

S55-1 **Creation of novel bioconversion systems using molecular display technology in yeast**

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The budding yeast *Saccharomyces cerevisiae* has been used for the process of fermentation as well as for studies in biochemistry and molecular biology as a eukaryotic model cell or tool for the analysis of gene functions. Thus, yeast is essential in industries and researches. Yeast cells have a cell wall, which is one characteristic that helps distinguish yeast cells from other eukaryotic cells such as mammalian cells. We have developed a molecular display system using the protein of the yeast cell wall as an anchor for foreign proteins. Yeast cells have been designed for use in sensing and metal adsorption, and have been used in vaccines and for screening novel proteins. Currently, yeast is used not only as a tool for analyzing gene or protein function but also in molecular display technology. The phage display system, which is at the forefront of molecular display technologies, is a powerful tool for screening ligands bound to a target molecule and for analyzing protein-protein interactions; however, in some cases, eukaryotic proteins are not easily expressed by this system. On the other hand, yeast cells have the ability to express eukaryotic proteins and proliferate; thus, these cells display various proteins. Yeast cells are more appropriate for white biotechnology. In this symposium, displays of enzymes that are important in bioconversion, such as lipases and glucosidases, are going to be introduced.