THE ROLE OF OXYTOCIN IN THE MALE

by

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SUMMARY

Preliminary experiments in which homogenates of bovine epididymis and vas deferens were subjected to Gel-filtration on Sephadex G-25 yielded protein fractions which showed an ability to bind oxytocin.

The crude protein obtained from both organs were further purified by ion-exchange chromatography using CM-cellulose, precipitation with ammonium sulphate and finally by hydrophobic interaction chromatography using Phenyl-Sepharose CL-4B. The ability to bind oxytocin was monitored at each stage of purification.

The partially purified epididymis protein fraction obtained by precipitation with 30-90 per cent ammonium sulphate when applied to Phenyl-Sepharose CL-4B yielded six peaks, of which only the first peak showed an ability to bind oxytocin. This protein was demonstrated to have a molecular weight of 15,200 by electrophoresis on SDS polyacrylamide gel and an isoelectric point of 5.3. Antibody to this protein was produced in the rabbit.

The immunoglobulins obtained from the rabbit antiserum were conjugated with fluorescein-isothiocyanate and utilized for fluorescent protein tracing on frozen sections of the epididymis, vas deferens and on control sections from skeletal muscle and liver. These experiments revealed that the oxytocin binding protein was localized in the trabeculae of the bovine epididymis.

While equivocal results were obtained in the experiments to test for binding of oxytocin by the semi-purified protein from the vas deferens, immuno-fluorescence microscopy with the rabbit antiserum against the purified epididymial protein failed to reveal the intracellular localization of an oxytocin binding protein in the vas deferens.

The results seem to justify the conclusion that the epididymis is a target organ for the action of oxytocin in the male reproductive tract.