

Construction of *Escherichia coli*–*Mannheimia succiniciproducens* shuttle vector for genetic engineering

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Mannheimia succiniciproducens MBEL55E is a capnophilic gram-negative bacteria isolated from Korean Bovine. *M. succiniciproducens* can produce a large amount of succinic acid as a major fermentation product. The complete genome sequence of *M. succiniciproducens* was also reported. Based on the genome sequence, genetic engineering is required to reduce the production of other organic acids. pMVSCS1 is a plasmid isolated from *Mannheimia varigena*, and is known to replicate in *M. succiniciproducens*. However, cloning genes directly into *M. succiniciproducens* is not reported so far. Therefore we constructed a shuttle vector pME19 which replicates stably in both *Escherichia coli* and *M. succiniciproducens* using the replicon of pMVSCS1. This shuttle vector can be used for further genetic engineering of *M. succiniciproducens* for succinic acid production [This work was supported by the Korea Science and Engineering Foundation (KOSEF) grant funded by the Korea government (MOST) (No. 2005-01294). Further supports by the LG Chem Chair Professorship, IBM SUR program, Microsoft, and by the KOSEF through the Center for Ultramicrochemical Process Systems are appreciated.]