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Oxytocin effects on the behavior in historical and experimental domesticated animals

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Abstract. Domestication is one of the important evolutionary and genetic problems of biology. It addresses fundamental evolution aspects as well as allows us to study mechanisms of aggression, pro-social behavior and anthropogenesis. One of the potential key mechanisms of domestication may be associated with the central oxytocin (OT) system. OT has been repeatedly shown to exhibit pro-social and anxiolytic effects rodents, dogs, humans and other species [1]. In our study, we used intranasal OT administration on Siberian tame foxes and non-selected one. It is well-known experimental domestication model of. The OT effect on behavior had been investigated in intermale interactions (triple cage after adaptation) and human contact (new enclosure).

OT administration increased patterns of playful (crouches on paws), affiliative (friendly) behavior, motor (fast move) and mixed activity in male-to-male interactions in tame foxes, whereas in case of unselected foxes, OT administration increased behavior patterns associated with anxiety (latent time for home cage exit, freezing, total time in home cage). In fox-human interactions, OT administration had the greatest effect on increasing the time tamed fox stayed at less than a meter away from a human. It is this parameter that is the defining one in similar tests on dogs.

The results allow to suggest that OT has a context-dependent effect rather than explicitly pro-social effect in the tests, therefore amplifying the perception of social conditions according to the social salience hypothesis of OT.

OT effect is associated with emotional positive and negative animal behaviors toward human that could be related to the genotype. Such OT effect might separate animals into more or less tolerant to humans under the same early domestication conditions.

Key words: domestication, tame foxes, aggression, behavior, social tests, human-animal bond.

Conflict of interest. The authors declare the absence of obvious and potential conflicts of interest associated with the publication of this article.

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