



Dietary spray dried plasma on systemic immune responses of lactating sows and their litters

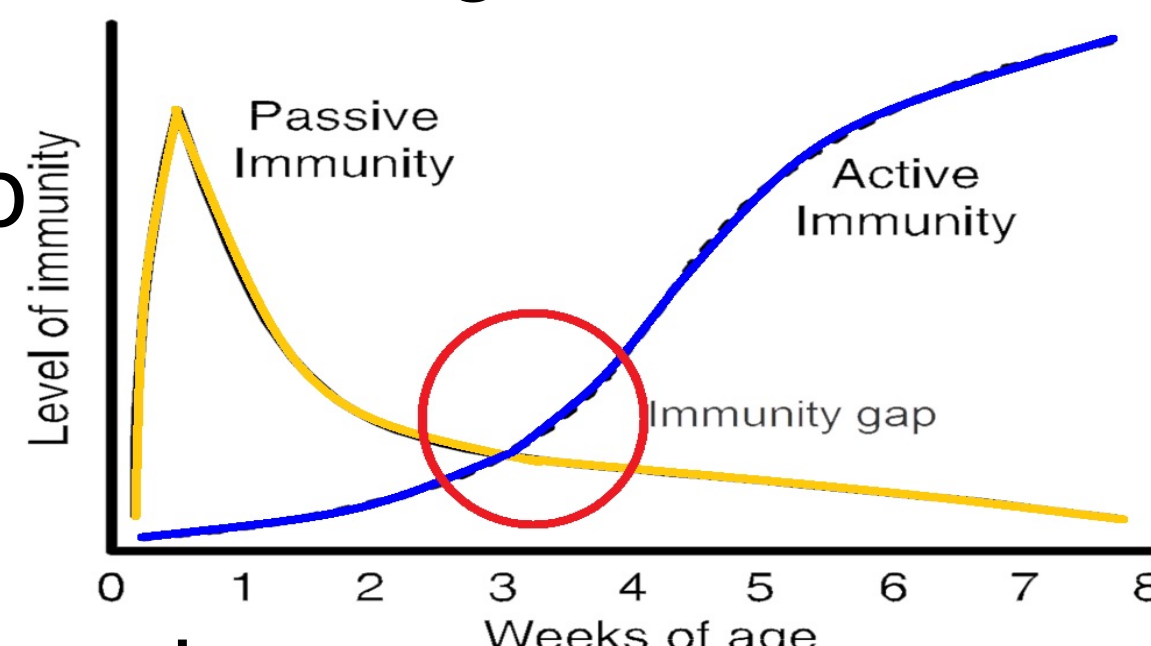


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INTRODUCTION

- ❖ Spray dried plasma
 - Modulation gut microbiota and host immune responses
 - High bioavailable source: essential amino acids, minerals
 - Various physiological components
 - : immunoglobulins, glycoproteins, peptides, unknown growth factors
- ❖ Immature immune system of young pigs
 - Change in adaptive immunity: immunity gap
 - Commonly used in early nursery diets
- ❖ Improvement of reproductive performance
 - BW change, litters size & growth
- ❖ However, limited information for dietary SDP on immune responses of sows and their litters.



OBJECTIVE

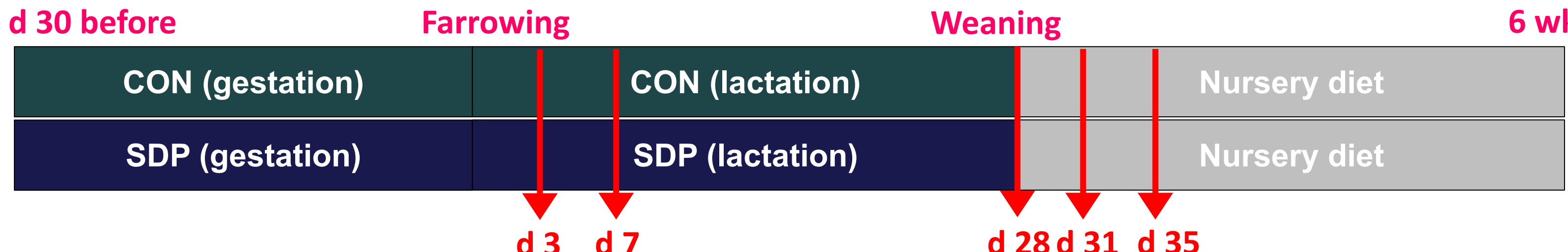
- ❖ To investigate the effects of spray dried plasma (SDP) in last gestating and lactating diets on systemic immune responses of lactating sows and their litters.

