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JOURNAL ARTICLE

Androgen UDP-glucuronyl transferase activity is found primarily in liver in the rat

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UDP-glucuronyl transferase (UDPGT) activity was determined for androgens in tissue minces and microsomal fractions from the liver and extrahepatic tissues (kidney, skin, prostate, and preputial glands) of the male rat. Liver microsomes showed the highest UDPGT activity with each of the androgens tested (Vmax = 7, 3, and 10 nmol/minute/mg protein for testosterone, androsterone, and androstanediol, respectively). UDPGT activity (Vmax) for androstanediol in the liver was 10(2)-fold higher than in the kidney and 10(3)-fold higher than in the skin and prostate. UDPGT activity for androgens was not detected in microsomes from preputial glands. Furthermore, no body site distribution was found for androgen UDPGT activity in skin microsomes. The Michaelis-Menten constant (Km) for UDPGT in liver microsomes was 20.4, 12.2, and 2.2 microM, respectively, for testosterone, androstanediol, and androsterone. Kidney microsomes showed a Km of 19.4 and 26.9 microM, respectively, for androstanediol and androsterone. The Km for testosterone was very high in the kidney (138 microM), suggesting that it was a poor substrate. In microsomes from the skin and prostate, the Km was very high (range 43-162 microM) for all three androgen substrates, suggesting that these androgens were not the preferred substrates for UDPGT in these tissues. These results indicate that the liver was the main site of androgen UDPGT activity and the skin and prostate formed little, if any, androgen glucuronides. These results suggest that androstanediol glucuronide was formed primarily in the liver and may not be a reliable marker of peripheral androgen metabolism.

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