

# PROTECTIVE EFFICACY OF A NEW INACTIVATED VACCINE AGAINST *Chlamydia abortus* IN A PREGNANT MOUSE MODEL

**EMAC<sup>o</sup>5**  
Odesa October, 3-5 2018

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## INTRODUCTION

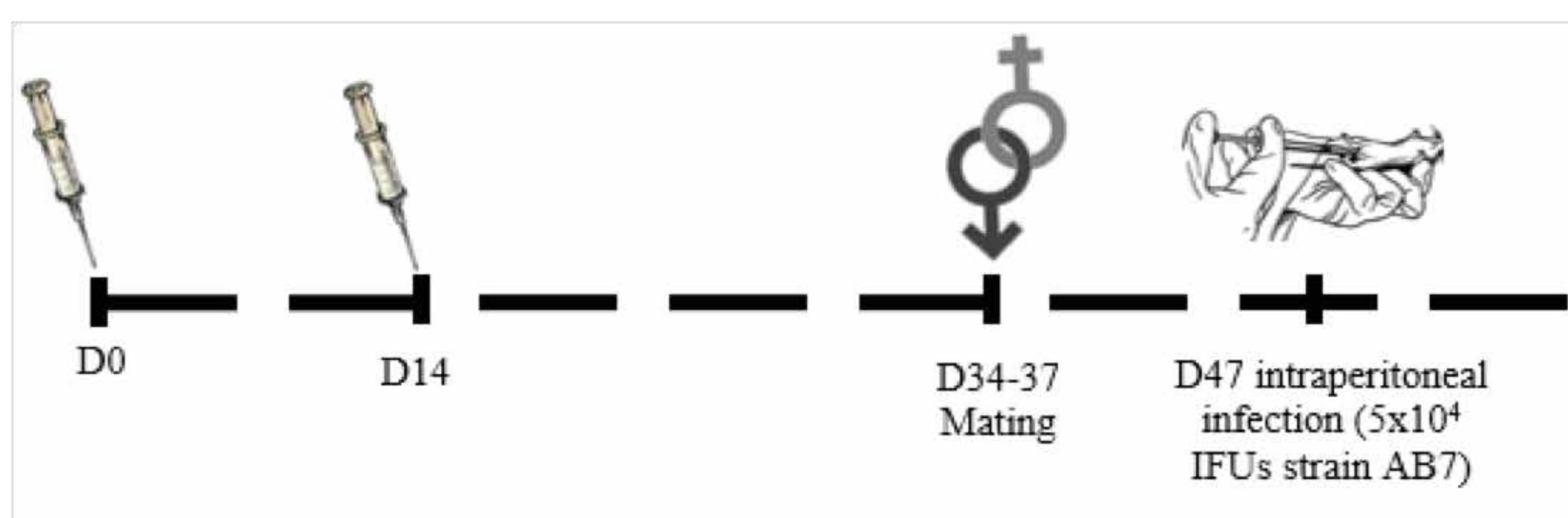
*Chlamydia abortus* (*C. abortus*) is the etiological agent of ovine enzootic abortion (OEA). Mouse models have been widely used to study the pathology. This animal experimental model has been considered a useful tool to evaluate new vaccine candidates and adjuvants that could reduce abortion and fetal death. This study evaluates the grade of protection of one new inactivated vaccine against *t* and *Salmonella enterica* serovar Abortusovis (SAO) after an experimental infection of *C. abortus* in pregnant mouse model.

## MATERIALS AND METHODS

Seventy female OF1 mice were randomly distributed in four groups:

Group	Treatment
1 (n=20)	HIPRA: heterologous vaccine ( <i>C. abortus</i> A22 strain)
2 (n=20)	UMU: homologous vaccine ( <i>C. abortus</i> AB7 strain)
3 (n=20)	Control: PBS
4 (n=10)	Sentinel: -

All animals, except sentinel group, received the administration of 0,2 ml of treatment and were infected as described:



Mice of sentinel group were mated the same period of the other groups and were not infected. From challenge until parturition reproductive disorders were monitored and the course of infection was also evaluated from liver and uterus samples obtained from dead animals, detecting and counting (IFUs) the presence of *C. abortus*. Serum samples were collected each vaccination the day of challenge, 4 and 11 days after challenge.

