no inhibition with respect to hydroxylamine and non-competitive inhibition with respect to glutamate.

It was also found that AMP is a powerful competitive inhibitor of the kidney enzyme with respect to hydroxylamine. The K_i is approx. $10\mu\text{M}$. AMP does not affect the activity of muscle glutamine synthetase.

Although it is difficult to interpret several of these observations, they underline further the marked difference in properties between the enzymes from the two tissues.

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The Development of Hypoxanthine/Guanine Phosphoribosyltransferase Activity in Man

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Hypoxanthine/guanine phosphoribosyltransferase (EC 2.4.2.8) is important to man. Its absence is associated with the childhood syndrome of mental deficiency, self-mutilating behaviour and hyperuricaemia (Nyhan, 1968). The enzyme catalyses the conversion of 5-phosphoribosyl 1-pyrophosphate and hypoxanthine or guanine into the corresponding 5'-mononucleotides.

The measurement of hypoxanthine/guanine phosphoribosyltransferase activity in tissues other than erythrocytes is complicated by destruction of the product by 5'-nucleotidase (EC 3.1.3.5). However, 5'-nucleotidase can be inhibited by TTP (Murray & Friedrichs, 1969). Assays based on the method of Cartier & Hamet (1968) were performed on the 25000g supernatant from homogenates. When the hydrolysis of GMP by brain homogenates was decreased to 15% of control values by 1.5mM-TTP there was a fourfold increase in measured hypoxanthine/guanine phosphoribosyltransferase activity. Other tissues showed less marked changes, and activity in erythrocytes was unaffected. A survey in foetal, childhood and adult tissues showed that activity was present in all the tissues examined; in most, including liver and kidney, little change occurred with growth and development. In contrast, activity in regions of brain rose during the postnatal period to reach values that, in the adult were markedly higher than those in other tissues.

Activity in the testis was also somewhat higher than those in other organs.

Hypoxanthine/guanine phosphoribosyltransferase activity can be separated into at least two components by electrophoresis on cellulose acetate or starch gel, there being no major alteration in the pattern from brain during development. Reaction products from both components were destroyed by 5'-nucleotidase, and the reaction was inhibited partially by 0.7mM-6-mercaptopurine and totally by 40mM-EDTA. No marked alteration in electrophoretic pattern was observed after treatment with 5mM-sodium dodecyl sulphate. Electrophoretic separation of hypoxanthine/guanine phosphoribosyltransferase components on polyacrylamide gel has also been reported by Bakay & Nyhan (1971).

No differences in thermal stability were detected in different tissues.

The distribution and activity of hypoxanthine/guanine phosphoribosyltransferase seem consistent with its postulated 'salvage' role and possibly with its involvement in the use of exogenous purines for cellular nucleotide biosynthesis (see Raivio & Seegmiller, 1970).

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The Effect of Starvation on the Cholinesterase Activity of the Liver and Serum of Young Male Rats

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Harrison & Brown (1951) showed that adult male rats starved for periods up to 6 days produced a decrease in liver cholinesterase (EC 3.1.1.8; formerly pseudocholinesterase) activity but no change in the activity in plasma. We now report the effects of starvation on cholinesterase activity in young male rats. This study was made to establish base-line values of enzyme activity as a preliminary to examining the effect of feeding on hepatic cholinesterase synthesis.