

Metabolic engineering of *Escherichia coli* for the production of L-valine based on transcriptome analysis and *in silico* gene knockout simulation

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The L-valine producing strain of *Escherichia coli* was constructed by rational metabolic engineering and stepwise improvement based on transcriptome analysis and *in silico* gene knock-out simulation. The VAMF strain (Val $\Delta aceF \Delta mdh \Delta pfkA$) harboring pKBRilvBNCED and pTrc184ygaZHlrp was able to produce 7.55 g/liter L-valine from 20 g/liter glucose, resulting in a high yield of 0.378 g L-valine per g glucose. The approaches described here can be a good example of systematically engineering strains for the enhanced production of amino acids.

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