

IMMUNOELECTRONMICROSCOPICAL DEMONSTRATION OF VASOPRESSIN AND  
OXYTOCIN SYNAPSES IN THE RAT LIMBIC SYSTEM \*

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The extensive distribution of exohypothalamic vasopressin or oxytocin containing nerve fibres (1,2) is thought to be the anatomical basis for the involvement of these neuropeptides in central processes (3). Following light microscopical studies suggesting that these fibres terminate on other neurons (1,2), the present study was undertaken to demonstrate the existence of such endings in the limbic system, which is one of the main target areas for these peptides. Immunoelectronmicroscopy was performed using glutaraldehyde-paraformaldehyde perfused brains of male Wistar rats and Brattleboro rats homozygous for diabetes insipidus, with and without postfixation in  $\text{OsO}_4$ . Post-embedding staining revealed false positive reaction on all dense core vesicles, for example in the lateral septum. With pre-embedding staining, however, intense and specific reactions were observed for both vasopressin and oxytocin at their sites of production, in the neurohypophysis and in the extrahypothalamic limbic brain regions.

In the lateral septum and habenular nucleus only vasopressin containing synapses could be demonstrated while in the medial nucleus of the amygdala synapses containing either vasopressin or oxytocin were observed. These peptide containing synapses do not seem to differ in any fundamental way from the classical transmitter containing synapses in the brain.

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