Metabolic Engineering of *Clostridium acetobutylicum* ATCC 824 for Enhanced Butanol Production

최용준, 장유신, 이진영, 이종민, 이상엽*
KAIST
(leesy@kaist.ac.kr*)

Recent studies have shown that butanol can be used as an alternative renewable energy source. *Clostridium acetobutylicum* ATCC 824 is the most frequently used organism for butanol production by ABE fermentation. The present work was carried out to develop a strain of *C. acetobutylicum* ATCC 824 with improved butanol production capabilities. To achieve this objective, a gene knockout system was constructed by using an L1.LtrB group II intron from Lactococcus lactis. The gene knockout plasmid pCACYS3 was constructed by cloning the L1.LtrB group II intron into the pIMPH, which was generated by removing both HindIII restriction sites from *C. acetobutylicum-E. coli* shuttle vector pIMP1. Based on this knockout system, mutants on acetic and butyric acids pathways have been constructed from *C. acetobutylicum* ATCC 824 and characterized. [This work was supported by the Korea-Australia Collaborative Research Project (#10030795) from the Korean Ministry of Knowledge Economy. Further support by GS Caltex, BioFuelChem, Microsoft, and the WCU Program (R32-2008-000-10142-0) of the MEST are appreciated].