

Sequence of the adenine methylase gene of the *Streptococcus faecalis* plasmid pAMβ1

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120
CAAAGAAAAACGAAATGATACCAACATCAGTCGCAAAAAAGATATAATGGGAGATAAGACGGTTCGTGTTCTGTGCTGACTTCACCACATCATAAAAATCGAAACAGCAAAAGAAATGGCG
CATTTTTAAATGGCCACAAACAGCGTAACGGTATTGCGAGTGTATTTCTTATCTATGGGTTTAAACATGGATTTTATCATATAAAATCATAGATATTGCGCGAGGTGATTGGTCTGGCCGA
                                     -35                               -10
GAAACGTAAAAAGAGTATGCGAAATAAGACTTGAAGCAAACTTAAGAGTGTGTCATAGTCAGTATCTTAAAAATTTGTTGATAATAGGAATGAAAGTAAATAGATGCTAAAAAATTTG
TGTTAAACCTTA
                                     T
ORF1
S.D. H L V F Q M R N V D K T S T V L K Q T E N S D Y A D K Y V R L I
TAATTAAGAAGGAG-----GGATTCGTCATGTTGGTATTCCAAATCGGTAATGTAGATAAAACATCTACTGTTTGAACAGAGCTAAAAACAGTGTACCGGAGATAACGTTAGATTAATTC
                                     t
P T S D                                     S.D. ORF2
CTACCAGTCACTAATCTTATGACTTTTTAAACAGATAACTAAAAATGACAAACAAATCGTTTAACTTCGTGATTTATTTATAGATGTATCACTTCAGGAG
                                     t
                                     ORF2
K Y S Q N F L T S E K V L N Q I I K Q L N L K E T D T V Y E I G T G K G H L T T
AAAATTTCTCAAAACCTTTTAAACGAGTGAAAAGACTCAACCAAAATAAACAATTTGAATTTAAAGAAACCGATAACCGTTTGAACAGGATAAGGCAATTAACGCA
A
D
K L A K I S K Q V T S I E L D S H L F N L S S E K L K L N T R V T L I H Q D I L
GAAACGTGCTAAAAATAGTAAACAGGTAACGCTTAAATGAATTAGACAGTCATCTATTCAACTTATCGTCAGAAAAATAAAACAGTAACTCGTGTGCATTTAATTCACCAAGATATTT
C
T
Q F Q F P N K Q R Y K I V G S I P Y H L S T Q I I K K V V F E S H A S D I Y L I
ACAGTTCAATTCCTAACAAACAGGAGTATAAAATTTGGGAGTATTCTTACCATTAAAGCACAAATATTAAAAAAGTGGTTTTGAAAGCCATCGCGCTGACATCTATCGTAT
A
V E E G F Y K R T L D I H R T L G L L L L H T Q V S I Q Q L L K L P A E C F H P K
TGTGGAAGAGGATCTCAACAGCGTACCTTGGATATTACCAGCAACACTAGGGTGTCTTGCACACTCAAGTCCGATTGAGCAATGCTTAAAGTCCACCGGAAATGCTTCACTCTCA
tt
P E V N S A G T I K L L R H T T D V P D K Y M K L Y T Y F V S K W V N R E Y R Q L
ACCAAAGTAAACAGTCTTATAAAAAGTTACCCGCCATACCACAGATGTTCCAGATAAATATTGGAAGCTATATACGTACTGTTTCAAATGGGTCAGGAAATATCGCCGCTA
P T K N Q F R Q A M H H A K V N N L S T V T Y E Q V L S I F N S Y L L F N G R K
GTTTACTAAAAATCAGTTTCATCAGCAATGAAACCCCAAGGATAAACAAATTAAGTACCCTTACTTATGAGCAAGTATTGTCTATTTTAAATAGTTACTATATTAAACGGGAGGAA
ORF3
H S R F C K F G K L H V T E G N V D E L L G I L L T A S K E L E R S L A P
ATAATTTCTATGCTGCTTTTTGATAAATTTGGAAAGTTACACGTTACTAAAGGAAATGTAGATAAATATTAGTATACTACTGACAGCTTCAAAGAGCTAAAGAGGTCCCTAGCCGCTA
T G N L
CGGGGAATTTG 1226
    
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**Figure Legend.** The complete nucleotide sequence of the adenine methylase gene of the *Streptococcus faecalis* plasmid pAMβ1. The gene was cloned from the plasmid pR29 (Vasseghi, H. and Claverys, J. 1983, Gene 21:285-292) as a c.1200 bp *HhaI* fragment, blunt-ended with T4 DNA polymerase and inserted into the *SmaI* site of M13mp8 and mp9. Nucleotide sequencing was by the dideoxy procedure employing specific 17 mer oligonucleotide primers. The illustrated sequence extends 1226 bp beginning at the last base of the cloned *HhaI* site, with the adenine methylase gene labelled as ORF2. A comparison with the equivalent regions from pAM77 (Horinouchi, S. *et al.* J.Bacteriol. 154:1252-1262) and Tn917 (Shaw, J.H. and Clewell, D.B. J.Bacteriol. 164:782-796) is also presented. Homology with Tn917 does not begin until nt 133. The previously determined sequence of pAM77 corresponds to nt 150 (\*) onwards. Differences at the amino acid and nucleotide sequence level are indicated by upper (Tn917) and lower (pAM77) case letters above and below the sequence, respectively. The major overall difference is the presence of a deletion in the pAMβ1 sequence (nt 254) which removes ORF1, known to be responsible for induction of Em resistance in the case of Tn917 and pAM77. Its absence explains the observed constitutive expression of Em resistance in cells harbouring pAMβ1 and its derivatives.