It has been suggested[13] that the biochemical stability of DNA in non-dividing cells is manifest only when ^{32}P and ^{14}C-adenine are used as precursors but in our experience the renewal patterns of DNAs from different tissues are quite similar regardless of the precursor used. The recent results of SIBATANI[14] who with the aid of an improved technique, finds negligible incorporation of ^{14}C-formate into the DNA of resting rat liver *in vivo* and *in vitro* are in agreement with our view.

Preliminary measurements on the labelling of the acid soluble adenine compounds at 2 h show that with ^{14}C-formate and ^{14}C-glycine the highest activities are observed in those tissues in which DNA purines are most active, liver and kidney giving much lower values. This effect may be partly due to differences in purine synthesis and partly to variations in pool sizes in different tissues. The low values found for the activities of nucleic acid purines after ^{14}C-glycine administration are almost certainly due to a very considerable dilution of the administered glycine since the acid soluble nucleotides in these experiments also showed very low activities. The observed differences between the acid-soluble adenine nucleotides in different tissues after ^{14}C-adenine administration are considerably smaller than with formate or glycine.

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R. M. S. SMELLIE and J. N. DAVIDSON

Department of Biochemistry, The University of Glasgow, Scotland, July 31, 1956.

Résumé

Les résultats expérimentaux montrent le degré d'incorporation du formate-^{14}C, de l'adénine-8-^{14}C et de la glycine-2-^{14}C dans l'ADN et dans les ARN nucléaire et cytoplasmique de l'appendice, de la mœlle osseuse, de la muqueuse intestinale, du rein, du foie, de la rate et du thymus du lapin *in vivo*.

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Reserpine and Human Platelet 5-Hydroxytryptamine

A decline in 5-hydroxytryptamine (5-HT) after the injection of reserpine into rats[1] and rabbits[2] and after repeated administration in man[3] has been reported. The observations described below show that in man a single dose will remove virtually the whole of the 5-HT in the platelets and that this is associated with an impaired ability of the platelets to absorb 5-HT.

The effect of 1 mg reserpine (i.m.) in man on the 5-HT content of the platelets and on their ability to absorb 5-HT

	ng 5-HT/10^8 platelets	ng 5-HT/10^8 platelets after incubation with 5-HT at 37° C for 2 h
Before reserpine. . .	36	173
1 day after reserpine	14	39
3 days after reserpine	< 1	36
9 days after reserpine	7	40

The methods used were those described by HARDISTY and STACEY[4] and a typical result is recorded in the table. It will be seen that 24 h after the intramuscular injection of 1 mg reserpine the amount of 5-HT in the platelets had fallen to 40% of its initial level and that after 3 days none could be detected. Incubation of 5-HT with platelet-rich plasma obtained before administration of the drug led to a large uptake by the platelets[4] but 24 h after reserpine this ability to absorb 5-HT was markedly reduced and impaired absorption persisted during the following days. By the 9th day the 5-HT content of the platelets showed evidence of recovery; in other subjects recovery started at about the same time and was still incomplete 3 weeks after the injection.

The prolonged reduction of 5-HT following reserpine has been advanced by SHORE *et al.*[2] as evidence that 'serotonin is formed in platelets at the time of their formation'. Bone marrow has little capacity for 5-HT synthesis and it would seem more likely, as postulated by TOH[6], that circulating platelets absorb 5-HT from organs where it is formed and that reserpine both liberates 5-HT from platelets and prevents further absorption.

Platelet life has been variously estimated from 5 to 9 days[7]. The present finding that at least 3 weeks is required for recovery after a single dose of reserpine suggests, since reserpine is rapidly eliminated[8], either that platelet life is longer than would appear from these estimates or that reserpine affects not only platelets in circulation but also the platelet bearing tissue, thus leading to the subsequent discharge of platelets with an impaired ability to absorb 5-HT.

R. M. HARDISTY, G. I. C. INGRAM, and R. S. STACEY

Departments of Pathology and Therapeutics, St. Thomas's Hospital Medical School, London, July 31, 1956.

Zusammenfassung

Nach einmaliger intramuskulärer Injektion von 1 mg Reserpin sinkt beim Menschen der 5-Oxytryptamingehalt der Blutplättchen zwei Tage lang ab, um bis zum neunten Tag auf unbestimmbarem Wert zu verharren.

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Während dieser Zeit ist die 5-OT-Aufnahmefähigkeit der Plättchen vermindert. Der Oxytryptamingehalt der Plättchen erreicht seinen Ausgangswert erst ungefähr 3 Wochen nach der Reserpingabe.

