

## Production of chiral compounds by cell surface displayed lipase

이승환, 최종현, 이상엽

한국과학기술원 생명화학공학과 및 생물공정연구센터

전화 (042)869-3930, FAX (042)869-8800

Production of chiral compound has been studied for their numerous applications in the field of food, fine chemical, and pharmaceutical industries. Recently, the use of microorganisms and enzymes as chiral biocatalysts has been rapidly expanding for several advantages such as their high degree of chemo-, regio-, and stereoselectivity. Except these, wide variety of reactions and environmental benignancy make biocatalysts powerful tools for the enantioselective synthesis.

To develop biological system for the preparation of enantiomerically pure compounds, *Escherichia coli* cells displaying *Pseudomonas* lipase on cell surface were investigated as whole cell biocatalysts for kinetic resolution. The reactivities of cell surface displayed lipase were examined by enantioselective resolution of racemic compounds. The stability of catalyst was also investigated by repeated reactions of whole cell biocatalysts.

### Acknowledgement

This work was supported by the National Research Laboratory Program (2000-N-NL-01-C-237) of the Ministry of Science and Technology, Center for Ultramicrochemical Process Systems and by the Brain Korea 21 program of the Ministry of Education.

### References

1. Schmid, A., Dordick, J. S., Hauser, B., Kiener, A., Wubbolts, M. & Witholt, B. Industrial biocatalysis today and tomorrow. *Nature* 409, 258-268 (2001).
2. Zhao, H., Chockalingam, K. & Chen, Z. Directed evolution of enzymes and pathways for industrial biocatalysts. *Curr. Opin Biotechnol.* 13,104-110 (2002).
3. Zaks, A. Industrial biocatalysis. *Curr. Opin. Chem. Biol.* 5,130-136 (2001).