

## Development of *Candida antarctica* lipase A having higher activity towards large tertiary alcohol through in-silico design

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Lipase(EC3.1.1.3) play the hydrolysis of triacylglycerols at the interface between water and the hydrophobic substrate. Besides the lipase catalyses the synthesis of a wide range of esters. The *Candida antarctica* produces two different lipases, lipases A and B. While lipase B (CalB) is probably the mostly employed hydrolase in the biocatalysis field, the use of the lipase A (CalA) has been rather scarce and consequently its threedimensional structure has not been elucidated yet. However, CalA is a useful biocatalyst that has the high thermostability, allowing operation at over >90°C; the ability to accept tertiary and sterically hindered alcohols. Following the prior study, functional CalA (43kDa) was expressed in the methylotrophic yeast *Pichia pastoris*. In addition to, we made a success of transesterification between tertiary butyl alcohol and vinyl acrylate. However a conversion of transesterification between 5-ethylcyclopentanol and methyl methacrylate is very low (conversion is under 5%). In this report, Mutant CalA was designed through in-silico design to have a wider access towards reaction triad.