

# Ultrastructural Analysis of the Vascular Zones of the Dromedary Neurohypophysis

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## ABSTRACT

Antidiuretic hormone which is involved in the control of the animal's water balance is released into the blood stream from the fenestrated capillaries of the neurohypophysis. The structural elements of the vascular zones are endothelial cells, basal lamina, pericytes and neuroglial processes that can undergo structural remodelling according to hormonal demand. We have investigated here, the qualitative and the quantitative ultrastructural characteristics and seasonal variations of these elements in the neurohypophysis of the dromedary. The results showed a complex basal lamina, abundant fibrillary elements at pericytes and an important membrane exchange in endothelial cells. Quantitative analysis of neurovascular contacts did not show between seasons, a significant variation in the number of nerve terminals contacting basal lamina, however the mean number of glial processes significantly increased in winter ( $p = 0.037$ ). We think that, as the animal is facing situations of combined stresses in summer, high temperature, insolation..., that lead to increased water demand, these would exert ultrastructural effect on the liberation of neuropeptides at perivascular zones to decrease water output.

**Keywords:** *dromedary, neurohypophysis, vascular zone, ultrastructure, neurosecretion, water homeostasis*