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► To cite this version:

Houem Rabah, Stéphanie Ferret-Bernard, Song Huang, Laurence Le Normand, Fabien Cousin, et al.. The delivery vehicle modulates the immunomodulatory effect of *Propionibacterium freudenreichii* in healthy piglets. The 10 th Cheese Symposium, Apr 2018, Rennes, France. , 2018. hal-01781893

HAL Id: hal-01781893

<https://hal.science/hal-01781893>

Submitted on 30 Apr 2018

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THE DELIVERY VEHICLE MODULATES THE IMMUNOMODULATORY EFFECT OF *PROPIONIBACTERIUM FREUDENREICHII* IN HEALTHY PIGLETS

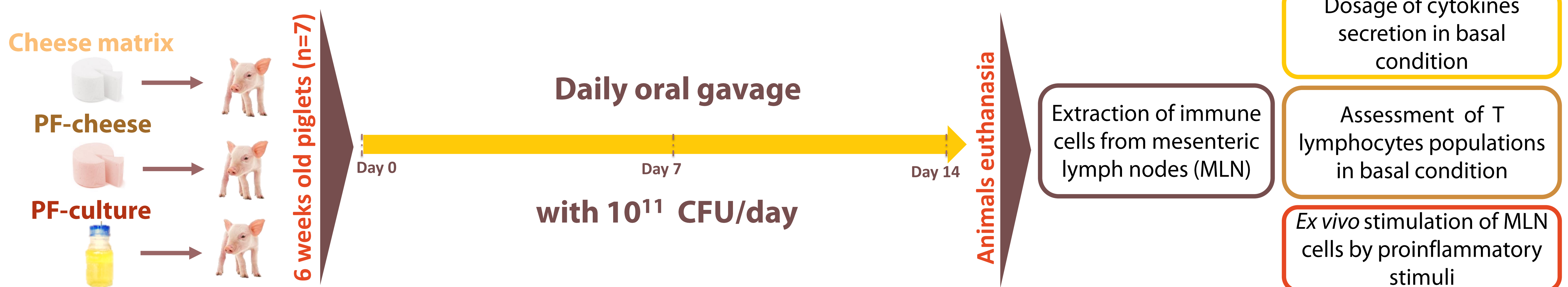
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CONTEXT

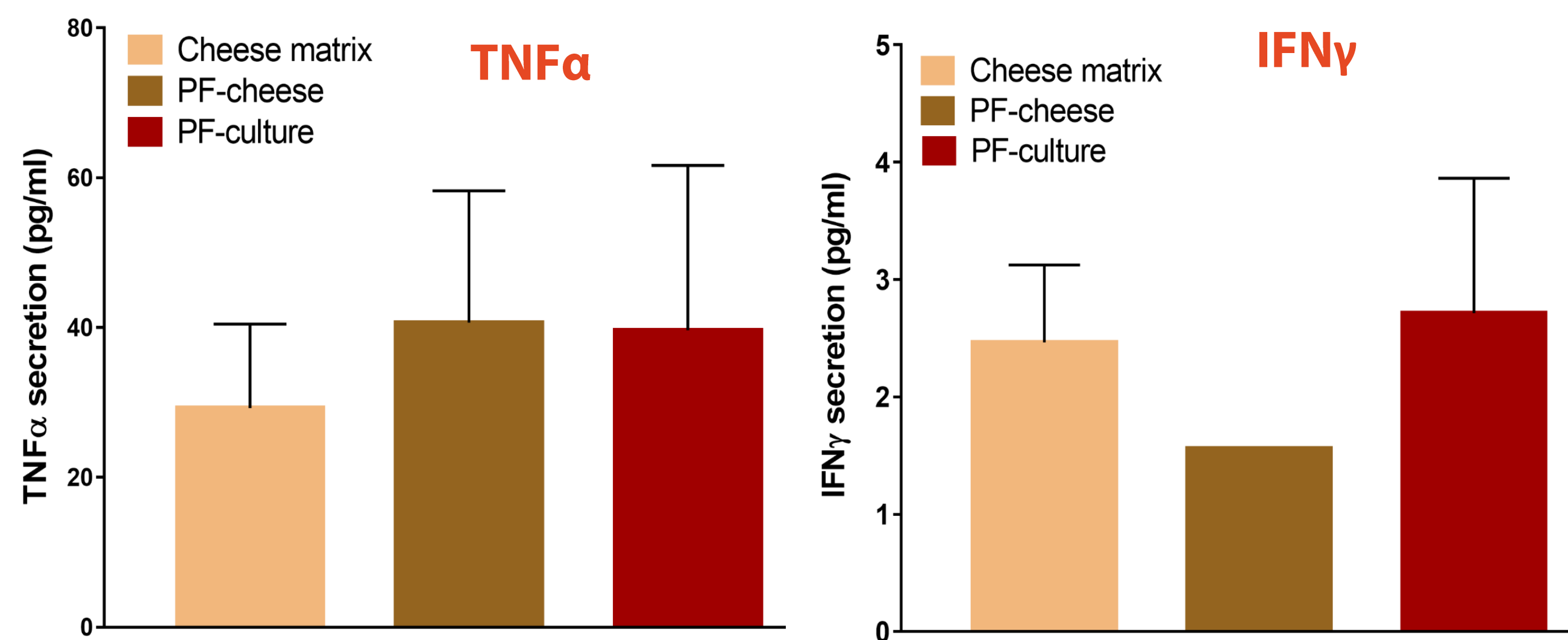
Propionibacterium freudenreichii (PF) is a «2-in-1 bacterium»: it is used as a cheese ripening starter and as a probiotic ingredient. Its promising strain-dependent immunomodulatory properties are due to several metabolites including short chain fatty acids, bifidogenic molecules and surface proteins (Slps). In this study, we investigated the impact of the delivery vehicle on the immunomodulatory effect of *P. freudenreichii* in healthy piglets. We compared two delivery vehicles, milk ultrafiltrate and a cheese matrix, both fermented by a selected anti-inflammatory strain, *P. freudenreichii* CIRM-BIA129 (ITG P20).