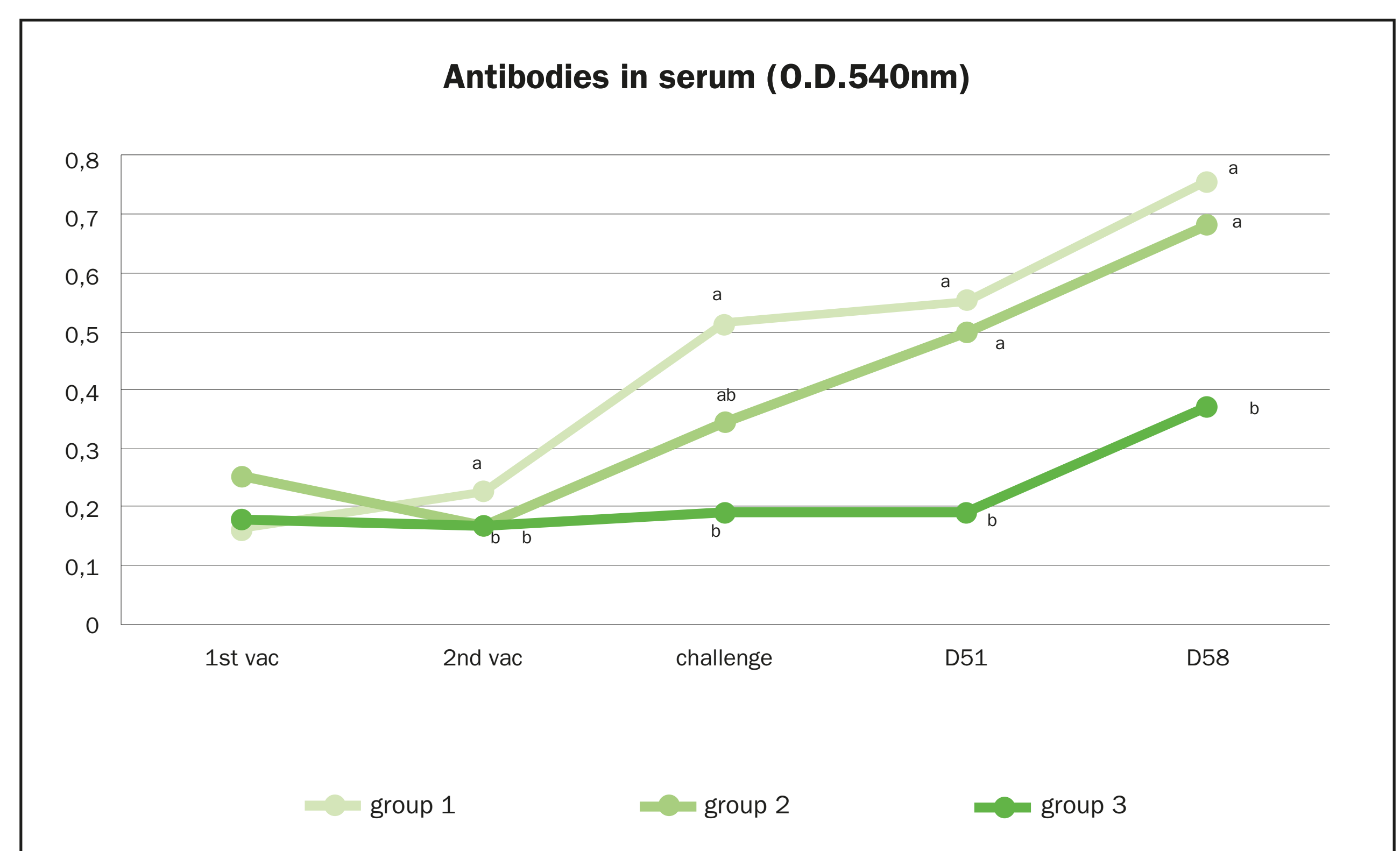
## RESULTS

Vaccinated animals (Group 1 and 2) showed a significant reduction ( $P < 0.05$ ) of reproductive disorders caused by *C. abortus* compared to control group (Table 1).

	HIPRA	UMU	PBS	Sentinel
Reproductive disorders	2/8 (25%) <sup>b</sup>	0/11 (0%) <sup>b</sup>	9/9 (100%) <sup>a</sup>	0/9 (0%) <sup>b</sup>
Average of pups	8.6 <sup>a</sup>	12.9 <sup>a</sup>	1.9 <sup>b</sup>	12.1 <sup>a</sup>

**Table 1:** % of reproductive disorders and average number of pups  
<sup>a,b</sup>: Different superscript indicates statistically significant differences ( $p < 0.05$ )

Furthermore, the number of pups was significantly ( $P < 0.05$ ) greater in the vaccinated groups compared to control group. No differences were observed among vaccinated and sentinel groups. In terms of detection and quantification (IFUs) of *C. abortus*, vaccinated groups described a significant reduction ( $P < 0.05$ ) compared to control infected group. Referring antibody response, vaccinated groups described significantly ( $P < 0.05$ ) higher titers compared to control group after the second vaccination until the end of the study.



**Figure 1:** Average of antibodies against *C. abortus* in serum per groups during all the study.  
<sup>a,b</sup>: Different superscript indicates statistically significant differences ( $p < 0.05$ )

## CONCLUSION

Overall, the results obtained allow to conclude that vaccination with the new Hipra inactivated vaccine, significantly reduces reproductive disorders and shedding of *C. abortus* caused by an experimental infection with a heterologous virulent strain of *C. abortus* in mice, and the new vaccine could be a good candidate to be assayed in the natural host, the sheep.