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STUDIES ON A LEPTOSPIRAL GENUS-SPECIFIC ANTIGEN

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A leptospiral genus-specific antigen was purified as a glycoprotein molecule from *Leptospira interrogans* serovar *kremastos* strain Kyoto by treating the organisms with Triton X-100 followed by using a purification procedure including fractionation with DEAE-cellulose column chromatography and ethanol precipitation. Genus-specificity of the antigen was shown by the immunodiffusion test, the complement fixation test and the enzyme-linked immunosorbent assay. Chemical analysis of the genus-specific antigen indicated that protein (61%), neutral sugar (7.5%) and amino sugar (6%) accounted for 75% of the total dry weight of the antigen, which contained no detectable lipid. SDS-polyacrylamide gel electrophoresis of the antigen showed a single band with Coomassie blue stain or PAS stain at the molecular weight of 62,000. The protein part of the genus-specific antigen was responsible for its genus-specificity. The carbohydrate part of the antigen showed a different antigenic property.

The genus-specific antigen prepared in the present study was applied to serological diagnosis of leptospirosis in human and domestic animals. Sera obtained from human and domestic animals affected with leptospirosis showed positive reactions in the indirect hemagglutination test using sheep erythrocytes sensitized with the genus-specific antigen, irrespective of infected leptospiral serovars. Sera from healthy individuals gave negative. However, the titer of the indirect hemagglutination test was low in the sera of cattle.

The localization of the genus-specific antigen in a leptospiral cell was investigated by immunoelectron microscopy using a monoclonal antibody to the genus-specific antigen. The results suggest that the protein part of the antigen, which is responsible for genus-specific antigenicity, is present in the outer envelope but is not exposed to the cell surface.