late the abnormal RNA metabolism with the modified sterility of tailless strains are in progress[5].

Résumé. Le métabolisme du RNA de l'épididyme a été étudié dans une souche de souris anoure, T/t_6. La courbe d'absorption de la ^{3}H-uridine n'est pas différente de celle du témoin C_{57}BL. On a cependant démontré que les processus de sécrétion et d'excrétion sont beaucoup plus lents dans la souche anoure T/t_6. Ces résultats ont été partiellement confirmés avec une autre souche anoure: T/t_{12}.

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In vitro Contraction of Embryonic Skin Produced by Prostaglandins

Contraction of small skin wounds, until recently, had been thought to involve recoiling or shortening of collagen and elastic fibers[1]. However, the present knowledge suggests that collagen filaments are not contractile and do not shorten except under unusual conditions. PEACOCK and VAN WINKLE[1] state that the role of collagen fibers in wound contraction is a passive one.

There is a growing number of reports which indicate that fibroblasts contract[2–4] and the implication is that contraction individually and collectively among a mutually adherring population of fibroblasts helps to pull peripheral normal tissue about the wound margin towards the center of the wound as cell migration and proliferation ensue.

The proposed phenomenon of fibroblastic contractions is related to an intracellular fibrillar system, similar to that in smooth muscle[2,4] or similar to a primitive type peripheral microfilamentous network as observed in axons[5], and is sensitive to a variety of inflammatory mediators[3].

Certain observations of the results of culturing embryonic skin with prostaglandins[6] prompted a thorough investigation of a possible contraction phenomenon. Back skin of six and one-half-to seven-day-old chick embryos was removed, dissected into bilateral pairs and cultured on stainless steel rafts. The full description of the procedure has been published elsewhere[7]. One piece of the bilateral pair was treated, in-vitro, with 50 µg/ml of crystallized prostaglandin B_1, B_2, E_1, or F1α. The other piece of each pair served as control. After the skin was flattened on the grid the number of mesh windows which were completely covered by the explant were counted, and this procedure was repeated at 3 or 5 days, whenever harvesting of the tissues took place.

Wilder's reticulum stain demonstrated anchor filaments, and some tissues were injected with ^{3}H-thymidine and the wound margins especially examined for presence of label. Other tissues were studied by electron microscopy[8] for evidence of active contractile phenomena, both extra- and intracellular.

The response of the skin in culture is virtually the same for treatment with PGB_1, PGB_2 and PGE_1. PGF1α produces no visible differences from the control explants. The effect of explant size reduction has been observed ever since we began using crystallized PGB_1 ($XPGB_1$). This result has been unequivocated, having been observed in more than 1,000 treated cultures.

Control explants increase whole skin growth by 50% at 3 days incubation, and downfeather organs develop during that time (Figure 1). The treated explants fail to sustain

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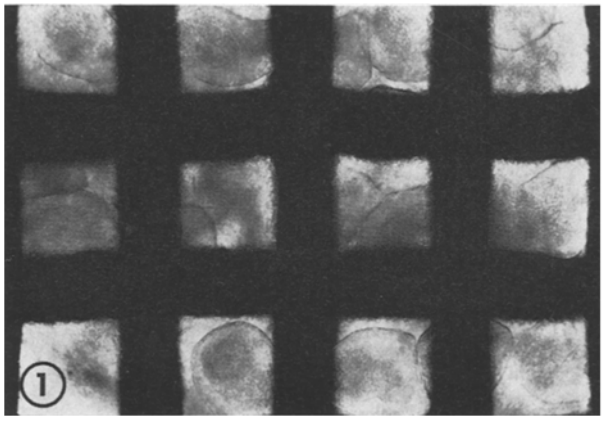

Fig. 1. An explant of chick embryo skin grown 3 days still fixed to culture grid. Down feathers visible on surface. ×60.

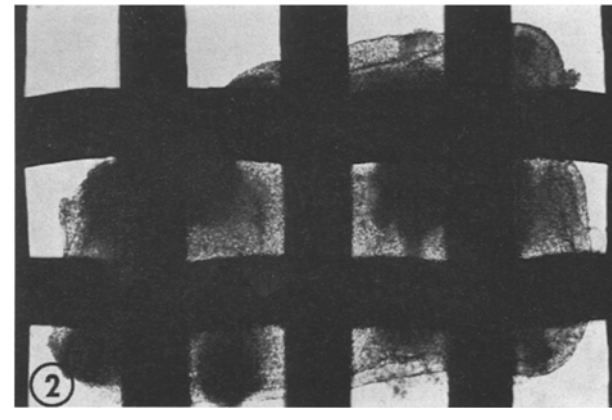

Fig. 2. An explant of chick embryo skin grown 3 days with 50 µg/ml of $XPGB_1$. Compare area of explant with Figure 1. ×60.

development of the feather organ and have suffered a size reduction of 23% (Figure 2). By 4 days this value rises to 47% and by 5 days to 51%. The reduction is not relative to the growth increase of the controls, but is based upon original size of the treated explant. Continued incubation sustains this effect so that explants of 7 and 8 days diminish into small round balls of tissue.

