12086 P

Vasopressin Secretion by Cells of Hypophyseal Floor of Diencephalon Shown by Transplantation.*

RAYMOND F. BLOUNT.

From the Department of Anatomy, University of Minnesota.

Since it is well established that vasopressin is produced by the neural portion of the hypophysis it is of interest to know when secretion starts and by what cells it is first produced. The derivatives of the infundibular process in the amphibian may be divided into the saccular wall, the lateral processes, the hypophyseal floor and the pars nervosa proper. Hormone production is usually attributed either to nerve endings or to pituicytes. It has been pointed out that secretion in tissue cultures of the posterior lobe by Geiling and Lewis[1] can not be attributed to nerve endings since they would have degenerated in such cultures. Similarly, nerve endings are eliminated in transplantations, which we[2] have made of the hypophysis in urodele embryos for they often do not have specific nerve connections but nevertheless secrete vasopressin.

The present experiments deal with the transplantation of the epithelial rudiment of the hypophysis together with the adjacent floor of the diencephalon but with no other components of the brain. For this work embryos of *Ambystoma maculatum* have been used at about Harrison's stage 31. The grafts were placed above and posterior to the pronephros in hosts of the same age. These transplants give rise to a vesicular pars sacculosa and the hypophyseal floor adjacent to the pars intermedia of the epithelial portion. These experiments and earlier ones[2] show that the vasopressin first appears about stage 43. This is indicated by vasoconstriction in animals carrying additional hypophyses as transplants and by vasodilation in hypophysectomized animals. Later, at about stage 45, correlated growth differences appear in which the gills are short and the tail fin narrow.[3] At these early stages there is, in the normal animal, no neuropilum beneath the hypophyseal floor and the pars nervosa proper has not yet developed. A similar situation is present in the transplants above described. Certainly it is unlikely that the

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1 Geiling, E. M. K., and Lewis, M. R., *Am. J. Physiol.*, 1935, **113**, 534.

2 Blount, R. F., *J. Exp. Zool.*, 1935, **71**, 421.

3 Blount, R. F., *J. Exp. Zool.*, 1935, **70**, 131.

squamous ependyma of the sacular wall of the infundibulum is secreting hormones. This places the responsibility for vasopressin secretion at this age upon the cells of the hypophyseal floor which are columnar and have considerable cytoplasm.

It is interesting that pituicytes, most frequently given the function of secretion, are thought to be derived from the ependyma as is demonstrated in the bird by Griffiths.[4] It is also interesting that the hypophyseal floor is essentially a modified ependyma. In mid-larval life, both in the normal hypophysis and in functional transplants, the processes of the cells of the hypophyseal floor can be seen. Certain cells appear to be detaching themselves and may be developing pituicytes. Further experimental and cytological studies are in progress upon the development and function of this region.

12087

Bacteriostatic Properties of Histiocytes Toward *Mycobacterium tuberculosis* as Determined by the Single Cell Method.*†

MORTON C. KAHN.

From the Department of Public Health and Preventive Medicine, Cornell University Medical College, New York City.

The fate of *Mycobacterium tuberculosis* within the phagocytic cell has been a subject of great interest to numerous investigators. Cunningham, Sabin and their coworkers[1] believed that the monocyte and clasmatocyte differed in structure, the former becoming changed into the epithelioid cell and in view of its inability to destroy the tubercle bacilli, the organism lived as a parasite within the transformed cell. Sabin and Doan[2] found clasmatocytes from tuberculous rabbits filled with acid-fast debris and concluded that this organism is as freely fragmented by the clasmatocyte as are other ingested particles.

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4 Griffiths, M., *Endocrinology*, 1940, **26**, 1032.

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† This study is part of a group investigation being conducted in conjunction with the Medical Research Committee of the National Tuberculosis Association.

1 Cunningham, R. S., Sabin, F. R., Sugiyama, S., and Kindwall, J., *Bull. Johns Hopkins Hosp.*, 1925, **37**, 231.

2 Sabin, F. R., and Doan, C. A., *J. Exp. Med.*, 1927, **46**, 627.