

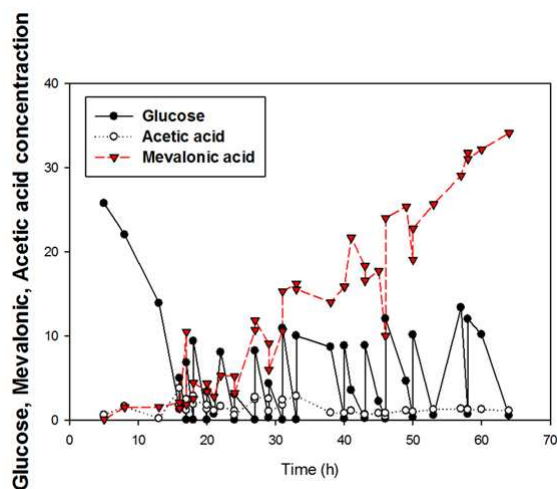
Fermentative production of mevalonate by a microorganism

Jin Won Kim, Hee Chan Yoon, Jun Yeong Choi, Yong-Sung Kim, and Pyung Cheon Lee*

Department of Molecular Science and Technology and Department of Applied Chemistry and Biological Engineering, Ajou University, Woncheon-dong, Yeongtong-gu, Suwon 443-749, South Korea.

*e-mail: pcheon@ajou.ac.kr

Mevalonic acid (or its carboxylate anion form, mevalonate) is a key metabolite in living organisms including microorganisms, plants, and human. Mevalonic acid is of major pharmaceutical, cosmeceutical and biotechnological importance. For example, drug such as statins is used for controlling levels of cholesterol by inhibiting a mevalonate pathway enzyme, HMG-CoA reductase. Currently (*R, S*)-mevalonate with 50% enantiomeric purity is mainly produced by a chemical synthesis. However, recently, biological processes for mevalonate production from renewable sources have become more popular due to high enantiomeric purity (*R*-mevalonate) and environmental friendly process. Using recombinant microorganism, enantiomeric pure *R*-mevalonate was produced by flask and batch bioreactor fermentations. Complex and synthetic media were also compared. Most of *R*-mevalonate was secreted into culture media in flask and bioreactor fermentation. The *R*-mevalonate titer was up to 35 g/L and enantiomeric purity was 99.99%.



Keywords: Mevalonate; Fermentation; Chiral