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ABSTRACT

An enzyme modifying method for converting the coenzyme-dependency of an oxidoreductase is developed. Using this method, a novel carbonyl reductase mutant capable of utilizing NADH as a coenzyme is provided. It is also intended to provide a process for enzymatically producing an optically active (S)-4-halo-3-hydroxybutyric ester by utilizing the carbonyl reductase mutant.

A method for modifying an enzyme itself so as to convert the coenzyme-dependency of a carbonyl reductase which asymmetrically reduces a carbonyl compound to produce an optically active alcohol, a carbonyl reductase having such coenzyme dependency as has been converted from NADPH to NADH which is obtained by the above method, a DNA encoding this enzyme mutant, a plasmid carrying this DNA, a transformant obtained by the transformation with this plasmid, and a process for producing an optically active alcohol by using this enzyme mutant and/or this transformant.