

Genomic approaches for development of succinic acid producing *Zymomonas mobilis* ZM4

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For preparing the upcoming era of bioethanol and green chemical, ethanogenic bacterium, *Zymomonas mobilis* ZM4 genome sequence and its metabolic pathways have been elucidated to attempt to make the rational strain development. The expression profiles of central metabolic pathways based on microarray experiments have been obtained, and also the ethanogenic sequences were clustered and compared with the anaerobic sequences and cellular maintenances during ethanol production. From the global transcriptome analysis, succinic acid overproducing *Z. mobilis* strains have been developed by disruption of two genes for pyruvate decarboxylase (pdc) and lactate dehydrogenase (ldh). It shows high yields of succinic acid production at close to meet the industrial production (over 2.5 g/l/h productivity) under Na-bicarbonate and hydrogen gas. These characteristic higher yields and production rates of recombinant *Z. mobilis* strains make the mass production of succinic acid from renewable biomass possible which is much economic comparing chemical synthesis of succinic acid.