

Fine structure and photoperiodical seasonal changes in PARS tuberalis of hibernating bats

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SUMMARY

In Pars tuberalis (PT) of pituitary gland of hibernating bats, extending cranially along the ventral face of the hypothalamic median eminence, around the hypophyseal stalk, and caudally continuing in the Pars distalis (PD), pt specific cells, follicular cells and gonadotropic cells were distinguished. Pt specific cells contain peculiar secretory granules positive to lectin WGA and negative to lectins LFA and PNA, positive to S-100 protein labeling and to PD hormones antisera. During hibernation they present a low numerical density of both secretory granules and melatonin binding sites. After light exposure, on the other hand, the latter increase in density and are associated with marked secretion synthetic activity and exocytosis. These aspects result to be more balanced in animals sacrificed during summer. These changes seem to support the hypothesis of marked annual changes even in animal species with seasonal rhythmicity of metabolisms and gonads. Follicular cells, organized in closed follicles, have slightly developed RER and Golgi apparatus during hibernation, whereas they seem to show an increased secretory activity after light exposure and during summer. In perinuclear and supranuclear cytoplasm, glycogen particles clusters (peculiar of hibernation), cilia 9+2 and multivesicular bodies were identified. Concerning FSH cells, a reduced numerical density during hibernation, the secretory granules morphological characteristics and their probable involvement in photoperiod-linked reproductive functions are investigated.