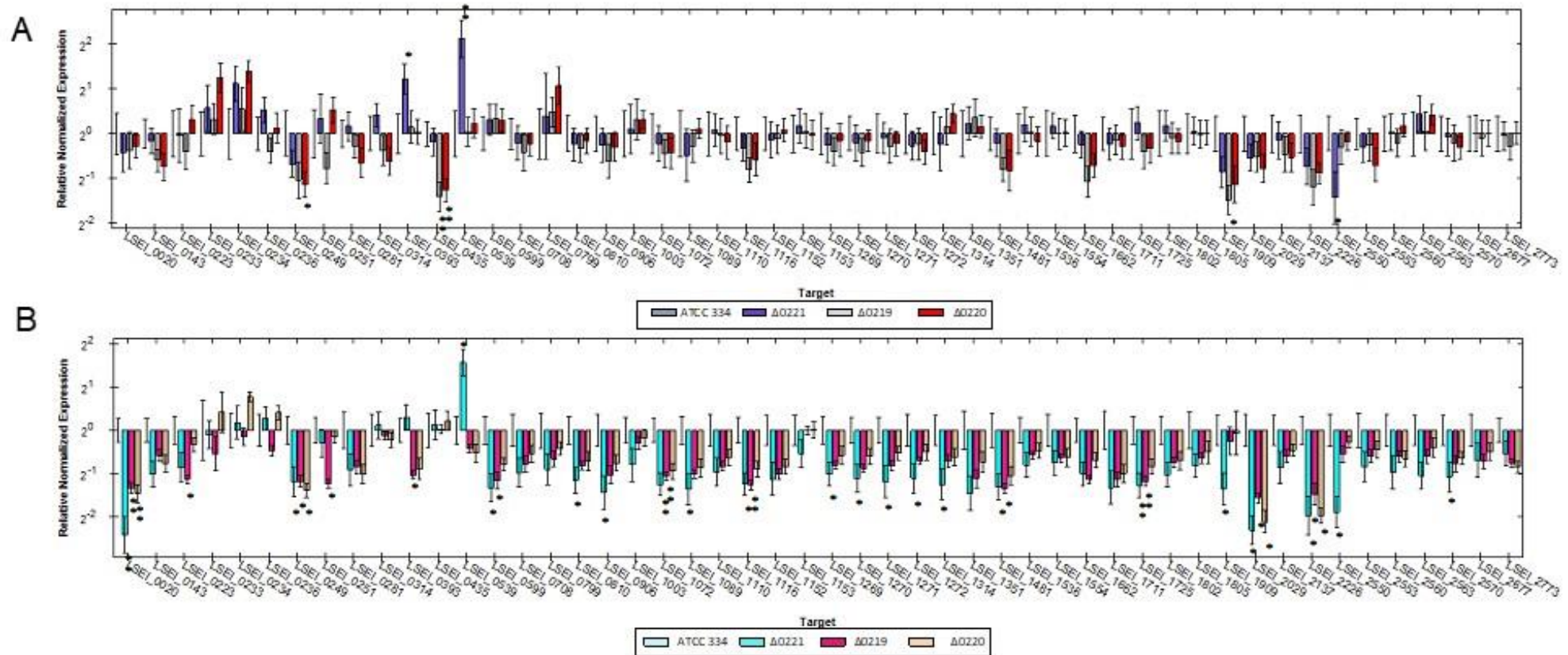


Figure S1. Relative transcript levels of genes implicated in peptidoglycan synthesis in *McwA*, *McwS*, *MldcA* mutants compared to the *L. paracasei* parental strain ATCC 334 grown either until exponential (A) or stationary (B) phases. Values are the mean RTL obtained for three biological repeats. Statistical analysis was performed using the unpaired Student *t* test; **, $p < 0.01$; *, $p < 0.05$.

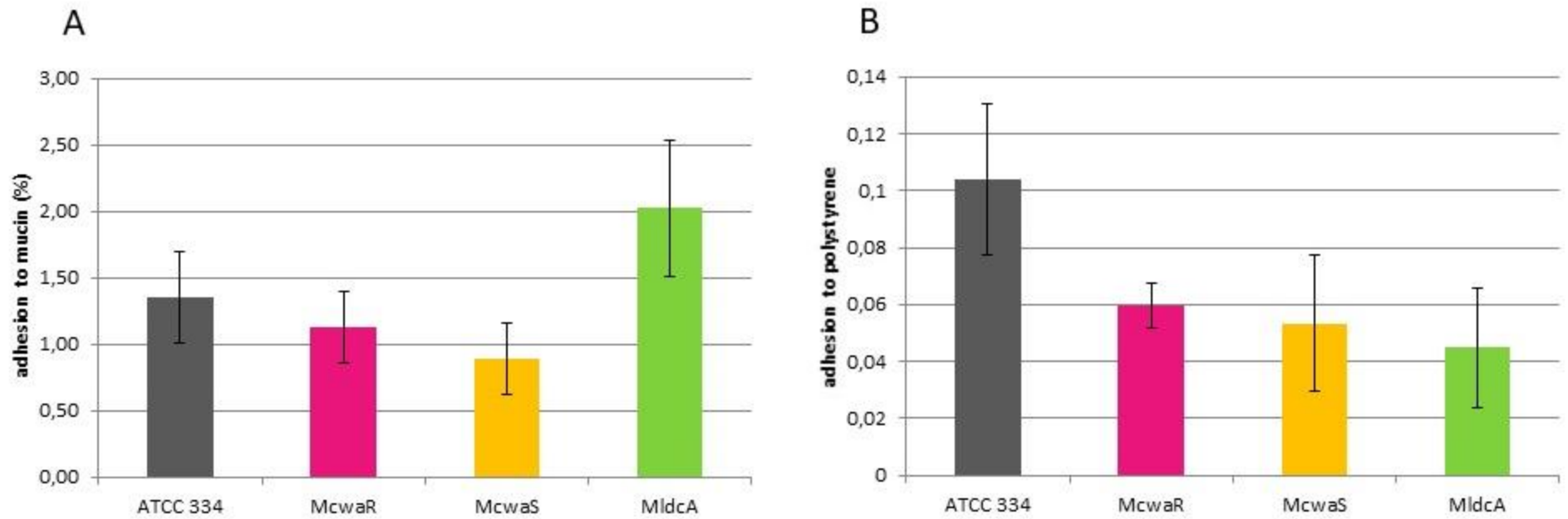


Figure S2. Adhesion of *McwaR*, *McwaS*, *MldcA* mutants and ATCC 334 to polystyrene coated or not with mucin. Adhesion percentage was determined after an incubation of 3.5 h for polystyrene coated with mucin (A) and 48 h for uncoated polystyrene (B).