

## LOCALIZATION OF VASOPRESSIN AT THE LIGHT AND ELECTRONMICROSCOPICAL LEVEL IN THE SUPRACHIASMATIC-LIMBIC SYSTEM IN RATS

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In addition to the classical sites of neurohypophysial hormone synthesis, the magnocellular supraoptic (SON) and paraventricular (PVN) nucleus, the presence of arginine-vasopressin (AVP) has also been reported in the parvocellular supra-chiasmatic nucleus (SCN) (e.g. Swaab and Pool, J. Endocr. 66, 263). Immunocytochemical methods were used to localize AVP on the E.M. level and to trace pathways of SCN fibres. Conventional electronmicroscopy revealed dense core vesicles in SCN cells and fibres with a mean diameter of 95 nm and 91 nm respectively. Within the cytoplasm of the cell bodies, these vesicles were very scarce. Immunoelectronmicroscopy (Van Leeuwen and Swaab, Cell Tiss. Res. 177, 493) on ultrathin sections of the AVP containing part of this nucleus showed a positive reaction with anti-vasopressin in neuronal somata and fibres within vesicles of 95 nm and 94 nm respectively, while in cell bodies of the SON granules of 140 nm were immunoreactive. The presence of AVP in vesicles pleads for synthesis of this hormone in the SCN cells. Light microscopical immunocytochemistry (e.g. Buijs *et al.*, Cell Tiss Res. 186, 423) revealed that SCN fibres run to a great number of brain areas (a, organum vasculosum laminae terminalis, b, lateral septum (ls), c, via the nucleus periventricularis, crossing a part of the PVN towards the lateral habenular nucleus (lh) and d, into the direction of the SON). In the ls and lh punctate pericellular profiles containing AVP were observed suggesting a neurotransmitter-like synaptoid innervation of these areas. Whether these SCN fibres play a role in vasopressin-dependent behavioral or other processes has still to be established.