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ePoster Viewing

Vaccine development

DEVELOPMENT OF AN ORAL VACCINE AGAINST CANDIDIASIS USING MOLECULAR DISPLAY TECHNOLOGY

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Objectives: *Candida albicans* enolase 1 (Eno1) has been known as an immunodominant antigen. At present, conventional methods for preparing a vaccine require purification of the antigenic protein and preparation of a suitable adjuvant material. To develop a novel type of oral vaccine against candidiasis, we generated microorganism cells that display the Eno1p antigen on their surfaces.

Methods: We constructed that antigen displaying *Saccharomyces cerevisiae* and *Lactobacillus casei* cells by molecular display technology. Eno1 protein was used as model antigenic protein and fused to each cell wall proteins genetically to be displayed on these surfaces.

Results: Eno1p was displayed on the surface of *S. cerevisiae* cells and was administered orally to mice. Oral administration of yeast cells that displayed Eno1p on their surfaces protected 60% of mice against candidiasis. On the other hand, *L. casei* cell displaying same protein showed 10% of survival as well as cases of injection of the protein.

Conclusions: The present study shows that the only availability of a DNA sequence that encodes the antigenic protein is needed to produce oral vaccine based on molecular display technology. Given that a vaccine produced using molecular display technology avoids the need for protein purification, this oral vaccine offers a promising alternative to the use of conventional and injectable vaccines for preventing a range of infectious diseases.