

The Incorporation of Methyl and Carboxyl Labelled Acetate into the Purine-Bound Sugars of Nucleic Acids in Liver Slices

S. Laland and I. Smith-Kielland

*Biochemistry Department, The University,
Oslo*

The incorporation of carbon-labelled acetate into ribose has been the subject of several investigations. Thus it was shown that in chicks carboxyl labelled acetate was incorporated into the purine-bound ribose of RNA¹. Löw² using rats found that when given ¹³CH₃¹⁴COOH both isotopes were present in the ribose of RNA and that the methyl carbon was incorporated to a considerable greater extent than the carboxyl. However, studies on the incorporation of labelled acetate into the purine-bound 2-deoxy-D-ribose has not been reported. The present study concerns this problem together with an investigation of the simultaneous incorporation of isotope into the purine-bound ribose. Liver slices obtained from regenerating rat liver were incubated in Krebs-Hensleit medium at pH.7.4 containing glucose together with labelled sodium acetate for 3 hours at 37° C. The nucleic acids were isolated from the liver slices by the method of Brown *et al.*³ The purine-bound 2-deoxy-D-ribose was isolated from the DNA by a slight modification of a method described previously⁴. The sugar was finally purified by paper chromatography, eluted, estimated and counted. D-Ribose was isolated from the RNA after acid hydrolysis, followed by passage of the hydrolysate through a column of mixed resins (IR 120(H) and IR4B(OH)) and finally paper chromatography. The sugar was eluted from the chromatogram, estimated and counted. In both cases results obtained from three different chromatographic solvent systems were found to agree satisfactorily and the figures

quoted in the table below represent the mean of the three figures.

It thus appears that in regenerating liver slices both the methyl and carboxyl carbon of acetate can be incorporated into the purine-bound 2-deoxy-D-ribose. Experiments performed with liver slices from non regenerating liver showed as expected no incorporation of carboxyl labelled acetate. Furthermore it is seen that in the case of the methyl labelled acetate the incorporation of isotope is 5 times as large in the case of the purine-bound D-ribose, as for the purine-bound 2-deoxy-D-ribose. With carboxyl-labelled acetate there is however the same degree of incorporation of isotope.

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Studies on the Regulation of Bile Acid Formation in Bile Fistula Rats

S. Bergström, H. Danielsson
and U. Gloor

*Department of Physiological Chemistry,
University of Lund, Lund, Sweden*

When a bile fistula is made in a rat the excretion of bile acids increases 20—40 fold over the normal daily synthesis to 40—60 mg per day!

In order to study the influence of the bile acids in the enterohepatic circulation on the bile acid production in the liver, we have used two experimental approaches.

We have prepared fistula rats as normal but also inserted a cannula into the lower part of the severed bile duct and continuously injected 0.5 ml of saline per hour containing the synthetic bile salt investigated.

In order to follow the taurocholic acid production we have injected sodium-taurochenodesoxycholate. It is known that this substance does not give rise to cholic acid but to relatively small amounts of higher hydroxyla-

Acetate incubated	2-Deoxy-D-ribose c/min/ μ mole	D-Ribose c/min/ μ mole
¹⁴ CH ₃ COONa	147	790
CH ₃ ¹⁴ COONa	292	300