

Development of Lovastatin-high yielding Strains through Expression of *VHb* and *lovE* Gene in Protoplast Fusants of *Aspergillus terreus* Mutants

Sung Ki Song, Myeong Jin Kim, Yong Seob Jeong¹, Gie-Teak Chun

Division of Life Sciences, Kangwon National University, South Korea

¹Faculty of Biotechnology, Chonbuk National University, South Korea

Lovastatin (Monacolin-K) is a powerful anti-hypercholesterolemic agent produced by a filamentous fungus, *Aspergillus terreus* as a secondary metabolite via polyketide pathway. Permeabilized protoplast fusants resistant against various polyene antibiotics and/or anti-metabolites showed much higher lovastatin productivity than the corresponding mother strains, demonstrating that the protoplast fusion methods were very efficient in screening high-yielding producers. In the process of fermentation studies with the high-yielding fusants, it was found that oxygen availability significantly influenced lovastatin yield. Therefore, for more facilitated utilization of dissolved oxygen we constructed expression vectors harboring original *Vitreoscilla* hemoglobin (*VHb*) gene and PCR-*VHb* gene synthesized based on the coding usage of *Aspergillus* species and attempted to introduce them into the high-yielding protoplast fusants. We also intended to construct expression vectors with *lovE* gene encoding an inherent regulatory protein in the biosynthetic pathway of lovastatin.