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**THE ENHANCEMENT OF THE SECRETORY EFFECT
OF PANCREOZYMIN INDUCED BY ADDING RED
BLOOD CELLS TO A MEDIUM PERFUSING
THE ISOLATED RAT PANCREAS**

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1) Experiments were carried out on perfused rat pancreata to study the influence of adding red blood cells to a perfusing medium on the secretory effect of pancreozymin (Pz).

2) When the isolated pancreas was perfused with standard Krebs-Henseleit solution, an amylase release due to continuous stimulation with Pz promptly increased and was followed markedly by gradual decline.

3) The addition of red blood cells to the perfusing medium (4%) caused the significant enhancement of the effect of Pz: the secretory response of the pancreas produced by Pz was enhanced to 2.6 times as much as the control response maintaining the enhanced level. The effect of Pz was reduced by the diminution of oxygen content of the perfusing medium, and the reduction of the effect was recovered by the reintroduction of oxygen to the perfusing medium.

4) It is thus concluded that the increase of the oxygen supply by adding red blood cells to the perfusing medium enhances the secretory effect of Pz. The importance of energy supply for the 'stimulus-secretion coupling' of the exocrine pancreas was discussed comparing with that of the adrenal medulla.

LOCATION OF N-ACETYL PEPTIDE IN MYOSIN MOLECULE

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On terminal amino acid in a myosin molecule, only traces of N-terminal amino acid have detected by the fluorodinitrobenzene method and the cyanate method. However, OFFER (1964, 1965) has clarified that myosin (molecular weight 6.0×10^5) has two or more blocked N-terminal amino acid residues having a sequence of N-acetyl-Ser-Ser-Asp-Ala-Asp. There arises the following questions:

whether the N-acetyl peptide is located in the heavy chain or in the light chain; and whether it is situated in the head or the tail of the myosin molecule.

The heavy chain, light chain and heavy meromyosin were digested by pronase, respectively. The acetyl group was determined on an acidic peptides fraction isolated by passing the pronase digest through a cation exchange resin, and the acetyl peptide was purified by chromatography on an anion exchange resin and on thin layers.

On the acidic peptides fraction, 0.96 moles of acetyl group per 2.0×10^5 of heavy chain and 1.86 moles of acetyl group per 3.4×10^5 of heavy meromyosin were determined, respectively. On the other hand, the determination failed to reveal any acetyl group in the acidic peptides fraction of light chain.

On purified N-acetyl peptide, N-acetyl-Ser-Ser-Asp-Ala-Asp, 0.30 moles of the peptide per 2.0×10^5 of heavy chain and 0.25 moles of the peptide per 3.4×10^5 of heavy meromyosin were isolated, respectively. Calculating the yield to take isolation losses of the peptide in purification procedures, the yield of the peptide corresponded to 0.83 moles per 2.0×10^5 of heavy chain and 0.78 moles per 3.4×10^5 of heavy meromyosin, respectively. These results strongly suggest that N-acetyl-Ser-Ser-Asp-Ala-Asp is located in the heavy chain and is situated in the head of myosin molecule.

CHOLECYSTOKININ-PANCREOZYMIN-LIKE EFFECT INDUCED BY INTRA-INTESTINAL ADMINISTRATION OF TRYPSIN INHIBITORS

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1) The effects of synthetic trypsin inhibitors (TIs) on exocrine pancreatic secretion were investigated in anaesthetized rats.

2) Intra-intestinal administration of *p*-aminobenzamidine (*p*-ABA), a synthetic TI, caused a biphasic effect on exocrine pancreatic secretion; a marked increase in protein output to about 11 times as much as the control level accompanying a parallel increase in juice flow in the initial phase, and gradual decline in protein output maintaining the enhanced flow rate in the latter phase. Similar effects were also observed by another synthetic TI, *p*-ethoxycarbonyl-phenyl- ϵ -guanidinocaproate phosphate.

3) The initial phase of pancreatic response was diminished after flushing