Interactions among resistin and Peroxisome Proliferator Activated Receptor-γ (PPAR-γ) in porcine ovarian follicles

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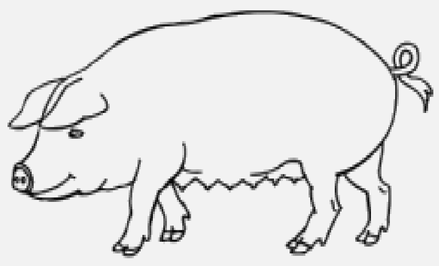
Resistin, a new 12.5-kDa cysteine rich protein, which is specifically secreted by adipocytes and describe as a potential link between obesity and insulin resistance. Recently, resistin and PPARs receptors was found in reproductive tissue such as ovary and it was found that resistin modulate ovarian follicles function. Additionally, thiazolidinediones, such as rosiglitazone, a synthetic agonist of PPAR–γ down-regulated resistin expression in rodens.

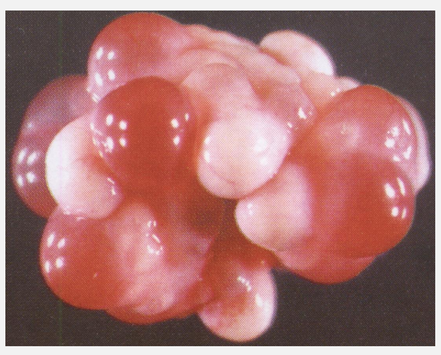
The aim of the study was analyze:

1). Basal resistin and PPAR gene and protein expression

2). Effect of resistin and rosiglitazone on PPAR–γ gene and protein expression.

METHODS:



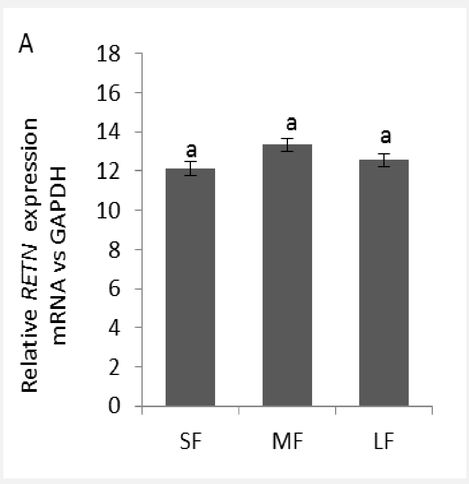


OVARIAN FOLLICLES
at days 4-6 (SF; 2-4 mm)
days 10-12 (MF; 4-6 mm)
days 16-18 (LF; 8-12 mm)
of estrus cycle

Ovarian follicles were cultured in the presence or absence of resistin (at doses 0.1, 1 and 10 ng/ml) or rosiglitazone (at doses 25 and 50μM, diluted in DMSO) in M199 medium. After 24 h of culture ovarian follicles were homogenized to measurement expression of PPAR-γ receptor by immunoblot and real time PCR.

RESULTS:

1). Basal resistin and PPAR gene and protein expression:



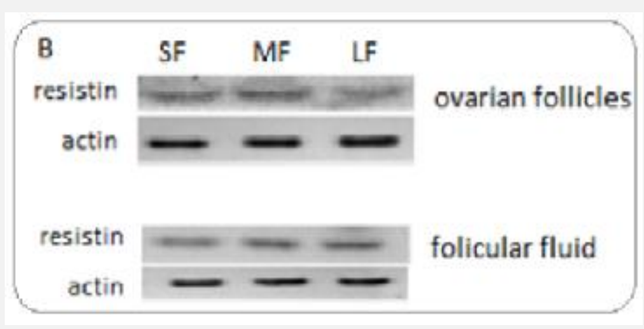
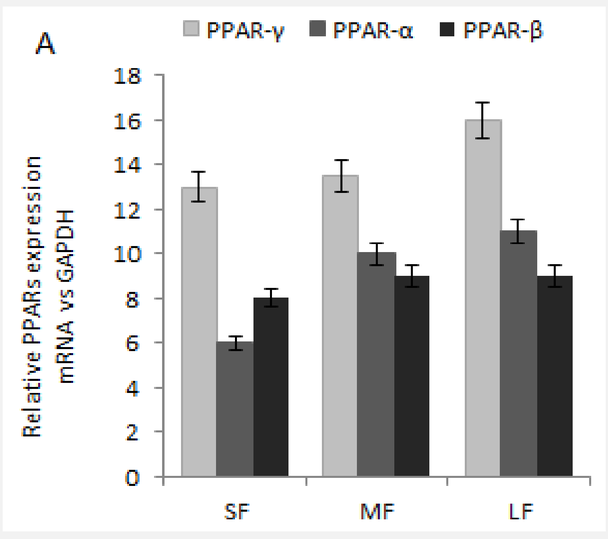


Fig.1 Ovarian resistin expression, A) mRNA, B) protein expression. SF- small follicles, MF – medium follicles and LF – large follicles.



