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Vol. 139 Cover Illustration

Saccharomyces cerevisiae cell morphology exhibits distinct phenotypes under various culture conditions, allowing for the acquisition of valuable information through its observation. Itto-Nakama et al. established an AI model to predict ethanol production, the primary fermentation product, by monitoring yeast cell morphology under high-glucose stress conditions during fermentation. This method is expected to contribute to enhancing the efficiency of production management and monitoring of desired biocommodities. The image shows a three-colored yeast strain with the nucleus stained with mRuby (pKN4-HTA2 3 x mRuby), actin stained with mNeonGreen (pKN23-Lifeact mNG), and the cell wall stained with concanavalin A CF350.

This image was taken by Chenwei Wang in Ohya Laboratory at the University of Tokyo. The corresponding study has been selected as one of the winners of the Excellent Paper Award 2024 by the Society for Biotechnology, Japan: Kaori Itto-Nakama, Shun Watanabe, Shinsuke Ohnuki, Naoko Kondo, Ryota Kikuchi, Toru Nakamura, Wataru Ogasawara, Ken Kasahara, Yoshikazu Ohya, "**Prediction of ethanol fermentation under stressed conditions using yeast morphological data**", **J. Biosci. Bioeng., volume 135, issue 3, pages 210–216 (2023)** (Copyright@2025 The Society for Biotechnology, Japan).