

### Microbial production of 4-amino-1-butanol

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4-Amino-1-butanol (4AB) is an intermediate compound for drugs and a precursor of biodegradable polymers used for gene delivery. 4AB is produced by chemical synthesis from petroleum resources and there has been no report on its production from renewable resources. Here, we report for the first time the fermentative production of 4AB from glucose by metabolically engineered *Corynebacterium glutamicum*. A newly designed pathway comprising a putrescine aminotransferase (encoded by *ygjG*) and an aldehyde dehydrogenase (encoded by *yqhD*) from *Escherichia coli* was introduced to a putrescine producing *C. glutamicum* strain developed in this study to produce 4AB. Next, metabolic engineering strategies such as fine-tuning the *ygjG* and *yqhD* expression levels, eliminating competing pathways, and optimizing culture condition were applied. In fed-batch culture, the final engineered strain produced 24.7 g/L of 4AB. This work was supported by the Technology Development Program to Solve Climate Changes (Systems Metabolic Engineering for Biorefineries) from the Ministry of Science and ICT through the National Research Foundation (NRF) of Korea (NRF-2012M1A2A2026556 and NRF-2012M1A2A2026557).