Search for a macronuclear envelope substance of *Paramecium* recognized by endonuclear symbiotic bacterium *Holospora*

Kenya TANAKA and Masahiro FUJISHIMA
(Dept. Environm. Sci. Engn., Grad. Sch. Sci. Engn., Yamaguchi Univ.)

SUMMARY

To identify a macronuclear envelope-specific substance of the ciliate *Paramecium caudatum* that can be recognized by 16-kDa lipopolysaccharides of the outer membrane of the macronucleus-specific bacterium *Holospora obtusa*, a monoclonal antibody MA-22 was developed. Immunoblotting shows that the antigen is 30-kDa in molecular weight, as expected from results of a gel-overlay experiment with the anti-16-kDa antibody in our previous study. Indirect immunofluorescence microscopy shows that the 30-kDa antigens appear in macronuclear anlagen immediately after appearance of heterochromatic aggregates in the nuclear differentiation process. Cross-reactivity of the antibody using indirect immunofluorescence and immunoblotting shows that the epitopes are present around the macronuclear envelopes not only in infection-capable strains of *P. caudatum*, *P. multimicronucleatum, P. tetraurelia*, and *P. jenningsi*, but also in infection-incapable strains of *P. jenningsi*, *P. calkinsi*, *P. polycaryum, P. nephridiatum*, and *P. putrinum.* The infection-incapable strain of *P. bursaria* did not react with the antibody. The MA-22 antigens bounded to the outer membrane of the bacteria. These results indicate that the antigen of *P. caudatum* and closely related species with *P. caudatum* have the epitope against the antibody. Possible relations between this epitope and the binding site for the 16-kDa lipopolysaccharides of *H. obtusa* are discussed.