Osmometer measurements of control and prostaglandin-treated mediums after 3 days measure the same, approximately 300 mosmols. No differences were observed between reticulum-stained control and treated explants which could support a direct role of the anchor filaments in the contracting phenomenon.

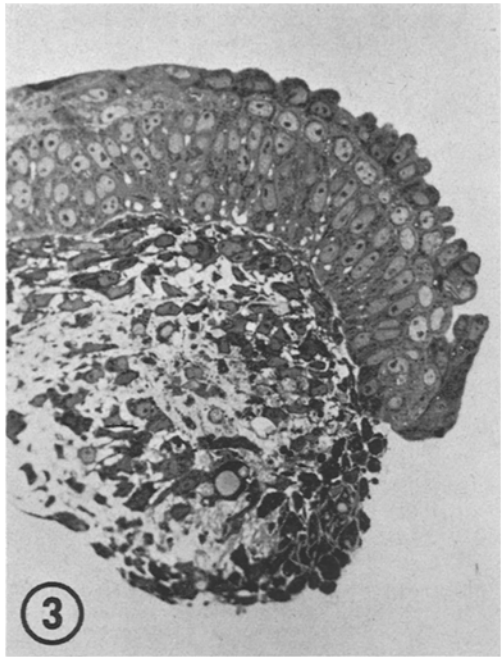

Fig. 3. Thick plastic section of edge of $XPGB_1$-treated explant. Epidermis turned down. Peridermal cells often hypertrophied. ×600.

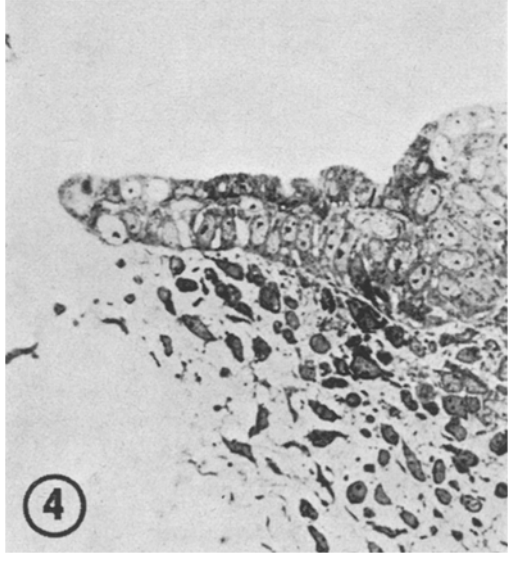

Fig. 4. Thick plastic section of edge of control explant. Compare with Figure 3. ×600.

The persistent effect of $XPGB_1$ is the organogenic block of the down feather organ. This effect has been previously reported[7]. However, it does not appear that less ^{3}H-thymidine label occurs in the wound margins of the treated explants than in controls, or in other areas of the skin.

The wound margins of the $XPGB_1$-treated explants are somewhat hypertrophied and turned down (Figure 3) compared to the control tissues (Figure 4). In many cases of the former the peridermal cells assume a columnar or dome shape.

Electron microscopy of the wound margins fail to demonstrate any obvious differences in amount or distribution of collagen between treated and control tissues. The dermal cells fail to show any consistent manifestation of a contracted state. That is, the nuclei were not unusually crenated, and no peripheral network of fine microfilaments was observed in any state differing from that of controls, neither did any of the erpidermal cells demonstrate a microfilamentous system which was altered by the prostaglandin.

The prostaglandins have been localized and extracted from skin[9, 10] and they have recently been identified as mediators of inflammation[11]. Herein lies the speculation that the result of culturing with $XPGB_1$ (or other effective prostaglandins) may account for analogous situations in cases of wound healing.

The preliminary results of this study demonstrate that certain of the prostaglandins produce the effect of size reduction concurrent with the developmental block of the down feather organ. However, the mechanisms of these effects remain obscure.

The failure to find a microfilamentous network in control tissues, which according to theory[5] would then be disoriented in the cells of prostaglandin treated explants, suggests that the contraction phenomenon reported here is produced by other means[12].

Zusammenfassung. Rückenhautexplantate von Hühnerembryonen, mit 50 µg/ml kristallinem Prostaglandin-B_1 behandelt, zeigten eine Reduktion, die nach 3 Tagen 23% ,nach 4 Tagen 47% und nach 5 Tagen 51% von der ursprünglichen Fläche ausmachte. Der Mechanismus der Prostaglandin-induzierten Kontraktionen bleibt noch unklar.

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