

Probiotic

P. freudenreichii
CIRM-BIA 129 = ITGP20

Immunomodulatory proteins
(Slps)

Short chain fatty acids
(SCFA)

Bifidogenic factors

**FUNCTIONAL
CHEESE**

The cheese matrix impacts :

Production of
immunomodulatory
metabolites

Protection of Slps
against digestive
proteolysis

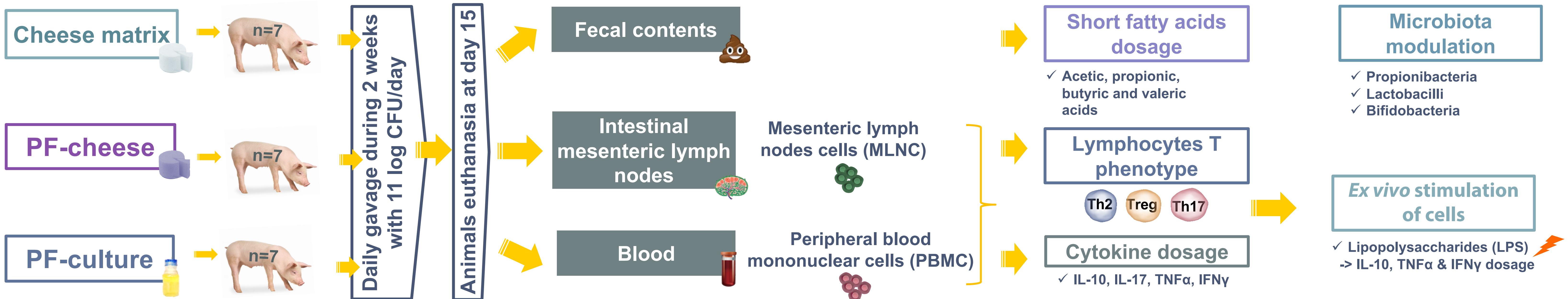
Tolerance to digestive
stresses

Is *P. freudenreichii* (PF)
immunomodulatory effect
impacted by the cheese
matrix?