EXPERIMENT DESIGN



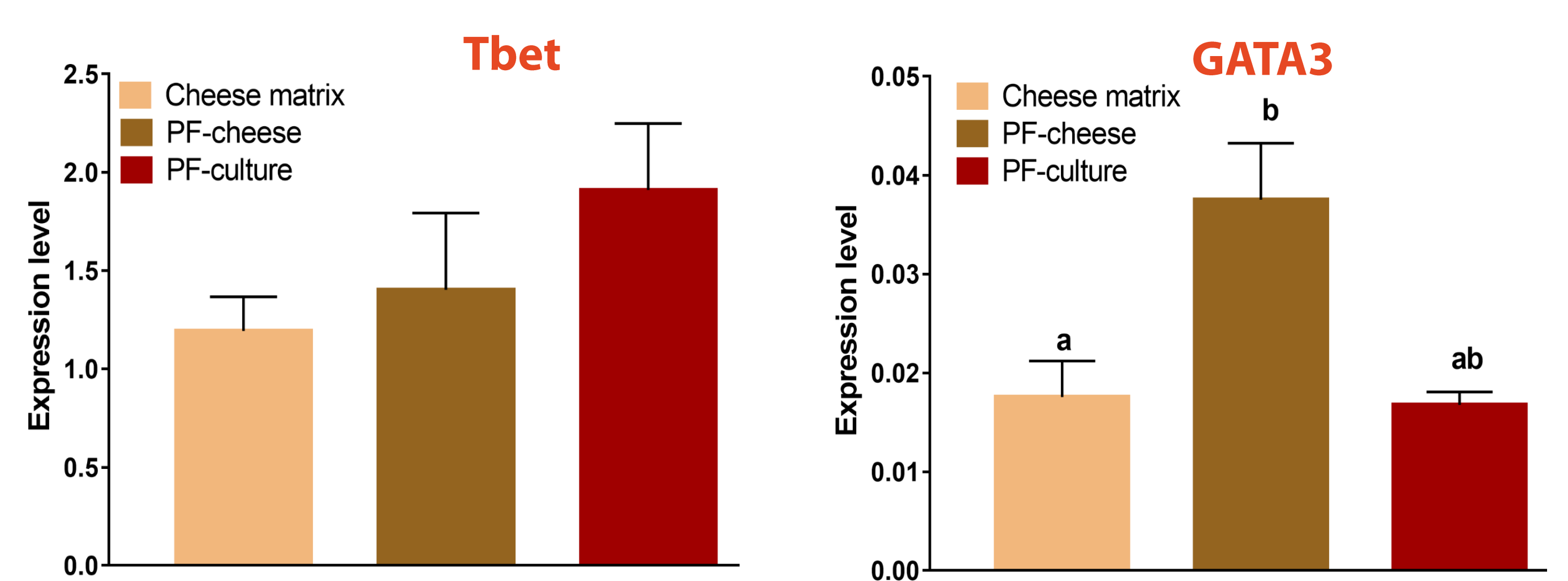
RESULTS

1 PF doesn't modulate the basal secretion of TNF α and IFN γ



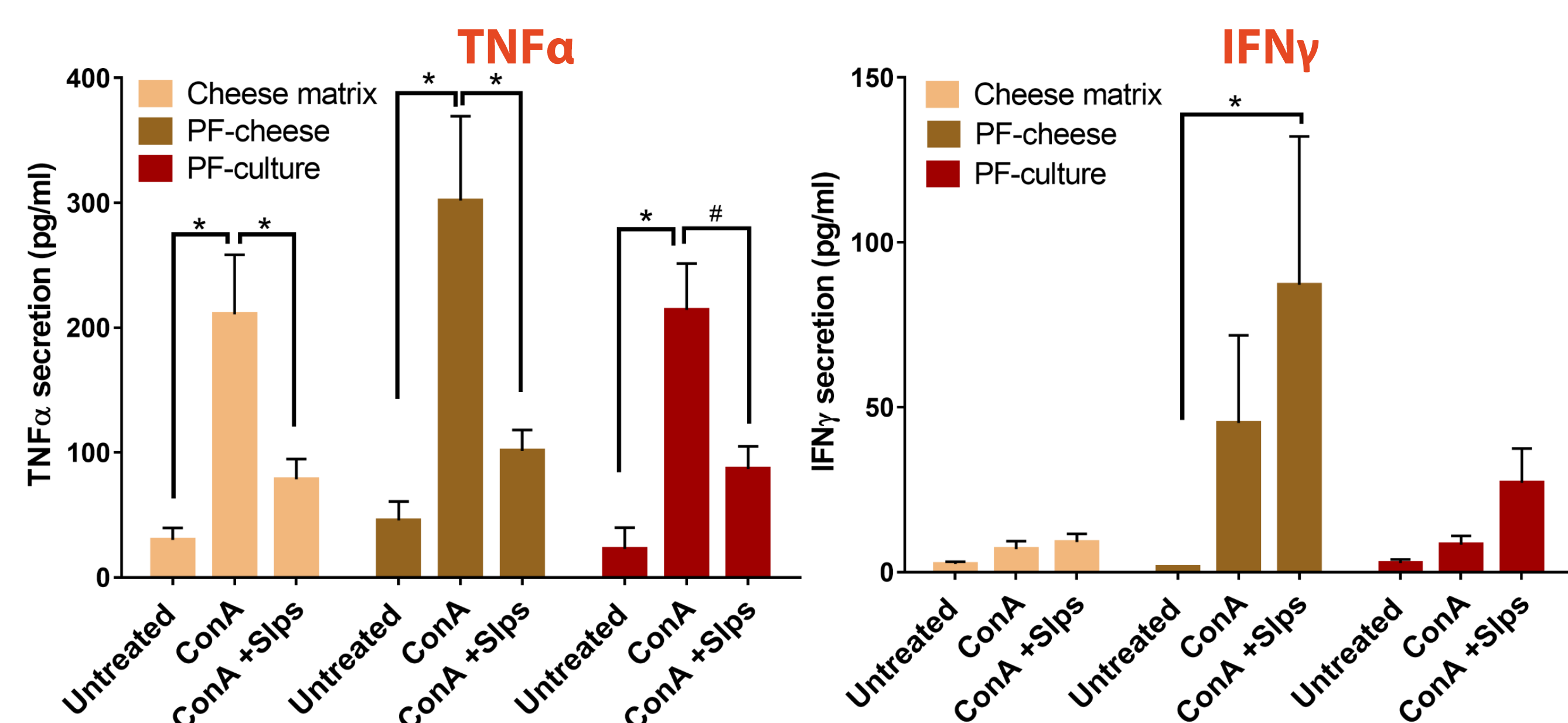
Immunes cells from MLN extracted from the three piglets groups were cultivated during 72h and the basal secretion of TNF α and IFN γ were assessed by ELISA.

