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Functional characterization of the promoter of carbonyl reductase 1 gene in porcine endometrial cells

Key words: Pig, Carbonyl reductase 1 (CBR1), Promoter, NFκB, Endometrium

Research Summary

This review focused the functional characterization of the CBR1 gene in porcine endometrial cells, and the main results summarized as the following aspects:

- **Whether the promoter of the CBR1 is regulated by NFκB, which is a proinflammatory factor about porcine pregnancy in porcine endometrial cells.**
- **What roles of the NFκB play in the promoter?**

Innovation points

- The results also showed that -1640/-647 region was indispensable for the promoter.

- Chromatin Immunoprecipitation (ChIP) demonstrated that p65 binds to one site around -1545/-1531 but not -875/-861.

- In the porcine endometrial cells, over-expression of *p65* enhanced the expression of *CBR1* significantly, while knockdown of the *p65* did not down-regulate the *CBR1* expression. NFκB was a positive regulator for CBR1 gene promoter, but was not necessary for the basic expression of the gene.

Innovation points

A series of comprehensive tables were generated to summarize the latest knowledge about the regulation of CBR1 gene .

Figure 1| Luciferase activity assays for the six fragments of the promoter in endometrial epithelial cells.

Figure 2| ChIP analysis of the CBR1 promoter.

Figure 3| The effect of p65 overexpression on CBR1 mRNA level.

Figure 4| *p65* expression under the silence of three siRNAs.

Figure 5| CBR1 expression with the four genes as references under the silence of siRNA3.