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Phosphatase Activity of Selected Tissues

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1. Non-calcareous connective tissues of a variety of invertebrates were examined for phosphatase activity. The aim of the investigation was to locate sites of phosphatase of sufficiently high activity to permit characterization of the enzymes associated with differing chemical types of connective tissue. Tunicates were examined in particular. The enzymatic activities which were found in appropriate tissues were not adequate for the proposed study.

2. The view that alkaline phosphatase in the kidney is primarily related to glucose absorption has been in part supported by the reported absence of the enzyme from the aglomerular toad-fish **opsanus tau**. Accordingly the enzyme should be absent or greatly diminished in older specimens of the daddy sculpin. By histochemical staining methods there was found to be an abundance of alkaline phosphatase in specimens which were physiologically and histologically aglomerular. This confirms the recent findings of Browne, Pitts and Pitts (Biol. Bull. #99) that aglomerular forms including **opsanus** possess this enzyme in the tubules. Long-horn sculpins appeared however to have more enzyme and also to show positive reactions in the collecting tubules. Quantitative assay of relative amounts of enzyme in the two species is incomplete.

In the dogfish, tubular phosphatase was rapidly eliminated upon perfusion of the kidney with elasmobranch saline. In the rabbit, prolonged perfusion with saline has little effect on the phosphatase content.

Regeneration in Clava leptostyla Agassiz

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Preliminary experiments on regeneration in **Clava leptostyla** Agassiz revealed that two kinds of regenerative response should be distinguished: (1) primary regeneration, the differentiation of hypostome and tentacles at the distal end, usually within a week after isolating pieces of the stalk of individual hydranths; (2) secondary regeneration, the delayed differentiation of new hydranths from attached hydro-