ISOLATION OF THE ANTIGEN-ACTIVE COMPONENTS FROM LEPTOSPIRAL SEROVAR-SPECIFIC LIPOPOLYSACCHARIDE ANTIGENS BY ALKALINE TREATMENT, AND STUDIES ON THE CHEMICAL NATURE OF THE ANTIGENIC SITES

Masayoshi TSUJI

Department of Hygiene and Microbiology
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan

The serovar-specific main (TM) antigen from *Leptospira interrogans* serovar *canicola*, which possesses lipopolysaccharide properties, was hydrolyzed with 2 N formic acid. The hydrolysate contained a disaccharide of galactosyl-arabinose but revealed no antigenic activity in the radioimmunoassay system. The same TM antigen was treated with 0.1 N sodium hydroxide and degraded into two high and low molecular antigenic components. The component with a lower molecular weight (3,400 daltons) mainly consisted of carbohydrates, and it lost almost all of its fatty acid and protein components. The substance lost immunoprecipitable activity and immunogenicity in a rabbit but had serovar-specific inhibitory potency in the radioimmunoassay system as well as in a microscopic leptospiral immunoagglutination system. The antigenic activity of the compound was reduced by periodate oxidation but not affected by digestion with proteolytic enzymes. A similar compound was also obtained from the organisms by alkaline extraction and gel chromatography.

TM antigen from *kremastos* Kyoto, which belongs to a different serogroup, was also treated with mild alkali. Although a low molecular weight compound with the same chemical and physicochemical properties as that from the TM antigen of *canicola* was produced, there was no antigenic activity.

These findings indicated that the serovar-specific antigenic determinant of leptospira may be a carbohydrate.