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## LACK OF EFFECT OF ALDOSTERONE[1] ON THE RECTAL GLAND OF THE SPINY DOGFISH, Squalus acanthias

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The mechanism whereby the rectal gland is stimulated to secrete is unknown, but apparently is not nervous. Single intra-arterial doses of 200 and 800 micrograms of aldosterone in a 5 kg dogfish did not stimulate a rectal gland secreting at a low rate, and did not inhibit a rectal gland secreting at a high rate. Injected sodium chloride, however, produced a characteristic increase in secretion, showing that failure of the gland to respond to aldosterone was not due to a debility within the gland itself.

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## CERTAIN ASPECTS OF THE EXCRETION OF PHENOL RED, INULIN $Mg^{++}$ AND $Ca^{++}$ BY THE HAGFISH, M. glutinosa*

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Little is known concerning excretory patterns of the primitive marine cyclostome M. glutinosa. We have studied the excretion of inulin, phenol red, $Mg^{++}$ and $Ca^{++}$ into the urine and, of the last 3 ions, into the bile of the hagfish. The results clearly indicate that the bile may be an important excretory pathway in this animal.

### MATERIALS AND METHODS

Hagfish were caught in Frenchmen Bay in approximately 200 ft. of water in traps. They were then transferred to aquaria with rapidly running sea water (temp. 13-15°C) and used as soon as possible.

The fish were anesthetized with Tricaine® (MS222) 2 g/liter in sea water, and the following samples taken in rapid sequence before the animal was sacrificed. A ventral abdominal incision was first made and the gut was ligated at the cloaca. Urine was obtained by aspiration from the cloaca after gentle stripping of both ureteral ducts. Blood was obtained by direct puncture, with a sharp needle and heparinized syringe, of the dorsal aorta. With patience, 2.5 ml of hemolysis free blood could be obtained from 100 gm fish. Bile was taken by puncture of the gall bladder.

Phenol red in sea water (2-4 mgm in 1 ml) was given subcutaneously. Phenol red in urine, bile, and plasma was estimated by a spectrophotometer or by direct comparison of standards of known concentration. Tris buffer, pH 8.4, was used to dilute all samples for the spectrophotometer. $NH_4OH$ vapors were blown across the surface of certain samples which were too small and

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