2 PF-cheese enhances Th2 response while PF-culture enhances Th1 response



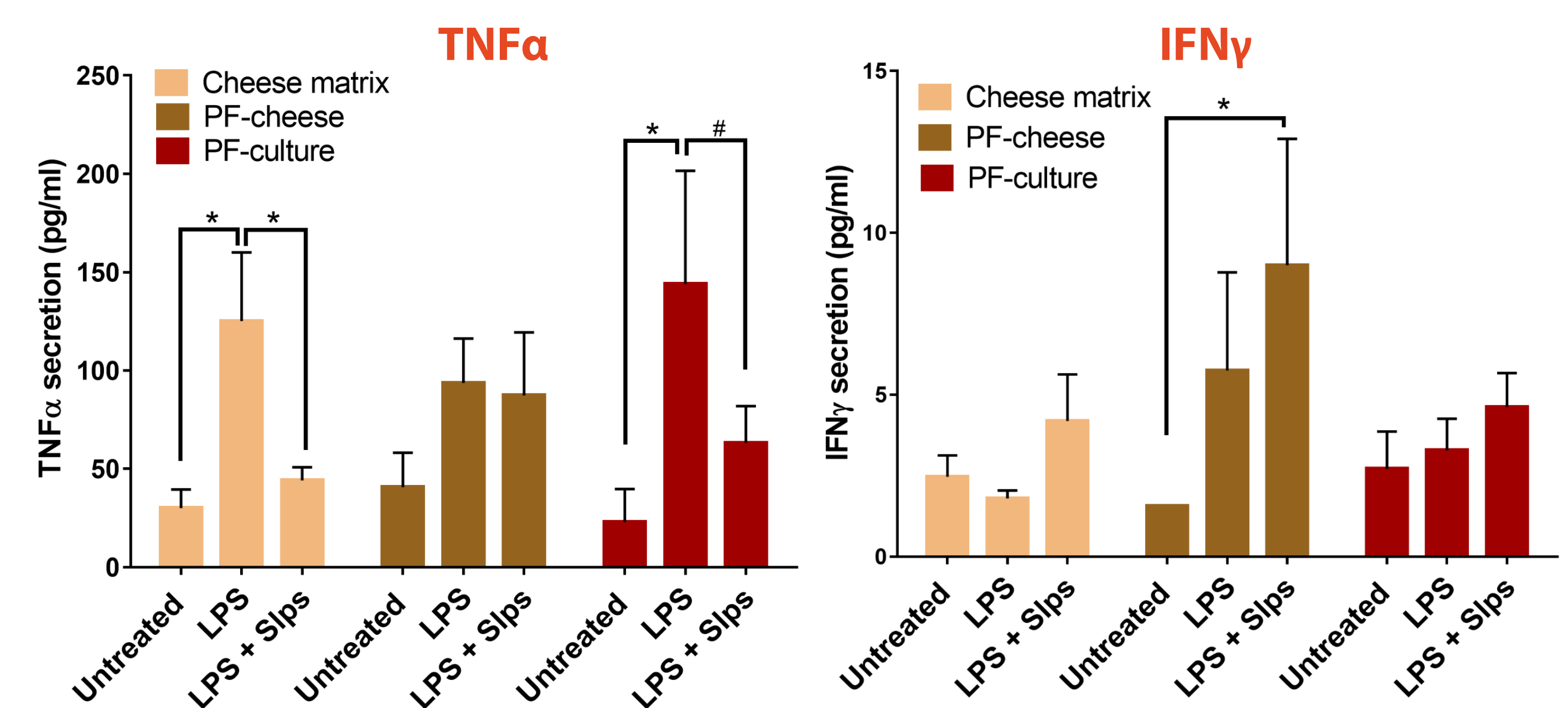
Total mRNA of immune cells from MLN were extracted. The expression level of Tbet and Gata3 were assessed. Tbet and GATA3 are markers of Th1 and Th2 lymphocytes, respectively. Th1/Th2 orientation was determined by calculating Tbet/GATA3 ratio.

3 PF-cheese enhances IFN γ secretion after ConA and Slps co-stimulation



Immunes cells from MLN of the three piglets groups were cultivated and stimulated during 72h, with concanavalin A (ConA) alone or in the presence of Slps proteins. The secretion of TNF α and IFN γ were determined by ELISA.

4 PF-cheese decreases TNF α secretion and enhances IFN γ secretion after LPS and Slps co-stimulation



Immunes cells from MLN of the three piglets groups were cultivated and stimulated during 72h, with lipopolysaccharides (LPS) alone or in the presence of Slps proteins. The secretion of TNF α and IFN γ were determined by ELISA.

CONCLUSION

- 1 The delivery vehicle change Th1/Th2 orientation exerted by PF
- 3 PF-cheese enhances IFN γ response to proinflammatory stimuli: anti-infection effect in the gut

- 2 PF-cheese enhances Th2 response of the gut immunity

- 4 Slps proteins of PF play a role in its anti-infection effect