

Arginine-vasotocin (AVT) mRNA expression is sensitive to testosterone and estradiol in adult female Japanese quail

Nicoletta Aste, Emiko Sakamoto, Maya Kagami, and Noboru Saito

Laboratory of Animal Physiology, Nagoya University, Japan

Arginine vasotocin-immunoreactive (AVT-ir) cells are present in the medial part of the bed nucleus of the stria terminalis (BSTM) in many vertebrates. They are parvocellular neurons and differ in terms of location, connectivity and function from the AVT-ir magnocellular neurons that originate the hypothalamic-hypophyseal tract.

In quail BSTM, AVT immunoreactivity is male-biased and sensitive to testosterone (T) only in males. This sex dimorphism is organized by estradiol during a critical period for brain differentiation.

It is not known which cellular mechanism is implicated in the onset of this sex difference. Therefore, we analyzed the effect of a single injection of T, dihydrotestosterone or 17 β -estradiol on the density of AVT-mRNA expressing cells and intensity of the hybridization signal in the BSTM by *in situ*-hybridization. Results showed these parameters are sensitive to T in both the sexes. Notably, in females, a single injection of T or estradiol increased AVT-mRNA expression above the levels of control animals. In conclusion, this study showed that AVT-mRNA expression is also sensitive to T and estrogens in the female BSTM. Therefore, sex differences at post-transcriptional level might be, in part, implicated in the differential sensitivity to T of AVT-ir system in the quail BSTM.