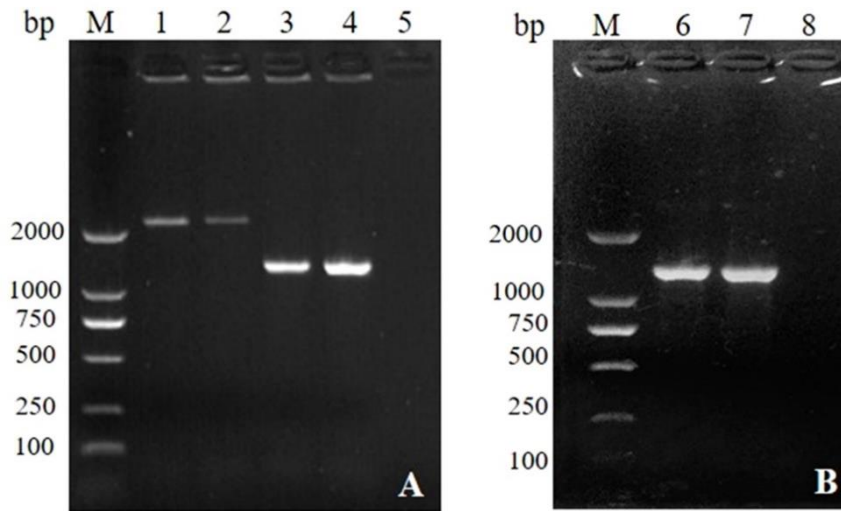


Supplementary Data



Supplementary Fig. 1: Screening and genetic stability analysis of the recombinant strain of LM- $\Delta lmo2672$. (A): Screening of recombinant LM- $\Delta lmo2672$ by PCR; (B): Analysis of genetic stability of LM- $\Delta lmo2672$.

M: Standard DNA marker (DL-2000); 1, 2: LM EGD-e; 3, 4: LM- $\Delta lmo2672$; 5, 8: Negative control; 6, 7: PCR detection of the 10th and 20th generation of LM- $\Delta lmo2672$.

Lm EGD-e ATGATTAATG AATTGTTTTG TACAAATATT TCCACACAAG ATCCGGCGGC GTTGGTTGCG TTTTATCACG AAAAAATGGG AATCCGATA GTATTGGAAG

LM-*Δlmo2672* ATGATTAATG AATTGTTTTG TACAAATATT TCCACACAAG ATCCGGCGGC GTTGGTTGCG TTTTATCACG AAAAAATGGG AATCCGATA GTATTGGAAG

Lm EGD-e GGTACGACAA TTATGACGGA GCGAAATAG GTTTTCTGA AAAGGCTCCC GGGATTATTG TTTGGAATA TAGCAAATGG GCGAAGCAA GCGAATCTAA

LM-*Δlmo2672* GGTACGACAA TTATGACGGA GCGAAATAG GTTTTCTGA AAAGGCTCCC GGGATTATTG TTTGGAATA TAGCAAATGG GCGAAGCAA GCGAATCTAA

Lm EGD-e AGTGGAGTTT GTTTCTCGT GTGATACTAA TTTGGATGAG ATGTACCGGG AACTTCAAAC AGCGGGAGTG GAGACACCAG AACCTTGTGT GGCTGAGTGG

LM-*Δlmo2672* AGTGGAGTTT GTTTCTCGT GTGATACTAA TTTGGATGAG ATGTACCGGG AACTTCAAAC AGCGGGAGTG GAGACACCAG AACCTTGTGT GGCTGAGTGG

