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### Cloning of a Marine Fish Epoxide Hydrolase of *Mugil cephalus* and Application to Kinetic Resolution of Racemic Styrene Oxide

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A recombinant *Escherichia coli* expressing the microsomal epoxide hydrolase gene of *Mugil cephalus* (mEH) was developed. The mEH gene of *M. cephalus* was cloned by rapid amplification of cDNA ends (RACE) techniques from cDNA library. The mEH gene was heterologously expressed as a soluble form. The recombinant cells showed the enantioselectivity toward (*R*)-styrene oxide. When the batch kinetic resolution was conducted with 20 mM racemic styrene oxide, enantiopure (*S*)-styrene oxide with high enantiopurity of more than 99 % enantiomeric excess (*ee*) was prepared. The reaction conditions were optimized for the production of enantiopure styrene oxide from high initial concentration. [This work was supported by the Marine and Extreme Genome Research Center Program, Ministry of Marine Affairs and Fisheries, Republic of Korea.]

**Key words:** Epoxide hydrolase, batch kinetic resolution, enantiopure styrene oxide, recombinant cell biocatalyst

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### Breast-cancer and Exercise Training

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A huge clinical research database on adjuvant cancer treatment has verified improvements in breast cancer outcomes such as recurrence and mortality rates. On the other hand, adjuvant therapy with agents such as hormone therapy, chemotherapy and radiotherapy impacts on quality of life due to substantial short- and long-term side effects. To assess the effect of aerobic or resistance exercise interventions during adjuvant treatment for breast cancer on treatment-related side effects such as physical deterioration, fatigue, psychosocial distress and physiological, morphological and biological changes. The diagnosis and treatment of breast cancer in women has undergone profound changes in the past century. Although much research and clinical attention has been focused on saving the lives of women with this condition, less focus has been on rehabilitation aspects. This postacute care should be a distinct phase of treatment. The field of physical medicine and rehabilitation has much to offer women who undergo extremely toxic although life-prolonging therapies for breast cancer. Exercise as an adjunctive treatment may help to attenuate these effects and thereby contribute to rehabilitation of women with breast cancer. We present data from the exercise literature and from studies on breast cancer patients that support this role of exercise. In conclusion, Combined aerobic and resistance exercise soon after the completion of breast cancer therapy produces large and rapid improvements in health-related outcomes.