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JOURNAL ARTICLE

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

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In this study, androgen UDP-glucuronyl transferase (UDPGT) activity was determined in microsomes of human liver, skin, and prostate. Androgen UDPGT activity was highest in the liver microsomes using 5 alpha-androstane-3 alpha, 17 beta-diol (3 alpha DIOL), androsterone (AN) and dihydrotestosterone (DHT) as substrates. The Km and Vmax values and enzyme velocity at the physiological concentration of the substrates in the liver microsomes were similar for AN and 3 alpha DIOL. The values for AN were as follows: Km = 16.9 microM, Vmax = 3.77 nmol/min/mg protein, and UDPGT velocity = 0.62 pmol/min/mg protein. The values for 3 alpha DIOL were as follows: Km = 16.0 microM, Vmax = 5.61 nmol/min/mg protein, and UDPGT velocity = 0.42 pmol/min/mg protein. Androgen UDPGT activity was lower and showed less affinity for DHT (Km = 23.5 microM, Vmax = 0.84 nmol/min/mg protein, UDPGT velocity = 0.05 pmol/min/mg protein). No sex or age differences in 3 alpha DIOL-UDPGT activity were found in liver microsomes. The kinetic parameters and levels of androgen UDPGT activity in the skin and prostate samples were not determined because the levels of UDPGT activity were below the detection limit for our assay (0.003 pmol/min/mg protein). These results have important clinical implications. First, androgen UDPGT activity in the skin and prostate is much lower than the activity in the liver, suggesting that these tissues are not important sites for conjugation of androgens. Second, androgen UDPGT activity in the liver was not altered by sex or age in the 10 samples measured from men and women.

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