substrate occurred. The enzyme produced at the lower growth rate had optimum activity at 20–22°C, whereas the enzyme from the higher growth rate showed maximum activity at 26°C.

There were notable differences when the activities of the enzymes were assayed with a range of different triglycerides as substrates. The enzyme produced at the lower growth rate showed most rapid hydrolysis of trilaurin, whereas trioctanoin was most rapidly hydrolysed by fresh preparations of enzyme from the higher growth rate. However, during storage for 30 days at –20°C this latter preparation lost 50% of its activity towards trioctanoin but the activity towards trilaurin was unchanged. This change towards the first enzyme may indicate an alteration to a more stable configuration or perhaps the preferential deactivation of one enzyme in a multiple enzyme system.

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Adenylate Deaminase Activity in a Number of Species

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The activities of AMP deaminase and adenosine deaminase in the absence and presence of ATP and GTP were investigated in the lung, liver, spleen, intestine, heart and skeletal muscle of the mouse, rat and guinea pig in an examination of the pathway of AMP catabolism in these tissues.

The activity of adenosine deaminase was not affected by ATP or GTP in any of the tissues studied. The activity of AMP deaminase was increased in the presence of ATP, but GTP had little effect on the activity of this enzyme except in skeletal muscle, where an activation similar to that of ATP was produced.

The effect of GTP on AMP deaminase was studied in more detail in rabbit skeletal muscle, where the activity of the enzyme is high and a simple purification method is available (Smiley, Berry & Suelter, 1967). The properties of AMP deaminase in the homogenate and after purification were shown to differ both in the effect of substrate concentration and of GTP on activity. Evidence is presented that these differences may be due to an alteration in the physical state of the enzyme on purification.

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Purification of the Low-Molecular-Weight Form of Adenosine Deaminase from Rabbit Intestine

By C. O. PIGGOTT and T. G. BRADY. (*Department of Biochemistry, University College, Cork, Irish Republic*)

During a survey of the molecular weights of adenosine deaminases from mammalian sources by Murphy, Brady & Boggust (1969) it was found that in the rabbit duodenum two molecular forms of the enzyme existed with molecular weights of 260 000 and 34 000 respectively. It was therefore decided to study the enzymes in this tissue with a view to characterizing these forms. The present communication outlines a scheme for the purification of the low-molecular-weight form (mol.wt. 34 000) of the enzyme.

The procedure involves initial extraction with acetate buffer, pH 5.5, precipitation and fractional re-extraction with $(\text{NH}_4)_2\text{SO}_4$ (Ghosh & Fishman, 1968), chromatography on DEAE-cellulose, pH 5.8, and final purification on Sephadex G-75 (superfine grade). The recovery varied between 20 and 30% and the final specific activity of the preparation was 300 units/mg. The enzyme was shown to be both chromatographically and electrophoretically pure.

Throughout the purification the ratio of the two forms of the enzyme was monitored by thin-layer gel filtration (Morris, 1964). The chromatograms were developed by covering the plate with a solution of agar containing adenosine and Phenol Violet, and measured quantitatively by reflectance densitometry. DEAE-cellulose chromatography resulted in a partial separation of the two forms, and Sephadex chromatography completed the separation. The thin-layer gel-filtration technique also proved to be of great analytical use in determining the ratio of the molecular forms in individual rabbit intestines.

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