MATERIALS AND METHODS

- ❖ Experimental design: completely randomized design
- ❖ Animals: 12 sows (227 ± 1.64 kg BW; 2.0 parity) and their litters
- ❖ Dietary treatments: sows
 - Corn and soybean meal basal diet (CON)
 - CON + 1% spray dried plasma (SDP)

Item	Gestation		Lactation	
	CON	SDP	CON	SDP
Ingredients, %				
Corn	75.82	76.72	65.54	66.53
SBM, 45%	21.30	19.40	31.81	29.82
Spray dried plasma	-	1.00	-	1.00
Others ¹	2.88	2.88	2.65	2.65
Calculated values				
ME, kcal/kg	3,320	3,320	3,430	3,430
CP, %	15.86	15.82	19.76	19.72

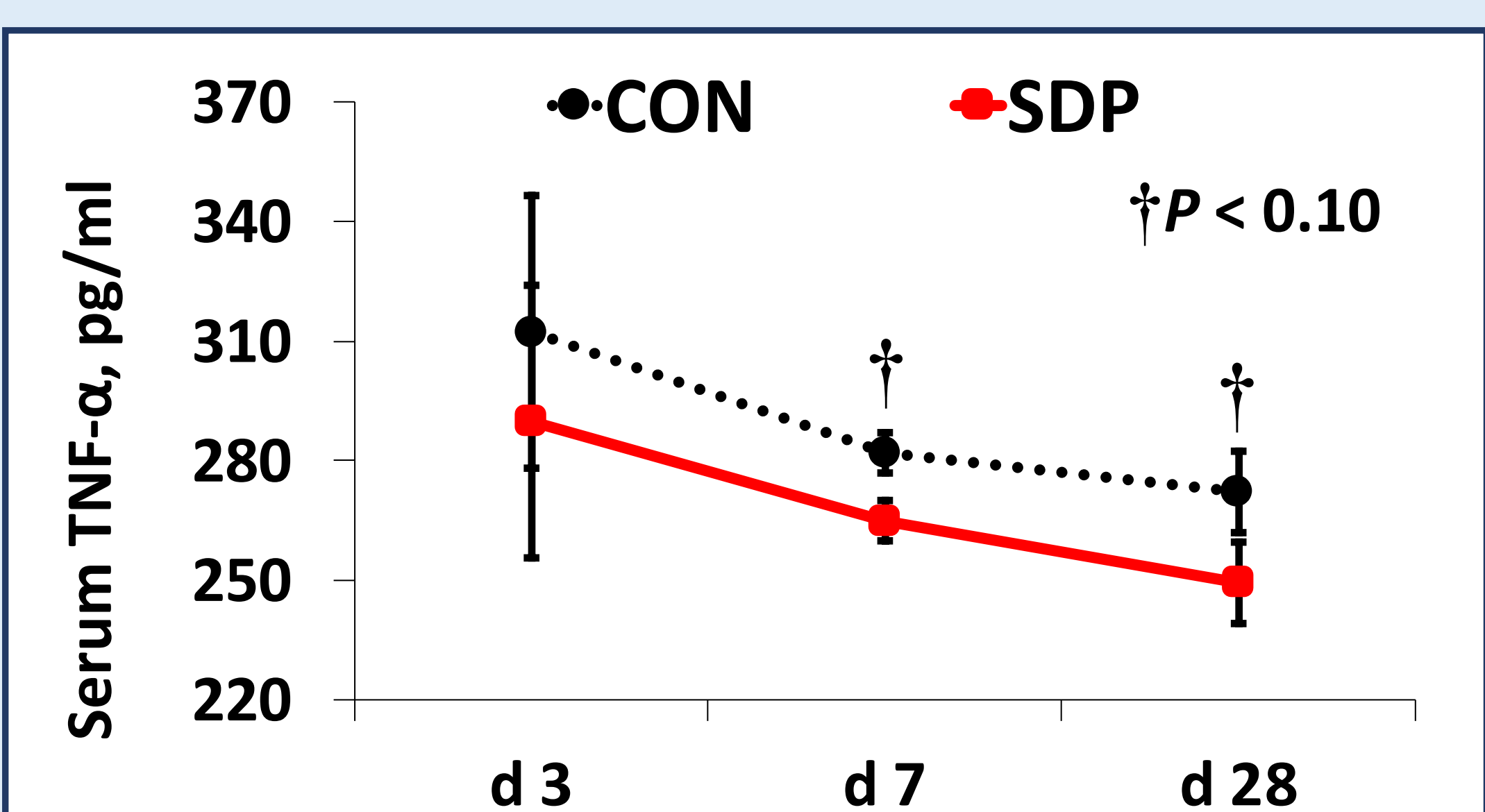
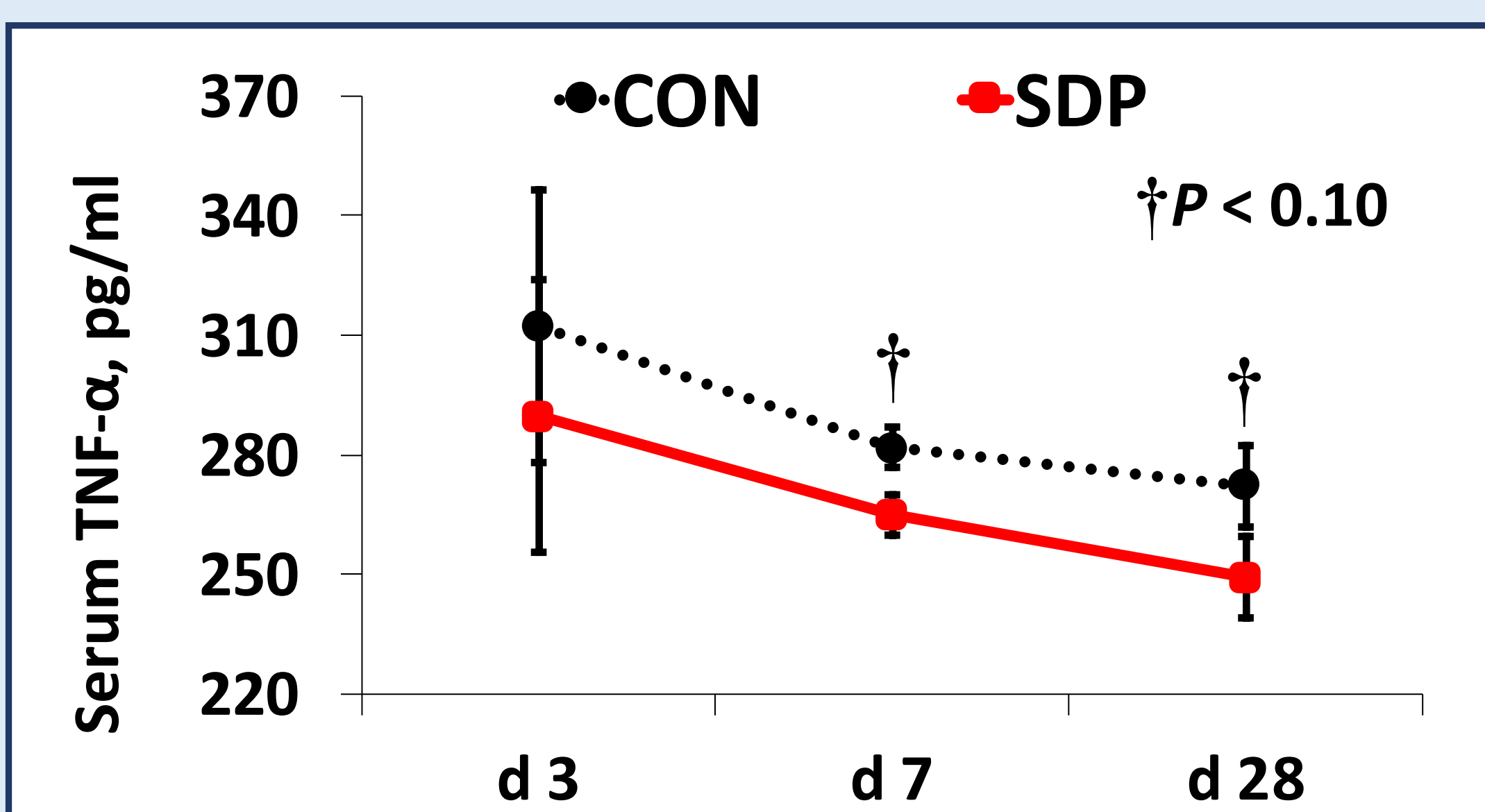
