

Sodium transport inhibition by selective mitochondrial inhibitors in the urinary bladder of the toad

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The effects of selective mitochondrial inhibitors on the short-circuit current and oxygen consumption displayed by the isolated urinary bladder of the toad was studied. Three types of compounds were used: (a) electron transfer inhibitors, Amytal, Cyanide and Antimycin A; (b) energy transfer inhibitors Guanidine, Oligomycin and Rutamycin; and (c) uncoupling agents, Carbonyl cyanide *m*-chlorophenylhydrazone and 2,4 dinitrophenol. The kinetics of inhibition of oxygen consumption indicated that the inhibitors tested were effectively reaching the mitochondria of the bladder cells. Different kinetics of inhibition of short-circuit current were obtained with the various inhibitors tested. Uncouplers and electron transfer inhibitors rapidly blocked the short-circuit current; energy transfer inhibitors only produced a slow and partial inhibition. A site of energy-coupling, tentatively identified with the intermediate formed in the energy transfer reactions closest to the electron transfer chain,