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SECRETORY RESPONSES TO OUABAIN AND TO LOW Na⁺
ENVIRONMENT IN THE ISOLATED PERFUSED
PANCREAS OF GUINEA PIGS

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Secretory responses to ouabain and to low Na⁺ environment have been demonstrated and examined in the isolated perfused pancreas of guinea pigs. Ouabain, ranging from 10⁻⁶M to 10⁻⁴M, produced dose-dependent secretory responses (pancreatic juice flow and protein output). The responses to 10⁻⁵M ouabain were completely abolished in Ca⁺⁺ deficient environment. The responses to 10⁻⁵M or 10⁻⁴M ouabain remained almost unchanged after atropinization (2x10⁻⁶M). Lowering external Na⁺ concentration from the control (156mM) to 25mM, 50mM, or 100mM induced the secretory responses. The responses to 25mM Na⁺ were nullified after the removal of external Ca⁺⁺. The responses were decreased to about one half after atropinization (2x10⁻⁶M). The present results are compatible with the view that a major portion of the secretory responses to ouabain and to low Na⁺ environment may be mediated by the release of acetylcholine and other transmitters from the intrinsic nerve endings distributed to the exocrine pancreas of guinea pigs.