Lm EGD-e GGCGGACGTG AACTGAATTT ACTTGACCCA GATGGCAATA AGATTATGAT TTTGGAGCCC GCACAATGAA TGGCTAAGCT AGAAACGTTT TATCCCATTT

LM-*Δlmo2672* GGCGGACGTG AACTGAATTT ACTTGACCCA GATGGCAATA AGATTATGAT TTTGGAGCCC GCACAATGA-----

Lm EGD-e TAGTACACC AAAGCGTGTG GGCTATAAAG AATATCTACC GAGTGCAGCT CTTACAGGCT ATATTCGCTG TTTTGGGAG GCAGATGATA AGAATTTCCC

LM-*Δlmo2672* -----

Lm EGD-e GGGAAATAAT TTAGTGGTTC CTGATTTATG TGCGGATATT ATTTTACAA TTGATAGTAA AACAGGGCTA GTGACGGATG CTATATTGT TGGCGTTAGT

LM-*Δlmo2672* -----

Lm EGD-e GATGCATCGT TTGAGTCTGA CGATGAAAGT AATACCGAGC TTTTGGCGT GCGATTTTAT GCGTGGTCTG TATTTTATT TGTCGAACAG GACTTGACTG

LM-*Δlmo2672* -----

Lm EGD-e GTAGCATGAA TCGGGTAAAA GAGCCGGAAG AGATGTTTGC TGGATTGTT TCGTTTTTTC AAGAGAGGTT TGCTGAAATG ACGACGAACA GTGAAAGAAT

LM-*Δlmo2672* -----

Lm EGD-e AGCTTTATTA GAAGAATTTT TACTGCGAAA ATTAATGATG CTGGCAAGC AAGTCCATCC TGATTTTTTA AACAGTATTG ATAAGTTACT AAAAAACCCC

LM-*Δlmo2672* -----

Lm EGD-e AATCAATTTG TGTTAGGAGC TGTATCTGTT CGGCAGTTAG AACGGCTGTT TCAAAAAACAC ATGGGACTTG CACCTAAACA GACAGCAAAA CTTATTCGTT

LM-*Δlmo2672* -----

Lm EGD-e TCCAAAAAGT ATTACAGGCA TTATATGAGA ATCCAAGTGT GCCGGGCGCT GAACTTGCTT ATCTTCATGG GTTTACGGAC CAGGCTCACT TAATTAACA

LM-*Δlmo2672* -----

Lm EGD-e ATTTAAACGA TATAGTAATC ATACCCAGA AGAAATGAAG CAAATTTTTC TGCAAAATGT CGCAAATATA CAATGAATGT CTGCTTACAA ACGGATTCTT

LM-*Δlmo2672* -----ATGT CTGCTTACAA ACGGATTCTT

Lm EGD-e GTTGGTGTAG ATGGATCAAA TGAAGCGGAA GCCGCGCTAA GACGAGCTGT TCAATTTGCC AAAATGGATG GCGCTACGCT TGGCATTGGC TTTGTCGCGG

LM-*Δlmo2672* GTTGGTGTAG ATGGATCAAA TGAAGCGGAA GCCGCGCTAA GACGAGCTGT TCAATTTGCC AAAATGGATG GCGCTACGCT TGGCATTGGC TTTGTCGCGG

Lm EGD-e ATGTTTCGTCG GATTGCACCA TTAATCGATT ATGAACAAAC CTATGCCAAA AAAGCCAAAG CTTACGGAGA AGAATTAGTT GAGATGTACA AAAAAAGAAGC

LM-*Δlmo2672* ATGTTTCGTCG GATTGCACCA TTAATCGATT ATGAACAAAC CTATGCCAAA AAAGCCAAAG CTTACGGAGA AGAATTAGTT GAGATGTACA AAAAAAGAAGC

Lm EGD-e CGAAAAAGCT GGCGTAGCGC ACGTTGAAAC TTTTGTTCAC TTTGGTACGC CAAAAACTAC CTTCAATAAA AAAATAACGC GAAATTTGA ACCCGATTTA

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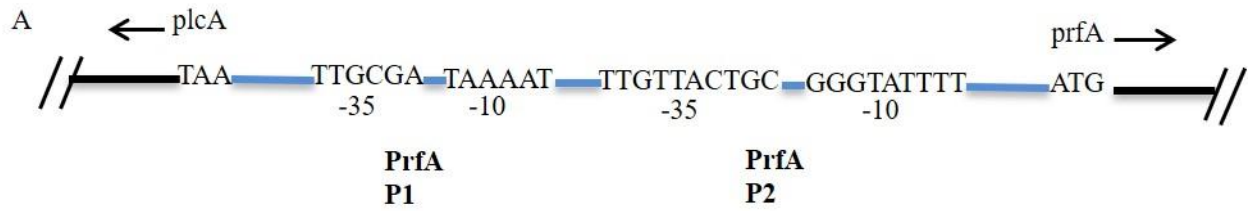
Lm EGD-e ATTTTAGTTG GAGCAACTGG ACTTTCGGCA ACAGAACAAT TTATTCTTGG TAGTGTTTCT GAATATACGG CCACCCATGC ACCTTGCAC GTTATTATTG

LM-*Δlmo2672* ATTTTAGTTG GAGCAACTGG ACTTTCGGCA ACAGAACAAT TTATTCTTGG TAGTGTTTCT GAATATACGG CCACCCATGC ACCTTGCAC GTTATTATTG

Lm EGD-e TTCACGCAAA ACCTTGGCGC AACAGAAAGA CTGTCGAAAA ACTCTAA

LM-*Δlmo2672* TTCACGCAAA ACCTTGGCGC AACAGAAAGA CTGTCGAAAA ACTCTAA

Supplementary Fig. 2: Comparison of sequencing result of amplified products of LM-*Δlmo2672* with the corresponding sequence of Lm EGD-e



B

AGTATATCTCCGAGCAACCTCGGAACCATATACTAACTCTATTTCAATTTTAACATCTAAATAAATCC

GTTTTTAAATATGTATGCATTTCTTTTTTGCGAAATCAAAATTTGTATAATAAAAATCCTATATGTAAAAAA

prfA P1 -35 box

-10 box

CATCATTTAGCGTGACTTTCTTTCAACAGCTAACAATTGTTGTTACTGCCTAATGTTTTTAGGGTATTT

prfA P2

-35 box |

-10 box

TAAAAAAGGGCGATAAAAAACGATTGGGGGATGAGAC

Supplementary Fig. 3: The upstream DNA sequence of *prfA* gene used in the EMSA.

(A) The upstream sequence of *prfA* gene; (B) The relevant features and position in DNA fragment were shown.