

Coenzyme Q₁₀ production by coexpression of the *ddsA* and *dxs* in recombinant *Escherichia coli*

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Coenzyme Q₁₀ is a ubiquitously distributed essential substance which can transport electrons through mitochondria or cytoplasmic membrane. Recombinant *Escherichia coli* was developed to produce coenzyme Q₁₀ by introducing the *ddsA* gene encoding decaprenyl diphosphate synthase from *Gluconobacter suboxydans*. Constitutive expression of the *ddsA* showed higher specific coenzyme Q₁₀ content than the inducible *ddsA* expression system. Coexpression of the *dxs* gene from *Pseudomonas aeruginosa* encoding 1-deoxy-D-xylulose-5-phosphate synthase, the first gene of the non-mevalonate pathway for Isopentenyl pyrophosphate synthesis improved the specific coenzyme Q₁₀ content by two fold. Fed-batch fermentation of the recombinant *E. coli* produced 46.1 mg l⁻¹ coenzyme Q₁₀ final concentration with productivity of 0.92 mg l⁻¹ hr⁻¹.