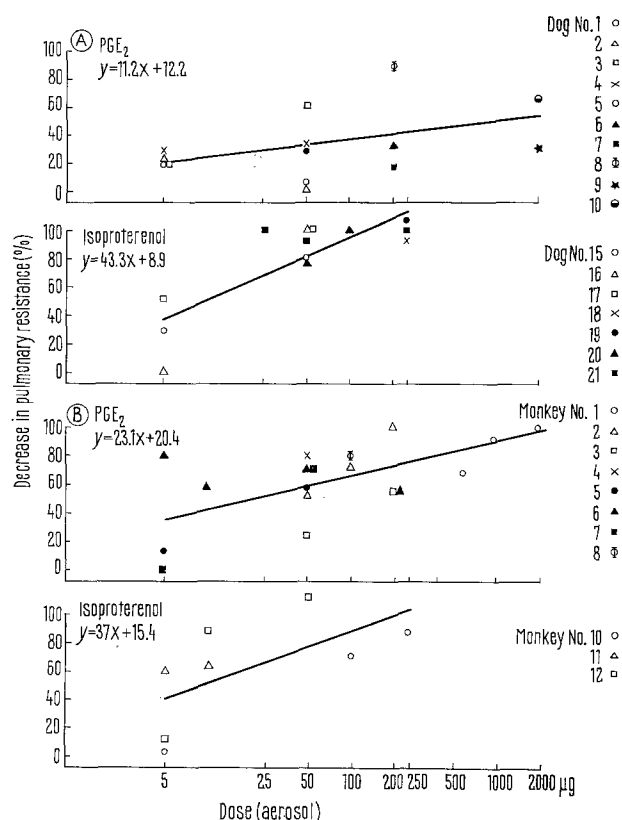


indicating that in the monkey PGE_2 is equivalent to isoproterenol in antagonizing this histamine-induced change. Pulmonary compliance was increased in a manner coincident to the decrease in pulmonary resistance. PGE_2 generally caused hypotensive effects of short duration in both dogs and monkeys. Pretreatment of monkeys with either propranolol, hexamethonium or atropine failed to prevent the bronchodilator effects of PGE_2 .



Antagonistic effects of PGE_2 and isoproterenol on histamine-induced increases in total lung resistance in the dog (A) and monkey (B).

These experiments demonstrate that PGE_2 has broncho-dilating properties when administered as an aerosol. They also indicate that marked species differences are characteristic of this compound; the bronchodilator properties were superior in the guinea-pig and monkey compared with the dog. A lack of naturally occurring PGE_2 in the dog lung could be important here⁷. The effectiveness of another of the prostaglandins, PGE_1 , when administered by aerosol has recently been described in guinea-pigs⁸ and humans⁹ and confirms our initial observations on PGE_2 . PGE_2 is a normal constituent of human lung tissue¹⁰ and can relax isolated human bronchial muscle^{11,12}. The potency, natural occurrence and rapid metabolism of the prostaglandins in the lungs of several species suggest a role for these substances both in the natural regulation of bronchial smooth muscle¹ and therapeutically as a bronchodilator aerosol.

Zusammenfassung. Es wird gezeigt, dass Prostaglandin in Aerosolform bei mehreren Arten als Bronchodilatator wirkt. Die Wirksamkeit, natürliches Vorkommen und schnelle Metabolisierung der Prostaglandine sprechen für eine therapeutische Verwendung als bronchodilatierende Aerosole.

M. E. ROSENTHALE, A. DERVINIS,
A. J. BEGANY, M. LAPIDUS
and M. I. GLUCKMAN

Department of Pharmacology and Biochemistry,
Wyeth Laboratories, Inc., P.O. Box 8299,
Philadelphia (Pennsylvania 19101, USA), 25 May 1970.

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Filamentous Structures in Normal Taste Bud

Many observations have been made concerning the existence of filamentous structures in different cell types¹, particularly in sensory receptors² and specifically in the taste bud³. The subject of the present note is in fact the summary description of the fine features of the filamentous structures present in the main cell types of the taste bud.

Materials and methods. Foliate papillae of adult male rabbits were fixed in glutaraldehyde and post-fixed in osmium according to the usual electron microscopic techniques.

Results and discussion. Filaments permeate the cytoplasm of the I and II type cells of the taste bud. Their diameter varies from 70 to 100 Å. They follow an irregular course often assembling as interweaving bundles in the perinuclear zone (Figure 1). The filaments are frequently situated near the plasma membrane taking part in the formation of intercellular junctional complexes of a desmosomal type⁴ (Figure 2): in fact they insert on the cytoplasmic side of both the thickenings of the plasma

membrane. Dense filamentous bundles can also be found within the processes of the type I cells (Figure 3). In the apical region of this cell type they become closely packed and parallel to each other occupying, besides the osmiophil granules and the centriole, the whole cytoplasmic matrix. Sometimes their cross-sections are clearly evident in the inside of the microvilli. In the type II cells, filaments interpose among the characteristic tubulo-vesicular profiles of the smooth endoplasmic reticulum, often accumulating around the lipid droplets (Figure 4). But they become most evident in the more advanced phases of the physiological degeneration of such a cell type: in fact this is subject to a continuous degenerative

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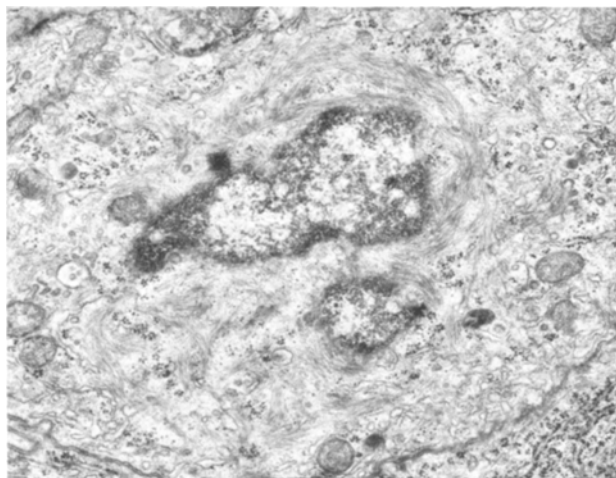


Fig. 1. Taste bud. Abundant bundles of filaments irregularly scattered throughout the cytoplasm of a type II cell of taste bud. Note that filaments are mostly localized in perinuclear zone. $\times 15,800$.