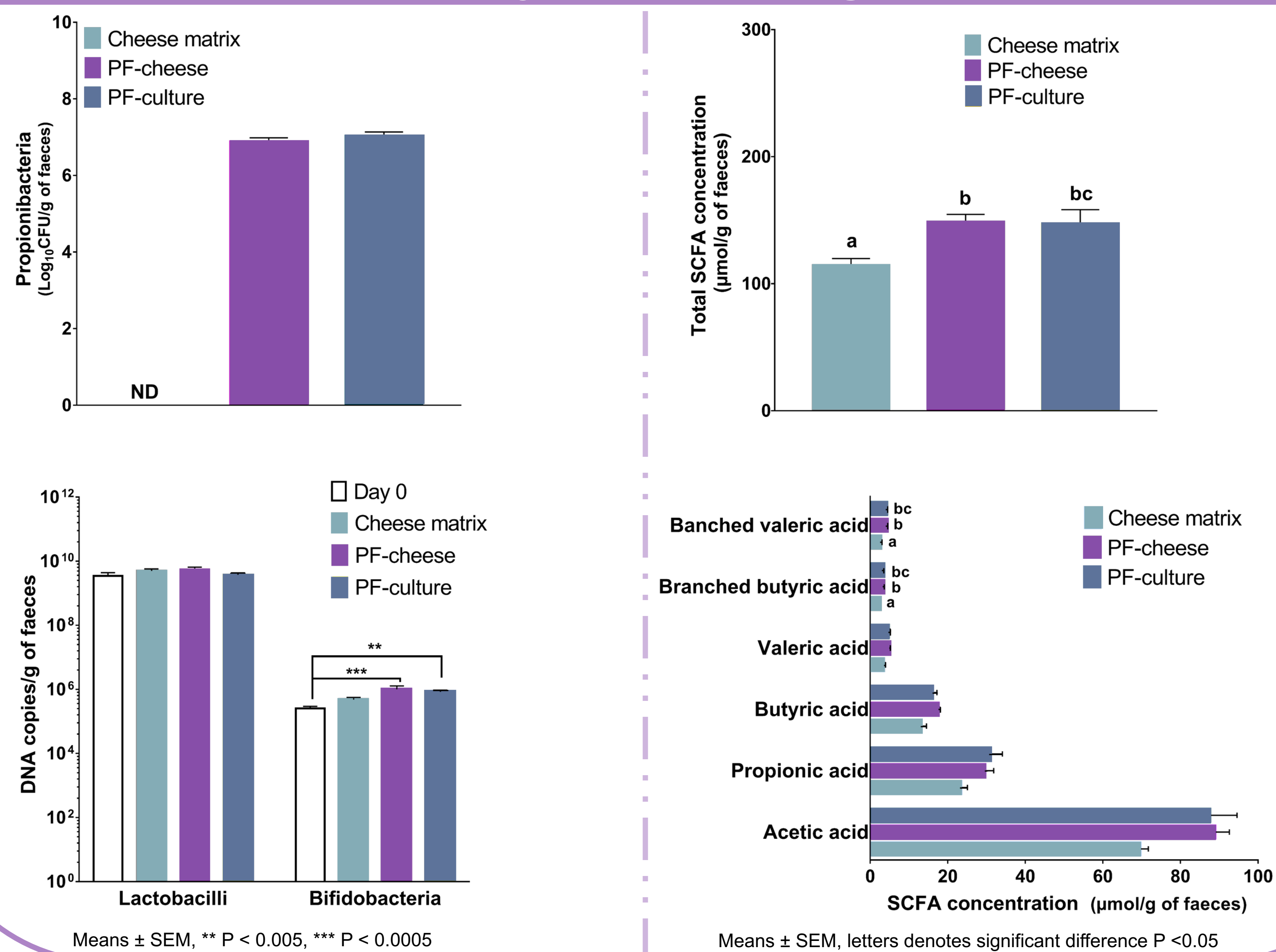
A 2-in-1 Bacterium

**Cheese
starter**

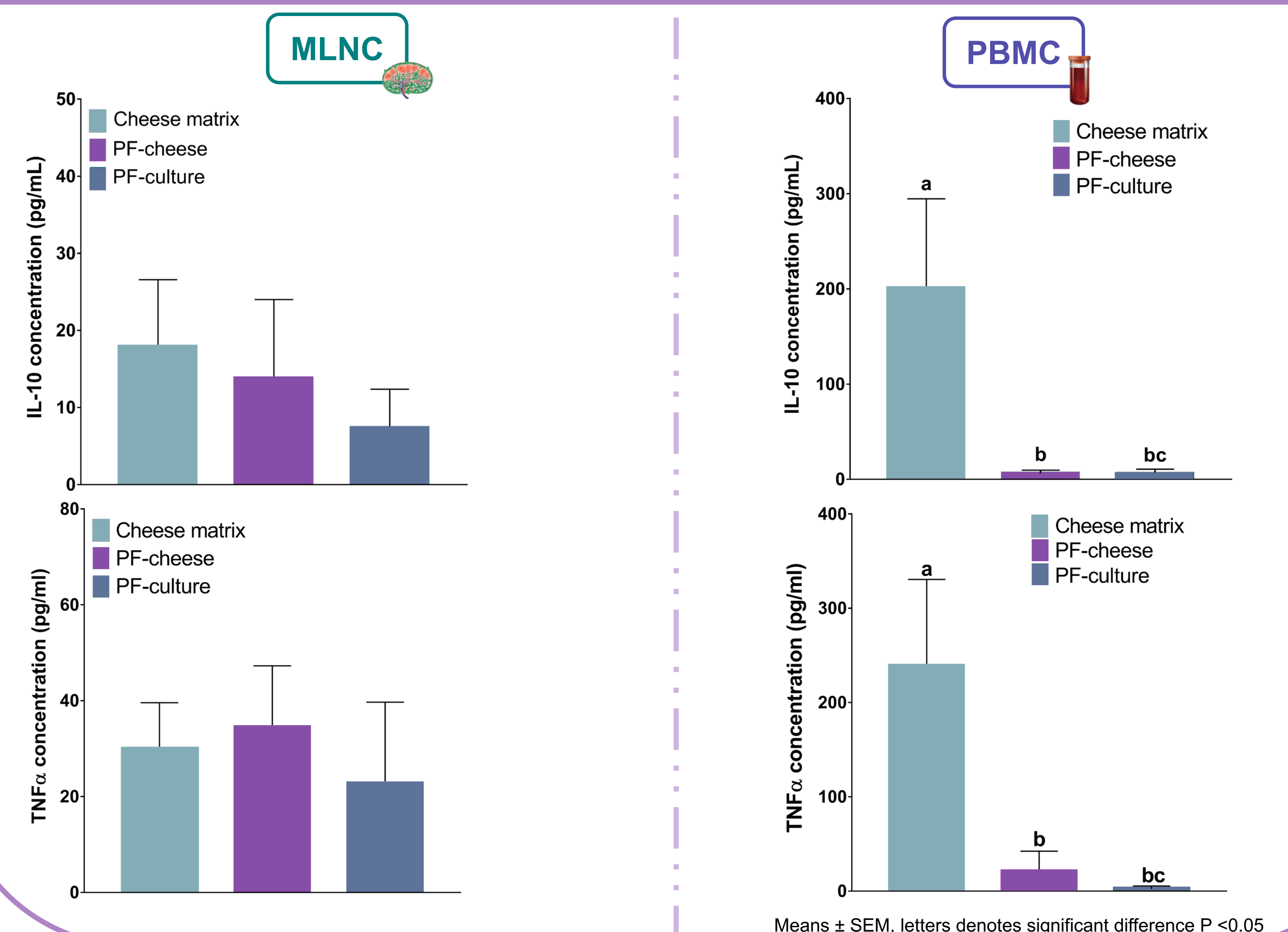
Flavor compounds



