DNA binding ability of 63-kDa periplasmic protein of the infectious form of the edonuclear symbiotic bacterium *Holospora obtusa*

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SUMMARY

Gram-negative bacterium *Holospora obtusa* is a macronucleus-specific symbiont of the ciliate *Paramecium caudatum*. Infection of this bacterium is known to change the host's gene expressions. A 63-kDa periplasmic protein with two DNA-binding motifs of the infectious form of this bacterium is secreted into the host macronucleus soon after bacterial invasion into the nucleus. Results of SDS-DNA PAGE containing calf thymus DNA and immunoblotting with a monoclonal antibody specific for the 63-kDa suggest that the 63-kDa can bind DNA. Fractionation of supernatants of the sonicated infectious forms of this bacterium with a DNA-cellulose column also showed DNA-binding ability of the 63-kDa protein. These results suggest that the protein functions somehow change the host's gene expressions by binding to the host macronuclear DNA.