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A B S T R A C T

Orexin A (OXA) has been discovered as hypothalamic neuropeptide which acts on two known G-protein coupled receptors. It has been demonstrated that OXA is a central molecular link between food intake and reproduction. More recently, its peripheral role has been investigated and we demonstrated its involvement in regulating ovarian follicle function. Present study was undertaken to explore potential physiological role of orexin system in swine corpus luteum, a transient ovarian endocrine organ. Our aim was firstly to analyze the localization and eventual colocalization of OXA and its two receptors within the different cells composing the corpus luteum structure. Secondly we wanted to explore the effects of OXA on isolated luteal cells, and finally to verify a potential involvement of OXA in angiogenesis, a crucial event in corpus luteum development. Our data demonstrate the local expression of OXA and its receptors in swine corpus luteum. Luteal cell functions were affected by treatment with OXA. In particular, progesterone production was inhibited ($P < 0.05$) and non enzymatic scavenging activity was increased ($P < 0.05$). Moreover, OXA inhibited ($P < 0.05$) new vessel growth. Our results suggest that OXA could act locally playing a role in corpus luteum demise.

Keywords:
OXA
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OXR2
Steroidogenesis
Redox status