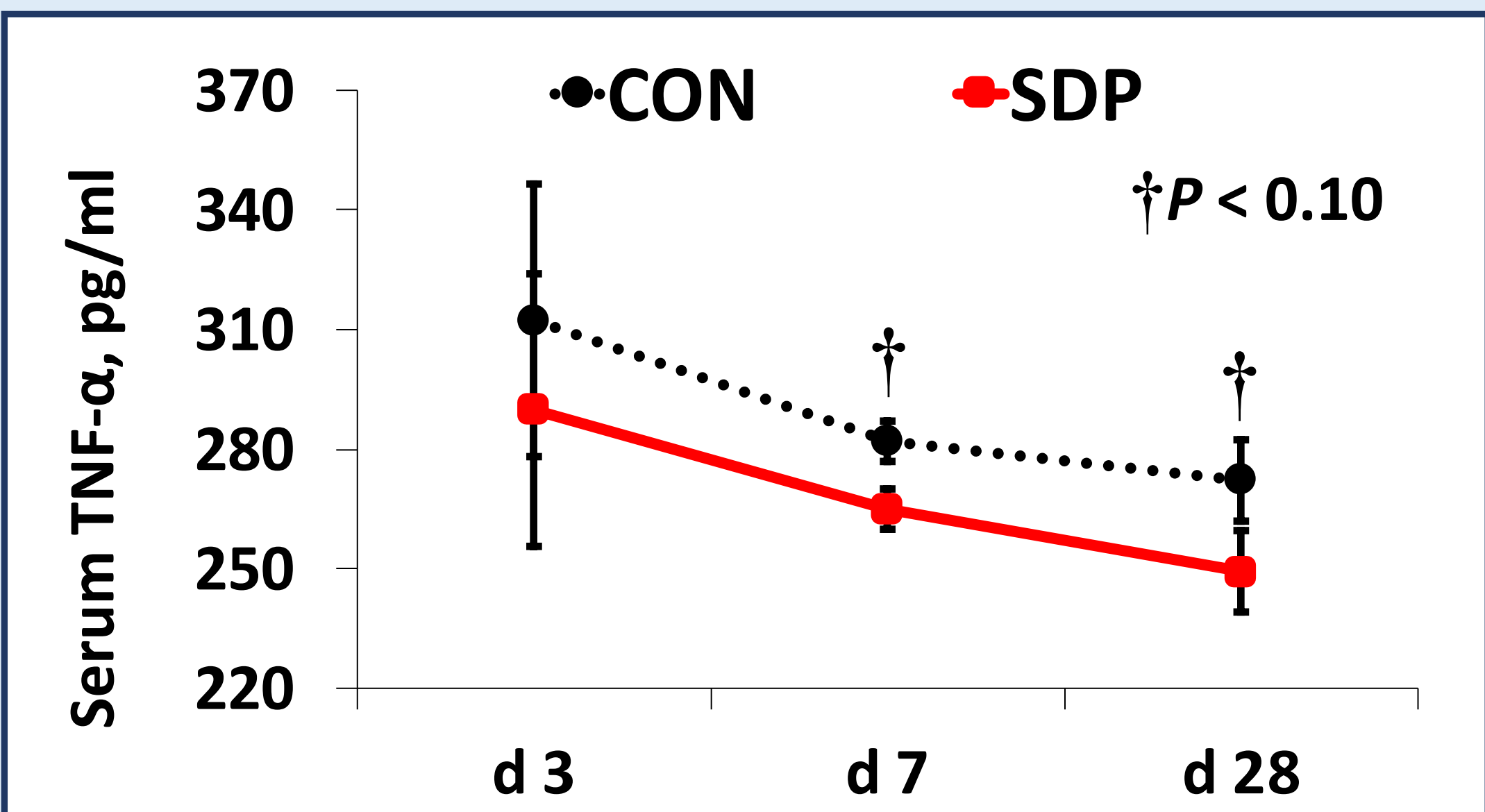
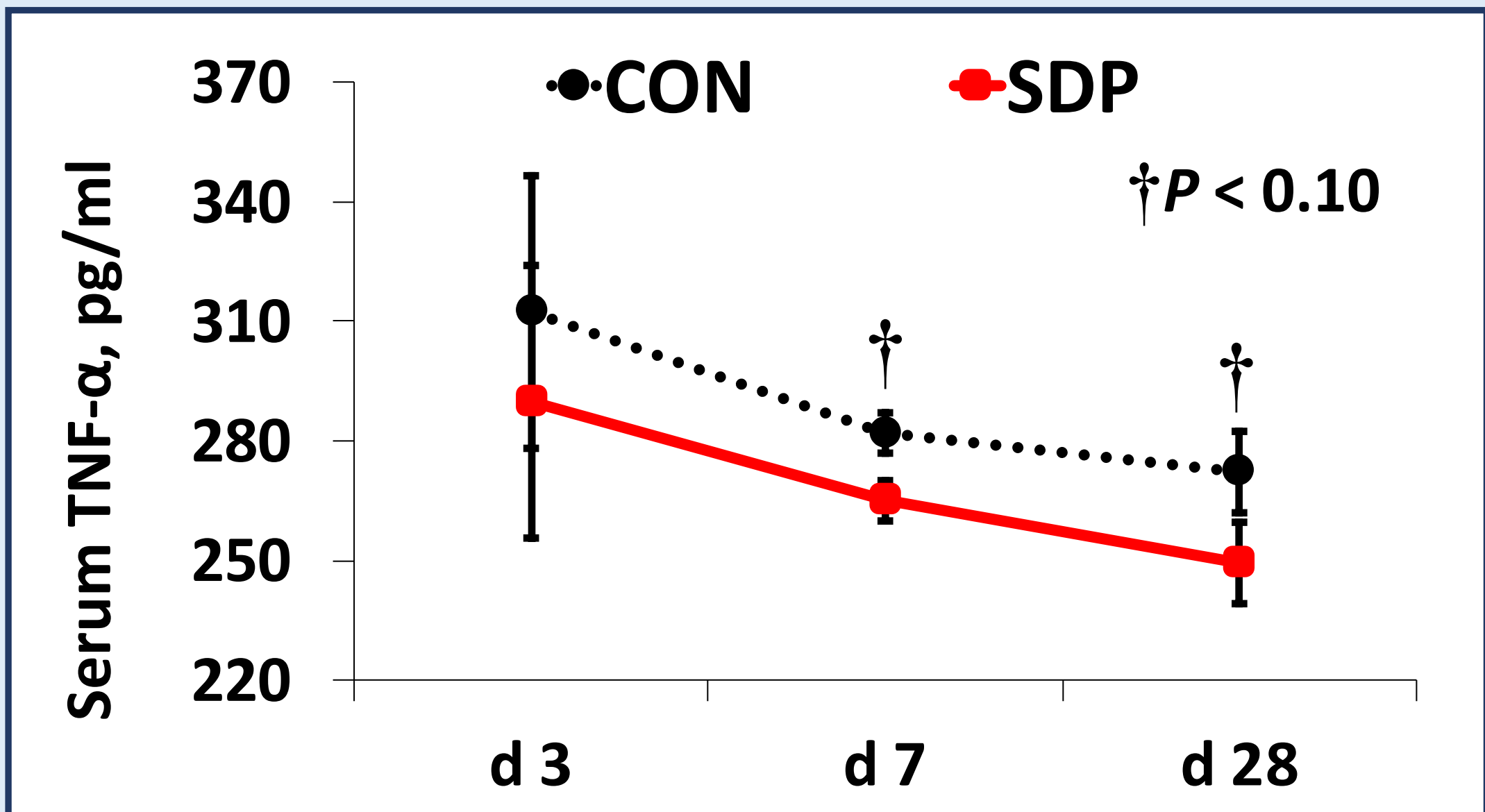
- ❖ Weaned pigs
 - Group housed by dietary treatments of sows
 - One nursery diet (ME 3,400 kcal/kg, CP 20.5%)
- ❖ Experimental period
 - d 30 before farrowing until weaning (58 days)
 - Piglets were tracked until 6 wk post weaning
- ❖ Blood collection
 - 6 sows per dietary treatment
 - Randomly selected 2 piglets from each sow per dietary treatment
- ❖ Measurements
 - Serum tumor necrosis factor-α (TNF-α), transforming growth factor-β (TGF-β), C-reactive protein (CRP), cortisol, and immunoglobulin (Ig)G, M, and A from sows and their litters



