Cleavage and Cell Movement in the Early Development of Marinogammarus finmarchicus

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Utilizing the techniques of vital staining and the selective destruction of blastomeres, cleavage and cell movement in the early embryology of *M. finmarchicus* were studied. Cleavage is holoblastic, unequal and determinate. The first two cleavages are meridional and the third latitudinal. The eight cell stage consists of four unequal micromeres and four unequal macromeres. The fourth cleavage is meridional and the fifth latitudinal. At approximately 32 cells, ingression of certain macromeres and micromeres occurs. Eleven of the cells on the surface at the 32 cell stage are beneath the surface at the completion of the ingression. The subsequent role of these cells is unknown. The yolk-free cells which form the ventral shield aggregate on the macromere side of the egg. Destruction of the macromeres at the eight cell stage results in absence of cells characteristic of the ventral shield. However, following destruction of the micromeres at the same stage, the appearance and aggregation of ventral shield cells takes place at the same time as in unoperated controls indicating that the majority of the cells of the ventral shield are the progeny of macromeres. Further observations concerning the formation of the ventral shield were made.

Photodynamic Action of Toluidine Blue on Sperm and Eggs of Echinarachnius parma

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A study was made of photodynamic action of toluidine blue on sperm and eggs of *Echinarachnius parma*. Sperm were placed into 1.1×10^{-7}M toluidine blue in sea water (15° C) and exposed to a 250 watt lamp at 15 in. from 2-30 minutes. Such treated sperm when used to fertilize normal eggs caused an increase of the interval of fertilization to first cleavage. Subsequent cleavages were not affected. This delay in cleavage was proportional to the length of exposure of the dye+sperm to the light and did not occur when the dye+sperm were kept in darkness for comparable periods. Concentrations of the dye greater than 1.6×10^{-5}M were toxic to the sperm.

Eggs were treated with 1.63×10^{-5}M toluidine blue in sea water for

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30 minutes in the dark, then exposed to light (same as above or sunlight) for 3, 6, and 10 minutes. Eggs handled in this manner for 3 min. during the prefertilization period exhibited a non-specific delay in development after fertilization with normal sperm. However, exposures of 6 min. prevented the lifting of fertilization membranes on about 50% of the eggs, of which about half would cleave. The remaining 50% developed but slower than normal. Of those eggs exposed for 10 min. only about 3% would lift fertilization membranes, but about 10% would cleave to the 8 cell stage. Blister cytolysis would begin about 30 min. after the exposure to light. If eggs had been fertilized previous to the treatment the above effects were not noted, except for the blister cytolysis. Neither would eggs+dye for comparable periods in darkness produce deleterious effects.

In a comparison of photodynamic action with the effects of ultraviolet radiation as described by Blum et. al. (J. Gen. Physiol., 37, 1954), five common effects were noted, namely; cytolysis, cleavage delay, fixation of the membrane, inactivation of sperm, and destruction of jelly membrane.

Growth Inhibition of Mouse Sarcoma 180 in Tissue Cultures Containing Plasma from Chickens Injected with Tumor Homogenates, and the Effects on the Tumor of Previous Passage on the Chorioallantoic Membrane of the Chick*

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White Leghorn and New Hampshire Red cockerels were injected intravenously with 7 to 20 percent homogenates of mouse Sarcoma 180 which had been carried in albino mouse hosts. The birds were bled by cardiac puncture 8 days after injection to provide serum for precipitin tests and plasma for tissue culture preparations. The antisera showed low (1:2, 1:4) interfacial titers in reaction with dilute solutions of the injection antigen.

Explants of Sarcoma 180 from host mice, and similar explants of tumor which had undergone two or more passages on the chorioallantoic membrane of the chick embryo, were cultured in sterile hanging-drop plasma clots (50 percent plasma; 50 percent embryonic extract) prepared from plasmas of both immunized and normal birds. Cultures of tumor

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