# COX2 endometrial expression in the pregnant queen

Cyclooxygenase 2 (COX2) is the enzyme responsible of transformation from Arachidonic acid into prostaglandins, and therefore it has an essential and unquestionable paper in reproductive events.

Mariona Sanz Cortiella

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Schematic representation of the Figure 1: cyclooxygenase function and signalling pathway.

## Background

COX2 is the rate-limiting enzyme in the synthesis of PGF2a, the responsible of Luteolysis in most of domestic species, and consequently for sexual cyclicity.

COX2 induction is necessary for ovulation. Also its blocking is mandatory for maternal recognition of pregnancy, and to allow pregnancy maintenance in mares, ruminants, pigs, mice, dog and primates; but in queens its expression has not been studied yet.

Also, it promotes uterus receptiveness, blastocyst attachment and implantation.

## **Objectives**

- Study the COX2 expression in queens endometrium.
- Determine the possible role of COX2 in queens pregnancy.

#### Materials & Methods 3

Samples from endometrium of 42 queens of different stages of the reproductive cycle were processed for COX2 detection, by Immunohistochemistry technique.

## **Results and discussion**





Figure A: Positive control, COX2 expression in the luminal epithelium in a mare sample, at day 15 after ovulation.

Figure B: Negative control, Pregnant mare endometrium at day 15 after ovulation.

Figure C: Sample of a queens' endometrium, negative expression of COX2 in both luminal and glandular epithelium.

Figure D: Sample of queens' endometrium, positive expression of COX2 in transference zone.

In this study, COX2 expression has been proved on queens' transference zone. The transference zone is the part of the endometrium where the blastocyst is attached during pregnancy.

• The results indicate that COX2 is involved in implantation, suggesting blastocyst а resemblance to other domestic species.

#### Conclusions 5

- COX2 is not expressed in queens' endometrium during the cycle, and maternofoetal recognition. Further studies will be required to understand the lack of its expression.
- The COX2 expression in the zone of transference, indicates it has a role in implantation in queens.



