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ROLE OF CALCIUM IONS IN POLAR LOBE FORMATION BY FERTILIZED EGGS OF *Ilyanassa obsoleta*

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Previous work has suggested that normal polar lobe formation occurs as a result of the contraction of an equatorially-arranged band of microfilaments subsequent to the release of Ca^{+2} from intracellular pools (Conrad, G. W., and D. C. Williams, Devel. Biol. 37: 280-294, 1974). Resorption of polar lobes is presumed to result when intracellular Ca^{+2} is resequestered. The purpose of the present work was to test a portion of this theory by determining the effects of cations and ionophores on cell shape.

Ilyanassa obsoleta (*Nassarius obsoletus*) was collected on the northeast side of Thompson Island and kept in running sea water aquaria at MDIBL. Egg capsules were collected from the side of the aquarium each day and opened with iris scissors. The eggs, which developed synchronously within a single capsule (30-300 eggs/capsule), were suspended in sea water and kept in plastic petri dishes on a running sea water table in the laboratory. Under these conditions the eggs develop normally at temperatures below 25°C. Observations of living eggs were made with an inverted phase microscope over a period of two to three hours.

Spherical fertilized eggs of this marine mudsnail all quickly form large blebs which greatly resemble normal polar lobes upon exposure to solutions of isotonic $CaCl_2$. Exposure of eggs to isotonic $SrCl_2$ also causes blebs to form, but more slowly and with lower frequency than with $CaCl_2$; Isotonic $BaCl_2$ causes even fewer eggs to form blebs. Eggs exposed to isotonic

$LaCl_3$ (as well as to isotonic $MgCl_2$ or $MnCl_2$) remain spherical. Thus blebbing of the egg surface is a phenomenon which occurs preferentially but not exclusively in response to high concentrations of exogenous Ca^{+2}. Exposure of spherical eggs to the histamine liberator, 48/80 (0.1-10 mg/ml), causes up to 50 percent of the eggs to form a single large bleb which greatly resembles a normal polar lobe. Treatment of spherical eggs with the divalent cation ionophores, X537A (25-125 µg/ml) or A23187 (10-30 µg/ml) causes almost all of the eggs to form a polar lobe on the vegetal hemisphere, although the lobe neck is not as tightly constricted as after treatment with 48/80. Roughly similar blebs form on eggs even when the three drugs are administered in Ca^{+2}-, Mg^{+2}-free sea water containing 10 mM EDTA. The eggs of *Ilyanassa* may resemble those of *Xenopus* (Baker, P. F., and A. E. Warner, J. Cell Biol. 53: 579-581, 1972) and *Rana* (Schroeder, T. E., and D. L. Strickland, Exp. Cell Res. 83: 139-142, 1974) in being impermeable to exogenous EDTA. The results therefore are consistent with a possible role for intracellular Ca^{+2} in control of cell shape.

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FINE STRUCTURE OF LIVER IN THE SKATE, *Raja erinacea*

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Separately (Bulletin MDIBL 12 and 13, 1972 and 1973, and this Bulletin) J. Boyer et al. have reported on bile production in the little skate. In preparations of the perfused liver the rate of bile production rises with the perfusion pressure. Electron micrographic findings on the bile