〔Biochim. Biophys. Acta, **882**, 220 (1986)〕

Characterization of Pulmonary Carbonyl Reductase of Mouse and Guinea Pig.

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Carbonyl reductases were purified from mouse and guinea pig lung. The mouse enzyme exhibited structural and catalytic similarity to the guinea pig enzyme : tetrameric structure consisting of an identical 23 kDa subunit; basicity (pI of 8.8); low substrate specificity for aliphatic and aromatic carbonyl compounds; dual cofactor specificity for NADPH and NADH; stereospecific transfer of the 4-*pro S* hydrogen of NADPH ; reversibility of the reaction and inhibitor sensitivity, except that the mouse enzyme extensively reduced 3-ketosteroids. A partial similarity between the two enzymes was observed immunologically. The immunoreactive protein was detected only in lung of the tissues of the two species.

〔Biochem. Phamacol., **35**, 405 (1986)〕

Dihydrodiol Dehydrogenases in Guinea Pig Liver.

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Four major and four minor dihydrodiol dehydrogenases, with similar molecular weights but with different charges, were purified from male guinea pig liver cytosol. One of the minor enzymes catalyzed only the oxidation of benzene dihydrodiol was identified immunologically with aldehyde reductase. The other enzymes oxidized xenobiotic alicyclic alcohols and 17β-hydroxysteroids as well as benzene dihydrodiol. These enzymes exhibited high affinity for 17β-hydroxysteroids, and immunologically cross-reacted with testosterone 17β-dehydrogenase purified from the same source. Testosterone 17β-dehydrogenase immunologically identical to the liver enzymes was detected only in kidney, whereas aldehyde reductase was detected in all tissues of the guinea pig.

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Detection of the Urinary Polyamine by a New Enzymatic Differential Assay (I) Fundamental Study on a New Enzymatic Differential Assay.

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A new enzymatic method for determining urinary concentrations of diamine, spermidine and spermine by fractionation of the urinary acetyl conjugate into free polyamines with acylpolyamine amidohydrolase and quantification using two amine-oxidases with different substrate specificity was examined. This method gave high recovery of 95 to 99%, excellent linearity up to 150μmol/l of the polyamines and low day-to-day variation. In 24-hour pooled urine and voluntary urine, diamine spermidine and spermine correlated relatively well. Urinary leukocytes and erythrocytes exerted no influence on the urinary polyamine determination.