reaction between R-1-P and GDP has been determined by following the formation of G-6-P. The optimum conditions for the preparation of RDP have been worked out. With the same enzyme system evidence has also been obtained for a reaction between GDP and deoxyribose-1-phosphate or galactose-1-phosphate. Preliminary experiments with pigeon liver acetone powder confirm the indications obtained by Saffran and Scarano [2] for RDP to be an intermediary in 5-adenylic acid formation from $^{14}C$-adenine.

1. Klenow, H. *Arch. Biochem. Biophys.* **46** (1953) 186.
2. Saffran, M. and Scarano, E. *Nature* **172** (1953) 1949.

## Studies on the Inhibition of D-Amino Acid Oxidase

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Studies on D-amino acid oxidase from pig kidney purified according to Negelein and Brömel [1] have been made. The flavineadenine dinucleotide (FAD) used was a pure sample obtained from baker's yeast by inophoresis on paper as the final step in the purification. The coupling between the apoenzyme and FAD caused no shift in the absorption band and no quenching of the fluorescense. Thus, D-amino acid oxidase is fluorescent and is similar to Straub's diaphorase in this respect.

Inhibition of enzyme activity by different anions and by partial structural analogs of the FAD molecule has been demonstrated. Anions were inhibitory in the following order:

$$J^- > Br^- > NO_3^- > Cl^- > PO_4^{--} > SO_4^{--} > CH_3COO^- \gg F^-$$

Thus, the anions of strong acids were most effective as inhibitors. At a concentration of $1.4 \times 10^{-7}$ *M* FAD 50% inhibition was exerted by $8.5 \times 10^{-2}$ *M* NaCl. The inhibition was reversible in the presence of high FAD concentration, suggesting competition of the inhibitor with the prosthetic group.

In similar experiments strong inhibition by adenylic acid, ATP and FMN was observed. 50 % inhibition was given by concentration of approximately $5 \times 10^{-4}$ *M*. The inhibition by DPN was somewhat weaker, while adenosine, adenine and hypoxanthine exerted inhibition of the same order of magnitude at concentrations of $6 \times 10^{-3}$ *M*. Cytosin and uracil were slightly inhibitory while riboflavin was without effect.

The experiments indicate that the phosphoric ester groups and the adenine part of the FAD molecule are of importance in the coupling to the apoenzyme. A possible physiological significance by some of these inhibitors in regulation of enzyme activity is suggested.

1. Negelein, E. and Brömel, H. *Biochem. Z.* **300** (1939) 225.

## Distribution in Rabbit Livers of Intravenously Injected Iron

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Rabbits weighing from 1.5 to 1.7 kg were injected with various amounts of a high molecular weight iron-carbohydrate complex (Astra) and sacrifized after different time intervals. The livers were homogenized and fractionated according to Hogeboom, Schneider and Pallade [1] and the iron determined in the different fractions.

The results show a considerable increase in ferritin in all the fractions. In the nuclei and the mitochondria there was also a large increase of a water-insoluble hydrolyzeable fraction (hemosiderin). Notable also was a very marked increase of bound hemin (cytochrome b) in the microsome fraction.

1. Hogeboom, G. H., Schneider, W. C. and Pallade, G. E. *J. Biol. Chem.* **172** (1948) 619.

## The Combination of Flavin Mononucleotide and Riboflavin with the Protein of "The Old Yellow Enzyme"

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In a forthcoming paper *(Acta Chem. Scand.)* we have presented some kinetic data on the reversible dissociation of the old yellow enzyme (OYE) into FMN and apoenzyme obtained by the aid of fluorescence measurements. In water, the dissociation constant *K* of this