Recently KENNEDY and DONAHUE[18] reported that human follicular oocytes resumed meiosis in F10, a defined medium in numbers comparable to that obtained in medium containing serum. Several simple Krebs-Ringer media also supported maturation, which suggested a similarity of nutritional requirements between human and mouse oocytes. In their experiment, the cumulus was stressed to be important for supplying unique substance to the oocytes.

In the majority of recently reported experiments concerned with fertilization, ovulated ova were used and there have been few reports on the capacity of ovarian follicular oocytes for fertilization. These problems are worthy of continued attention in the future, through the study of in vitro culture of human follicular oocytes[19].

Résumé. Des œufs oocytes humains obtenus des follicules d'ovaire extraits opérativement ont été cultivés in vitro pour étudier le processus de leur maturation.

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On the Equivalence between Dense Bodies and Z-Bands

The electron-microscope studies on vertebrate smooth muscle fibres have revealed the existence of the so-called dense bodies, but their chemical nature and the role they play in contraction are still unsolved problems. LOWY and HANSON[1] suggested, without experimental evidence however, that the dense bodies in vertebrate smooth muscle fibres might be structures similar to the Z-bands in the striated fibres. For the past years, some authors[2,3] seem to have favoured this assumption, and PANNER and HONIG[4] have proposed a hypothesis on the contraction mechanism of the smooth fibres based on the analogy between the dense bodies and the Z-bands. This communication describes a dissimilar behaviour of dense bodies and Z-bands after urea extraction or extraction of actomyosin. Therefore it is suggested that dense bodies and Z-bands are not equivalent structures.

Material and methods. The muscle specimens were obtained from the normal human myometrium and from the rabbit psoas and glycerinated in the usual manner for at least 30 days before use. Some smooth and striated muscle bundles were extracted at 2 °C with a solution containing 3 *M* urea, for 1 h, according to the method described by RASH et al.[5]. Some other smooth and striated muscle bundles were extracted for 48 h with the Weber-Edsall solution, which is well-known for the removal of actomyosin. After extraction the specimens were fixed either in glutaraldehyde followed by post-fixation in buffered osmium teroxide or in the osmium fixative alone and embedded in Epon. Ultra-thin sections were stained with uranyl acetate and lead citrate and were examined in a Zeiss EM9A electron microscope.

Results. Exposure of striated fibres to 3 *M* urea, for 1 h, resulted in a complete extraction of Z-bands (Figure 1) as observed by RASH et al.[5]. Contrarywise, the urea treatment of the smooth fibres under exactly the same conditions does not effect the removal of the dense bodies (Figure 2).

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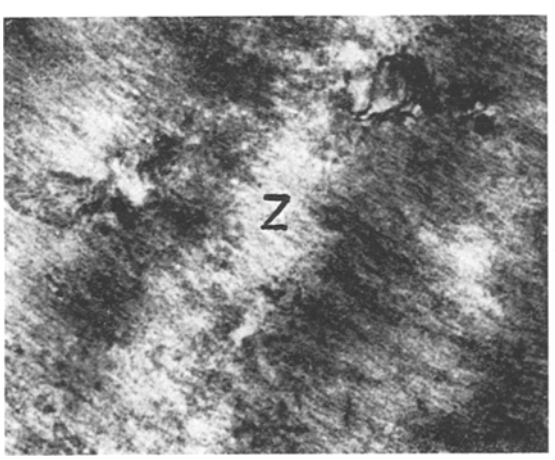

Fig. 1. Extraction of rabbit psoas using 3 *M* urea (1 h). Z-bands (Z) were completely removed. × 30,000.

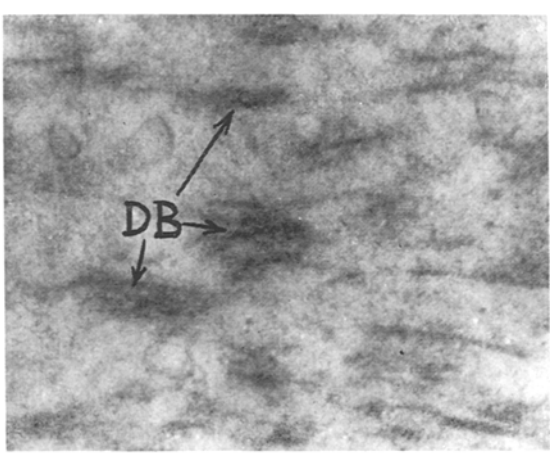

Fig. 2. Extraction of uterine smooth muscle using 3 *M* urea (1 h). Dense bodies (DB) are present. × 25,000.

