F303 Lkh1p, a LAMMER Kinase Homolog, is required for proper response to oxidative stress and morphogenesis in fission yeast, *Schizosacchromyces pombe*

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We have previously cloned a *Schizosaccharomyces pome* gene, *lkh1*$^+$, encoding a novel putative LAMMER kinase family member. To investigate the function of the *lkh1*$^+$, kinase activity of the catalytic domain expressed in *E. coli* and phenotypic changes of the disruptant were investigated. The catalytic domain of the Lkh1p expressed in bacteria became efficiently autophosphorylated *in vitro* and showed kinase activity toward various substrates. Although *lkh1*$^+$ was dispensable for viablity but disruption of *lkh1*$^+$ gene increased flocculation and favoured hyphal growth of liquid culture in stationary phase. In addition, the null mutant was more sensitive to oxidative stress imposed by H_2O_2 and menidione treatment and to high osmotic stress than wild type. The activity of enzymes that respond to oxidative stress was much more decreased in null mutant than in wild type. Our results, therefore, indicate that LAMMER kinase may play an important role in morphogenetic control and defence mechanism against oxidative stress in the fission yeast.

F304 Improvement of the expression of *Schwanniomyces occidentalis* α-amylase gene in *Saccharomyces cerevisiae.*

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Using a modified yeast secretory expression vector, α-amylase of *Schwanniomyces occidentalis* was produced from *Saccharomyces cerevisiae.* The expression vector contains the α-amylase gene(*AMY*) harboring its own promoter without the regulatory region, the adenine base at -3 position from the ATG start codon, its own signal sequence, *CYC1* transcription terminator, and SV40 enhancer. The expressed α-amylase activity from cells carrying the plasmid was approximately 26 times higher than that from the cells harboring an unmodified plasmid. When *Saccharomyces diastaticus* was transformed with this modified vector, a 2.5 times higher level of amylolytic activity than that from *Sch. occidentalis* was observed.