Separation and Properties of Multiple Forms of Dihydrodiol Dehydrogenase from Hamster Liver.

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Five multiple forms of dihydrodiol dehydrogenase (EC 1.3.1.20) with similar molecular weights of around 35,000 were purified from hamster liver cytosol. All enzyme oxidized trans-dihydrodiols of benzene and naphthalene and reduced various carbonyl compounds, but showed clear differences in specificities for other alcohols and cofactors, and in inhibitor sensitivity. Two NADP+-dependent enzymes were immunologically identified with aldehyde reductase (EC 1.1.1.2) and 3α-hydroxysteroid dehydrogenase (EC 1.1.1.50). The other enzymes with dual cofactor specificity oxidized xenobiotic alicyclic alcohols, and one of them was active on 3α- and 17β-hydroxysteroids with NAD+ as a preferable cofactor.

Partial Purification and Characterization of Epidermal Plasminogen Activator and Their Inhibitor.

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Plasminogen activator (PA) and PA inhibitor were partially purified from 2-d-old rat epidermis and characterized. PA extracted with buffer containing KSCN was first purified by Blue-Sepharose chromatography and separation of two PAs, with Mr 66,000 and 44,000, was accomplished by Con A-Sepharose chromatography. The Mr 66,000 and 44,000 enzymes had the properties of tissue-type PA (t-PA) and urokinase-type PA (u-PA), respectively. PA inhibitor extracted in 1,4-piperazinediethanesulfonic acid buffer showed Mr 60,000 and inhibited human u-PA activity but did not inhibit t-PA from human and murine melanoma cells or plasmin. It inhibited epidermal PA, Mr 44000, more effectively than it did the Mr 66,000 epidermal PA.


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Indanol dehydrogenase purified from monkey liver cytosol was a monomer with a molecular weight of 36,000 and pI of 8.7. The enzyme oxidized alicyclic alcohols including trans-dihydrodiols of benzene and naphthalene in the presence of both NADP+ and NAD+, and reduced several xenobiotic carbonyl compounds in the presence of NADPH. The results of fluorometric binding and kinetic studies are consistent with an ordered sequential mechanism with NADP+ binding first. The enzyme was inhibited competitively versus NADP+ and uncompetitively versus 1-indanol by 1,10-phenanthrolone, and was also inhibited by Cibacron blue competitively versus NADP+ and noncompetitively versus 1-indanol.