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EUTROPHIC EFFECTS OF ENDOGENOUS CCK ON DIGESTIVE
ENZYMES IN THE RAT PANCREAS

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The present study was carried out to elucidate the eutrophic effects of endogenous CCK on the rat pancreas. In order to eliminate the influence of endogenous CCK on the pancreas, a potent peripheral CCK antagonist, L-364,718 (1mg/kg b. w.), was orally administered every 8 hours for one week. Pancreatic juice in the resting and CCK-8- or bombesin-stimulated state was collected from the *in situ* pancreas of the anesthetized rat. The activities of three digestive enzymes (amylase, trypsinogen, and chymotrypsinogen) in the pancreatic juice, as well as in the pancreatic tissue, were measured. To the control rat, only the vehicle was administered.

In the normal (non-treated) rat, the following results were obtained. Specific activities (units per mg protein) of trypsinogen and chymotrypsinogen in the pancreatic juice were increased by a bolus *i. v.* injection of CCK-8 (5pmol/kg b. w.). Specific activity of amylase in the pancreatic juice, however, remained almost unchanged in the presence and absence of the secretagogue. Similar changes were caused by a bolus *i. v.* injection of bombesin (3pmol/kg b. w.), in terms of protein and enzyme secretion.

In the L-364,718-administered rat, the following results were obtained. Wet weight and trypsinogen content of the pancreatic tissue were decreased, compared with the control rat, whereas amylase content was increased. Chymotrypsinogen content was not changed. The secretory percentage (activity of the enzyme released per total activity of the enzyme in the pancreas) of each enzyme was not altered in the resting state. Bombesin-induced protein secretion was almost unchanged. Specific activity of amylase in the pancreatic juice was decreased by a bolus *i. v.* injection of bombesin (3pmol/kg b. w.). Specific activity of trypsinogen was not raised by a bolus *i. v.* injection of bombesin (3pmol/kg b. w.).

These results show that endogenous CCK has eutrophic effects on the rat pancreas: it stimulates the normal pancreas growth, maintains the normal pancreas enzyme content, and may play a role in maintaining the normal secretion of trypsinogen.