論 文 要 旨

A novel mannose-containing sialoprotein adhesin involved in the binding of *Candida albicans* cells to DMBT1

Daisuke Setoguchi

Candida albicans colonizes the oral cavity and causes oral candidiasis and early childhood caries synergistically with cariogenic *Streptococcus mutans*. Colonization of oral tissues with *C. albicans* is an essential step in the initiation of these infectious diseases. DMBT1 (deleted in malignant brain tumors 1), also known as salivary agglutinin or gp-340, belongs to the scavenger receptor cysteine-rich (SRCR) superfamily and has important functions in innate immunity. In the oral cavity, DMBT1 causes microbial adherence to tooth enamel and oral mucosa surfaces, but the adherence of *C. albicans* to DMBT1 has not been examined. In this study, we investigated the binding of *C. albicans* to DMBT1 and isolated the fungal components responsible for the binding. *C. albicans* specifically bound to DMBT1 and strongly bound to the peptide domain SRCRP2. Binding to SRCRP2 was inhibited by *N*-acetylneuraminic acid and mannose and by lectins recognizing these sugars. The isolated component had a molecular mass of 25 kDa, contained sialic acid and mannose residues, and inhibited *C. albicans* binding to SRCRP2. The localization of the 25 kDa protein on the surface of *C. albicans* cell walls was confirmed by immunostaining and a cell ELISA using an antiserum to the protein, and Western blotting revealed the presence of the 25 kDa protein in the cell wall fraction of *C. albicans*. These results suggest that the isolated adhesin is localized on the surface of *C. albicans* cell walls and that sialic acid and mannose residues in the adhesin play a significant role in the binding reaction.