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Immunochemical Characterization of Developmental Changes in Rat Hepatic Hydroxysteroid Sulfotransferase*

Hiroshi Homma, Izumi Nakagome, Minoru Kamakura and Michio Matsui

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A major isoenzyme of hepatic androsterone-sulfating sulfotransferase (AD-ST) was purified from adult female rats. The activity was purified 122-fold over that found in the cytosol and showed a single protein band with a subunit molecular mass of 30 kDa after SDS-polyacrylamide gel electrophoresis. The purified enzyme exhibited four isoelectric variants of subunits on denaturing isoelectrofocusing gels (pIs = 5.8, 6.1, 6.7 and 7.2).

Rabbit antiserum raised against the enzyme specifically detected AD-ST polypeptide in rat liver cytosol. Immunoblot analysis of liver cytosol from female and male rats at various ages showed good correlation between the levels of AD-ST activity and AD-ST polypeptide. Significant levels of AD-ST activity and polypeptide were detected in senescent male rats, though normal adult male rats have very low levels of AD-ST activity and protein. The relative content of the isoelectric variants of AD-ST were different in liver cytosol of weanling and adult females, indicating that age- and gender-related alterations of hepatic AD-ST activity are primarily determined by the levels of AD-ST polypeptide and the relative amounts of the four isoelectric variants of the enzyme.

^{*} 本報告は Biochim. Biophys. Acta., 1121, 69-74 (1992) に発表.