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Orexin A in swine corpus luteum

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## 1 **Orexin A in swine corpus luteum**

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### 7 A B S T R A C T

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

23 *Keywords:*

24 OXA

25 OXR1

26 OXR2

27 *Steroidogenesis*

28 *Redox status*

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