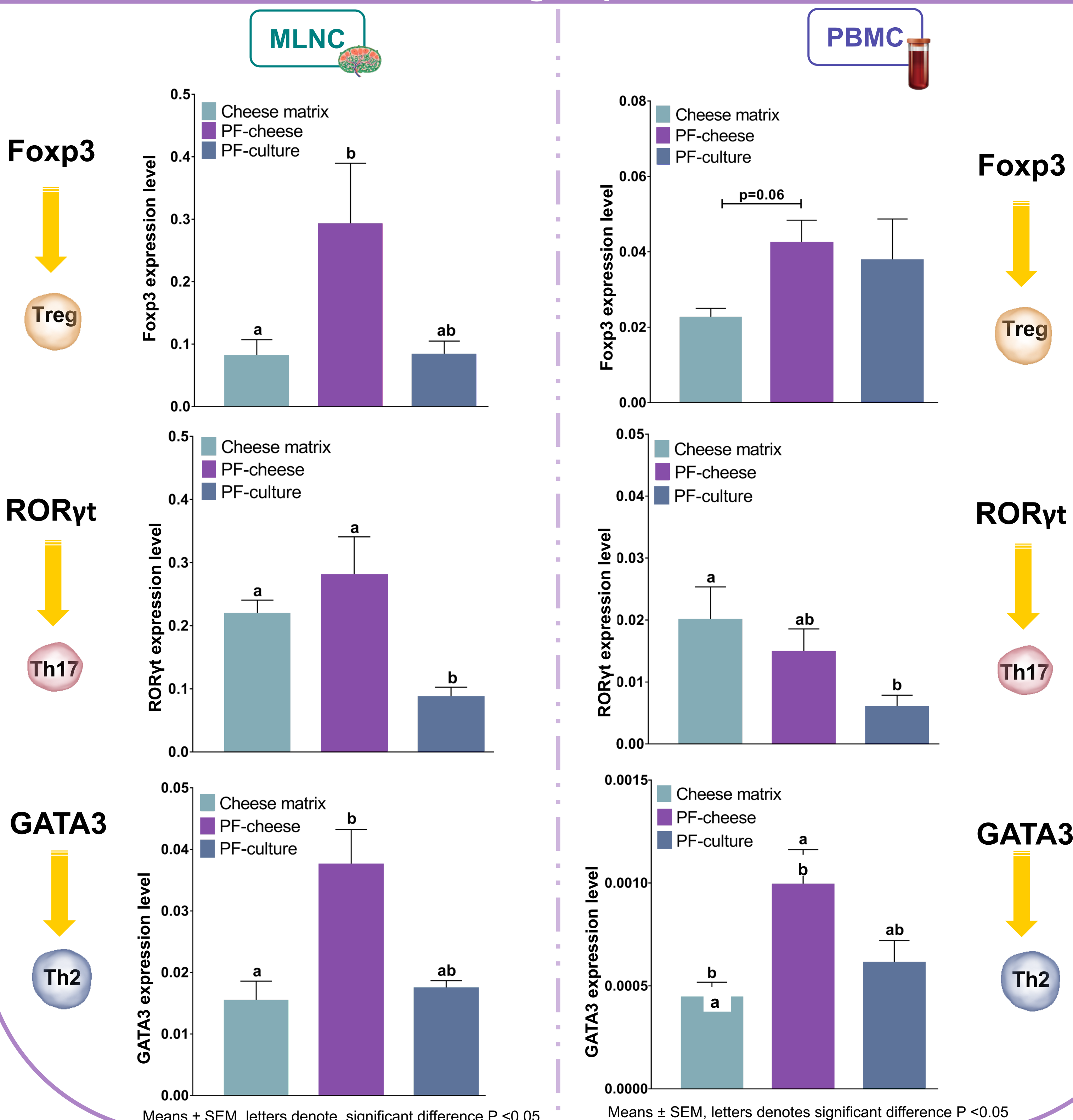
Both PF-culture and PF-cheese delivered the same amount of metabolically active PF in piglets' colon