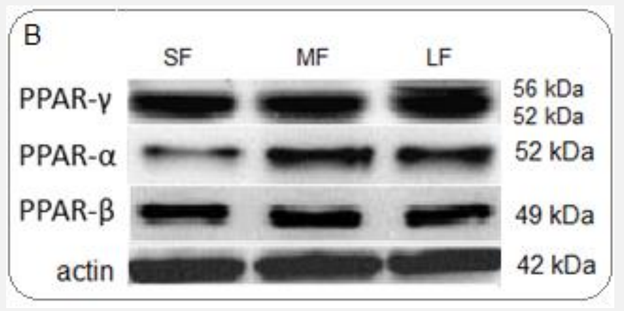
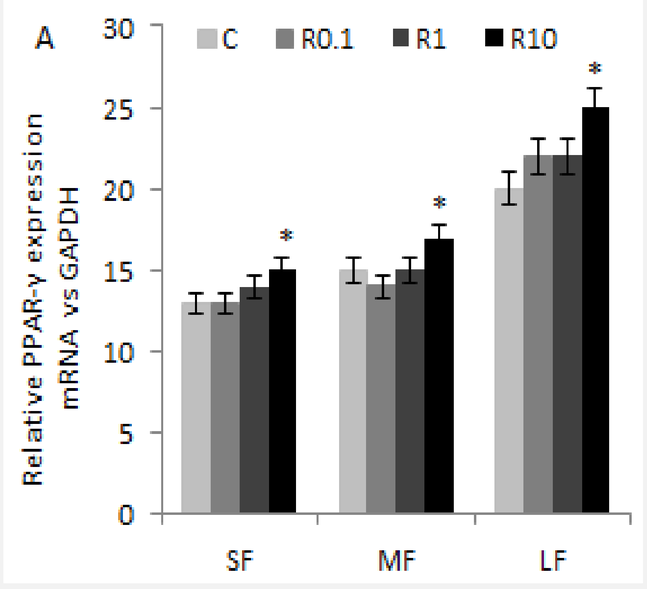


Fig.2 Ovarian PPAR izoforms expression, A) mRNA, B) protein expression.

We demonstrated that resistin expression was unchanged in ovarian follicles collected from normal estrous cycle pigs while basal PPAR izoforms γ and a were increased with maximum expression in LFs.

2). Effect of resistin and rosiglitazone on PPAR–γ gene and protein expression:



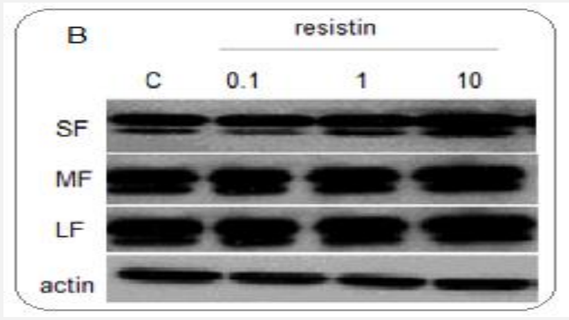
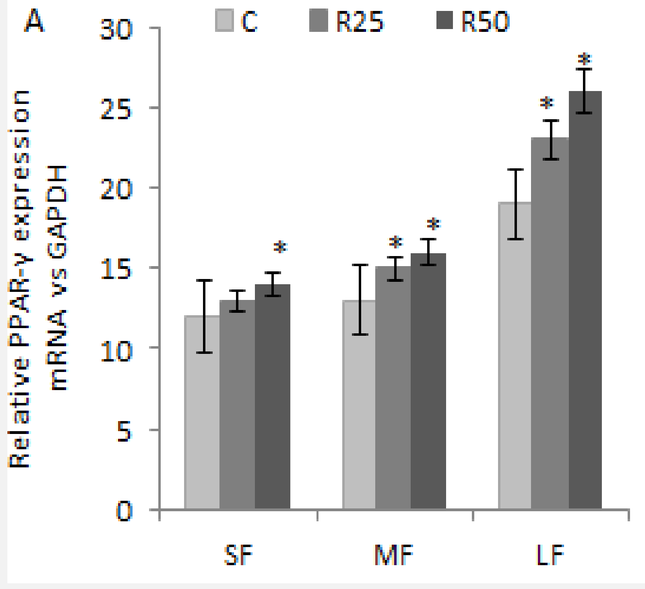


Fig.3 Effect of resistin (0.1, 1 and 10 ng/ml) on PPAR-γ expression, A) mRNA, B) protein expression.
C – control.



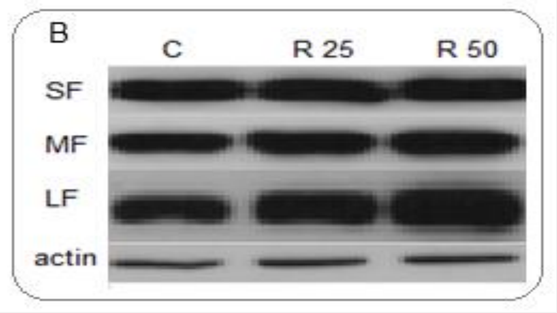


Fig.4 Effect of rosiglitazone (25 and 50 μM) on PPAR-γ expression, A) mRNA, B) protein expression.

Both resistin and rosiglitazone significantly increased PPAR–γ expression in ovarian follicles.

CONCLUSION:

In conclusion, our preliminary *in vitro* study provides the novel evidence interaction among resistin and PPAR–γ in the pig ovary and suggest involvement of this receptor in the control of key ovary function.

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