

NORMAL ONGOING PREGNANCY IN RABBITS IMMUNIZED AGAINST BOVINE PREGNANCY-ASSOCIATED GLYCOPROTEIN-1 (boPAG-1)

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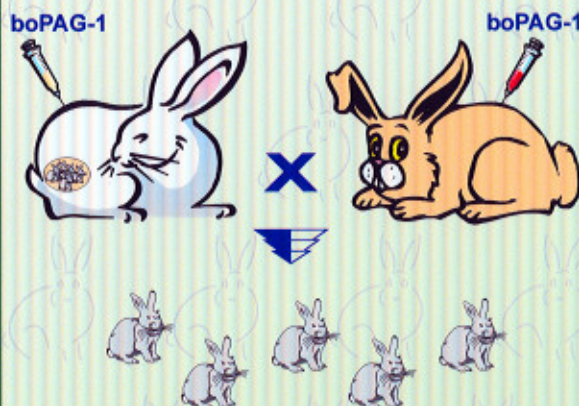
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Abstract



The bovine PAG is a protein extracted from placental tissue. It has been identified such as a biomarker of gestation and used for pregnancy diagnosis. To understand more functions of PAG on reproduction parameters, eleven female rabbits previously immunized against boPAG-1 were mated with a male immunized against the same antigen. More than fifty percent of the females (63%) had a successful pregnancy. This experiment showed that the antiserum produced against boPAG-1 doesn't have negative effect on the ongoing pregnancy. More investigations should be carried out to obtain information on physiological aspects of these proteins.

Aim

The aim of this study was to investigate the effects of active immunization of rabbits against bovine PAG-1 (boPAG-1) on some reproductive parameters associated with pregnancy.

Introduction

- ➔ The Pregnancy-Associated Glycoproteins (PAGs) constitute a large family of proteins synthesized in the superficial layers of the placenta of Artiodactyla. These molecules belong to the aspartic proteinase family like pepsinogen, chymosin, renin and cathepsin D and E (4).
- ➔ The boPAG-2 was isolated on the base of binding of LH receptors of corpus luteum (1). The function of boPAG-2 remains unclear, but it could represent one of the poorly characterized gonadotropin-like factors described in the placental extract of ruminants.
- ➔ The boPAG-1 was initially characterized as a placental protein without hormonal activity. However, a potential immunosuppressive role of PAG-like molecules had been proposed (2). In rabbit species, till now, no PAG has been identified in the placental extracts. However, a fetal pepsinogen (pepsinogen F) sharing 51% sequence homology with boPAG-1 was recently described (3). Despite some investigations in the last decade, the function of PAGs in reproduction is not completely understood.

Materials & Methods

- ➔ Lyophilized pure boPAG-1 with a MW of 67 000 was purified from fetal cotyledonary tissue according to the method of Zoli et al. (5) and used as the antigen. The immunizing dose was 145 µg dissolved in 0.01 M phosphate buffer, pH 7.4 and emulsified with an equal volume of adjuvant. Eleven female New Zealand rabbits and one male were injected intradermally at 10-day intervals over a period of two months. Blood samples were collected 1 month after the fourth injection at 15-day intervals and the titers of obtained antisera were evaluated by radioimmunoassay (RIA).
- ➔ All rabbits expressed high titers of boPAG-1 antibodies (1:200 000 to 1:600 000, as determined by means of RIA). Then, each female was mated with the same male twice a day during four days.

Results

Table 1. Length of pregnancy and number of newborns.

Females	Length of pregnancy (days)	Number of newborns
1	32	4
2	34	11
3	32	2
4	32	4
5	34	7
6	33	4
7	33	5
Mean (±SD)	32.8 ± 0.9	5.3 ± 3

The results are shown in table 1.

After a normal length of gestation (32.8 ± 0.9 days; mean ± SD), seven females (63.6%) gave birth to 2 to 11 alive newborns (5.3 ± 3.02; mean ± SD). These results are in the normal range observed for non-immunized rabbits in the literature.

Conclusions

- ➔ High titers of immunoglobulins against boPAG-1 in the maternal circulation don't result in pregnancy failure and health problems among the newborns.
- ➔ These data show that an active immunization against boPAG-1 is compatible with a normal fertility and prolificacy... and probably with health and wellbeing of the animals.

References

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