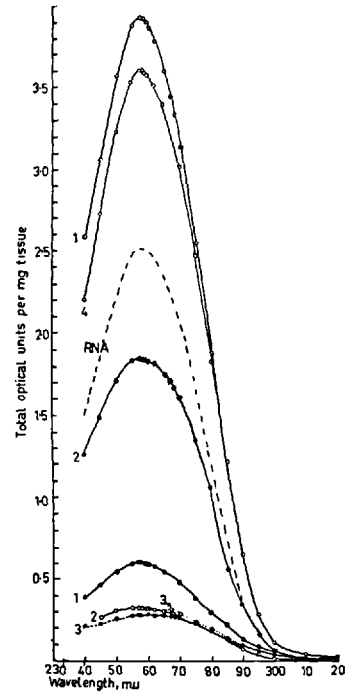
Die Ansicht, dass die Plättchen freies 5-Oxytryptamin aus dem Kreislauf aufnehmen, wäre mit diesem Ergebnis zu vereinbaren. Die Dauer des Effektes könnte bedeuten, dass Reserpin entweder auf Plättchenvorstadien im Knochenmark wirkt oder aber dass die Lebensdauer der Plättchen in Wirklichkeit länger ist, als neuerdings angenommen wird.

The Release of Ribonucleic Acid from Carnoy Fixed Sections During Incubation in McIlvaine's Buffer

Formaldehyde solutions have been preferred as fixatives for tissues prior to the histochemical ribonuclease (RNase) test, to the disadvantage of CARNOY's solution[1]. The main objection towards the latter is that sections incubated in a buffer without the addition of RNase, lose their staining properties for ribonucleic acids (RNA), just as in the presence of the enzyme. Thus, it is not possible, in the absence of a 'blank', to distinguish the effect of an 'un-specific' degradation of RNA and, perhaps, also of other substances due to the action of the buffer, from that of the specific enzymic break-down of RNA molecules. In contrast to this, in sections from formaldehydefixed tissues, RNA-containing structures still bind basic dyes after treatment with the enzyme-free buffer solution.

However, good solubility of RNA in Carnoy-fixed sections might indicate a better preservation of the native RNA molecules than after formaldehyde fixation. In that case, the ease with RNA is released from the fixed tissue will not affect the specificity of the test. Thus the main question seems to be whether substances other than RNA degradation products can be detected in the buffer extracts from Carnoy-fixed sections, and to what extend the release of RNA will be complete, as compared to digestion in the presence of RNase. The present communication reports the results from a comparative analysis of the ultraviolet absorbing substances liberated from CARNOY and formaldehyde-fixed tissues in McILVAINE's buffer, and in the same buffer containing RNase.

Experimental.—Fresh and frozen-dried pieces of rat pancreas were fixed in CARNOY's solution (ethanol : chloroform : acetic-acid – 6 : 3 : 1) for 1·5 h, or fresh pieces in buffered (pH 7·0) 10% formaldehyde solution[2] for 24 h at room temperature. They were transferred *via* the appropriate intermedia to paraffin (m.p. 55°C), as described elsewhere in detail[3]. From each paraffin block, 7 μ thick sections were cut, and distributed equally between centrifuge tubes in such a way that all the tubes contained comparable lots of the material. Some sections were mounted on slides for histochemical control. After deparaffination in petroleum ether, the sectioned material was spun down in a centrifuge, further washed with ether, and allowed to dry at room temperature. The samples were weighed, and each tube contained approximately 10 mg dry material. Some tubes with sections from fresh Carnoy-fixed and frozen-dried Carnoy-fixed tissue were submitted to secondary fixation in the buffered formaldehyde solution for 24 h. They were then freed from the formaldehyde through dialysis in cellophane sacs against distilled water in the cold room for 24 h. Thus the experiments included samples of sections which had been fixed accordingly: (1) Fresh Carnoy fixation. (2) Frozen-dried Carnoy-fixed. (3) Fresh formaldehyde fixation. (4) Frozen-dried Carnoy-fixed and then formaldehyde-fixed.



McILVAINE's buffer was used at pH 7·0, in the digestion experiments containing 1 mg crystalline ribonuclease (WORTHINGTON) per milliliter. Incubations were performed at 37°C for 2 h, and with mechanical stirring. The sections were spun down between each treatment, and the supernatants collected. 5 ml samples were used throughout. To test the completeness of the RNAS digestion, the sections were extracted with *N* perchloric acid for further 3 h at room temperature, as appropriate for pancreatic tissues[3]. Thus, in the actual set of experiments, each of the four types of preparation was treated according to the following scheme: (1) McILVAINE's buffer for 2 h. (2) RNase containing buffer for 2 h. (3) *N* perchloric acid for 3 h. All experiments were performed in double. In addition, direct digestion with RNase containing buffer for two times 2 h was performed on all types of preparation.

The supernatants were investigated in the Beckman Modell DU quartz spectrophotometer in the ultraviolet range, using 10 mm cells, against the corresponding solutions as a blank. Making use of the known volumes and weights of the samples, the absorptions were calculated as total optical units per milligram tissue, and are thus given in the graph.

The results are presented in the Figure. The curves with the un-filled circles represent the results from incubation of frozen-dried Carnoy-fixed sections. Curve 1

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