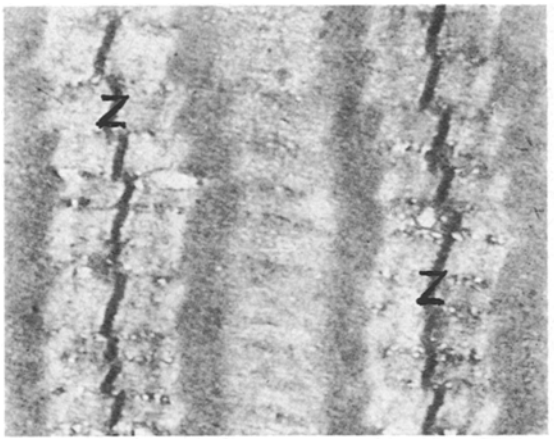

Fig. 3. Extraction of rabbit psoas with Weber-Edsall solution (48 h). Z-bands (Z) are easily distinguishable. × 25,000.

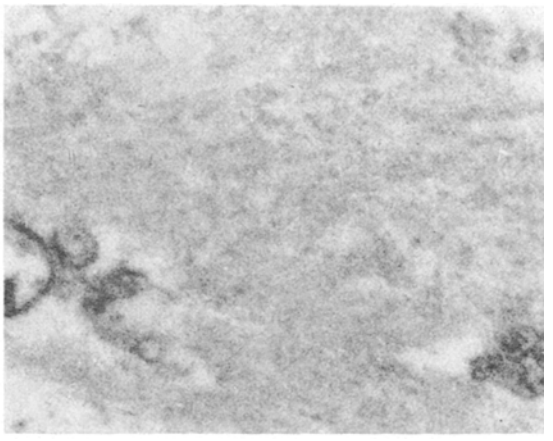

Fig. 4. Extraction of uterine smooth muscle with Weber-Edsall solution (48 h). Dense bodies were completely removed. × 25,000.

After 48 h extraction with Weber-Edsall solution, the Z-bands are present in the striated fibres (Figure 3), whereas in the smooth ones the dense bodies have completely disappeared (Figure 4).

Discussion. The entirely dissimilar behaviour of the dense bodies and Z-bands, not only after the urea extraction but also after the extraction of actomyosin, provides sufficient evidence to conclude that the dense bodies differ significantly from the Z-band material. The lack of similarity between dense bodies and Z-bands is also supported by other observations: the dense bodies number varies with the functional state of smooth muscle fibres[6–10] and myosin is localized at the level of the dense bodies[11]. Therefore, the dense bodies in vertebrate smooth muscle fibres and Z-bands in striated fibres cannot be regarded as equivalent structures.

Zusammenfassung. Die Extraktion von glatten und quergestreiften Muskelfasern mit 3 *M* Urea und Weber-Edsall-Lösung zeigt, dass die Reaktion der sogenannten «dichten Körper» und Z-Streifen eine ganz verschiedene ist. Deshalb kann die Struktur der «dichten Körper» und diejenige der Z-Streifen nicht als identische betrachtet werden.

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Occurrence of a Characteristic Nucleolar Structure in Pachytene Cells

The light microscope had already revealed to us the morphological heterogeneity of the nucleolus. A large number of authors mention the existence of empty spaces or vacuoles inside the nucleoli of plants and animals[1–11]. The use of a particular staining technique[9,12] (fixing in 10% formol and staining with 0.2% basic fuchsin) enabled us to observe a characteristic nucleolar structure in pachytene meiocytes from the anthers of *Allium cepa*. This structure was observed in all the nucleoli from the meiocytes studied during the stage in question and it consists of a small ring or button-like formation between 0.5 and 1.5 μm in diameter, which stains intensely with the basic fuchsin (Figures 1–2). Thick sections (about 0.5–1 μm) of pachytene anthers fixed in glutaraldehyde and osmium tetroxide, also show this circular structure (Figure 3). We have not been able to observe this structure at other stages of meiosis.

The presence of only one of these formations in each nucleolus is the most frequently observed phenomenon, but in exceptional cases as many as 3 formations of this type have been found in one nucleolus. The ring or button appears quite distinctly and clear-cut and stains homogeneously, or with an unstained area of different dimensions inside the formation and concentric with it. This

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