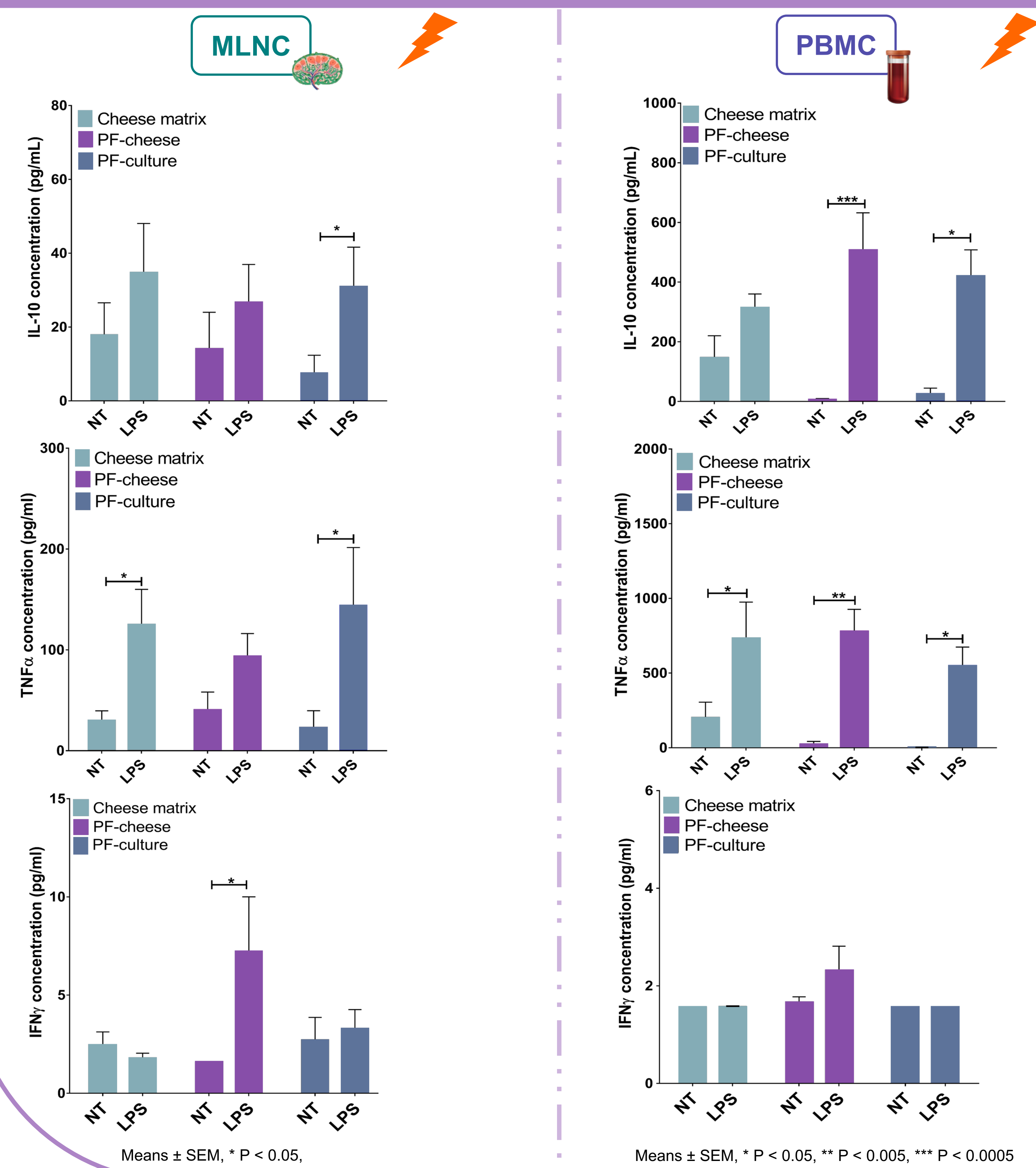
PF ingestion decreased TNFα and IL-10 secretion only in PBMC, whatever the delivery vehicle of PF



PF-cheese enhanced Treg and Th2 populations and PF-culture decreased Th17 population, compared to the control group



Ex vivo response of MLNC to LPS stimulation was different according to the delivery vehicle of PF



The cheese matrix did not enhance the amount of metabolically active PF in piglets colon compared to a bacterial culture. However the functional cheese immunomodulated differently intestinal and systemic immunity compared to PF-culture. We hypothesized this could be due to a difference in surface compounds, such as the immunomodulatory surface layer proteins Slps