Potassium Transport by Kidney Slices of Lophius americanus

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The convenience of tissue slice techniques has led to their extensive use in studies on renal transport mechanisms. As a contribution to the question of how significant some of these studies may be for an understanding of renal function in vivo, the transport of K was compared in kidney slices of mammals and of Lophius americanus. The latter does not actively secrete K in the urine even after administration of large amounts of KC1 (Forster, private communication). Kidney slices from Lophius were studied by the method of Mudge (Am. J. Physiol. 167:206, 1951). The slices were rendered K-deficient by exposure to ice cold saline, and then incubated at 16°C in 95% O2, 5% CO2 for 1 hour in a balanced salt solution (Medium F, see Forster, R. P. and Taggart, J. V., J. Cell. Comp. Physiol. 36:251, 1950) containing PAH (0.075 mM) and Na acetate (20 mM). In preliminary experiments K and PAH were observed to accumulate in the slices. The K content of the tissue rose from an average of 56 micromoles/gm. before incubation to 87 micromoles/gm. after incubation. This K uptake apparently does not represent the activity of an over-all secretory mechanism directly involved in urine formation. It appears therefore that such slice experiments measure only intracellular accumulation of K, and not its secretion into the lumen of the tubule.

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Antennal Contact Chemoreception in the Wood Nymph Butterfly, Cercyonis Pegala

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The wood nymph butterfly, *Cercyonis pegala*, possesses contact chemoreceptors sensitive at least to sucrose and NaCl on the tarsi of both functional pairs of legs and on the distal part of the proboscis. Earlier tests indicated that no receptors were present on the antennae. This was found to be true, however, only if most of the tarsal receptors were present. If all the tarsal receptors were removed, the insects exhibited clear-cut evidence of antennal reception, dropping the proboscis when the antennal clubs were stimulated with sucrose solution. A quantitative study was made of the relationship between the number of tarsal receptors present and the degree of response on antennal stimulation. The percentage of response rose from about 10% when all the tarsal receptors were present to about 75% when all were removed, with a reasonably direct relationship