

3-Dimensional structure studies on the rhabdomeres formation of *Drosophila melanogaster*.

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The 3-dimensional structure can be acquired by electron tomography from high voltage electron microscope. For observation on the formation of rhabdomere in natural conditions, we reconstructed 3-dimensional structure of the retina fixed by high pressure freezer.

During eye development of *Drosophila melanogaster*, late pupal stage is a period to form rhabdomeres. In this stage, the transfer of membranes, actins, and rhodopsins was observed from secondary pigment cells to rhabdomeres through at least three vesicles. These data suggest that the rhabdomere is made of membranes, actins and amorphous materials transferred by these vesicles.

Patterns of rhabdomeres were characterized as three types by 3-dimensional reconstruction. These types are rhabdomeres' hexagonal array at various angles, rhabdomeres consisted of several layer, and dense membrane infoldings into cytoplasm. These results suggest that the components of rhabdomeres gather by order after formation of each part.

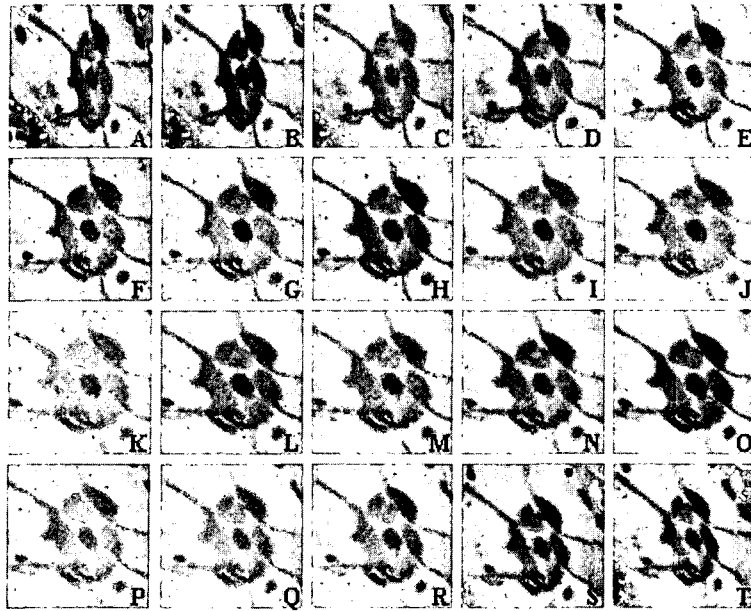


Figure 1. The ommatidia of pupa. The tilting images at 6°interval are arranged from A to T.

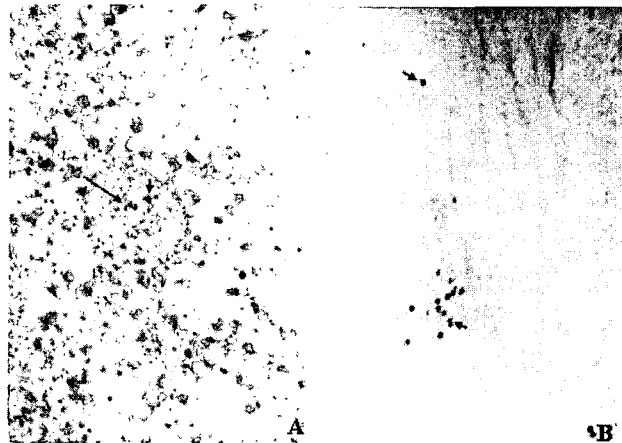


Figure 2. The localization of actin and rhodopsin by the immuno-reactivity. (A) The actin in a vesicle. (B) The actin and rhodopsin in the rhabdomere. The arrows indicate the actin the arrow heads indicate the rhodopsin.

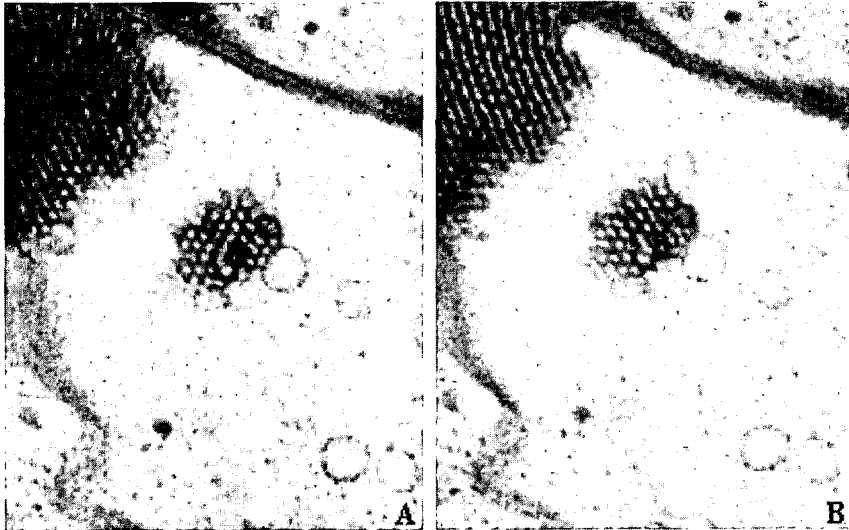


Figure 3. The stereo-images. (A) -8 degree (B) +8 degree.



Figure 4. The stereo-images. (A) -8 degree (B) +8 degree.

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