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The Use of Dialysis for the Preparation of Enterogastrone

Preliminary Communication

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The mechanism for the regulation of the gastric secretion is still in many respects unexplained in spite of a good deal of intensive studies. It is known that enterogastrone is a factor which inhibits the secretion of gastric juice. This factor is obtained from the first 2 m of the upper part of the small intestine of the swine. A method for its preparation has been worked out by Ivy and his collaborators[1]. Only very incomplete data concerning the chemical nature of the enterogastrone are available. Inactivation of enterogastrone by pepsine indicates that it may be of a protein nature. Urogastrone has a physiological effect which is similar to that of enterogastrone. It derives its name from the fact that it may be obtained from human or animal urine. Urogastrone, however, is not inactivated by pepsine. Gray *et al.*[2] have claimed that urogastrone is a complex organic base. According to the literature, urogastrone inhibits the gastric secretion in considerably smaller doses than does enterogastrone.

For the last years the author has worked on the preparation of urogastrone and enterogastrone. For the preparation of enterogastrone Ivy's method has been used. As the results have varied and the preparations often have been inactive, some attempts have been made to improve the procedure. By the improvements it has been possible to obtain consistently a enterogastrone preparation of a high activity.

Dialysis is an essential step of the method. Enterogastrone has proved to be dialysable through a cellophane membrane. By this new method we obtained a yield of ca. 10 mg of substance per 2 m of intestine. 25 mg of the preparation inhibit very strongly the gastric secretion in the dog. Several inactive preparations, which had been prepared according to Ivy's method, could be activated and purified by dialysis. However, by this procedure

only fairly small amounts of active material were obtained. Thus in one case we obtained 1.76 g of active preparation from 18 g of inactive material. The new method will be published in its details later on.

One of the difficulties in the preparation of enterogastrone results from the fact that the mucosa contains substances which stimulate the secretion of gastric juice. According to Harper [3] they do not dialyse through a cellophane membrane. Thus dialysation is a good method for the separation of the stimulatory substances of high molecular weight from the inhibitory substances of low molecular weight.

The reported investigation has been performed in collaboration with Dr. Karl Johan Öbrink, *Fysiologiska Institutionen*, Uppsala, who has carried out the activity determinations and the investigations of the physiological effect of the preparations.

REFERENCES

1. Greengard, H., Atkinson, A. J., Grossman, M. I., and Ivy, A. C. *Gastroenterology* **7** (1946) 625.
2. Gray, J. S., Wieczorowski, E., Wells, J. A., and Harris, S. C. *Endocrinology* **30** (1942) 129.
3. Harper, A. A. *J. Physiol.* **105** (1946) 31P.

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