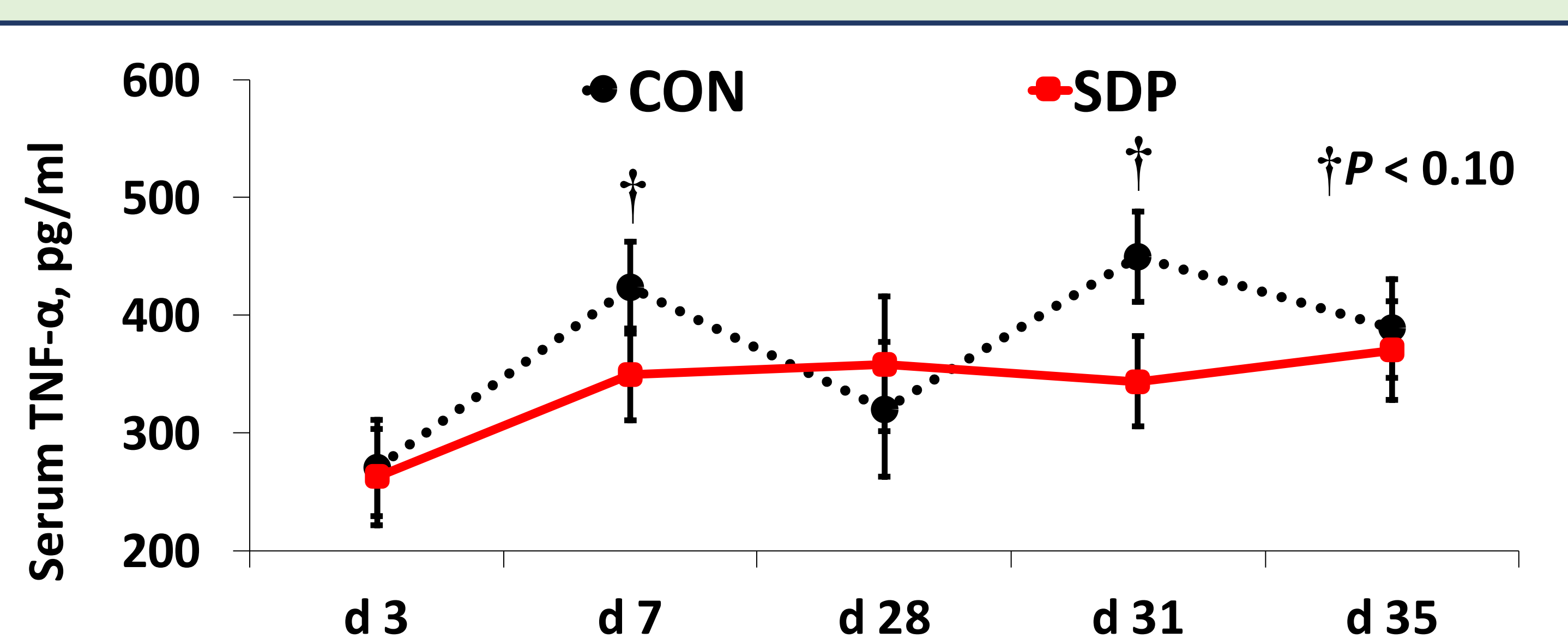
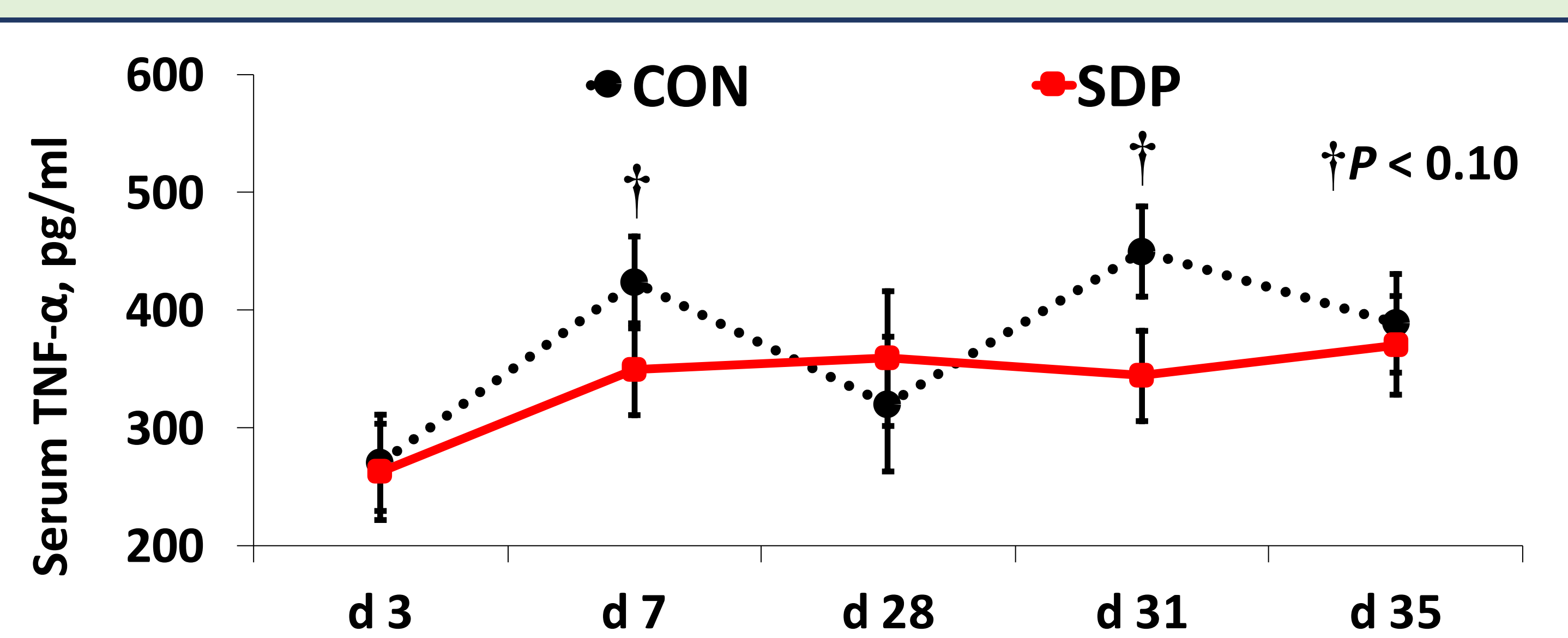
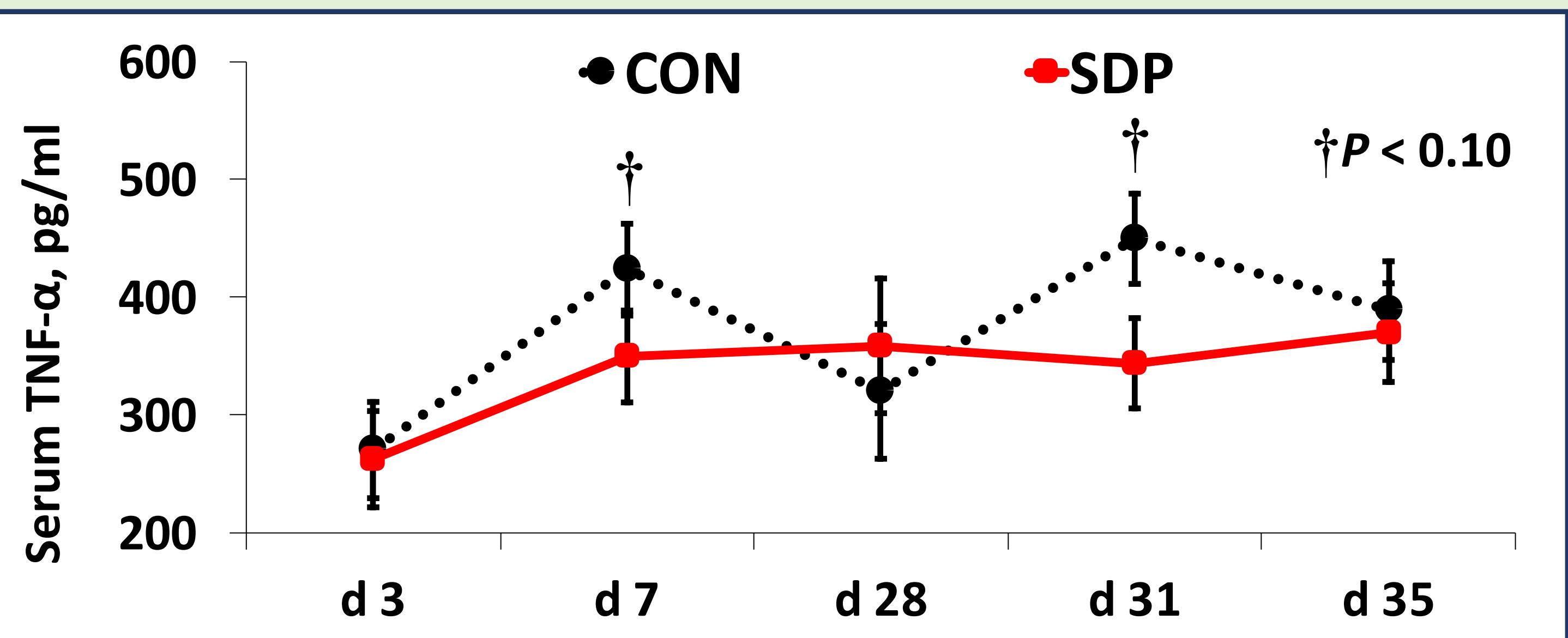
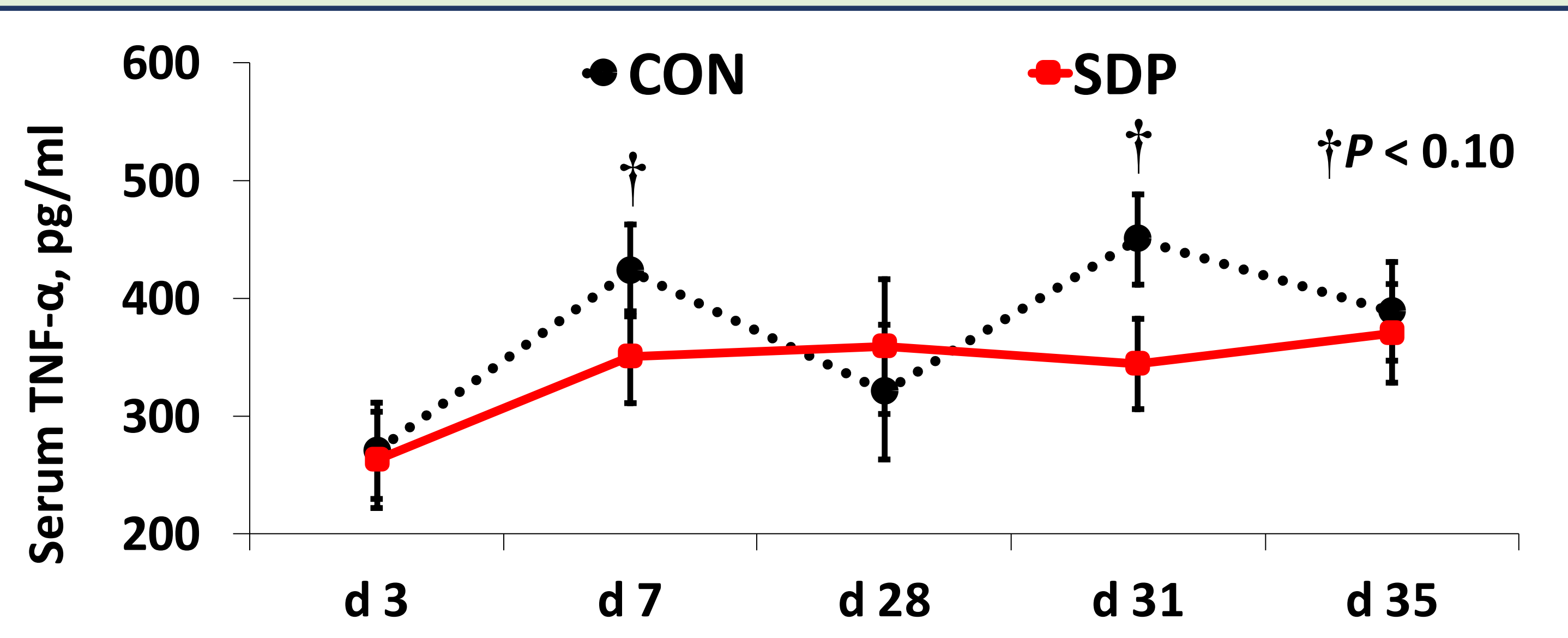
- ❖ Statistical analysis: PROC GLM procedure of SAS
 - Experimental unit: pen
 - Model: dietary treatment for sows

RESULTS

❖ Sows



❖ Litters



REFERENCES

- ❖ Crenshaw, J. D., R. D. Boyd, J. M. Campbell, L. E. Russell, R. L. Moser, and M. E. Wilson. 2007. Lactation feed disappearance and weaning to estrus interval for sows fed spray-dried plasma. J. Anim. Sci. 85:3442–3453.
- ❖ Moretó, M., and A. Pérez-Bosque. 2009. Dietary plasma proteins, the intestinal immune system, and the barrier function of the intestinal mucosa. J. Anim. Sci. 87:E92–E100.

CONCLUSION

- ❖ Supplementation of dietary spray dried plasma in last gestating and lactating diets may modulate systemic immune responses of sows and their litters.