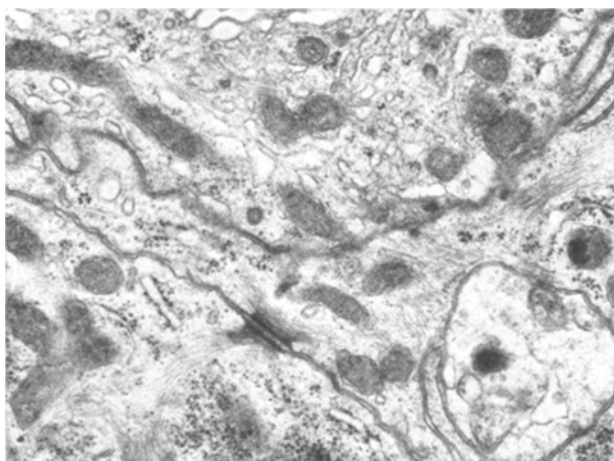


Fig. 2. Taste bud. An intercellular junctional complex of desmosomal type is visible: curvilinear filaments are inserted on both the cytoplasmic sides of the plasma membranes. Note the typical enlargement of the intercellular cleft. $\times 28,000$.

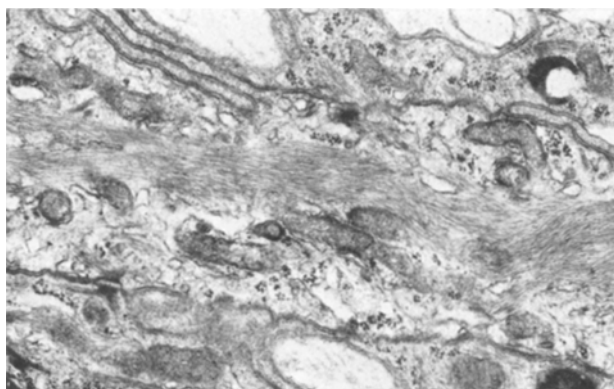


Fig. 3. Taste bud: type I cell. A tortuous bundle of filaments is shown in the inside of a narrow process of a type I cell. The bundle is oriented – as usually – parallel to the longitudinal axis of the process. $\times 28,000$.

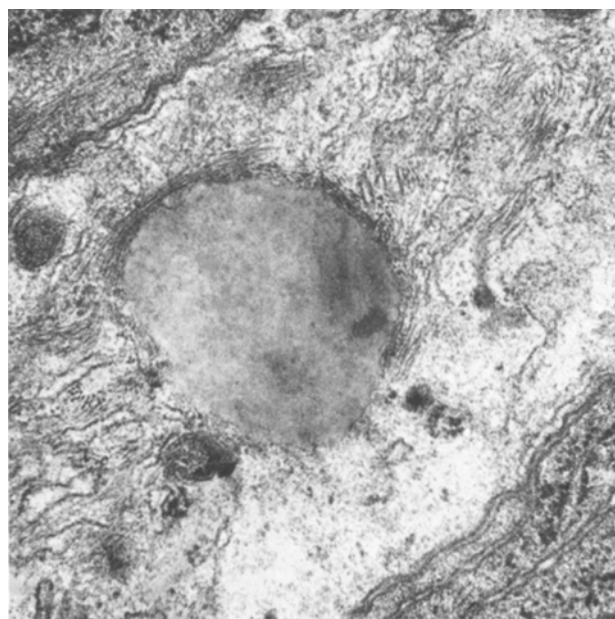


Fig. 4. Taste bud: type II cell. Filaments scattered all throughout the cytoplasm, are closely packed and condensed around the lipid droplet. $\times 30,000$.

process during the typical turnover of the taste bud⁵. The possibility of the existence of a periodic substructure along the longitudinal axis of filaments is now under investigation. Sometimes it is possible to find scattered microtubules in the cytoplasm of I and II type cells.

The function of filaments so richly present in the taste bud is unknown. It is possible, however that they may have a supporting function analogous to similar structures of other organs⁶. They could represent indeed a cytoskeleton useful to the maintenance of the shape of the taste bud. Their frequent insertion on the junctional intercellular complexes seems to confirm such a hypothesis, together with a role of intercellular connection. Furthermore the possibility that they may act as transducers of the taste impulse, similarly to other receptors⁷, cannot be ruled out. As far as microtubules are concerned, it must be emphasized the possibility of interconversion between filaments and microtubules under peculiar experimental conditions⁸.

Riassunto. Nella presente nota sono analizzate e brevemente discusse le caratteristiche submicroscopiche e distributive delle strutture filamentose presenti nei principali tipi cellulari del calice gustativo.

C. OLIVIERI SANGIACOMO⁹

*Centro per la Chimica dei Recettori del C.N.R.,
Istituto di Anatomia Umana Normale,
Università Cattolica, Via Pineta Sacchetti 644,
I-00168 Roma (Italy), 3 April 1970.*

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