

Identification of a responsible gene of an alcohol-tolerant sake yeast strain

Many strains of sake yeast, such as Kyokai No. 7 (K7) a typical one, inconveniently tend to die due to high concentration of alcohol in late stage of fermentation. Yeast cell death is followed by cell lysis and leakage of cell contents, and the increment of dead cell proportion affect adversely the quality of sake. Accordingly, fermentation is carefully controlled in sake manufacturing scene. Meanwhile, a high alcohol-tolerant variant was screened from K7 forty years ago, and has been practically used as Kyokai No. 11 (K11). Certain spontaneous changes in K7 genome sequence were supposed to generate an alcohol-tolerant K11, a responsible gene and site has not been known for a long period.

NRIB carefully compared between K7 and K11 whole genome sequences, and identified the responsible gene, site, and manner of genetic change that generated K11. This result would lead to improvement of sake quality through screening and development of novel alcohol-tolerant strains, and it might be applied to other fermentation fields.

A responsible gene for alcohol tolerance of alcohol-tolerant sake yeast strain was identified.

Identification of a responsible gene of an alcohol-tolerant derivative strain of sake yeast

