

Molecular cloning and knockout mutation of *rpoE* gene of *Propionibacterium acnes*

D. E. Cheong, E. T. Oh, J. M. Jeon, Y. J. Ju, J. S. So

Department of Biological Engineering and Center for Advanced Bioseparation Technology,
Inha University, Incheon 402-751,

Abstract

Propionibacterium acnes has been implicated in the acne vulgaris.¹⁾ The symptom is often treated by antibiotics which produces more resistance strain. Recently complete genome sequence of *P. acnes* was reported.²⁾ The putative *rpoE* gene of 677bp, which encodes the extracytoplasmic stress response sigma factor, was cloned among variable putative protein coding genes. The *rpoE* gene is critically important for stress response and virulence in various pathogenic bacteria.³⁾ The cloned *rpoE* gene contained a unique restriction site for *HindIII*. A plasmid pDE3 was constructed by inserting antibiotic cassette p34s-Tc into the *HindIII* site⁴⁾ resulting in a recombinant with tetracycline resistant gene. *P. acnes* DE3 of *rpoE* knockout mutant strain was compared with wild type in the response and sensitivity against various stress and antibiotics. Subsequently, we suggest that putative *rpoE* gene of *P. acnes* is implicated in stress responses and antibiotic resistance. As an ongoing work, we anticipate that the *rpoE* knockout mutant is used for treatment of skin trouble caused by *P. acnes* by cell replacement therapy.

References

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