digestion with spleen exonuclease was consistent with an original sequence of Py-G-G-A-thioU-A-G, thus supporting previous but unpublished deductions of Mr B. G. Barrell obtained by an independent method.

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Chemical Modification of Nucleic Acid Components and Transfer Ribonucleic Acid

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Numerous studies on the reduction of the pyrimidine components of nucleic acids have been carried out, mainly with rhodium as catalyst. Results of these studies are summarized by Schein & Schein (1967). In recent work on the synthesis of oligoribonucleotides (Griffin, Reese, Stephenson & Trentham, 1966) with benzyl ethers as specific hydroxy-protecting groups to ensure the formation of only 3',5'-internucleotidic links, it was discovered that removal of the benzyl groups by reduction in the presence of palladium catalysts could also cause considerable reduction of the pyrimidine bases, unless carefully controlled.

By using this observation it has been possible under very mild conditions in the presence of palladium catalysts to reduce uridylyl-(3'-5')-uridine (UpU) to dihydrouridylyl-(3'-5')-dihydrouridine, uridylyl-(3'-5')-adenosine (UpA) to dihydrouridylyl-(3'-5')-adenosine, and uridylyl-(3'-5')-uridylyl-(3'-5')-uridine (UpUpU) to dihydrouridylyl-(3'-5')-dihydrouridylyl-(3'-5')-dihydrouridine. Under similar conditions, the reduction of uridylyl-(3'-5')-adenylyl-(3'-5')-uridine (UpApU) was incomplete.

In some comparative hydrogenation studies at room temperature, with palladium catalysts under controlled pH conditions (3.5-4.2), the following order of ease of reduction was observed: cytidine $\gg$ uridine $>$ ribosylthymine. For example, cytidine 2',3'-(cyclic)-phosphate could be reduced in the presence of uridine 2',3'-(cyclic)-phosphate, with very little reduction of the latter. Pseudouridine was easily hydrogenolysed (comparable with cytidine) to open the sugar ring, but further reduction of the pyrimidine base was very slow (comparable with ribosylthymine). Pyrimidine nucleosides and dinucleoside phosphates were more easily reduced than the corresponding nucleotides. Adenosine and

guanosine, and derivatives of these bases, were not reduced.

Hydrogenation of transfer RNA (from baker's yeast) under the conditions used above resulted in about 4-10% loss of E_{260} , corresponding to the reduction of only a few of the pyrimidine bases in the macromolecule.

These results, and the potential application of hydrogenation under these very mild conditions to specific modification of transfer RNA molecules, will be discussed.

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A Simple Technique for the Separation and Estimation of ^3H -Labelled Androgen Metabolites

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Unlike the action of oestrogens on female target tissues, the action of testosterone on the male accessory sex organs is associated with metabolism of the hormone. It is therefore possible that metabolism of testosterone is a necessary prerequisite for its hormonal action.

We have therefore studied the metabolism of testosterone in the rat ventral prostate by using [^3H]testosterone of high specific radioactivity. It became apparent during this study that there was a need for a technique by which the radioactive content of the androgen metabolites could be rapidly evaluated. Scanning of t.l.c. plates was found to be inadequate owing to difficulties in separating individual androgen metabolites. It therefore seemed desirable to combine the greater resolution of g.l.c. with the sensitivity of scintillation spectrometry. The system that we have evolved is both simpler and more reproducible than column effluent-splitting techniques.

The tissue extraction was as previously described (Belham, Neal & Williams, 1968). Essentially, 10 μg . of each of a range of unlabelled carrier steroids was added to an ethanolic extract. The androgens were then separated as a group from other lipids by t.l.c. and a sample of the t.l.c. eluate was applied to a Pye 104 Gas Chromatograph. Satisfactory separations were obtained with a 7 ft. column of 3% QF₁ at 215°. The retention times