

Study of intermediate metabolite concentrations in glycolysis of *Lactococcus lactis* with *in silico* simulation and *in vivo* measurements

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Abstract

In this study we have investigated several changes of intermediate metabolite in glycolysis of *Lactococcus lactis*. A metabolic model of glycolysis was previously constructed for *Lactococcus lactis*, composed of 11 enzymatic reaction steps, 11 metabolites, and 1 branch point. We have especially observed several intermediate metabolites, namely 3-phospho-D-glycerate (3PG), phosphoenolpyruvate (PEP), fructose-6-phosphate (F6P), and glyceraldehyde 3-phosphate (GAP), which are precursors of amino acid synthesis. We have performed various fermentative experiments and metabolite measurements, and could estimate the concentration changes of intermediate metabolites. The data were compared with *in silico* simulation results and *in vivo* measurements. We were able to achieve more exact analysis of systemic approach in *Lactococcus lactis* metabolism, and this technique could be applied to other species.

References

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