Kuroda, Y. National Institute of Genetics, Misima, Japan. Fibroblastic cells derived from pupal ovary of D. melanogaster in culture.

Slightly modified and supplemented with 0.1 mg/ml fetuin, 5 mg/ml peptone and 15% fetal bovine serum.

After several hours of cultivation, many fibroblastic cells came out from the cut end of ovarian fragments explanted, and stretched their cytoplasm on the surface of culture flasks. They increased gradually in number in further cultivation and formed a network around the original explants after 24 hours of cultivation (Fig. 1). Mitotic figures were frequently observed. Under a phase microscope, some small granules were observed in the cytoplasm and one or two nucleoli were found in the nucleus. From their morphology and behavior, these fibroblastic cells seem to be derived from the lumen cells in the ovarian cavity.

Fig. 1. Fibroblastic cells derived from a pupal ovarian fragment. After 24 hours of cultivation. Phase. x 540.

Fig. 2. Fibroblastic cells derived from an embryonic fragment. After 24 hours of cultivation. Phase. x 540.

Fig. 3. Slender spindle-shaped cells derived from another embryonic fragment. After 24 hours of cultivation. Phase. x 540.

Of interest is the finding that the fibroblastic cells derived from ovarian fragments were very similar in morphology to one type of cells derived from embryonic fragments (Fig. 2). Among several types of cells derived from fragments of 12-hour embryos, two types of cells were predominantly observed under the culture conditions employed: the fibroblastic cells and more slender spindle-shaped cells (Fig. 3).

Some insect cell lines established by Grace (3,4) were derived from ovarian tissues of Antheraea eucalpti and Bombyx mori. Although it is uncertain that Grace's cell lines originated from the same type of cells in the ovary as the fibroblastic cells observed in the present study, these fibroblastic cells may have some advantage in growing under in vitro culture conditions.