radiographic studies with H^3-proline in root tip cells, proves that there is indeed a detectable amount of collagen present in plant nuclei. It is very likely that collagen represents an inner core material of the chromosome and not an accessary or matrix substance, since partial removal of proteins by either pepsin or trypsin failed to produce any specific staining reaction. This contention has been strengthened by further experiments, to be published later, that like chloramphenicol and 5-methyl tryptophan, collagenase can induce chromosomal aberrations only when effective in pre-DNA-synthetic stage of both mitotic and meiotic cells.

Treatment	Average No. of grains/10 μ^2 of chromatin
Control (TCA + pepsin + trypsin)	6.2
Treated (TCA + pepsin + trypsin + collagenase)	4.5

Zusammenfassung. Mit Hilfe von radioaktiv markiertem Prolin wird autoradiographisch das Vorkommen von Collagen im Matrixeiweiss pflanzlicher Zellkerne festgestellt.

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Action of Adenosine Diphosphate on Human Platelets

Platelets contain both 5-hydroxytryptamine (5-HT) and adenosine triphosphate (ATP); BAKER, BLASCHKO and BORN[1] found most of both these substances in the same layer when homogenized platelets were centrifuged through a sucrose gradient. This, apart from the observations that the amount of 5-HT in normal platelets and the amount they are able to take up varies with the amount of ATP they contain[2], is the only evidence we have that ATP is concerned in the binding of 5-HT in platelets.

It has been known for some years[3] that adenosine diphosphate (ADP) added to platelet-rich plasma causes the platelets to aggregate. According to MACMILLAN[4] this occurs in 2 phases: the first phase is due to the action on the platelet membrane of the added ADP, the second to the action of endogenous ADP derived from the breakdown of ATP in the platelets.

If 5-HT is bound to ATP, the breakdown of part of this ATP might be expected to lead to the release of the associated 5-HT.

Human citrated-platelet-rich plasma containing ADP ($10^{-4}M$) was incubated in polycarbonate tubes for 20 min at 37 °C. During the first 5 min the plasma was stirred mechanically at 3 rev/sec. Aggregation of the platelets was marked in about 30 sec. Another portion of the same platelet-rich plasma to which no ADP had been added was treated similarly. After incubation the tubes were cooled in ice and centrifuged for 5 min at 25,000 *g*. ATP and 5-HT in the platelets was estimated by methods previously described[5]. Platelets treated with ADP lost about $^1/_3$ of their ATP but none of their 5-HT.

The effect of ADP on platelets which had been loaded with 5-HT was then investigated. Part of each sample of platelet-rich plasma was first incubated for 75 min in an atmosphere of 5% CO_2 in oxygen[6] with a solution of 5-HT in saline to give a final concentration of 2.4 µg/ml. Under these conditions the platelets become saturated with 5-HT. Another portion of the same platelet-rich plasma was incubated with an equal volume of saline. The effect of ADP on the loaded and unloaded platelets was then tested as described above. The results are recorded in the Table. Rather less ATP was lost from the loaded than from the unloaded platelets, but the difference is not significant at the 5% level: only the loaded platelets lost 5-HT.

These results show that treatment with ADP does, in fact, lead to a loss of part of the ATP in platelets but that normally no 5-HT is lost. They would be explained if 5-HT were bound to ATP in platelets. Normally more than enough ATP is present for this purpose; only when the platelets contain so much 5-HT that after treatment with ADP there is insufficient ATP remaining to bind it, is 5-HT lost.

Some of the results described here have been confirmed during the preparation of this paper by MILLS, ROBB and ROBERTS[7].

Zusammenfassung. Es wird gezeigt, dass der ATP-Gehalt der Thrombocyten in blutplättchenreichem Plasma mit ADP inkubiert abfällt, während deren 5-HT-Gehalt unverändert bleibt. Thrombocyten, die nach 5-HT-Sättigung inkubiert werden, verlieren sowohl ATP wie auch 5-HT.

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Loss of ATP and 5-HT (µmoles/ml packed platelets ± S.E.M.) from platelets after treatment with ADP ($10^{-4}M$)

	Before loading with 5-HT	After loading with 5-HT
ATP	1.06 ± 0.24 (33%)	0.69 ± 0.07 (23%)
5-HT	0.01 (< 2%)	0.38 ± 0.06 (19%)

In brackets, % lost. Mean of 5 experiments.

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