

Development of thermostable CalB through in-silico design

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Lipase B from *Candida antarctica* (CalB) is an efficient biocatalyst for many organic synthesis reactions. To expand the application of CalB, many researchers have used directed evolution or rational approach to create CalB mutants. Especially thermostable enzymes are then usually required to enable the production process at high temperature. We have already reported the synthesis of glycerol carbonate using CalB. Reaction at higher temperature over 80°C can make this process feasible, because higher concentration of substrates can be converted due to the increase of solubility. Rational approach was selected to develop thermostable CalB. As the first step, the choice of the appropriate sites at which rigidity is to be increased is made on the basis of atomic displacement parameters obtained from X-ray data. And then the sites are changed with other amino acids which are more rigid than original amino acids. As a result of rational approach, several thermostable CalB mutants were found.