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HETEROPHILE ANTIBODY IN HUMAN SERA TO RABBIT ERYTHROCYTES AND IDENTIFICATION OF THE ANTIGEN AS A GLYCOLIPID

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Normal human sera contain heterophile hemagglutinins to rabbit erythrocytes which are different from anti-B isoantibody and other heterophile antibodies such as Hanganutziu-Deicher antibody or Paul-Bunnell antibody. In this report, an antigen to this antibody was purified from rabbit erythrocyte stroma, and the antibodies in normal person and patient sera were studied.

Glycolipids were extracted from rabbit erythrocytes with $\text{CHCl}_3\text{-CH}_3\text{OH}$ and purified by several column chromatographies. The antigen was identified as $\text{IV}^3\text{-}\alpha\text{-galactosyl-lactoneotetraosyl-ceramide}$ (ceramide pentahexoside, CPH), $\text{Gal}(\alpha 1\text{-}3)\text{Gal}(\beta 1\text{-}4)\text{GlcNAc}(\beta 1\text{-}3)\text{Gal}(\beta 1\text{-}4)\text{Glc Cer}$.

The antibody reacted with the terminal α -methylgalactoside 10^4 times less and the oligosaccharide part 100 times less than with the intact CPH. This result suggests that the antibody reacts not only with the carbohydrate part but also with the hydrophobic ceramide moiety; however, the specific determinant is the terminal di- or trisaccharide.

Fifty-five sera from healthy persons and 74 sera from patients with various diseases were examined on anti-CPH titers by enzyme immunoassay and hemagglutination titers to rabbit erythrocytes. The result indicated that the antibodies in the patients' sera were elevated, especially in IgG class. The occurrence of antibody stimulation in some kinds of diseases was discussed.