

Characterization of sucrose uptake system in *Mannheimia succiniciproducens*

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Mannheimia succiniciproducens MBEL55E, a gram-negative facultative capnophilic rumen bacterium, produces mainly succinic acid by metabolizing a wide range of carbon sources including pentose(xylose), hexoses(fructose and glucose), and disaccharides(lactose, maltose, and sucrose). Fermentation studies have shown that *M. succiniciproducens* prefers sucrose to other carbon sources and produces equal or higher titers of succinic acid on this sugar. Hence, we identified genes involved in the sucrose transport and utilization. The sucrose-utilizing phenotype was examined both for the parent strain and the deletion mutant of each gene. The corresponding enzymes were further characterized by measuring enzyme activities using radio-labeled substrate. As a consequence, several unique features on sucrose uptake and utilization system were found in *Mannheimia*. [This work was supported by Genome-Based Integrated Bioprocess Development Project of the Ministry of Education, Science and Technology (MEST). Further supports by the LG Chem Chair Professorship, Microsoft, and WCU Program of MEST.]