



Special Feature: Biotechnology

Overview

Norihiro Mitsukawa

Research Manager

Biotechnology Laboratory

Biotechnology is important for establishing a sustainable society. In the production and use of automobiles, renewable polymers and fuels are necessary to reduce net greenhouse gas emissions. It is desirable that the production of renewable materials does not compete with that of food crops. We have developed techniques for producing renewable chemicals, such as ethanol, L-lactic acid, and isoprenoids, through recombinant microbial fermentation from biomass.

In order to expand the production of renewable chemicals, the following developments are necessary: 1) enzymatic degradation of cellulose, 2) efficient fermentation, 3) molecular breeding of microorganisms, and 4) switching on gene expression in microorganisms.

In this special feature, we look at some research, including two developments on cellulases for degrading cellulose, two new methods in chemical production, and a development on a genetic switch in yeast, which will accelerate developments in the production process.